



Project name:
V82-1.65MW
1-Speed
690V 50Hz
Standard, Tropical,
Tropical -20 deg. C
& Arctic
MK III

Project no:
Electrical Diagrams

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1	5001178 NMCS Documentation Standard Mat. no.: None
2	6015743 Plant Outline Mat. no.: None
3	6016279 Single Line Diagram Mat. no.: None
4	6016281 Emergency Line Diagram Mat. no.: None
5	6012514 Main Panel +AT1 Mat. no.: 60096208
6	6012290 Control Panel +AT2 Mat. no.: 60096681
7	Options for Control Panel +AT2 Arctic Comp.: 60097145 Service Lift: 60097149
8	Communication Options for Control Panel +AT2 Modem: 60019676 CSL10: 60092032
9	Communication Options for Control Panel +AT2 Ethernet Single Mode: 60105817 Ethernet Multi Mode: 60105816
10	6011999 PFC Panel +AT3, No Load Mat. no.: 60097570
11	6012008 PFC Panel +AT3, add on Full Load Mat. no.: 60097568
12	6015882 PFC Panel +AT3, add on to 1000 kVar Mat. no.: 60108814
13	961648 UPS Panel 3kVA 230V 50/60Hz Mat. no.: 765191
14	6013202 Junction Box +AN6 Mat. no.: 60097529
15	934386 Top Panel +AN1 Mat. no.: 60108741
16	6010125 Operation Box +AN2 Mat. no.: 60112234
17	6015969 Motor Box +AN4 Item no.: 60109799
18	6016280 Transformer Box +AN6, Arctic Option Item no.: 097930
19	6015813 Junction Box +AN11 Item no.: 60108019
20	6015816 Junction Box +AN12 Item no.: 60108020
21	6015817 Junction Box +AN13 Item no.: 60108021
22	6015818 Junction Box +AN14 Item no.: 60108022
23	6012661 Nacelle Heater 2x10 kW Mat. no.: 60019632
24	6015908 Hub Computer Panel +AK4 Mat. no.: 60110471 CEE Mat. no.: 60110472 AUS
25	6010129 Hub Hatch Override Pendant Mat. no.: 60104917
26	6010130 Control Pendant Mat. no.: 60112243
27	1000827 Table of Tightening Torques Mat. no.: None
28	934391 Condition Monitoring System Item no.: None
29	
30	
31	



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Turbine Type

Main Overview Electrical Diagrams

**V82-1.65MW
1-Speed
690V 50Hz**

**Standard, Tropical, Tropical-20 deg. C & Arctic
MK III**

Rev.	Date	Uploaded	Designed/ Changed by	Approved
01	02.06.2005	INI	FLT	FLT
02	11.07.2005	INI	FLT	FLT
03	25.08.2005	INI	FLT	FLT
04	06.02.2006	INI	FLT	FLT
05	23.08.2006	INI	FLT	FLT
06	26.10.2006	INI	FLT	FLT
07	09.01.2007	INI	FLT	FLT
08	13.03.2007	INI	FLT	FLT
09	05.05.2007	INI	FLT	FLT
10	25.03.2009	INI	BIVA	FLT

Drawings involved

Document No.:	Text:	Version Date:	Version No.:
5001178	Documentation Standard	13.10.2003	01
6015743	Plant Outline	13.12.2006	03
6016279	Single Line Diagram	13.12.2006	01
6016281	Emergency Line Diagram	26.10.2005	01
6012514	Main Panel +AT1	13.12.2006	08
6012290	Control Panel +AT2	13.12.2006	13
6011999	PFC Panel +AT3 No Load	26.10.2006	04
6012008	PFC Panel +AT3 add on for Full Load	26.10.2006	05
6015882	PFC Panel +AT3, 1000kVAr	26.10.2006	01
961648	UPS Panel 3kVA 230V 50/60Hz	23.01.2007	0
10000023	Operation Instruction f. UPS Panel	10.02.2004	01
6013202	Junction Box +AT6	04.10.2004.	01
934386	Top Panel +AN1	03.01.2007	02
6010125	Operation Box +AN2	13.12.2007	04
6015969	Motor Box +AN4	23.08.2005	03
6016280	Transformer Box +AN6, Arctic Option	11.05.2005	00
6015813	Junction Box +AN11	23.08.2005	02
6015816	Junction Box +AN12	14.12.2007	04
6015817	Junction Box +AN13	21.02.2005	01
6015818	Junction Box +AN14	18.05.2005	02
6012661	Arctic Nacelle Heater	02.06.2005	02
6015908	Hub Computer Panel +AK4	17.12.2008	05
6010129	Hub Hatch Override Pendant	03.04.2007	07
6010130	Control Pendant	03.05.2003	03
1000827	Table of Tightening Torques	19.04.2006	04
934391	Condition Monitoring System	21.06.2006	0

Parts lists involved (if they are found necessary to have in the book)

Document No.:	Text:	Version Date:	Version No.:
60096208	Main Panel +AT1	03.04.2007	11
60096681	Control Panel +AT2	03.04.2007	11
60097145	Arctic Comp. f. Control Panel +AT2	02.10.2003	01
60097149	Kit for Service Lift	04.10.2003	01
60017352	Kit for Modem 600mm Panel	11.10.2007	06
60092032	Kit for CSL110, 600mm Panel	29.06.2006	04
60105817	Moxa-SM, Eth Kit w. Man. w. N-Port, WTG	24.04.2007	05
60105816	Moxa-MM, Eth.Kit w. Man. w. N-Port, WTG	28.08.2007	04
60096112	PFC Panel +AT3 No Load	26.10.2006	08
60097541	PFC Panel +AT3 add on for Full Load	17.04.2007	09
60016660	PFC Module 50kVAr	23.08.2006	04
60108815	PFC Panel +AT3, 1000kVAr	06.07.2005	02
765191	UPS Panel 3kVA 230V 50/60Hz	02.04.2007	02
60097265	Junction Box +AT6	10.03.2005	03
60108741	Top Panel +AN1	23.04.2007	01
60112234	Operation Box +AN2	18.04.2007	03
60109799	Motor Box +AN4	18.04.2007	04
097930	Transformer Box +AN6, Arctic Option	21.01.2008	02
60108019	Junction Box +AN11	18.04.2007	03
60108020	Junction Box +AN12	19.04.2007	03
60108021	Junction Box +AN13	26.06.2007	05
60108022	Junction Box +AN14	03.04.2007	03
60016183	Arctic Nacelle Heater	17.11.2006	02
60110471	Hub Computer Panel +AK4 CEE	17.12.2008	05
60110472	Hub Computer Panel +AK4 AUS	17.12.2008	03
60022842	Cables for Hub Computer Panel +AK4	27.04.2005	03
60019750	Measuring Kit for Hub Computer Panel +AK4	27.02.2005	02
60112243	Hub Hatch Override Pendant	03.04.2007	06
60015995	Control Pendant	11.05.2007	06

Documentation standard

Panel system:

The Panel is built according to EN 60204-1, 2 edition (Safety of machinery. Electrical equipment of machines. General requirements)

EN 60439-1 Low-voltage switchgear and control gear assemblies - Part 1: Type-tested and partially type-tested assemblies.

Colour code for internal Wires

Identification of conductors in panels, has been carried out with reference to below definition:

Definition:

The identification is done by means of colour and numbering of the conductors according to EN 60204-1.

The terminal number to which it is connected mark the wire. This means that the wire will not wear the same number in both ends.

Example:

If a component is marked with F1 and have a terminal no. 2, then will the wire, which is mounted in this terminal, be marked with F1.2.

The above definition meets the demands for enabling identification of each conductor at each terminal.

In the table shown below, the two terms "Power Circuit" and "Control Circuit" are to be distinguished.

By "Power Circuits" is meant all wires connected to a control voltage transformer or a Switch Mode Power Supply. On the secondary side of a voltage transformer and a Switch Mode Power Supply, both of which are used for control voltage, the wires going from the secondary outputs to the first protection or terminal are defined as power circuits. Apart from these, all other wires are control circuits. For an illustration of this, please see appendix 1.

In conclusion, the following wire colours have been utilized:

Power Circuit:

AC	Neutral conductor	Light Blue (Ral 5012)
	Phase conductor	Black
PE	Protective conductor	Green / Yellow

DC	+	Black
	-	Black
PE	Protective conductor	Green / Yellow

Control Circuits:

AC	Phase conductor	Red
	Control conductor	Violet
	Neutral conductor	Light blue

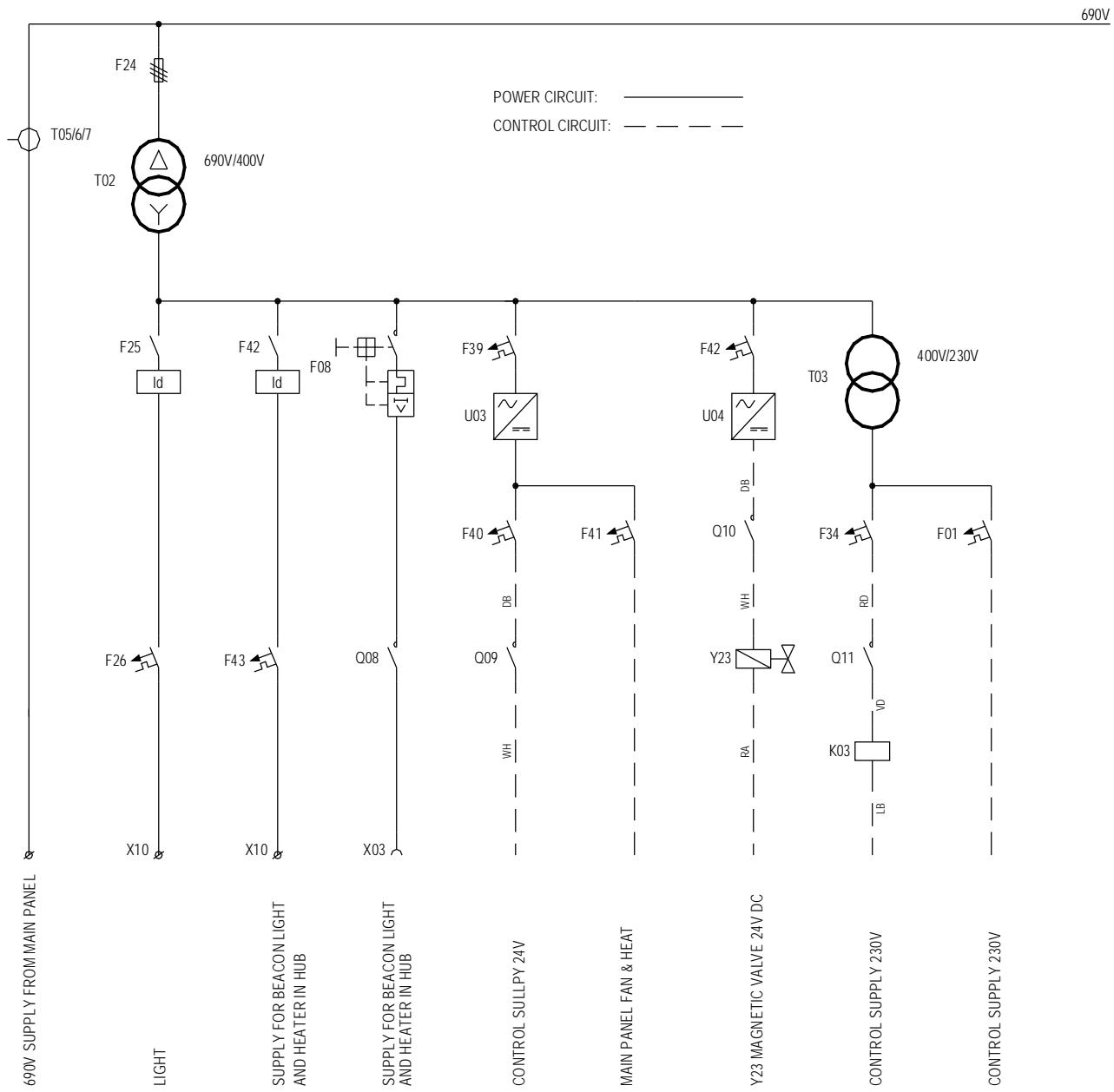
DC	Phase conductor	Dark Blue (Ral 5010)
	Control conductor	White
	Neutral conductor	Rosa (Ral 3015)

PE	Protective conductor	Green / Yellow
Any Cabling which remain live with isolator off		Orange

**The colour codes of the conductors in the Diagrams are in accordance with the IEC 757 norm.
Please refer to the table below:**

Black	BK	Rosa	RA
Brown	BN	Gold	GD
Red	RD	Cyan	TQ
Orange	OG	Silver	SR
Yellow (UL)	YE	Green/Yellow	GNYE
Green (UL)	GN	Beige	BE
Light Blue	LB	Grey	GY
Dark Blue	DB	White	WH
Violet	VT		

Appendix 1.



Change Info

<u>Item no.</u>	<u>Item text:</u>
None	Plant Outline, V82-1.65MW 1-Speed MRK III

Active revision for production

Drawing no.: 6015743

Version	Date	Init./App.	Description of change since last revision
03	13.12.2006	INI/SLB	Changed with ECO 219510_ Grid++ and PCS Converter OPTION removed. Page 030: +AT3, connection for OPTION removed. +AT2, W356 & W365 removed. Page 032: Dynamic power factor correction OPTION PCS converter, page removed.

LST no.: None

Version	Date	Init./App.	Material BOM no.: None	Description of change since last revision
xx	dd.mm.yyyy	xxx/		Write the change

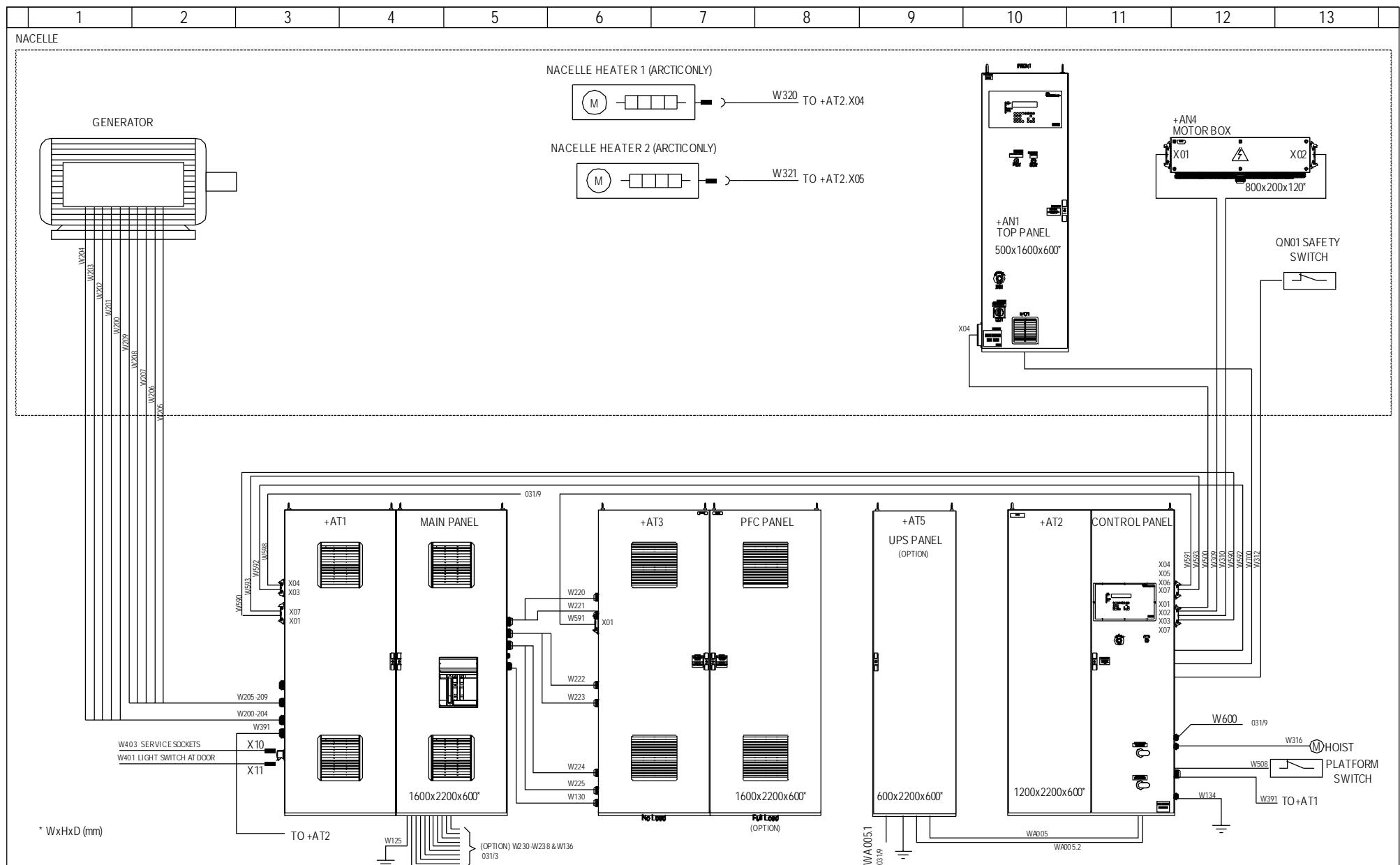
Old revisions for service

Drawing no.: 6015743

Version	Date	Init./App.	Description of change since last revision
02	03.02.2006	INI/SLB	Correction of PCS Converter to as build on site. Page 001: Updated Page 030: W624 removed. Page 032: W628 connection to +AT7 removed and added to =BA +1S1, W629 text "OPTION" added to Flow Switch. ALSTOM service cable add. W624 Spare for remote monitoring removed.
01	05.07.2005	INI/FLT	Implementation of PCS Converter Page 001: Updated Page 030: References added to W598 and (OPTION) W230-W238 & W136 Cable WA005.1, W624, W355, W356 and OPTION cable from PFC Panel added. Page 031: Cable WA005.1added. Page 032: New page added. Page 040, 050 and 060: Layout updated. Page 045: Cable ID W348 and W625 added.
00	16.11.2004	FLT/FLT	First version

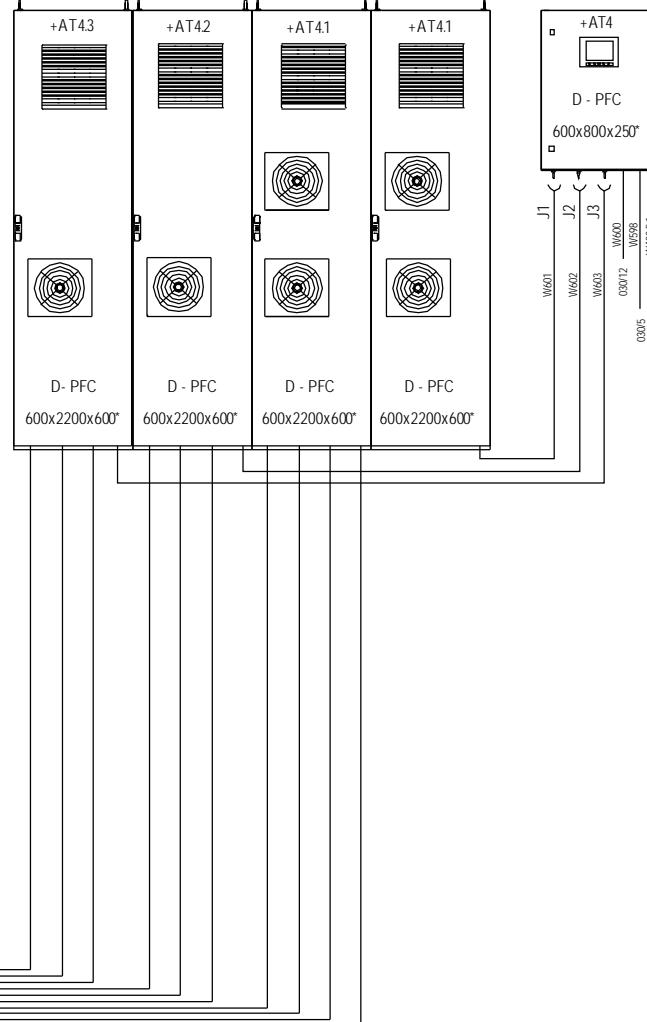
LST no.: xxxxxxxx

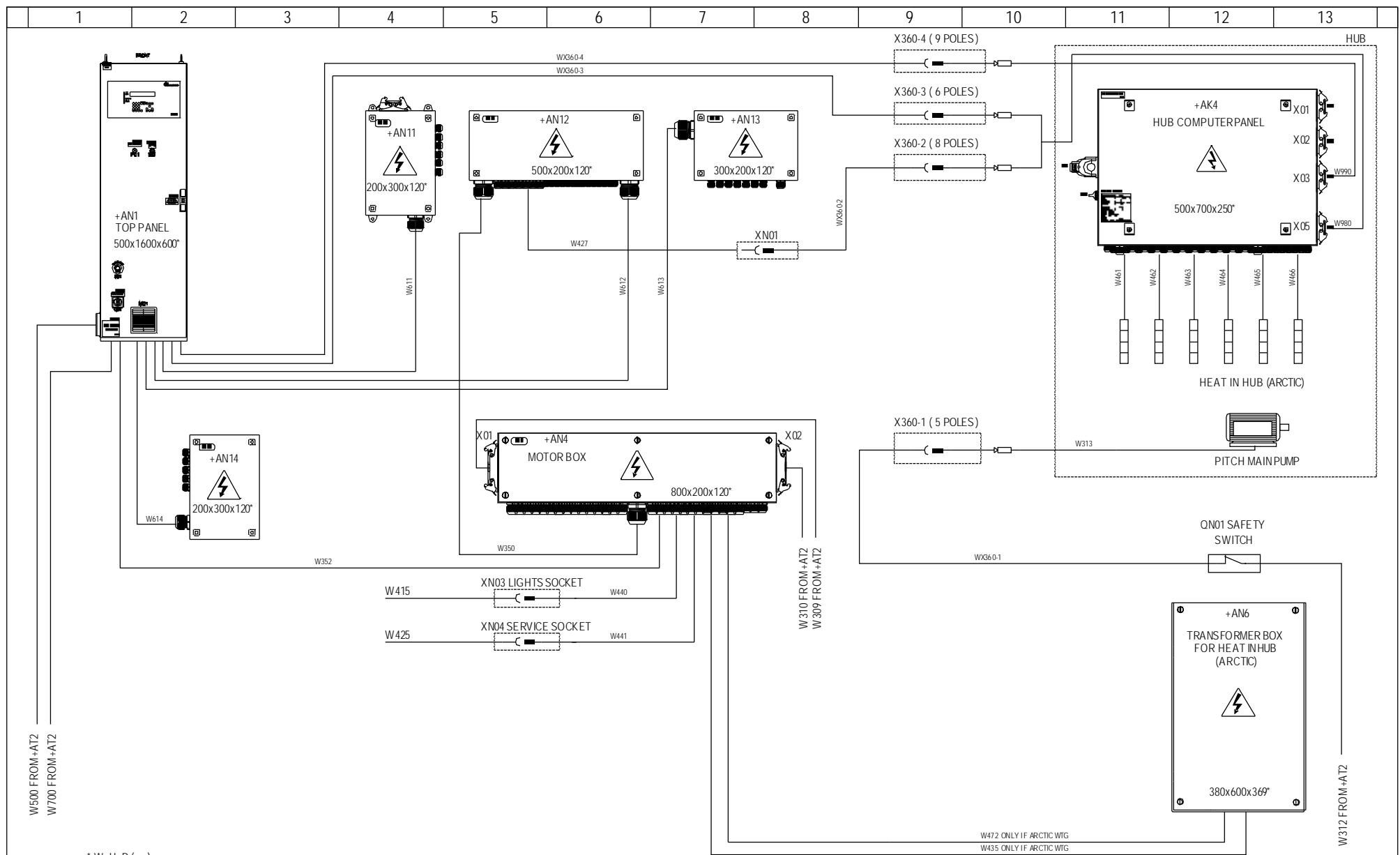
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xx	dd.mm.yyyy	xxx/		Write the change



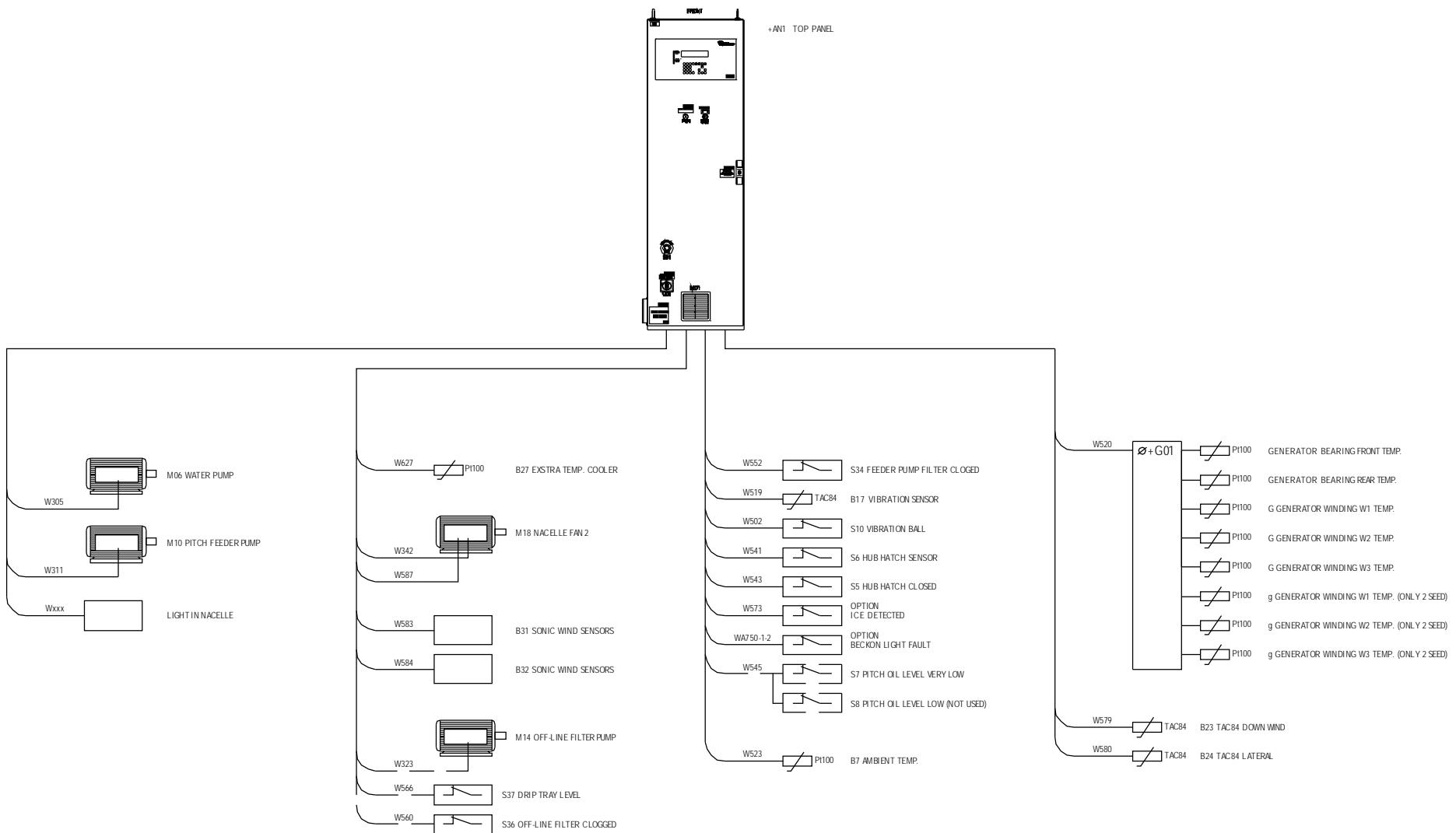
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DYNAMIC POWER FACTOR CORRECTION OPTION

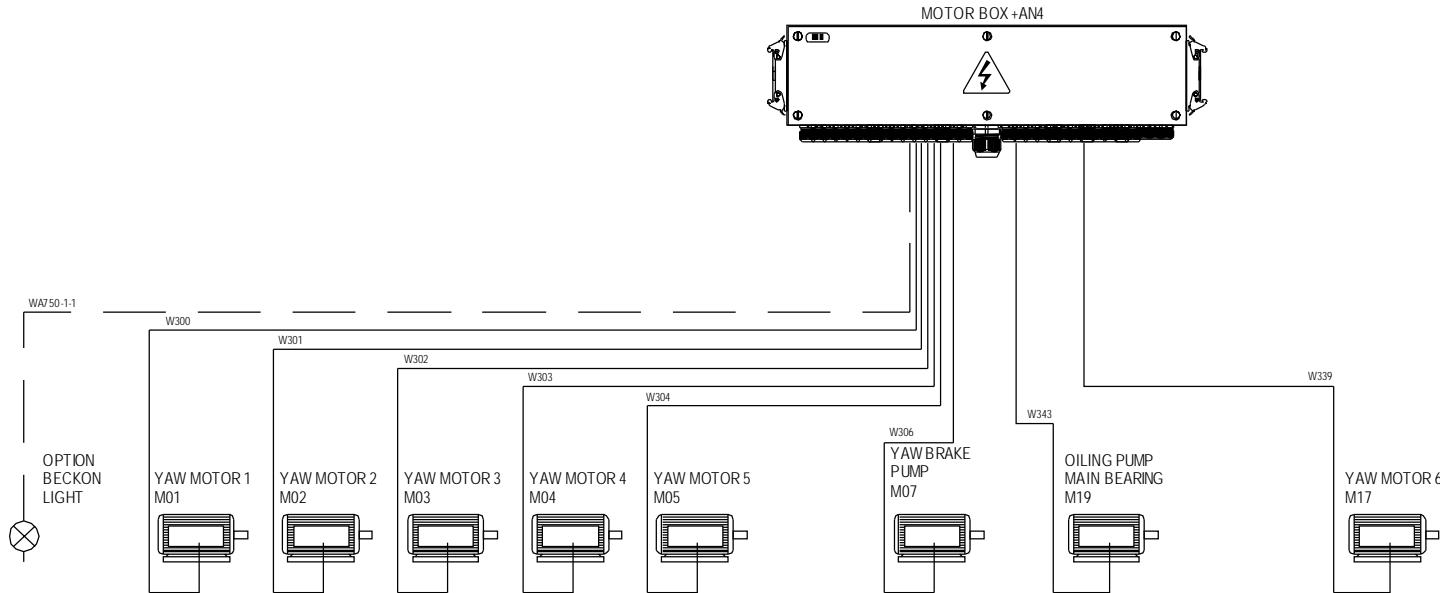




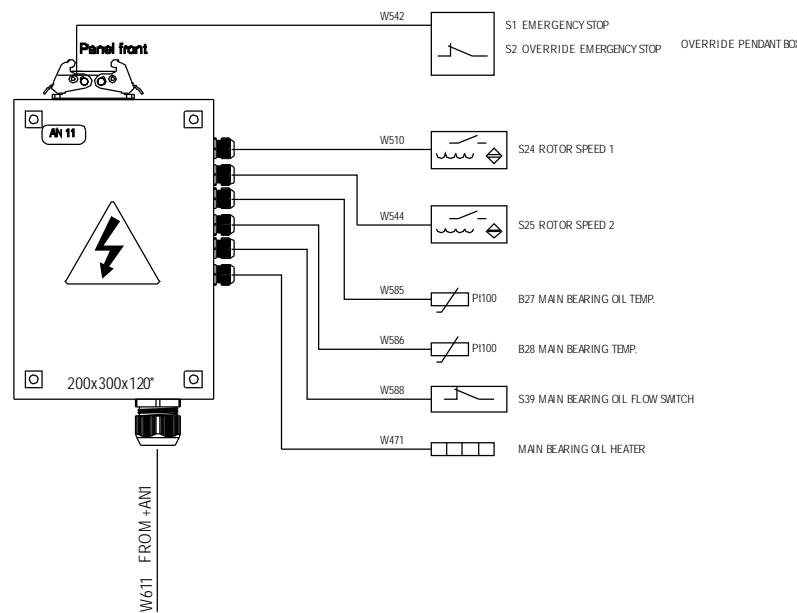
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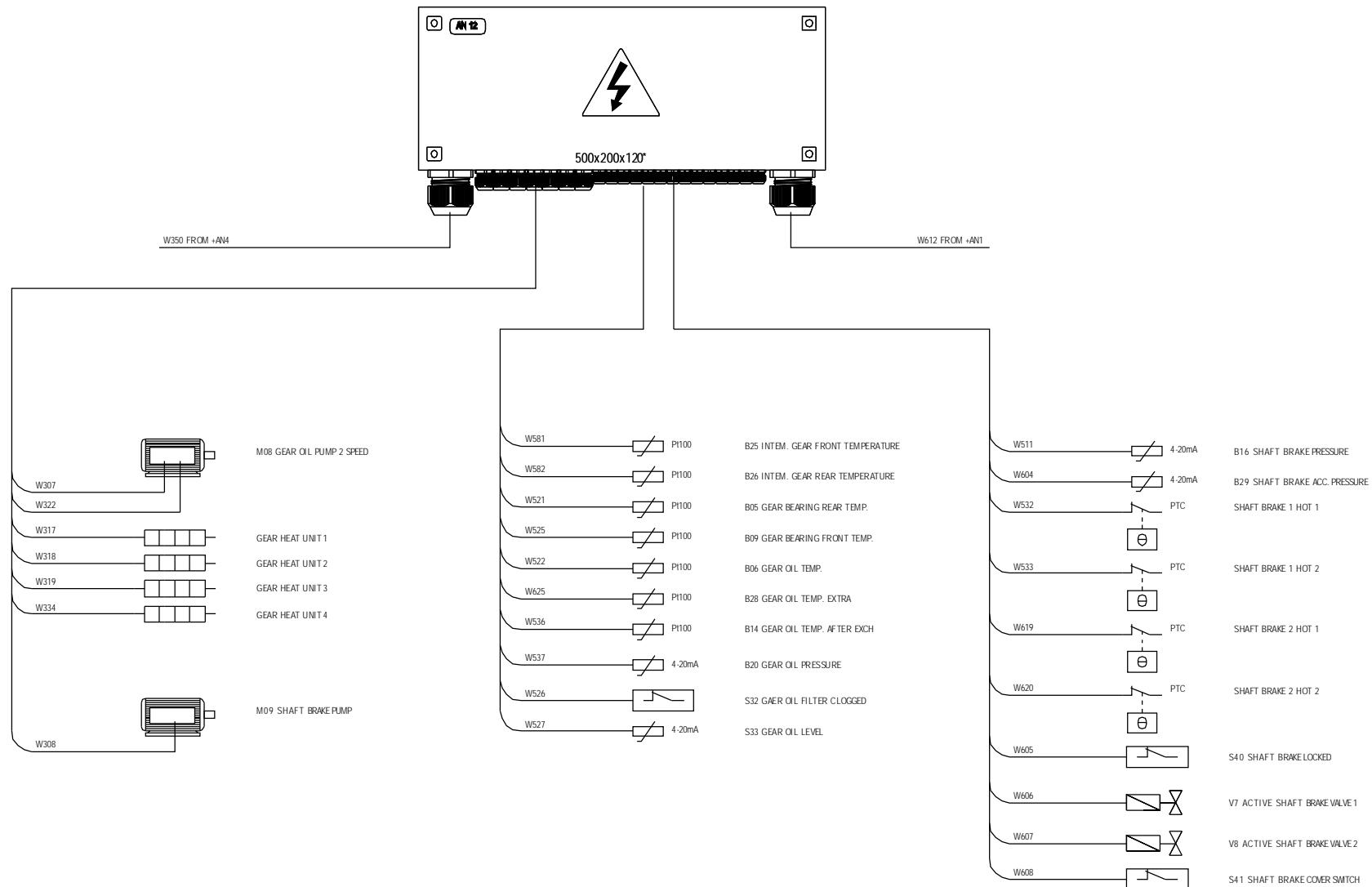
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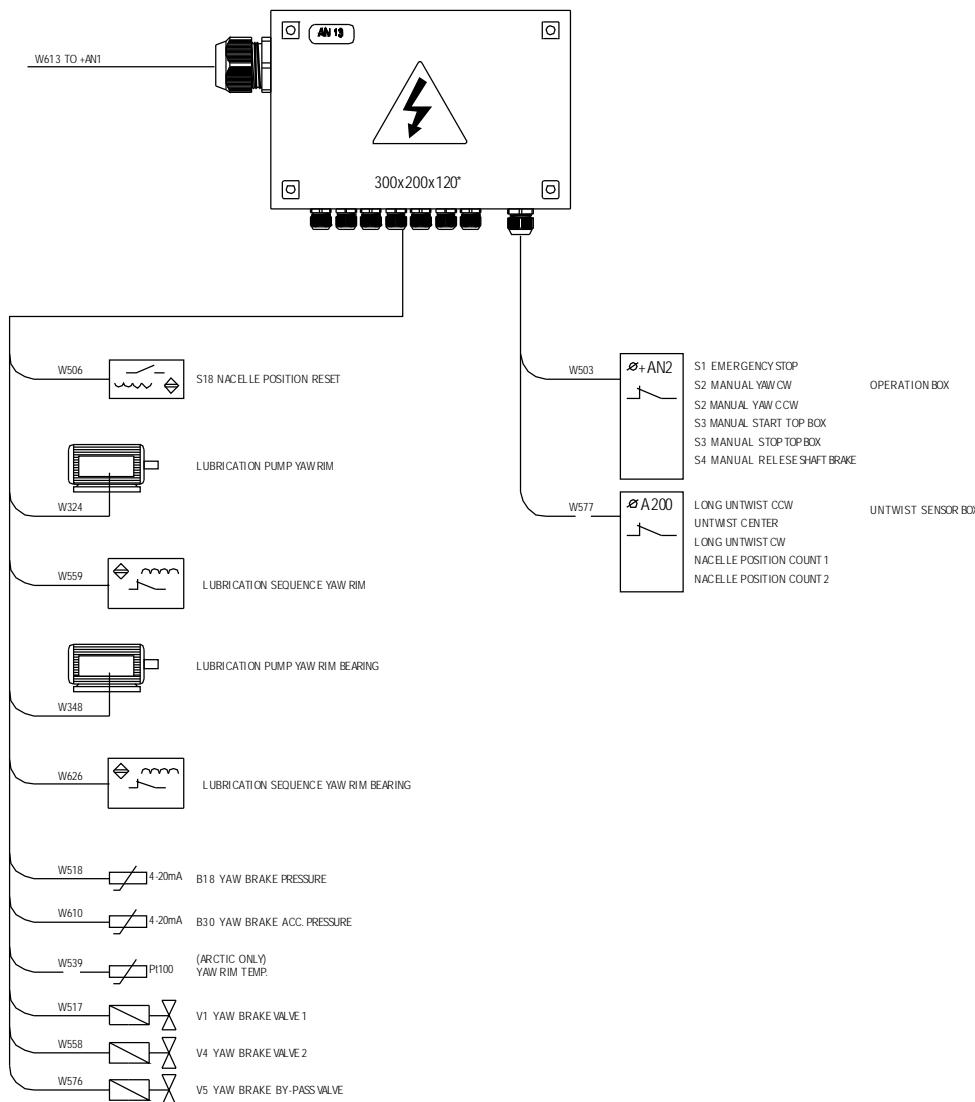
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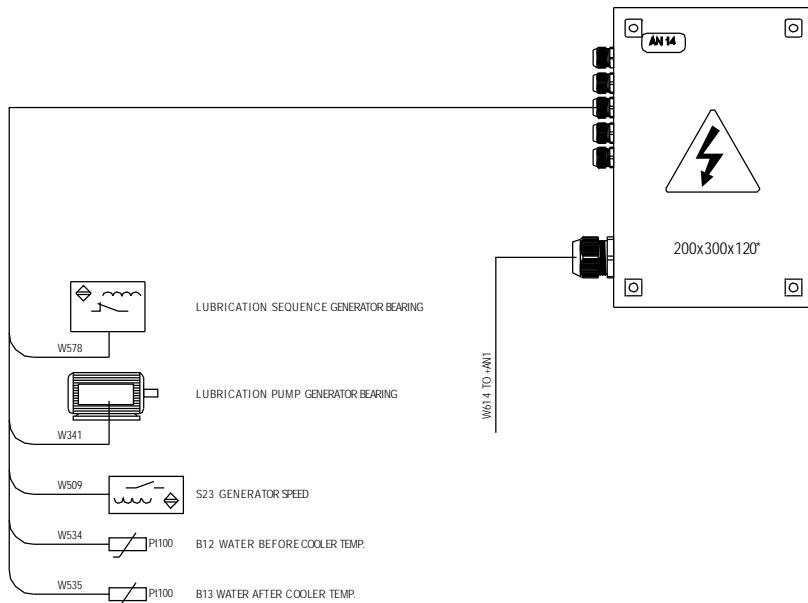
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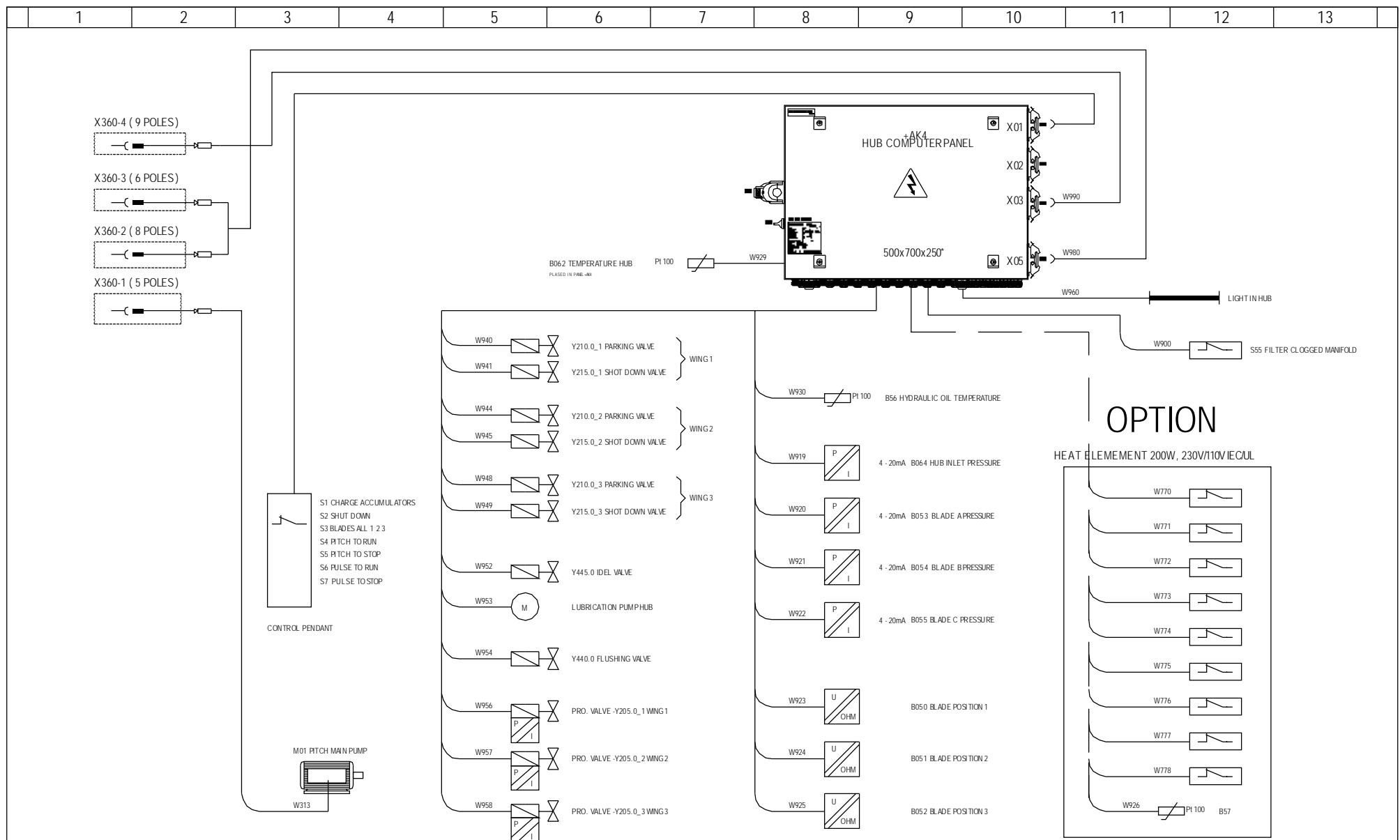


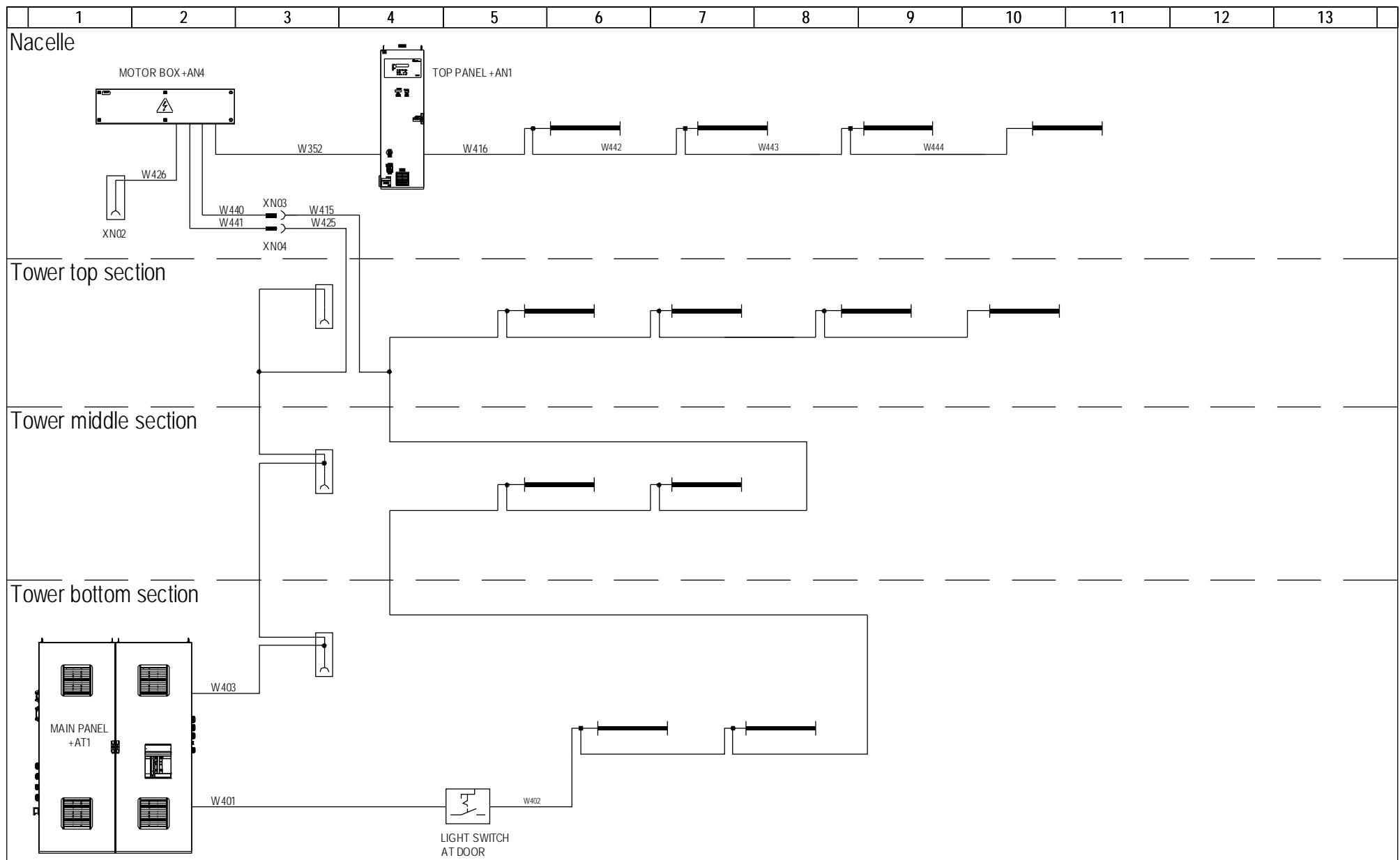
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	Date	Initials	Function	Light and Service Sockets		
Designed	041116	FLT	Project title	Plant Outline NM72 1-Speed & NM82 1-Speed 690V 50Hz MKIII		
Approved	050705	FLT	Comments	Customer		
Revised	050705	INI	Rev.	Drawing no.	6015743	Cont. sheet

Change Info

<i>Item no.</i>	<i>Item text:</i>
None	Single Line Diagram, V82-1.65MW 690V 50Hz AS 1-Speed MRK III

Active revision for production

Drawing no.: 6016279

Version	Date	Init./App.	Description of change since last revision
01	13.12.2006	INI/SLB	Changed with ECO 219510_ Grid++ and PCS Converter OPTION removed. Page 011: Text to +AT4.1, -2 and +AT4.3 changed, "+1S1" & "or PCS converter =BA+1S1" removed. Page 023: PCS converter =BA+1S1 OPTION", page removed.

LST no.: None

Version	Date	Init./App.	Material BOM no.: None	Description of change since last revision
xx	dd.mm.yyyy	xxx/		Write the change

Old revisions for service

Drawing no.: 6016279

Version	Date	Init./App.	Description of change since last revision
00	11.05.2005	FLT/FLT	First version

LST no.: xxxxxxxx

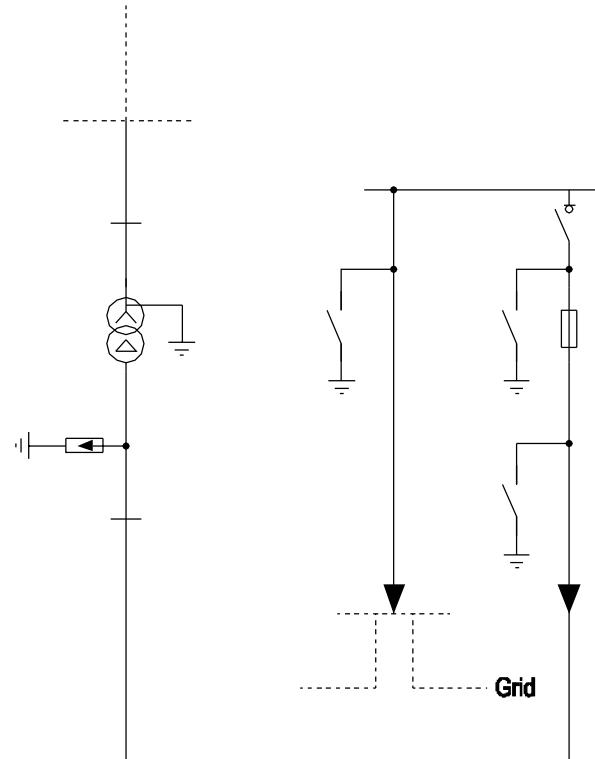
Version	Date	Init./App.	Material BOM no.: xxxxxxxx	Description of change since last revision
xx	dd.mm.yyyy	xxx/		Write the change



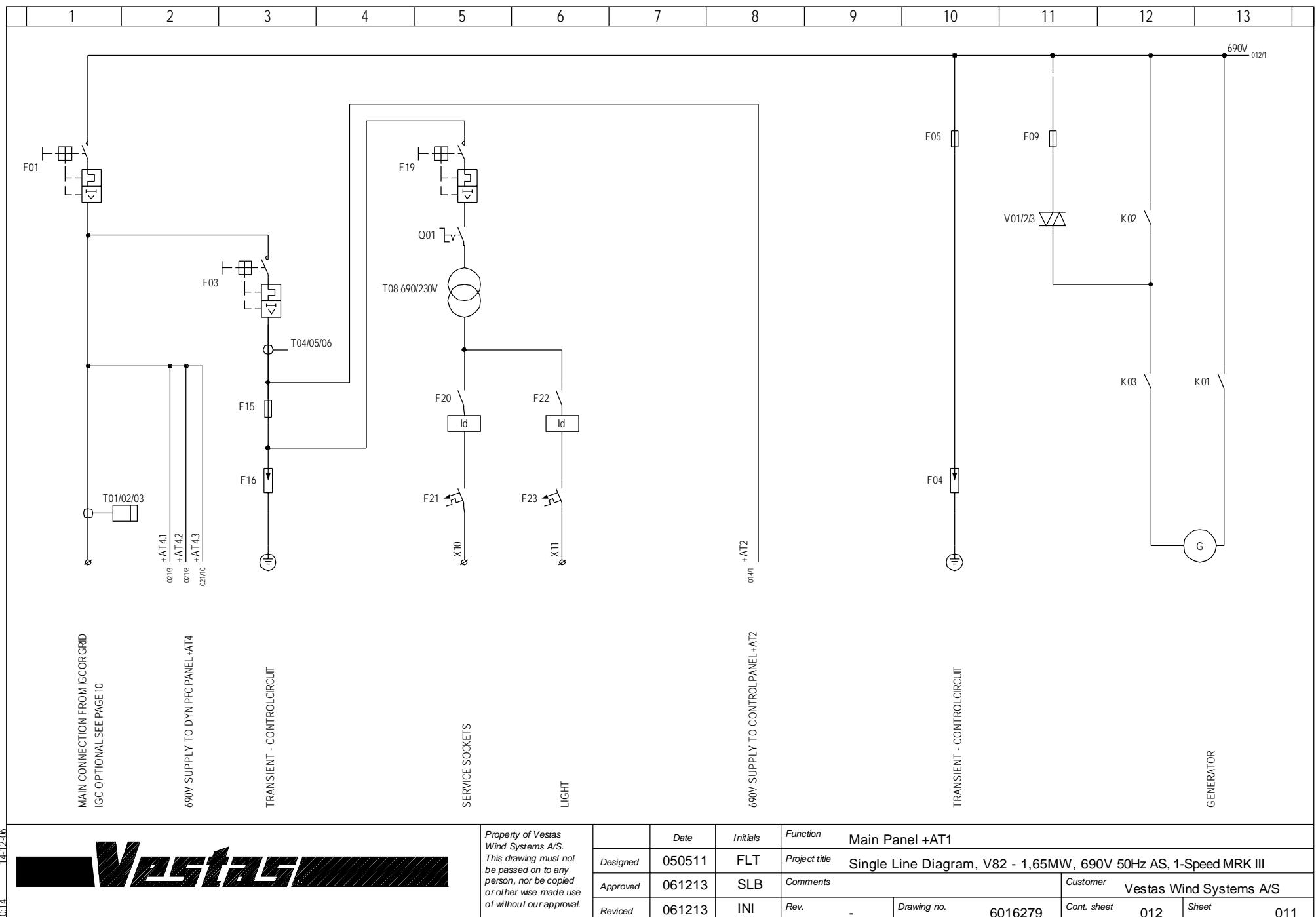
*Property of Vestas
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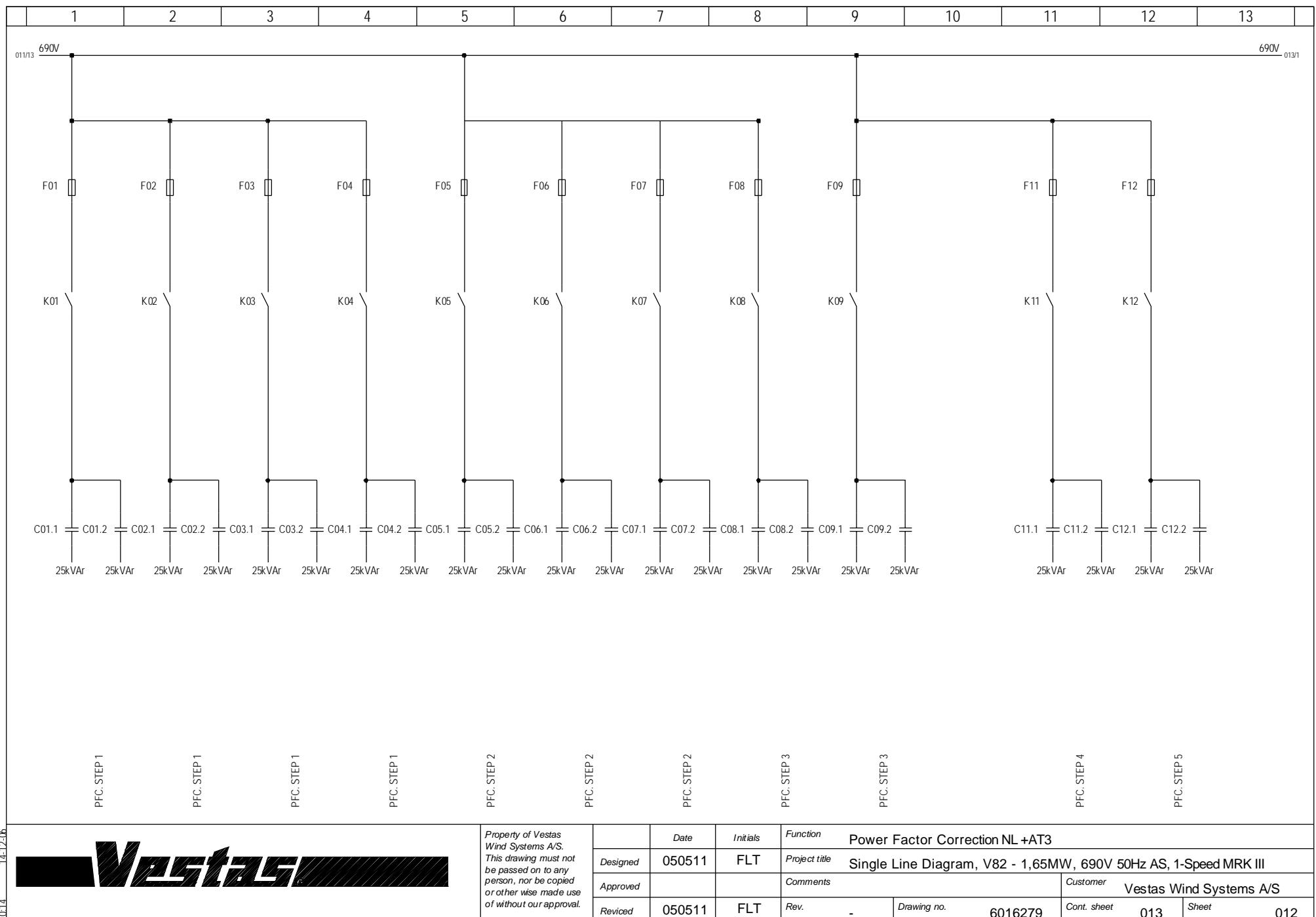
	Date	Initials	Function	Table of contents						
Designed	050511	FLT	Project title	Single Line Diagram, V82 - 1,65MW, 690V 50Hz AS, 1-Speed MRK III						
Approved	061213	SLB	Comments				Customer	Vestas Wind Systems A/S		
Revised	061213	INI	Rev.	01	Drawing no.	6016279	Cont. sheet	010	Sheet	001

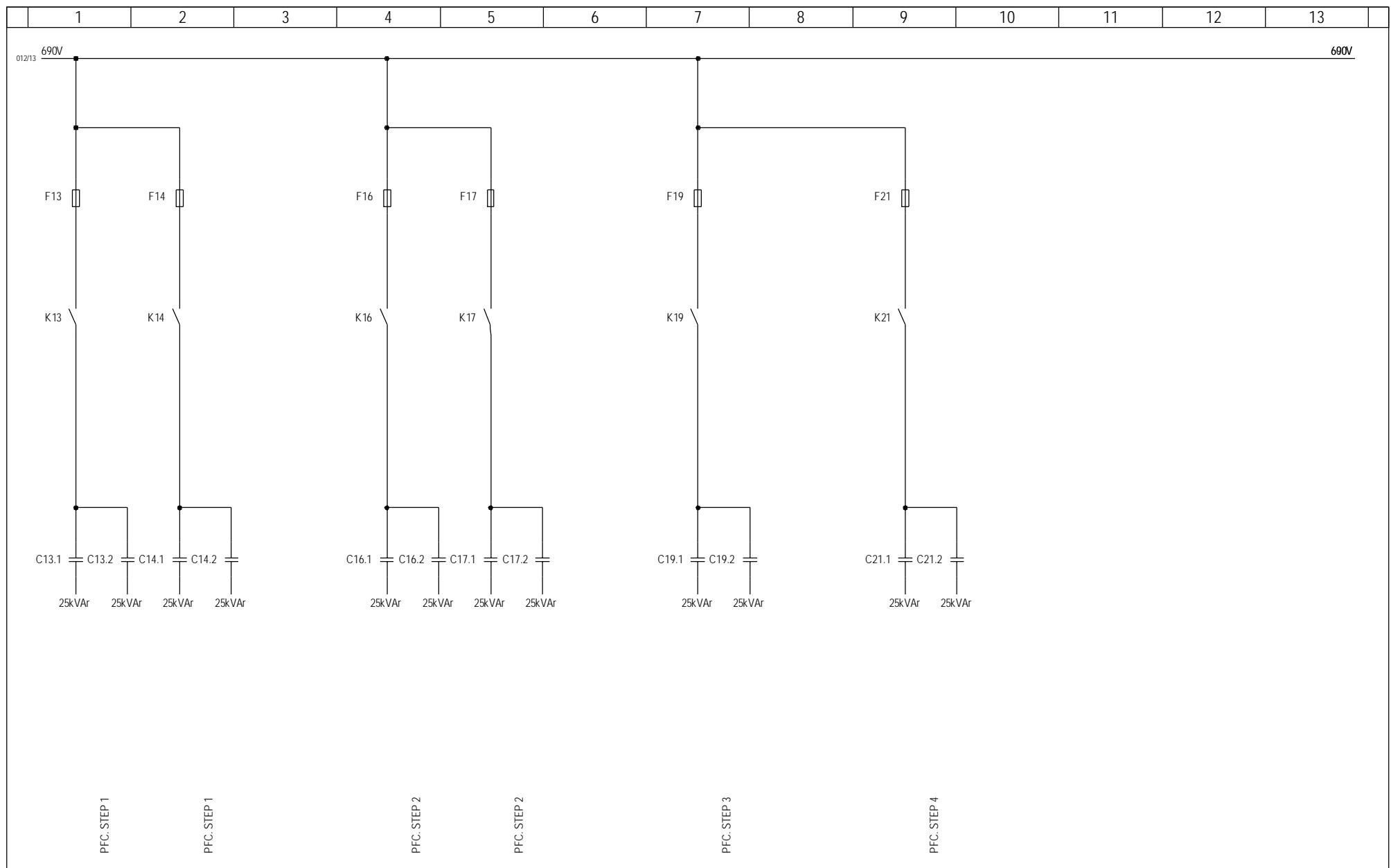
WTG
CONNECTION TO MAIN PANEL

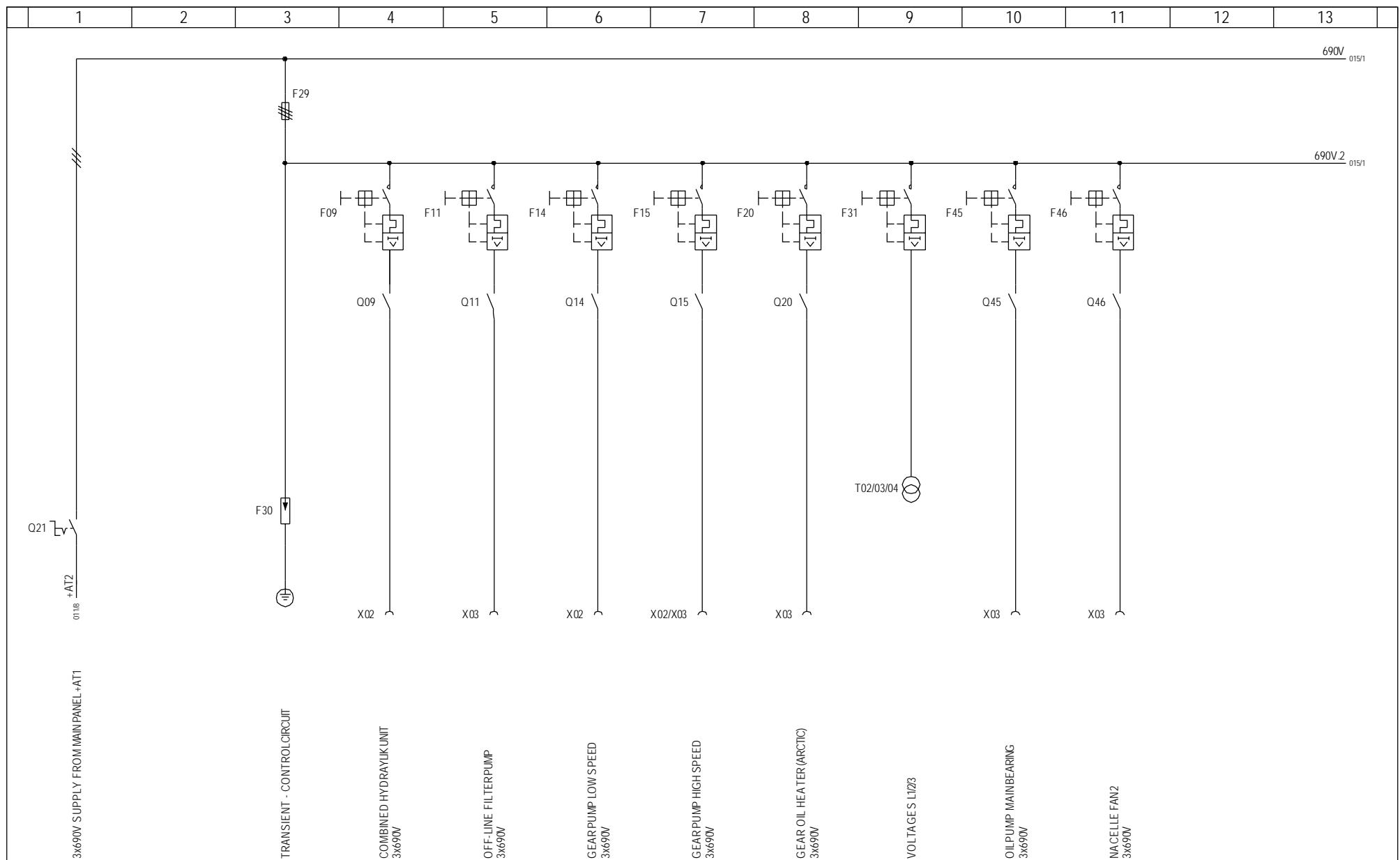


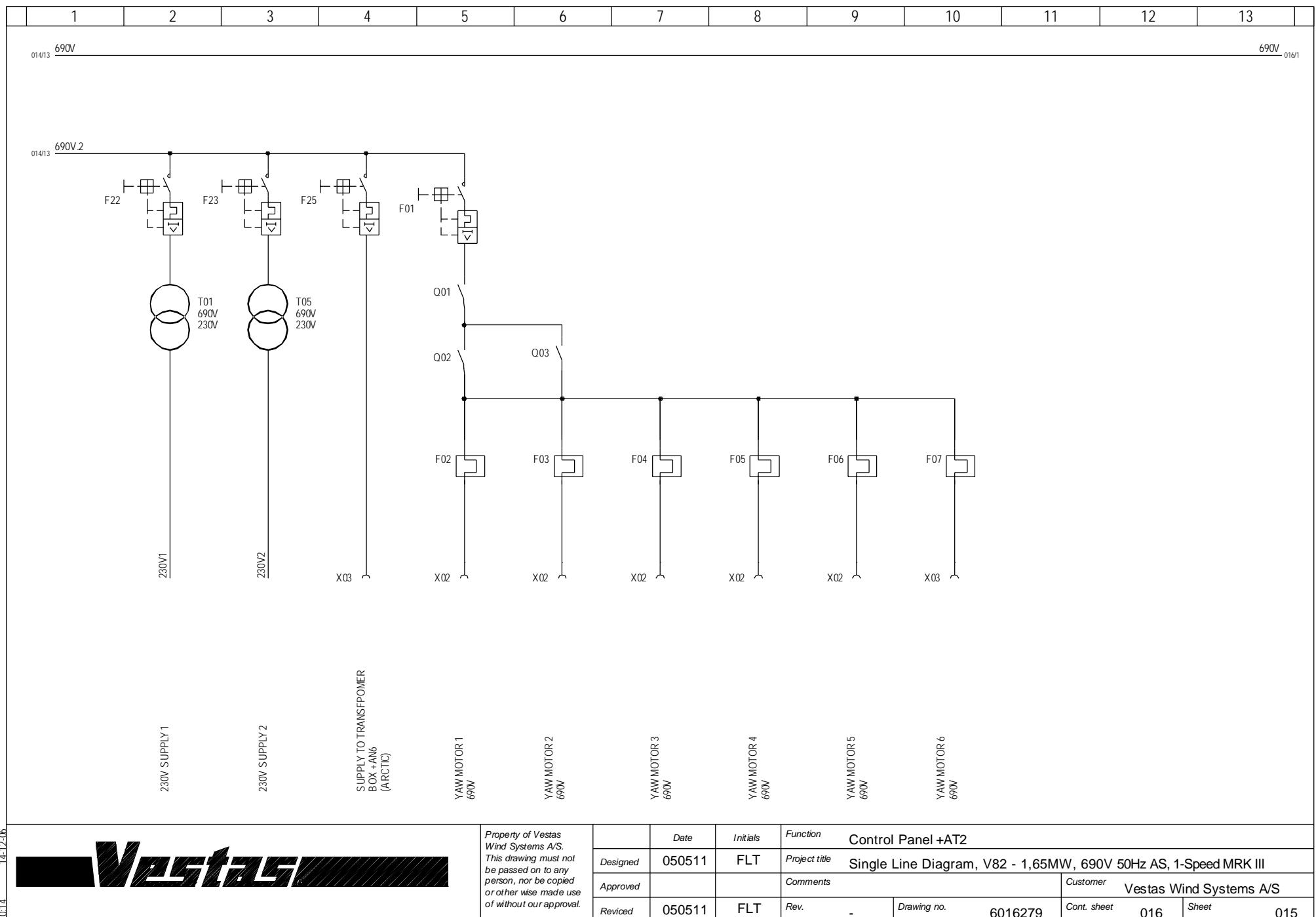
Diagram

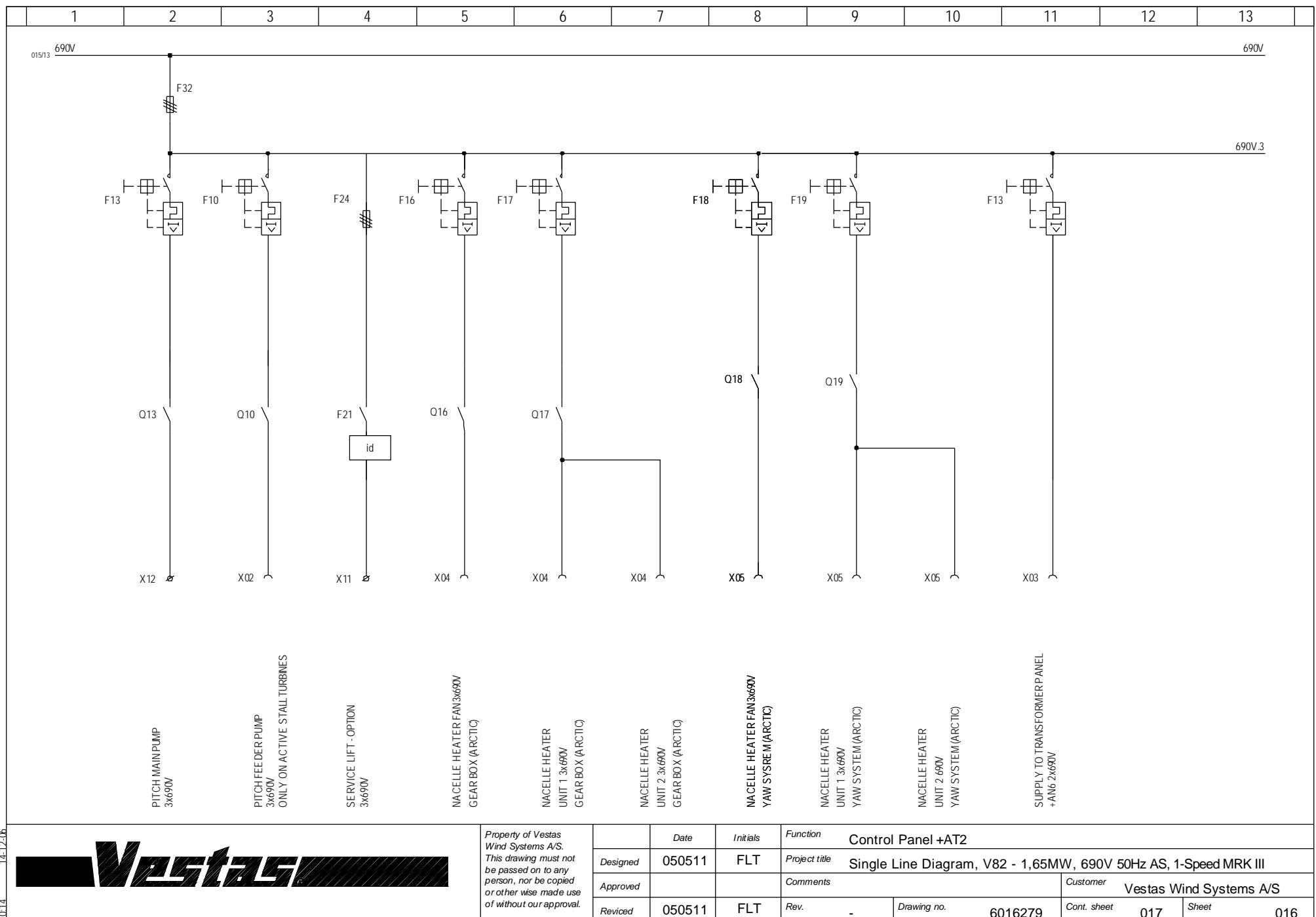


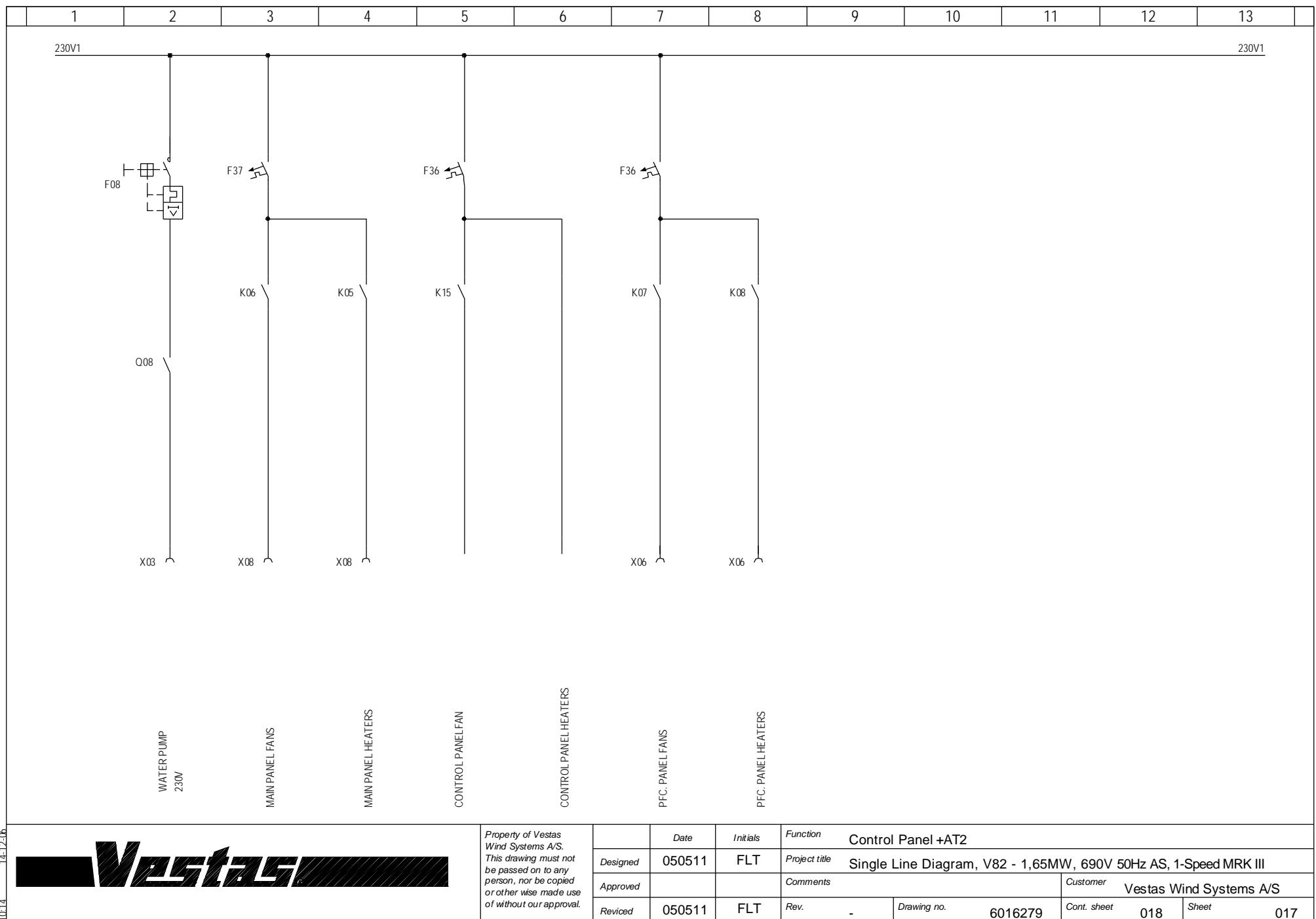


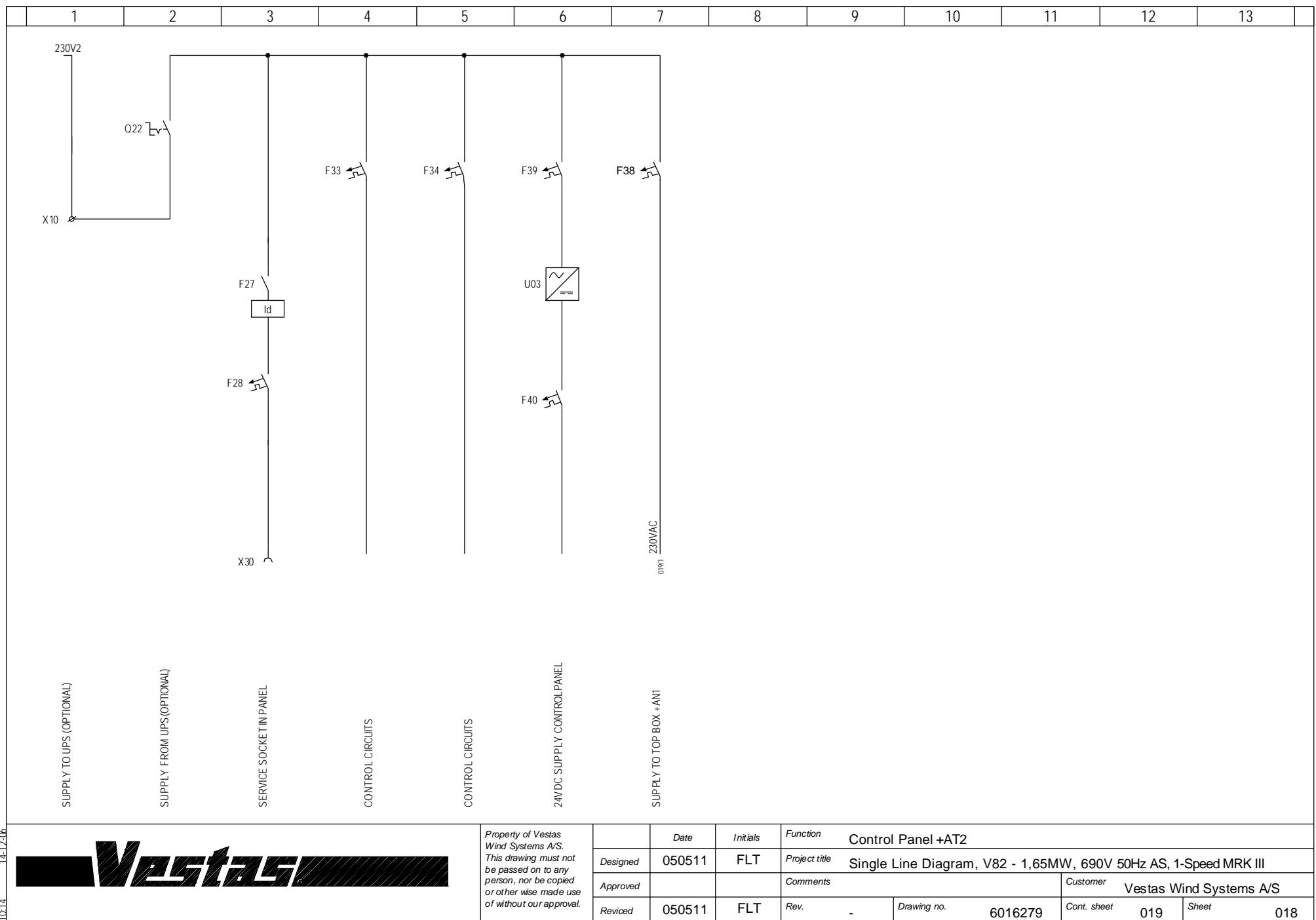


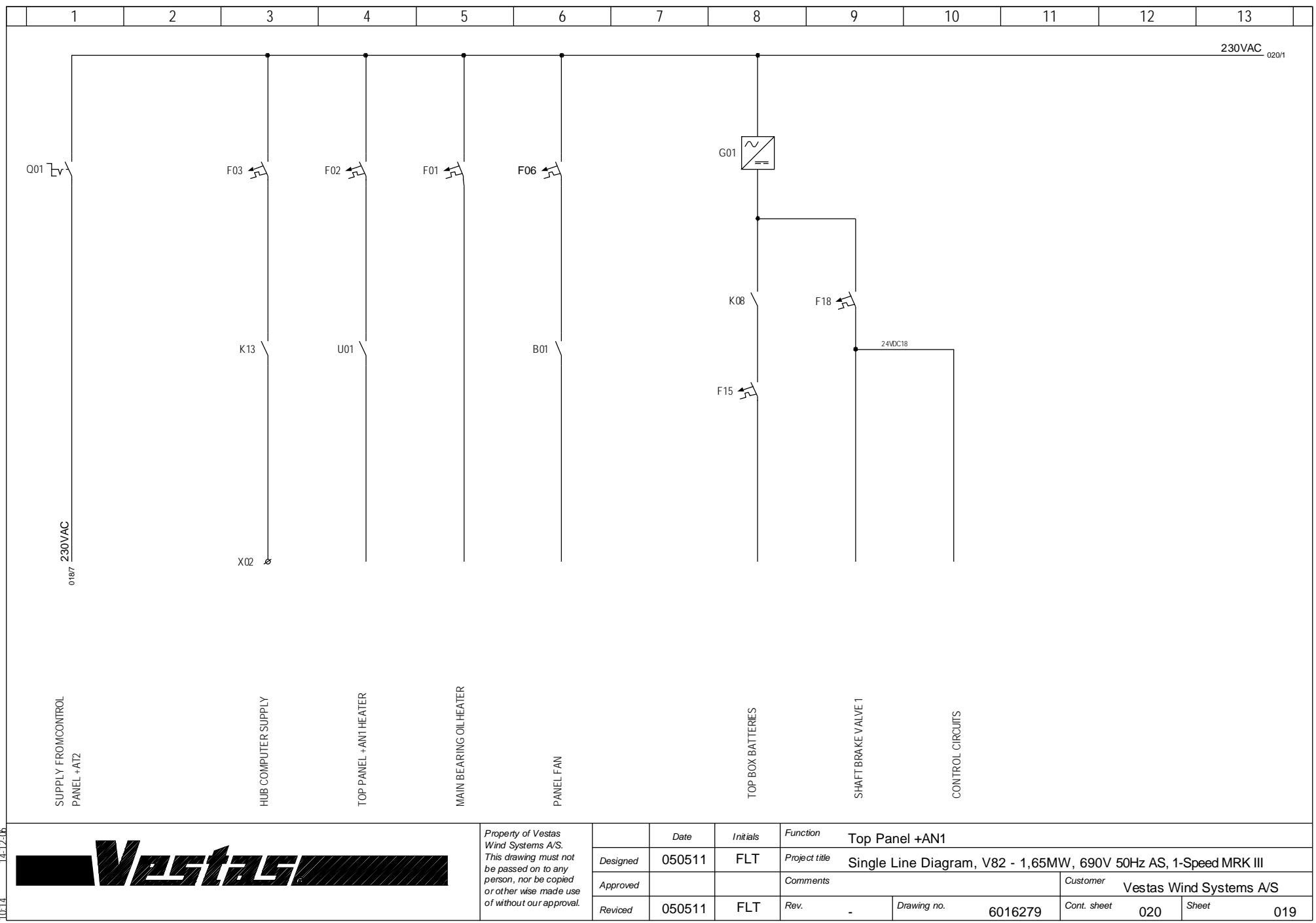


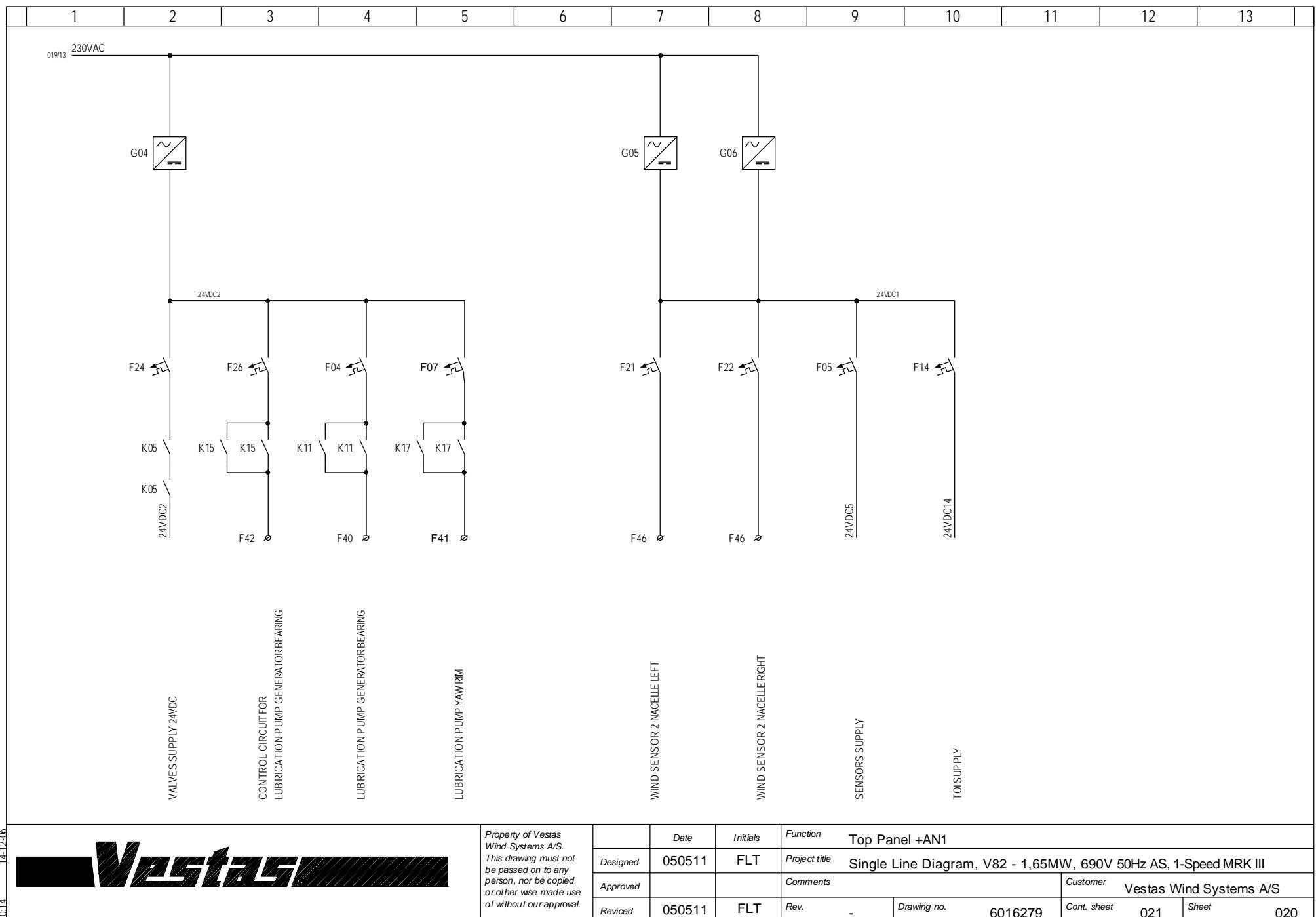


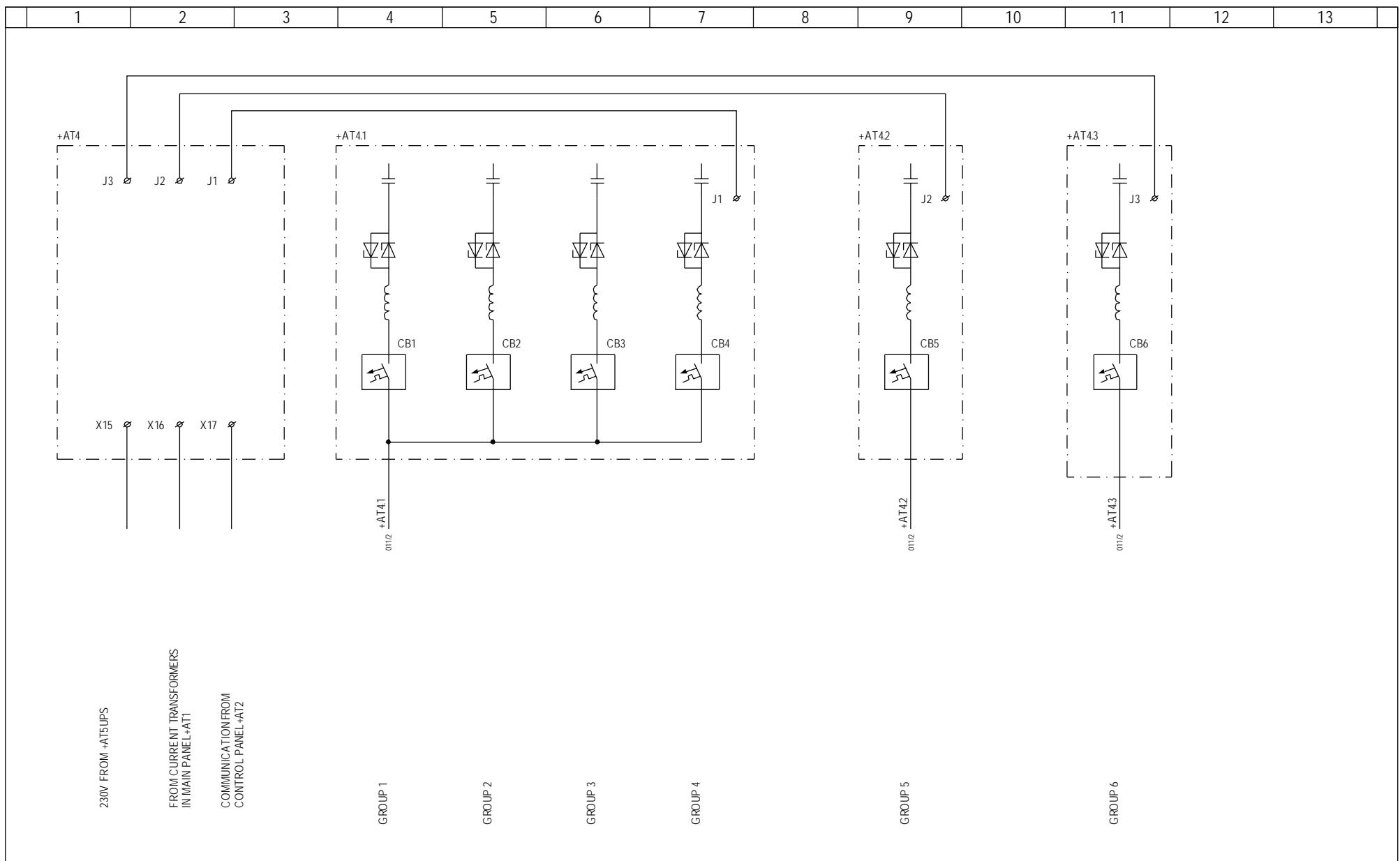




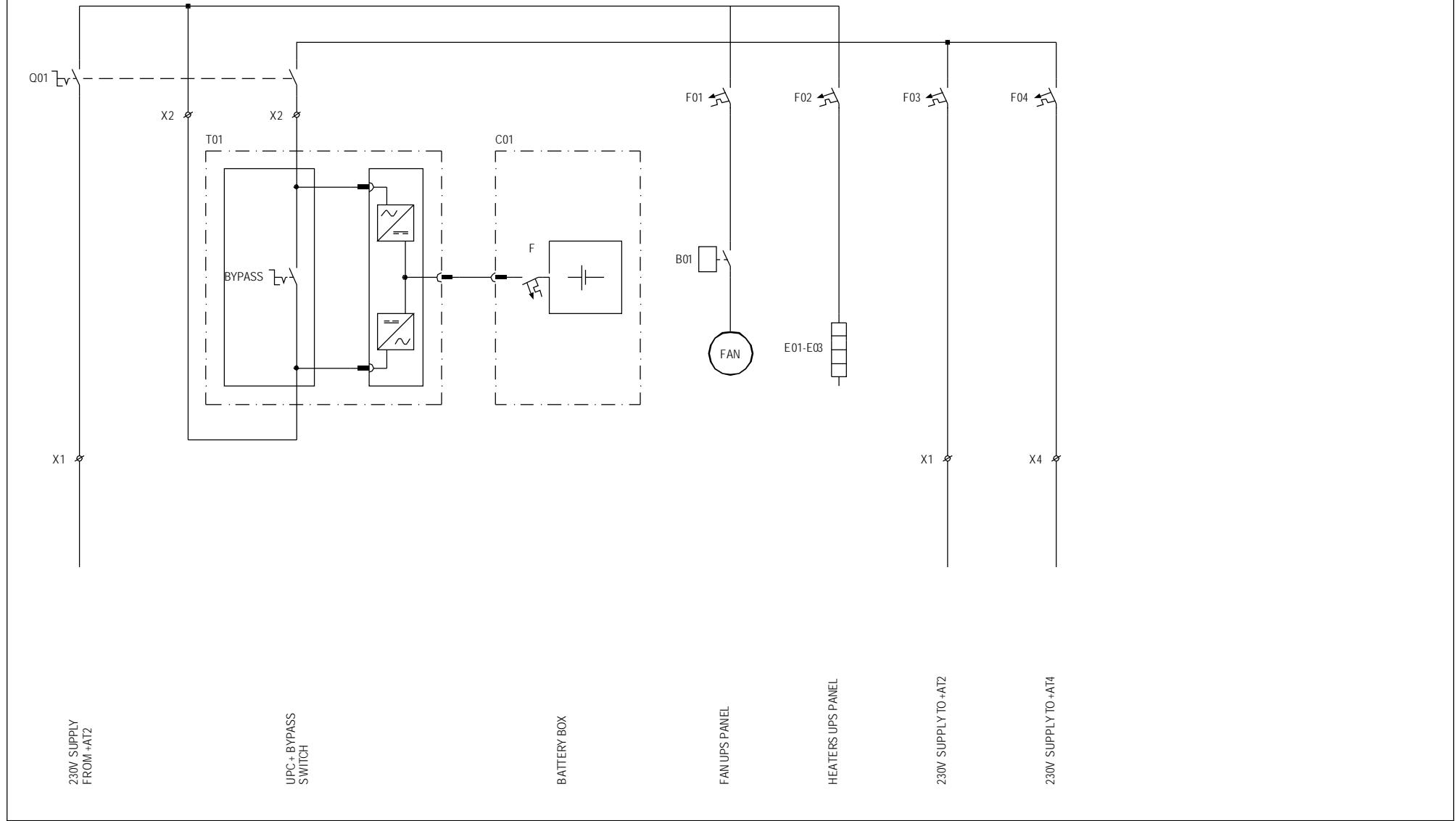








	1	2	3	4	5	6	7	8	9	10	11	12	13	
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Change Info

<i>Item no.</i>	<i>Item text:</i>
None	Emergency Line Diagram, V82-1.65MW 690V 50Hz MRK III

Active revision for production

Drawing no.: 6016281

Version	Date	Init./App.	Description of change since last revision
01	26.10.2005	INI/FLT	All Pages: References updated. Page 101: U03 terminals no. 1 and 3 correctly placed. S7 corrected to S10. S10 terminals no. 21 and 22 correctly placed. Page 104: Text "Hub Hatch Override Pendant" correctly placed. Page 107: Text "Emergency Stop" added to core 634.

LST no.: None

Version	Date	Init./App.	Material BOM no.: None	Description of change since last revision
xx	dd.mm.yyyy	xxx/		Write the change

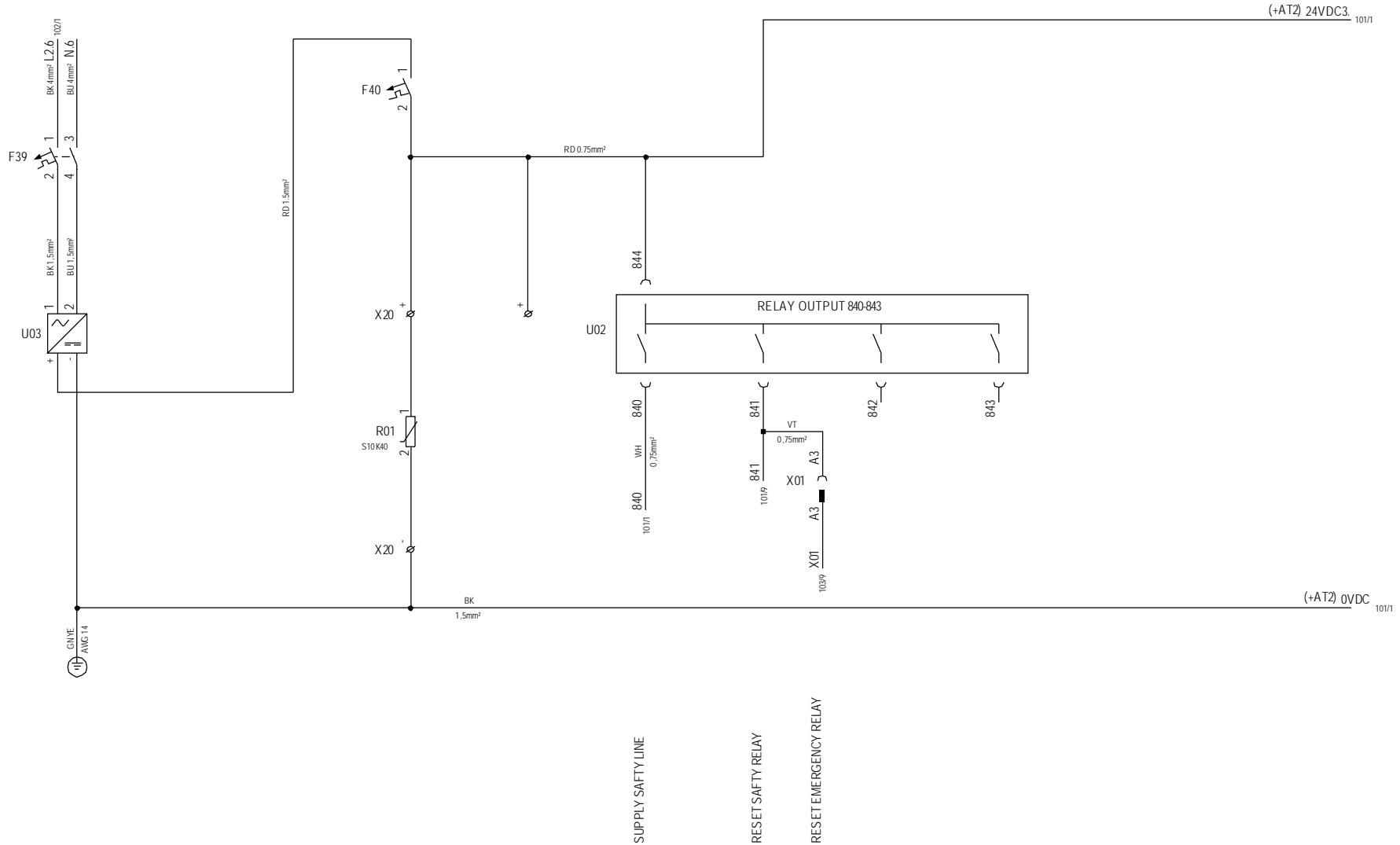
Old revisions for service

Drawing no.: 6016281

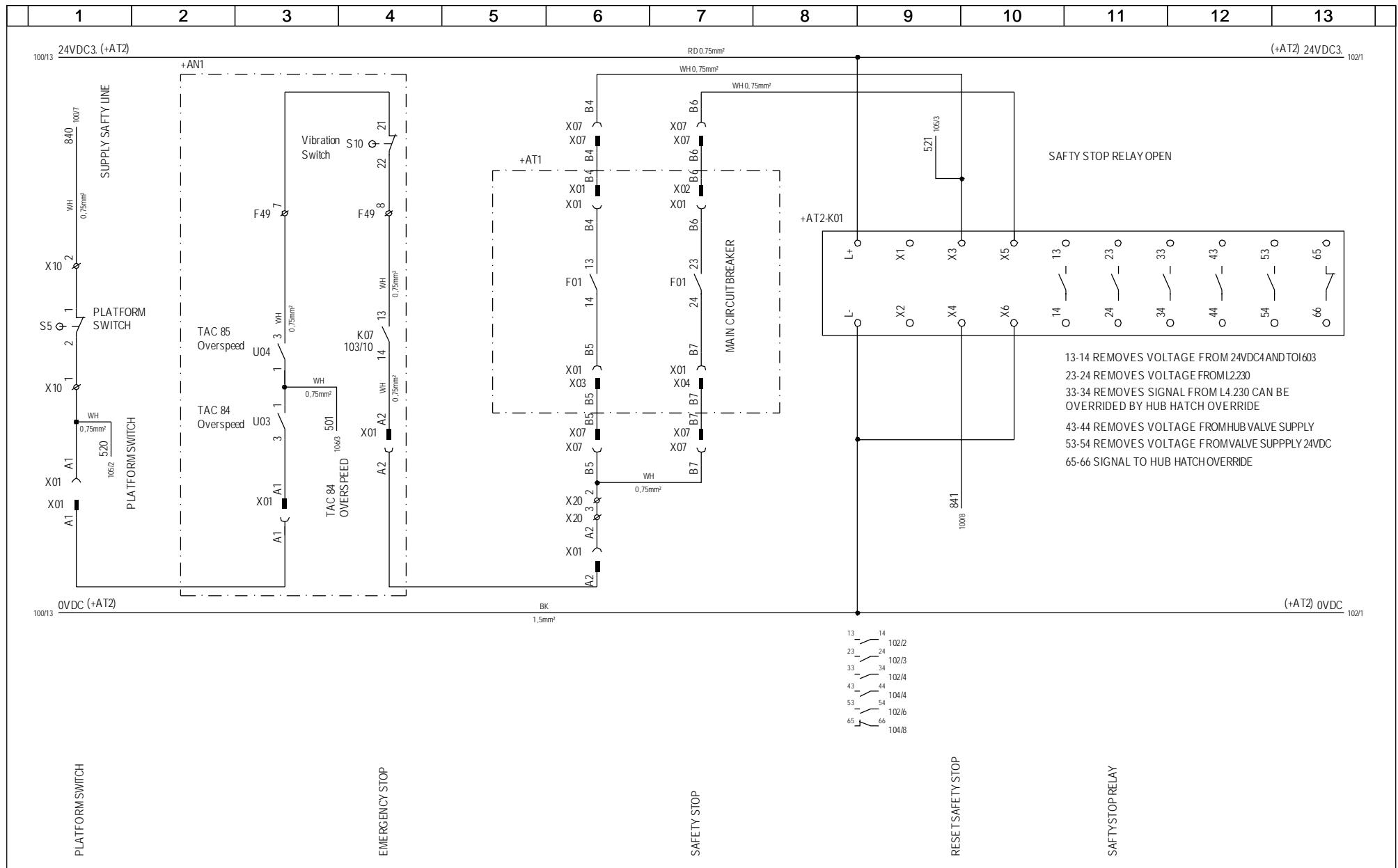
Version	Date	Init./App.	Description of change since last revision
00	11.05.2005	FLT/FLT	First version

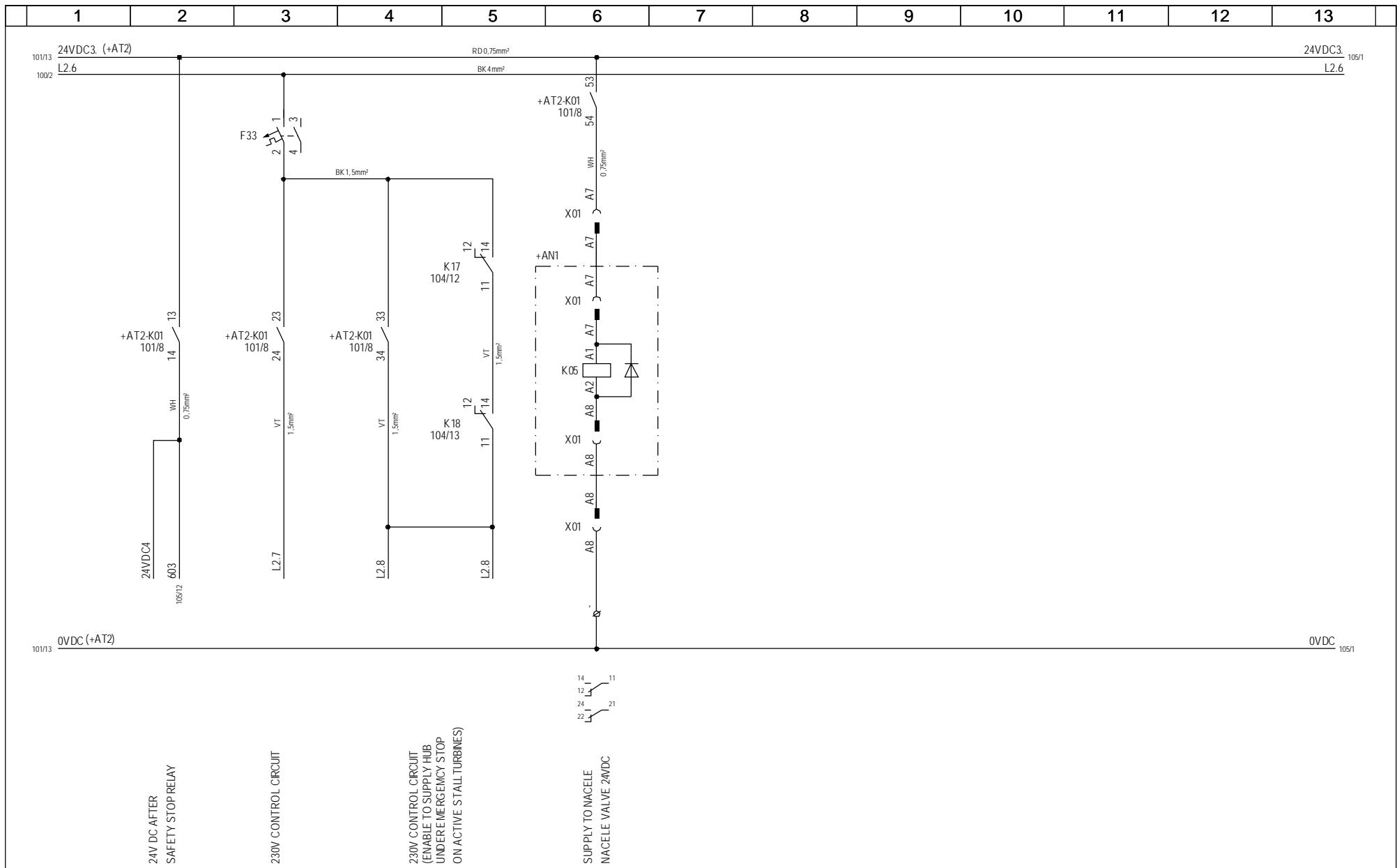
LST no.: xxxxxxxx

Version	Date	Init./App.	Material BOM no.: xxxxxxxx	Description of change since last revision
xx	dd.mm.yyyy	xxx/		Write the change



	Date	Initials	Function	+AT2 Safety stop relay		
Designed	050511	FLT	Project title	Emergency Line, V82 - 1,65MW IEC 690V 50Hz MRK III		
Approved			Comments	Customer		
Revised	050511	FLT	Rev.	-	Drawing no.	6016281
			Cont. sheet	101	Sheet	100





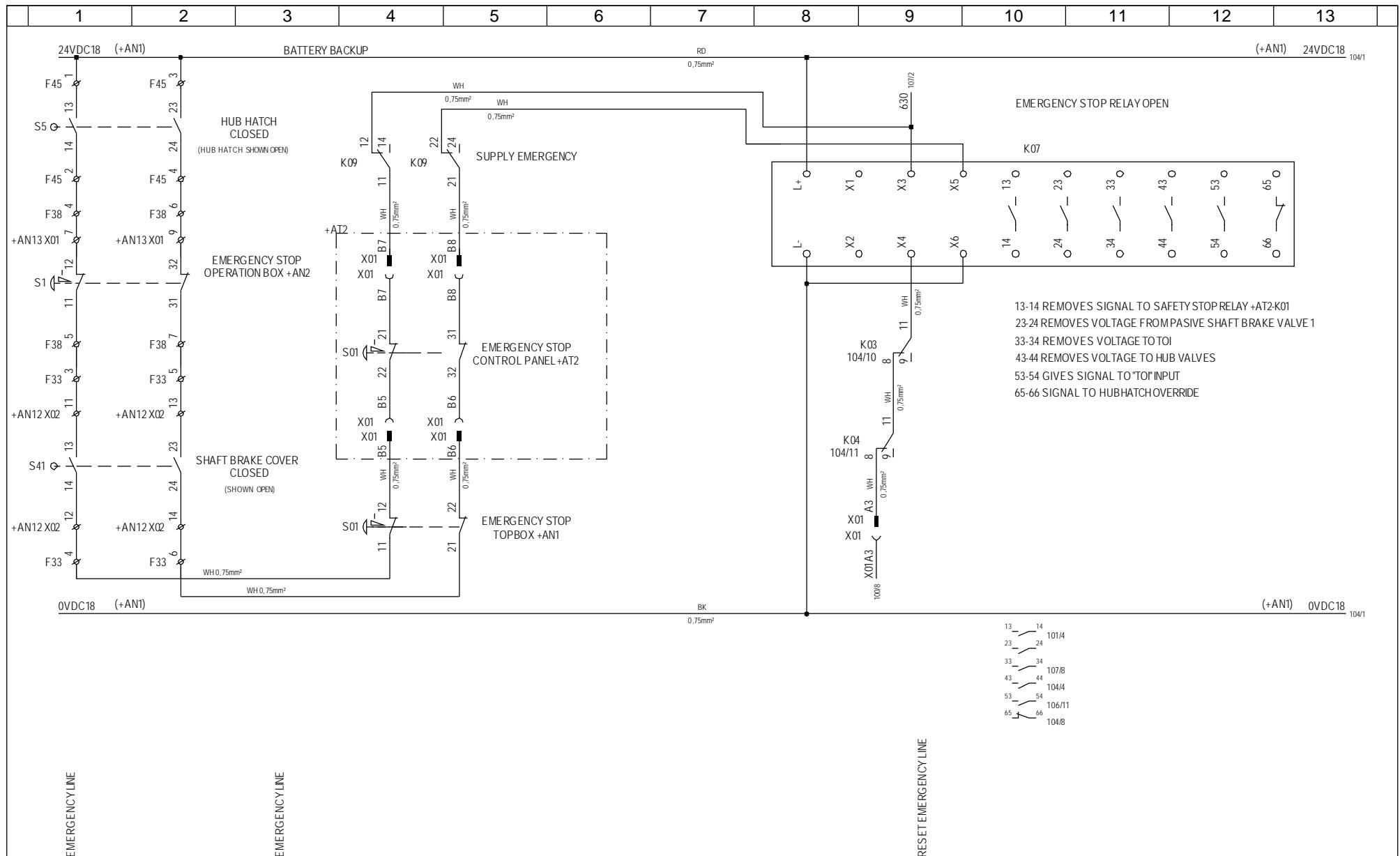
10-05

08.24

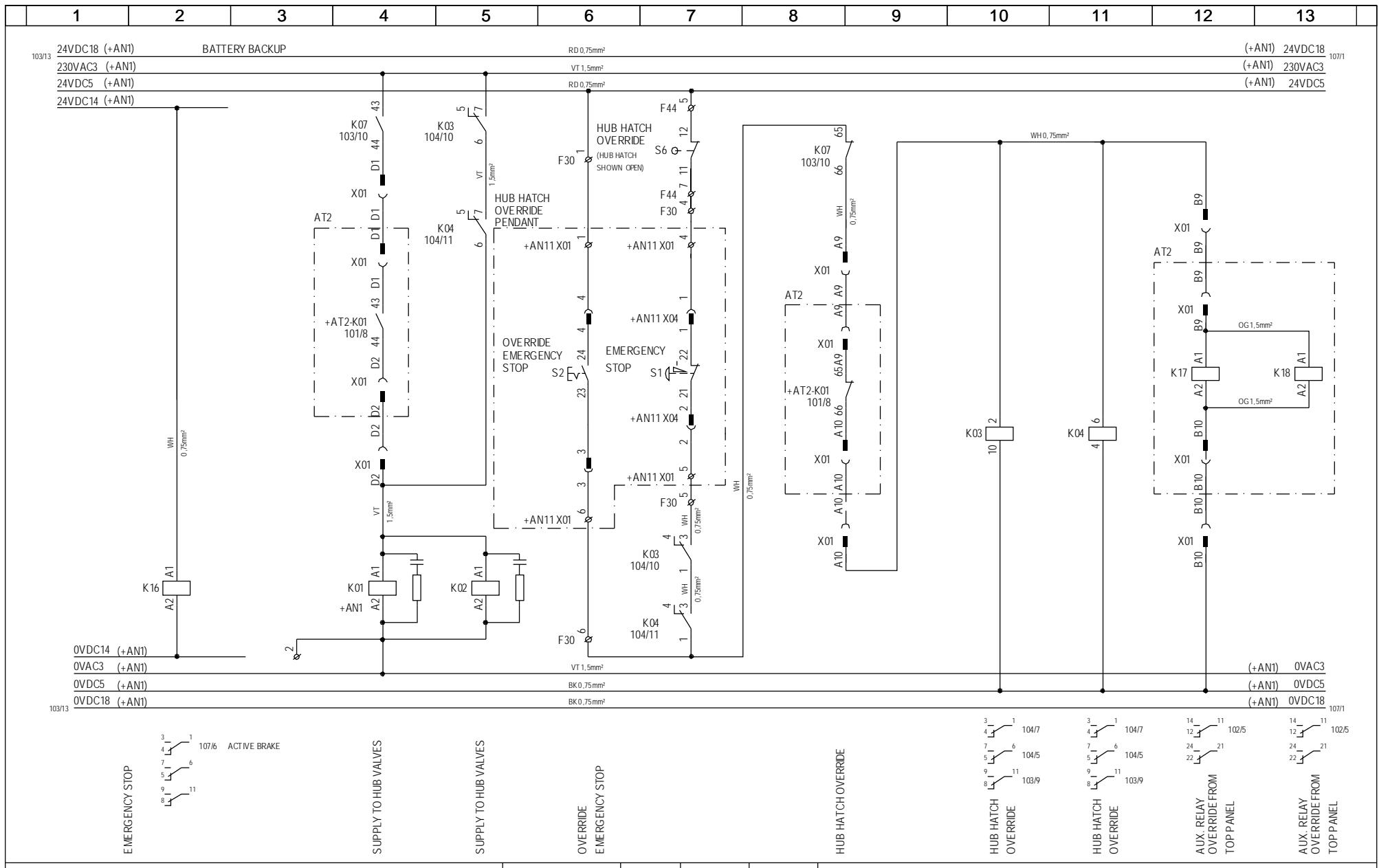
Vestas

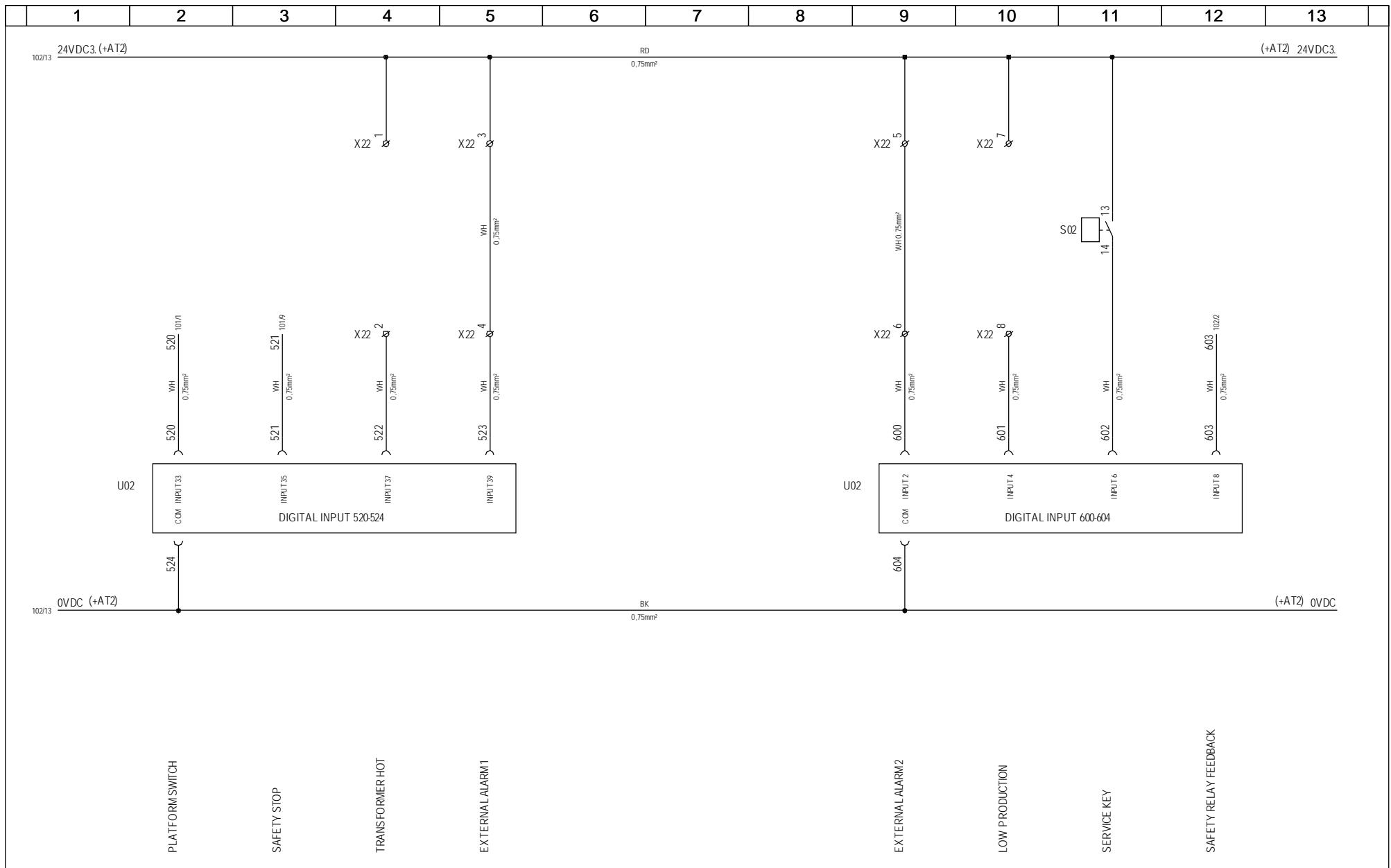
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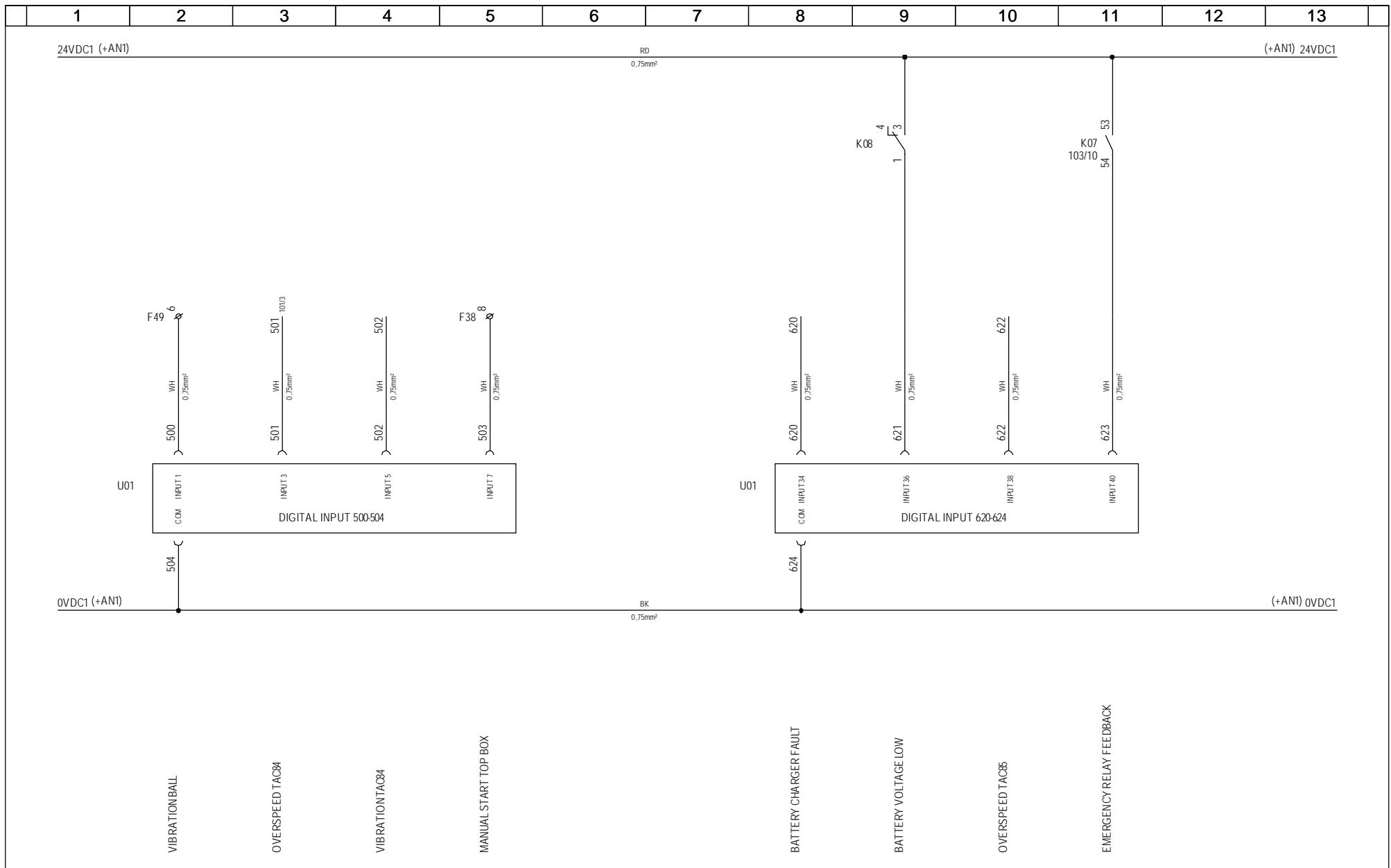
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Designed	050511	FLT	Project title	Emergency Line, V82 - 1,65MW IEC 690V 50Hz MRK III						
Approved			Comments			Customer Vestas Wind Systems A/S				
Revised	050511	FLT	Rev.	-	Drawing no.	6016281	Cont. sheet	103	Sheet	102

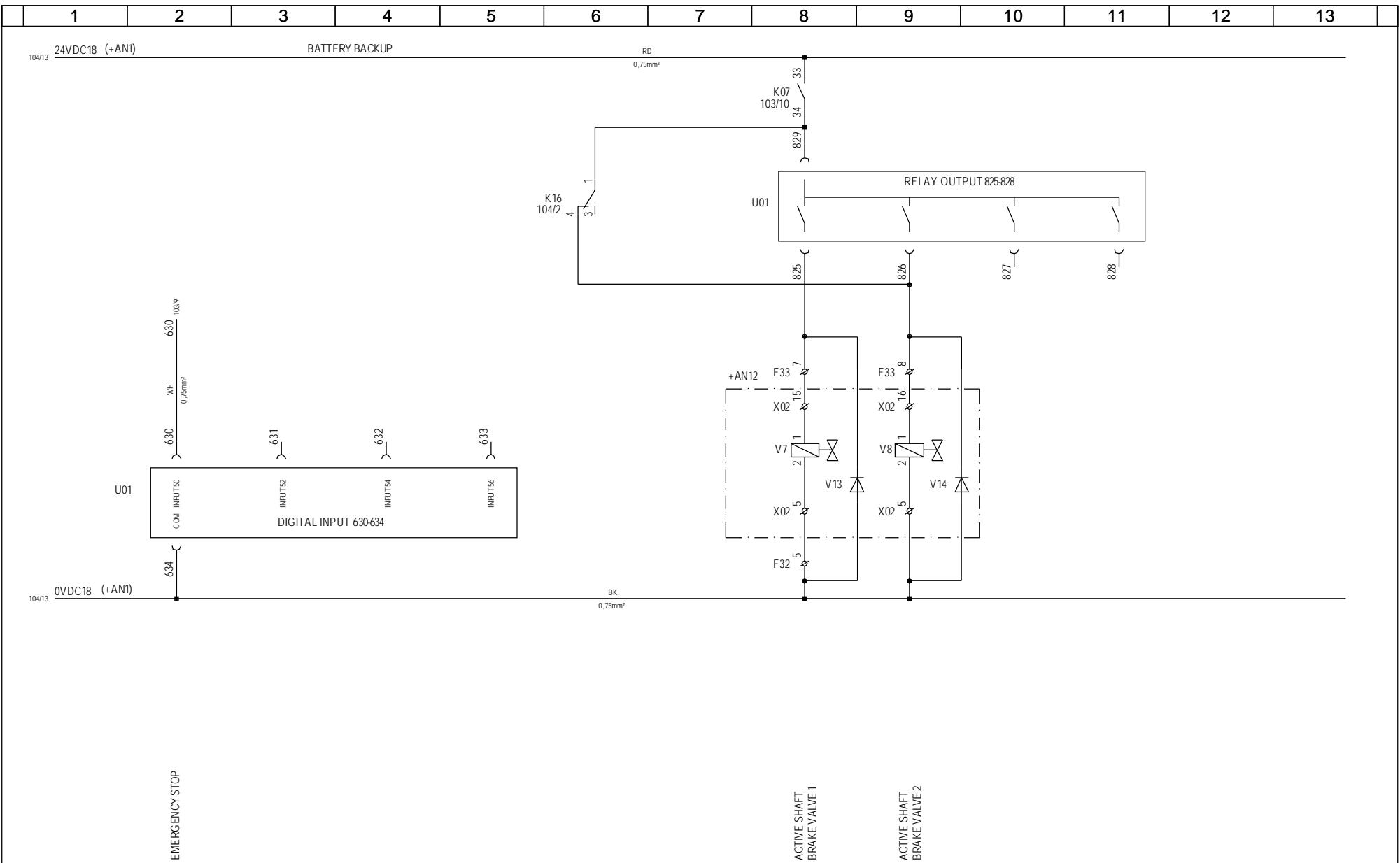


	Date	Initials	Function	+AN1 Emergency stop relay			
Designed	050511	FLT	Project title	Emergency Line, V82 - 1,65MW IEC 690V 50Hz MRK III			
Approved			Comments	Customer Vestas Wind Systems A/S			
Revised	050511	FLT	Rev. -	Drawing no.	6016281	Cont. sheet	104
				Sheet	103		









EMERGENCY STOP

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	Designed	050511	FLT	Project title	Emergency Line, V82 - 1,65MW IEC 690V 50Hz MRK III					
	Approved	051026	FLT	Comments			Customer	Vestas Wind Systems A/S		
	Revised	051026	INI	Rev.	-	Drawing no.	6016281	Cont. sheet	-	Sheet

Change Info

<u>Item no.</u>	<u>Item text:</u>
60096208	Main Panel +AT1, V82-1.65MW 1-Speed, MK II & MK III, 690V 50Hz

Active revision for production

Drawing number: 6012514

Version	Date	Init./App.	Description of change since last revision
08	13.12.2006	INI/SLB	Changed with ECO 219510_ Grid++ and PCS Converter OPTION removed. Page 031: T04, T05 & T06 Current transformers removed. T07 Power converter Removed. F17 Fuse removed. Page 040: X07.C5 Text changed to "Spare for power consumption". Page 043: W598 connection between +AT1 and PCS converter removed. Page 100: Text "OR=BA+1S1 if present" removed Page 102: T04, T05, T06, T07, F07 & F17 with connections removed. Page 200: Connections L2.230 and L2.N removed.

LST no.: 21000074

Material BOM no.: 60096208

Version	Date	Init./App.	Description of change since last revision
11	03.04.2007	HHU+INI/FLT	Changed with ECO 223393_Updated for production in Spain Please see Change Description in ECO 223493

Old revisions for service

Drawing number: 6012514

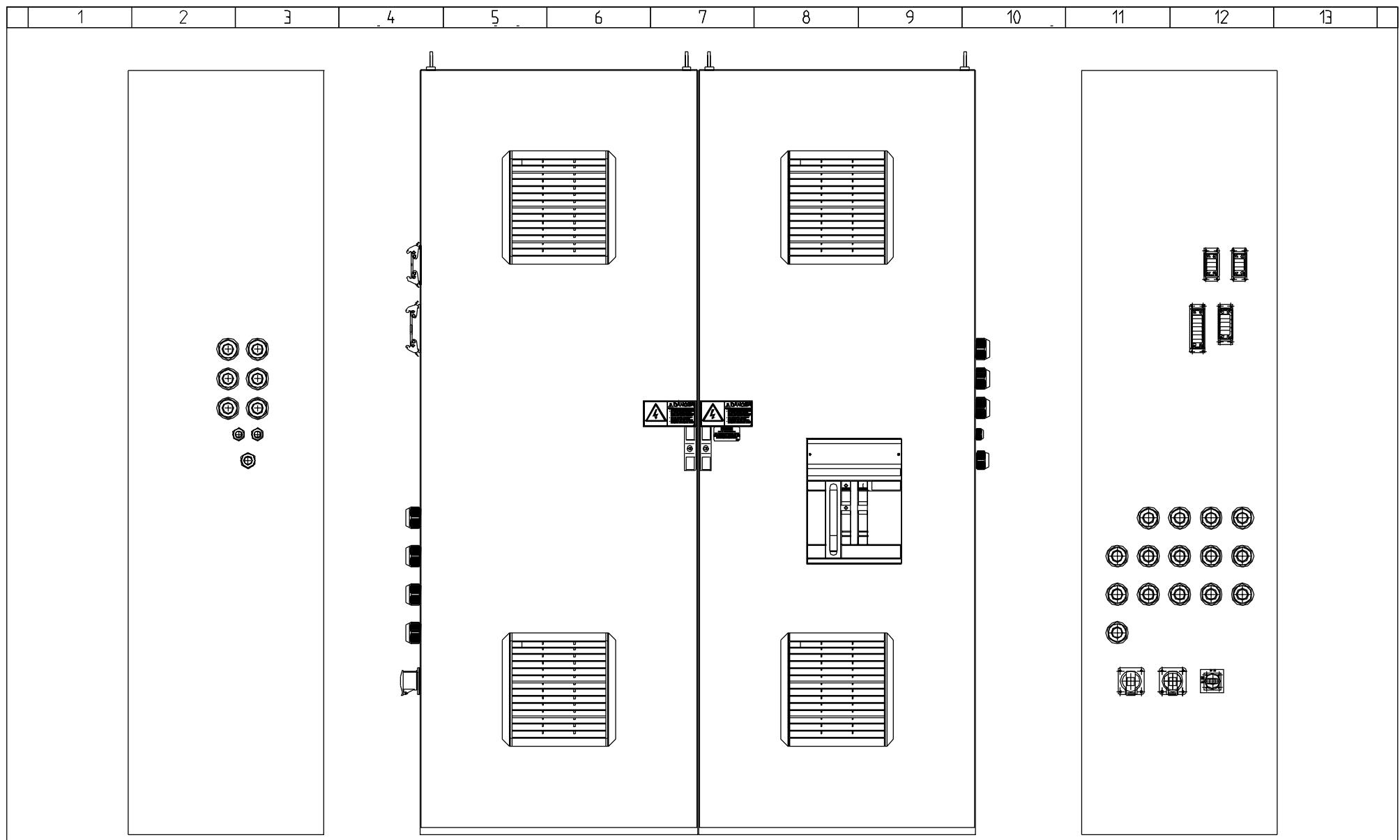
Version	Date	Init./App.	Description of change since last revision
07	24.10.2006	INI/FLT	Changed with ECO 217924 + 217924 Implementation of CMS & revised label. Page 030: Panel Front Layout updated with revised labels. Page 039: New page with following text added. " Use copper conductors only for external wires and cables. Use 60°C cables for currents less than 100Amps and 75°C cables for higher currents". All pages, project title updated.
06	21.06.2006	INI/FLT	Page 030: Panel Front Layout updated with two new warning labels 118934.
05	24.01.2005	SLB/SLBP	Implementation of PCS Converter Page 001 Updated Page 031: Marking for cable connection 2L1, 2L2 and 2L3 added. Page 043: Connection for X04, W598 and PCS Converter =BA+1S1 added. Page 100: Text to terminals 2L1, 2L2 and 2L3 added. Text changed "TO +AT4 OR =BA+1S1 IF PRESENT".
04	15.11.2004	INI/CHO	All pages updated with Vestas logo. Page 040: W590 cable ID changed from 37AWG18 to 37G1 mm ² . Page 100: Text "+AT5 if present" corrected to " to +AT4 if present". Page 104: Terminals U, V and W added. Cable color added.
03	14.07.2004	INI/CHO	Page 001: Updated Page 100: F01 text grid + settings added, std. settings updated.
02	15.03.2004	CHO/CHO	Page 202: E01 and E02 settings changed from 10°C to 60°C. Page 001: Updated Page 040: Texts updated Page 044: X11 terminals corrected
01	25.10.2003	ATM/ATM	Page 102: X11 terminals corrected First version

LST no.: 21000074

Material BOM no.: 60096208

Version	Date	Init./App.	Description of change since last revision
10	12.03.2007	INI/FLT	Changed with ECO 222575 Correction, item has not been removed in rev. 09 Removed 1x60004961_POWER CONVERTER WAD 200kW/690V (T07).
09	12.12.2006	INI/SLB	Changed with ECO 219510_ Grid++ and PCS Converter OPTION removed. Removed item: 1x60004961_POWER CONVERTER WAD 200kW/690V (T07). 1x60004648_CB 3RV1021-0AA10 0.11-0.16A (F17). 1X60007259_BUSBAR ADP 72mm 32A WIRE (F17) 3x60007140_TRAFO CURRENT 200/1A (T04, T05 & T06)
08	25.10.2006	INI/FLT	Changed with ECO 217924 Added: 60095589_Label, Caution! Risk of...

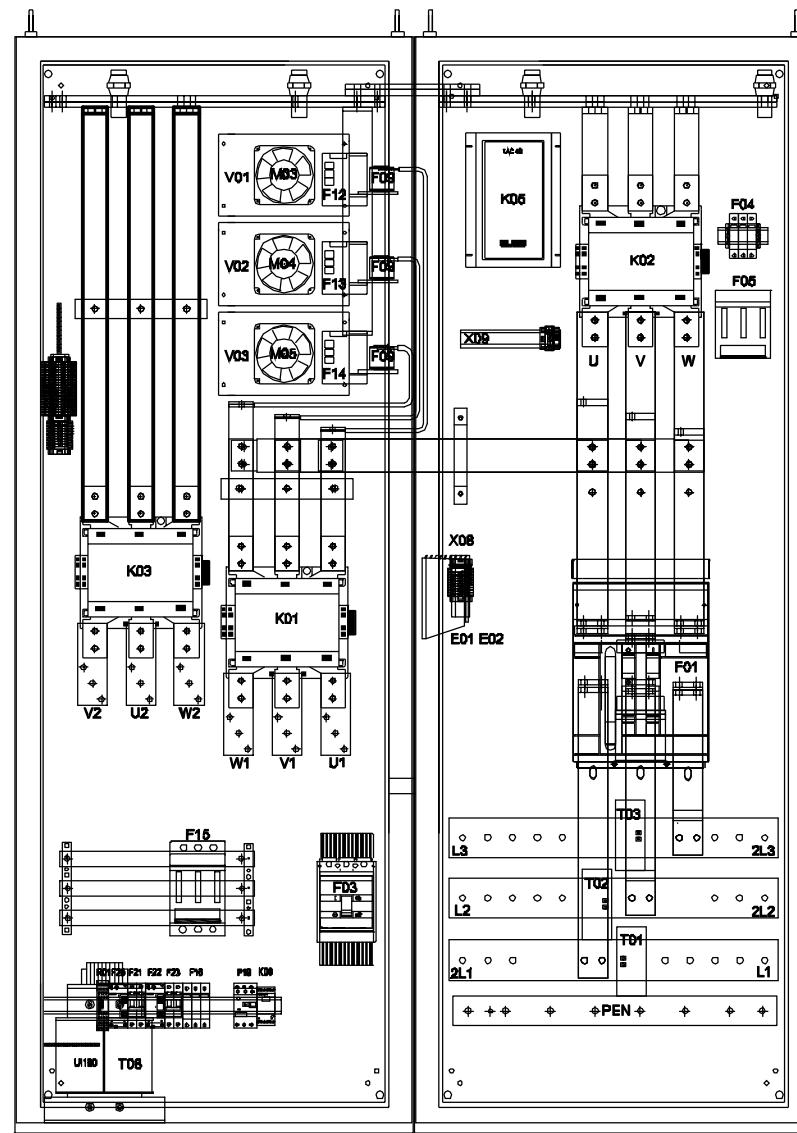
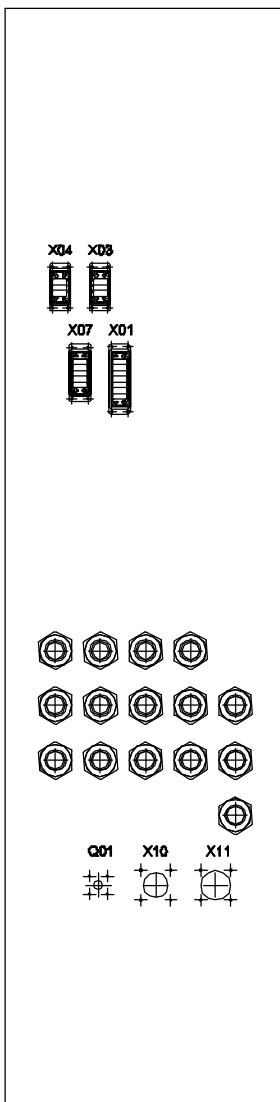
07	13.06.2006	SHL+INI/FLT	MAPICS implementation, controls DK Århus Phased out 60015667 and replaced with 51700901_TAC 40 690V Phased out 60015824 and replaced with 51700501_Resistor Shunt 3x2,5 ohm 118934_2pcs. Warning labels added.
06	01.11.2004	MILJE/MILJE	60013341 Grid Connection PEN 30T 2003 removed.
05	09.08.2004	MILJE/MILJE	Material numbers 60007350 Cable conduit 15x25mm, 60007351 Cable conduit 15x40mm, 60007354 Cable conduit 25x40mm, 60007358 Cable conduit 40x40mm, 60007359 Cable conduit 40x60mm, 60007360 Cable conduit 40x80mm, 60007182 DIN rail and 60007201 Earth rail are been removed. Material no. 60104151 Cable conduit, DIN rail & earth rail added.
04	14.06.2004	FLT+CHO/CHO	Replacemet of RC-units. 60006042 and 60006043 added, 60006190 removed. New kit for CU bus bar.
03	12.03.2004	CHO/CHO	Transformer 60091319 changed to 60101986. 60007259 bus bar adaptor F17 added. 60011436 socket X10 added. X02 terminal label added. Sign f. terminal added. Material 60097907 changed from 2 pc. to 4 pc.
02	17.12.2003	ATM/	BOM changed to new items base unit
01	14.10.2003	ATM/ATM	First version

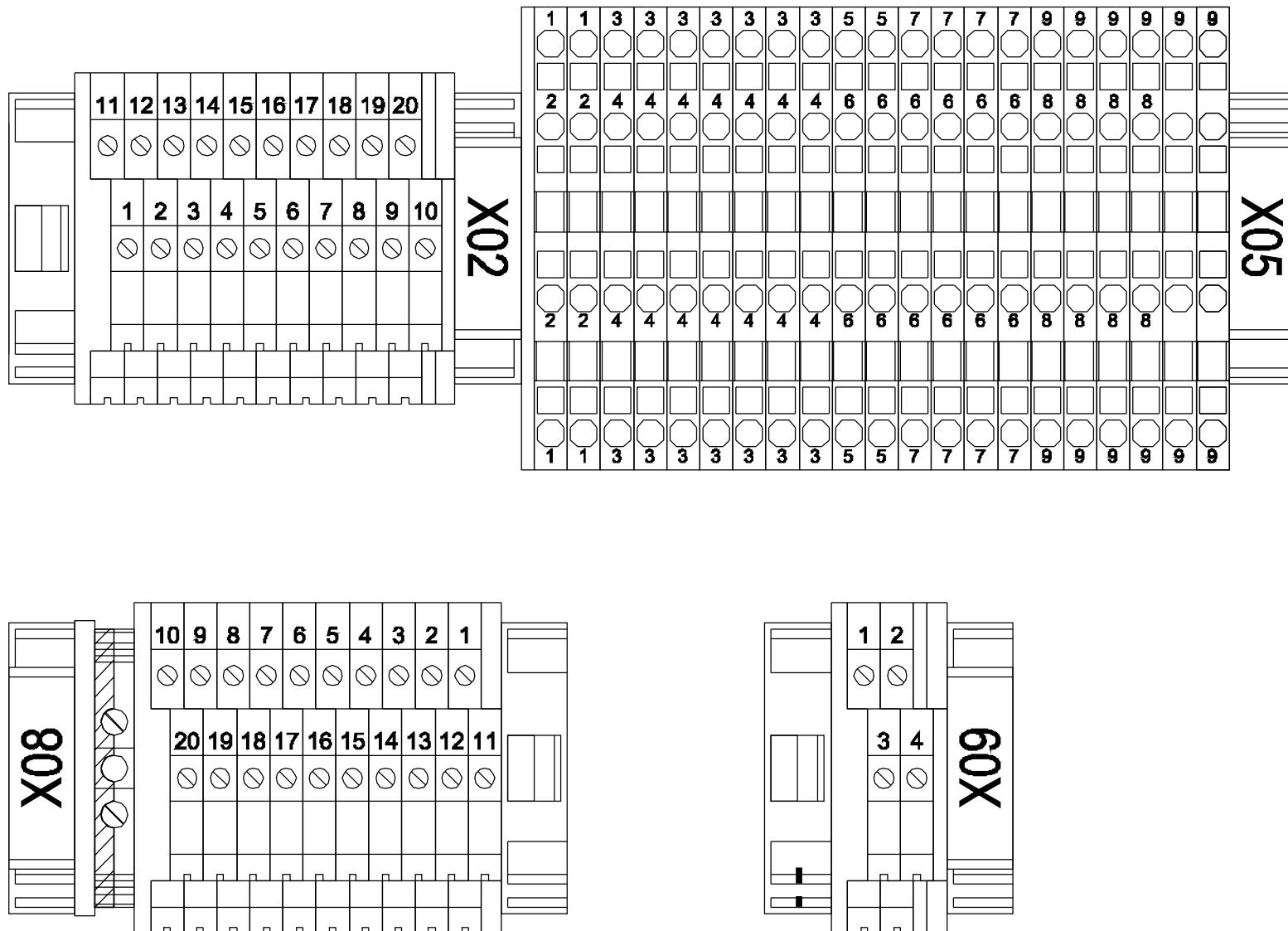


	Date	Initials	Function	Panel Front View		
Designed	031025	CHO	Project title	Main Panel +AT1, V82-1.65MW 1-Speed, MK II & MK III		
Approved	061024	FLT	Comments			
Revised	061024	INI	Rev.	Drawing no.	6012514	Cont. sheet 031 Sheet 030

1	2	3	4	5	6	7	8	9	10	11	12	13
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Inside view of left side panel





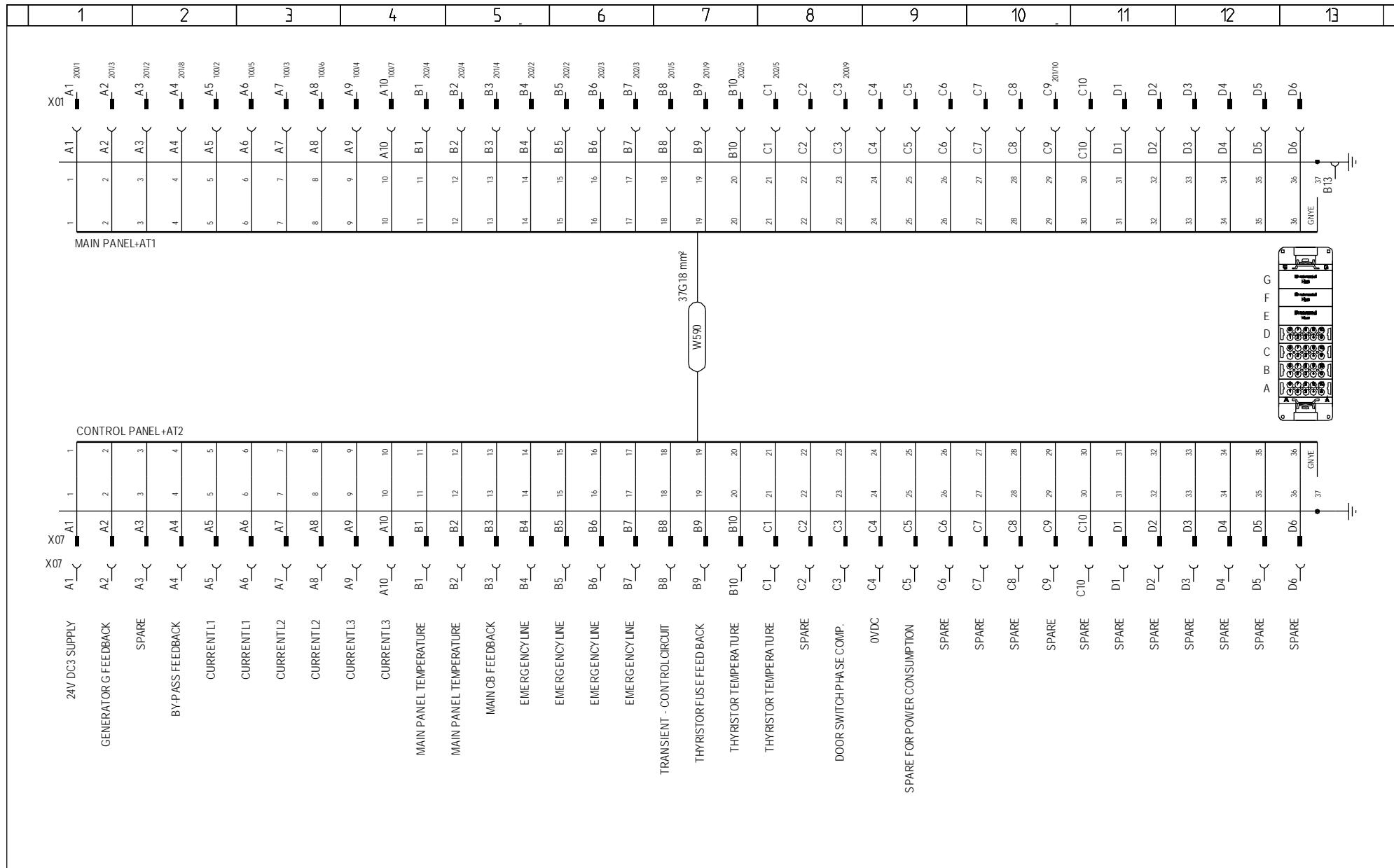
	1	2	3	4	5	6	7	8	9	10	11	12	13	
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USE COPPER CONDUCTORS ONLY FOR EXTERNAL WIRES AND CABLES.

USE 60°C CABLES FOR CURRENTS LESS THAN 100Amps AND 75°C CABLES FOR HIGHER CURRENTS.

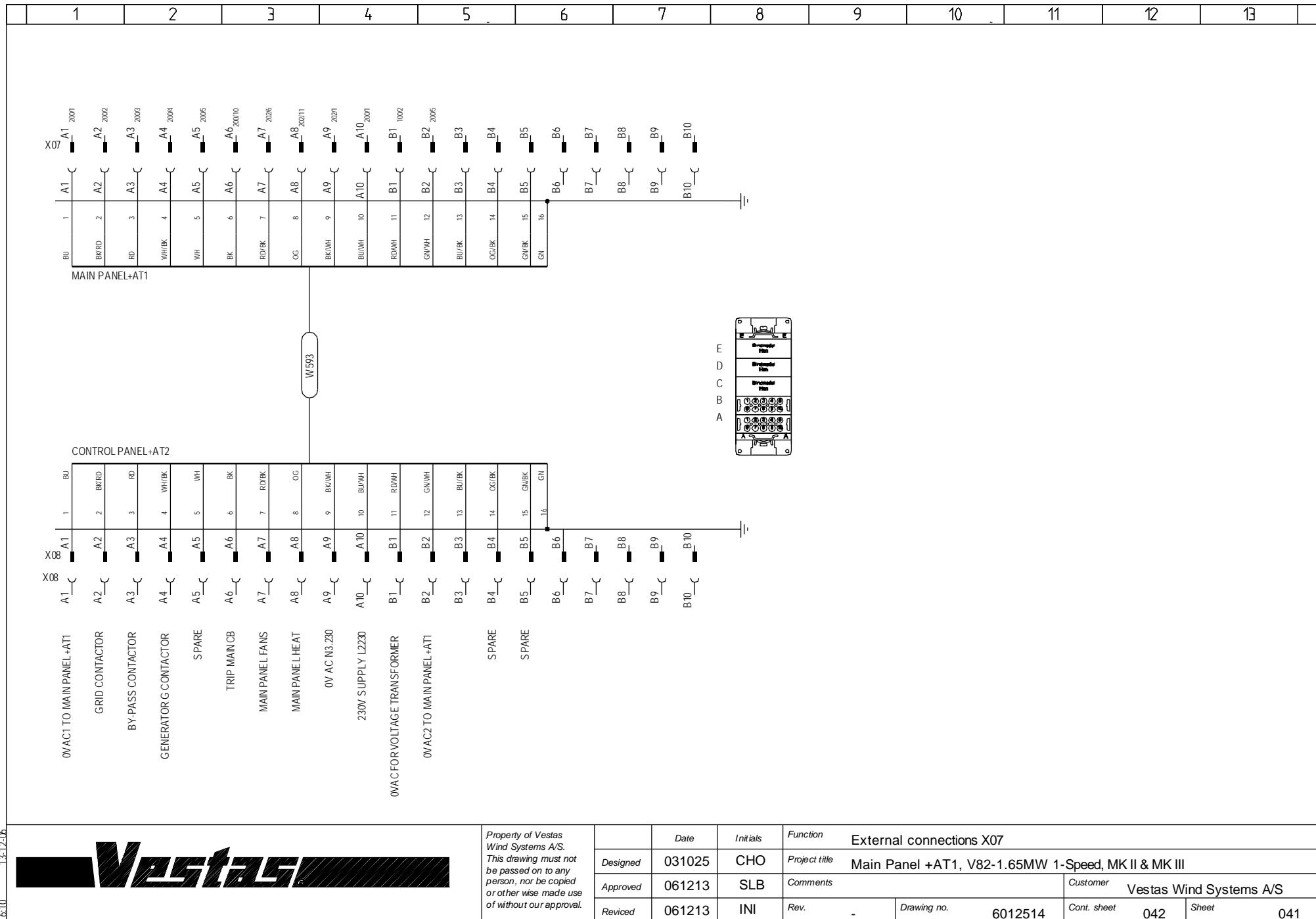


	Date	Initials	Function	Cable Connections		
Designed	031025	CHO	Project title	Main Panel +AT1, V82-1.65MW 1-Speed, MK II & MK III		
Approved	061024	FLT	Comments			
Revised	061024	INI	Rev.	Drawing no.	6012514	Cont. sheet 040 Sheet 039



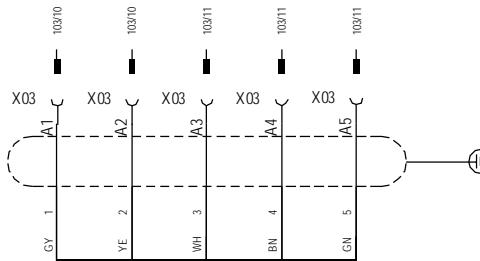
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	Date	Initials	Function	External connections X01						
Designed	031025	CHO	Project title	Main Panel +AT1, V82-1.65MW 1-Speed, MK II & MK III						
Approved	061213	SLB	Comments							
Revised	061213	INI	Rev.	-	Drawing no.	6012514	Cont. sheet	041	Sheet	040

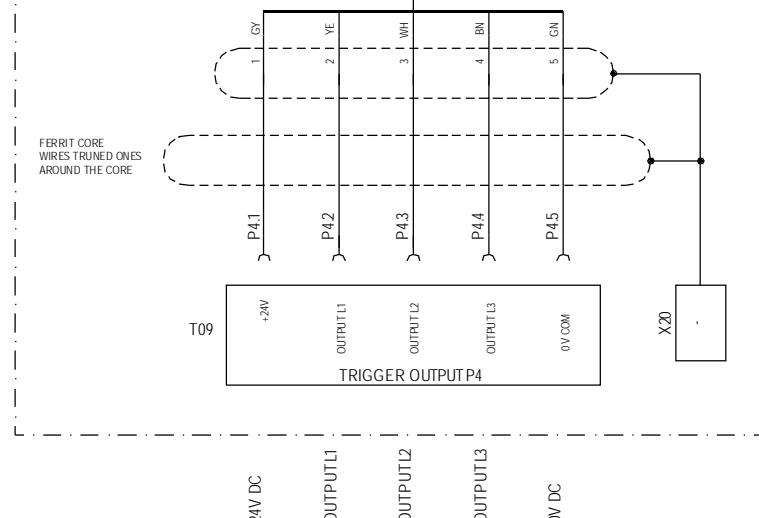


1	2	3	4	5	6	7	8	9	10	11	12	13
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MAIN PANEL+AT1

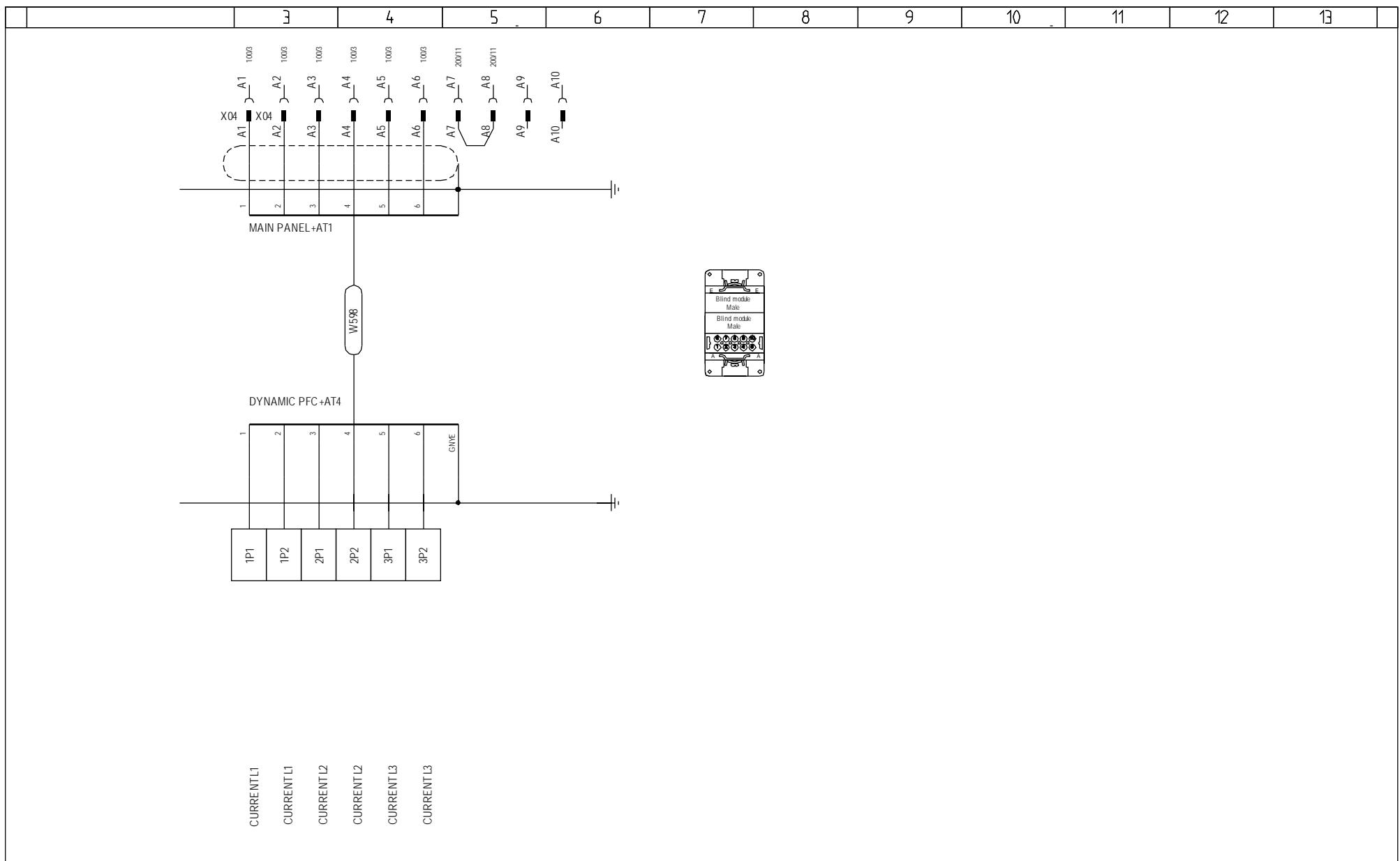


CONTROL PANEL+AT2

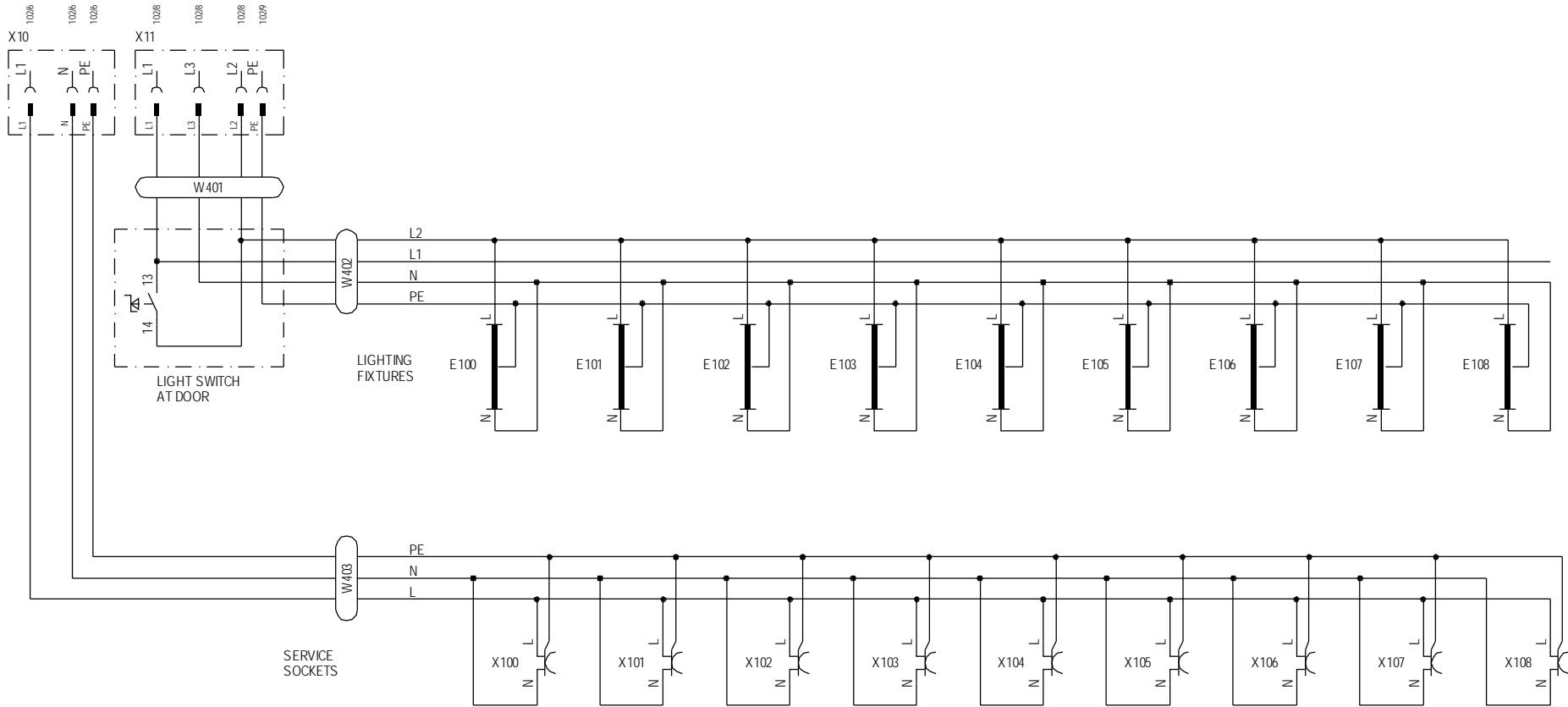


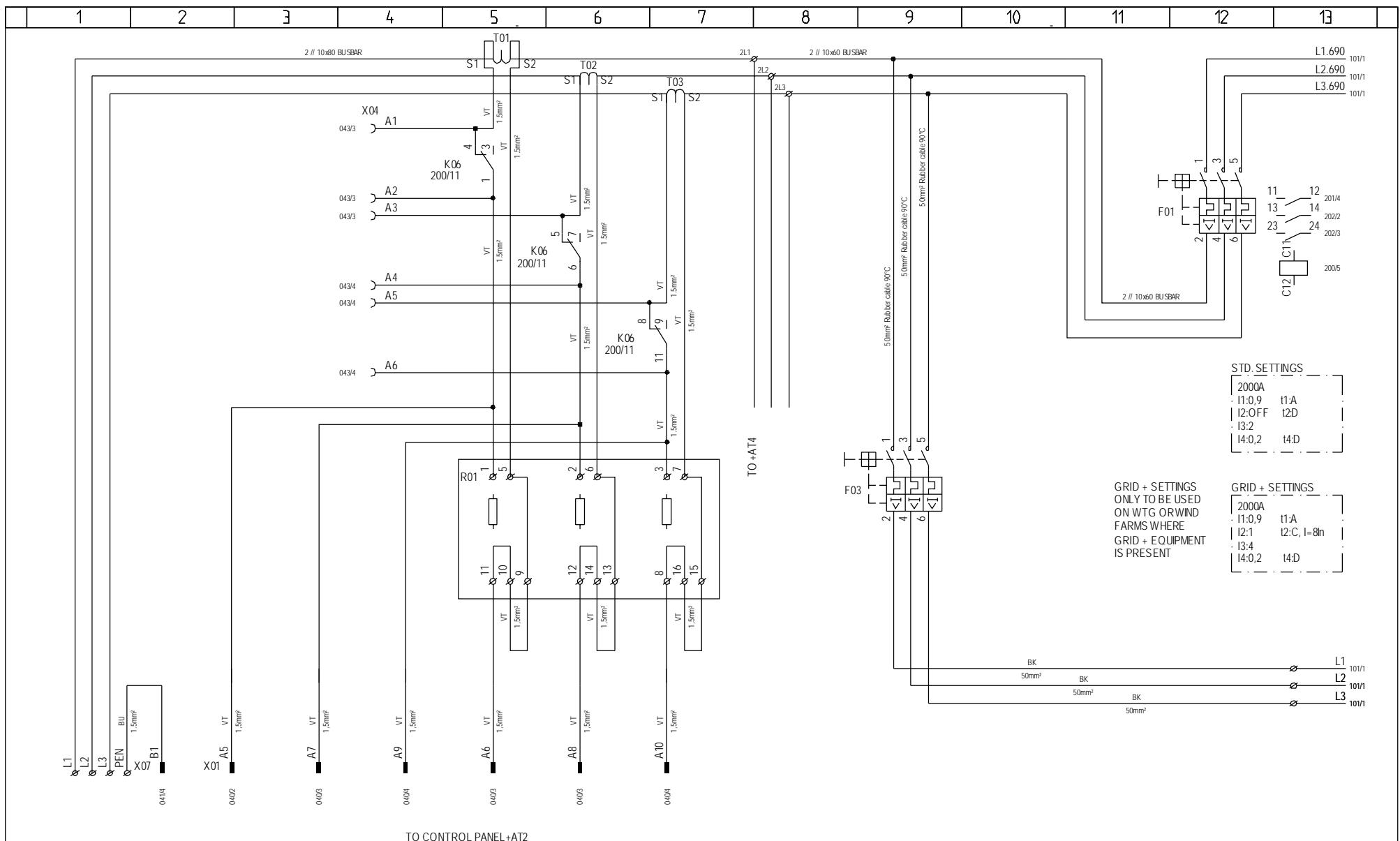
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	Date	Initials	Function	External connections trigger		
Designed	031025	CHO	Project title	Main Panel +AT1, V82-1.65MW 1-Speed, MK II & MK III		
Approved	060621	FLT	Comments	Customer Vestas Wind Systems A/S		
Revised	060621	INI	Rev.	Drawing no.	6012514	Cont. sheet 043

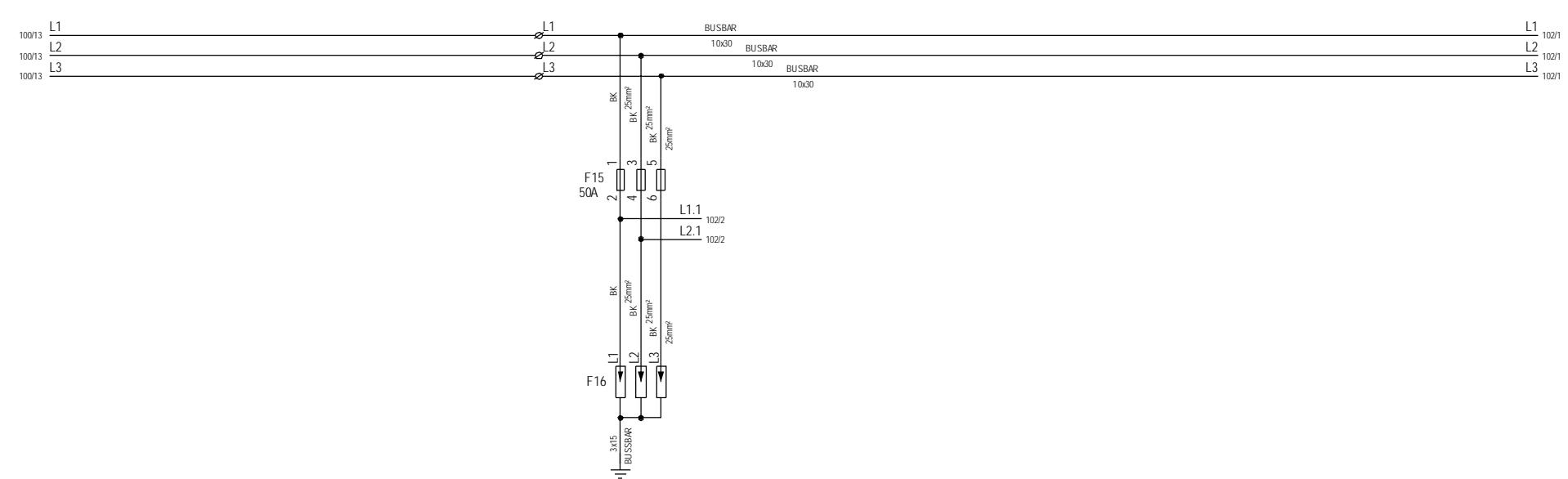


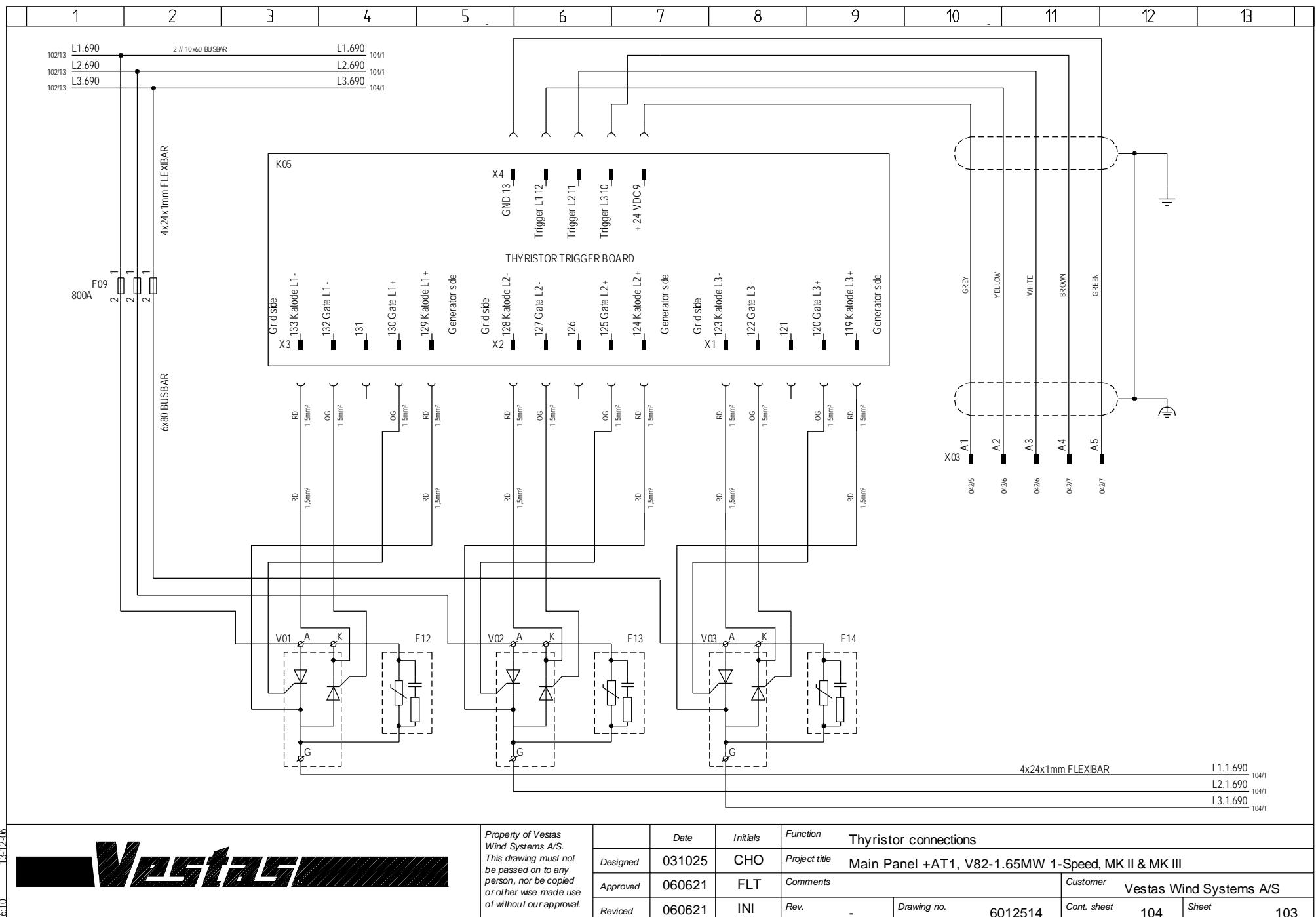
	1	2	3	4	5	6	7	8	9	10	11	12	13	
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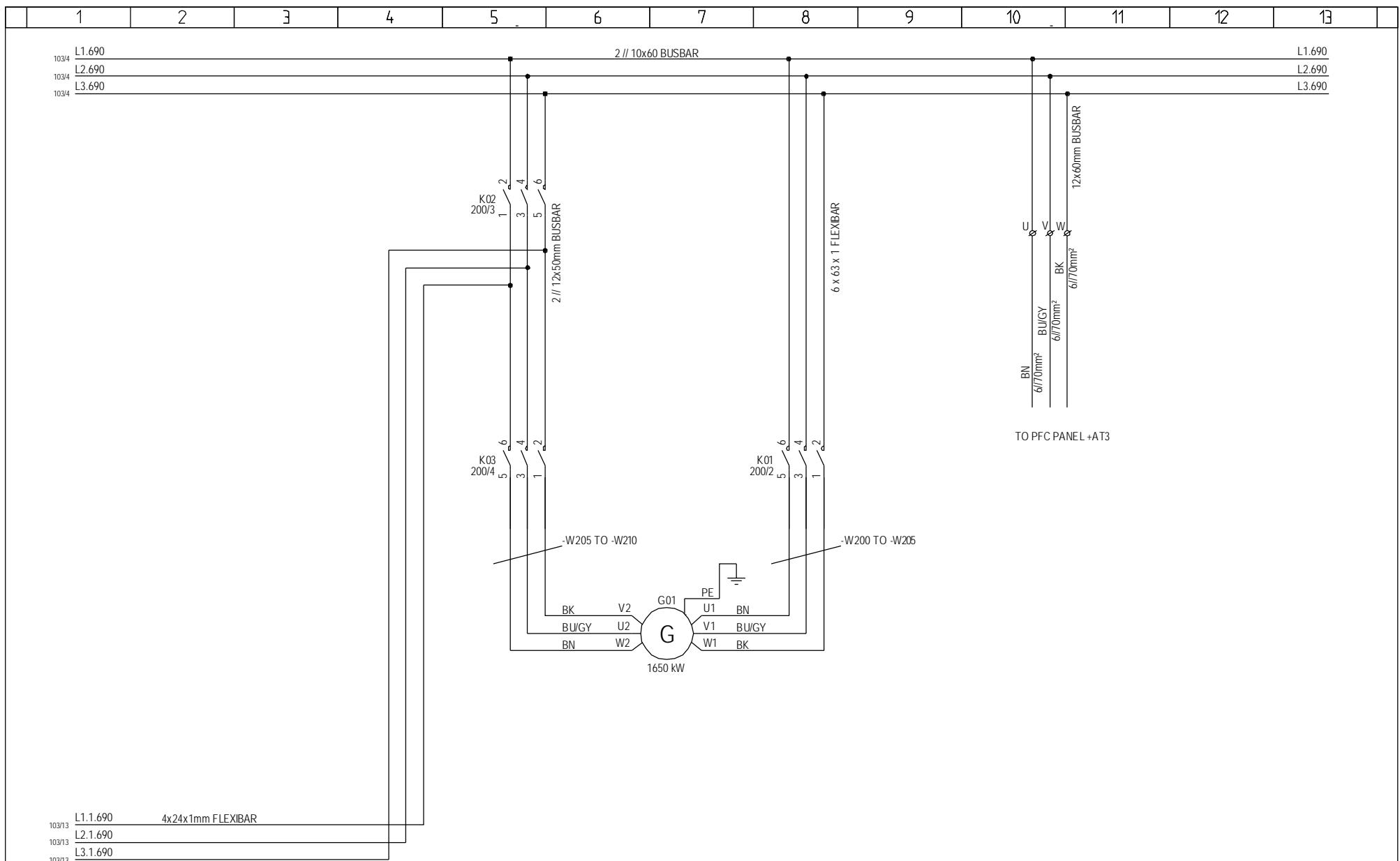


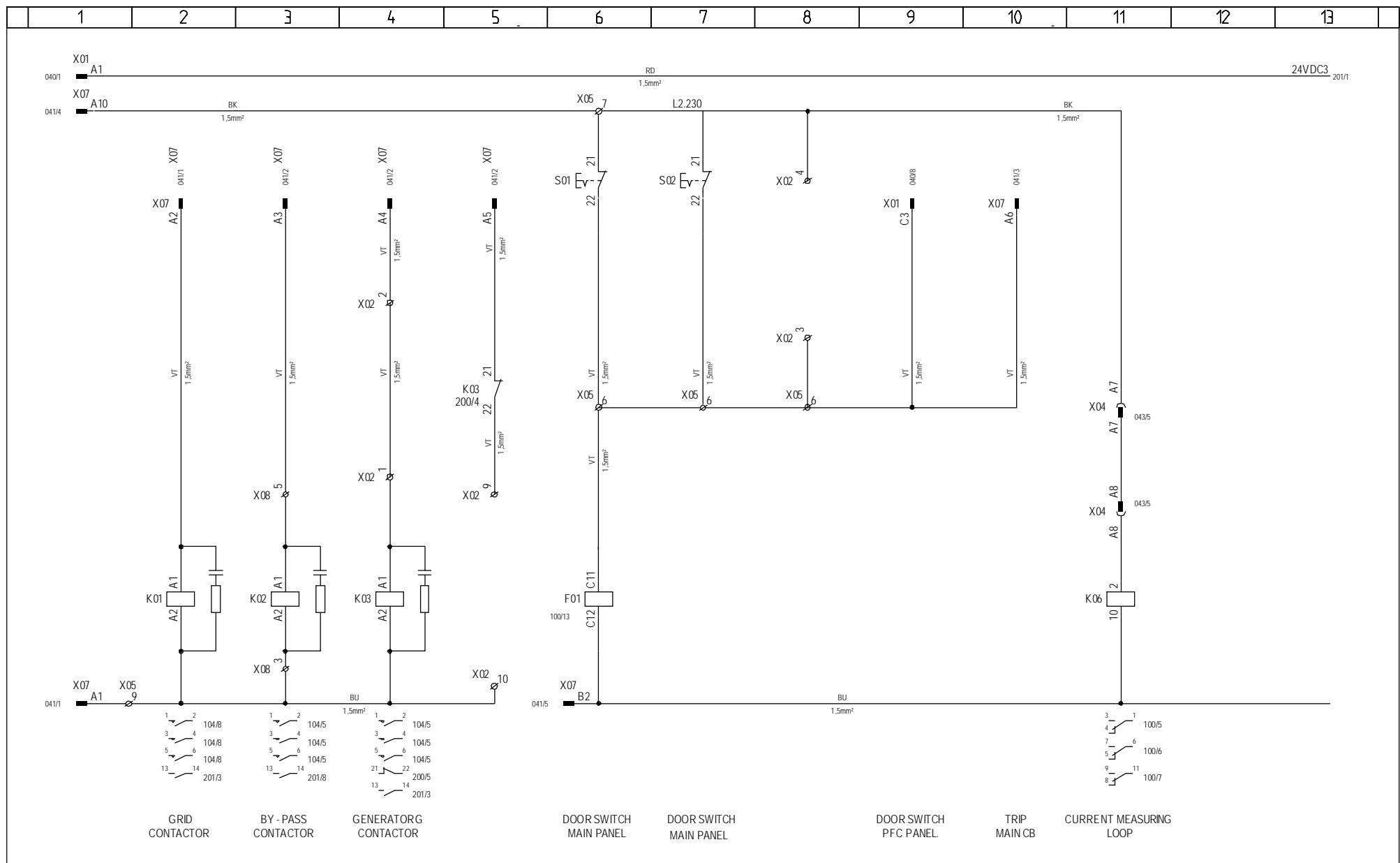


1	2	3	4	5	6	7	8	9	10	11	12	13
100/13 L1.690												L1.690
100/13 L2.690												L2.690
100/13 L3.690												L3.690









6:10 13-12-06

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	Date	Initials	Function	Internal connections						
Designed	031025	CHO	Project title	Main Panel +AT1, V82-1.65MW 1-Speed, MK II & MK III						
Approved	061213	SLB	Comments				Customer	Vestas Wind Systems A/S		
Revised	061213	INI	Rev.	-	Drawing no.	6012514	Cont. sheet	201	Sheet	200

1	2	3	4	5	6	7	8	9	10	11	12	13

24VDC3
200/13

The diagram illustrates a complex electrical circuit layout across 13 numbered slots (1 to 13). Key components and their connections include:

- Slot 1:** A3 (Wh) → X01 → 040/2.
- Slot 2:** A2 (Wh) → X01 → 040/1.
- Slot 3:** A3 (Wh) → X02 → 040/2.
- Slot 4:** A2 (Wh) → X01 → 040/1; X05 → 040/1.
- Slot 5:** K03 200/4 → 040/1; X02 → 040/1.
- Slot 6:** F01 100/13 → 040/1; X02 → 040/1.
- Slot 7:** B8 → 040/7; F16.L1 → 040/7; F16.L2 → 040/7; F16.L3 → 040/7.
- Slot 8:** X08 → 040/2; F04.L1 → 040/2; F04.L2 → 040/2; F04.L3 → 040/2.
- Slot 9:** K02 200/3 → 040/2; X08 → 040/2.
- Slot 10:** F09.L1 → 040/2; F09.L2 → 040/2; F09.L3 → 040/2.
- Slot 11:** X09 → 040/7; X08 → 040/7.
- Slot 12:** C9 → 040/10; X02 → 040/10.
- Slot 13:** X02 → 040/10.

Wires are labeled with thicknesses such as 1.5mm². Components like F01, F04, F09, and K03 are represented by rectangles with internal labels like L1, L2, L3, or numbers 100/13, 200/4, 200/3.

GENERATORg
FEEDBACK
IF PRESENT

GENERATOR
FEEDBACK

MAIN CB
FEEDBACK

TRANSIENT CONTROL CIRCUIT

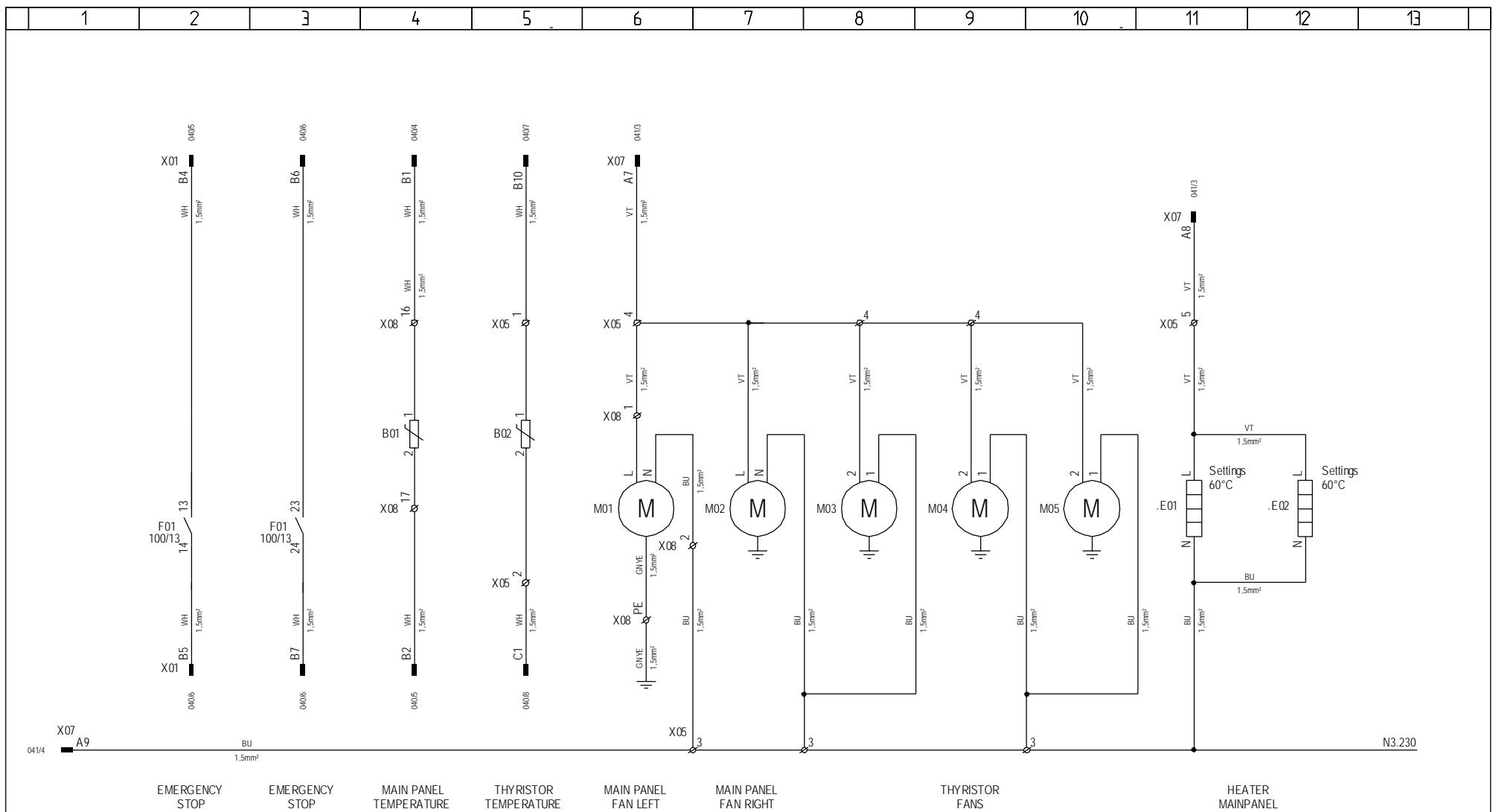
BY-PASS
FEEDBACK

THYRISTOR FUSE FEED BACK

SPARE

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	Date	Initials	Function	Internal connections						
Designed	031025	CHO	Project title	Main Panel +AT1, V82-1.65MW 1-Speed, MK II & MK III						
Approved	060621	FLT	Comments							
Revised	060621	INI	Rev.	-	Drawing no.	6012514	Cont. sheet	202	Sheet	201



60096208 MAIN PANEL +AT1 1500/1650kW 690V 50Hz

Component	Description	Qty per	Stk UM	Position Number
D1001226	Cable conduit, Din rail & eart	0,000	EA	
D1001276	Work instructions for producti	0,000	EA	
D6012514	MAIN PANEL +AT1, PS/AS 30t 50	0,000	EA	
D6012771	Cable conduit, Din rail & eart	0,000	EA	
D6013213	MAIN PANEL +AT1, PS/AS 30t 50	0,000	EA	
60096708	CABINET TS8 1 DOOR W/W	1,000	EA	
60097661	CABINET TS8 1 DOOR W/W	1,000	EA	
60097749	MOUNT PLATE TS8 W/W	1,000	EA	
60097750	MOUNT PLATE TS8 W/W	1,000	EA	
60010316	BASE PL CLAMP TS8 WA4547276	2,000	EA	
60096911	COMBINATION ANGLE 4540.000	2,000	EA	
60010570	COVER BAYING TS 8800.460 600mm	1,000	EA	
60096979	ATTACHMENT MOUNT PLATE TS	4,000	EA	
60096970	PUNCH SECTION 8612.160 OUTER	1,000	EA	
60096968	PUNCH SECTION 8612.060 INNER	10,000	EA	
60096972	PUNCH SECTION 8612.180 OUTER	6,000	EA	
60096993	ANGULAR BAYING BRA TS 8800.430	4,000	EA	
60096995	QUICK FIT BAYING CLAMP TS	6,000	EA	
60096912	BAYING BRA 4582.500	1,000	EA	
60096927	SUPPORT STRIP 4697.000 740mm	1,000	EA	
60010699	CONDENSATION PROT DRY BAG 500G	4,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60097571	LABEL TYPE SIGN I/III +AT1.	1,000	EA	
60002569	LABEL "MAIN PANEL + AT1"	1,000	EA	
60002430	LABEL "48 NM"	5,000	EA	
60002429	LABEL "70 NM"	4,000	EA	
60006822	STICKER "LYN" 25MM	0,300	EA	
60006823	STICKER "LYN" 50MM	0,300	EA	
60006824	STICKER "LIGHTNING" 100MM	0,300	EA	
60007240	BUSBAR HOLDER 12x5-10x30MM	2,000	EA	
60006819	STICKER "EARTH" 14MM	0,500	EA	
60006826	STICKER "1" 14MM	0,100	EA	
60006827	STICKER "2" 14MM	0,100	EA	
60007437	BRAIDED SLEEVE 10-17mm BK	0,900	M	
60007164	TRAFO CURRENT 2000/1A 25VA	3,000	EA	
60007635	CABLE GLAND M63 BRASS BMBC-07	51,000	EA	
60007644	LOCKNUT M63 BRASS BMBL-08	51,000	EA	
60013855	BAND STEEL 3x20mm TS8 800x2200	4,000	EA	
60091480	CABLE ENTRY PLATE	1,000	EA	
60006812	STICKER "U" 14MM	0,100	EA	
60006813	STICKER "V" 14MM	0,100	EA	
60006814	STICKER "W" 14MM	0,100	EA	
60006810	STICKER "D" 14MM	0,030	EA	
60006811	STICKER "E" 14MM	0,030	EA	
60006809	STICKER "N" 14MM	0,030	EA	
60006815	STICKER "L1" 14MM	0,060	EA	
60006816	STICKER "L2" 14MM	0,060	EA	
60006817	STICKER "L3" 14MM	0,060	EA	
60006042	SIGN F TERMINAL ZB-5LGS 1-10	2,000	EA	
60006043	SIGN F TERMINAL ZB-5LGS 11-20	2,000	EA	
60007201	EARTH BAR 01130 9x6.5x1000MM	0,230	M	
60013412	ANGLE BRACKET 2x10x25MM	4,000	EA	
60097880	LABEL +AT1 NM72/82 IEC I/III	0,150	EA	
60013839	BRA 5x40x471mm ISOLATOR	1,000	EA	
60007322	BUSBAR FLEX SPACER 40-63MM	1,250	EA	
60013828	BRA 5x40x472mm ISOLATOR	1,000	EA	
60007320	BUSBAR FLEX SPACER	4,000	EA	
60013733	ANGLE SUPPORT 440MM F ISOLATOR	4,000	EA	
60007332	BUSBAR ISOLATOR 10x40MM	18,000	EA	
60007333	BUSBAR ISOLATOR 10x50MM	9,000	EA	
60007334	BUSBAR ISOLATOR 10x60MM	3,000	EA	
60013827	BRA 5x40x511mm ISOLATOR	1,000	EA	
60013836	COVER PVC 4x700x277mm	1,000	EA	
60013865	COVER PVC NM64/82 30t	1,000	EA	
60013866	COVER PVC NM64/82 30t	1,000	EA	
60013867	COVER PVC NM64/82 30t	1,000	EA	
60013868	COVER PVC NM64/82 30t	1,000	EA	
60013869	COVER PVC NM64/82 30t	1,000	EA	
60014614	PROTECTIVE SCREEN 120*120MM ME	1,000	EA	
60013660	ANGLE BRA 1 F COVER NM80 +AT1	1,000	EA	

60013661	ANGLE BRA 2 F COVER NM80 +AT1	1,000	EA
60013662	ANGLE BRA BOTTOM F COVER NM80	2,000	EA
60013901	COVER PVC AUX SUPPLY IEC	1,000	EA
60097742	COVER PVC BUSBAR AUX SUPPLY	1,000	EA
60013829	COVER ALU-ZINC 2x540x870mm	1,000	EA
60007834	WIRE TIN 35 200MM Ø10 IEC/UL	2,000	EA
60007829	WIRE TIN 16 150MM Ø8 IEC/UL	2,000	EA
60097628	WIRING F04&F05 MAIN IEC I/III	1,000	EA
60097630	WIRING X08 MAIN IEC I/III	1,000	EA
60097626	WIRING 230VAC MAIN IEC I/III	1,000	EA
60097623	WIRING 24VDC3 MAIN IEC I/III	1,000	EA
60097627	WIRING F03&F15 MAIN IEC I/III	1,000	EA
60097635	WIRING M03-05 MAIN IEC I/III	1,000	EA
60097624	WIRING R01&X04 MAIN IEC I/III	1,000	EA
60097644	WIRING T07 MAIN IEC I/III	1,000	EA
60097645	WIRING T08 MAIN IEC I/III	1,000	EA
60097620	WIRING X01 MAIN IEC I/III	1,000	EA
60097609	WIRING X07 MAIN IEC I/III	1,000	EA
60097909	WIRING F03 MAIN IEC I/III	1,000	EA
60012609	WIRING DOOR EARTH	1,000	EA
60012619	WIRING TRIGB 30T	1,000	EA
60097646	WIRING X10&X11 MAIN IEC I/III	1,000	EA
60097649	WIRING-X03 MAIN IEC I/III	1,000	EA
60094022	BRA F GRID CONNECTION	6,000	EA
60007283	BUSBAR COVER 78 393 12-30x10MM	0,350	M
60007632	CABLE GLAND M32 BRASS BMBC-04	2,000	EA
60007633	CABLE GLAND M40 BRASS BMBC-05	1,000	EA
60007641	LOCKNUT M32 BRASS BMBL-05	2,000	EA
60007642	LOCKNUT M40 BRASS BMBL-06	1,000	EA
60097910	SIGN GRID CONNECTION	2,000	EA
60102296	CU BUSBAR KIT 1 MAIN PAN	1,000	EA
60102315	CU BUSBAR KIT 2 MAIN PAN	1,000	EA
60102316	FLEXIBAR KIT 3 MAIN PAN	1,000	EA
60104151	CABLE CONDUIT DIN RAIL MAIN	1,000	EA
60009771	STUD BOLT M12x30 8.8	4,000	EA
D22000178	MAIN PANEL +AT1, NM72-82/1650	0,000	EA
D22000231	CI-MAIN PANEL +AT1 PS/AS 30t 5	0,000	EA
118934	LABEL ELECTRICAL WARNING UNIV.	2,000	EA
158880	SCR TORX CSK FH M8x20 8.8 TZN	8,000	EA
60007458	CABLE TIE 140x2.5mm WH	120,000	EA
60007459	CABLE TIE WHITE 200x2.5mm	20,000	EA
60007461	CABLE TIE 200x2.5mm BK	3,000	EA
60007465	CABLE TIE 368x4.8mm BK	7,000	EA
60007468	CABLE TIE BLACK 550x8,0MM	8,000	EA
60007472	CABLE TIE HOLDER MB3A-NN3P 20	18,000	EA
60009578	SCR CRS PH M3x8 FZB	10,000	EA
60009580	SCREW ISO 7045 M4X10-FZB-H	17,000	EA
60009600	SCREW ISO 7045 M 4 X 16 - 4.8	32,000	EA
60009604	SCREW ISO 7045 M 5 X 10 - 4.8	8,000	EA
60009606	SCR CRS PH M5x20 4.8 FZB	4,000	EA
60009610	SCR CRS PH M6x14 4.8 FZB	25,000	EA
60009620	SCR M5x16 FZB	24,000	EA
60009638	SCR HEX SET M8x16 8.8 FZB	16,000	EA
60009639	SCR HEX SET M8x20 8.8 FZB	6,000	EA
60009646	SCR HEX SET M8x25 8.8 FZB	6,000	EA
60009647	SCR HEX SET M8x30 8.8 FZB	1,000	EA
60009670	SCR HEX SET M10x16 8.8 FZB	23,000	EA
60009670	SCR HEX SET M10x16 8.8 FZB	4,000	EA
60009671	SCR HEX SET M10x20 8.8 FZB	19,000	EA
60009673	SCR HEX SET M10x25 8.8 FZB	38,000	EA
60009678	SCR HEX SET M10x35 8.8 FZB	30,000	EA
60009679	SCR HEX SET M10x40 8.8 FZB	24,000	EA
60009688	SCR HEX SET M10x45 8.8 FZB	8,000	EA
60009689	SCR HEX SET M10x50 8.8 FZB	52,000	EA
60009690	SCR HEX SET M10x55 8.8 FZB	3,000	EA
60009691	SCR HEX SET M10x60 8.8 FZB	6,000	EA
60009692	SCR HEX SET M10x65 8.8 FZB	9,000	EA
60009693	SCR HEX SET M10x70 8.8 FZB	24,000	EA
60009701	SCR HEX SET M12x35 8.8 FZB	6,000	EA
60009710	SCR HEX SET M12x70 8.8 FZB	40,000	EA
60009712	SCR HEX SET M12x80 8.8 FZB	6,000	EA
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	80,000	EA
60009752	SCR M4.8x19 FZB	3,000	EA
60009763	SCR SKT STOP M10x30 14H	6,000	EA

60009773	SCR M4x8 FZB	3,000	EA
60009787	WASHER M4 140HV FZB	4,000	EA
60009795	WASHER SPR 6 FZG	22,000	EA
60009803	WASHER SPR 8 FZG	13,000	EA
60009809	WASHER SPR 10 FZG	75,000	EA
60009817	WASHER SPR 13 FZG	28,000	EA
60009838	LOCK WASHER DIN 6798 A4 - FZB	41,000	EA
60009839	WASHER LOCK 5 FZB	12,000	EA
60009840	LOCK WASHER DIN 6798 A 6 FZB	2,000	EA
60009841	WASHER LOCK 8 FZB	20,000	EA
60009842	WASHER LOCK 10 FZB	41,000	EA
60009861	NUT ISO 4032 M 4 - 6 - FZB	37,000	EA
60009864	NUT HEX FLANGE M5 8 FZB	12,000	EA
60009873	NUT HEX M8 8 FZB	9,000	EA
60009879	NUT HEX M10 8	203,000	EA
60009883	NUT HEX M12 8 FZB	54,000	EA
60009895	NUT LIFTING EYE M10 FZB	4,000	EA
60011516	CABLE CLIP 8-1 W 1 LUG	1,000	EA
60096851	TORX SCREW 2486.500 5.5X13MM	57,000	EA
60097543	BOLT HEX M12x120 A4 70	2,000	EA
092279	FAN AXIAL 230V 97m3 120x120mm	3,000	EA
098429	SUPPORT RAIL MAIN PANEL V82	12,000	EA
60009676	SCREW ISO 4017 M10 x 30 - 8.8	16,000	EA
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA B01
60007481	CABLE RACK TK 5-7	1,000	EA B01
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA B02
60007481	CABLE RACK TK 5-7	1,000	EA B02
60014729	HEATER FAN CR0 27 230V 350W UL	2,000	EA E01-E02
60091912	END STOP WAGO 249-117 10MM	4,000	EA E01-E02
60013841	BRA 5x25x376mm BUSBAR HOLDER	1,000	EA FLEXIBAR
60005750	ACB E2B 2000A PR111P LSIG 3P	1,000	EA F01
60013843	FITTINGS UNIVERSAL E-CB	1,000	EA F01
60005670	MCCB S3X 160A R160 3P	1,000	EA F03
60096022	TERMINAL COVER S3-S4 3P IP20	1,000	EA F03
60000674	OVP 600FM	3,000	EA F04
60000675	BUSBAR 3 OVPS	1,000	EA F04
60091912	END STOP WAGO 249-117 10MM	2,000	EA F04
60007399	HEAT SHRINK 12.7mm 3:1 GNYE	0,030	M F04
60005079	FUSE SWITCH NH00 33199 160A	1,000	EA F05
60005097	FUSE 690V 50A NH00 GL/GG	3,000	EA F05
60005355	FUSE SEMI 660V 800A PSC IEC/UL	3,000	EA F09
60005358	AUX CONT MS3V FUSE SIZE 30-33	3,000	EA F09
51706501	RC UNIT 2T459 THYR 690V 0.33uF	1,000	EA F12
51706501	RC UNIT 2T459 THYR 690V 0.33uF	1,000	EA F13
51706501	RC UNIT 2T459 THYR 690V 0.33uF	1,000	EA F14
60005071	FUSE SWITCH NH00 33198 3P	1,000	EA F15
60005097	FUSE 690V 50A NH00 GL/GG	3,000	EA F15
60000674	OVP 600FM	3,000	EA F16
60000675	BUSBAR 3 OVPS	1,000	EA F16
60007399	HEAT SHRINK 12.7mm 3:1 GNYE	0,030	M F16
60004712	CB 3RV1421-1GA10 4.5-6.3A	1,000	EA F19
60005759	RCCB 5SM1312-6 25A 2P	2,000	EA F20,F22
60005160	MCB 5SX2210-7 10.0A C 2P	2,000	EA F21,F23
60004316	CONT EH1200 240V 50/60Hz	1,000	EA K01
60007833	WIRE TIN 35 100MM Ø10 IEC/UL	3,000	EA K01-03
60100566	WIRING RC UNIT 250V EH CONT	3,000	EA K01-03
60004316	CONT EH1200 240V 50/60Hz	1,000	EA K02
60004316	CONT EH1200 240V 50/60Hz	1,000	EA K03
51700901	TRIGGER BOARD TAC 40 690V	1,000	EA K05
60004535	RELAY MT326230 10A 230V 3P	1,000	EA K06
60005026	SOCKET MT 78740 11-POLED	1,000	EA K06
60005028	FASTENING BRACKET F RELAY 3P	1,000	EA K06
60014655	FAN 500M3/H 230V	2,000	EA M01/02
60014668	FILTER EXH 232x232x17.5MM	2,000	EA M01/02
60014608	FAN 230V 18W	3,000	EA M03/04/05
60014614	PROTECTIVE SCREEN 120*120MM ME	3,000	EA M03/04/05
60013649	PLATE ALU F FAN 8844	3,000	EA M03/04/05
60005768	SWI SWDIS 25A 3P OT25ET3	1,000	EA Q01
60005774	HANDLE OHB 2RJ BK	1,000	EA Q01
60005776	SWI COVER OTS32T3 3P	2,000	EA Q01
60002561	LABEL "Q01"	1,000	EA Q01
60091912	END STOP WAGO 249-117 10MM	1,000	EA R01
51700501	RESISTOR SHUNT 3x2.5 OHM	1,000	EA R01
60000608	VDR SIOV-S10K275 275V	1,000	EA R02

60010456	DOOR-OPERATED SWITCH	2,000	EA	S01-S02
60101986	TRAFO 600-690/2x115V	1,000	EA	T08
60001041	THYR MODULE 2T699N22TOF-K0	3,000	EA	V01/02/03
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X01
60002503	LABEL "-X01"	1,000	EA	X01
60006036	CONN TERM UKK3-MSTB-5.08-2 F 1	10,000	EA	X02
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X02
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X02
60006038	SPACER PLATE DG-UKK3-MSTB-5.08	1,000	EA	X02
60006039	SPACER PLATE DP-UKK3-MSTB-5.08	1,000	EA	X02
60006040	SEPARATION PLATE LEFT	1,000	EA	X02
60001899	CONN MSTB F 10 LEADED	2,000	EA	X02
60006621	LABEL TERMINAL 1-10 5.08 MM	0,300	EA	X02
60006622	LABEL TERMINAL 11-20 5.08 MM	0,200	EA	X02
60006566	HOUSING 42P BULKHEAD	1,000	EA	X03
60002505	LABEL "-X03"	1,000	EA	X03
60006566	HOUSING 42P BULKHEAD	1,000	EA	X04
60002506	LABEL "-X04"	1,000	EA	X04
60006071	TERMINAL WAGO 870-501 2-LEV.0,	21,000	EA	X05
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	X05
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X05
60006086	PUSH-IN JUMPER BAR 870-402 2-P	5,000	EA	X05
60006088	PUSH-IN JUMPER BAR 870-404 4-P	6,000	EA	X05
60006089	PUSH-IN JUMPER BAR 870-405	2,000	EA	X05
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X05
60097874	MARK WAGO +AT1 PANEL NM72/82	1,000	EA	X05
60006571	HOUSING 32P BULKHEAD	1,000	EA	X07
60002509	LABEL "-X07"	1,000	EA	X07
60006038	SPACER PLATE DG-UKK3-MSTB-5.08	1,000	EA	X08
60006039	SPACER PLATE DP-UKK3-MSTB-5.08	1,000	EA	X08
60006040	SEPARATION PLATE LEFT	1,000	EA	X08
60006036	CONN TERM UKK3-MSTB-5.08-2 F 1	10,000	EA	X08
60005984	TERMINAL GROUND M4/6P	1,000	EA	X08
60005998	END SEC FEM6 GY 118368.16	1,000	EA	X08
60001899	CONN MSTB F 10 LEADED	2,000	EA	X08
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X08
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X08
60006038	SPACER PLATE DG-UKK3-MSTB-5.08	1,000	EA	X09
60006039	SPACER PLATE DP-UKK3-MSTB-5.08	1,000	EA	X09
60006040	SEPARATION PLATE LEFT	1,000	EA	X09
60006036	CONN TERM UKK3-MSTB-5.08-2 F 1	2,000	EA	X09
60001853	CONN MSTB F 2 LEADED	1,000	EA	X09
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X09
60006042	SIGN F TERMINAL ZB-5LGS 1-10	1,000	EA	X09
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X09
60011436	SKT 216RU6 2P+E 250V 16A CEE	1,000	EA	X10
60002564	LABEL "X10"	1,000	EA	X10
60011441	3P+PE 200-250V 16A 316RU9	1,000	EA	X11
60002565	LABEL "X11"	1,000	EA	X11

Change Info

Item no.	Item text:
60096681	Control Panel +AT2 Passive Stall/Active Stall 30T 690V 50Hz

Active revision for production

Drawing no.: 6012290

Version	Date	Init./App.	Description of change since last revision
13	13.12.2006	INI/SLB	Changed with ECO 219510_ Grid++ and PCS Converter OPTION removed. Page 031: F51, F52, Q51, Q52, X25 and X26 removed. Page 049: W600 connection between RS422 com. to =BA+1S1 PCS converter removed. Page 051: External connection X25 and X26, page removed. Page 103: Option, connection between F51, F52, Q51, Q52, X25 and X26 removed. Page 304: Q51 and Q52 recooler fan option (PCS converter) removed. Page 411: F51 transformer fan overload and F52 recooler fan overload removed. Page 451: Text to 3COM6 updated to "3COM6 RS communication to +AT4". Page 460: Text to 838 updated to "Spare for transformer fan".

LST no.: 21000075

Version	Date	Init./App.	Material BOM no.: 60096681	Description of change since last revision
11	03.04.2007	INI/FLT		Changed with ECO 223395_ Updated for production in Spain. Please see Change Description in ECO 223395

Old revisions for service

Drawing no.: 6012290

Version	Date	Init./App.	Description of change since last revision
12	24.10.2006	INI/FLT	Changed with ECO 217924 6 ECO 217288 Implementation of label 118934 & CMS Page 001, 002, 003, 037 and 508 updated Page 030: Front Panel Layout updated with labels. Page 031: S1201 CMS option added. Page 039: New page with following text added. " Use copper conductors only for external wires and cables. Use 60°C cables for currents less than 100Amps and 75°C cables for higher currents". Page 210: Connections 0VDC and 24VDC for CMS added. Page 407: F45.T1 and F45.T2 47 ohm resistor added. Page 509: New page with connection for CMS options. Changed with ECO 216036, Connection for Communication Page 001 and 002: Updated Page 031: Panel Outline updated with option components for Ethernet. Page 210: External RS232 connection X11.1 and X11.2 and Ethernet added. Page 505: Ref. to next page updated. Page 506, 507 and 508: External Communication added.
11	15.08.2006	INI/FLT	Correction of PCS Converter. Page 001 and 002: Updated Page 049: B04.TX+corrected to B04.TX-, B04.TX- corrected to B04.TX+, B04.RX+corrected to B04.RX- and B04.RX- corrected to B04.RX+. Implementation of PCS Converter. Page 001 and 002: Updated Page 031: Option X25 and X26 added. Option F51, F52 Q51 and Q52 added. Page 049: W600 Cable color added. Connection for RS 422 COM to =BA+1S1PCS converter added. Page 051: New page External connection X25 X26 added. Page 103: Option, Transformer Fan and Recooler Fan added. Page 304: Q51 Transformer Fan and Q52 Recooler Fan Option (PCS Converter) added. Page 411: F51 Transformer Fan overload and F52 Recooler Fan overload added. Page 451: Text changed 3COM6 RS422 communication to +AT4 or BA =1S1. Page 460 Connection 838, text changed from Spare to Transformer /Recooler Fan. Page 462: Connection 615, text changed from Spare to Transformer Fan overload and Connection 616, text changed from Spare to Recooler Fan overload. Page 461: Input 625 text SPARE changed to NACELLE FAN 2 OVERLOAD Page 505: I-7520AR references added.
09	21.01.2005	SLB/SLB	Page 001 and 002 Updated. Page 048: W391 cable color to L2 and L3 corrected, and changed from BU to BU/GY Page 405: Text to U02.400 " UPS panel temperature" added.
08	12.11.2004	INI/CHO	

07	04.10.2004	INI/CHO	All pages updated with Vestas logo Page 030: 60103218 Label for Service Key on Panel added.
06	08.07.2004	INI/CHO	Page 001 and 002: Updated. Page 102: F20 "ARCTIC" text and marking removed. Page 111: Text F16 and F17 changed from arctic to arctic option. Page 302: Text Q16 and Q17 changed from arctic to arctic option. Page 407: T1 and T2 jumper and text added. F45 text changed to arctic option.
05	09.06.2004	INI/CHO	Page 001 and 002: Updated. Page 101: F09 text corrected. Page 451: Comm. connection corrected. Page 503: Comm. connection corrected. X01 B/Data- and A/Data- corrected. Page 504 and 505: Comm. connection corrected.
04	04.03.2004	CHO/CHO	Update safety line and temperature sensor in UPS +AT5 panel and other minor changes. Page 001 and 002: Updated Page 040: Text for Safety line and Safety stop updated Page 041: Text for 230V Top Panel corrected Page 042: Cable changed to 36 conductors Page 046: Text Emergency stop corrected Page 048: New signals for UPS panel added Page 201: 230V supply for Top Panel supply corrected Page 210: Terminals for Com supply added. Page 211: Connections to K01 43 – 44 added. Page 405: Connections for UPS panel temperature added Page 409: New signals for UPS panel added Page 410: Input 603 Text corrected to safety relay feedback Page 451: TAC communication outline corrected Page 461: New signals for UPS panel added Page 462: New signals for UPS panel added Page 502: Cable mat. no. corrected and TAC communication corrected Page 503: TAC communication corrected Page 504: TAC communication corrected Page 505: TAC communication corrected
03	13.01.2004	FLT/FLT	Update of RS485 communication. Page 001 and 002: Updated. Page 451: References added. U 203, F203, B02, X01, B03 and B04 removed. Page 501: New page add., External RS232 comm. to external modem. Page 502: New page add., RS232 comm. to OP-panel. Page 503: New page add., RS485 comm. to hub. Page 504: New page add., RS485 comm. to nacelle. Page 505: New page add., RS485 comm. to +AT4.
02	10.12.2003	INI/CHO	Page 001 and 002: Updated Page 031: Updated. Page 034: Terminals X22,13- X22,20 removed. Page 035: Terminal row corrected and end stop added. Page 036: Terminal row corrected for NM64 and NM72/NM82. Page 037: Terminal rows corrected w. end stop labels and end sections. F25 added. Page 041: Text corrected to G1, G2, G3 and G4. Page 101: F09 and F11 settings corrected. Page 102: F49 settings corrected. Page 103: F25 corrected w. text and symbol for arctic. Earth symbols updated. Page 110: F10 and F13 settings corrected. F44, Q44 and X02 added. Page 200: Cable ID added from M01 to earth symbol. Page 201: X02.G1 & X02.G2 changed to X02.G3 & X02.G4. X03.D5 & X03.E1 add. Page 202: Earth symbol updated. Page 210: Earth added to U03. U01.PE & U02.PE ID changed f. 1.5mm ² to 2.5mm ² . Page 301: Q44 added. Page 406: F44 added. Page 500: Jumper inst. added.
01	06.10.2003	CHO/CHO	First version

LST no.: 21000075

Material BOM no.: 60096681

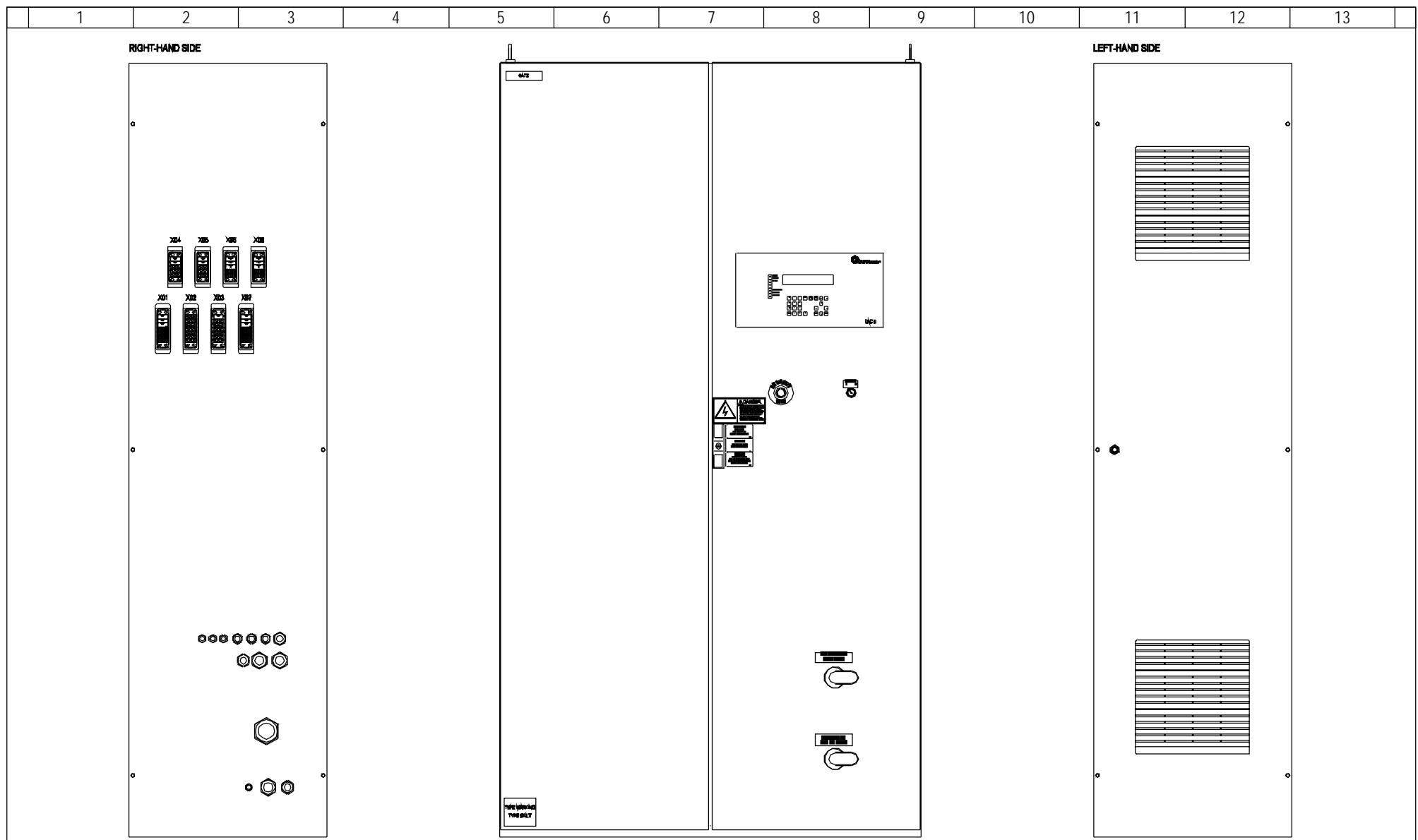
Version	Date	Init./App.	Description of change since last revision
10	25.10.2006	INI/FLT	Changed with ECO 217571 & ECO 217924 Implementation of label 118934 Added: 118934_Label, electrical warning universal & 60095579_Thermolabel, Caution! Risk of... Replaced: 60002681 with 60092974_Thermo. Warning disconnect -F01...
09	08.06.2006	SHL/FLT	Mapics implementation, Controls DK Århus Phased out 60015639 and replaced with 51707301_TAC-II Phased out 60015642 and replaced with 51701501_TOI-II
08	13.12.2004	MILJE/MILJE	Phased out 60015671 and replaced with 51700301_ST-ROX RS232/50Å Converter Following items are added to the BOM. 60102523 DIN RAIL for BUSBAR ADAPTOR 72MM WÖHNER 4 pc 60094872 MARKER CARD WAGO Nos 11-20 TYPE WMB 1 pc 60094860 MARKER CARD WAGO Nos 1-10 TYPE WMB 1 pc 60007258 BUSBAR ADAPTOR 45mm 25A WITH TERMINALS 1 pc Following item are removed from the BOM. 60014164 MARKER CARD RC610 Nos 1-10 VERTICAL 1 pc 60014165 MARKER CARD RC610 Nos 11-20 VERTICAL 1 pc 60014159 MARKER CARD RC610 GEAR OIL HEATER 1 pc 60014157 MARKER CARD RC610 X13 X20 CPU PANEL 30t 1 pc 60097170 SEALING FRAME IP54 for 500-700m ³ /h FAN 2 pc

07	22.09.2004 09.08.2004	INI/CHO CHO+MILJE/CHO1PC	Added 60103218 Label for Service Key on Panel 60004663, 1PC 60004796, 1PC 60004394, 1PC 60004450 added. 60007353 CABLE CONDUIT 25x25mm, 60007358 CABLE CONDUIT 40x40mm, 60007360 CABLE CONDUIT 40x80mm, 60007366 CABLE CONDUIT 60x80mm, 60007182 DIN RAIL removed. 60104150 Cable conduit, DIN rail & earth rail for +AT2. added.
05	01.07.2004	ATM+AMC/CHO	60006476 substituted by 60098976, 60006496 substituted by 60099095 and 60100699 replaced with 60015639
04	01.06.2004	AMC+FLT/FLT	TAC with SW 60015639 replaced with 60100699 CU bus bar kit 5 added, all the CU bus bars are divided into kit.
03	12.03.2004	CHO/CHO	Transformer 60091319 changed to 60101986
02	15.01.2004	ATM/ATM	Changes in busbar adaptors on 50 Hz systems. Small changes in Panels Changes before serial production includes new mounting plate, new component mark and to include the new shaft brake system.
01	16.09.2003	CHO/CHO	First version

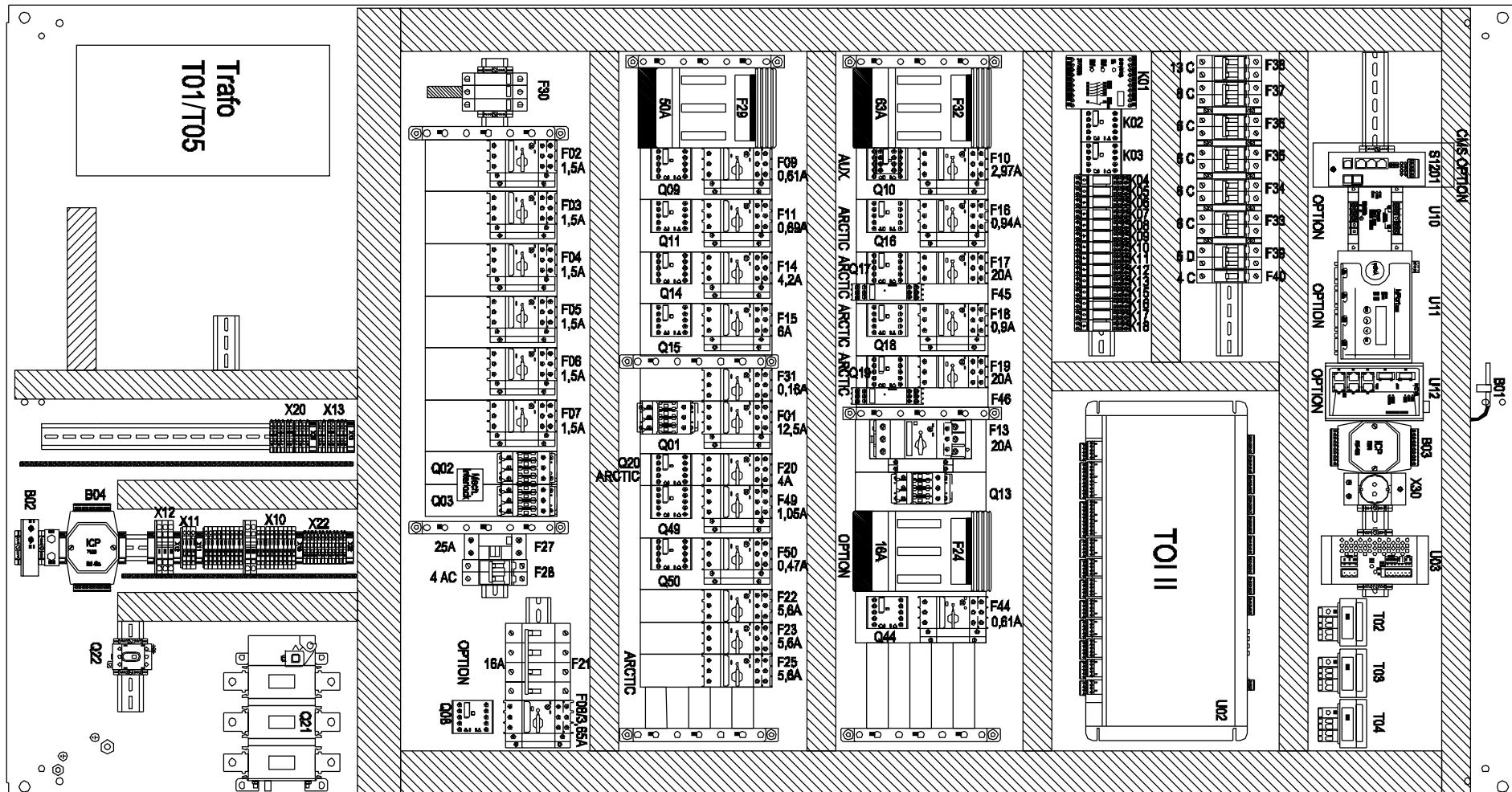
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002	Table of Contents							061213		13		
003	Table of Contents							061213		13		
030	Panel front layout							061024		-		
031	Panel Outline							061213		-		
032	Spare							031006		-		
033	Panel outline doors and s							031006		-		
034	Terminal row X10, X22.							031210		-		
035	Terminal row X11, X12, B0							031210		-		
036	Terminal row X13, X20							031210		-		
037	Terminal rows for Options							031210		-		
039	Cable Connections							061024		-		
040	External connection X01 t							040304		-		
041	External connection X02 t							040304		-		
042	External connection X03 t							040304		-		
043	External connection X04 t							031006		-		
044	External connection X05 t							031006		-		
045	External connection X06 t							031006		-		
046	External connection X07 t							040304		-		
047	External connection X08 t							031006		-		
048	External connection X10							041112		-		
049	External connection X11 X							061213		-		
050	External connection for t							031006		-		
100	690V circuits							031006		-		
101	690V circuits							040609		-		
102	690V circuits							040708		-		
103	690V circuits							061213		-		
104	690V circuits							031006		-		
110	690V circuits							031210		-		
111	690V circuits nacelle hea							040708		-		
200	230V circuits							031210		-		
201	230V circuits							040304		-		
202	230V circuits							031210		-		
210	230V circuits							061024		-		
211	230V circuits							040304		-		
300	TAC Output P4.1 - P4.5 tr							031006		-		



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PAGE	CONTENT							DATE		REVISION		
301	TOI Output 800 - 808							031210		-		
302	TOI Output 810 - 818							040708		-		
303	TOI Output 820 - 828							031006		-		
304	TOI Output 830 - 838							061213		-		
305	TOI Output 840 - 843							031006		-		
400	TAC Input P1.1 - P1.16							031006		-		
401	TAC Input P2.1-7 and P5.1							031006		-		
402	TAC Input P6.1 - P6.7							031006		-		
403	TOI Input 100 - 204							031006		-		
404	TOI Input 300 - 319							031006		-		
405	TOI Input 400 - 419							041112		-		
406	TOI Input 500 - 508							031210		-		
407	TOI Input 510 - 518							061024		-		
408	TOI Input 520 - 528							031006		-		
409	TOI Input 530 - 538							040304		-		
410	TOI Input 600 - 608							040304		-		
411	TOI Input 610 - 618							061213		-		
412	TOI Input 620 - 628							031006		-		
413	TOI Input 630 - 638							031006		-		
414	TOI Input 700 - 709							031006		-		
415	TOI Input 710 - 723							031006		-		
416	TOI Input 725 - 738							031006		-		
417	TOI Input 740 - 748							031006		-		
450	TAC outline							031006		-		
451	TAC communication outline							061213		-		
460	TOI outline output							061213		-		
461	TOI outline input							050121		-		
462	TOI outline input							061213		-		
500	Fibre optic communication							031210		-		
501	External RS232 comm. to e							040113		-		
502	RS232 comm. to OP-panel							040304		-		
503	RS485 comm. to hub							040609		-		
504	RS485 comm. to +AT1 Top P							040609		-		
505	RS485 comm. to +AT4							060815		-		
506	External RS232 Comm. to M							060815		-		
507	External RS232 Comm. to C							060815		-		



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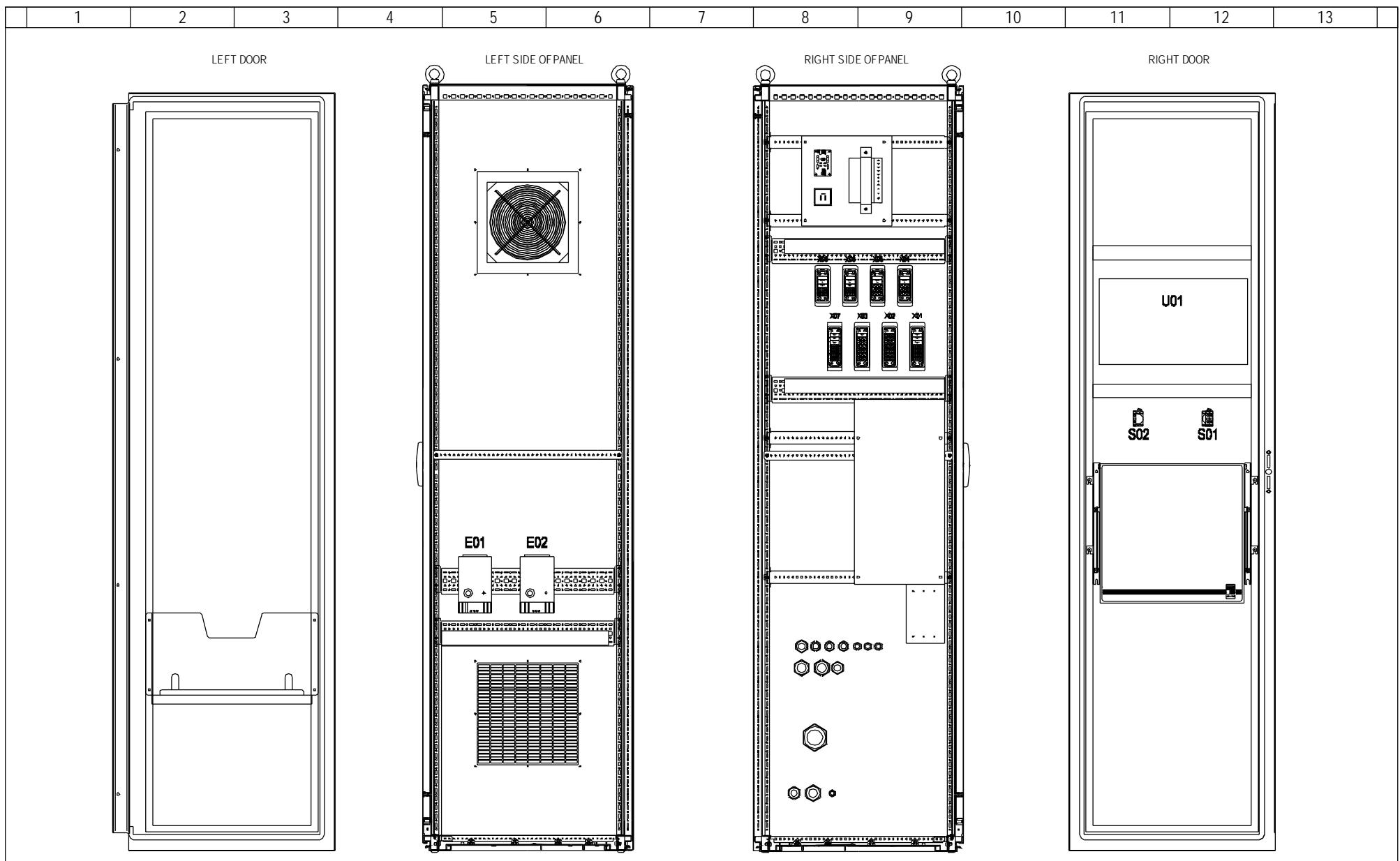


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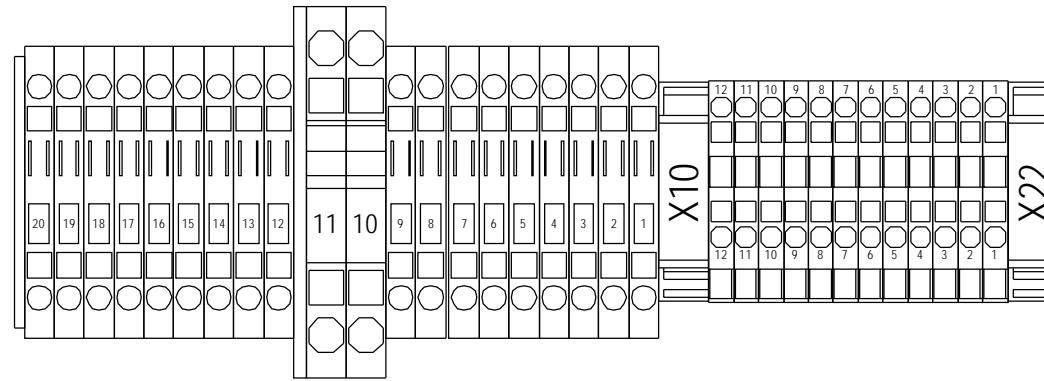


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or other wise made use
of without our approval.

	Date	Initials	Function	Spare									
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz									
Approved			Comments		Customer	Vestas Wind Systems A/S							
Revised	031006	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	033	Sheet	032			

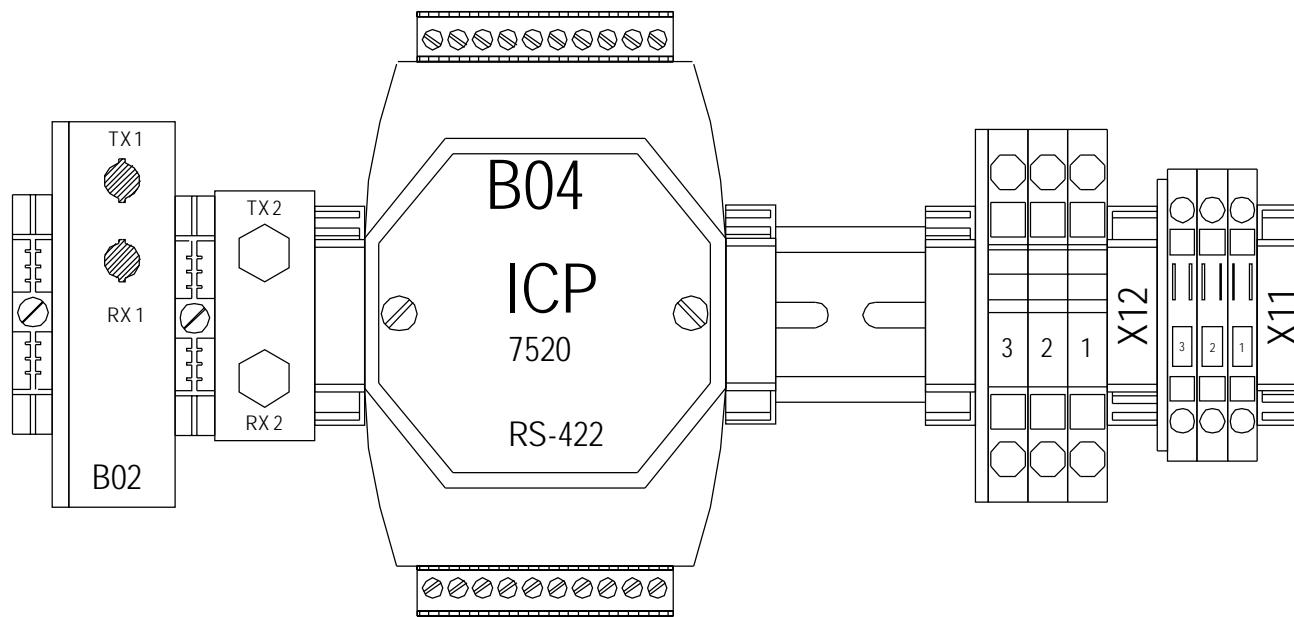


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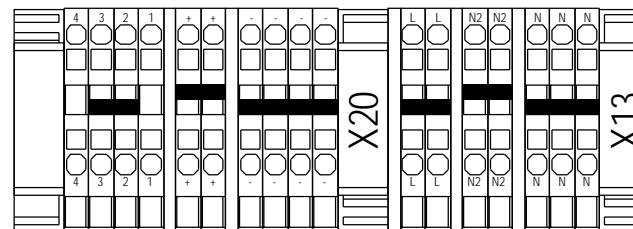


	Date	Initials	Function	Terminal row X10, X22.		
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments			
Revised	031210	INI	Rev.	-	Drawing no.	6012290
			Cont. sheet	035	Sheet	034

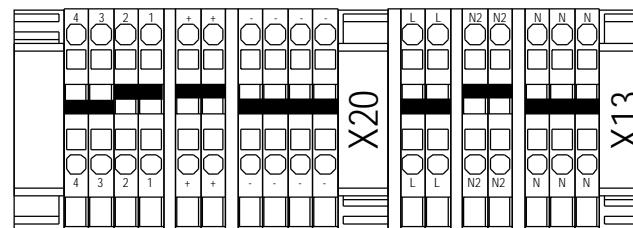
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NM72/NM82

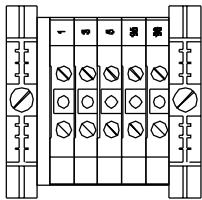


NM64

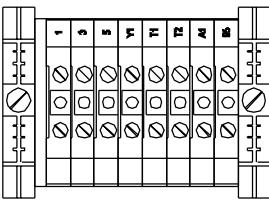
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Approved			Comments			
Revised	031210	INI	Rev.	-	Drawing no.	6012290
			Cont. sheet	037	Sheet	036

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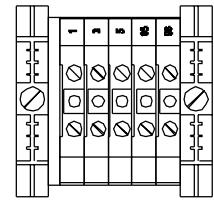
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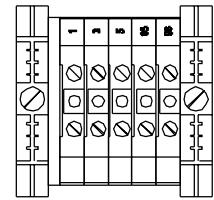
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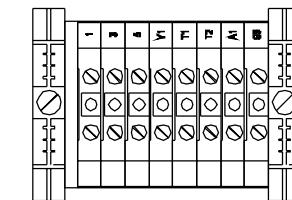
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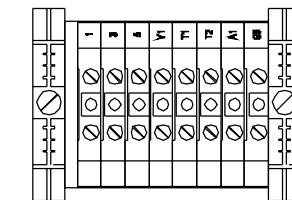
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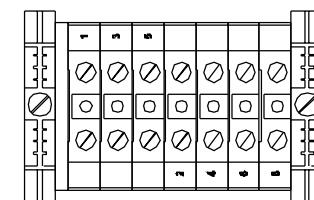
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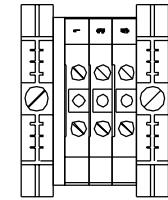
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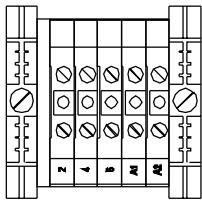
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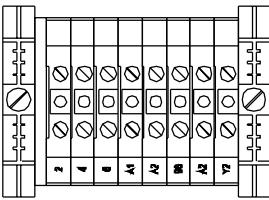
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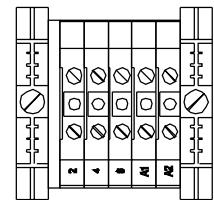
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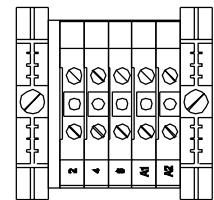
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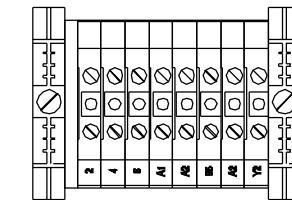
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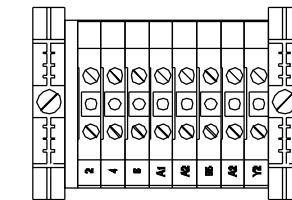
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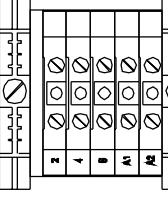
Q19



F46



Q20



	Date	Initials	Function	Terminal rows for Options		
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments			
Revised	031210	INI	Rev.	Drawing no.	6012290	Cont. sheet 039 Sheet 037

	1	2	3	4	5	6	7	8	9	10	11	12	13	
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USE COPPER CONDUCTORS ONLY FOR EXTERNAL WIRES AND CABLES.

USE 60°C CABLES FOR CURRENTS LESS THAN 100Amps AND 75°C CABLES FOR HIGHER CURRENTS.



	Date	Initials	Function	Cable Connections		
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved	061024	FLT	Comments			
Revised	061024	INI	Rev.	Drawing no.	6012290	Cont. sheet 040 Sheet 039

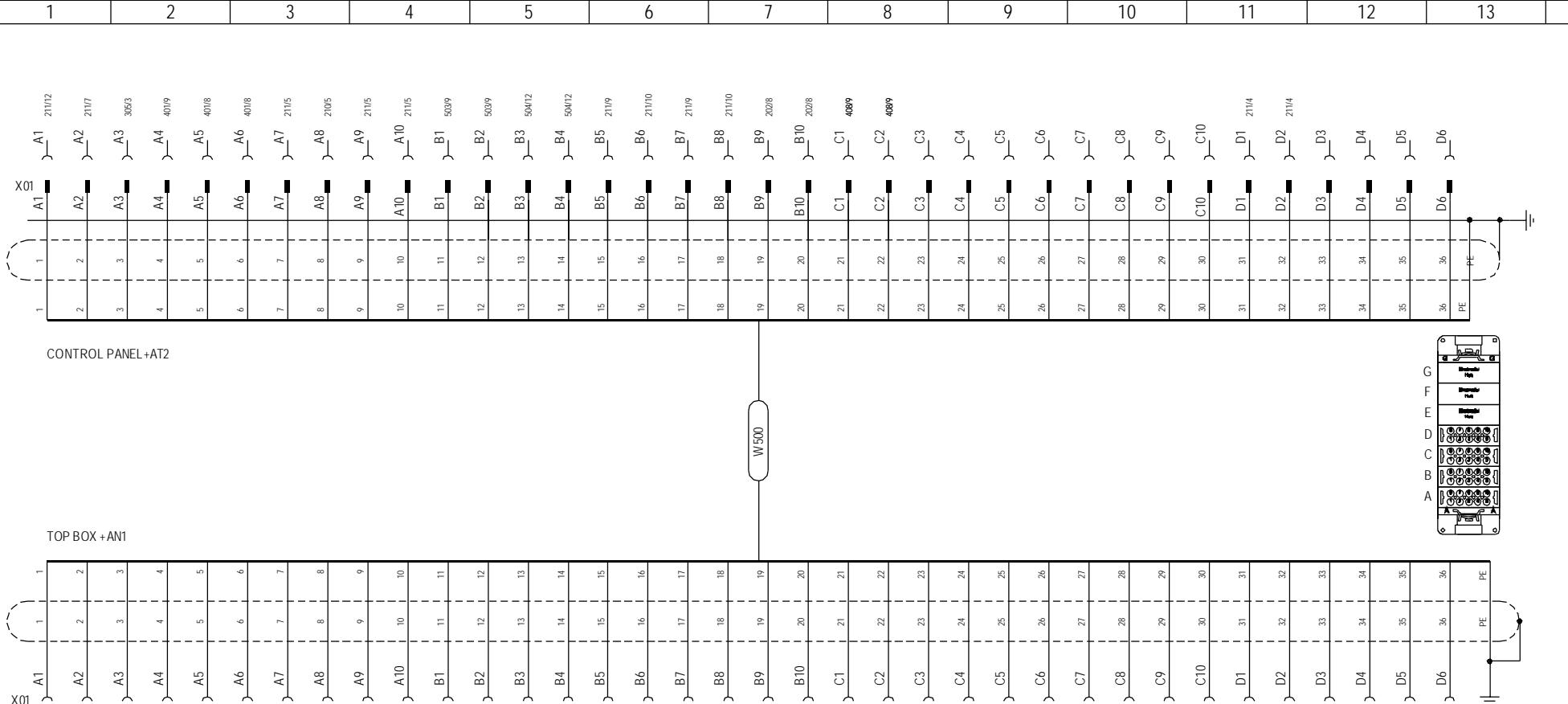


SAFETY STOP SUPPLY
SAFETY STOP
RESET EMERGENCY LINE
GENERATOR SPEED
ROTOR SPEED
0VDC IN TOP BOX
SAFTY STOP
SAFTY STOP
SAFTY STOP
COMMUNICATION TO HUB
COMMUNICATION TO HUB
RS485 COMMUNICATION TOP SENSOR
RS485 COMMUNICATION TOP SENSOR
EMERGENCY LINE
EMERGENCY LINE
EMERGENCY LINE
EMERGENCY LINE
OVERIDE FROM TOP BOX
NACELLE FAN 2 OVERLOAD
NACELLE FAN 2 OVERLOAD
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SAFTY LINE
SAFTY LINE
SPARE
SPARE
SPARE
PE

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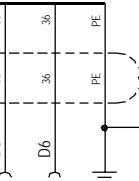
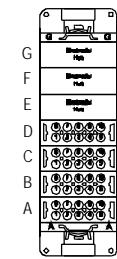
Date Initials Function
 Designed 030906 CHO Project title
 Approved Comments
 Reviced 040304 CHO Rev. - Drawing no. 6012290 Customer Vestas Wind Systems A/S

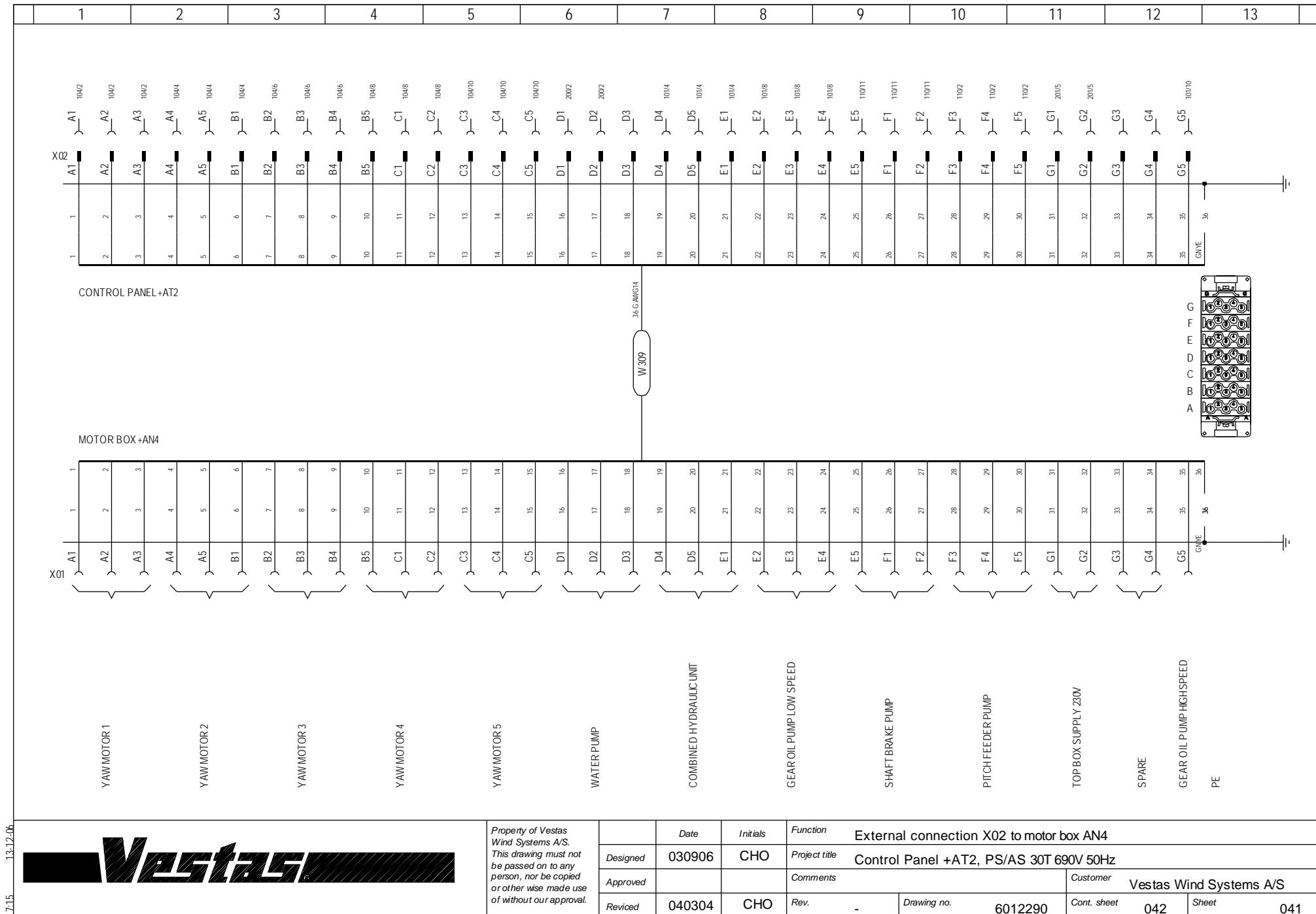
Cont. sheet 041 Sheet 040

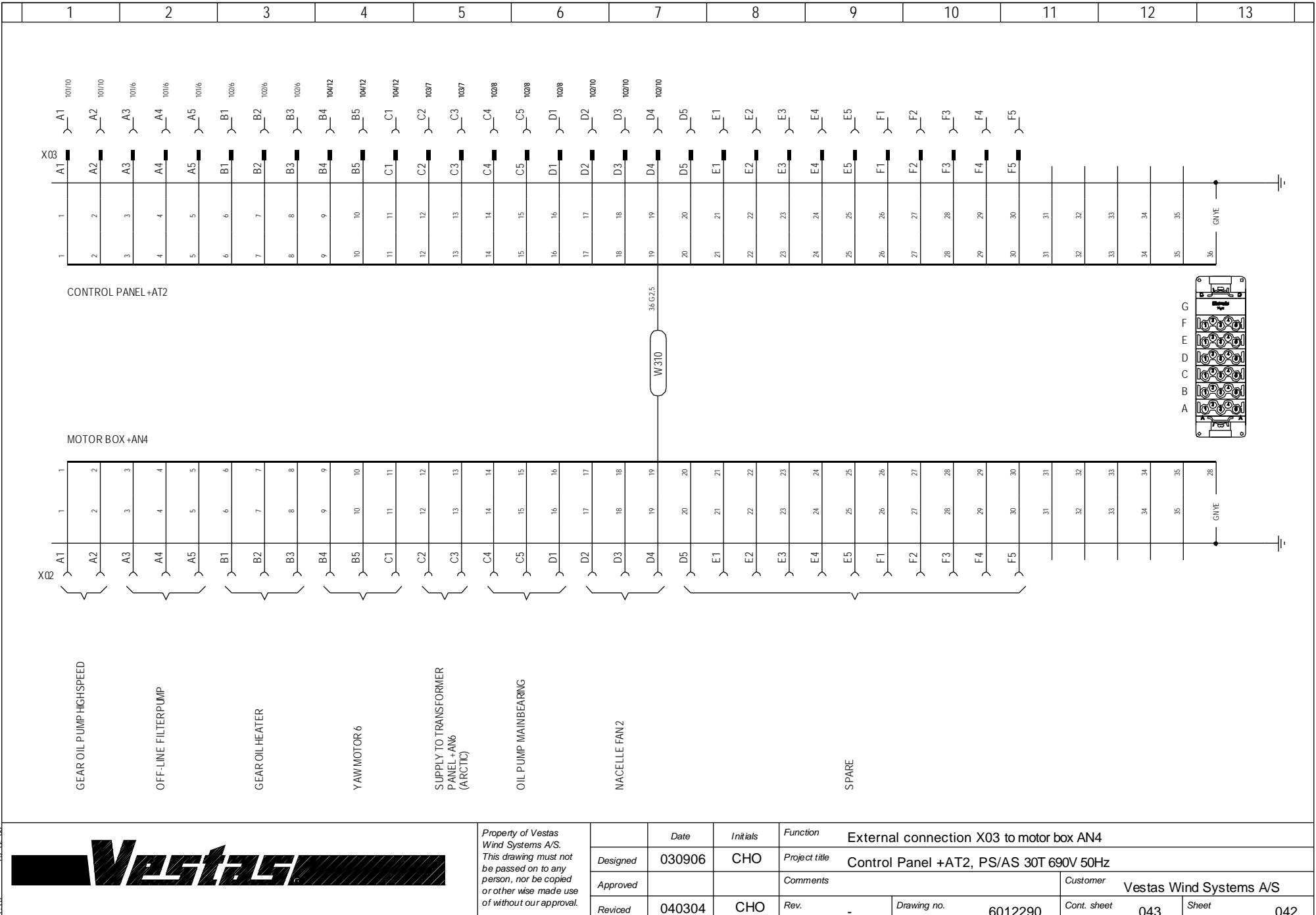


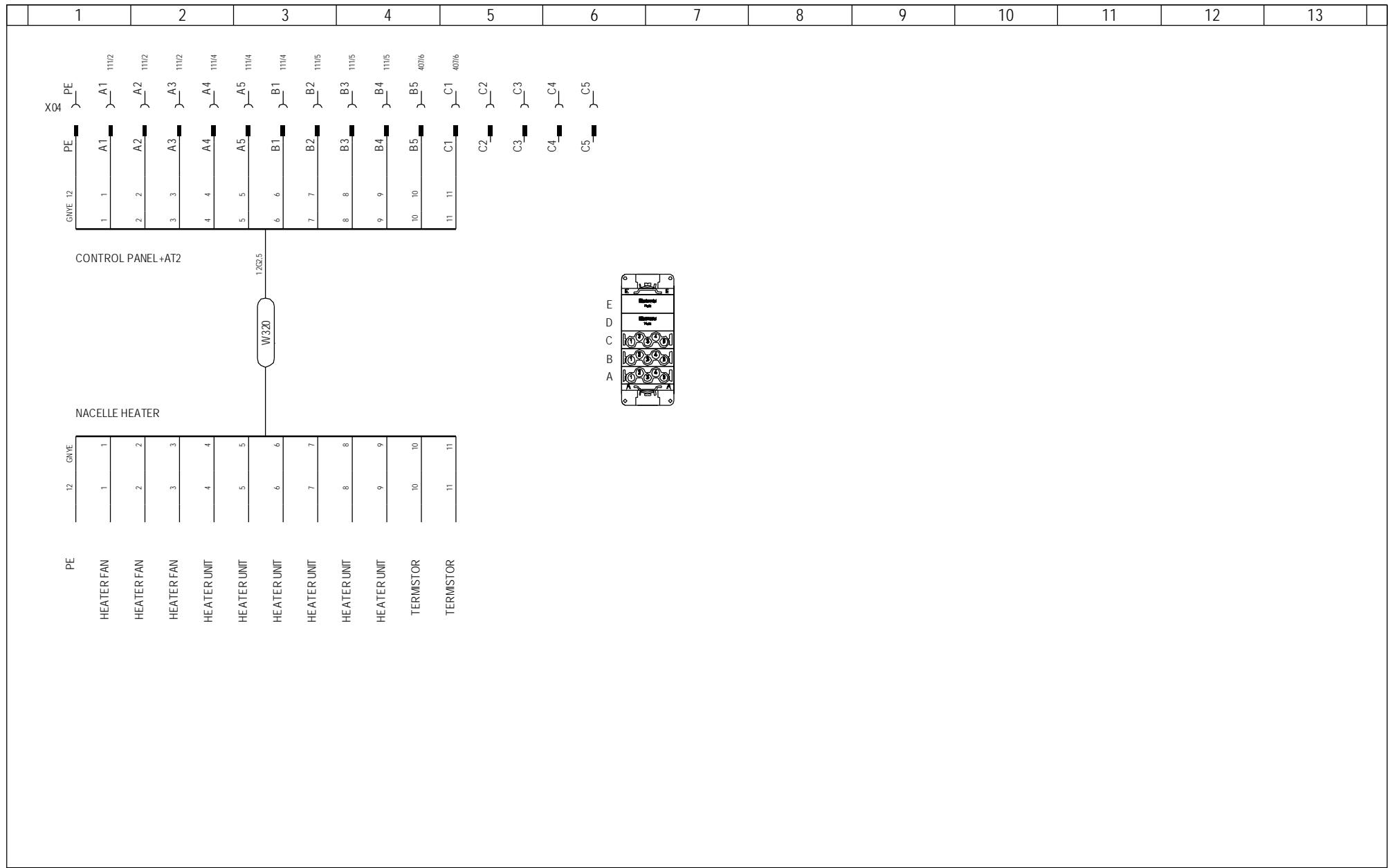
CONTROL PANEL +AT2

TOP BOX +AN1



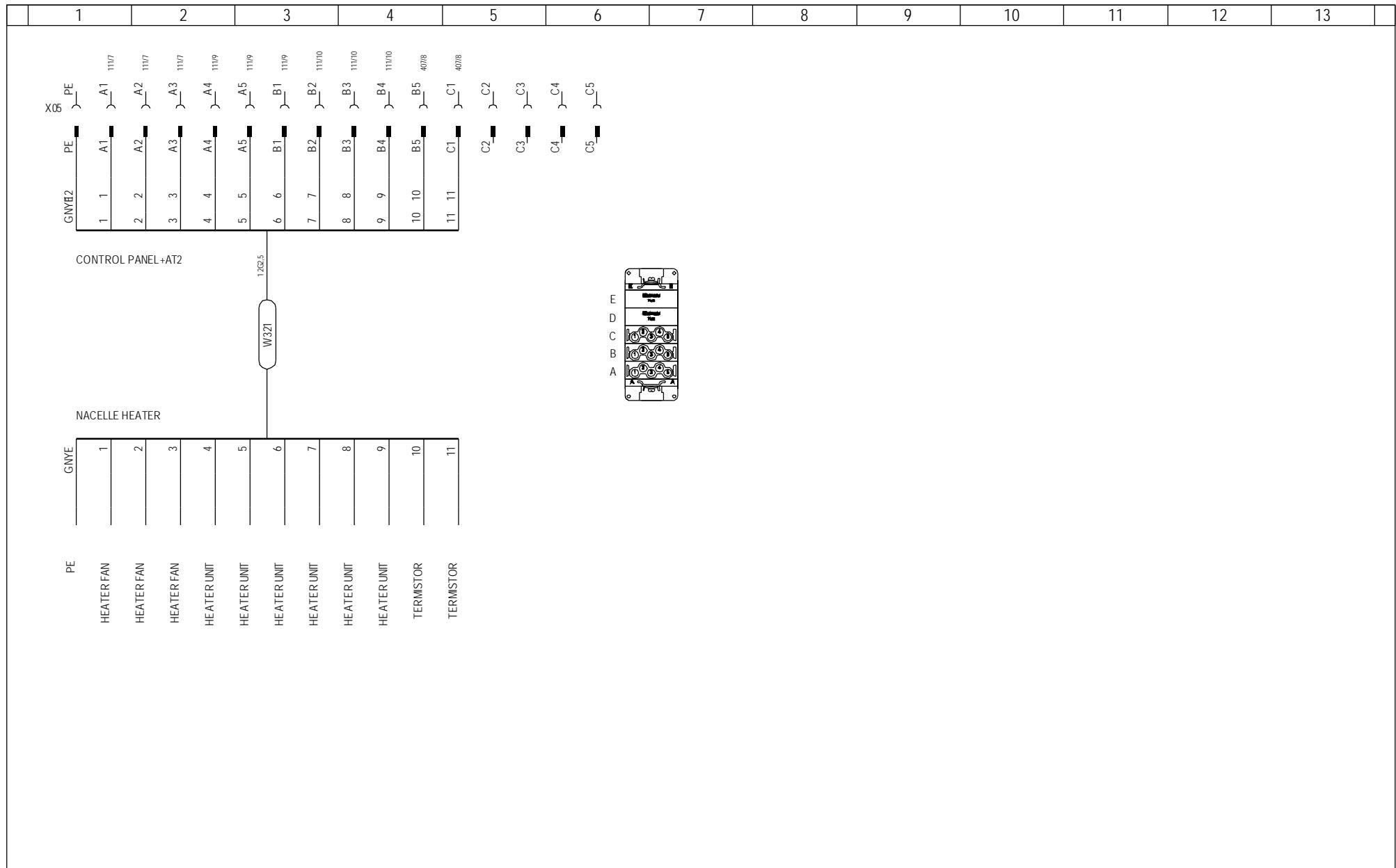






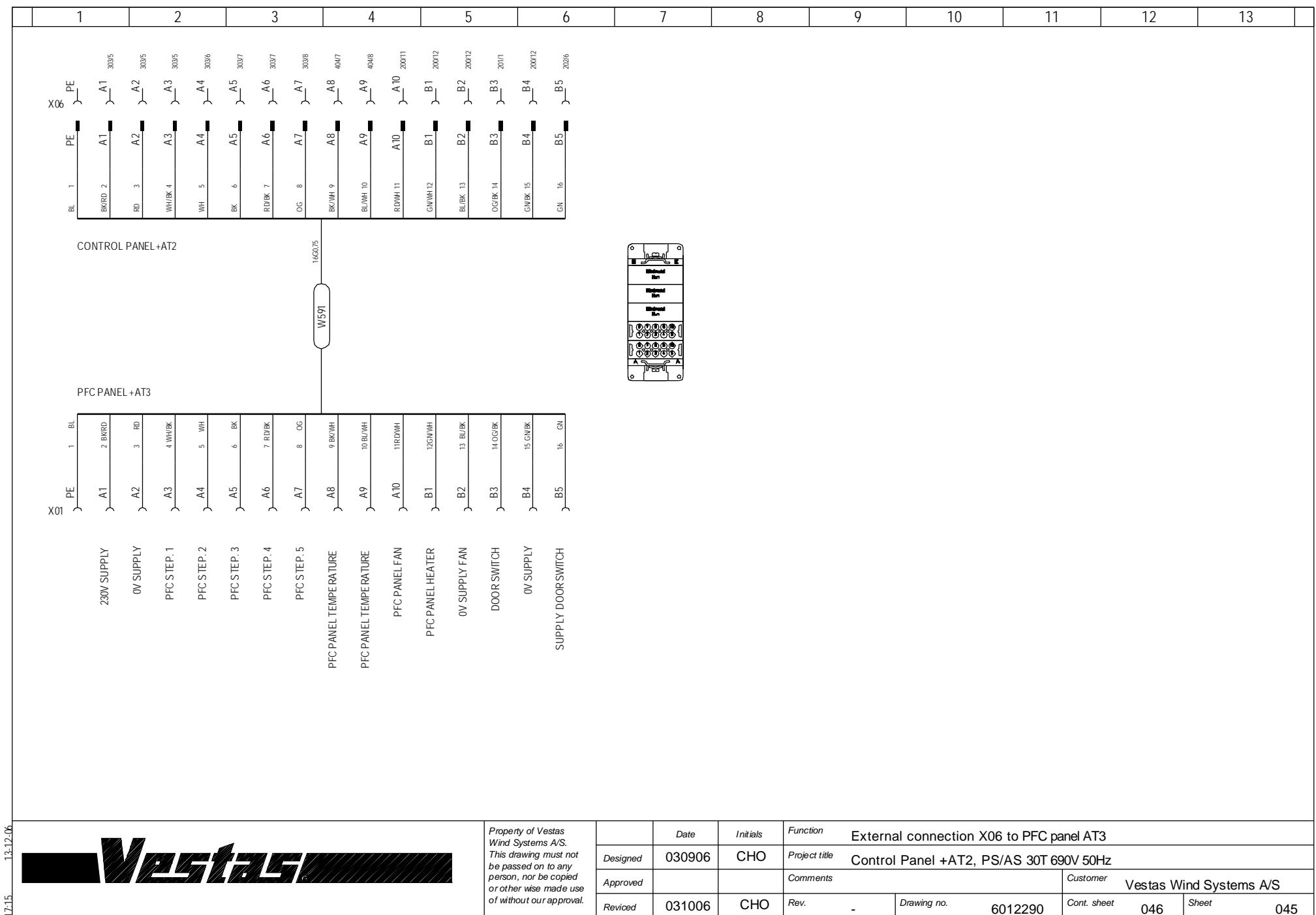
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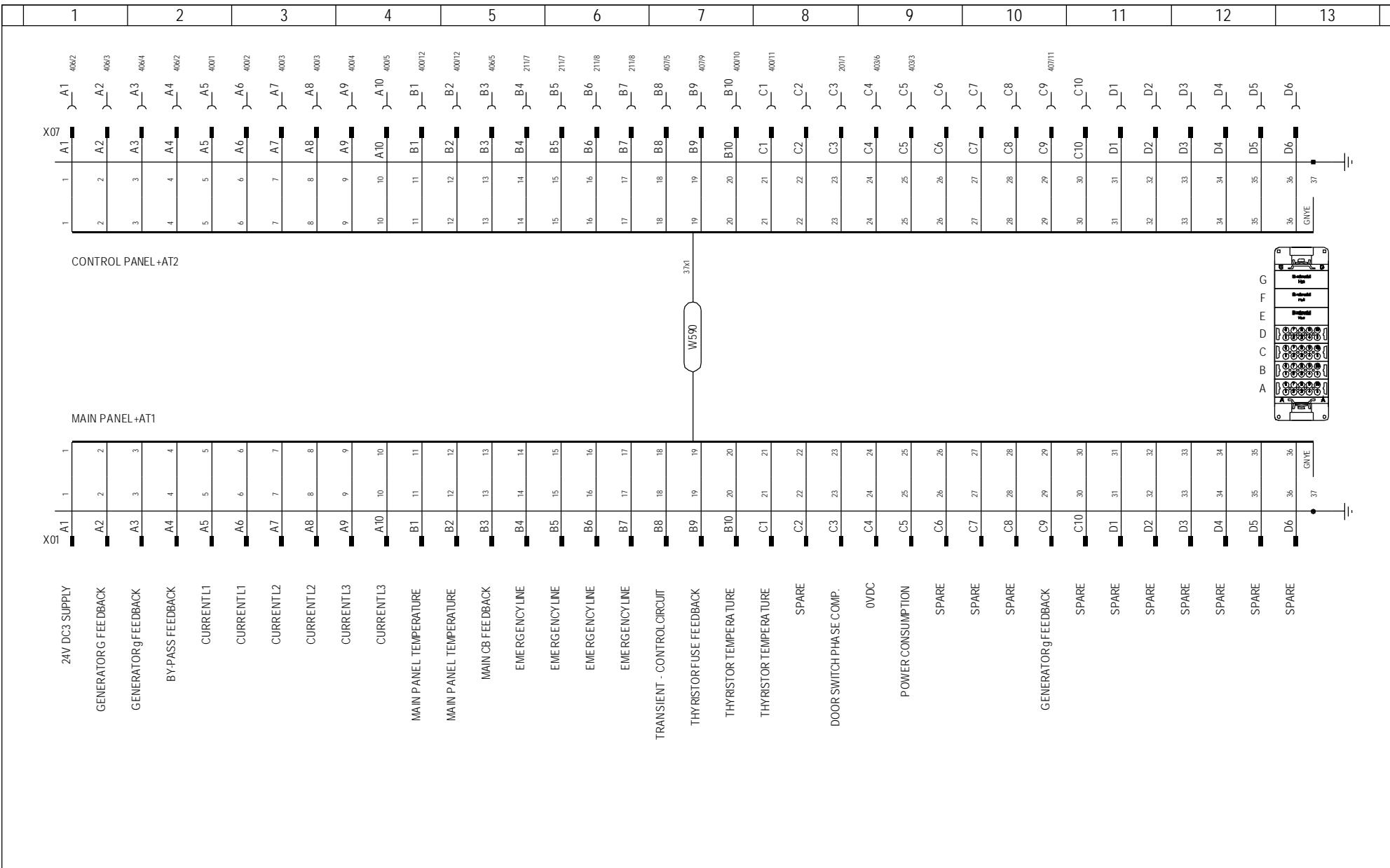
<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function	External connection X04 to nacelle heater 1						
	Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz					
	Approved			Comments				Customer	Vestas Wind Systems A/S	
	Revised	031006	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	044	Sheet



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<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function	External connection X05 to nacelle heater 2						
	Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz					
	Approved			Comments				Customer	Vestas Wind Systems A/S	
	Revised	031006	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	045	Sheet





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	Date	Initials	Function	External connection X07 to main panel AT1						
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz						
Approved			Comments	Customer Vesta Wind Systems A/S						
Revised	040304	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	047	Sheet	046

1 2 3 4 5 6 7 8 9 10 11 12 13

1 2 3 4 5 6 7 8 9 10 11 12 13

MAIN PANEL+AT1

0VAC1 TO MAIN PANEL+AT1

GRID CONTACTOR

BY-PASS CONTACTOR

GENERATOR CONTACTOR

GENERATOR CONTACTORG

TRIP MAINCB

MAIN PANEL FAN

MAIN PANEL HEATER

0V AC N 5.230

230V SUPPLY L2.9.230

0VAC FOR VOLTAGE TRANSFORMER

0VAC2 TO MAIN PANEL+AT1

SUPPLY TO MAIN PANEL+AT1-T07

SPARE

SPARE

X07 A1 1 BL
X07 A2 2 BKRD
A3 3 RD
A4 4 WH/BK
A5 5 WH
A6 6 BK
A7 7 RD/BK
A8 8 OG
A9 9 BK/WH
A10 10 BL/WH
B1 11 RD/WH
B2 12 GN/WH
B3 13 BU/BK
B4 14 OG/BK
B5 15 GN/BK
B6 16 GN

X08
BL 1 A1 20/11
BK/RD 2 A2 20/18
RD 3 A3 20/10
WH/BK 4 A4 20/18
WH 5 A5 20/17
BK 6 A6 30/15
RD/BK 7 A7 20/04
OG 8 A8 20/05
BK/WH 9 A9 20/05
BL/WH 10 A10 20/25
RD/WH 11 B1 10/21
GN/WH 12 B2 20/23
BL/BK 13 B3 20/11
OG/BK 14 B4 20/24
GN/BK 15 B5 20/11
GN 16 B6 20/21
B6 B7 B8 B9 B10

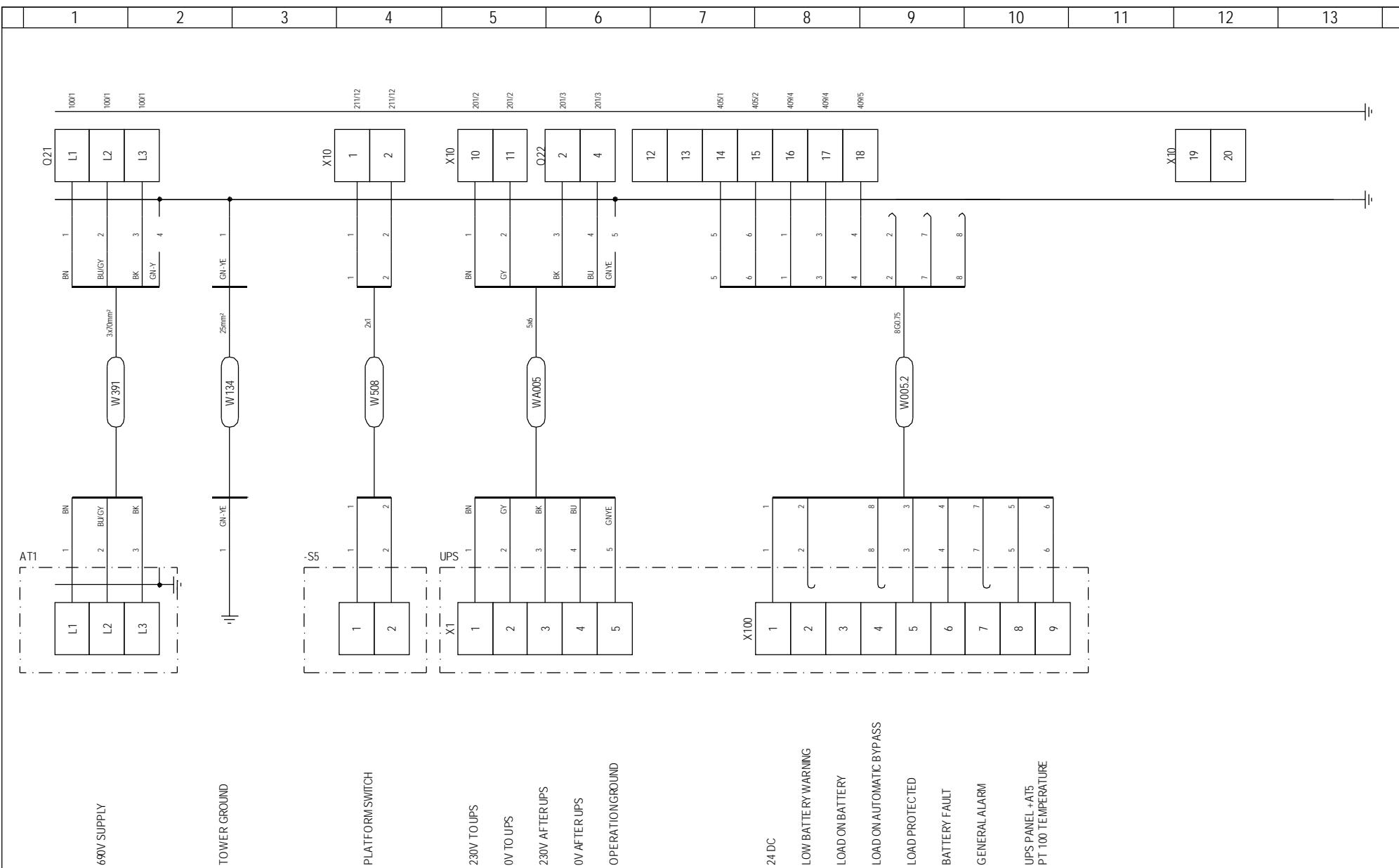
Function External connection X08 to main panel AT1

	Date	Initials	Function
Designed	030906	CHO	Project title Control Panel +AT2, PS/AS 30T 690V 50Hz
Approved			Comments Customer
Revised	031006	CHO	Rev. - Drawing no. 6012290
			Cont. sheet 048 Sheet 047

Vestas Wind Systems A/S

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D
C
B
A

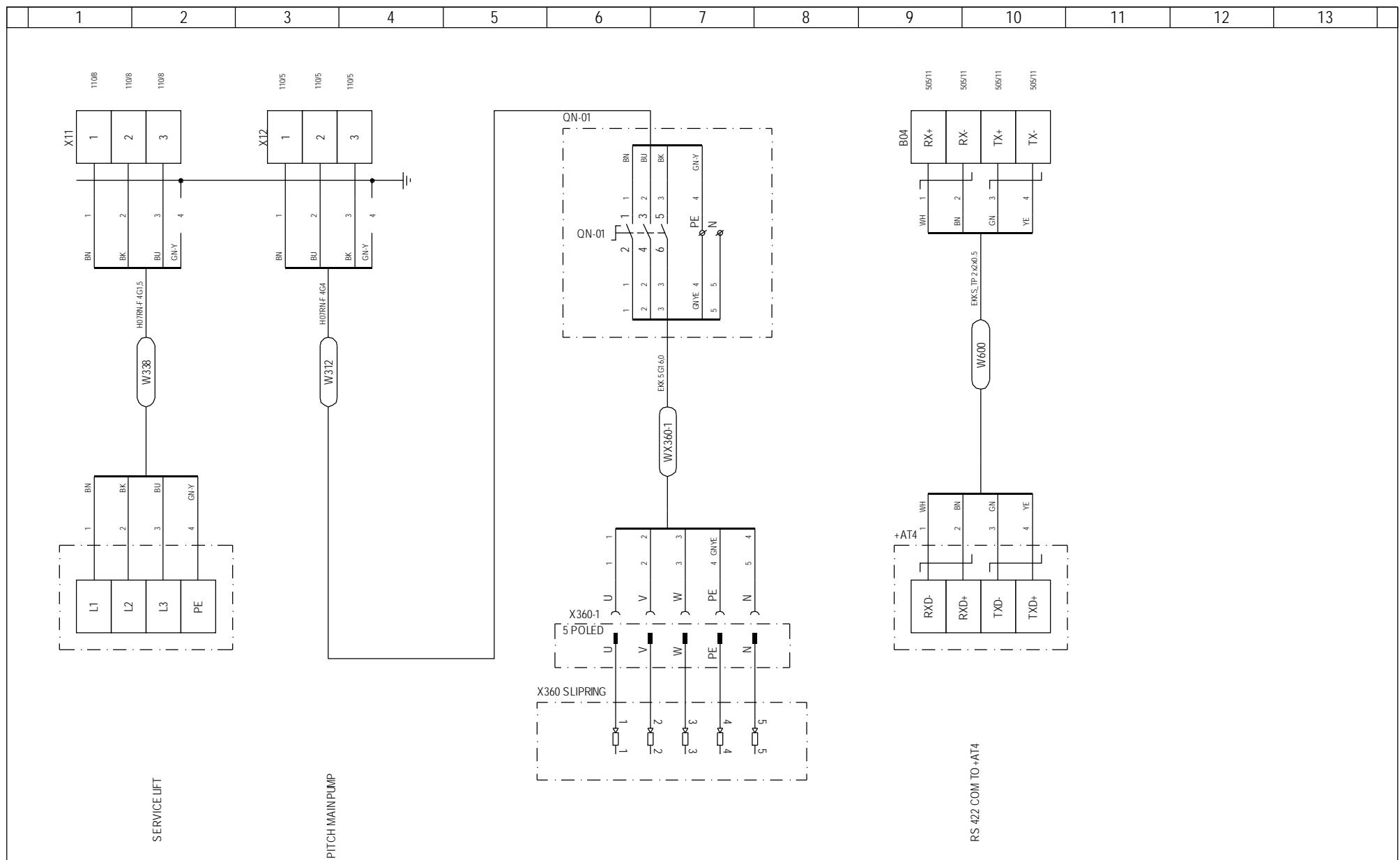


7:15 13-12-06

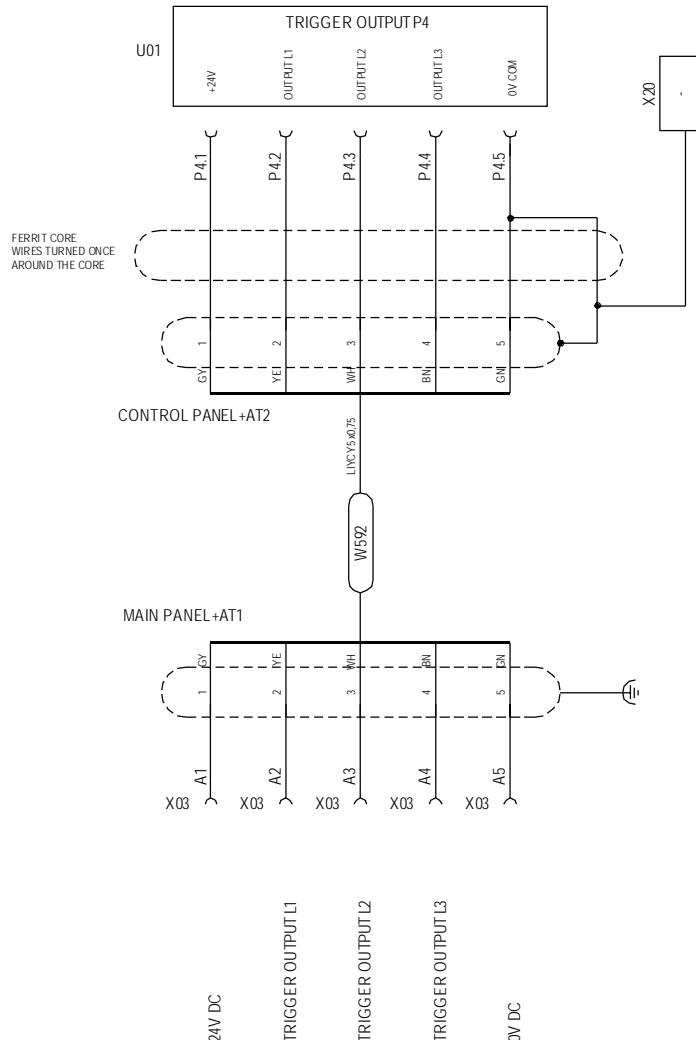
Vestas

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	Date	Initials	Function External connection X10							
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz						
Approved			Comments				Customer	Vestas Wind Systems A/S		
Revised	041112	INI	Rev.	-	Drawing no.	6012290	Cont. sheet	049	Sheet	048



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1	2	3	4	5	6	7	8	9	10	11	12	13																																
<p>690V SUPPLY FROM MAIN PANEL +AT1</p> <p>Q21</p> <p>F29 50A</p> <p>L1.2 L2.2 L3.2</p> <p>L1.3 L2.3 L3.3</p> <p>SUPPLY TO BUSBARS</p> <p>SUPPLY TO BUSBARS</p> <p>L1 L2 L3</p>																																												
				<p>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</p> <table border="1"> <thead> <tr> <th></th> <th>Date</th> <th>Initials</th> <th colspan="4">Function 690V circuits</th> </tr> </thead> <tbody> <tr> <td>Designed</td> <td>030906</td> <td>CHO</td> <td colspan="4">Project title Control Panel +AT2, PS/AS 30T 690V 50Hz</td> </tr> <tr> <td>Approved</td> <td></td> <td></td> <td colspan="3">Comments</td> <td>Customer</td> </tr> <tr> <td>Revised</td> <td>031006</td> <td>CHO</td> <td>Rev.</td> <td>-</td> <td>Drawing no.</td> <td>6012290</td> <td>Cont. sheet</td> <td>101</td> <td>Sheet</td> <td>100</td> </tr> </tbody> </table>										Date	Initials	Function 690V circuits				Designed	030906	CHO	Project title Control Panel +AT2, PS/AS 30T 690V 50Hz				Approved			Comments			Customer	Revised	031006	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	101	Sheet	100
	Date	Initials	Function 690V circuits																																									
Designed	030906	CHO	Project title Control Panel +AT2, PS/AS 30T 690V 50Hz																																									
Approved			Comments			Customer																																						
Revised	031006	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	101	Sheet	100																																		

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L1.2 100/3	L2.2 100/3	L3.2 100/3										L1.2 102/1
												L2.2 102/1
												L3.2 102/1

TRANSIENT - CONTROL CIRCUIT

YAW BRAKE PUMP
0.37kW 690V 0.6A

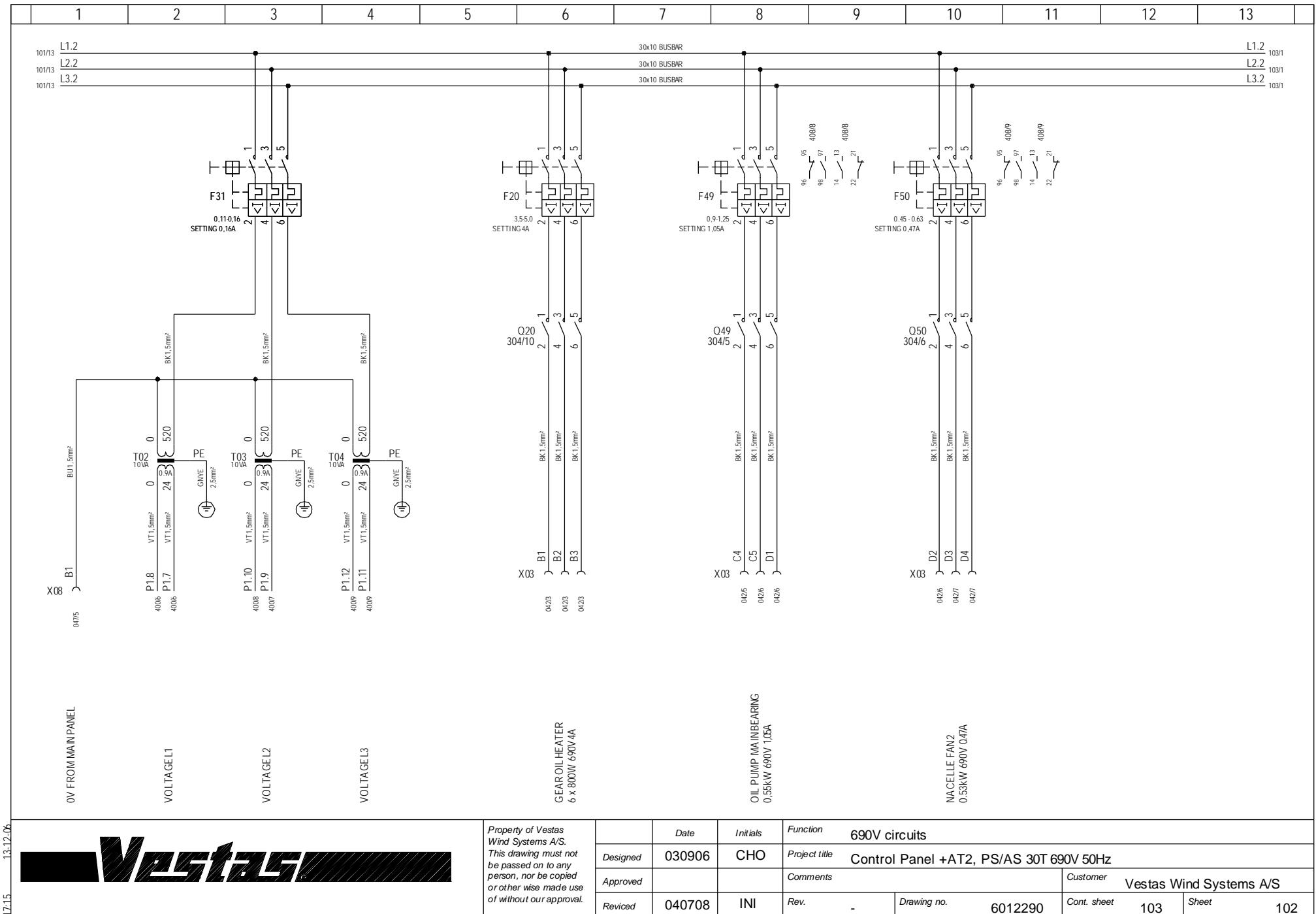
OFF LINE FILTER PUMP
0.37kW 690V 0.6A

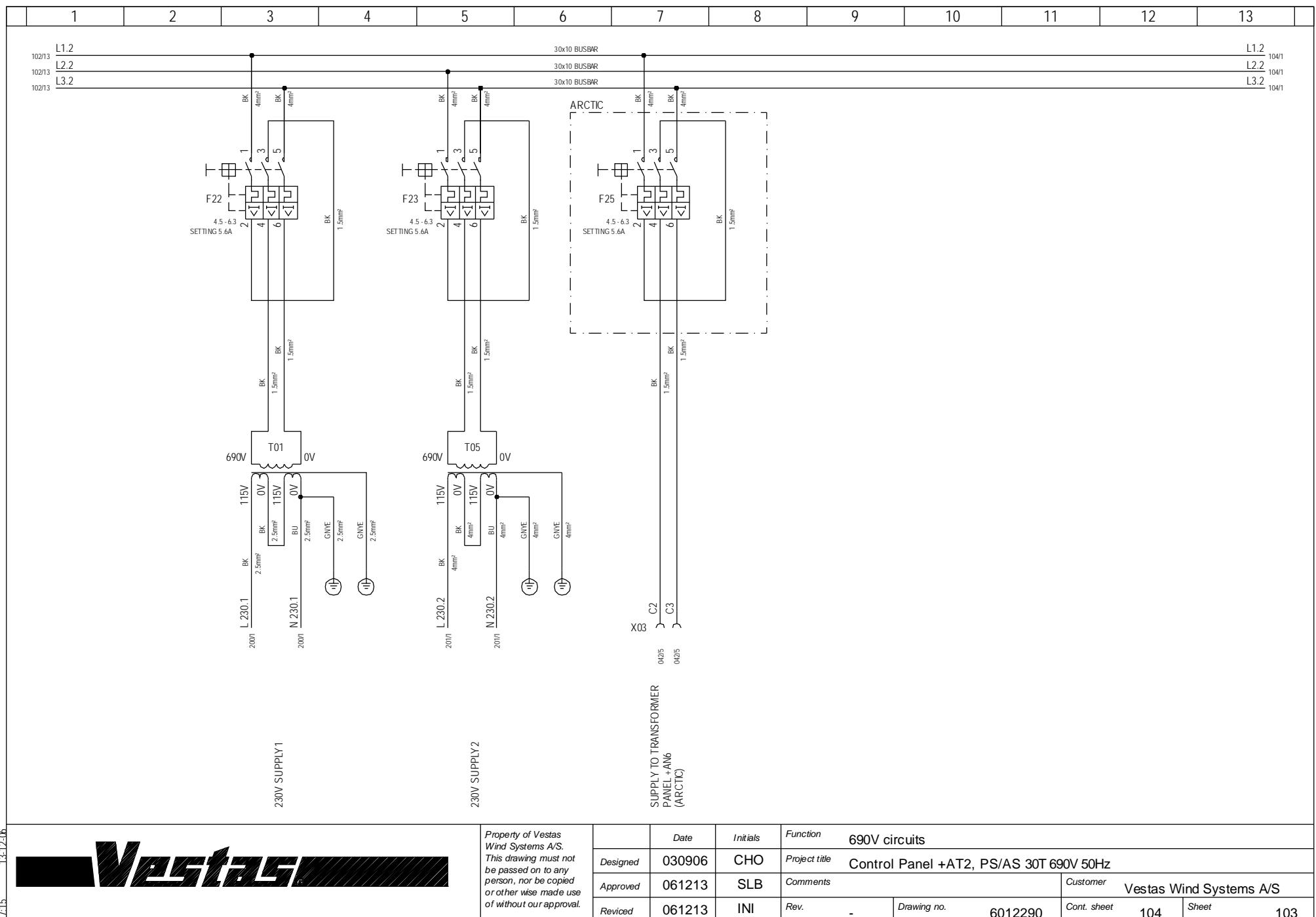
GEAR OIL PUMP LOW SPEED
3kW 690V 42A

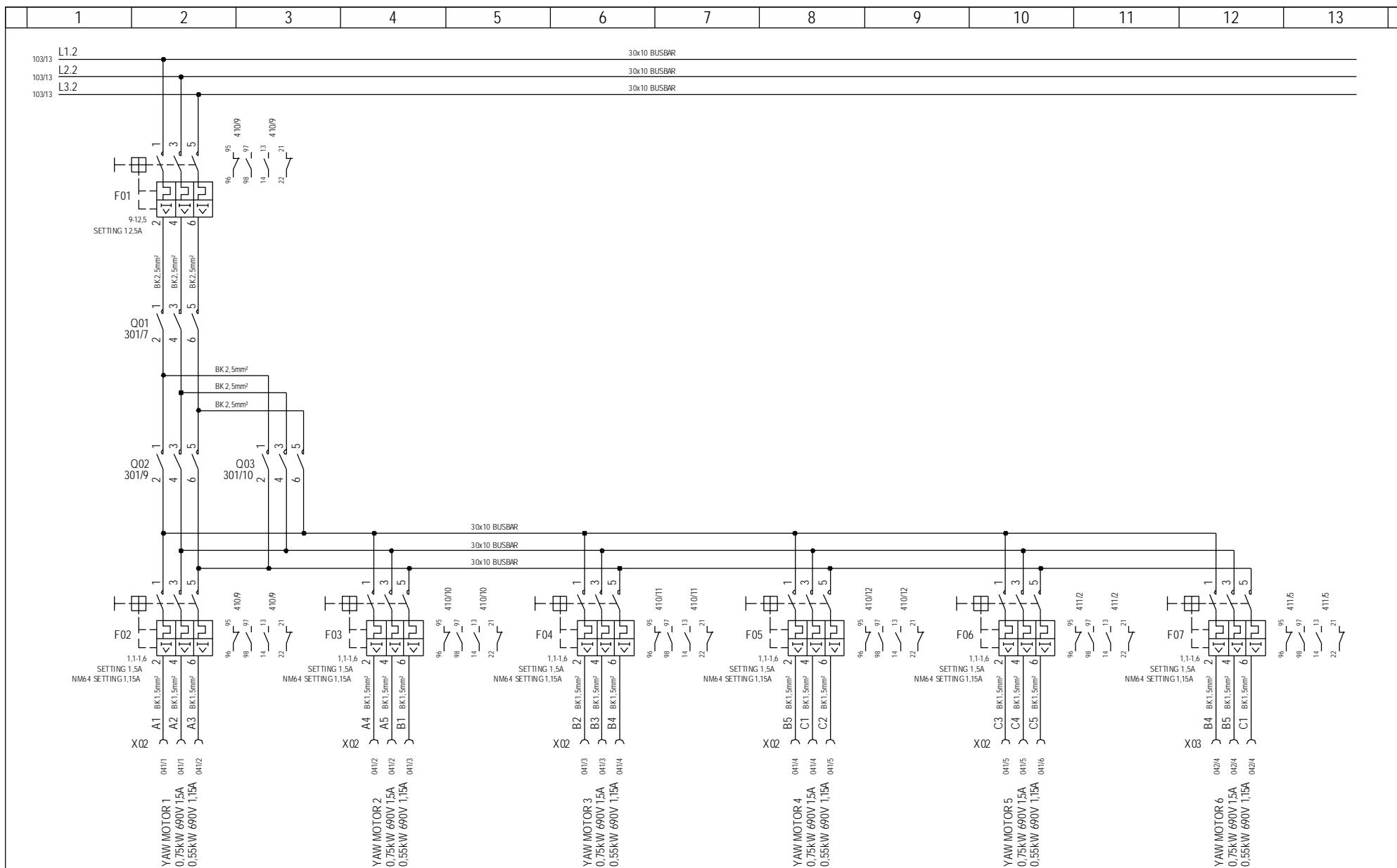
GEAR OIL PUMP HIGH SPEED
4.5kW 690V 6A

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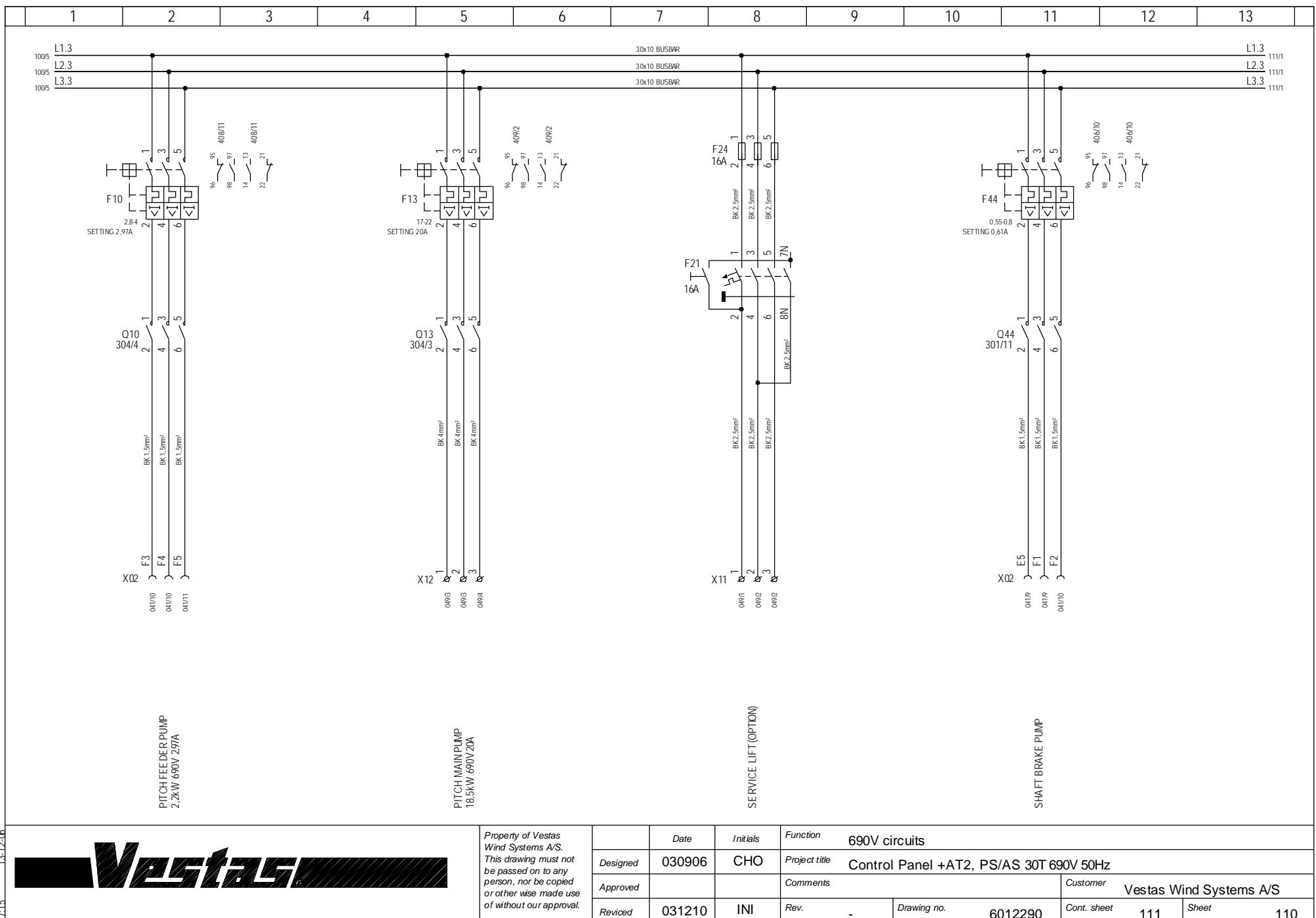


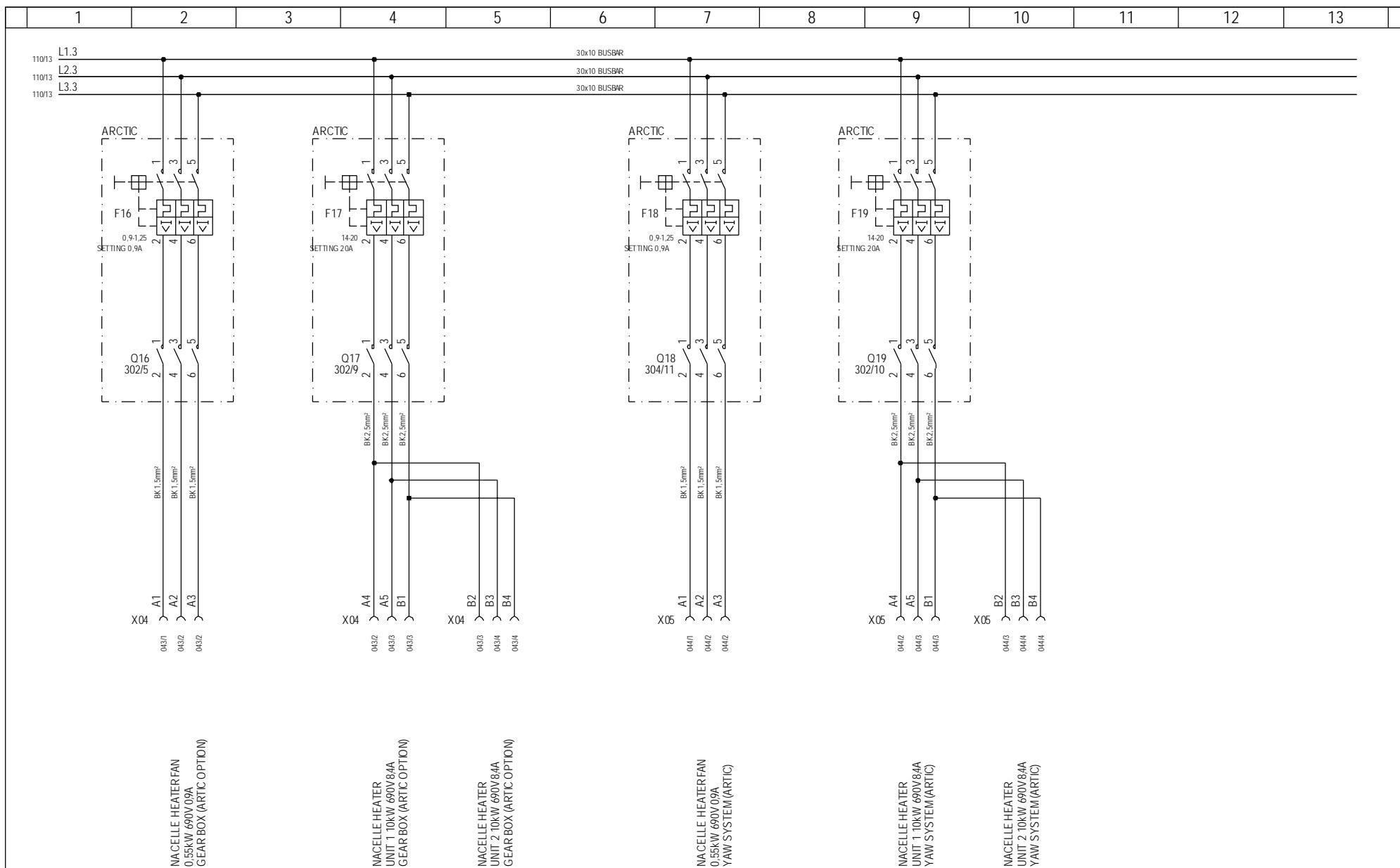




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<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function	690V circuits						
	Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz					
	Approved			Comments			Customer	Vestas Wind Systems A/S		
	Revised	031006	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	110	Sheet



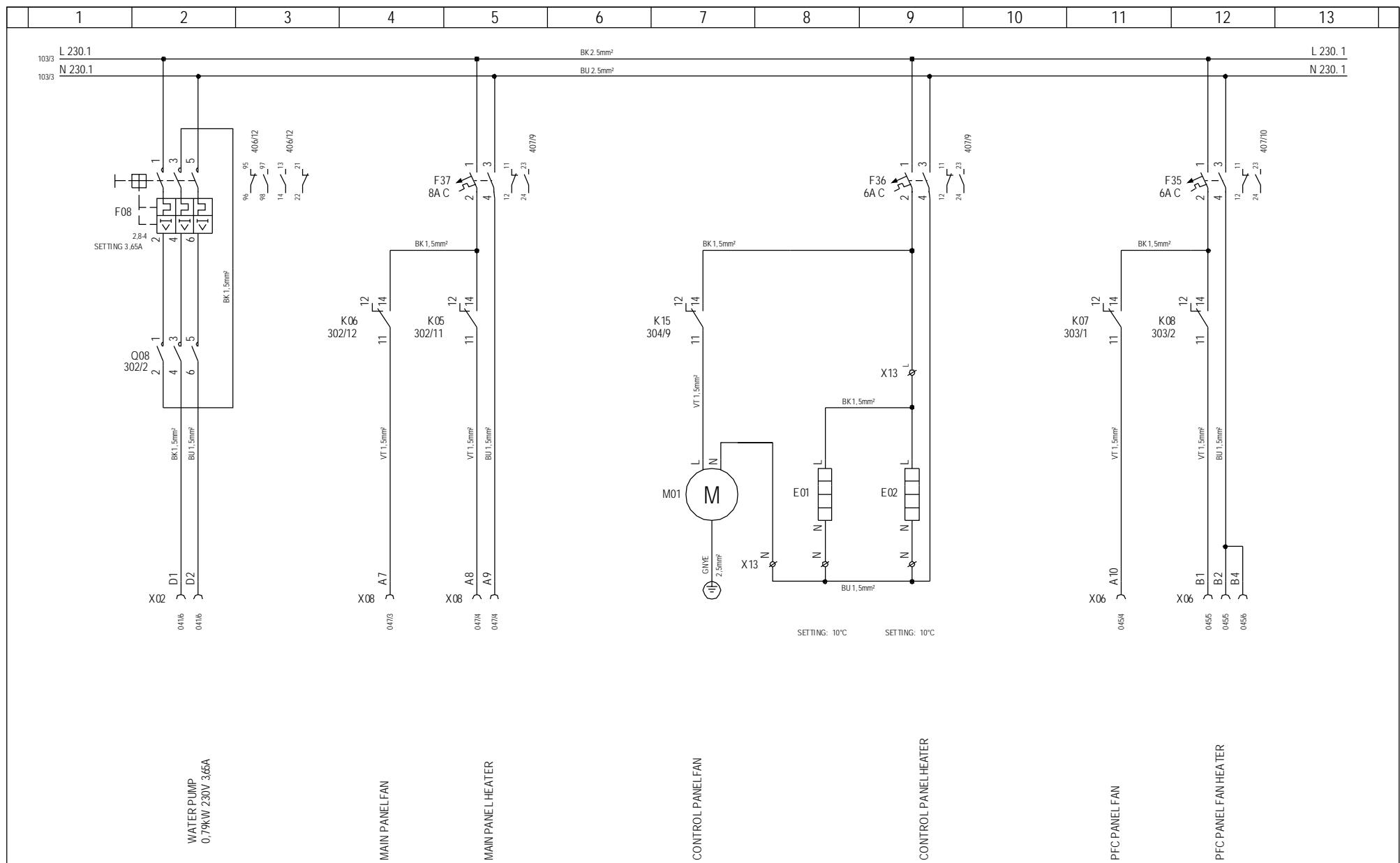


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Vestas

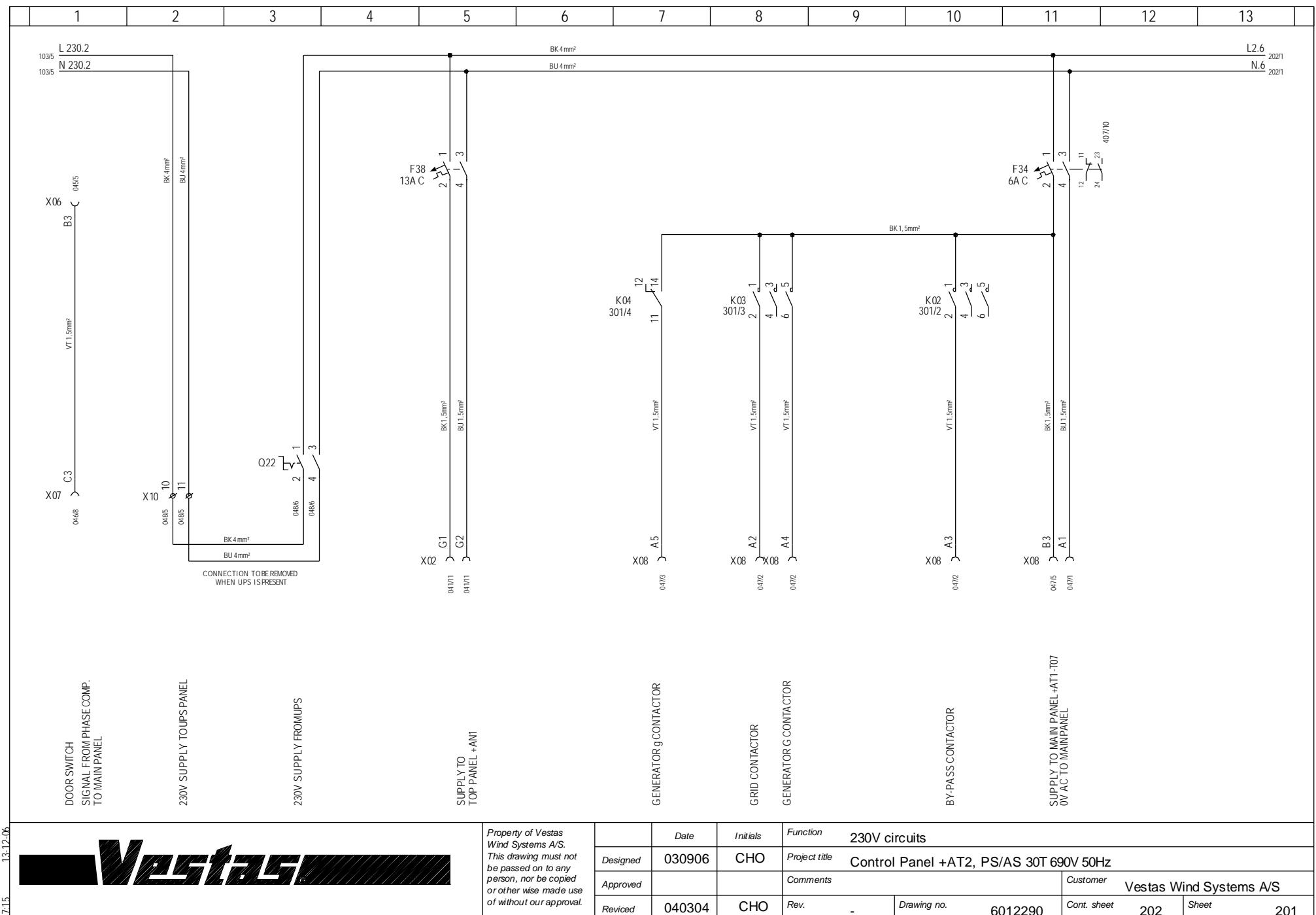
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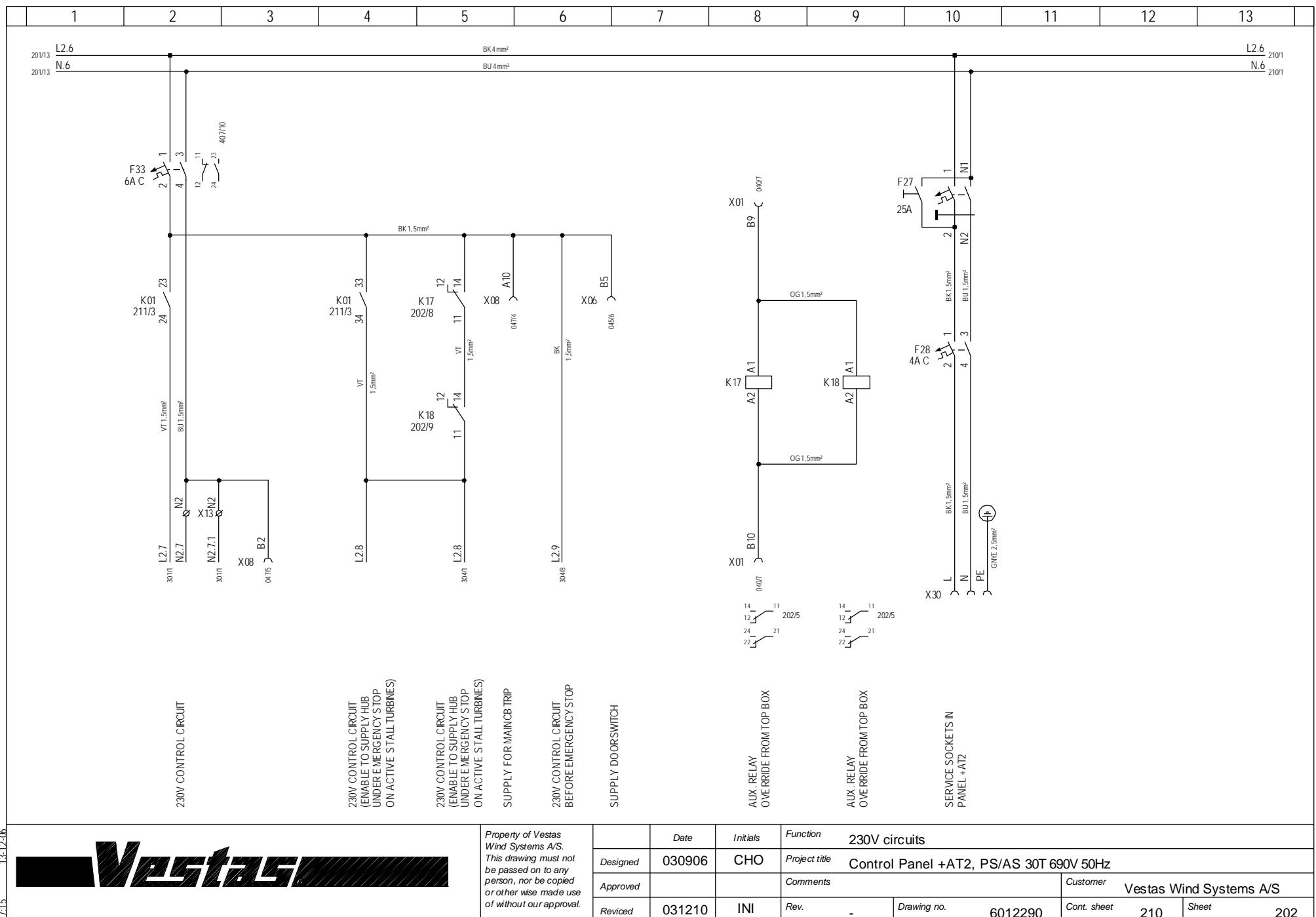
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Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	040708	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	200	Sheet	111

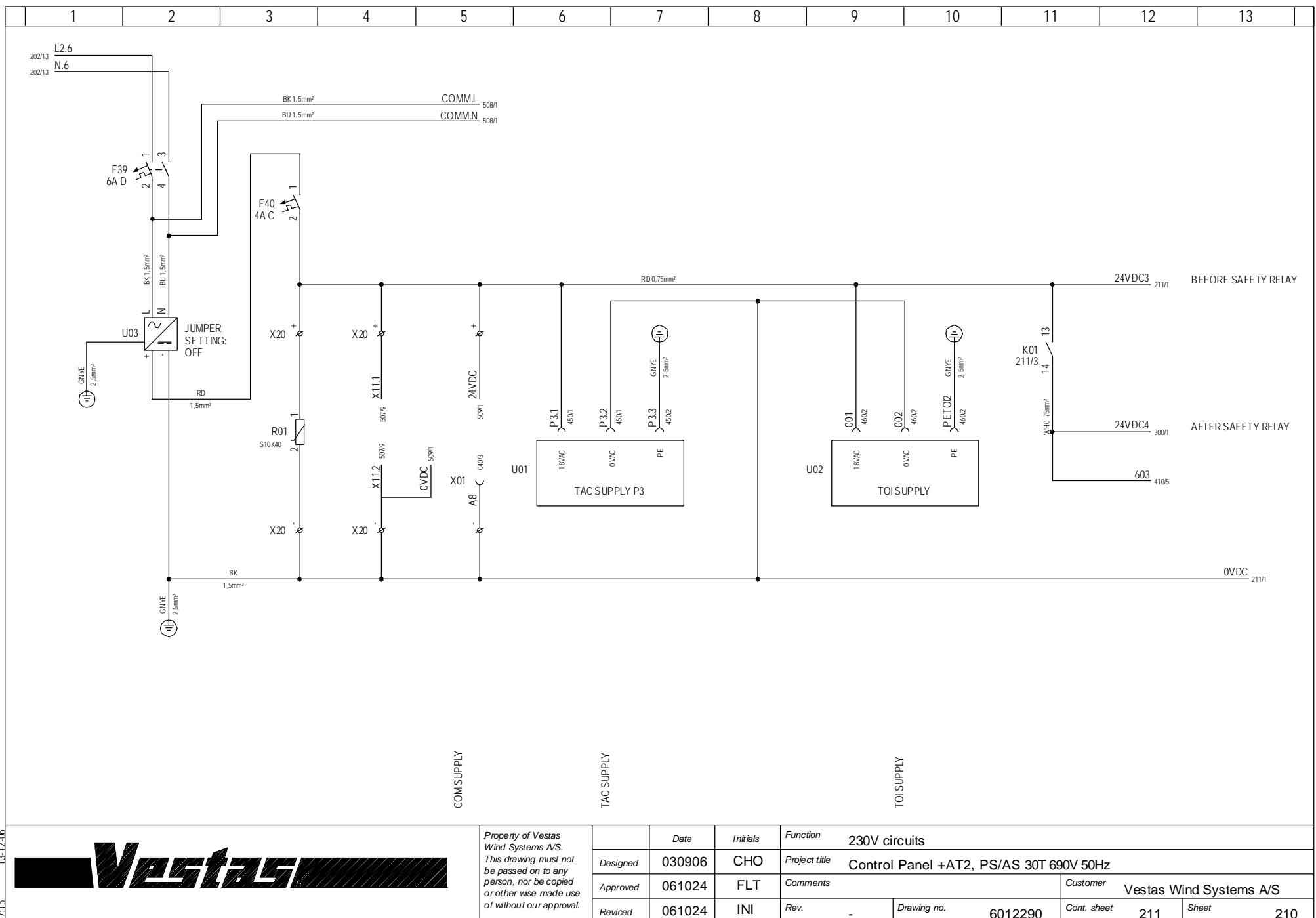


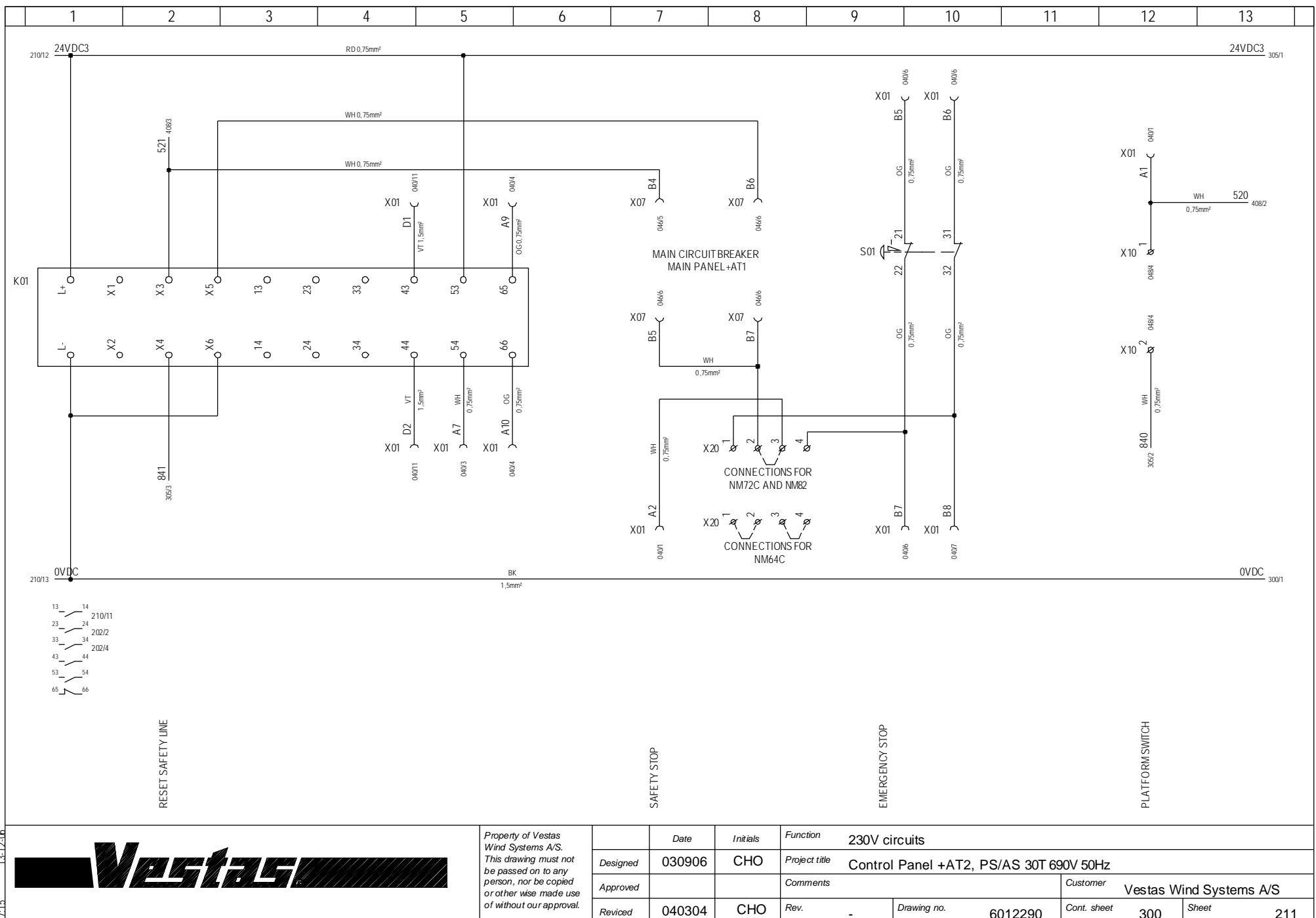
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<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function 230V circuits							
	Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz					
	Approved			Comments			Customer	Vestas Wind Systems A/S		
	Revised	031210	INI	Rev.	-	Drawing no.	6012290	Cont. sheet	201	Sheet









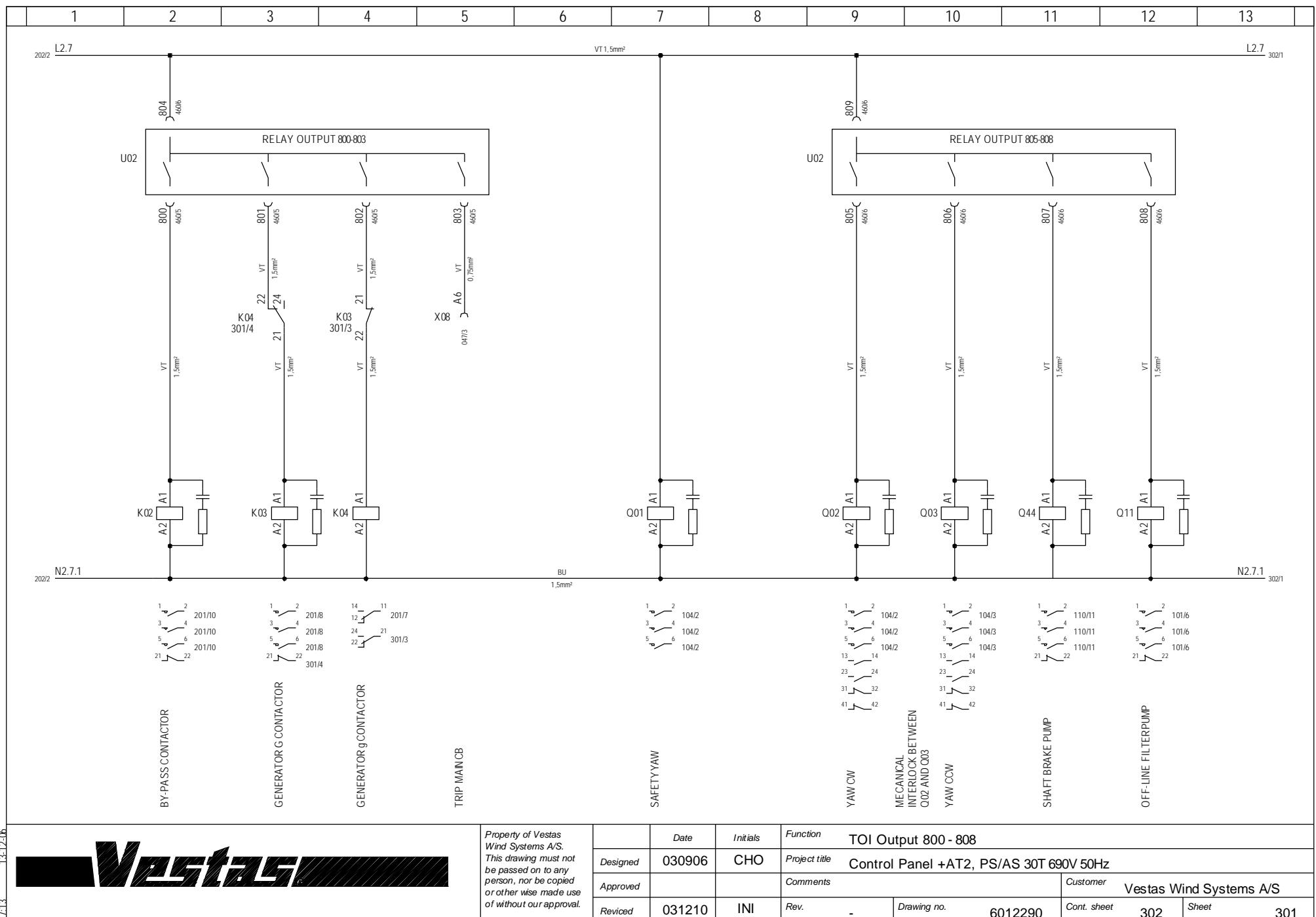
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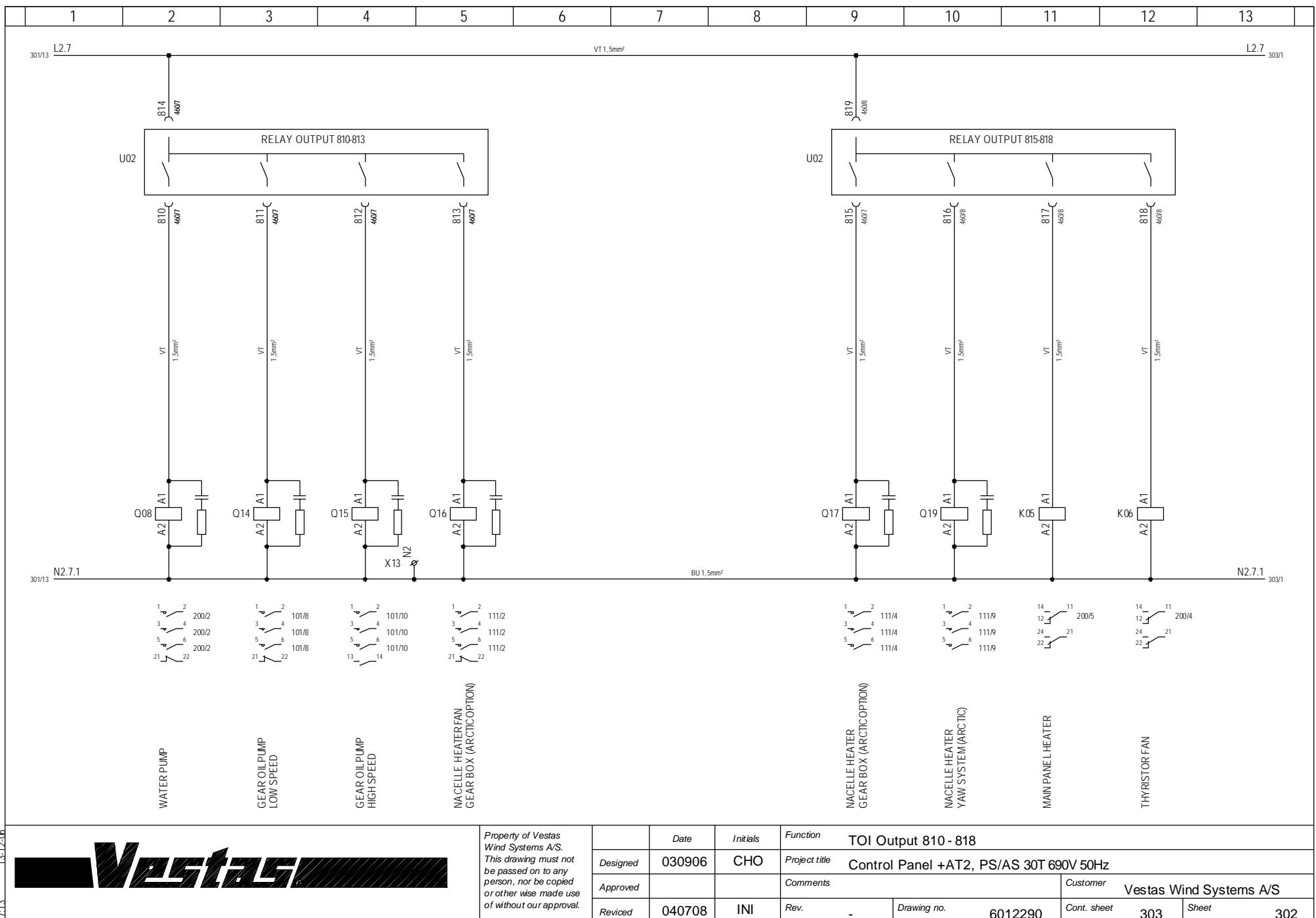
24VDC4
WH
0.75mm²

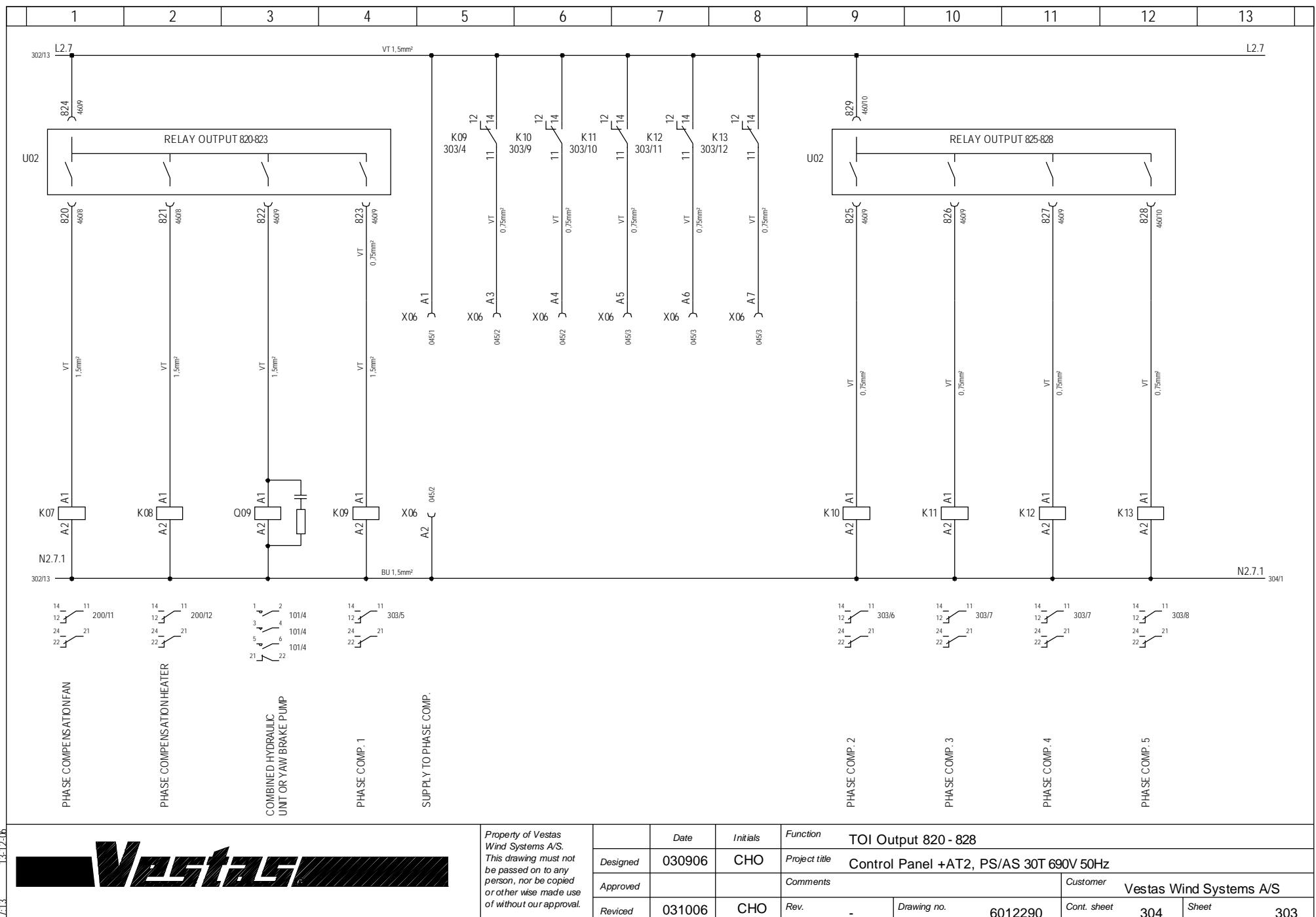
210/12 0VDC BK 1.5mm²

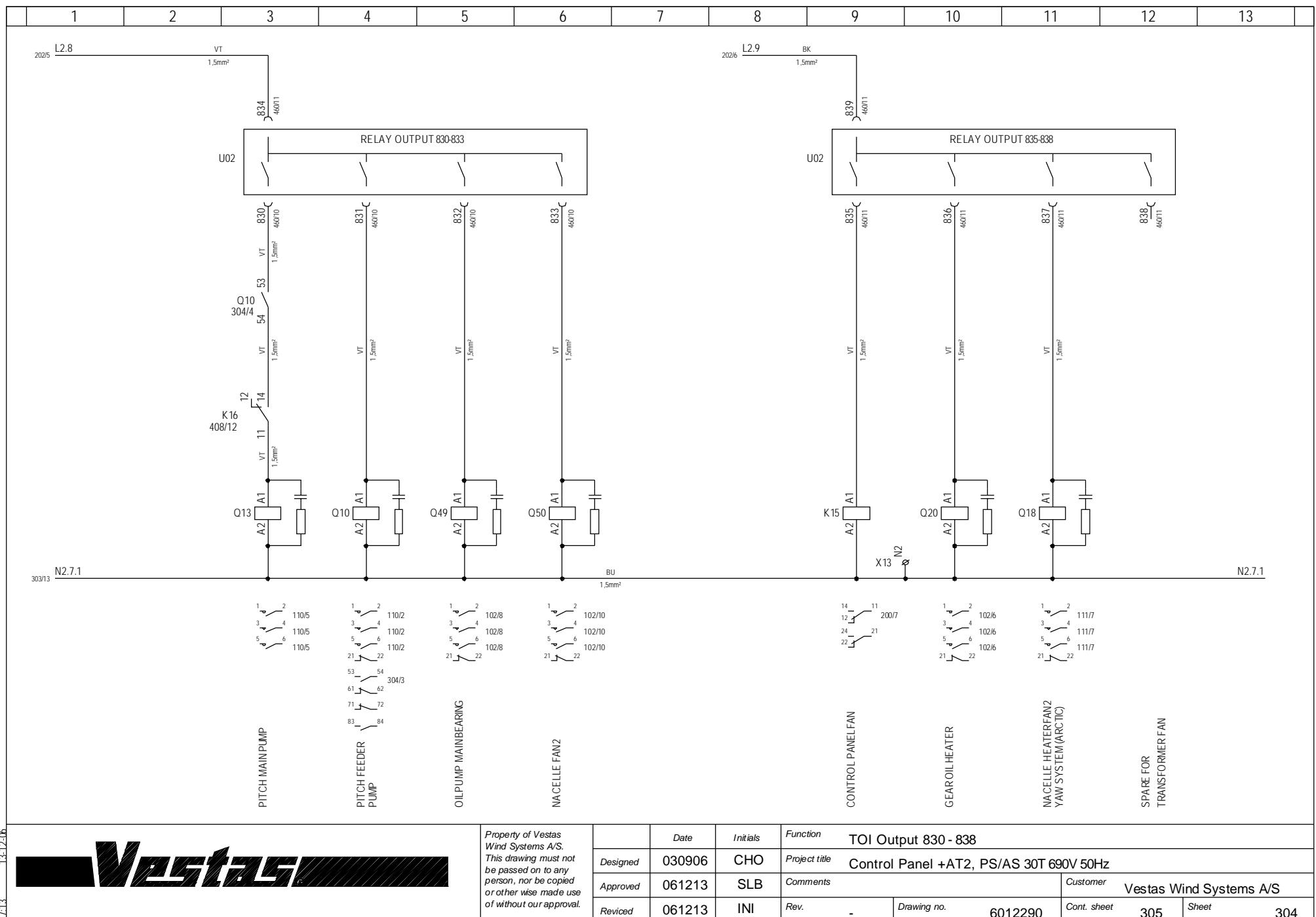
211/13 0VDC BK 1.5mm²

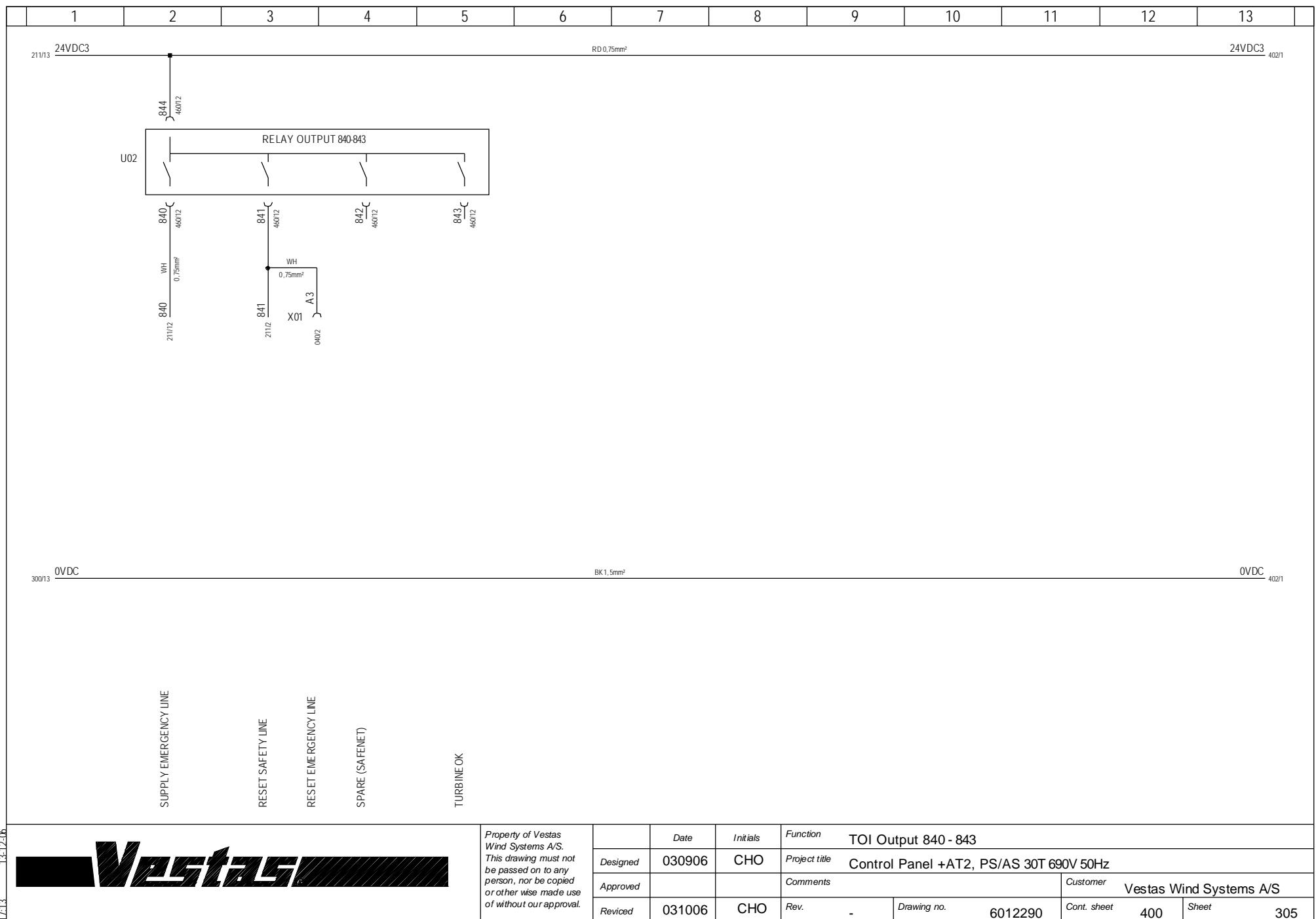
0VDC 305/1











7-13 13-12-06

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	<i>Date</i>	<i>Initials</i>	<i>Function</i>	TAC Input P1.1 - P1.16
Designed	030906	CHO	<i>Project title</i>	Control Panel +AT2, PS/AS 30T 690V 50H

<i>Approved</i>			<i>Comments</i>			<i>Customer</i>	<i>Vestas Wind Systems A/S</i>			
<i>Revised</i>	031006	CHO	<i>Rev.</i>	-	<i>Drawing no.</i>	6012290	<i>Cont. sheet</i>	401	<i>Sheet</i>	400

1	2	3	4	5	6	7	8	9	10	11	12	13
U01							X01					
P2.1 450/0	C OM INPUT1 450/0	P2.2 450/0	INPUT2	P2.3 450/0	INPUT3	P2.4 450/0	INPUT4	P2.6 450/0	INPUT1	P5.1 450/0	INPUT2	P5.3 450/0
SPARE		SPARE		SPARE		SPARE		SPARE		SPARE		SPARE
HIGH SPEED COUNTER P2.1-7												
U01							X01					
A6 BK 0.75mm² 45x7	P5.5 450/0	INPUT1	C OM INPUT1 450/0	P5.1 450/0	INPUT2	P5.2 450/0	INPUT3	P5.4 450/0	INPUT4	P5.6 450/0	INPUT5	P5.7 450/0
SPARE				ROTOR SPEED	GENERATOR SPEED	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
13.12.06	Vestas Wind Systems A/S	Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.	Date	Initials	Function	TAC Input P2.1-7 and P5.1-7						
17.13			030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz						
			Approved		Comments		Customer	Vestas Wind Systems A/S				
			Revised	031006	CHO	Rev. -	Drawing no.	6012290	Cont. sheet	402	Sheet	401

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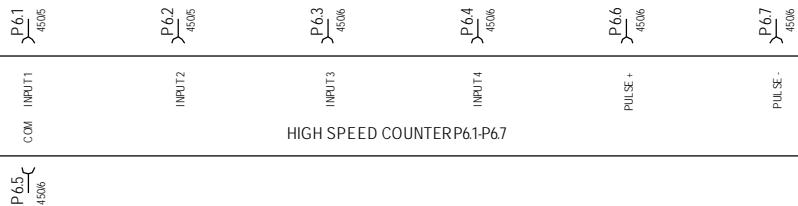
24VDC3

305/13

RD 0,75mm²

24VDC3 403/1

U01



SPARE

SPARE

SPARE

SPARE

SPARE

0VDC

305/13

BK 1,5mm²

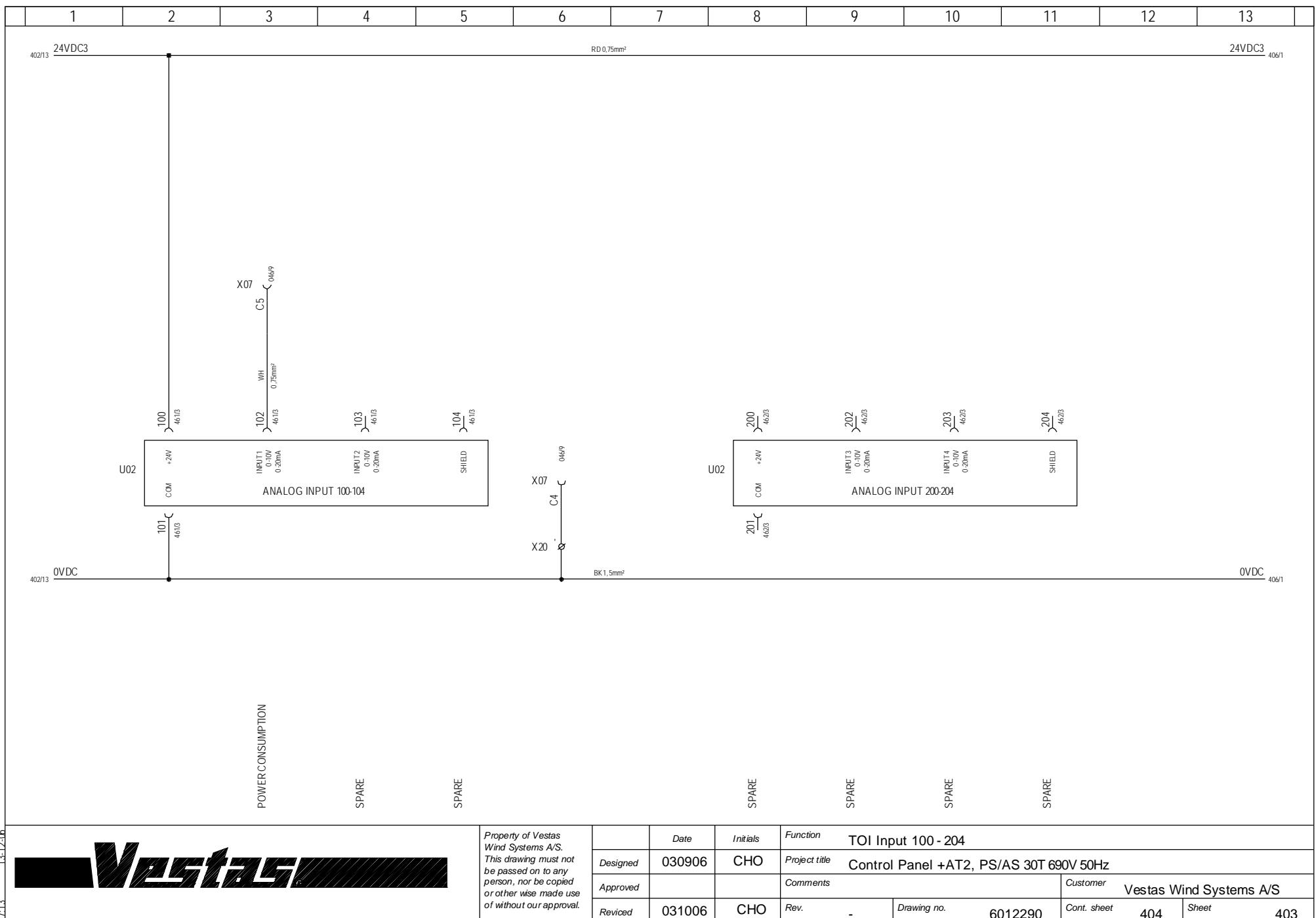
0VDC 403/1

17.13 13.12.06



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	Date	Initials	Function	TAC Input P6.1 - P6.7		
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments	Customer		
Revised	031006	CHO	Rev.	Drawing no.	6012290	Cont. sheet 403 Sheet 402



1	2	3	4	5	6	7	8	9	10	11	12	13
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TRANSFORMER W1 TEMPERATURE

TRANSFORMER W2 TEMPERATURE

TRANSFORMER W3 TEMPERATURE

PHASE COMPENSATION PANEL TEMPERATURE

TOWER BASE TEMPERATURE

CONTROL PANEL TEMPERATURE

TEMP1+
46/3
301
46/4
TEMP1-
46/4
302
46/4
TEMP2+
46/4
303
46/4
TEMP2-
46/4
304
46/4
TEMP2 S
46/4
305
46/4
TEMP3+
46/4
306
46/4
TEMP3-
46/5
307
46/5
TEMP3 S
46/5
308
46/5
SHIELD
46/5
309
46/5
COMMON

TEMP8+
46/6
313
46/6
TEMP8-
46/6
314
46/6
TEMP8 S
46/6
315
46/6
TEMP9+
46/6
316
46/6
TEMP9-
46/6
317
46/6
TEMP9 S
46/7
318
46/7
SHIELD
46/7
319

TOI Input 300 - 319

Control Panel +AT2, PS/AS 30T 690V 50Hz

Vestas Wind Systems A/S

Project title

Comments

Customer

Rev.

Drawing no.

Cont. sheet

Sheet

Date

Initials

Function

Designed

030906

CHO

Approved

Revised

031006

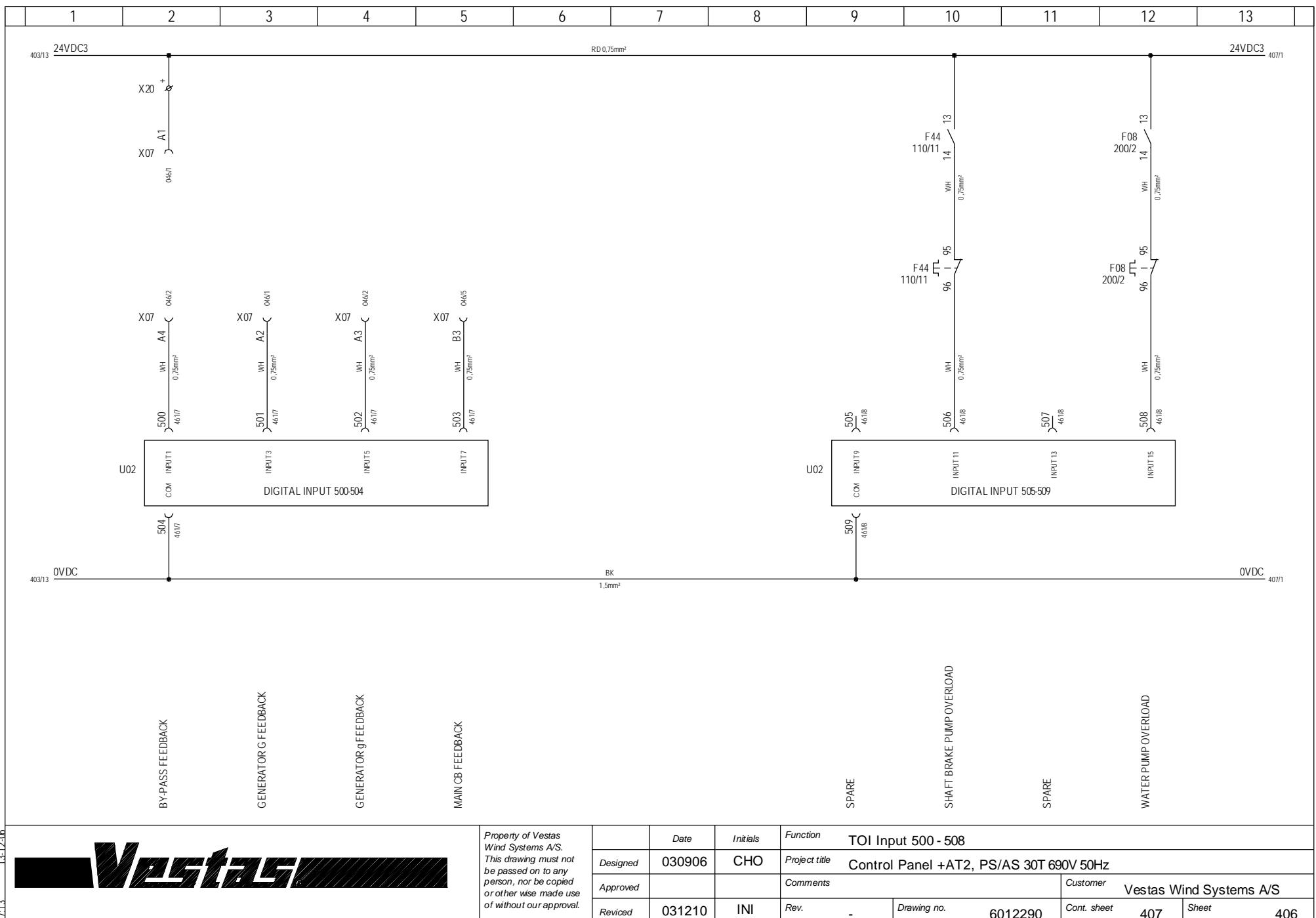
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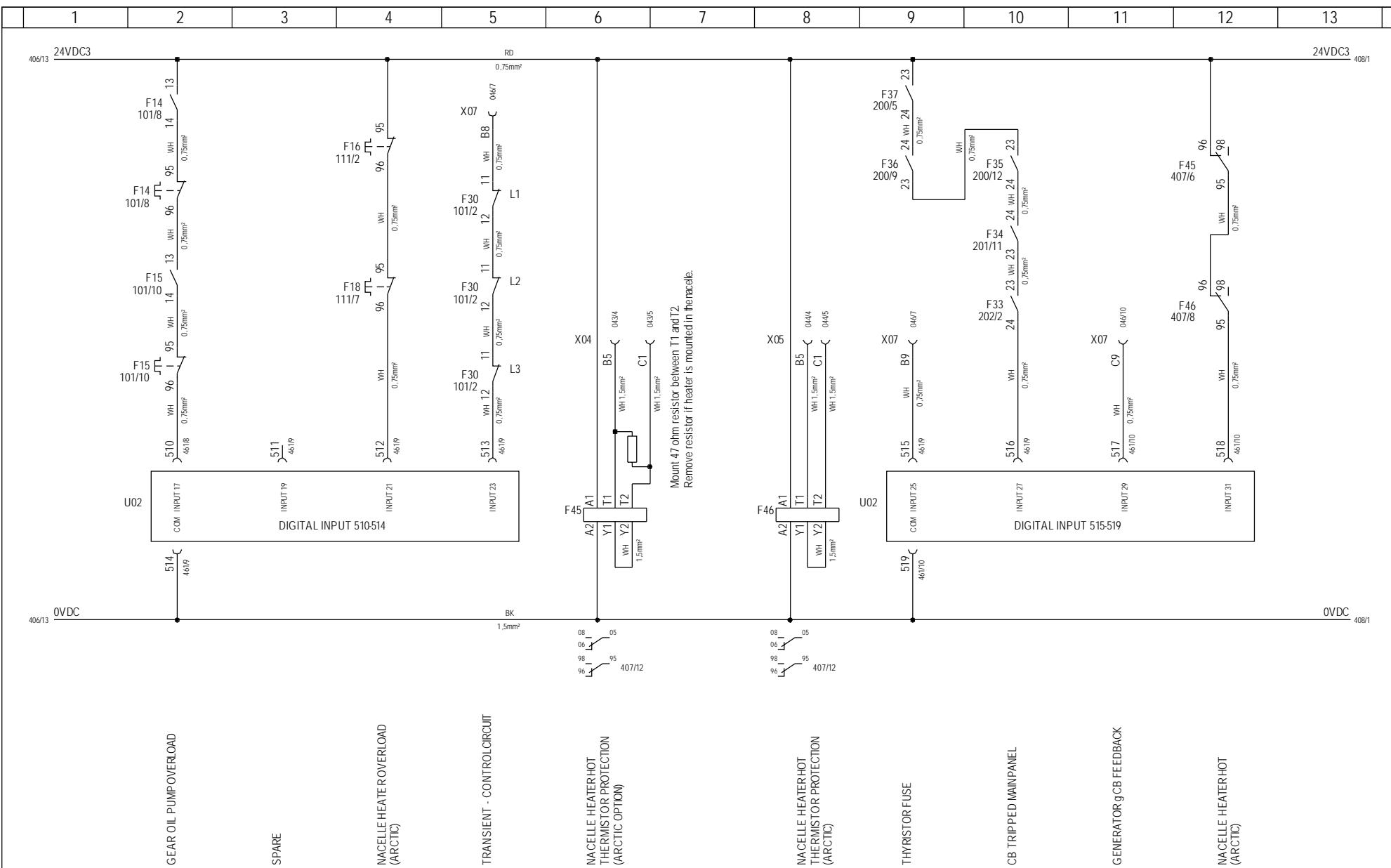
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6012290

405

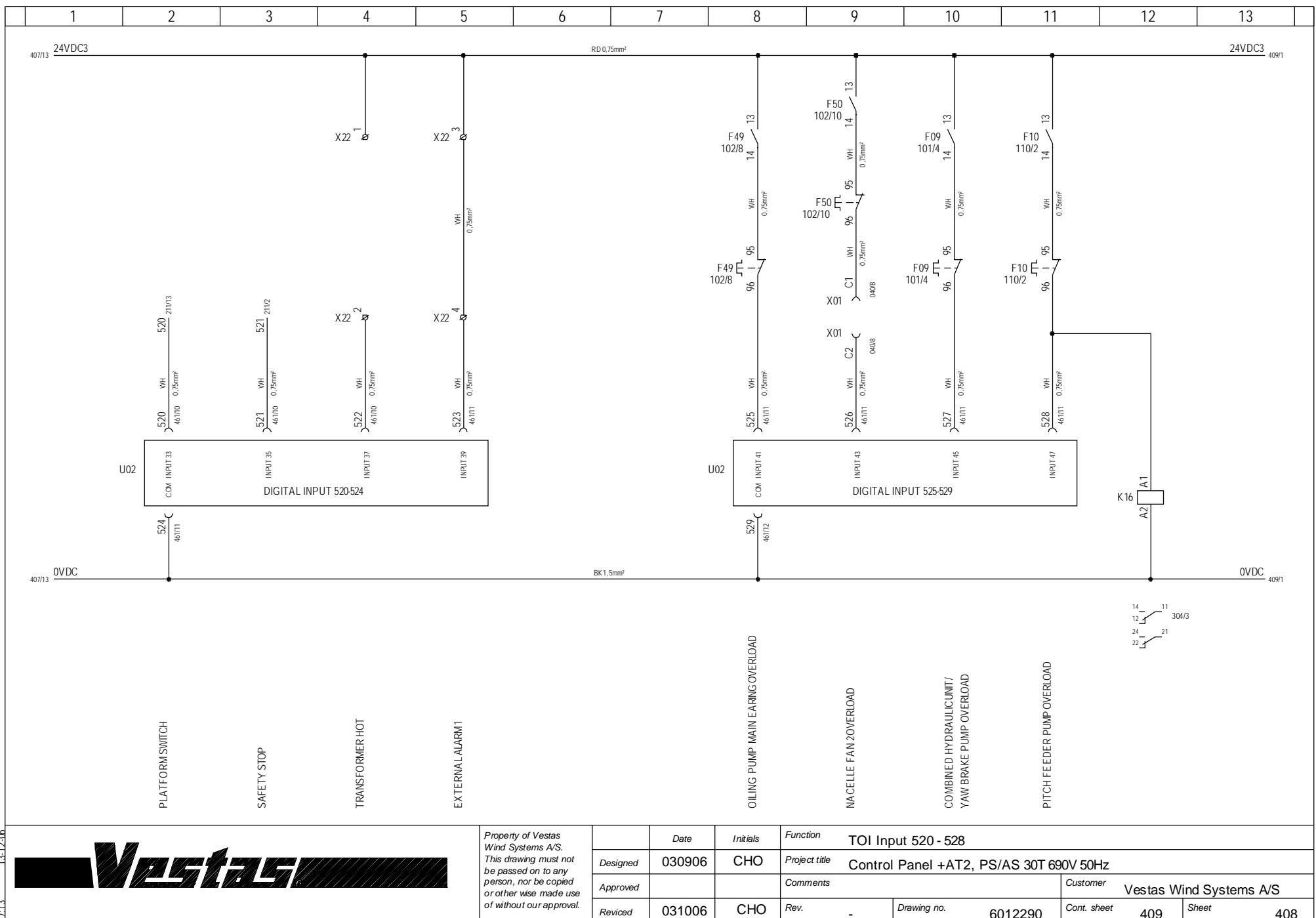
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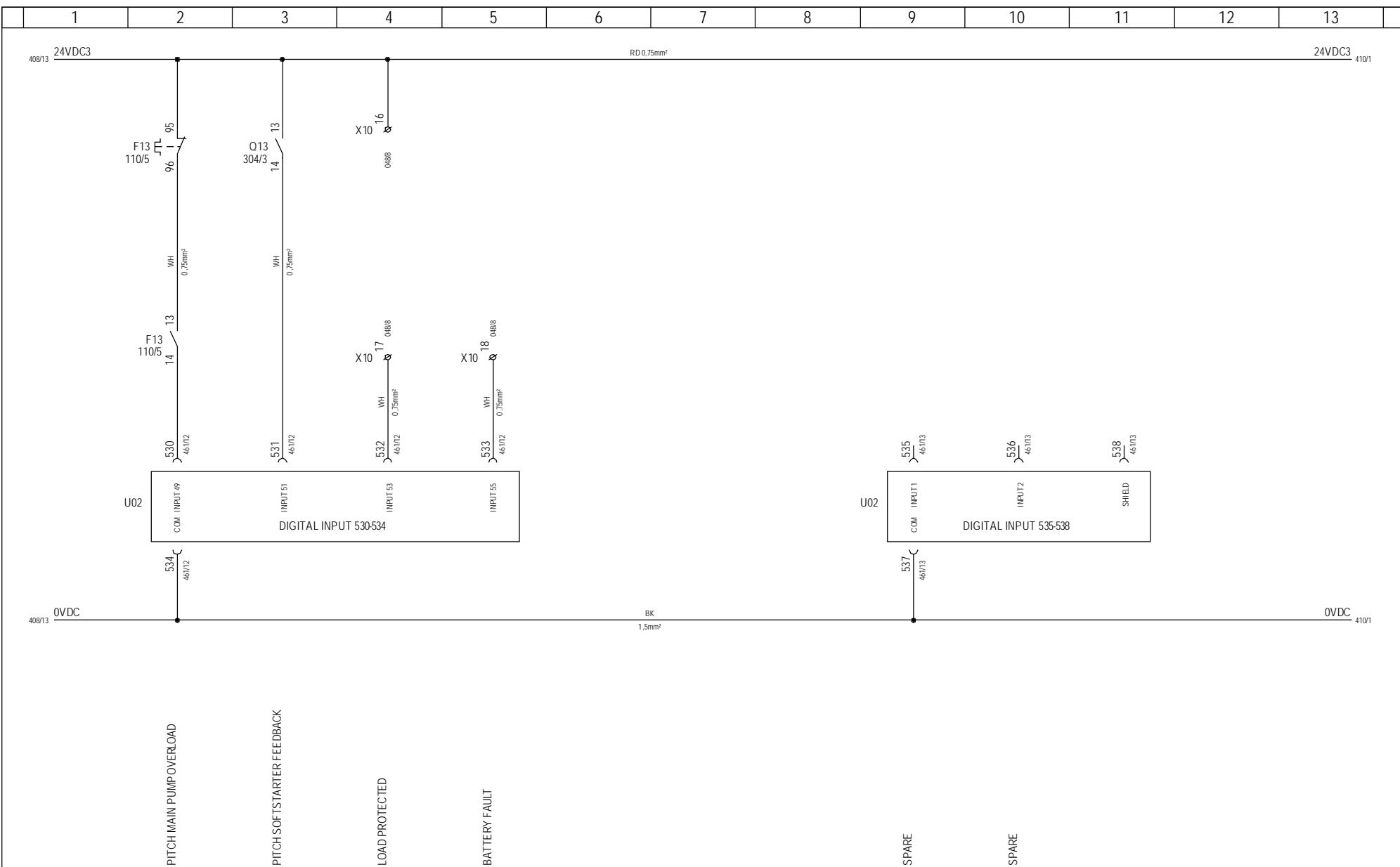




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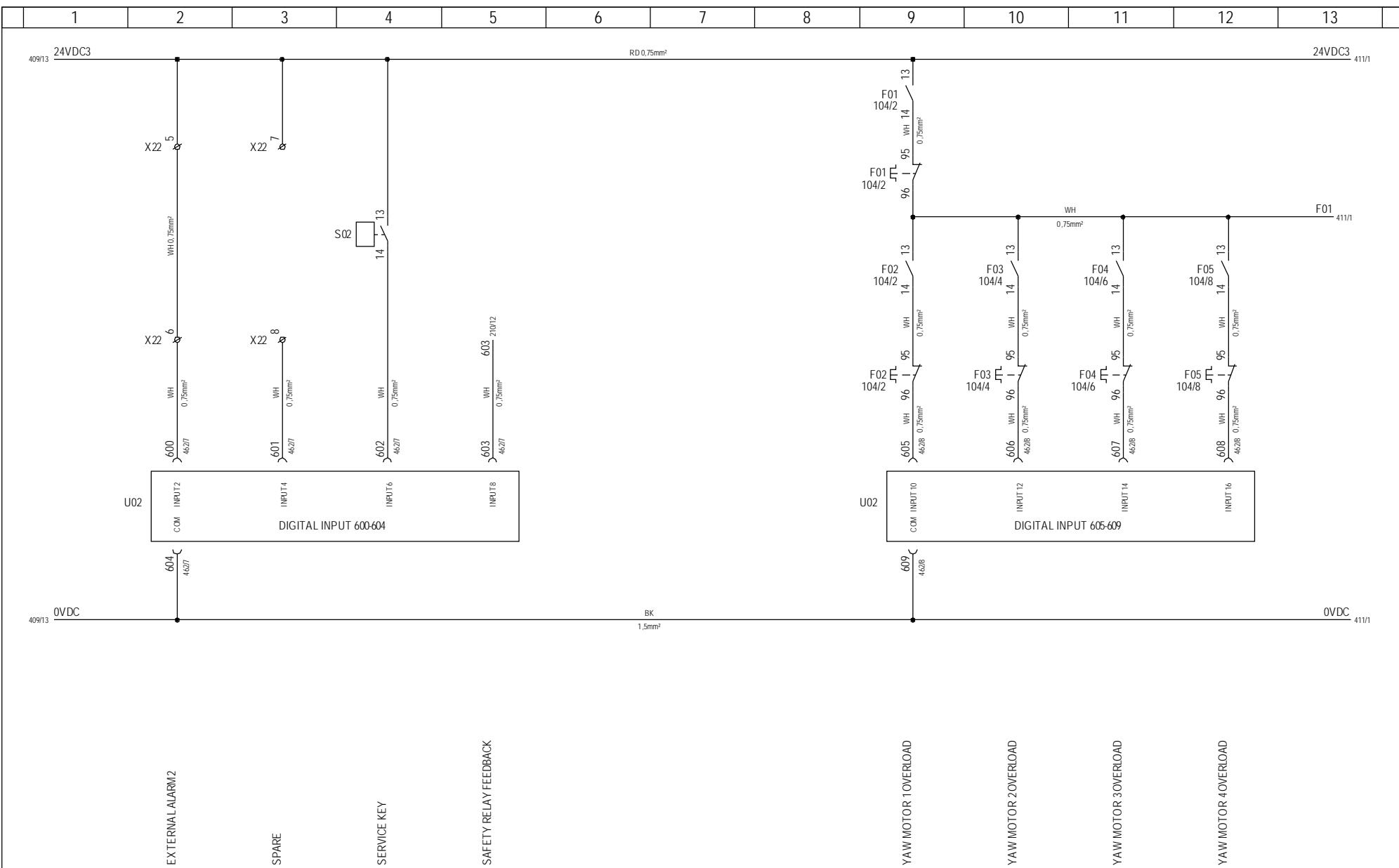
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Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz						
Approved	061024	FLT	Comments					Customer	Vestas Wind Systems A/S	
Revised	061024	INI	Rev.	-	Drawing no.	6012290	Cont. sheet	408	Sheet	407





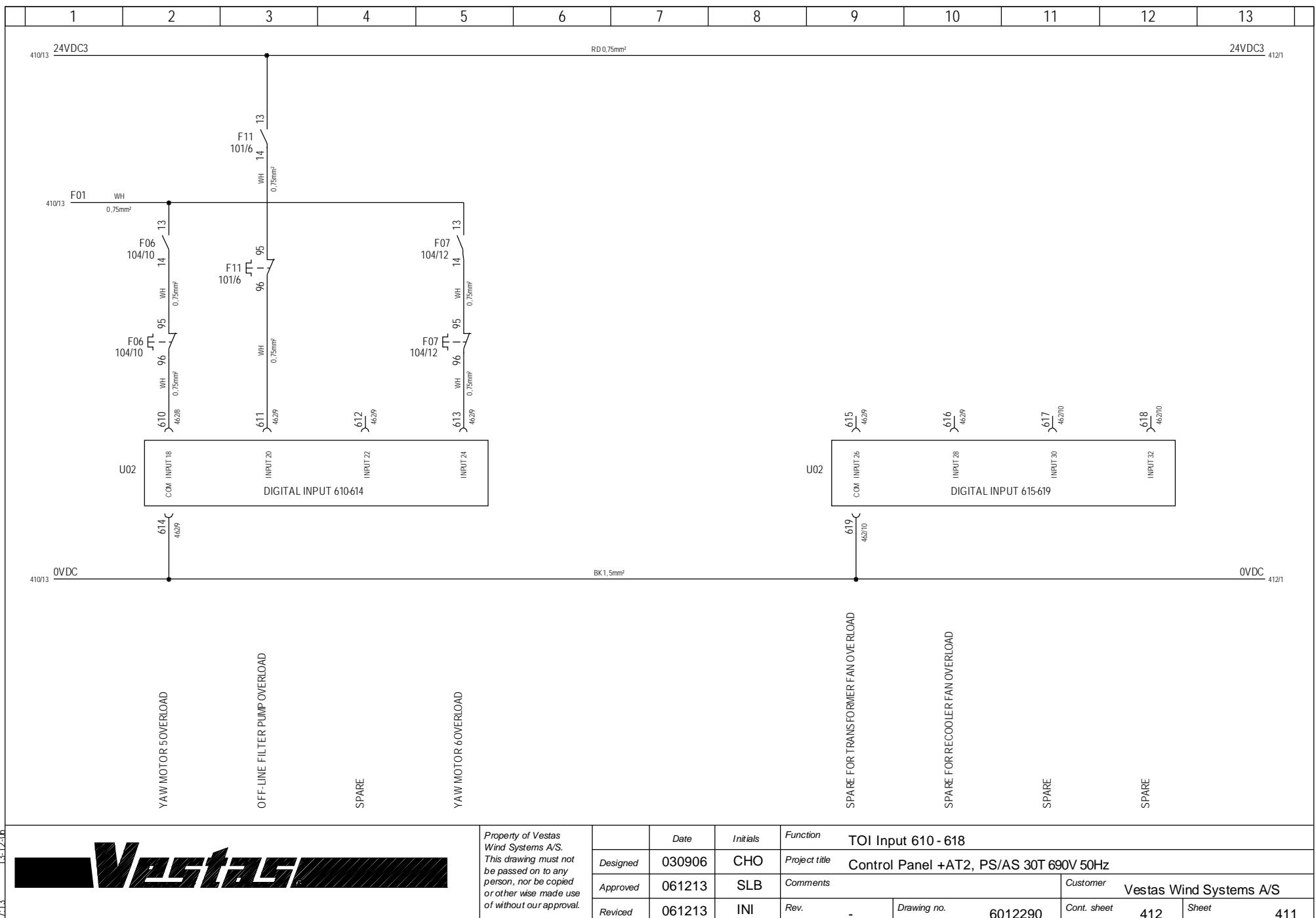
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	Date	Initials	Function	TOI Input 530 - 538						
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz						
Approved			Comments			Customer	Vestas Wind Systems A/S			
Revised	040304	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	410	Sheet	409



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	Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz					
	Approved			Comments			Customer	Vestas Wind Systems A/S		
	Revised	040304	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet	411	Sheet



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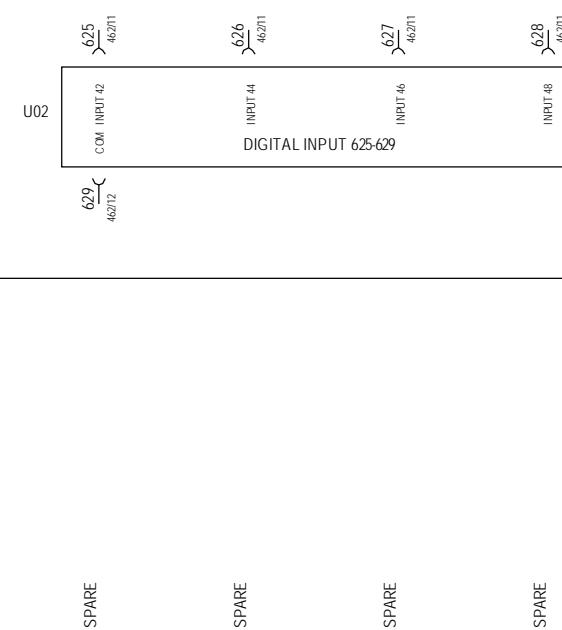
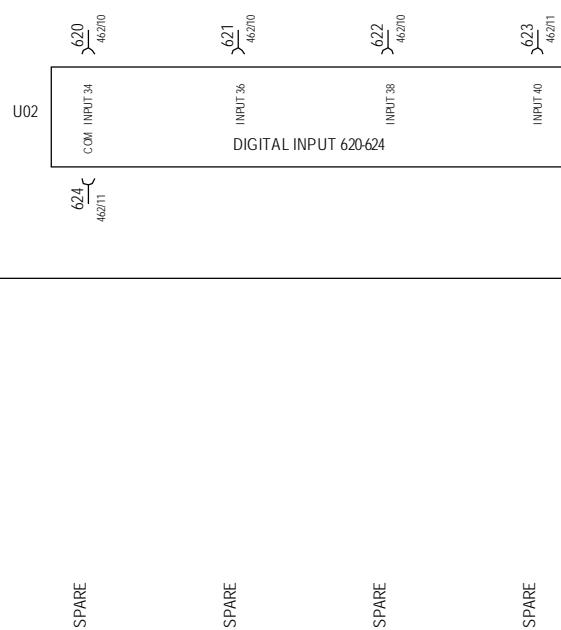
24VDC3

411/13

RD 0,75mm²

24VDC3

413/1



0VDC

411/13

BK 1,5mm²

0VDC

413/1



	Date	Initials	Function	TOI Input 620 - 628		
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments	Customer Vestas Wind Systems A/S		
Revised	031006	CHO	Rev.	Drawing no.	6012290	Cont. sheet 413
			-			Sheet 412

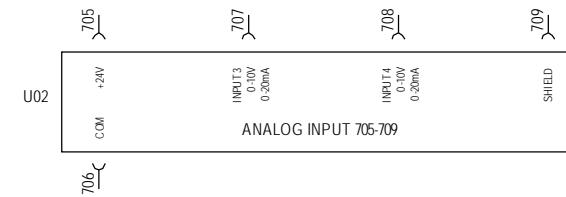
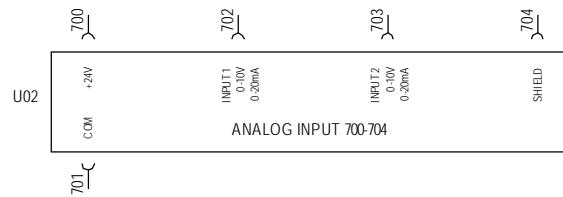
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24VDC3

413/13

RD 0,75mm²

24VDC3



0VDC

413/13

BK 1,5mm²

0VDC

700

702

703

704

705

707

708

709

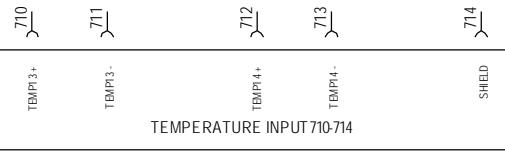
13.12.06
17.13

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	Date	Initials	Function	TOI Input 700 - 709			
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz			
Approved			Comments			Customer	Vestas Wind Systems A/S
Revised	031006	CHO	Rev.	-	Drawing no.	6012290	Cont. sheet 415 Sheet 414

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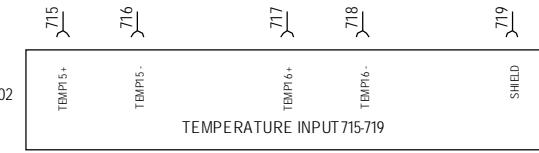
U02



710

712

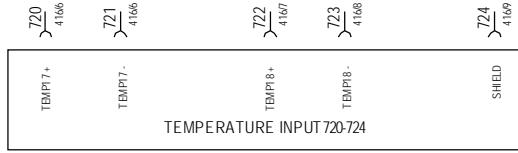
U02



715

717

U02



720

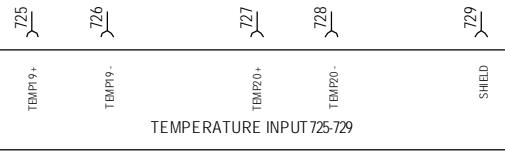
722



	Date	Initials	Function	TOI Input 710 - 723		
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments			
Revised	031006	CHO	Rev.	-	Drawing no.	6012290
					Cont. sheet	416
					Sheet	415

1	2	3	4	5	6	7	8	9	10	11	12	13	
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U02

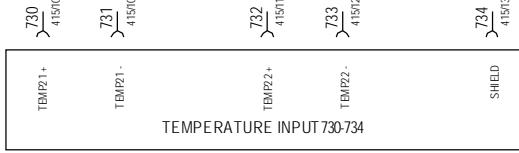


725

727

730
732

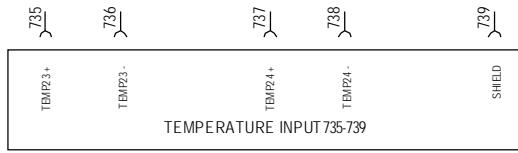
U02



730

732

U02



735

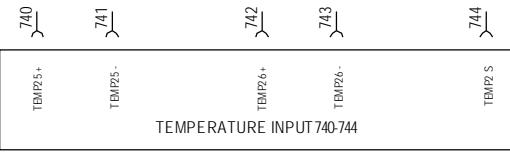
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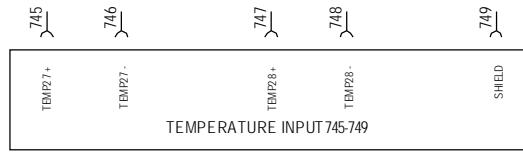
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Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments	Customer		
Revised	031006	CHO	Rev.	Drawing no.	6012290	Cont. sheet
			-			417
				Sheet		416

1	2	3	4	5	6	7	8	9	10	11	12	13
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U02



U02



740

742

745

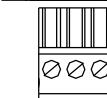
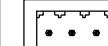
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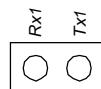
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Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments	Customer		
Revised	031006	CHO	Rev. -	Drawing no.	6012290	Cont. sheet 450 Sheet 417

TAC II INTERFACE

P3



P7



P6



P5



P4



P2



P1



PAGE

2106
2107
2107

500/2

500/3

COMMUNICATION TOI

COMMUNICATION TOI

SUPPLY
SUPPLY
PE

SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
ROTOR SPEED
GENERATOR SPEED
SPARE
SPARE
0V FROM TOPBOX
SPARE
SPARE
24V DC
TRIGGER OUTPUT L1
TRIGGER OUTPUT L2
TRIGGER OUTPUT L3
0V
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
SPARE
CURRENT L1
CURRENT L2
CURRENT L2
CURRENT L3
CURRENT L3
VOLTAGE L1
VOLTAGE L1
VOLTAGE L2
VOLTAGE L2
VOLTAGE L3
VOLTAGE L3
THYRISTOR TEMPERATURE
THYRISTOR TEMPERATURE
MAIN PANEL TEMPERATURE
MAIN PANEL TEMPERATURE

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Designed 030906 CHO Project title Control Panel +AT2, PS/AS 30T 690V 50Hz

Approved Comments Customer Vestas Wind Systems A/S

Revised 031006 CHO Rev. - Drawing no. 6012290 Cont. sheet 451 Sheet 450

1	2	3	4	5	6	7	8	9	10	11	12	13	
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TAC II INTERFACE

PAGE

3COM1 COMMUNICATION TO MODEM

50/12



3COM2 SPARE



3COM5 COMMUNICATION TO OP-PANEL

50/12



3COM6 RS422 COMMUNICATION TO +AT4

50/12



1COM2 COMMUNICATION TO HUB
(NOT NM64C)

50/12

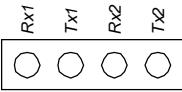
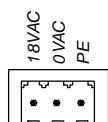


1COM4 RS485 COMMUNICATION TO TOP BOX

50/12



TOI 2 OUTPUT INTERFACE



PAGE

210/9

210/10

210/10

SUPPLY
SUPPLY
PE

COMMUNICATION TO TAC

COMMUNICATION TO TAC

COMMUNICATION TO TOINTOP BOX

COMMUNICATION TO TOINTOP BOX

BY-PASS CONTACTOR
 GENERATOR G CONTACTOR
 GENERATOR G CONTACTOR
 TRIP MAINCB
 230V SUPPLY
 YAW COW
 YAW CCW
 SHAFT BRAKE PUMP
 OFF-LINE FILTER PUMP
 230V SUPPLY
 WATERPUMP
 GEAR OIL PUMP LOW SPEED
 GEAR OIL PUMP HIGH SPEED
 NACELLE HEATER FAN GEAR BOX
 230V SUPPLY
 NACELLE HEATER GEARBOX
 NACELLE HEATER YAW
 MAIN PANEL HEATER
 THYRISTOR FAN
 230V SUPPLY
 PHASE COMPENSATION FAN
 PHASE COMPENSATION HEATER
 COMBINED HYDRAULIC UNIT YAW BRAKE PUMP
 PHASE COMP. 1
 230V SUPPLY
 PHASE COMP. 2
 230V SUPPLY
 PHASE COMP. 3
 230V SUPPLY
 PHASE COMP. 4
 230V SUPPLY
 PHASE COMP. 5
 230V SUPPLY
 PITCH MAIN PUMP
 PITCH FEEDER PUMP
 OIL PUMP MAIN BEARING
 NACELLE FAN2
 230V SUPPLY
 CONTROL PANEL FAN
 GEAR OIL HEATER
 NACELLE HEATER FAN YAW
 SPARE FOR TRANSFORMER FAN
 230V SUPPLY
 SUPPLY SAFETY LINE
 RESET EMERGENCY LINE
 SAFE NET
 SPARE
 24V DC SUPPLY

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Designed 030906 CHO Project title Control Panel +AT2, PS/AS 30T 690V 50Hz

Approved 061213 SLB Comments Customer Vestas Wind Systems A/S

Revised 061213 INI Rev. - Drawing no. 6012290 Cont. sheet 461 Sheet 460



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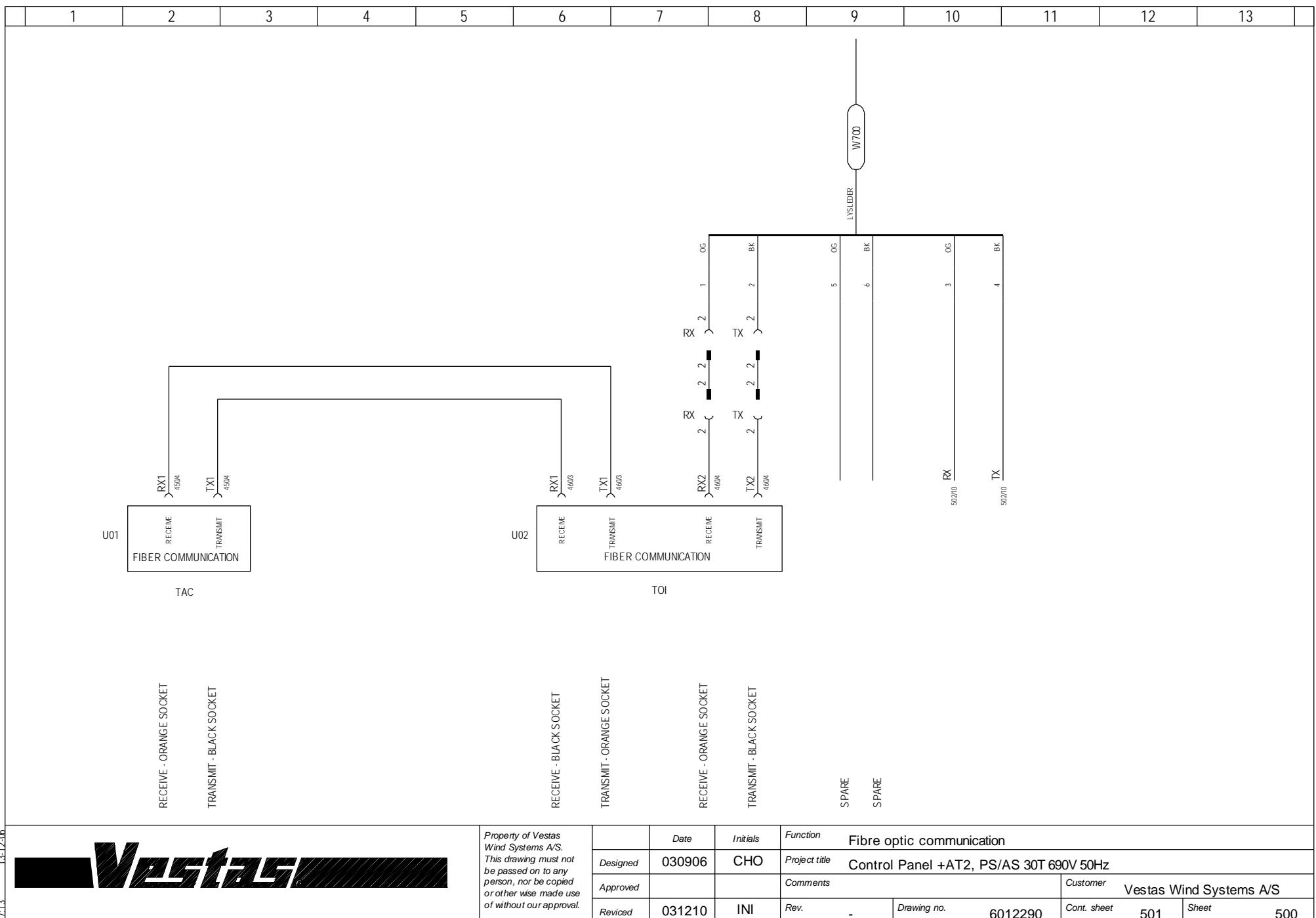
<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function TOI outline input							
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	Approved			Comments			Customer	Vestas Wind Systems A/S		
	Revised	050121	SLB	Rev.	-	Drawing no.	6012290	Cont. sheet	462	Sheet

TOI 2 INPUT INTERFACE

	24VDC	PAGE	403/8	200
	0VDC		403/8	201
	SPARE		403/9	202
	SPARE		403/10	203
	SHIELD		403/11	204
	UPS PANEL +AT5 PT100 TEMPERATURE		405/1	400
	UPS PANEL +AT5 PT100 TEMPERATURE		405/2	401
	UPS PANEL +AT5 PT100 TEMPERATURE		405/2	402
	SPARE		405/3	403
	SPARE		405/4	404
	SPARE		405/4	405
	SPARE		405/5	406
	SPARE		405/6	407
	SPARE		405/6	408
	SHIELD		405/7	409
	SPARE		405/8	410
	SPARE		405/8	411
	SPARE		405/9	412
	SPARE		405/10	413
	SPARE		405/10	414
	SPARE		405/11	415
	SPARE		405/12	416
	SPARE		405/12	417
	SPARE		405/13	418
	SPARE		405/13	419
	SHIELD		410/2	600
	EXTERNAL ALARM 2		410/3	601
	LOW PRODUCTION		410/4	602
	SERVICE KEY		410/5	603
	SAFETY RELAY FEEDBACK		410/2	604
	0VDC		410/9	605
	YAW MOTOR 1 OVERLOAD		410/10	606
	YAW MOTOR 2 OVERLOAD		410/11	607
	YAW MOTOR 3 OVERLOAD		410/12	608
	YAW MOTOR 4 OVERLOAD		410/9	609
	0VDC		411/2	610
	YAW MOTOR 5 OVERLOAD		411/3	611
	OFF-LINE FILTER PUMP OVERLOAD		411/4	612
	SPARE		411/5	613
	YAW MOTOR 6 OVERLOAD		411/2	614
	0VDC		411/9	615
	SPARE FOR TRANSFORMER FAN OVERLOAD		411/10	616
	SPARE FOR RECOOLER FAN OVERLOAD		411/11	617
	SPARE		411/12	618
	SPARE		411/9	619
	0VDC		412/2	620
	SPARE		412/3	621
	SPARE		412/4	622
	SPARE		412/5	623
	0VDC		412/2	624
	SPARE		412/9	625
	SPARE		412/10	630
	SPARE		412/11	631
	SPARE		412/12	632
	SPARE		412/9	633
	0VDC		413/2	634
	SPARE		413/3	635
	SPARE		413/4	636
	SPARE		413/5	637
	SPARE		413/2	638
	SPARE		413/1	



	Date	Initials	Function	TOI outline input		
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved	061213	SLB	Comments	Customer Vestas Wind Systems A/S		
Revised	061213	INI	Rev. -	Drawing no.	6012290	Cont. sheet 500 Sheet 462



U01



RECEIVE - ORANGE SOCKET
TRANSMIT - BLACK SOCKET

TAC

U02

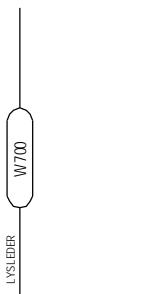
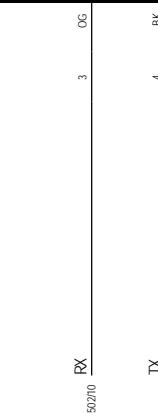


RECEIVE - BLACK SOCKET
TRANSMIT - ORANGE SOCKET

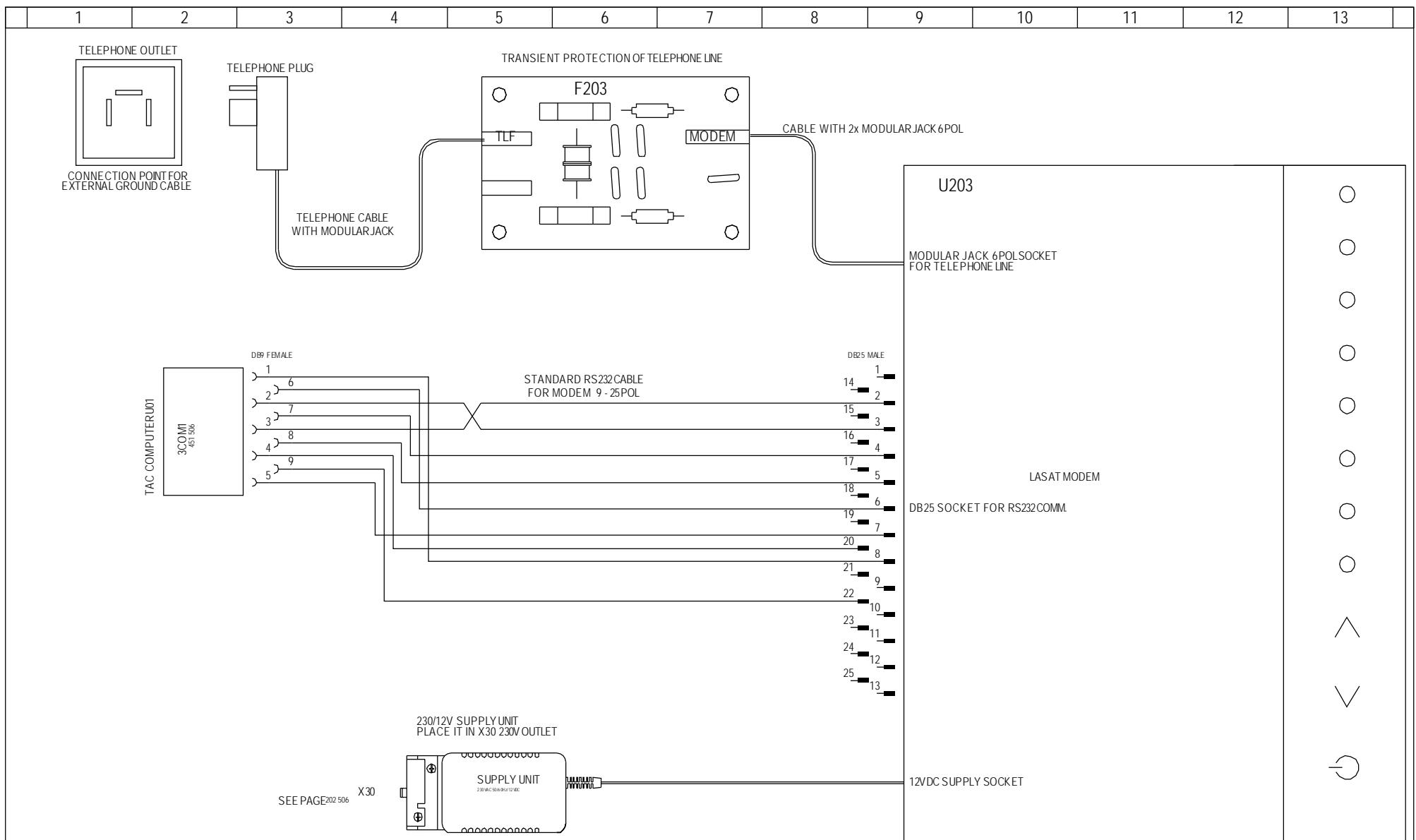
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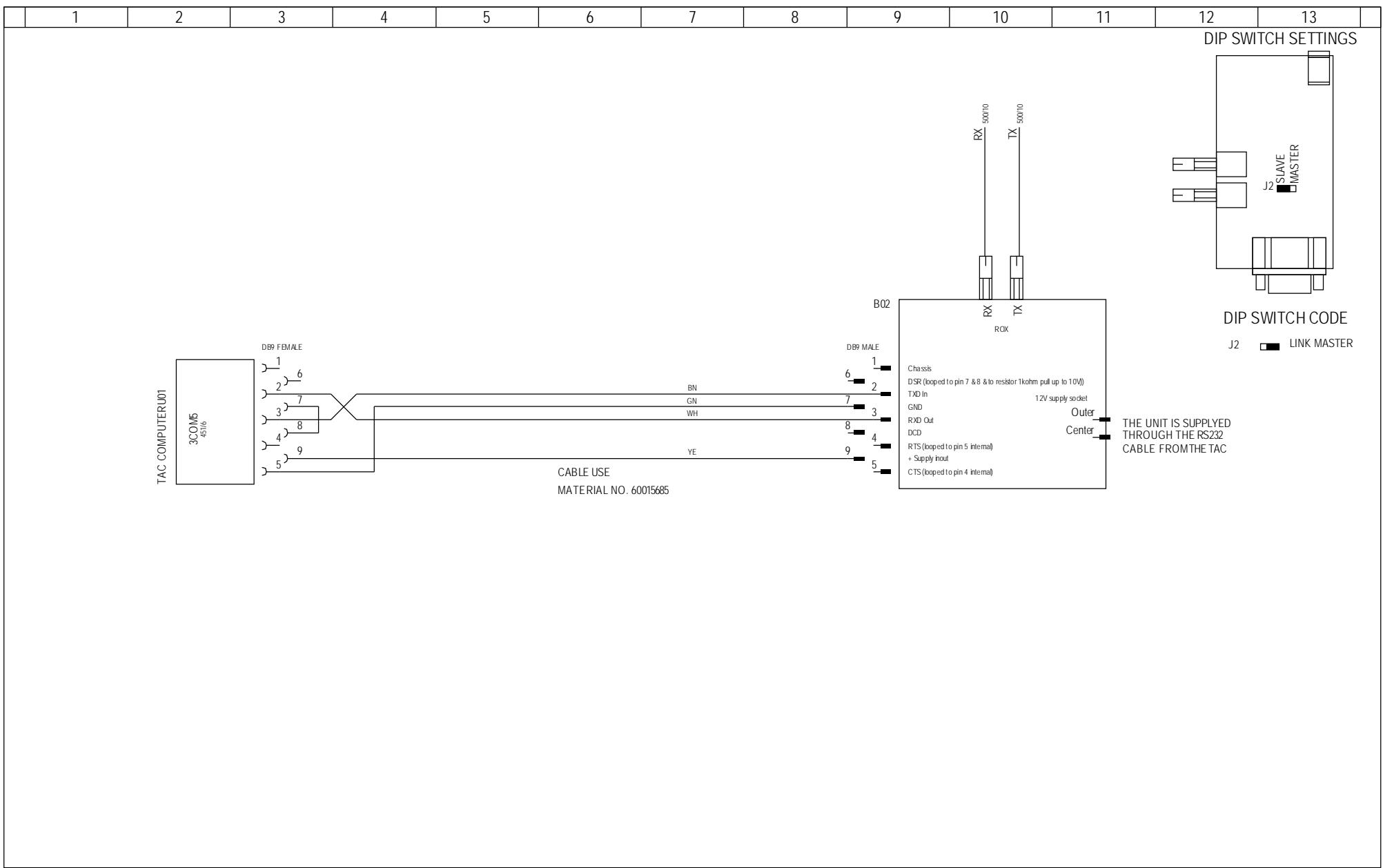
RECEIVE - ORANGE SOCKET
TRANSMIT - BLACK SOCKET

SPARE
SPARE

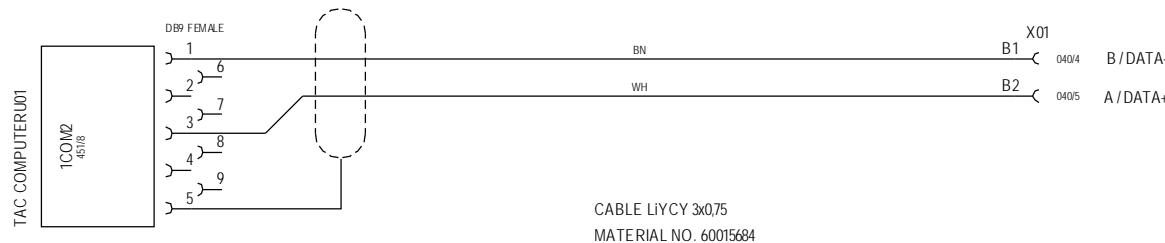


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Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz		
Approved			Comments			
Revised	031210	INI	Rev.	-	Drawing no.	6012290
			Cont. sheet	501	Sheet	500

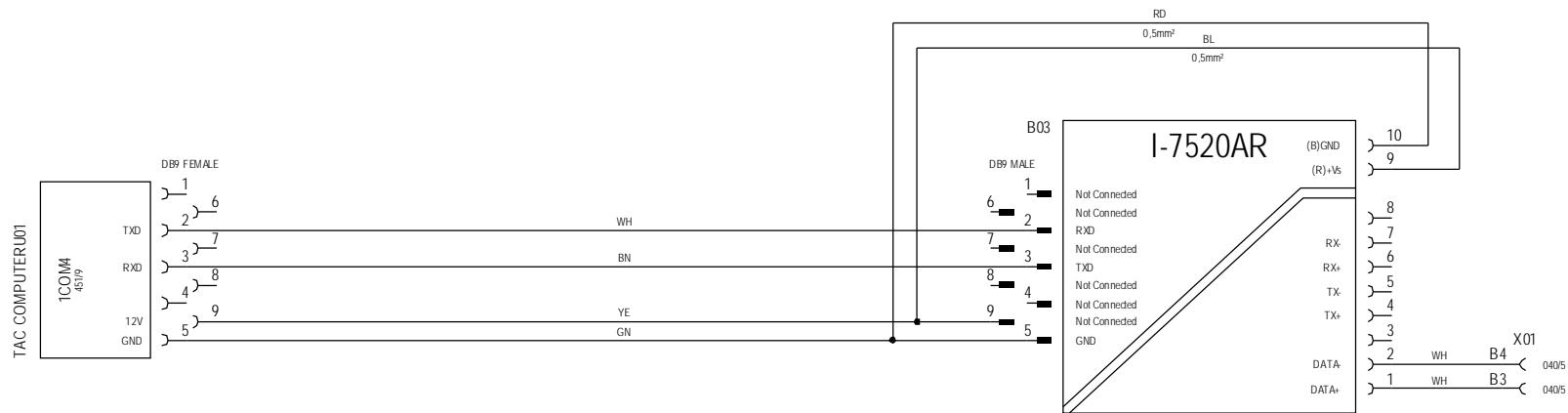




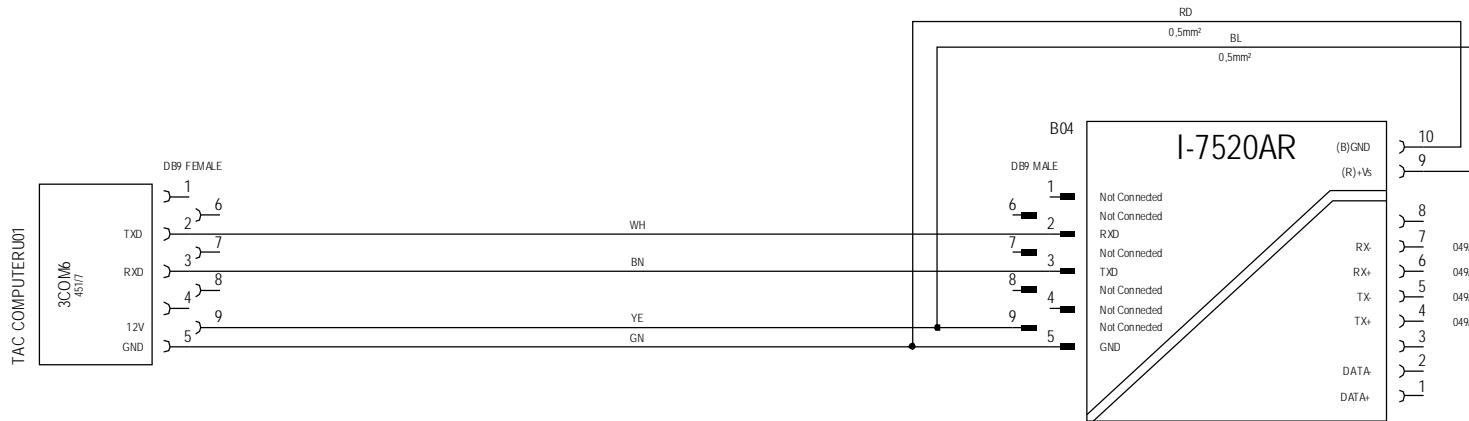
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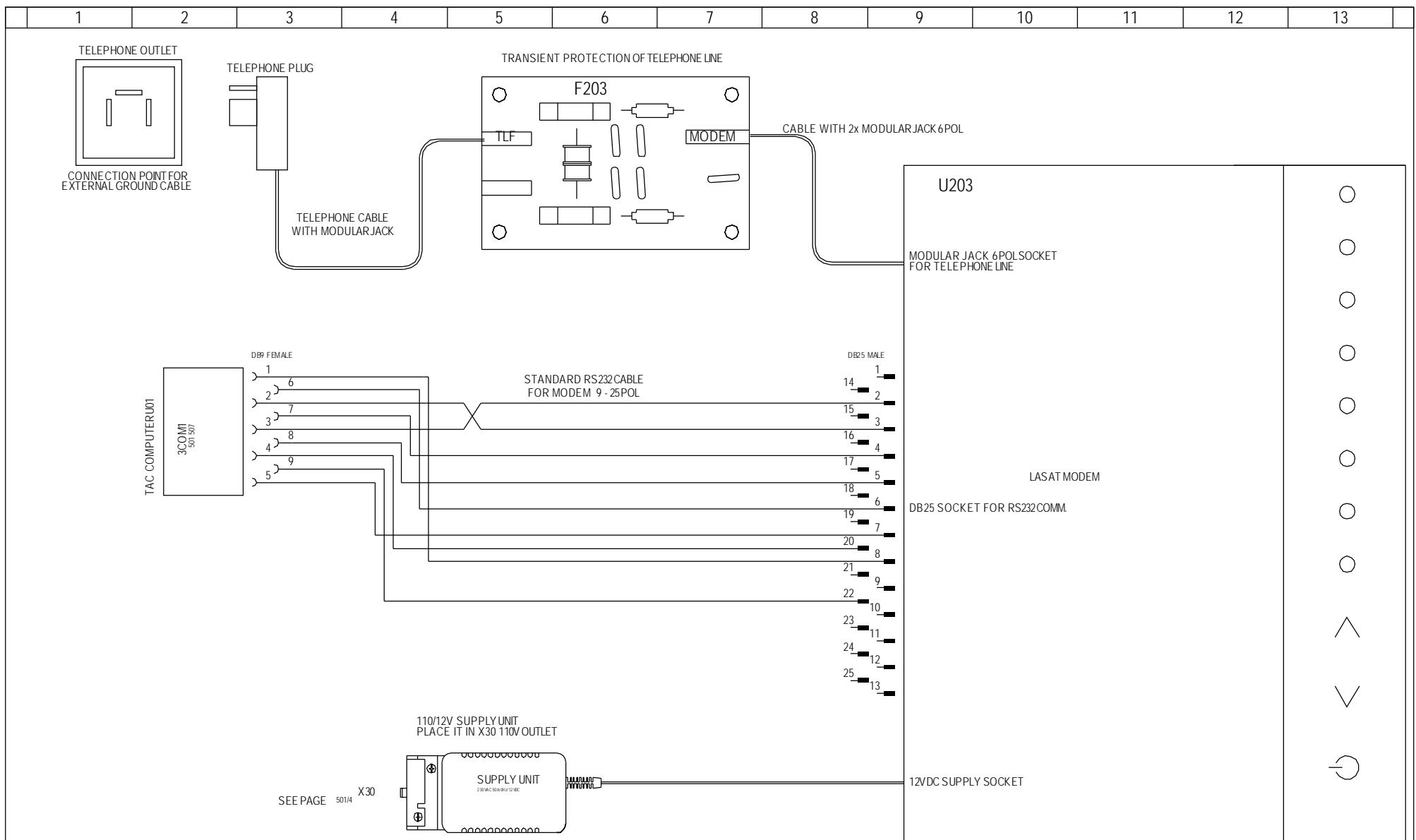


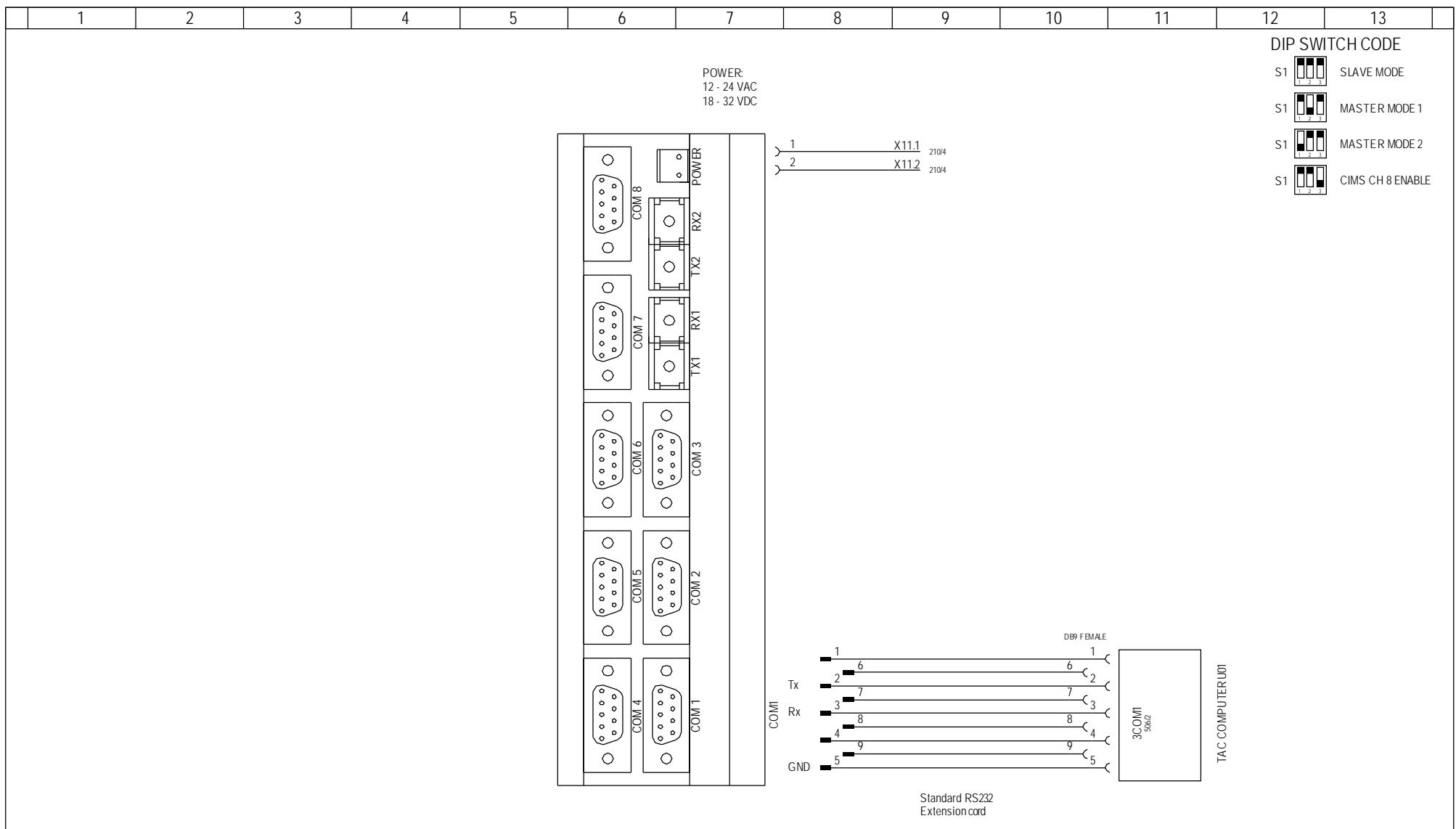
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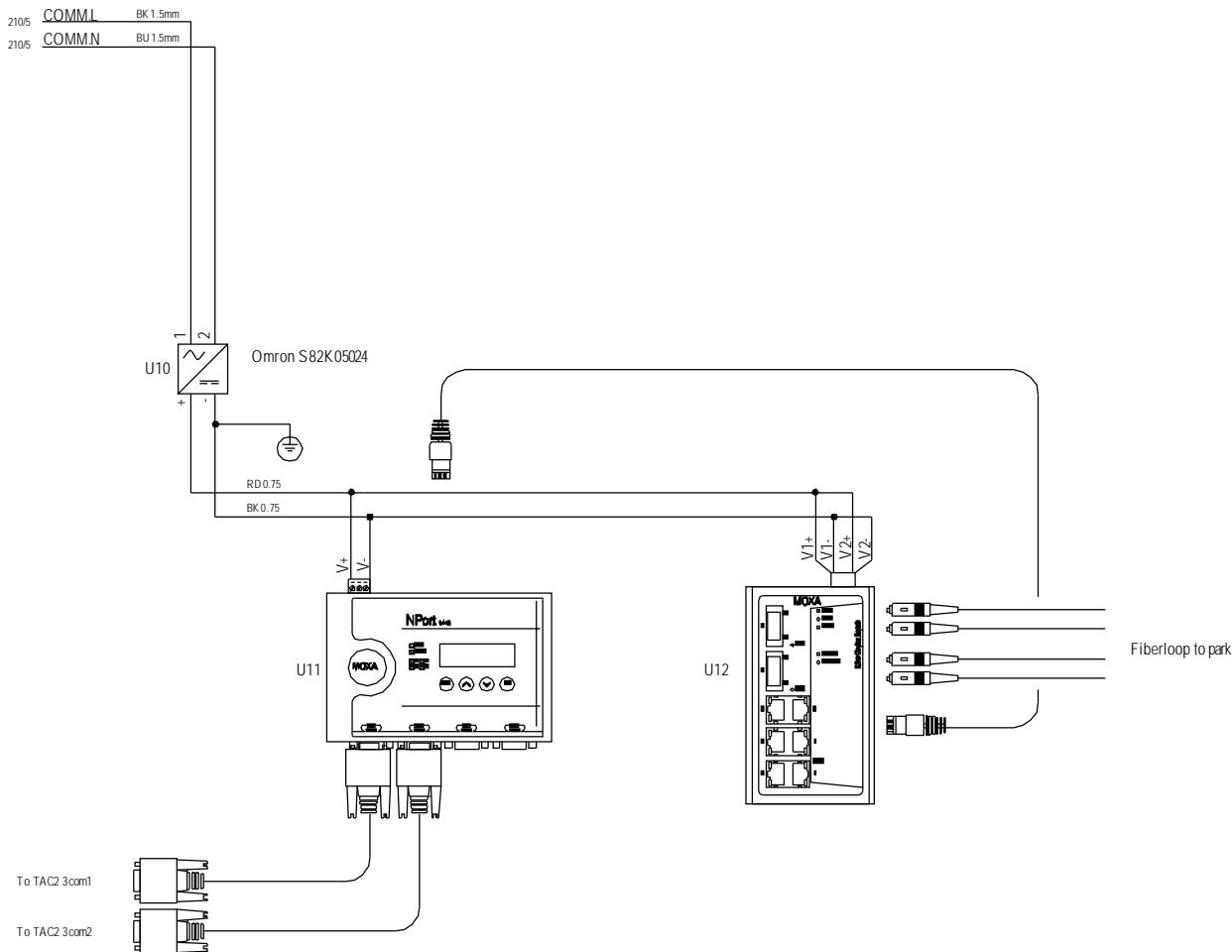
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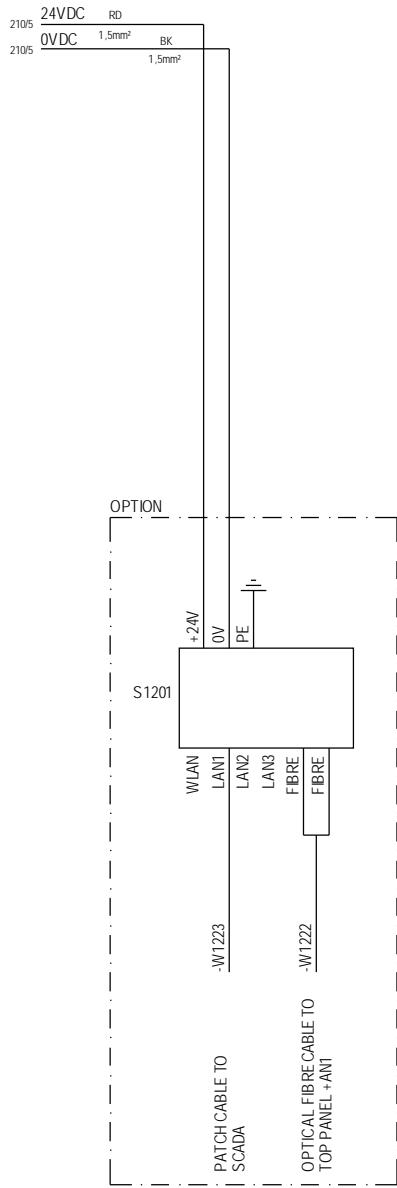




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17.13 13.12.06



Property of Vestas
Wind Systems A/S.
This drawing must not
be passed on to any
person, nor be copied
or other wise made use
of without our approval.

	Date	Initials	Function	CMS - OPTION	
Designed	030906	CHO	Project title	Control Panel +AT2, PS/AS 30T 690V 50Hz	
Approved	061024	FLT	Comments		Customer Vestas Wind Systems A/S
Revised	061024	INI	Rev.	Drawing no. 6012290	Cont. sheet - Sheet 509

60096681 CONTROL PAN+AT2 PS/AS 30T 50HZ

Component	Description	Qty per	Stk UM	Position Number
D21000075	60096681 MATERIAL BOM,CONTROL	0,000	EA	
D22000179	CONTROL PANEL +AT2, NM72-82/16	0,000	EA	
D6012290	CONTROL PANEL +AT2, PS/AS 30t	0,000	EA	
098430	SUPPORT RAIL CONTROL PANEL V82	2,000	EA	
098431	SUPPORT RAIL CONTROL PANEL V82	2,000	EA	
118934	LABEL ELECTRICAL WARNING UNIV.	1,000	EA	
158880	SCR TORX CSK FH M8X20 8.8 TZN	4,000	EA	
60001957	CONN BLA F 8 LEADED	1,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60002421	LABEL "SERVICE 0 1"	1,000	EA	
60002572	LABEL "COMPUTER PANEL +AT2"	1,000	EA	
60002670	LABEL	2,000	EA	
60006335	CRP TERM 0.5 8MM INS SINGLE	8,000	EA	
60007240	BUSBAR HOLDER 12x5-10x30MM	8,000	EA	
60007242	END COVER BUSBAR HOLDER	6,000	EA	
60007258	BUSBAR ADP 45MM 25A TERM	7,000	EA	
60007259	BUSBAR ADP 72MM 32A WIRE	20,000	EA	
60007283	BUSBAR COVER 78 393 12-30x10MM	0,600	M	
60007388	HEAT SHRINK 19mm 2:1 BK	2,300	M	
60007399	HEAT SHRINK 12.7mm 3:1 GNYE	0,030	M	
60007420	WIRE HOSE BLACK 20mm	0,410	M	
60007421	HOSE WIRE 25mm BK	0,410	M	
60007437	BRAIDED SLEEVE 10-17mm BK	1,630	M	
60007458	CABLE TIE 140x2.5mm WH	150,000	EA	
60007459	CABLE TIE WHITE 200x2.5mm	15,000	EA	
60007465	CABLE TIE 368x4.8mm BK	4,000	EA	
60007468	CABLE TIE BLACK 550X8,0MM	4,000	EA	
60007470	CABLE TIE 762x9mm WH	2,000	EA	
60007481	CABLE RACK TK 5-7	1,000	EA	
60007629	CABLE GLAND M16 BRASS BMBC-01	2,000	EA	
60007630	CABLE GLAND M20 BRASS BMBC-02	7,000	EA	
60007631	CABLE GLAND M25 BRASS BMBC-03	4,000	EA	
60007632	CABLE GLAND M32 BRASS BMBC-04	3,000	EA	
60007633	CABLE GLAND M40 BRASS BMBC-05	3,000	EA	
60007635	CABLE GLAND M63 BRASS BMBC-07	1,000	EA	
60007638	LOCKNUT M16 BRASS BMBL-02	2,000	EA	
60007639	LOCKNUT M20 BRASS BMBL-03	7,000	EA	
60007640	LOCKNUT M25 BRASS BMBL-04	4,000	EA	
60007641	LOCKNUT M32 BRASS BMBL-05	3,000	EA	
60007642	LOCKNUT M40 BRASS BMBL-06	3,000	EA	
60007644	LOCKNUT M63 BRASS BMBL-08	1,000	EA	
60007735	WIRE H05V-K 0.75 WH IEC	4,020	M	
60007757	WIRE H07V-K 1.5 BK IEC	2,030	M	
60007829	WIRE TIN 16 150MM Ø8 IEC/UL	1,000	EA	
60009600	SCREW ISO 7045 M 4 X 16 - 4.8	38,000	EA	
60009771	STUD BOLT M12x30 8.8	4,000	EA	
60010453	WIRING PLAN POC STEEL	1,000	EA	
60010481	UTILITY LECTERN 4638.600	1,000	EA	
60012624	WIRING YAW MOTOR +AT2	1,000	EA	
60013412	ANGLE BRACKET 2x10x25MM	6,000	EA	
60013704	CABLE ENTRY PLATE CPU PANEL30t	1,000	EA	
60015684	CABLE SIF-TAC-II RS485	1,000	EA	
60092825	CABINET TS8 2 DOOR W/W	1,000	EA	
60092974	LABEL	1,000	EA	
60094265	CABLE ENTRY RIGHT CPU PAN UL	1,000	EA	
60094860	MARKER CARD WAGO NOS 1-10	0,300	EA	
60094872	MARKER CARD WAGO NOS 11-20	0,100	EA	
60095579	LABEL " CAUTION! RISK OF. "	1,000	EA	
60096851	TORX SCREW 2486.500 5.5X13MM	26,000	EA	
60096875	CAPTIVE NUT 4165.000 M8	11,000	EA	
60096970	PUNCH SECTION 8612.160 OUTER	5,000	EA	
60096979	ATTACHMENT MOUNT PLATE TS	2,000	EA	
60097575	LABEL TYPE SIGN +AT2 PS/AS	1,000	EA	
60098043	MARK WAGO 1 +AT2 PS/AS WMB	1,000	EA	
60098050	PB PS/AS 30T (1650) IEC	1,000	EA	
60098112	BUSBAR ADP 54MM 80A TERM	1,000	EA	
60098349	WIRING F31,F25 +AT2 IEC I/III	1,000	EA	
60098356	WIRING 0VDC +AT2 IEC I/III	1,000	EA	
60098359	WIRING 230VAC +AT2 IEC I/III	1,000	EA	
60098360	WIRING EARTH +AT2 IEC I/III	1,000	EA	
60098361	WIRING T01,T05 +AT2 IEC I/III	1,000	EA	

60098362	WIRING U02.300 +AT2 IEC I/III	1,000	EA
60098364	WIRING U02.600 +AT2 IEC I/III	1,000	EA
60098366	WIRING U02.800 +AT2 IEC I/III	1,000	EA
60098367	WIRING U02.500 +AT2 IEC I/III	1,000	EA
60098368	WIRING X03 +AT2 IEC I/III	1,000	EA
60098369	WIRING X04 +AT2 IEC I/III	1,000	EA
60098370	WIRING X05 +AT2 IEC I/III	1,000	EA
60098371	WIRING X08 +AT2 IEC I/III	1,000	EA
60098372	WIRING X07 +AT2 IEC I/III	1,000	EA
60098373	WIRING 24VDC3 +AT2 IEC I/III	1,000	EA
60098374	WIRING 690VAC +AT2 IEC I/III	1,000	EA
60098375	WIRING X01 +AT2 IEC I/III	1,000	EA
60098376	WIRING X02 +AT2 IEC I/III	1,000	EA
60099010	LABEL TYPE SIGN CTRL PANEL	1,000	EA
60099030	MOUNT PLATE TS8 W/W	1,000	EA
60099169	WIRING X06 +AT2 IEC I/III	1,000	EA
60099174	WIRING 24V CIRC+AT2 IEC I/III	1,000	EA
60102318	CU BUSBAR KIT 5 CONTROL PAN	1,000	EA
60102523	DIN RAIL BUSBAR ADP 72MM	4,000	EA
60103218	LABEL SERVICE KEY ON PANELS	1,000	EA
60104150	CABLE CONDUIT DIN RAIL CTRL	1,000	EA
60006484	CONN MODULE BLIND FEMALE	2,000	EA -W592
60006565	HOUSING 3-MODULES TOP ENTRY	1,000	EA -W592
60007657	REDUCTION ADAPTOR PG21-PG16	1,000	EA -W592
60007676	CABLE GLAND PG16 EMC BRASS	1,000	EA -W592
60098140	CABLE W592 FOR PS/AS 30T	1,000	EA -W592
60098976	FRAME F 3 MOD FEM.2+PE	1,000	EA -W592
60099095	CONN ADAPTER F STAMP F 10	1,000	EA -W592
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA B01
51700301	ST-ROX RS232/50A CONVERTER	1,000	EA B02
60006058	END STOP 105900 TERMS WEW35/1	1,000	EA B02
60007767	WIRE H07V-K 1.5 BU IEC S300	2,030	M B02
60009605	SCR CRS PH M5x12 4.8 FZB	4,000	EA B02
60013722	PLATE ALU 2x76x76MM F ST-ROX	1,000	EA B02
60015685	CABLE ROX-TAC-II RS232 3M	1,000	EA B02
60009606	SCR CRS PH M5x20 4.8 FZB	16,000	EA B03
60091912	END STOP WAGO 249-117 10MM	1,000	EA B03
60099303	RS232/485/22 CONV I-7520AR ICP	1,000	EA B03
60099963	CABLE RS232 TAC-2/ICP-7520	1,000	EA B03
60009610	SCR CRS PH M6x14 4.8 FZB	1,000	EA B04
60091912	END STOP WAGO 249-117 10MM	2,000	EA B04
60099303	RS232/485/22 CONV I-7520AR ICP	1,000	EA B04 EON
60099963	CABLE RS232 TAC-2/ICP-7520	1,000	EA B04 EON
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA B19
60014729	HEATER FAN CR0 27 230V 350W UL	1,000	EA E01
60009578	SCR CRS PH M3x8 FZB	27,000	EA E02
60014729	HEATER FAN CR0 27 230V 350W UL	1,000	EA E02
60004755	CB 3RV1121-1KA10 9.0-12.5A	1,000	EA F01
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F01
60004797	LINK MODULE 3RA1921-1AA00	1,000	EA F01
60004746	CB 3RV1121-1AA10 1.1-1.6A	1,000	EA F02
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F02
60004746	CB 3RV1121-1AA10 1.1-1.6A	1,000	EA F03
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F03
60004746	CB 3RV1121-1AA10 1.1-1.6A	1,000	EA F04
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F04
60004746	CB 3RV1121-1AA10 1.1-1.6A	1,000	EA F05
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F05
60004746	CB 3RV1121-1AA10 1.1-1.6A	1,000	EA F06
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F06
60004746	CB 3RV1121-1AA10 1.1-1.6A	1,000	EA F07
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F07
60004750	CB 3RV1121-1EA10 2.8-4.0A	1,000	EA F08
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F08
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA F08
60004743	CB 3RV1121-0HA10 0.55-0.8A	1,000	EA F09
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F09
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA F09
60004750	CB 3RV1121-1EA10 2.8-4.0A	1,000	EA F10
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F10
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA F10
60004743	CB 3RV1121-0HA10 0.55-0.8A	1,000	EA F11
60004778	AUX CONTACT 3RV1901-1E	1,000	EA F11
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA F11
60004762	CB 3RV1131-4DA10 18.0-25.0A	1,000	EA F13

60004778	AUX CONTACT 3RV1901-1E	1,000	EA	F13
60004751	CB 3RV1121-1FA10 3.5-5.0A	1,000	EA	F14
60004778	AUX CONTACT 3RV1901-1E	1,000	EA	F14
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA	F14
60004753	CB 3RV1121-1HA10 5.5-8.0A	1,000	EA	F15
60004778	AUX CONTACT 3RV1901-1E	1,000	EA	F15
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA	F15
60005983	TERMINAL STD M4/6	5,000	EA	F16
60005998	END SEC FEM6 GY 118368.16	1,000	EA	F16
60009638	SCR HEX SET M8x16 8.8 FZB	5,000	EA	F16
60010316	BASE PL CLAMP TS8 WA4547276	1,000	EA	F16
60091912	END STOP WAGO 249-117 10MM	2,000	EA	F16
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	F16
60014160	MARK CARD RC610 NACELLE	1,000	EA	F16-F19
60005983	TERMINAL STD M4/6	8,000	EA	F17
60005998	END SEC FEM6 GY 118368.16	2,000	EA	F17
60009639	SCR HEX SET M8x20 8.8 FZB	1,000	EA	F17
60091912	END STOP WAGO 249-117 10MM	2,000	EA	F17
60091915	END STOP LABEL HOLDER WAGO 249	2,000	EA	F17
60005983	TERMINAL STD M4/6	5,000	EA	F18
60005998	END SEC FEM6 GY 118368.16	1,000	EA	F18
60009646	SCR HEX SET M8x25 8.8 FZB	14,000	EA	F18
60091912	END STOP WAGO 249-117 10MM	2,000	EA	F18
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	F18
60005983	TERMINAL STD M4/6	8,000	EA	F19
60005998	END SEC FEM6 GY 118368.16	2,000	EA	F19
60009670	SCR HEX SET M10x16 8.8 FZB	2,000	EA	F19
60010699	CONDENSATION PROT DRY BAG 500G	4,000	EA	F19
60091912	END STOP WAGO 249-117 10MM	2,000	EA	F19
60091915	END STOP LABEL HOLDER WAGO 249	2,000	EA	F19
60004663	CB 3RV1021-1FA10 3.5-5.0A	1,000	EA	F20
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA	F20
60005996	TERMINAL STD M6/8 GY 115118.11	7,000	EA	F21
60005998	END SEC FEM6 GY 118368.16	1,000	EA	F21
60009673	SCR HEX SET M10x25 8.8 FZB	1,000	EA	F21
60014161	MARK CARD RC610 SERVICE LIFT	0,200	EA	F21
60091912	END STOP WAGO 249-117 10MM	2,000	EA	F21
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	F21
60008824	CABLE PATCH DUPLEX MM 62.5/125	2,000	EA	F21, M01
60004712	CB 3RV1421-1GA10 4.5-6.3A	1,000	EA	F22
60004712	CB 3RV1421-1GA10 4.5-6.3A	1,000	EA	F23
60005071	FUSE SWITCH NH00 33198 3P	1,000	EA	F24
60005092	FUSE 690V 16A NH00 GL/GG	3,000	EA	F24
60005983	TERMINAL STD M4/6	6,000	EA	F25
60005998	END SEC FEM6 GY 118368.16	2,000	EA	F25
60009747	SCR CRS FH ST2.9x9.5 FZB	2,000	EA	F25
60091912	END STOP WAGO 249-117 10MM	4,000	EA	F25
60091915	END STOP LABEL HOLDER WAGO 249	2,000	EA	F25
60005759	RCCB 5SM1312-6 25A 2P	1,000	EA	F27
60005154	MCB 5SX2204-7 4.0A C 2P	1,000	EA	F28
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	95,000	EA	F28
60091912	END STOP WAGO 249-117 10MM	1,000	EA	F28
60005071	FUSE SWITCH NH00 33198 3P	1,000	EA	F29
60005097	FUSE 690V 50A NH00 GL/GG	3,000	EA	F29
60000674	OVP 600FM	3,000	EA	F30
60000675	BUSBAR 3 OVPS	1,000	EA	F30
60004648	CB 3RV1021-0AA10 0.11-0.16A	1,000	EA	F31
60005071	FUSE SWITCH NH00 33198 3P	1,000	EA	F32
60005098	FUSE 690V 63A NH00 GL/GG	3,000	EA	F32
60005157	MCB 5SX2206-7 6.0A C 2P	1,000	EA	F33
60005193	AUX CONTACT 5SX9100	1,000	EA	F33
60005157	MCB 5SX2206-7 6.0A C 2P	1,000	EA	F34
60005193	AUX CONTACT 5SX9100	1,000	EA	F34
60005157	MCB 5SX2206-7 6.0A C 2P	1,000	EA	F35
60005193	AUX CONTACT 5SX9100	1,000	EA	F35
60005157	MCB 5SX2206-7 6.0A C 2P	1,000	EA	F36
60005193	AUX CONTACT 5SX9100	1,000	EA	F36
60005159	MCB 5SX2208-7 8.0A C 2P	1,000	EA	F37
60005193	AUX CONTACT 5SX9100	1,000	EA	F37
60005162	MCB 5SX2213-7 13.0A C 2P	1,000	EA	F38
60005158	MCB 5SX2206-8 6.0A D 2P	1,000	EA	F39
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F40
60004743	CB 3RV1121-0HA10 0.55-0.8A	1,000	EA	F44
60004778	AUX CONTACT 3RV1901-1E	1,000	EA	F44
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA	F44

60004745	CB 3RV1121-0KA10 0.9-1.25A	1,000	EA	F49
60004778	AUX CONTACT 3RV1901-1E	1,000	EA	F49
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA	F49
60004742	CB 3RV1121-0GA10 0.45-0.63A	1,000	EA	F50
60004778	AUX CONTACT 3RV1901-1E	1,000	EA	F50
60004796	LINK MODULE 3RA1921-1DA00	1,000	EA	F50
60004996	RELAY EMER 3TK2806OBB4 400V	1,000	EA	K01
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	K02
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	K02
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	K03
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	K03
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K04
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K04
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K04
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K04
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K05
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K05
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K05
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K05
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K06
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K06
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K06
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K06
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K07
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K07
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K07
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K07
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K08
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K08
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K08
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K08
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K09
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K09
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K09
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K09
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K10
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K10
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K10
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K10
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K11
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K11
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K11
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K11
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K12
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K12
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K12
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K12
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K13
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K13
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K13
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K13
60004512	RELAY RT424730 8A 230V 2P	1,000	EA	K15
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K15
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K15
60004519	DIODE MODULE RPMG0730 110-230V	1,000	EA	K15
60004512	RELAY RT424024 8A 24V 2P	1,000	EA	K16
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K16
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K16
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K16
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K17
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K17
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K17
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K17
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K18
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K18
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K18
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K18
60014655	FAN 500M3/H 230V	1,000	EA	M01
60014668	FILTER EXH 232x232x17.5MM	1,000	EA	M01
60004407	CONT 3RT1026-1AP00 230V 50Hz	1,000	EA	Q01
60004451	RCUNIT 3RT19261CD00 127-240VAC	1,000	EA	Q01
60004407	CONT 3RT1026-1AP00 230V 50Hz	1,000	EA	Q02
60004451	RCUNIT 3RT19261CD00 127-240VAC	1,000	EA	Q02
60004439	MECH INTERLOCK SIRIUS 3R	1,000	EA	Q02/Q03
60004407	CONT 3RT1026-1AP00 230V 50Hz	1,000	EA	Q03

60004451	RCUNIT 3RT19261CD00 127-240VAC	1,000	EA	Q03
60096011	REVERSING ASSEMBLIES 3RA19232A	1,000	EA	Q03
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q08
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q08
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q09
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q09
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q10
60004433	AUX CONTACT 3RH1911-1FA22	1,000	EA	Q10
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q10
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q11
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q11
60004413	CONT 3RT10341AL20 230V 50/60Hz	1,000	EA	Q13
60004444	AUX CONTACT 3RH1921-1FA22	1,000	EA	Q13
60004456	RCUNIT 3RT19361CD00 127-240VAC	1,000	EA	Q13
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q14
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q14
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q15
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q15
60005983	TERMINAL STD M4/6	5,000	EA	Q16
60005998	END SEC FEM6 GY 118368.16	1,000	EA	Q16
60091912	END STOP WAGO 249-117 10MM	2,000	EA	Q16
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	Q16
60005983	TERMINAL STD M4/6	8,000	EA	Q17
60005998	END SEC FEM6 GY 118368.16	2,000	EA	Q17
60009792	WASHER SPR 5 FZG	4,000	EA	Q17
60091912	END STOP WAGO 249-117 10MM	2,000	EA	Q17
60091915	END STOP LABEL HOLDER WAGO 249	2,000	EA	Q17
60005983	TERMINAL STD M4/6	5,000	EA	Q18
60005998	END SEC FEM6 GY 118368.16	1,000	EA	Q18
60009795	WASHER SPR 6 FZG	1,000	EA	Q18
60091912	END STOP WAGO 249-117 10MM	2,000	EA	Q18
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	Q18
60005983	TERMINAL STD M4/6	8,000	EA	Q19
60005998	END SEC FEM6 GY 118368.16	2,000	EA	Q19
60009803	WASHER SPR 8 FZG	14,000	EA	Q19
60091912	END STOP WAGO 249-117 10MM	2,000	EA	Q19
60091915	END STOP LABEL HOLDER WAGO 249	2,000	EA	Q19
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q20
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q20
60002430	LABEL "48 NM"	1,000	EA	Q21
60002431	LABEL "24 NM"	1,000	EA	Q21
60005608	SWI LB 160A 3P OETL200K3	1,000	EA	Q21
60005614	SHAFT OETL ZA86 8x500mm	1,000	EA	Q21
60006815	STICKER "L1" 14MM	0,032	EA	Q21
60006816	STICKER "L2" 14MM	0,032	EA	Q21
60006817	STICKER "L3" 14MM	0,032	EA	Q21
60006819	STICKER "EARTH" 14MM	0,300	EA	Q21
60093008	LABEL"Q21 MAIN DISC FOR MAIN"	1,000	EA	Q21
60095653	TERMINAL SHROUD OETLZX 128	3,000	EA	Q21
60005604	SWI SWDIS 32A 4P OT32E4	1,000	EA	Q22
60005612	ROTARY HANDLE OHB65J6	1,000	EA	Q22
60005617	SHAFT OXP5X400 400mm	0,750	EA	Q22
60005622	SHAFT EXTENSION OETLZX31	1,000	EA	Q22
60009809	WASHER SPR 10 FZG	1,000	EA	Q22
60091912	END STOP WAGO 249-117 10MM	2,000	EA	Q22
60093009	LABEL"Q22 DISC FOR 230V UPS"	1,000	EA	Q22
60094268	ALU BRA SHAFT MAIN SWITCH CPU	1,000	EA	Q22
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q44
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q44
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q49
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q49
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	Q50
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	Q50
60006058	END STOP 105900 TERMS WEW35/1	1,000	EA	RX/TX
60008794	FIBRE PLUG ST-COUPLER AMP 05-5	2,000	EA	RX/TX
60013723	ANGLE ALU 2x50x80MM F 2xST	1,000	EA	RX/TX
60005824	MUSHROOM BUTTON ISAF616510R100	1,000	EA	S01
60005846	CONTACT ELEMENT SK616 001-B 1N	2,000	EA	S01
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S01
60005871	SIGN SK615546-2 "EMERGENCY STO	1,000	EA	S01
60005836	SELECT SWITCH ISFA616280R100 2	1,000	EA	S02
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S02
60101986	TRAFO 600-690/2x115V	1,000	EA	T01
60006925	TRAFO VOLT 520/24VAC 30VA	1,000	EA	T02
60006925	TRAFO VOLT 520/24VAC 30VA	1,000	EA	T03

60006925	TRAFO VOLT 520/24VAC 30VA	1,000	EA	T04
60101986	TRAFO 600-690/2x115V	1,000	EA	T05
51707301	TAC-II/F NEGM NM1500C/72/82	1,000	EA	U01
60001918	CONN BLA F 3 LEADED	1,000	EA	U01
60001950	CONN BLA F 7 LEADED	3,000	EA	U01
51701501	TOI-II INTERF NM1500 TOWER	1,000	EA	U02
60001918	CONN BLA F 3 LEADED	1,000	EA	U02
60001927	CONN BLA F 4 LEADED	2,000	EA	U02
60001934	CONN BLA F 5 LEADED	6,000	EA	U02
60001965	CONN BLA F 10 LEADED	2,000	EA	U02
60000717	BAT 115-230/24V 5A ADC5183	1,000	EA	U03
60009838	LOCK WASHER DIN 6798 A4 - FZB	50,000	EA	U03
60091912	END STOP WAGO 249-117 10MM	2,000	EA	U03
60000604	VDR SIOV-S10K40 40V	1,000	EA	V01
60002503	LABEL "-X01"	1,000	EA	X01
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X01
60002504	LABEL "-X02"	1,000	EA	X02
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X02
60002505	LABEL "-X03"	1,000	EA	X03
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X03
60002506	LABEL "-X04"	1,000	EA	X04
60006336	CRP TERM 0.75 8MM INS SINGLE	2,000	EA	X04
60006571	HOUSING 32P BULKHEAD	1,000	EA	X04
60002507	LABEL "-X05"	1,000	EA	X05
60006354	CRP TERM TW 0.75 8MM INS	1,000	EA	X05
60006571	HOUSING 32P BULKHEAD	1,000	EA	X05
60002508	LABEL "-X06"	1,000	EA	X06
60006571	HOUSING 32P BULKHEAD	1,000	EA	X06
60002509	LABEL "-X07"	1,000	EA	X07
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X07
60002525	LABEL "-X08"	1,000	EA	X08
60006571	HOUSING 32P BULKHEAD	1,000	EA	X08
60006073	TERMINAL WAGO 0.2-6.0MM2	2,000	EA	X10
60006085	END SEC 282-325 1-LEVEL GY	1,000	EA	X10
60009841	WASHER LOCK 8 FZB	12,000	EA	X10
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X10
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X10
60096685	TERMINAL WAGO1-LEV 0.08-4.0MM2	18,000	EA	X10
60097064	END SEC 281-328 GY	1,000	EA	X10
60009842	WASHER LOCK 10 FZB	3,000	EA	X11
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X11
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X11
60096685	TERMINAL WAGO1-LEV 0.08-4.0MM2	3,000	EA	X11
60097064	END SEC 281-328 GY	1,000	EA	X11
60006073	TERMINAL WAGO 0.2-6.0MM2	3,000	EA	X12
60006085	END SEC 282-325 1-LEVEL GY	1,000	EA	X12
60009861	NUT ISO 4032 M 4 - 6 - FZB	46,000	EA	X12
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X12
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X12
60006075	TERMINAL WAGO 0.08-2.5MM2	7,000	EA	X13
60006080	END SEC 870-933 1-LEVEL GY	3,000	EA	X13
60006086	PUSH-IN JUMPER BAR 870-402 2-P	2,000	EA	X13
60006087	PUSH-IN JUMPER BAR 870-403	1,000	EA	X13
60009873	NUT HEX M8 8 FZB	7,000	EA	X13
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X13
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X13
60006075	TERMINAL WAGO 0.08-2.5MM2	10,000	EA	X20
60006080	END SEC 870-933 1-LEVEL GY	3,000	EA	X20
60006086	PUSH-IN JUMPER BAR 870-402 2-P	3,000	EA	X20
60006088	PUSH-IN JUMPER BAR 870-404 4-P	1,000	EA	X20
60009879	NUT HEX M10 8	1,000	EA	X20
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X20
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X20
60006075	TERMINAL WAGO 0.08-2.5MM2	12,000	EA	X22
60009895	NUT LIFTING EYE M10 FZB	2,000	EA	X22
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X22
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X22
60009839	WASHER LOCK 5 FZB	16,000	EA	X30
60011324	SKT ABB E1175 DIN RAIL 16A	1,000	EA	X30
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X30

Change Info

<i>Item no.</i>	<i>Item text:</i>
None	Arctic Comp. for Control Panel +AT2 Passive Stall/Active Stall 30T 50Hz

Active revision for production

Drawing number: xxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

LST number: 21000076

Version	Date	Init./App.	Material BOM number: 60097145
01	02.10.2003	CHO/CHO	Description of change since last revision First version

Old revisions for service

Drawing number:: xxxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

LST number: xxxxxxxx

Version	Date	Init./App.	Material BOM number: xxxxxxxx
xx	dd.mm.yyyy	xxx/	Description of change since last revision Write the change

11/3/2003 8:30 AM
LST: 21000076
Version: 01

1 / 1

Material	60097145				
Description	ARCTIC COMPONENTS for +AT2 30t AS/PS				
Obj	Object description	Quantity	Un	SortStrng	Item text
60004745	CIRCUIT BREAKER 3RV1121-0KA10 0.9-1.25A	2	PC	F16/F18	
60004796	LINK MODULE 3RA1921-1DA00 S00-S0	2	PC	F16/F18	
60004394	CONTACTOR 3RT1016-1AP02 230V 50/60Hz	2	PC	Q16/Q18	
60004450	RC UNIT 3RT1916-1CD00 127-240VAC	2	PC	Q16/Q18	
60004717	CIRCUIT BREAKER 3RV1421-4BA10 14.0-20.0A	2	PC	F17/F19	
60004797	LINK MODULE 3RA1921-1AA00 S0-S0	2	PC	F17/F19	
60004407	CONTACTOR 3RT1026-1AP00 230V 50Hz	2	PC	Q17/Q19	
60004451	RC UNIT 3RT1926-1CD00 127-240VAC	2	PC	Q17/Q19	
60004663	CIRCUIT BREAKER 3RV1021-1FA10 3.5-5.0A	1	PC	F20	
60004796	LINK MODULE 3RA1921-1DA00 S00-S0	1	PC	F20	
60004394	CONTACTOR 3RT1016-1AP02 230V 50/60Hz	1	PC	Q20	
60004450	RC UNIT 3RT1916-1CD00 127-240VAC	1	PC	Q20	
60004712	CIRCUIT BREAKER 3RV1421-1GA10 4.5-6.3A	1	PC	F25	
60005001	THERMISTOR RELAY 3RN10131BWO1 2CO 24V	2	PC	F45/F46	

Change Info

Item no. **Item text:**
None Kit for Service Lift Active Stall 30T

Active revision for production

Drawing number: xxxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

LST number: 21000077

Version	Date	Init./App.	Description of change since last revision
01	04.10.2003	CHO/CHO	First version

Old revisions for service

Drawing number:: xxxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

LST number: xxxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

11/4/2003 3:55 PM

1/1

LST: 21000077

Version: 01

Material 60097149

Description KIT f. Service Lift AS 30t

Obj	Object description	Quantity	Un SortStrng	Item text
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60005764	RCCB F504C-16/0.03 4-POLED 16A 440VAC	1	PC	
60005092	FUSE NH00 3NA3805-6 gL/gG 16A 690V	3	PC	

Change Info

<u>Item no.</u>	<u>Item text:</u>
60019676	Kit for Modem 600mm Panel
60019755	Comm. for CPU Modem NM92/2750 IEC

Active revision for production

Drawing number: None

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx	Write the change
BoM no.: 60017352			Document no.: 21000012
Version Date Init./App.			Description of change since last revision
06	11.10.2007	MEKNU/BIVA	Changed with ECO 229864_ Introduction of new type of modem. 60014805 MODEM Zyxel Omni repl. w. 181097 MODEM INSYS 56K SMALL INT 2.0

Old revisions for service

Drawing number: None

Version	Date	Init./App.	Description of change since last revision
xx	yymmdd	xxx	Write the change
BoM no.: 60017352			Document no.: 21000012
Version Date Init./App.			Description of change since last revision
05	07.09.2004	INI/INI	Version 04 was printed with level 2, it shall just bee in level 1. Therefore material no 60013685, 60015210 and 100050 are removed.
04	07.09.2004	ABJ/	All used mat. no. w. Lasat modem changed. Mat. no. 60015719 modem, discontinued. Material numbers 60015719, 60013682, 60009627 and 60009795 removed.
03	16.12.2003	ATM/ATM	Material numbers 60014805, 60106136, 60106137 60009589 and 60009578 added.
02	30.10.2003	INI / FLT	Base unit changed from pack to pc.
01	26.08.2002	FLT/ FLT	Description text changed.
			First version in SAP no. system

Earlier Drawings and Part Lists no Longer Active for Serial Production

Change Info: 00020861

60017352 COM F CPU 30T ANALOG MODEM

Component	Description	Qty per	Stk UM	Position Number
D21000012	BOM 60017352, KIT for MODEM, 6	0,000	EA	
D22000026	CI, KIT for MODEM 600mm PANEL	0,000	EA	
181097	MODEM INSYS 56K SMALL INT 2.0	1,000	EA	
51710901	TRANSIENT PROT PHONE CONN	1,000	EA	-F5
60009578	SCR CRS PH M3x8 FZB	4,000	EA	
60009578	SCR CRS PH M3x8 FZB	2,000	EA	
60009580	SCREW ISO 7045 M4X10-FZB-H	2,000	EA	
60009589	SCR ISO7046 M 6 X 20 4.8 FZB Z	2,000	EA	
60009793	WASHER ISO 7092 6 - FZB	4,000	EA	
60009837	WASHER LOCK 3 FZB	4,000	EA	
60009933	SPACER IN/OUT Ø5.5MM 3x15MM	4,000	EA	
60009939	SPACER IN/OUT Ø10MM 6x10MM	4,000	EA	
60011417	BASE BOX 503D5610 FUGA 1m GREY	1,000	EA	
60011418	FRAME 500D5810 FUGA 50 1m GREY	1,000	EA	
60011419	TELEPHONE OUTLET MD82B	1,000	EA	
60013684	PLATE ALU W RAL 7032 MOD	1,000	EA	
60014787	TELEPHONE CABLE RJ11/RJ11 2M	1,000	EA	
60096978	PUNCHED RAIL 8612.260	2,000	EA	
60106136	BRA F EXT ZYXELMOD	1,000	EA	
60106137	BRA SUPPORT F EXT ZYXEL MOD	1,000	EA	

Change Info

<u>Item no.</u>	<u>Item text:</u>
60092032	Kit for CSL110, 600mm Panel

Active revision for production

Drawing no.: xxxxxxx

Revision	Date	Init./App.	Description of change since last revision
xx	yyyy-mm-dd		Write the change

BoM no.: 60092032

Revision	Date	Init./App.	Document no.: 21000020
04	2006-06-29	SHL/FLT	Description of change since last revision

Changed with ECO 214388 Mapics implementation, Controls DK, Århus
Replaced: 60015721 with 51700701 CSL-10 FIBRE MODULE 2xMM

Old revisions for service

Drawing no.: xxxxxxx

Revision	Date	Init./App.	Description of change since last revision
xx	yyyy-mm-dd	xxx	Write the change

BoM no.: 60092032

Revision	Valid from	Init./App.	Document no.: 21000020
03	2006-05-23	SHL/FLT	Description of change since last revision
02	2003-09-17	ABJ /	Changed with ECO 212505_Mapics implementation, controls DK Århus Punched rail & fiber plug added.
01	2003-06-20	ABJ /	First version

60092032 CSL110 MM SERIAL COM WTG-KIT

Component	Description	Qty per	Stk UM	Position Number
51700701	CSL-110 FIBRE MODULE 2xMM	1,000	EA	
60002649	LABEL	1,000	EA	
60007476	FLAT CABLE CLIP W ADHES FOOT	18,000	EA	
60007482	CABLE RACK TK 10-14	6,000	EA	
60008795	FIBRE PLUG SC-COUPLER DUP AMP	1,000	EA	
60009578	SCREW ISO 7045 M 3 x 8 - FZB	3,000	EA	
60009580	SCREW ISO 7045 M4X10-FZB-H	6,000	EA	
60009580	SCREW ISO 7045 M4X10-FZB-H	6,000	EA	
60009609	SCREW M 6 X 10 - 4.8 FZB Z	4,000	EA	
60009747	SCR CRS FH ST2.9x9.5 FZB	18,000	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	2,000	EA	
60009793	WASHER ISO 7092 6 - FZB	8,000	EA	
60009944	SPACER IN/OUT Ø10MM 6x20MM	4,000	EA	
60009946	SPACER IN/OUT Ø10MM 6x40MM	4,000	EA	
60012766	DIN RAIL W HOLES 180x7x35mm	1,000	EA	
60013679	FIBRE PLATE COVER FSWING FRAME	1,000	EA	
60013681	BRA F 2 SC/SC DUPLEX COUPLERS	1,000	EA	
60014784	RS232 CABLE EXTEEN 9-9-POLED 3M	1,000	EA	
60092988	FIBRE PLATE PAINTED F. CSL/ROX	1,000	EA	
60096978	PUNCHED RAIL 8612.260	2,000	EA	

Change Info

Item no.	Item text:
60105817	Moxa-Single Mode, Ethernet Kit w. Man. w. N-Port, WTG

Active revision for production

Drawing no.: None

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xx/xx	Writhe the change.

LST no.: 21000168

Version	Date	Init./App.	Material BOM no.: 60105817	Description of change since last revision
05	24.04.2007	MEKNU/BIVA		Changed with ECO 224070 Replacement of MOXA switches Replacement: 60093640 repl. by 092688 MOXA ETHE SWI EDS-408A-SS-SC-T

Old revisions for service

Drawing no.: None

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xx/xx	Writhe the change.

LST no.: 21000168

Version	Date	Init./App.	Material BOM no.: 60105817	Description of change since last revision
04	22.08.2006	INI/FLT		Changed with ECO 216036 Position numbers U10, U11 and U12 added.
03	02.06.2005	ABJ/		60002649_THERMO."CAUTION! Fibre optic cable..." 1 pc. added.
02	02.12.2004	ABJ/		60005006 POWER SUPPLY S82K-05024 110-230/24 added
01	05.08.2004	ABJ/		First version

Part List no Longer Active for Serial Production

Change Info: 22000239

60105817 MOXA-SM ETHE KIT

Component	Description	Qty per	Stk UM	Position Number
60099723	FIBER ENCL 6 GROUND CABELS	1,000	EA	
60099724	COVER FIBER ENCL 6 GROUND CAB	1,000	EA	
60009946	SPACER IN/OUT Ø10MM 6x40MM	4,000	EA	
60009793	WASHER ISO 7092 6 - FZB	4,000	EA	
60096978	PUNCHED RAIL 8612.260	2,000	EA	
60009609	SCREW M 6 X 10 - 4.8 FZB Z	4,000	EA	
60009793	WASHER ISO 7092 6 - FZB	4,000	EA	
60099727	FIBRE NETWORK SADDLE	8,000	EA	
60099729	FIBRE SUPPORT F NETWORK SADDLE	2,000	EA	
60009580	SCREW ISO 7045 M4X10-FZB-H	2,000	EA	
60099730	FIBRE MICRO WIRE SADDLE	8,000	EA	
60007478	CABLE HOLDER F/3 MTP3H-E6	2,000	EA	
60009579	SCR CRS PH M3x10 FZB	8,000	EA	
60007462	CABLE TIE BLACK 203X4.6	6,000	EA	
60008819	CABLE PATCH DUPLEX 9/125A	2,000	EA	
60008795	FIBRE PLUG SC-COUPLER DUP AMP	3,000	EA	
60013681	BRA F 2 SC/SC DUPLEX COUPLERS	1,000	EA	
60009579	SCR CRS PH M3x10 FZB	3,000	EA	
60009505	SCR SLOT CH M2.5x10 4.8 FZB	4,000	EA	
60014837	ETHE CABLE STRAIGHT 3M	1,000	EA	
60105815	RS232 CABLE PC-PC 9/9 POLE	2,000	EA	
60105940	WIREKIT F ETHERNET COMM F 30T	1,000	EA	
60002649	LABEL	1,000	EA	
60005006	PWR SUP S82K-05024 110-230/24	1,000	EA	U10
60097629	MOXA N-PORT 5410-4 100Mb	1,000	EA	U11
60097631	DIN RAIL BRA MOXA MODUL DK-35A	1,000	EA	U11
092688	MOXA ETHE SWI EDS-408A-SS-SC-T	1,000	EA	U12

Change Info

Item no.	Item text:
60105816	Moxa-Multi Mode, Ethernet Kit w. Man. w. N-Port, WTG

Active revision for production

Drawing number: None

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xx/xx	Writhe the change.

LST no.: 21000167

Version	Date	Init./App.	Material BOM no.: 60105816	Description of change since last revision
04	28.08.2007	MEKNU/BIVA		Changed with ECO 224070 & 227978 Replacement: 1 x 60093639 repl by 1 x 092687 MOXA ETHE SWI EDS-408A-MM-SC-T Added: 1 x 60002649 THERM. "CAUTION! Fibre optic.

Old revisions for service

Drawing number: None

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xx/xx	Writhe the change.

LST no.: 21000167

Version	Date	Init./App.	Material BOM no.: 60105816	Description of change since last revision
03	22.08.2006	INI/FLT		Changed with ECO 216036 Position numbers U10, U11 and U12 added.
02	02.12.2004	ABJ/		60005006 POWER SUPPLY S82K-05024 110-230/24 added
01	05.08.2004	ABJ/		First version

Part List no Longer Active for Serial Production

Change Info: 22000239

60105816 MOXA-MM ETHE KIT

Component	Description	Qty per	Stk UM	Position Number
60007462	CABLE TIE BLACK 203X4.6	6,000	EA	
60007478	CABLE HOLDER F/3 MTP3H-E6	2,000	EA	
60008795	FIBRE PLUG SC-COUPLER DUP AMP	3,000	EA	
60008820	CABLE PATCH DUPLEX 50/125A	2,000	EA	
60009505	SCR SLOT CH M2.5x10 4.8 FZB	4,000	EA	
60009579	SCR CRS PH M3x10 FZB	11,000	EA	
60009580	SCREW ISO 7045 M4X10-FZB-H	2,000	EA	
60009609	SCREW M 6 X 10 - 4.8 FZB Z	4,000	EA	
60009793	WASHER ISO 7092 6 - FZB	8,000	EA	
60009946	SPACER IN/OUT Ø10MM 6x40MM	4,000	EA	
60013681	BRA F 2 SC/SC DUPLEX COUPLERS	1,000	EA	
60014837	ETHE CABLE STRAIGHT 3M	1,000	EA	
60096978	PUNCHED RAIL 8612.260	2,000	EA	
60099723	FIBER ENCL 6 GROUND CABELS	1,000	EA	
60099724	COVER FIBER ENCL 6 GROUND CAB	1,000	EA	
60099727	FIBRE NETWORK SADDLE	8,000	EA	
60099729	FIBRE SUPPORT F NETWORK SADDLE	2,000	EA	
60099730	FIBRE MICRO WIRE SADDLE	8,000	EA	
60105815	RS232 CABLE PC-PC 9/9 POLE	2,000	EA	
60105940	WIREKIT F ETHERNET COMM F 30T	1,000	EA	
60002649	LABEL	1,000	EA	
60005006	PWR SUP S82K-05024 110-230/24	1,000	EA	U10
60097629	MOXA N-PORT 5410-4 100Mb	1,000	EA	U11
60097631	DIN RAIL BRA MOXA MODUL DK-35A	1,000	EA	U11
092687	MOXA ETHE SWI EDS-408A-MM-SC-T	1,000	EA	U12

Change Info

Item no.	Item text:
60097570	PFC Panel +AT3 No Load, V82-1.65MW 690V 50Hz

Active revision for production

Drawing number: 6011999

Version	Date	Init./App.
04	25.10.2006	INI/FLT

Description of change since last revision

Changed with ECO 217924_Implementation of CMS & warning label
Page 030: Updated with 118934 label, electrical warning universal.
Page 039: New page with following text added.
" Use copper conductors only for external wires and cables. Use 60°C cables for currents less than 100Amps and 75°C cables for higher currents".

LST number: 21000078

Version	Date	Init./App.
08	26.10.2006	INI/FLT

Material BOM number: 60096112

Description of change since last revision

Changed with ECO 217571 & 217924 Implementation of warning label.
60002621 replaced with 118934_label, electrical warning universal.

LST number: 21000080

Version	Date	Init./App.
04	23.08.2006	INI/FLT

Material BOM number: 60016660

Description of change since last revision

Changed with ECO 214516_
Added 60009530 x 8 pc. SCR CRS PH M5x12 4.8 FZB
Added 60009617 x 2 pc. SCR M4x16 4.8 FZB
Added 60007458 x 4 pc. CABLE TIE 140x2.5mm WH.

Old revisions for service

Drawing number: 6011999

Version	Date	Init./App.
03	15.11.2004	INI/CHO
02	11.06.2004	INI/CHO
01	15.09.2003	CHO/CHO

Description of change since last revision

All pages updated with Vestas logo.
Page 100, 101 and 102: Cable color changed from BU to BU/GY.
Page 001: Updated.
Page 202: E01 settings changed.
First version

LST number: 21000078

Version	Date	Init./App.
07	08.09.2004	MILJE/MILJE
06	17.06.2004	CHO/CHO
05	01.06.2004	FLT/FLT
04	02.02.2004	CHO/
03	21.01.2004	ATM/ATM
02	06.11.2003	CHO/CHO
01	30.09.2003	CHO/CHO

Material BOM number: 60096112

Description of change since last revision

60007354 Cable conduit 25x40mm, 60007355 cable conduit 25x60mm and 60007182 DIN rail removed.
New BOM 60104152 cable conduit, DIN rail & earth rail added.
60096979 quantity changed to 2 pc. 60007437-M01 changed to 1,720, S01 changed to 0,850. E01 changed to 2,080
60102317 added, all the CU bus bars are divided into kit.
60007354 and 60007355 length changed.
6 pc. isolators 15850201 8x40 added. Base unit changed.
+AT3 label and separation plate added.
First version

LST number: 21000080

Version	Date	Init./App.
03	22.03.2004	FLT/FLT
02	02.10.2003	CHO/CHO
01	13.05.2002	CHO/CHO

Material BOM number: 60016660

Description of change since last revision

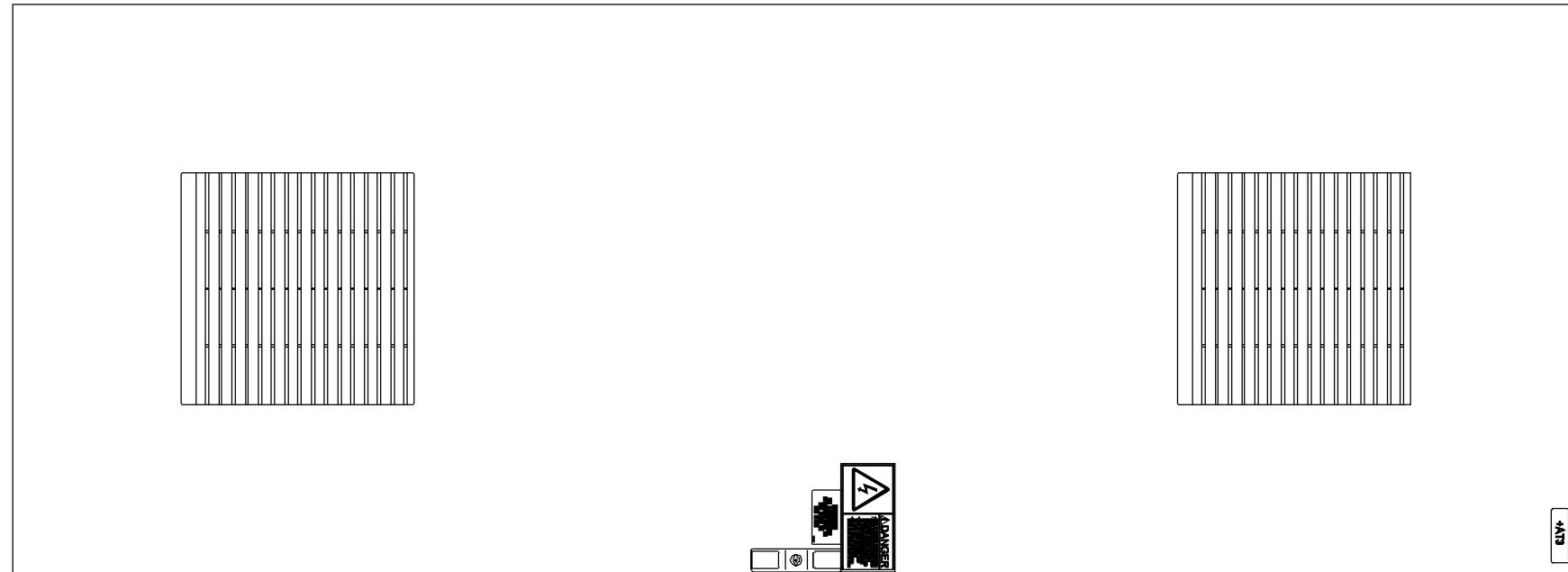
Material 60012530 update of wiring for PFC module
Capacitor contact added.
First version in SAP no. system.



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	Date	Initials	Table of Contents							
Designed	030915	CHO	Project title	PFC Panel +AT3 No Load, V82-1.65MW 690V 50Hz						
Approved	061025	FLT	Comments	Customer Vestas Wind Systems A/S						
Revised	061025	INI	Rev.	04	Drawing no.	6011999	Cont. sheet	030	Sheet	001

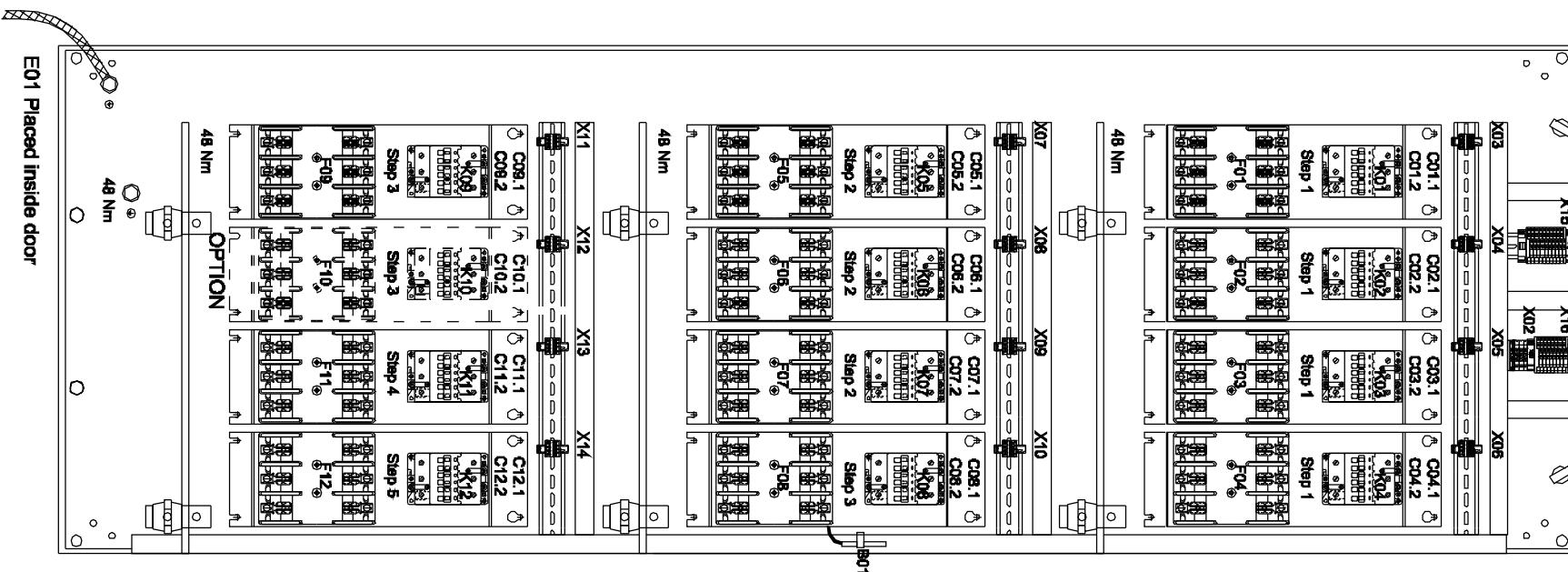
1	2	3	4	5	6	7	8	9	10	11	12	13	
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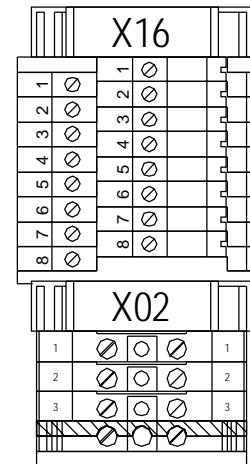
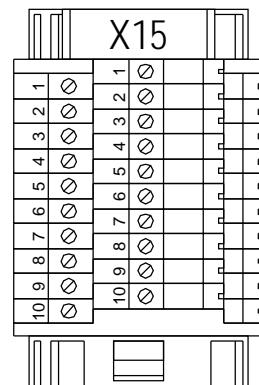
Panel Dimension: 800 x 2200 x 600 mm (WxHxD)

Panel Weight: 285kg

1	2	3	4	5	6	7	8	9	10	11	12	13
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1	2	3	4	5	6	7	8	9	10	11	12	13	
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	1	2	3	4	5	6	7	8	9	10	11	12	13	
--	---	---	---	---	---	---	---	---	---	----	----	----	----	--

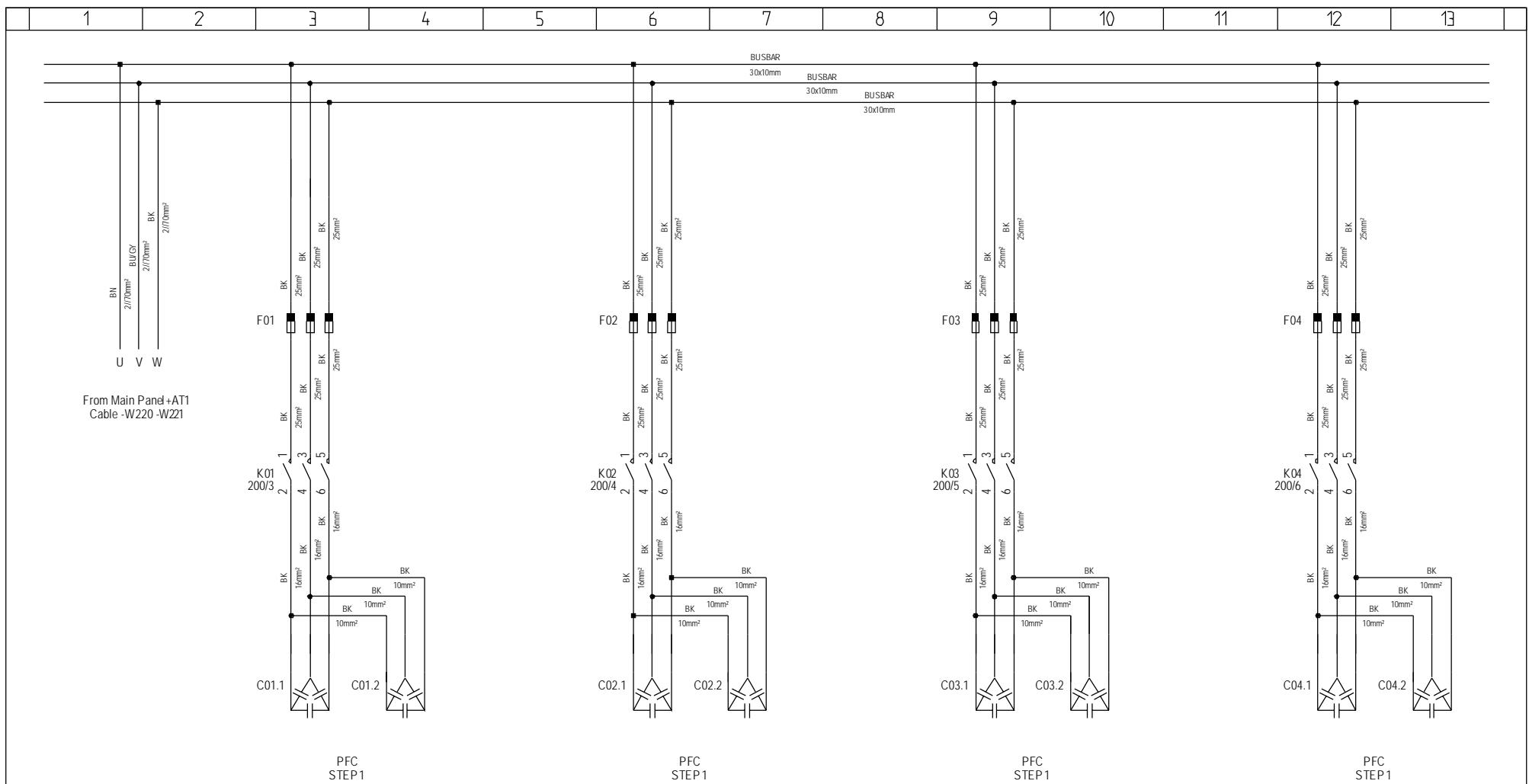
USE COPPER CONDUCTORS ONLY FOR EXTERNAL WIRES AND CABLES.

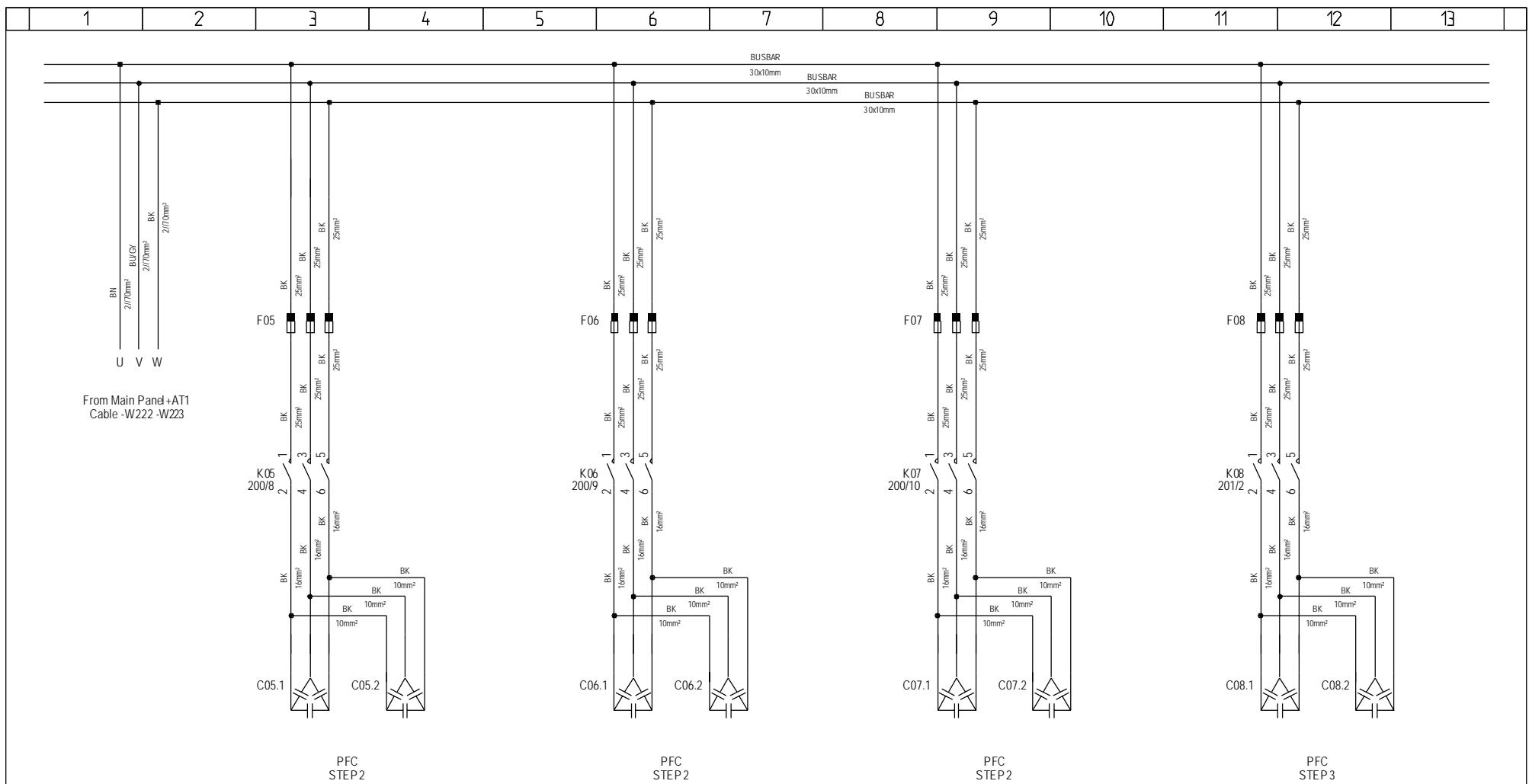
USE 60°C CABLES FOR CURRENTS LESS THAN 100Amps AND 75°C CABLES FOR HIGHER CURRENTS.

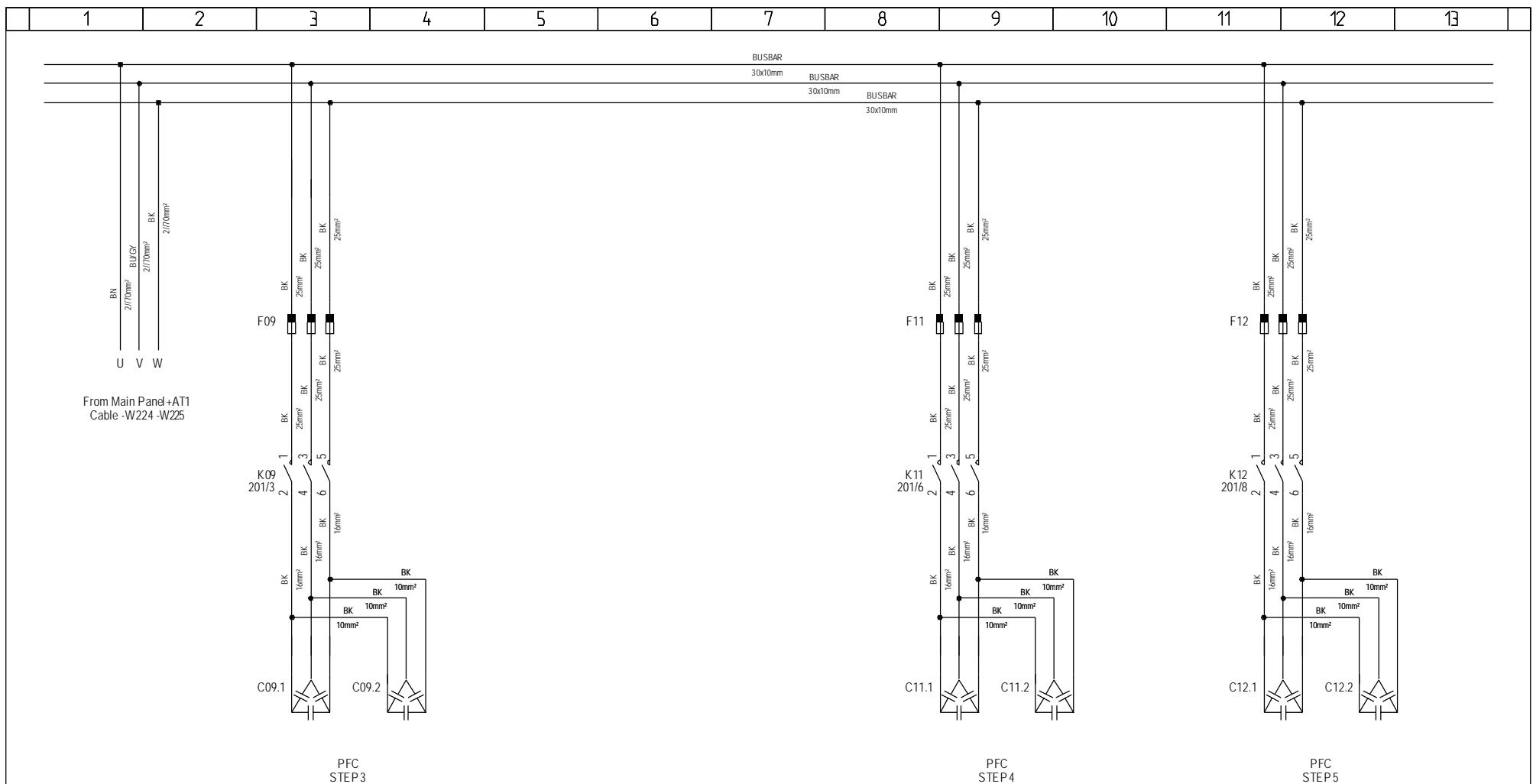


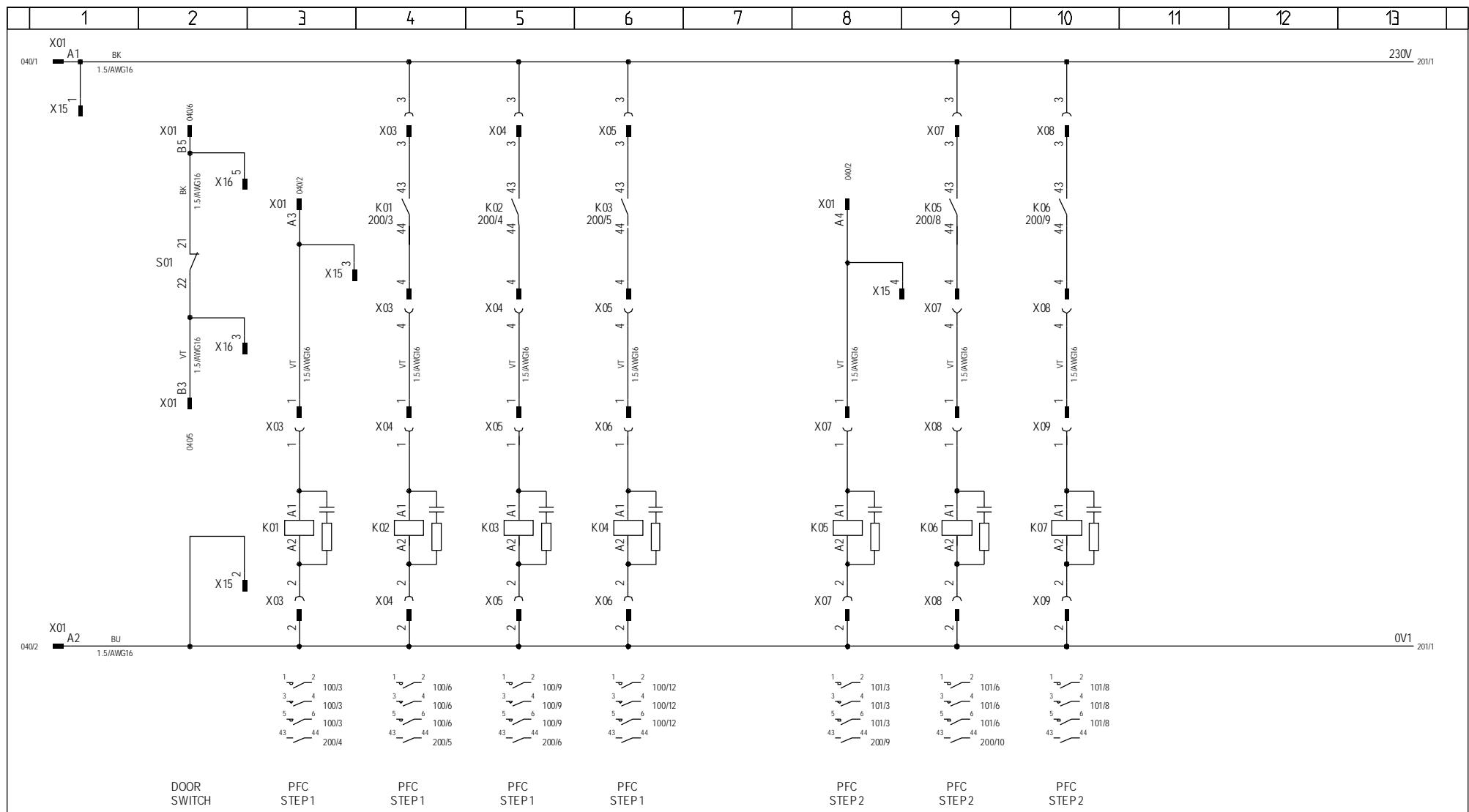
	Date	Initials	Function	Cable Connections		
Designed	030915	CHO	Project title	PFC Panel +AT3 No Load, V82-1.65MW 690V 50Hz		
Approved	061025	FLT	Comments		Customer	Vestas Wind Systems A/S
Revised	061025	INI	Rev.	-	Drawing no.	6011999
			Cont. sheet	040	Sheet	039

	1	2	3	4	5	6	7	8	9	10	11	12	13	
X01	PE													
BL														
BK/RD	A1	C												
RD	A2	C												
WH/BK	A3	C												
WH	A4	C												
BK	A5	C												
R/D/BK	A6	C												
OG	A7	C												
BL/N/MH	A9	C												
BL/W/H	A8	C												
W591														
16G1.57/AWG16														
PHASE COMPENSATION FAN	A10	R/D/WH												
PHASE COMPENSATION HEAT	B1	G/N/WH												
0V SUPPLY	B2	BL/BK												
DOOR SWITCH	B3	O/G/BK												
SPARE	B4	G/N/BK												
SUPPLY DOOR SWITCH	B5	GN												
Vestas Wind Systems A/S														
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	Date	Initials	Function	Terminal X01										
Designed	030915	CHO	Project title	PFC Panel +AT3 No Load, V82-1.65MW 690V 50Hz										
Approved			Comments	Customer Vestas Wind Systems A/S										
Revised	041115	INI	Rev.	-	Drawing no.	6011999	Cont. sheet	100	Sheet	040				







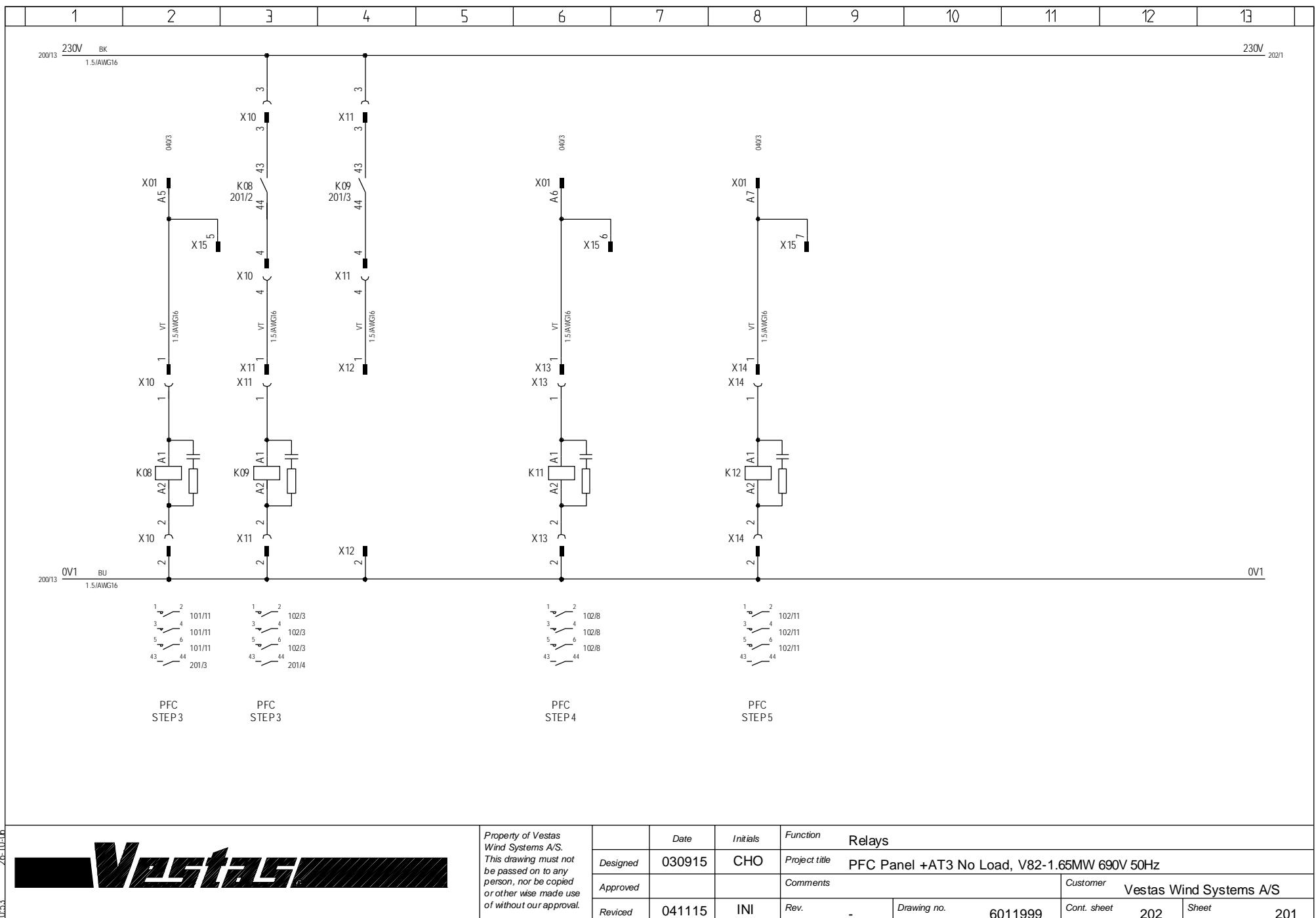


0:53 26-10-06

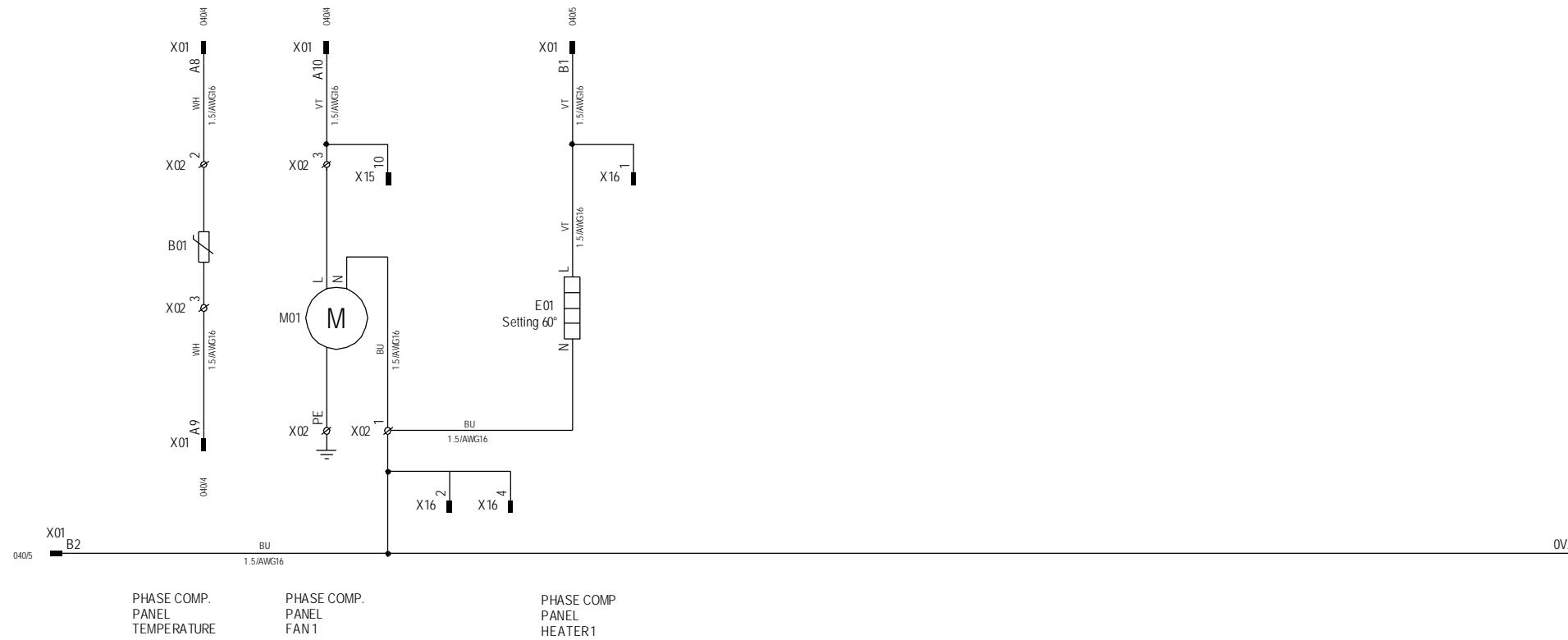
Vestas

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	Date	Initials	Function	Relays						
Designed	030915	CHO	Project title	PFC Panel +AT3 No Load, V82-1.65MW 690V 50Hz						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	041115	INI	Rev.	-	Drawing no.	6011999	Cont. sheet	201	Sheet	200



1 2 3 4 5 6 7 8 9 10 11 12 13
2011/13 230V 230V



26-10-06



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	Date	Initials	Function	Ventilation / Heating						
Designed	030915	CHO	Project title	PFC Panel +AT3 No Load, V82-1.65MW 690V 50Hz						
Approved			Comments			Customer	Vestas Wind Systems A/S			
Revised	041115	INI	Rev.	-	Drawing no.	6011999	Cont. sheet	-	Sheet	202

60096112 PFC PANEL +AT3 No Load 50Hz NM72/82 IECI/III

Component	Description	Qty per	Stk UM	Position Number
D1001294	instructions for production of	0,000	EA	
D1001296	instructions for production +A	0,000	EA	
D6011999	PFC PANEL +AT3 NM72/82 IECI/II	0,000	EA	
60096260	CABINET TS8 1 DOOR W/W	1,000	EA	
60010593	MOUNT PLATE TS8 W/W	1,000	EA	
60096979	ATTACHMENT MOUNT PLATE TS	2,000	EA	
60010316	BASE PL CLAMP TS8 WA4547276	1,000	EA	
60013925	PFC MODULE 50kvar 690V	11,000	EA	
60007330	BUSBAR ISOLATOR 8x40MM	18,000	EA	
60013713	FTGS F BUSBAR HOLDER	6,000	EA	
60014668	FILTER EXH 232x232x17.5MM	1,000	EA	
60097170	SEAL.FRAME IP54 F.5-700M3 FAN	2,000	EA	
60104152	CABLE CONDUIT DIN RAIL PFC PAN	1,000	EA	
60001870	CONN UMSTBVK F/M 4 LEADED	12,000	EA	
60006036	CONN TERM UKK3-MSTB-5.08-2 F 1	18,000	EA	
60006038	SPACER PLATE DG-UKK3-MSTB-5.08	2,000	EA	
60006040	SEPARATION PLATE LEFT	2,000	EA	
60006039	SPACER PLATE DP-UKK3-MSTB-5.08	2,000	EA	
60006042	SIGN F TERMINAL ZB-5LGS 1-10	2,000	EA	
60007829	WIRE TIN 16 150MM Ø8 IEC/UL	1,000	EA	
60007481	CABLE RACK TK 5-7	1,000	EA	
60097576	LABEL TYPE SIGN +AT3 NL 50 HZ	1,000	EA	
60002667	LABEL CAUTION Risk of el shock	1,000	EA	
60002576	LABEL "+AT3"	1,000	EA	
60002430	LABEL "48 NM"	4,000	EA	
60006571	HOUSING 32P BULKHEAD	1,000	EA	
60007635	CABLE GLAND M63 BRASS BMBC-07	6,000	EA	
60007644	LOCKNUT M63 BRASS BMBL-08	6,000	EA	
60007633	CABLE GLAND M40 BRASS BMBC-05	1,000	EA	
60007642	LOCKNUT M40 BRASS BMBL-06	1,000	EA	
60002503	LABEL "-X01"	1,000	EA	
60005983	TERMINAL STD M4/6	3,000	EA	
60005984	TERMINAL GROUND M4/6P	1,000	EA	
60005998	END SEC FEM6 GY 118368.16	1,000	EA	
60091902	END STOP WAGO 249-116 6MM TS35	4,000	EA	
60091915	END STOP LABEL HOLDER WAGO 249	3,000	EA	
60006621	LABEL TERMINAL 1-10 5.08 MM	1,000	EA	
60007194	DIN RAIL PPO153H-Z 15X35MM	0,700	M	
60002320	STICKER GEN USE VCS	1,000	EA	
60097503	WIRING PFC NL IEC I/III	1,000	EA	
60098494	LABEL TYPE SIGN +AT3 NL	1,000	EA	
60102317	CU BUSBAR KIT 4 PFC PAN	1,000	EA	
60009771	STUD BOLT M12x30 8.8	4,000	EA	
D21000078	60096112 BOM, PFC PANEL +AT3 N	0,000	EA	
D22000182	PFC PANEL +AT3 NO LOAD, NM72IE	0,000	EA	
118934	LABEL ELECTRICAL WARNING UNIV.	1,000	EA	
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA	B01
60007437	BRAIDED SLEEVE 10-17mm BK	2,080	M	E01
60014729	HEATER FAN CR0 27 230V 350W UL	1,000	EA	E01
60007437	BRAIDED SLEEVE 10-17mm BK	1,720	M	M01
60014655	FAN 500M3/H 230V	1,000	EA	M01
60014138	MARK CARD RC610 NOS 1-10	0,200	EA	SH=10
60014148	MARK CARD RC610 GROUND	0,200	EA	SH=10
60006812	STICKER "U" 14MM	0,100	EA	SH=32
60006813	STICKER "V" 14MM	0,100	EA	SH=32
60006814	STICKER "W" 14MM	0,100	EA	SH=32
60006819	STICKER "EARTH" 14MM	0,060	EA	SH=54
60007437	BRAIDED SLEEVE 10-17mm BK	0,850	M	S01
60010456	DOOR-OPERATED SWITCH	1,000	EA	S01
60007420	HOSE WIRE 20mm BK	0,280	M	X01

60016660 PFC MODULE 50kvar 690V

Component	Description	Qty per	Stk UM	Position Number
D21000080	BOM 60016660 PFC MODULE 50kvar	0,000	EA	
D22000167	CI PFC +AT3 NM1500 690V 50Hz N	0,000	EA	
D22000168	CI PFC +AT3 NM1500 690V 50Hz F	0,000	EA	
D22000182	PFC PANEL +AT3 NO LOAD, NM72IE	0,000	EA	
D22000183	PFC PANEL +AT3 FULL LOAD, V82-	0,000	EA	
D22000235	CI, PFC PANEL +AT3 1.5MW N.L.	0,000	EA	
D22000236	CI, PFC PANEL +AT3 1.5MW ADD O	0,000	EA	
D6000933	Phase Comp. Modul 50kVAr 690V	0,000	EA	
D6011999	PFC PANEL +AT3 NM72/82 IECI/II	0,000	EA	
D6012008	PFC PANEL +AT3 NM72/82 IECI/II	0,000	EA	
D6013071	PFC PANEL +AT3 NM1500 690V 50H	0,000	EA	
D6013072	PFC PANEL +AT3 NM1500 690V 50H	0,000	EA	
60000931	CAP 25kVAr 690V 50Hz VISHAY	2,000	EA	
60002597	LABEL	1,000	EA	
60005074	FUSE SWITCH NH00 3NP40700 160A	1,000	EA	
60005100	FUSE NH00 GL/GG 100A 690V	3,000	EA	
60007458	CABLE TIE 140x2.5mm WH	4,000	EA	
60007471	CABLE TIE 5x150mm with PLUG	2,000	EA	
60009530	SCR CRS PH M5x12 4.8 FZB	8,000	EA	
60009617	SCR M4x16 4.8 FZB	2,000	EA	
60009974	TOP CLAMP FOR CAP 25kVAr	2,000	EA	
60012530	WIRING BRID PFC MODULE UL	3,000	EA	
60012598	WIRING IEC PFC MODULE	1,000	EA	
60013647	BRA F CAP 2x25kvar	1,000	EA	
60096832	CONT K350K10230 W/RC-UNIT 230V	1,000	EA	

Change Info

Item no.	Item text:
60097568	PFC Panel +AT3 Full Load, V82-1.65MW & NM72-82/1650 690V 50Hz

Active revision for production

Drawing no.: 6012008

Version	Date	Init./App.	Description of change since last revision
05	26.10.2006	INI/FLT	Changed with ECO 217924_Implementation of CMS & warning label Page 030: Updated with 118934 label, electrical warning universal. Page 039: New page with following text added. " Use copper conductors only for external wires and cables. Use 60°C cables for currents less than 100Amps and 75°C cables for higher currents".

LST no.: 21000079

Version	Date	Init./App.	Description of change since last revision
09	17.04.2007	INI/FLT	Changed with ECO 223397_Updated for production in Spain. Please see Change Description in ECO 223397

LST number: 21000080

Version	Date	Init./App.	Description of change since last revision
04	23.08.2006	INI/FLT	Changed with ECO 214516_ Added 60009530 x 8 pc. SCR CRS PH M5x12 4.8 FZB Added 60009617 x 2 pc. SCR M4x16 4.8 FZB Added 60007458 x 4 pc. CABLE TIE 140x2.5mm WH.

Old revisions for service

Drawing no.: 6012008

Version	Date	Init./App.	Description of change since last revision
04	02.06.2005	INI/FLT	All pages updated with Vestas logo
03	15.06.2004	INI/CHO	Page 001: Updated
02	16.03.2004	CHO/CHO	Page 201: E02 settings changed.
01	21.09.2003	CHO/CHO	Page 001: Updated Page 101: Components no. and PFC step no. corrected. References updated. Page 200: References updated. First version

LST no.: 21000079

Version	Date	Init./App.	Description of change since last revision
08	26.10.2006	INI/FLT	Changed with ECO 217571 & 217924 Implementation of warning label. 60002621 replaced with 118934_label, electrical warning universal.
07	09.08.2004	MILJE/MILJE	60007354 Cable conduit 25x40mm, 60007355 cable conduit 25x60mm and 60007182 DIN rail removed. New BOM 60104152 cable conduit, DIN rail & earth rail added.
06	17.06.2004	CHO/CHO	60096979 quantity changed to 2 pc. 600007437-M02 changed to 1,250, -S02 changed to 0,850, -E02 changed to 1,450.
05	01.06.2004	FLT/FLT	60102322 added, all the CU bus bars are divided into kit.
04	02.02.2004	ATM/CHO	Use of Decimal no. for Sheet in the BOM. Small changes in Panels
03	17.12.2003	ATM/ATM	Base unit changed.
02	12.11.2003	CHO/CHO	Type sign label, +AT3 label and CU-busbar added.
01	01.10.2003	CHO/CHO	First version

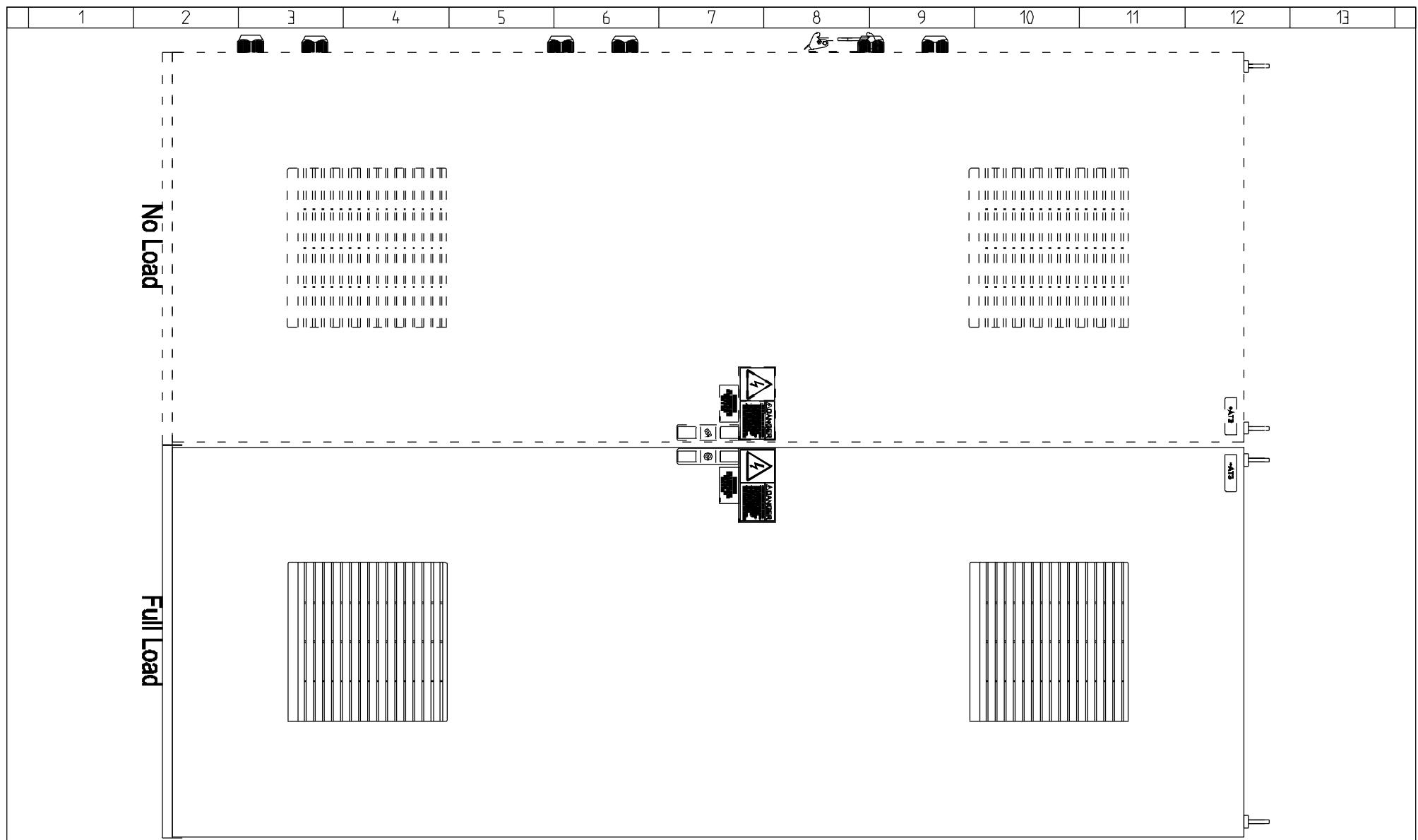
LST no.: 21000080

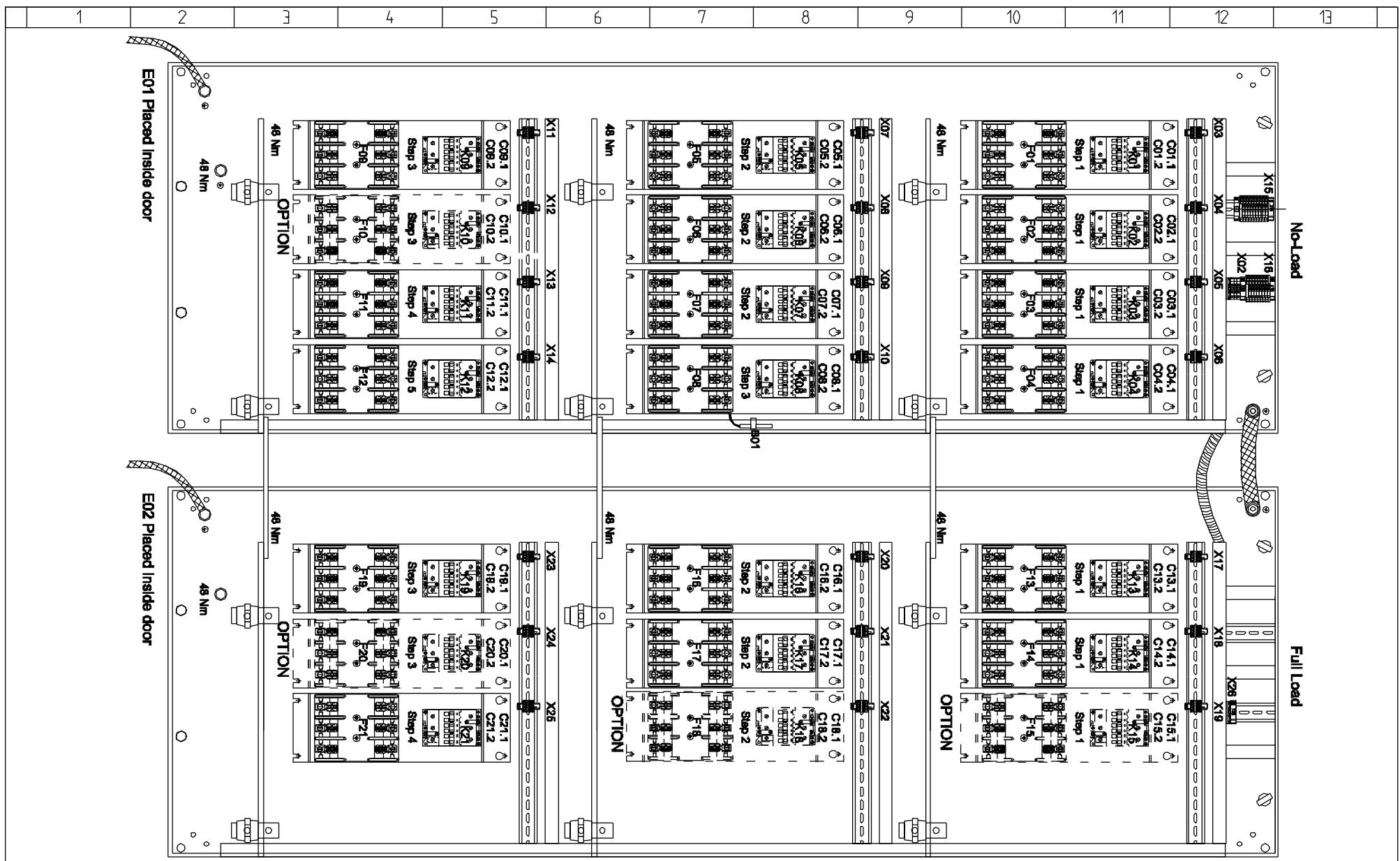
Version	Date	Init./App.	Description of change since last revision
03	22.03.2004	FLT/CHO	Material 60012530, update of wiring for PFC module
02	02.10.2003	CHO/CHO	Capacitor contact changed.
01	16.05.2002	CHO/CHO	First version in SAP no. system.



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	Date	Initials	Function	Table of Contents						
Designed	030921	CHO	Project title	PFC Panel +AT3 Full Load, V82-1.65MW & NM72-82/1650 690V 50Hz						
Approved	061026	FLT	Comments	Customer Vestas Wind Systems A/S						
Revised	061026	INI	Rev.	05	Drawing no.	6012008	Cont. sheet	030	Sheet	001

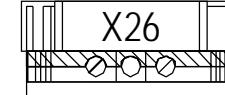
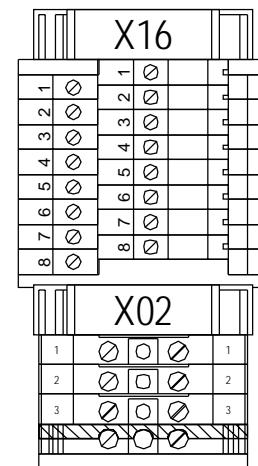
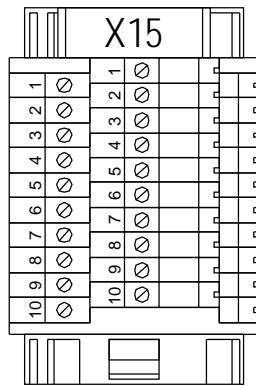




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	Date	Initials	Function	Panel Outline
Designed	030921	CHO	Project title	PFC Panel +AT3 Full Load, V82-1.65MW & NM72-82/1650 690V 50Hz
Approved			Comments	Customer Vestas Wind Systems A/S
Revised	050602	INI	Rev.	Drawing no. 6012008 Cont. sheet 032 Sheet 031

1	2	3	4	5	6	7	8	9	10	11	12	13	
---	---	---	---	---	---	---	---	---	----	----	----	----	--



Terminal Rows X15, X16 and X02 are placed in No Load Panel

Terminal Row X26 is placed in Full Load Panel

1	2	3	4	5	6	7	8	9	10	11	12	13	
---	---	---	---	---	---	---	---	---	----	----	----	----	--

USE COPPER CONDUCTORS ONLY FOR EXTERNAL WIRES AND CABLES.

USE 60°C CABLES FOR CURRENTS LESS THAN 100Amps AND 75°C CABLES FOR HIGHER CURRENTS.

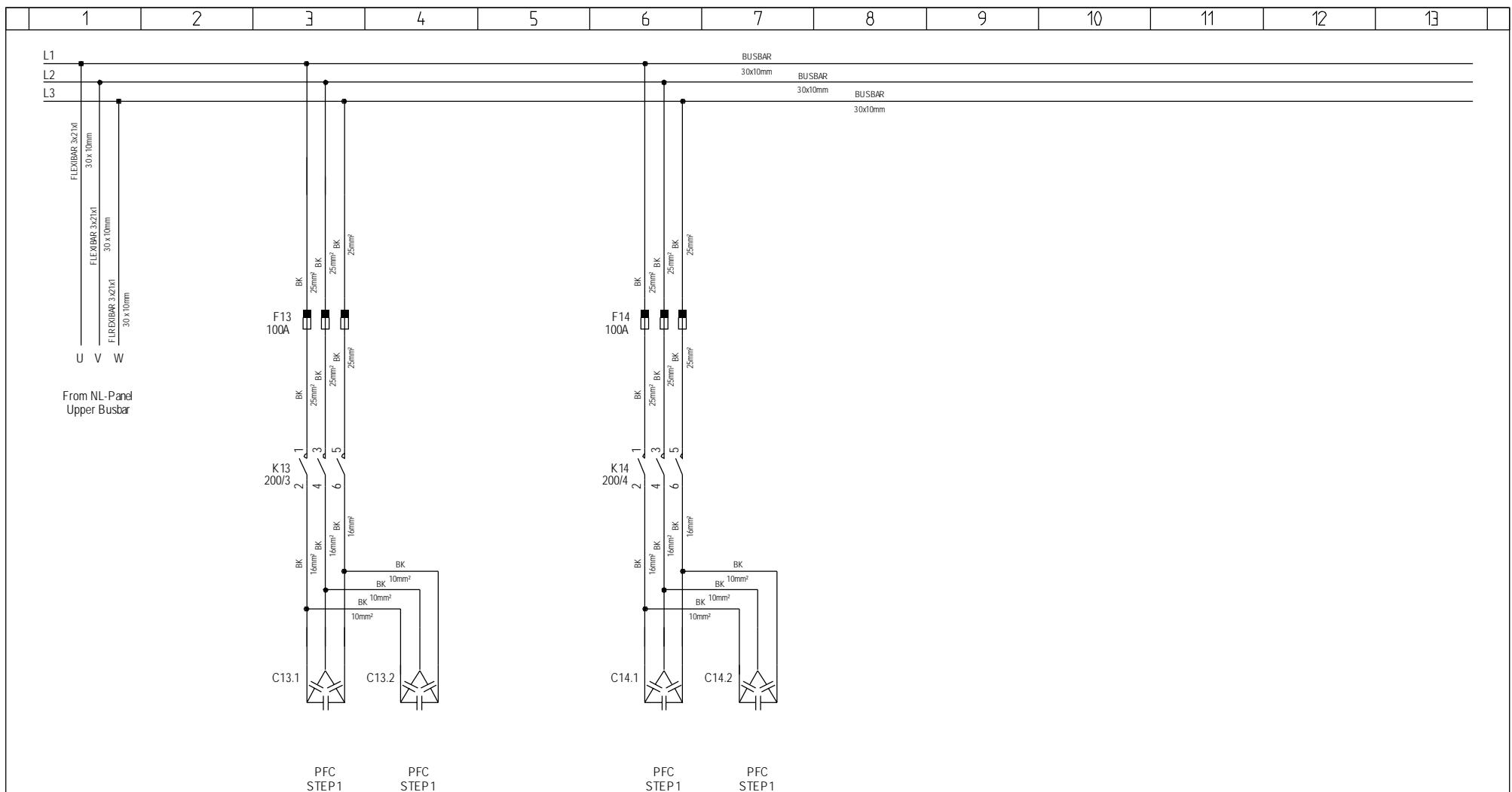


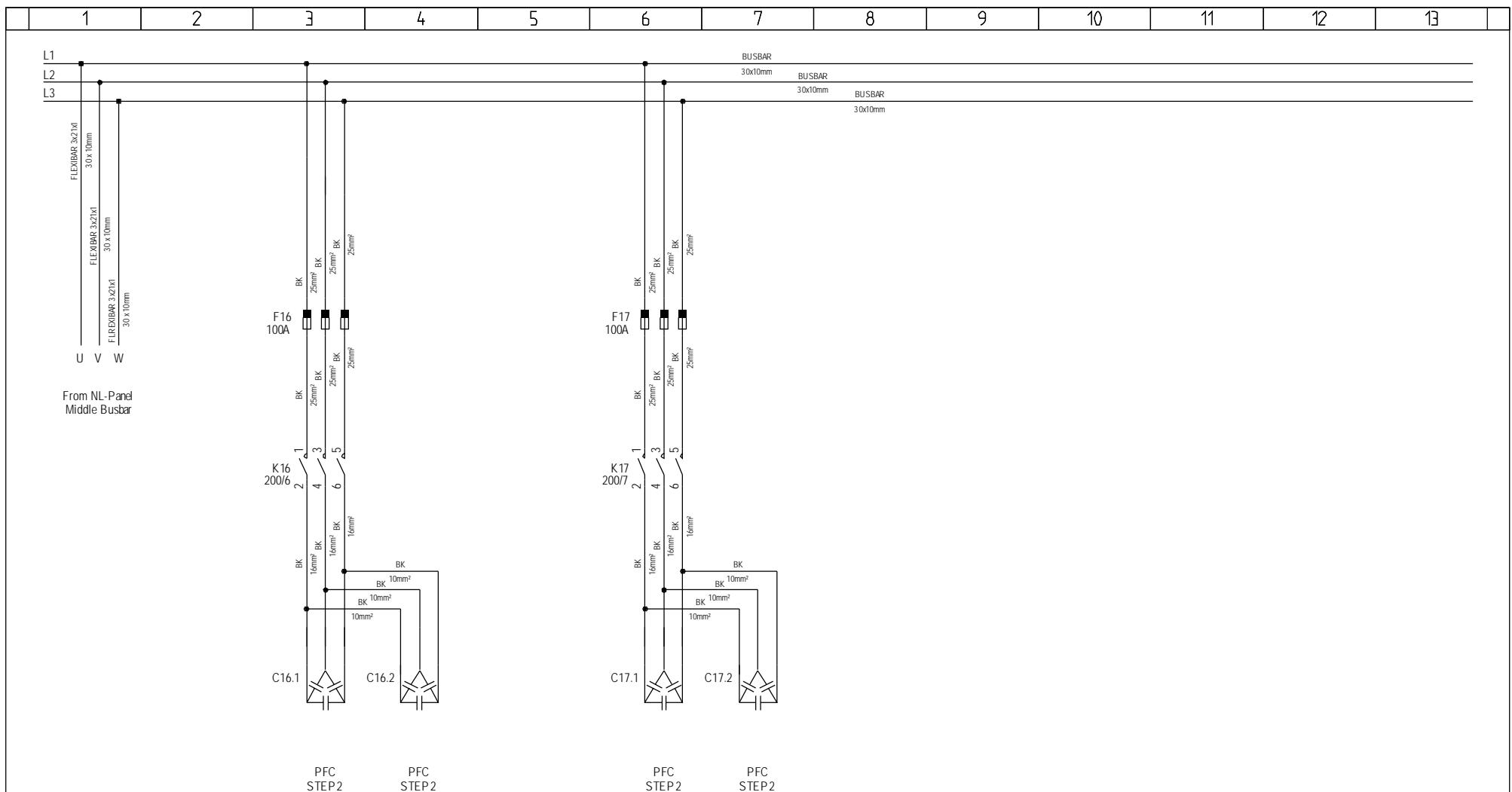
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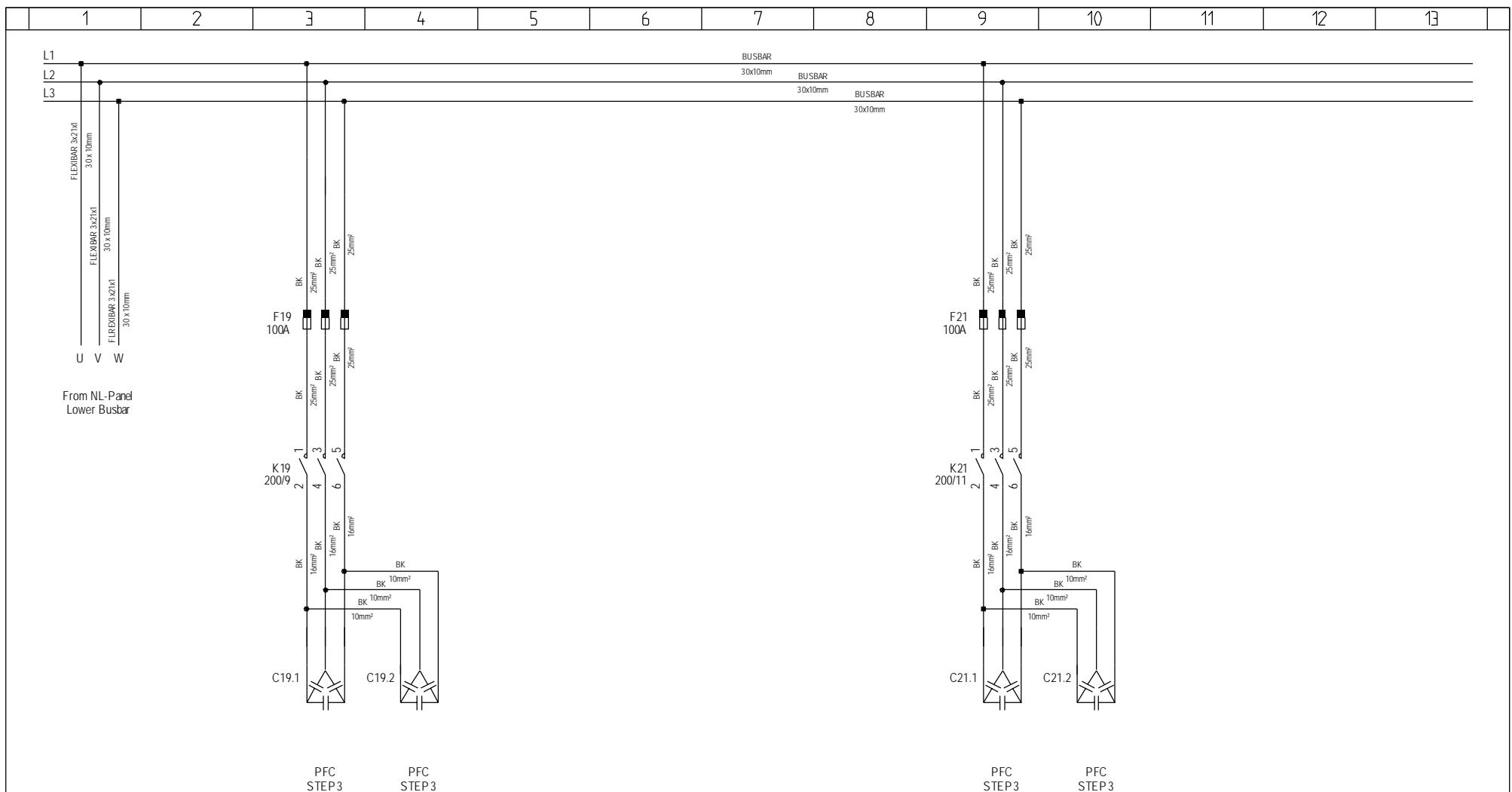
	Date	Initials	Function	Cable Connections		
Designed	030921	CHO	Project title	PFC Panel +AT3 Full Load, V82-1.65MW & NM72-82/1650 690V 50Hz		
Approved	061026	FLT	Comments		Customer	Vestas Wind Systems A/S
Revised	061026	INI	Rev.	-	Drawing no.	6012008
					Cont. sheet	040
					Sheet	039

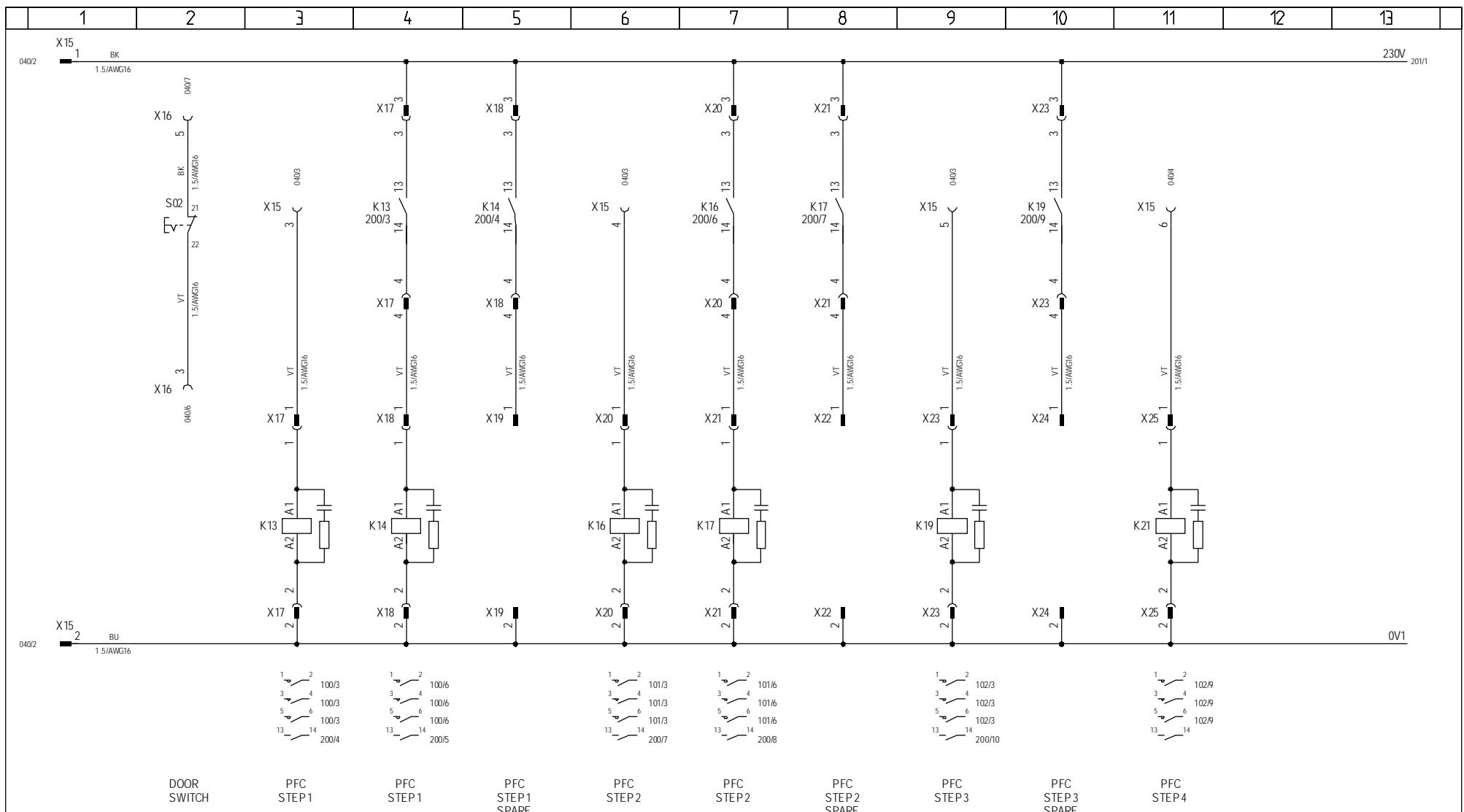
1	2	3	4	5	6	7	8	9	10	11	12	13	
X15 230V SUPPLY	1 X15 0V SUPPLY	2 X15 PFC STEP1	3 PFC STEP2	4 PFC STEP3	5 PFC STEP4	6 PFC STEP5	7 PFC PANEL TEMPERATURE	8 PFC PANEL TEMPERATURE	9 PFC PANEL FAN	10 PFC PANEL HEAT	11 0V SUPPLY FAN/HEAT	12 DOOR SWITCH	13 SUPPLY DOOR SWITCH
1 2001	1 2001	2 2001	3 2003	4 2006	5 2009	6 2001	7 8	9 10 2013	10 X16 1 2007	1 2007	2 2013	3 2002	









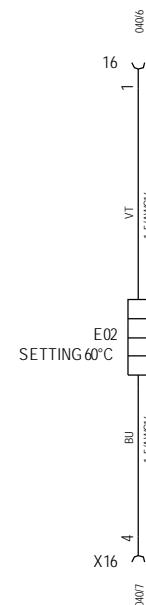
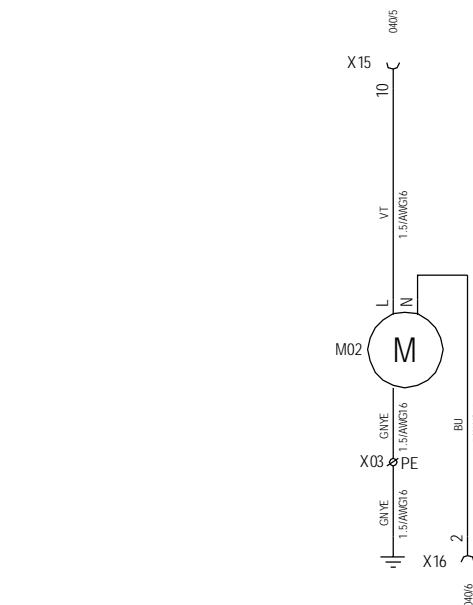


1	2	3	4	5	6	7	8	9	10	11	12	13	
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230V

230V

200/13

PFC
PANEL
FAN2PFC
PANEL
HEATER2

	Date	Initials	Function	Ventilation / Heating	
Designed	030921	CHO	Project title	PFC Panel +AT3 Full Load, V82-1.65MW & NM72-82/1650 690V 50Hz	
Approved			Comments		Customer Vestas Wind Systems A/S
Revised	050602	INI	Rev.	-	Drawing no. 6012008
			Cont. sheet	-	Sheet 201

60097541 PFC PAN FL ADD ON NM72/82 50Hz

Component	Description	Qty per	Stk UM	Position Number
D1001296	instructions for production +A	0,000	EA	
D1001702	Mounting Instruction f. Compen	0,000	EA	
D6012008	PFC PANEL +AT3 NM72/82 IEC/I/II	0,000	EA	
60096430	CABINET TS8 1 DOOR W/W	1,000	EA	
60096979	ATTACHMENT MOUNT PLATE TS	2,000	EA	
60010593	MOUNT PLATE TS8 W/W	1,000	EA	
60096993	ANGULAR BAYING BRA TS 8800.430	4,000	EA	
60096995	QUICK FIT BAYING CLAMP TS	6,000	EA	
60096912	BAYING BRA 4582.500	2,000	EA	
60010570	COVER BAYING TS 8800.460 600mm	1,000	EA	
60010316	BASE PL CLAMP TS8 WA4547276	1,000	EA	
60013925	PFC MODULE 50kvar 690V	6,000	EA	
60013713	FTGS F BUSBAR HOLDER	6,000	EA	
60014668	FILTER EXH 232x232x17.5MM	1,000	EA	
60001870	CONN UMSTBVK F/M 4 LEADED	9,000	EA	
60007829	WIRE TIN 16 150MM Ø8 IEC/UL	1,000	EA	
60002667	LABEL CAUTION Risk of el shock	1,000	EA	
60002576	LABEL "+AT3"	1,000	EA	
60002430	LABEL "48 NM"	3,000	EA	
60007838	WIRE TIN 50 200MM Ø10 IEC/UL	1,000	EA	
60006621	LABEL TERMINAL 1-10 5.08 MM	1,000	EA	
60005984	TERMINAL GROUND M4/6P	1,000	EA	
60005998	END SEC FEM6 GY 118368.16	1,000	EA	
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	
60014148	MARK CARD RC610 GROUND	0,020	EA	
60097504	WIRING PFC FL IEC I/III	1,000	EA	
60097577	LABEL TYPE SIGN +AT3 FL 50 HZ	1,000	EA	
60098493	LABEL TYPE SIGN +AT3 FL	1,000	EA	
60102322	CU BUSBAR KIT 8 PFC FULL LOAD	1,000	EA	
60104152	CABLE CONDUIT DIN RAIL PFC PAN	1,000	EA	
60009771	STUD BOLT M12x30 8.8	4,000	EA	
D21000079	60097541 BOM, PFC PANEL +AT3 F	0,000	EA	
D22000183	PFC PANEL +AT3 FULL LOAD, V82-	0,000	EA	
118934	LABEL ELECTRICAL WARNING UNIV.	1,000	EA	
60007458	CABLE TIE 140x2.5mm WH	33,000	EA	
60007459	CABLE TIE WHITE 200x2.5mm	3,000	EA	
60007465	CABLE TIE 368x4.8mm BK	3,000	EA	
60007468	CABLE TIE BLACK 550X8,0MM	2,000	EA	
60009620	SCR M5x16 FZB	48,000	EA	
60009639	SCR HEX SET M8x20 8.8 FZB	43,000	EA	
60009670	SCR HEX SET M10x16 8.8 FZB	14,000	EA	
60009676	SCREW ISO 4017 M10 x 30 - 8.8	57,000	EA	
60009803	WASHER SPR 8 FZG	37,000	EA	
60009809	WASHER SPR 10 FZG	116,000	EA	
60009841	WASHER LOCK 8 FZB	1,000	EA	
60009842	WASHER LOCK 10 FZB	16,000	EA	
60009873	NUT HEX M8 8 FZB	1,000	EA	
60009879	NUT HEX M10 8	59,000	EA	
60009895	NUT LIFTING EYE M10 FZB	2,000	EA	
60010699	CONDENSATION PROT DRY BAG 500G	2,000	EA	
60014138	MARK CARD RC610 NOS 1-10	0,400	EA	
60096851	TORX SCREW 2486.500 5.5X13MM	12,000	EA	
60096978	PUNCHED RAIL 8612.260	1,000	EA	
60006819	STICKER "EARTH" 14MM	0,140	EA	
60007182	DIN RAIL PP0735H 7x35MM	2,520	M	
60007330	BUSBAR ISOLATOR 8x40MM	18,000	EA	
60007437	BRAIDED SLEEVE 10-17mm BK	1,450	M	E02
60014729	HEATER FAN CR0 27 230V 350W UL	1,000	EA	E02
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	54,000	EA	E02
60007437	BRAIDED SLEEVE 10-17mm BK	1,250	M	M02
60014655	FAN 500M3/H 230V	1,000	EA	M02
60009673	SCR HEX SET M10x25 8.8 FZB	2,000	EA	M02
60007437	BRAIDED SLEEVE 10-17mm BK	0,850	M	S02
60010456	DOOR-OPERATED SWITCH	1,000	EA	S02
60007472	CABLE TIE HOLDER MB3A-NN3P 20	5,000	EA	S02
60007420	WIRE HOSE BLACK 20mm	0,280	M	X15-X16

60016660 PFC MODULE 50kvar 690V

Component	Description	Qty per	Stk UM	Position Number
D21000080	BOM 60016660 PFC MODULE 50kvar	0,000	EA	
D22000167	CI PFC +AT3 NM1500 690V 50Hz N	0,000	EA	
D22000168	CI PFC +AT3 NM1500 690V 50Hz F	0,000	EA	
D22000182	PFC PANEL +AT3 NO LOAD, NM72IE	0,000	EA	
D22000183	PFC PANEL +AT3 FULL LOAD, V82-	0,000	EA	
D22000235	CI, PFC PANEL +AT3 1.5MW N.L.	0,000	EA	
D22000236	CI, PFC PANEL +AT3 1.5MW ADD O	0,000	EA	
D6000933	Phase Comp. Modul 50kVAr 690V	0,000	EA	
D6011999	PFC PANEL +AT3 NM72/82 IECI/II	0,000	EA	
D6012008	PFC PANEL +AT3 NM72/82 IECI/II	0,000	EA	
D6013071	PFC PANEL +AT3 NM1500 690V 50H	0,000	EA	
D6013072	PFC PANEL +AT3 NM1500 690V 50H	0,000	EA	
60000931	CAP 25kVAr 690V 50Hz VISHAY	2,000	EA	
60002597	LABEL	1,000	EA	
60005074	FUSE SWITCH NH00 3NP40700 160A	1,000	EA	
60005100	FUSE NH00 GL/GG 100A 690V	3,000	EA	
60007458	CABLE TIE 140x2.5mm WH	4,000	EA	
60007471	CABLE TIE 5x150mm with PLUG	2,000	EA	
60009530	SCR CRS PH M5x12 4.8 FZB	8,000	EA	
60009617	SCR M4x16 4.8 FZB	2,000	EA	
60009974	TOP CLAMP FOR CAP 25kVAr	2,000	EA	
60012530	WIRING BRID PFC MODULE UL	3,000	EA	
60012598	WIRING IEC PFC MODULE	1,000	EA	
60013647	BRA F CAP 2x25kvar	1,000	EA	
60096832	CONT K350K10230 W/RC-UNIT 230V	1,000	EA	

Change Info

<i>Item no.</i>	<i>Item text:</i>
60108814	PFC Panel +AT3, 1000kVAr NM72/1650 & V82-1.65MW 50Hz

Active revision for production

Drawing no.: 6015882

Version	Date	Init./App.	Description of change since last revision
01	26.10.2006	INI/FLT	Changed with 217924_Implementation of warning label. Page 030: Updated with 118934 label, electrical warning universal.

LST no.: 21000196

Version	Date	Init./App.	Description of change since last revision
02	06.07.2005	INI/SLB	Upgrade to 1000 kVAr and Filter Surveillance Kit in +AT3 360111495_Ugrade Kit Label 60007630_M20 Cable Gland and 60007639_M20 Locknut added.

Old revisions for service

Drawing no.: 6015882

Version	Date	Init./App.	Description of change since last revision
00	11.01.2005	SLB/SLB	First version

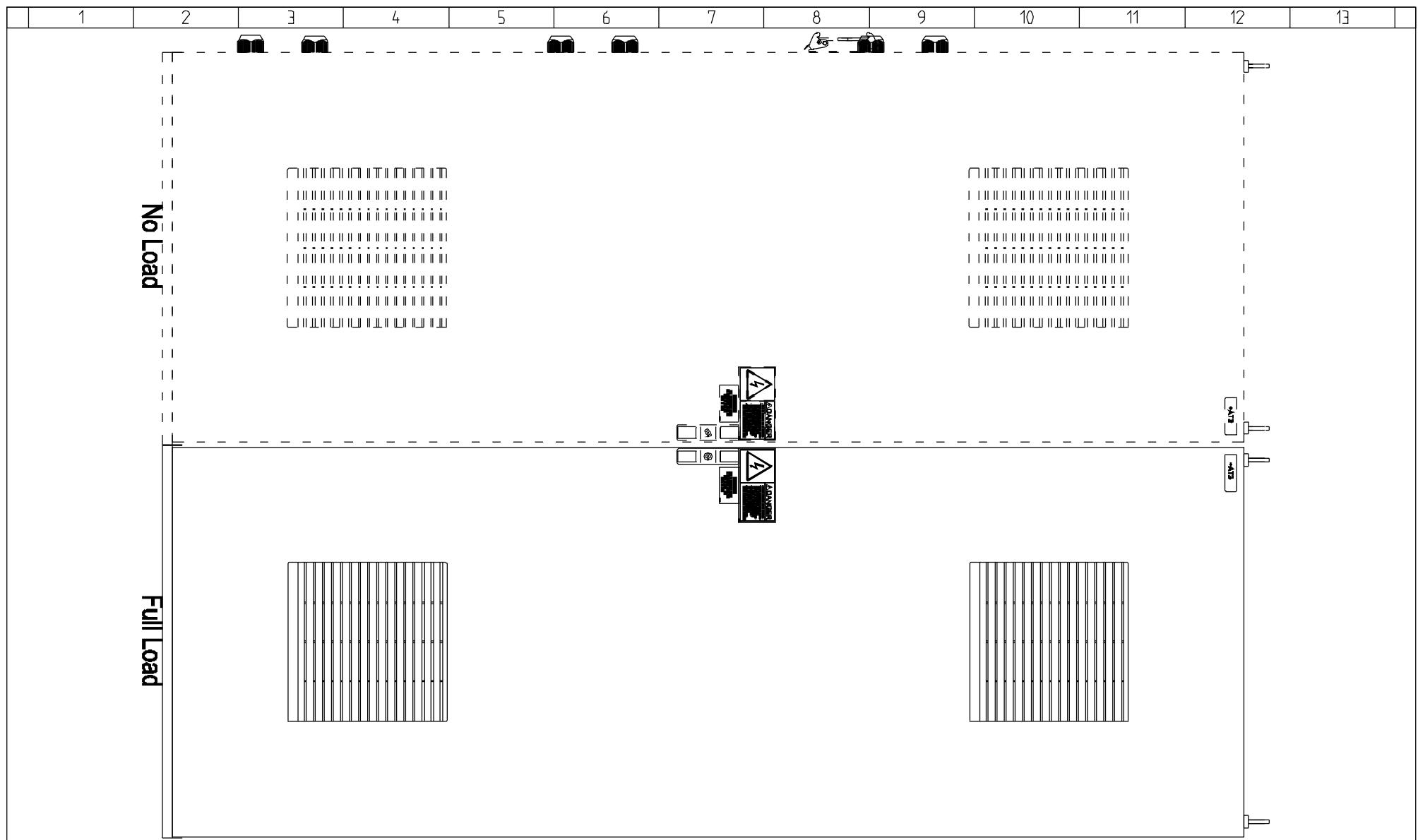
LST no.: 21000196

Version	Date	Init./App.	Description of change since last revision
01	11.02.2005	MILJE+INI/SLB	First version

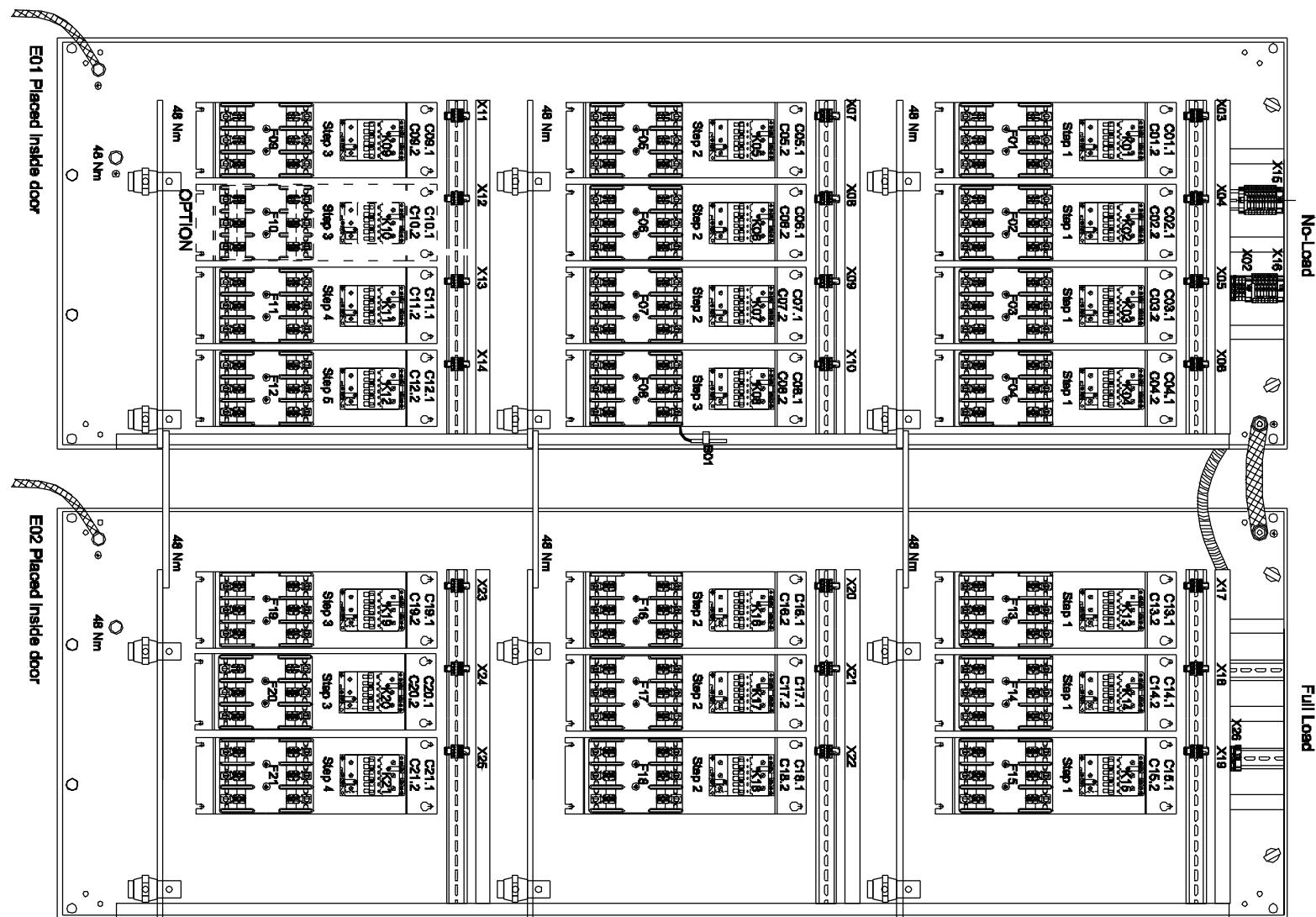


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	Date	Initials	Function	Table of Contents						
Designed	050111	SLB	Project title	PFC Panel +AT3 1000kWAr, NM72/1650 - V82-1.65KW						
Approved	061026	FLT	Comments			Customer	Vestas Wind Systems A/S			
Revised	061026	INI	Rev.	01	Drawing no.	6015882	Cont. sheet	030	Sheet	001



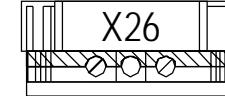
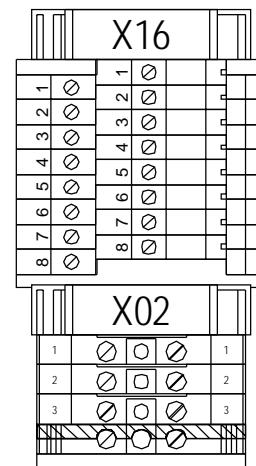
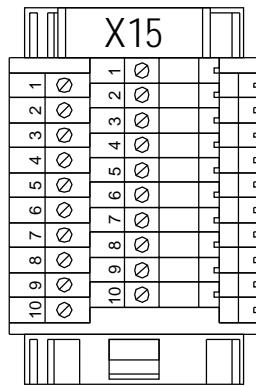
Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.				Date	Initials	Function	Panel Front		
Designed	050111	SLB	Project title	PFC Panel +AT3 1000kWAr, NM72/1650 - V82-1.65KW					
Approved	061026	FLT	Comments				Customer	Vestas Wind Systems A/S	
Revised	061026	INI	Rev.	-	Drawing no.	6015882	Cont. sheet	031	Sheet 030



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<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function	Panel Outline				
	Designed	050111	SLB	Project title	PFC Panel +AT3 1000kWAr, NM72/1650 - V82-1.65KW			
	Approved			Comments	<i>Customer</i> Vestas Wind Systems A/S			
	Revised	050111	SLB	Rev.	-	Drawing no.	6015882	<i>Cont. sheet</i> 032 <i>Sheet</i> 031

1	2	3	4	5	6	7	8	9	10	11	12	13	
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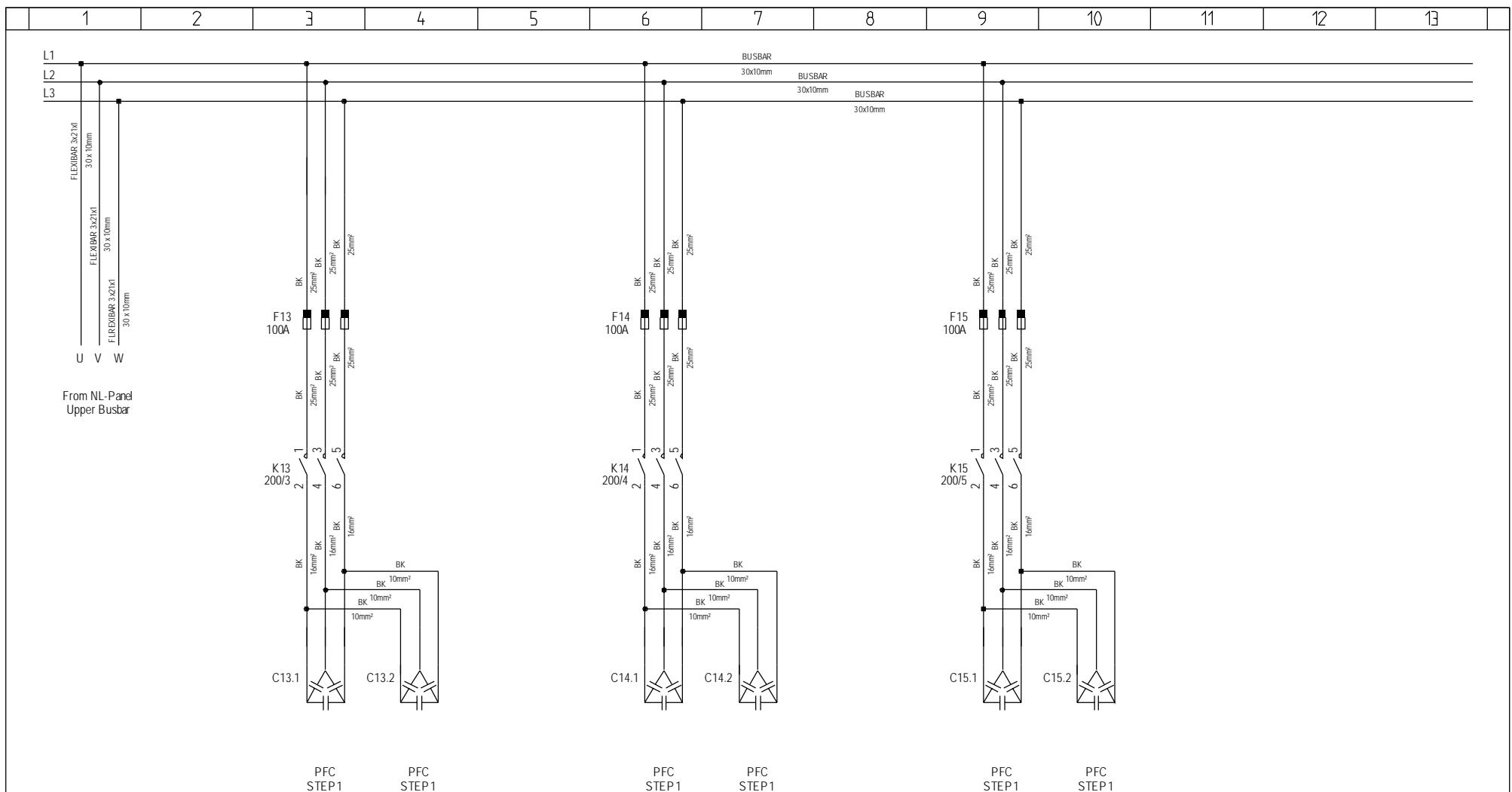


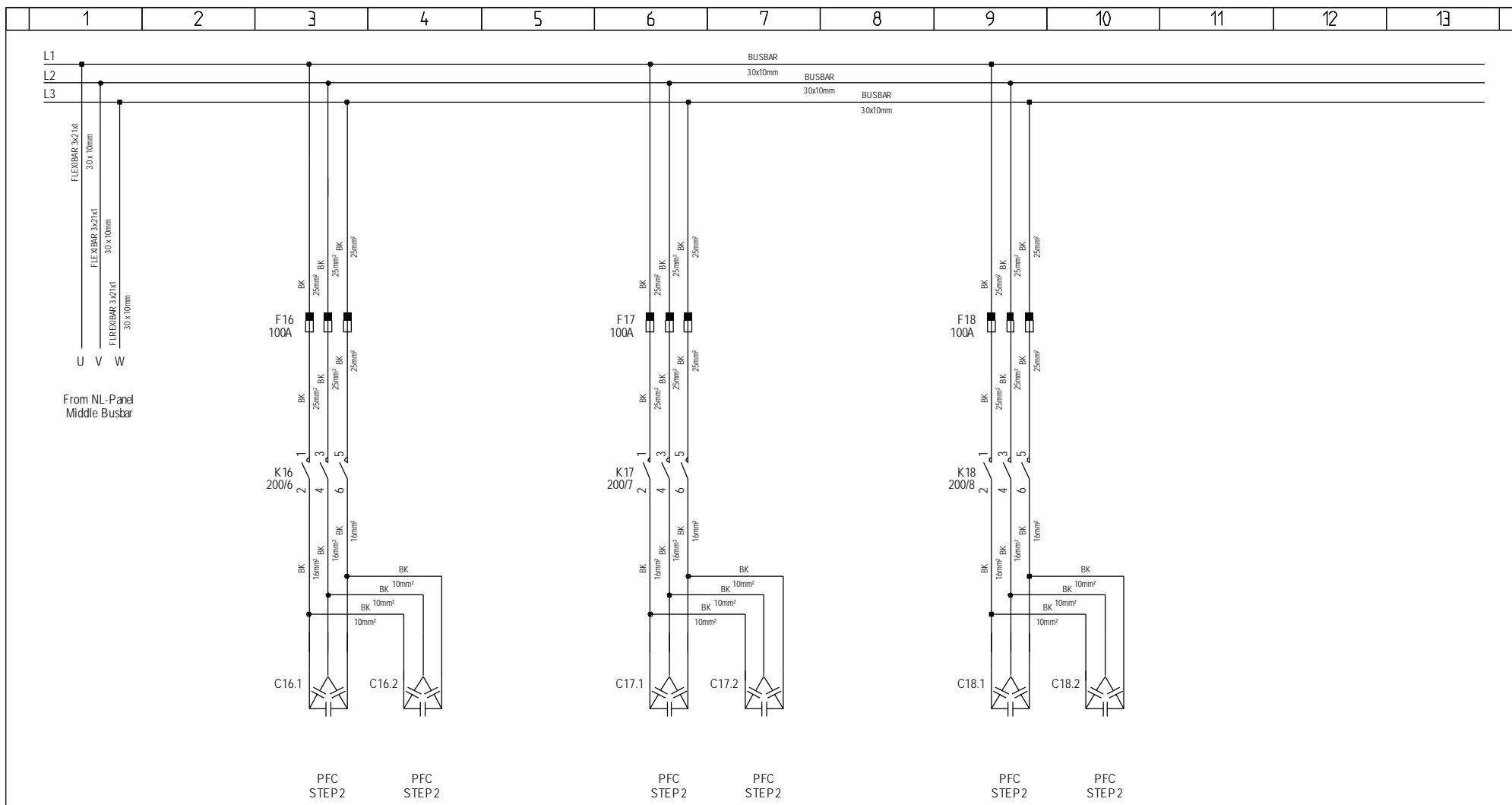
Terminal Rows X15, X16 and X02 are placed in No Load Panel

Terminal Row X26 is placed in Full Load Panel

1	2	3	4	5	6	7	8	9	10	11	12	13	
X15 230V SUPPLY	1 X15 0V SUPPLY	2 X15 PFC STEP1	3 PFC STEP2	4 PFC STEP3	5 PFC STEP4	6 PFC STEP5	7 PFC PANEL TEMPERATURE	8 PFC PANEL TEMPERATURE	9 PFC PANEL FAN	10 PFC PANEL HEAT	11 0V SUPPLY FAN/HEAT	12 DOOR SWITCH	13 SUPPLY DOOR SWITCH
1 2001	1 2001	2 2001	3 2003	4 2006	5 2009	6 2001	7 X16 8	9 X16 10 2013	1 2007	2 2013	3 2002	4 2007	5 2002





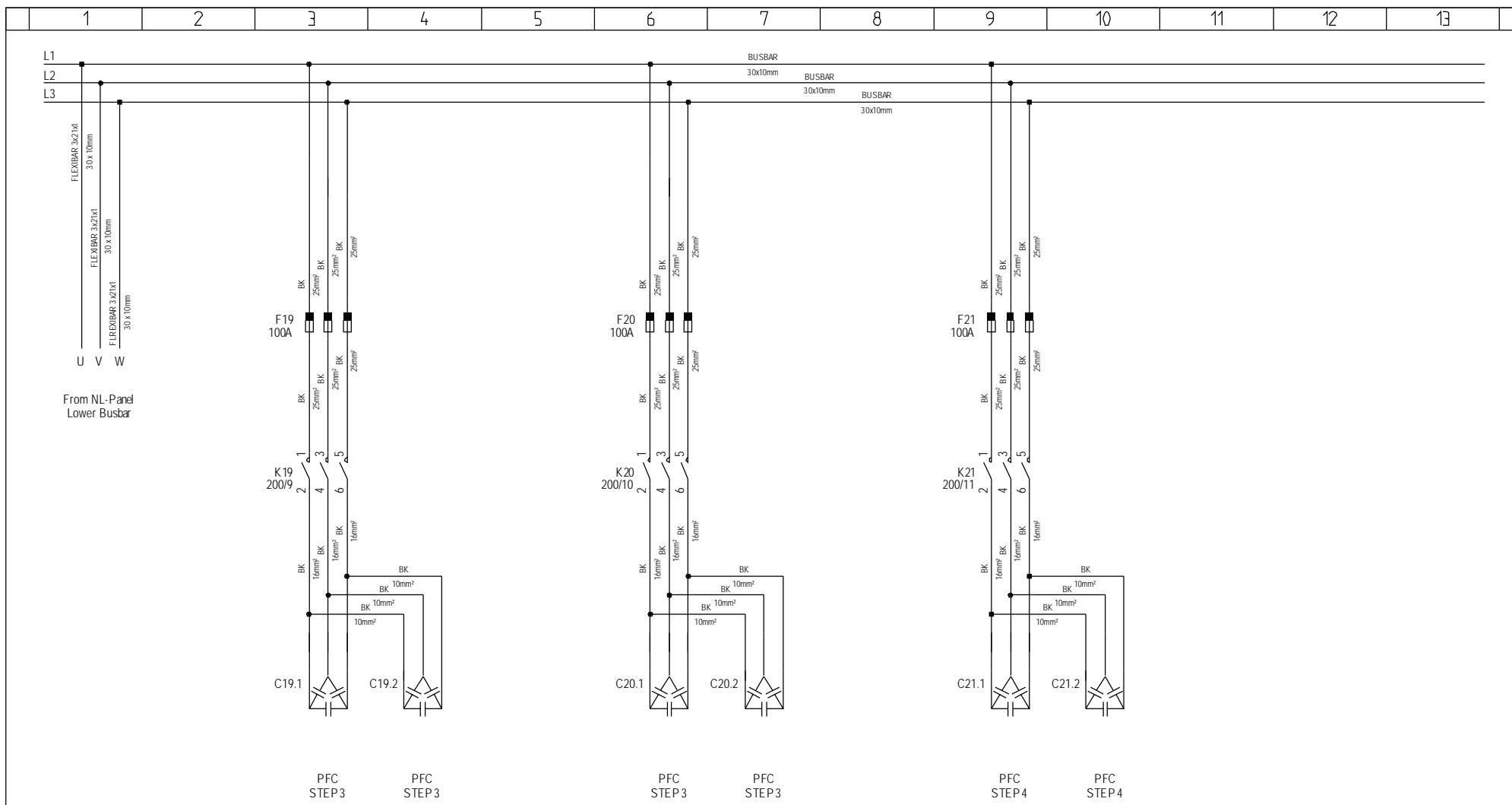


4:46 26-10-06

Vestas

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	Date	Initials	Function	Main Circuits step 2						
Designed	050111	SLB	Project title	PFC Panel +AT3 1000kWAr, NM72/1650 - V82-1.65KW						
Approved			Comments			Customer	Vestas Wind Systems A/S			
Revised	050111	SLB	Rev.	-	Drawing no.	6015882	Cont. sheet	102	Sheet	101

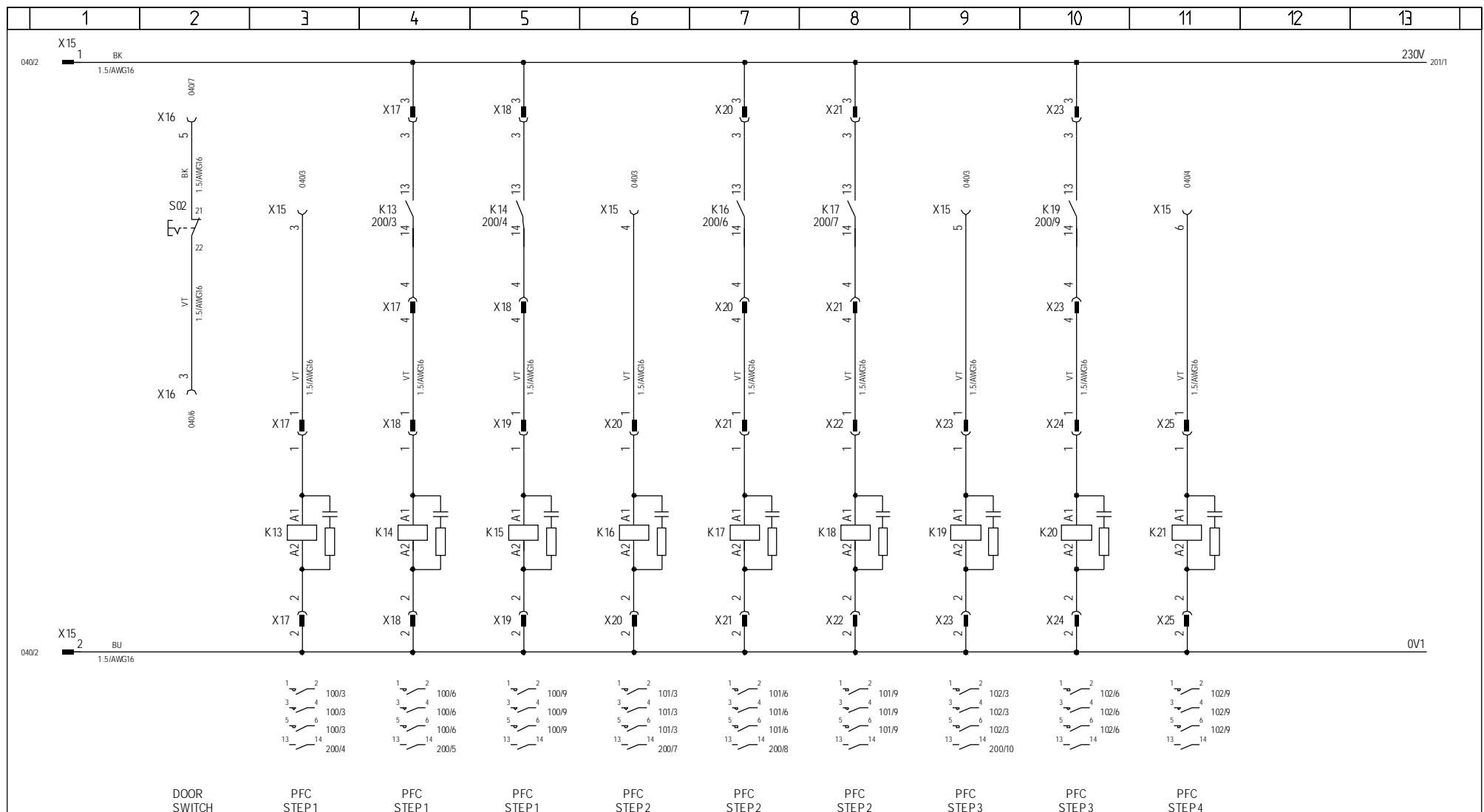


4:46 26-10-06



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	Date	Initials	Function	Main Circuits step 3 - 4						
Designed	050111	SLB	Project title	PFC Panel +AT3 1000kWAr, NM72/1650 - V82-1.65KW						
Approved			Comments							
Revised	050111	SLB	Rev.	-	Drawing no.	6015882	Cont. sheet	200	Sheet	102

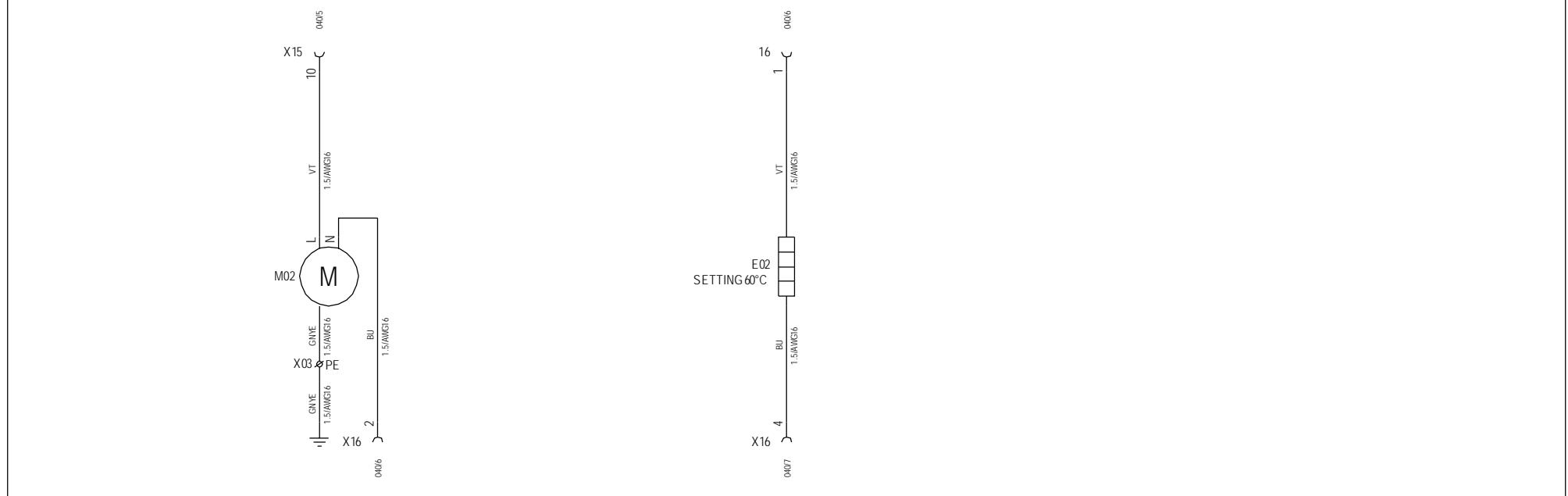


1	2	3	4	5	6	7	8	9	10	11	12	13	
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230V

230V

200/13

PFC
PANEL
FAN2PFC
PANEL
HEATER2

Material Description	60108815 PFC KITSET 150kVAr ADDON NM72/V82 50 Hz	Quantity	Un	SortString
Lev	Obj			
1	60016660	PFC MODULE 50kvar 690V	3	PC 1
1	60002815	Label "Type sign f. NM82/1500C"	1	PC LABEL
1	60098493	LASER LABEL +AT3 FL NM72 IEC I & NM82	1	PC LABEL
1	60111495	UPGRADE KIT LABEL for +AT3 1000 kVAr	1	PC LABEL
1	60007630	CABLE GLAND BMBC-02 M20 BRASS	1	PC 1
1	60007639	LOCKNUT BMBL-03 M20 BRASS	1	PC 1

Change Info

<u>Item no.</u>	<u>Item text:</u>
765191	UPS Panel 3kVA 230V 50/60Hz

Active revision for production

Drawing no.: 961648

Version	Date	Init./App.	Description of change since last revision
0	2007-01-23	FLT/FLT	Implemented with ECO 221264 - First version

BoM no.: 765191

Version	Date	Init./App.	Document no.: 21000231 Description of change since last revision
04	2009-02-27	INI/FLT	Changed with ECO 247548, 250675 Removed: 1 x 098310 SIDE PAN TS8 W/W, 1 x 098329 ENCL TS8 LEFT HAND. Added: 1 x 098364 UPS ENCL W LEFT SIDE PANEL. Added: 1 x 60010316 BASE PLATE CLAMP for MOUNTING

Operation Instruction: 10000023

Version	Date	Init./App.	Description of change since last revision
02	2007-01-09	INI/BIVA	Changed with ECO 232839_Updated with new Vestas logo

Old revisions for service

Drawing no.: xxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change.

BoM no.: 765191

Version	Date	Init./App.	Document no.: 21000231 Description of change since last revision
03	2007-11-27	INI+RUBUC/BIVA	Changed with ECO 228098, 228836 & 231946 Added: 1 x 60111564 CABLE ENTRY PLATE ALU ZINC Replacement: 8 x 60009586 repl by 8 x 60009587 SCREW ISO 7046 M 4x10 - 4.8 & 1 x 60002343 LASER LABEL repl by 1 x 118588 LABEL UL 508A
02	2007-04-02	INI/FLT	Changed with ECO223428_Prototype 60009795_SPRING WASHER DIN 6796 6 - FZ _4 pcs. Removed 60009610_SCREW ISO 7045 M 6 x 14 - 4.8_4 pcs. Removed 60038149 Screw ISO replaced by 60009610 SCREW ISO 7045 M 6 x 14 - 4.8_44 pcs. Implemented with ECO 221744 + ECO 221579 - First version
01	2007-02-21	FLT+INI/FLT	

Operation Instruction: 10000023

Version	Date	Init./App.	Description of change since last revision
01	2004-02-10	SLB/SLB	First version

Earlier Drawings and BOM no Longer Active for Serial Production

Change Info: 22000108

A

A

B

B

C

C

D

D

E

E

F

F



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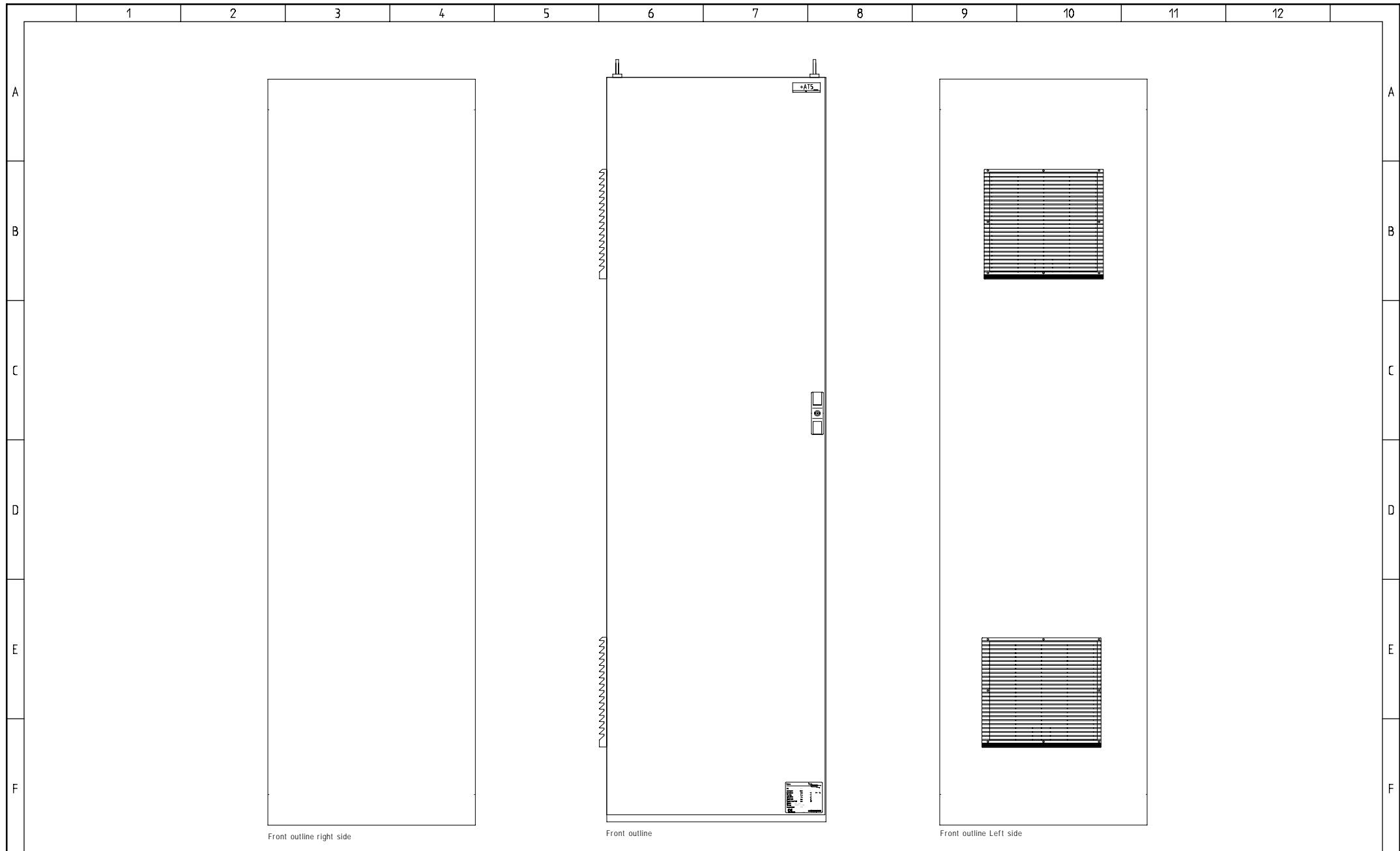
Table of contents

CODE FOR DESIGNATION OF COLOURS

A	BK: BLACK
	BN: BROWN
	RD: RED
	OG: ORANGE
B	YE: YELLOW
	GN: GREEN
	BU: BLUE (or LIGHT BLUE)
C	VT: VIOLET (PURPLE)
	GY: GREY (SLATE)
	WH: WHITE
D	PK: PINK
	GD: GOLD
	TQ: TURQUISE
E	SR: SILVER
	GNYE: GREEN-AND-YELLOW or 
F	SH: SHIELD OR 

VESTAS TERM:

- *1: BLACK WIRE AT BROWN
- *2: BLACK WIRE AT BLUE



1	2	3	4	5	6	7	8	9	10	11	12
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A

B

C

D

E

F

A

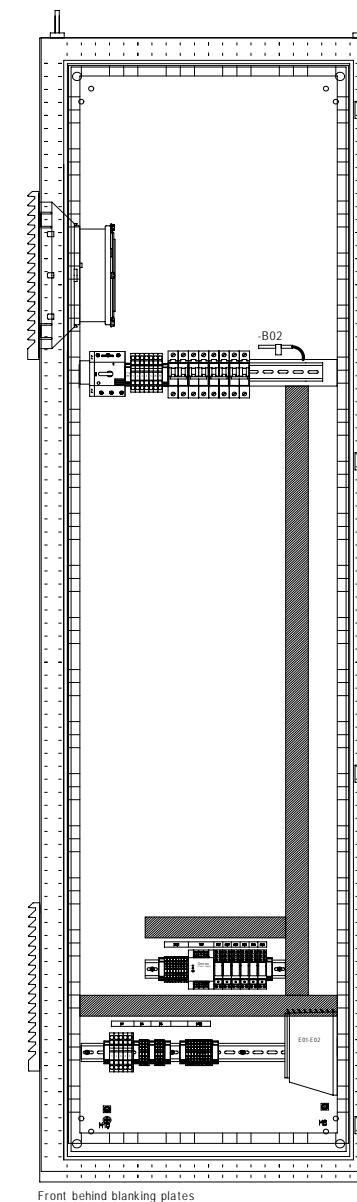
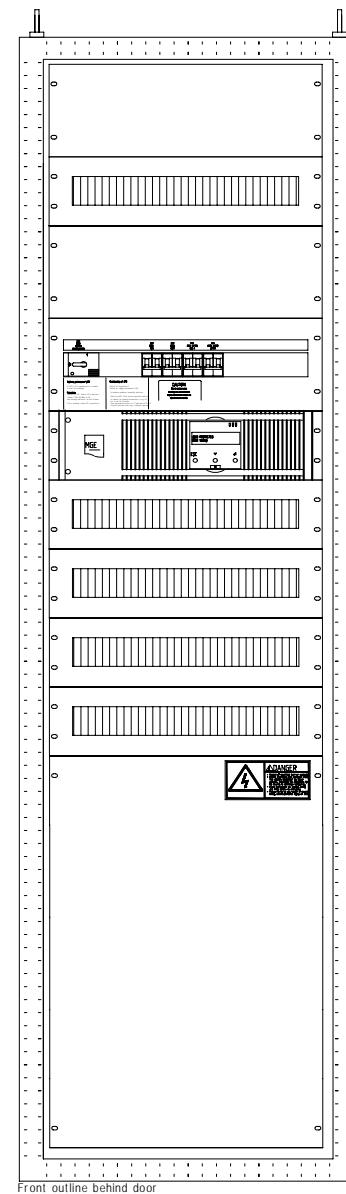
B

C

D

E

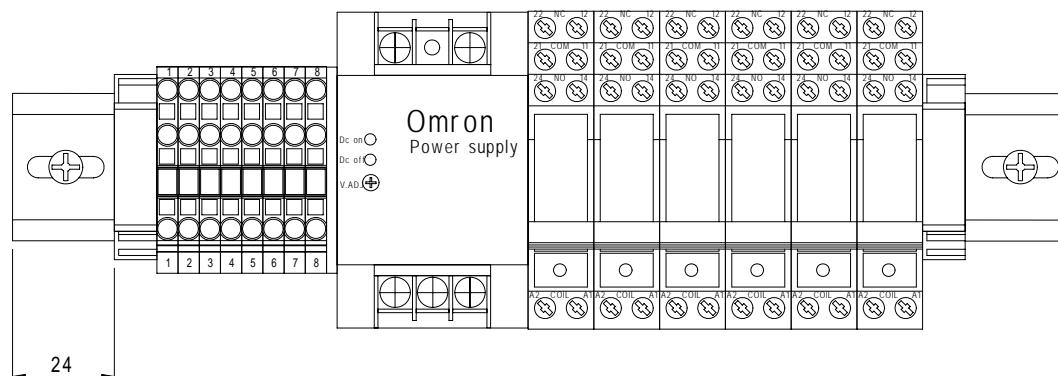
F



1 2 3 4 5 6 7 8 9 10 11 12

A

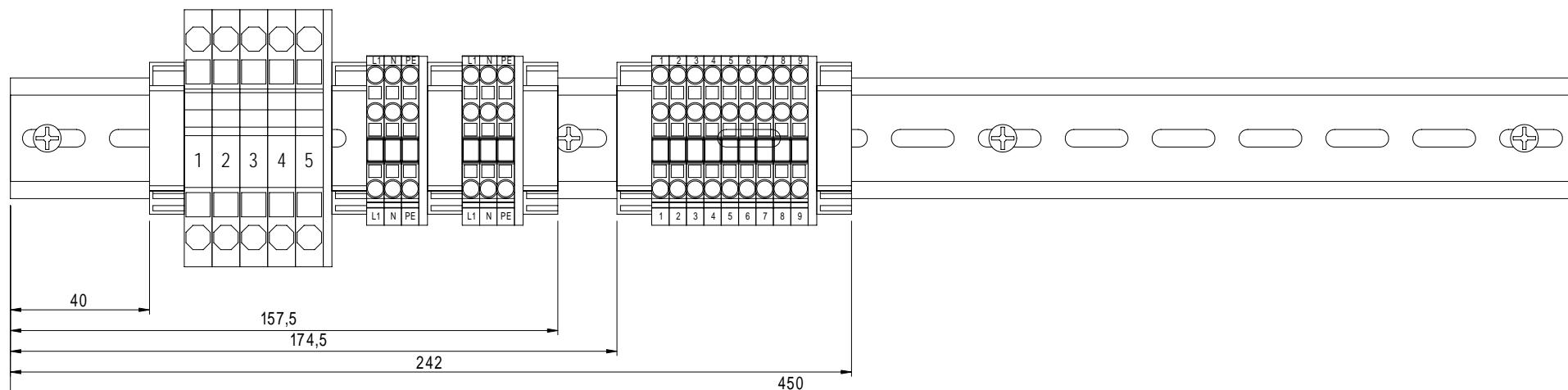
X101	T02	K01	K02	K03	K04	K05	K06
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B

X1	X4	X5		X100
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C



D

E

F

A

B

C

D

E

F

1 2 3 4 5 6 7 8 9 10 11 12

MINIMUM CABLE TEMPERATURE RATING 60°C (140F)
USE COPPER CONDUCTORS ONLY

A

A

B

B

C

C

D

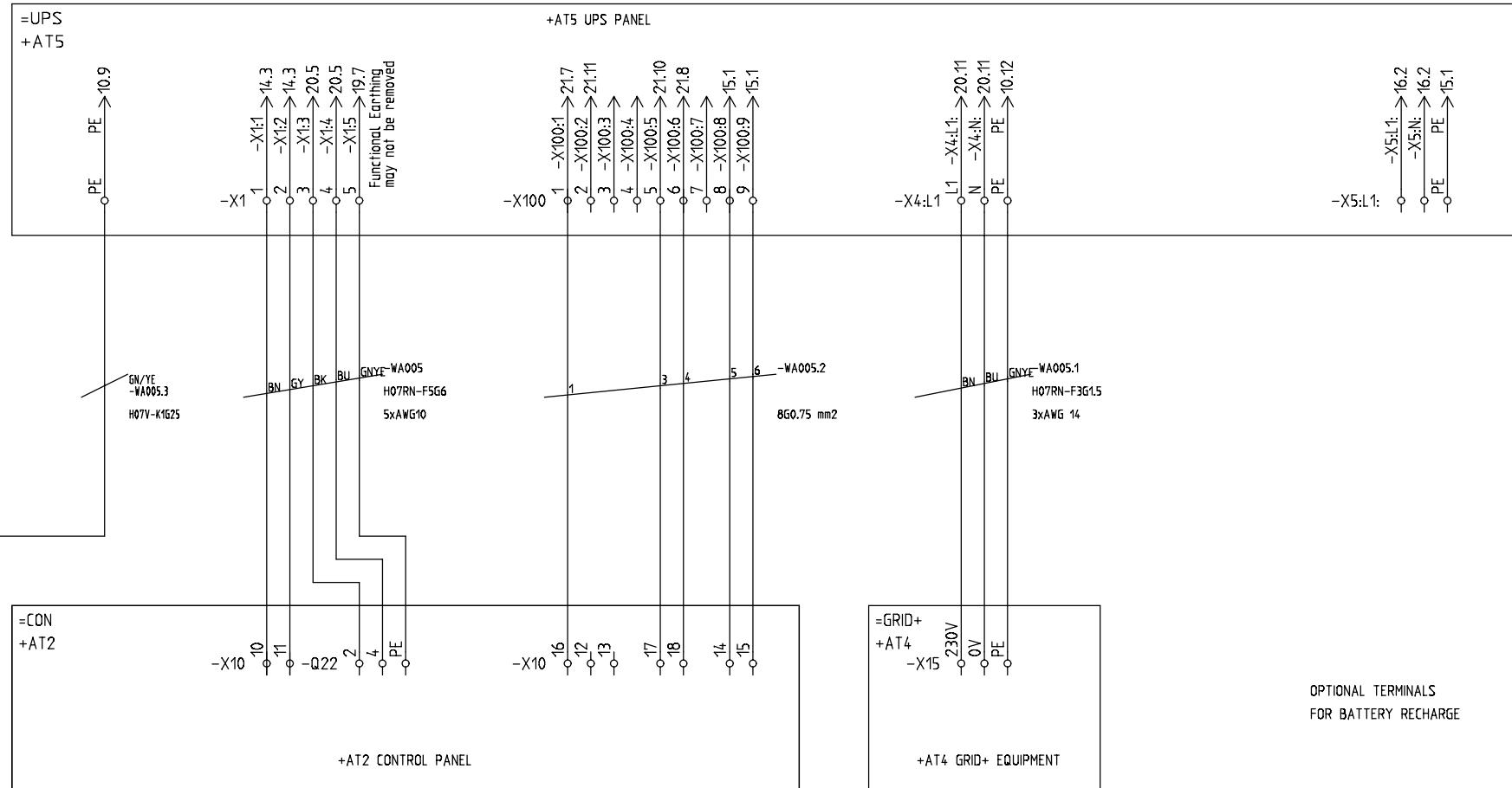
D

E

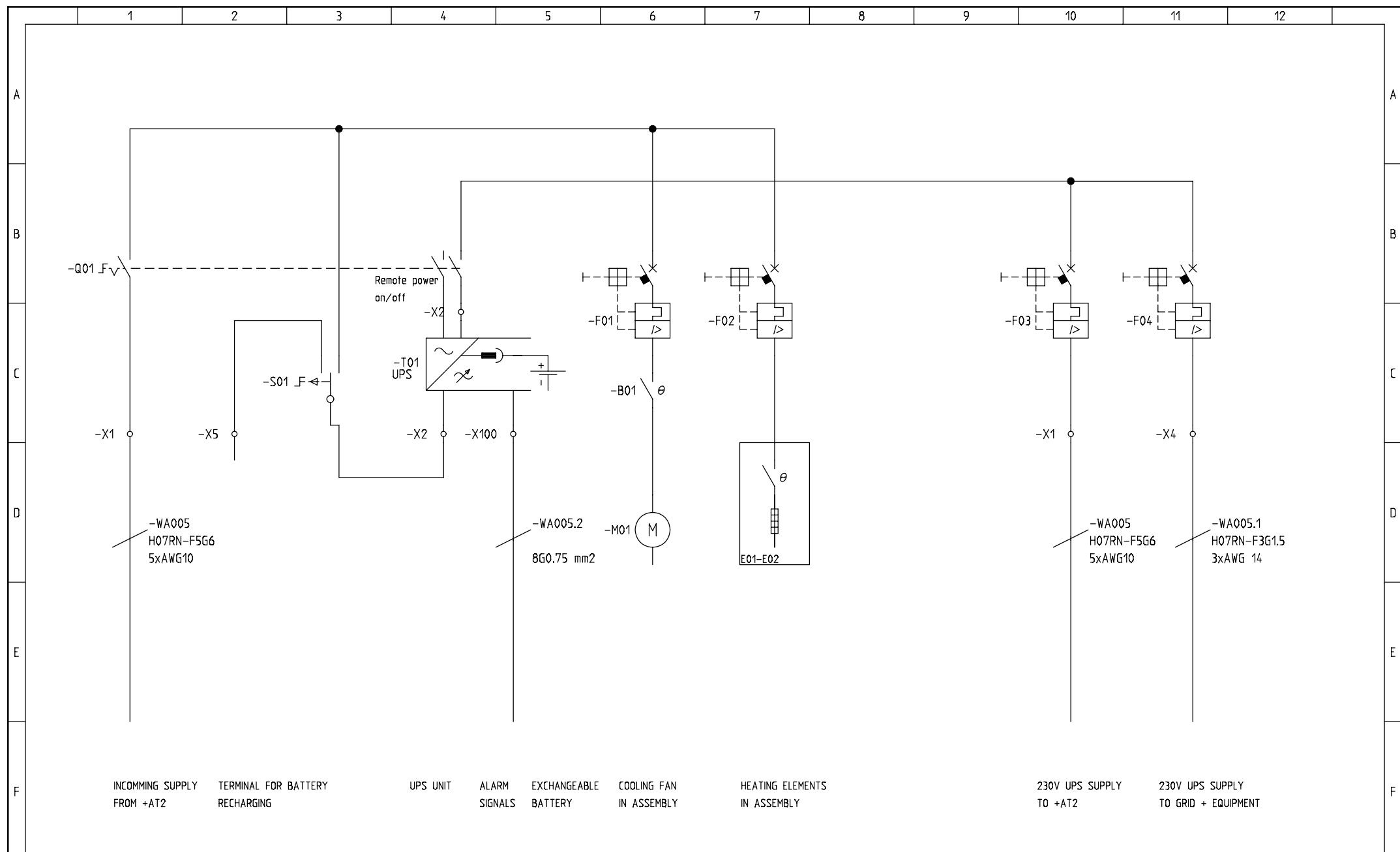
E

F

F



INSTALLATION DIAGRAM



1	2	3	4	5	6	7	8	9	10	11	12
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A

A

B

B

C

C

D

D

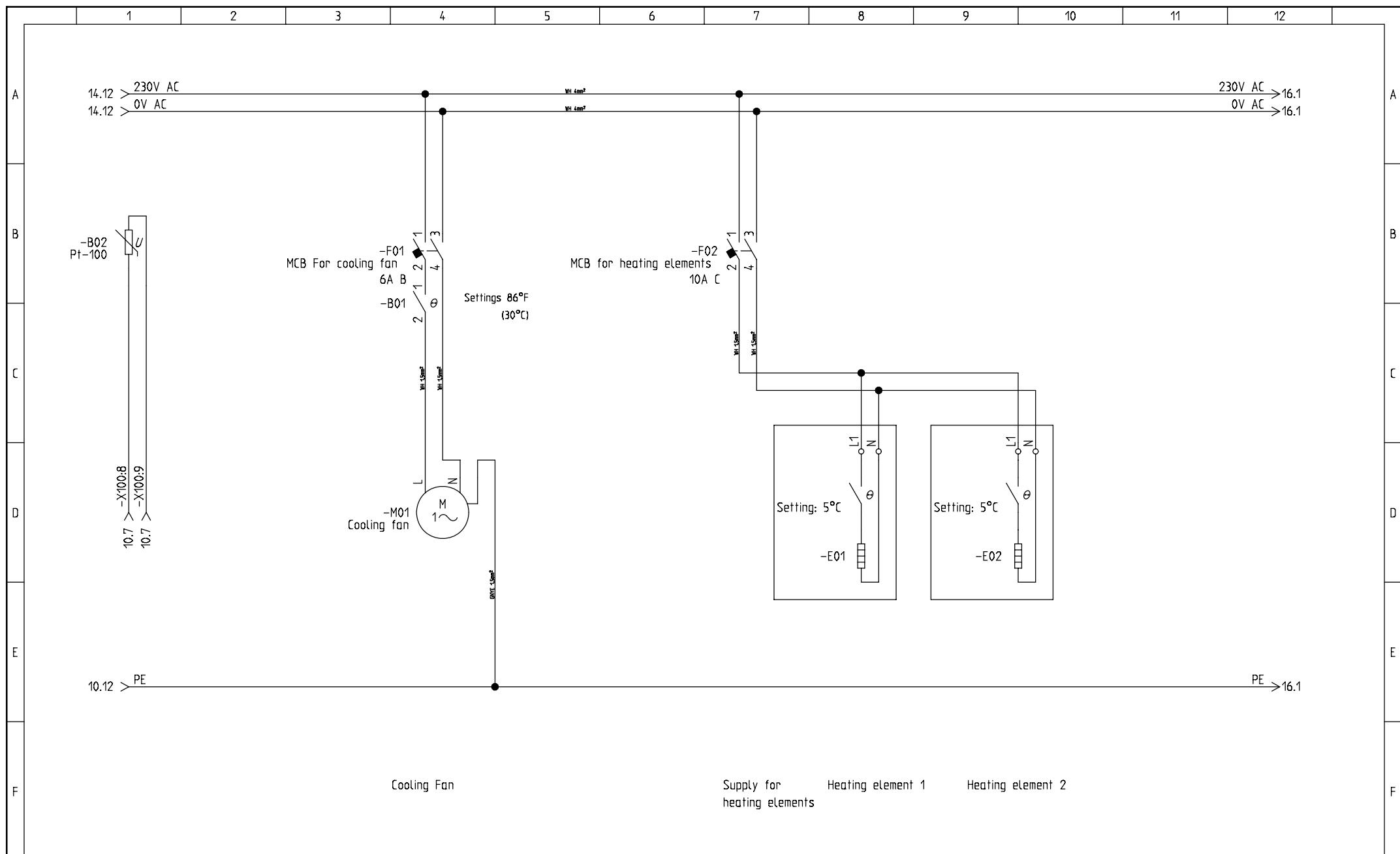
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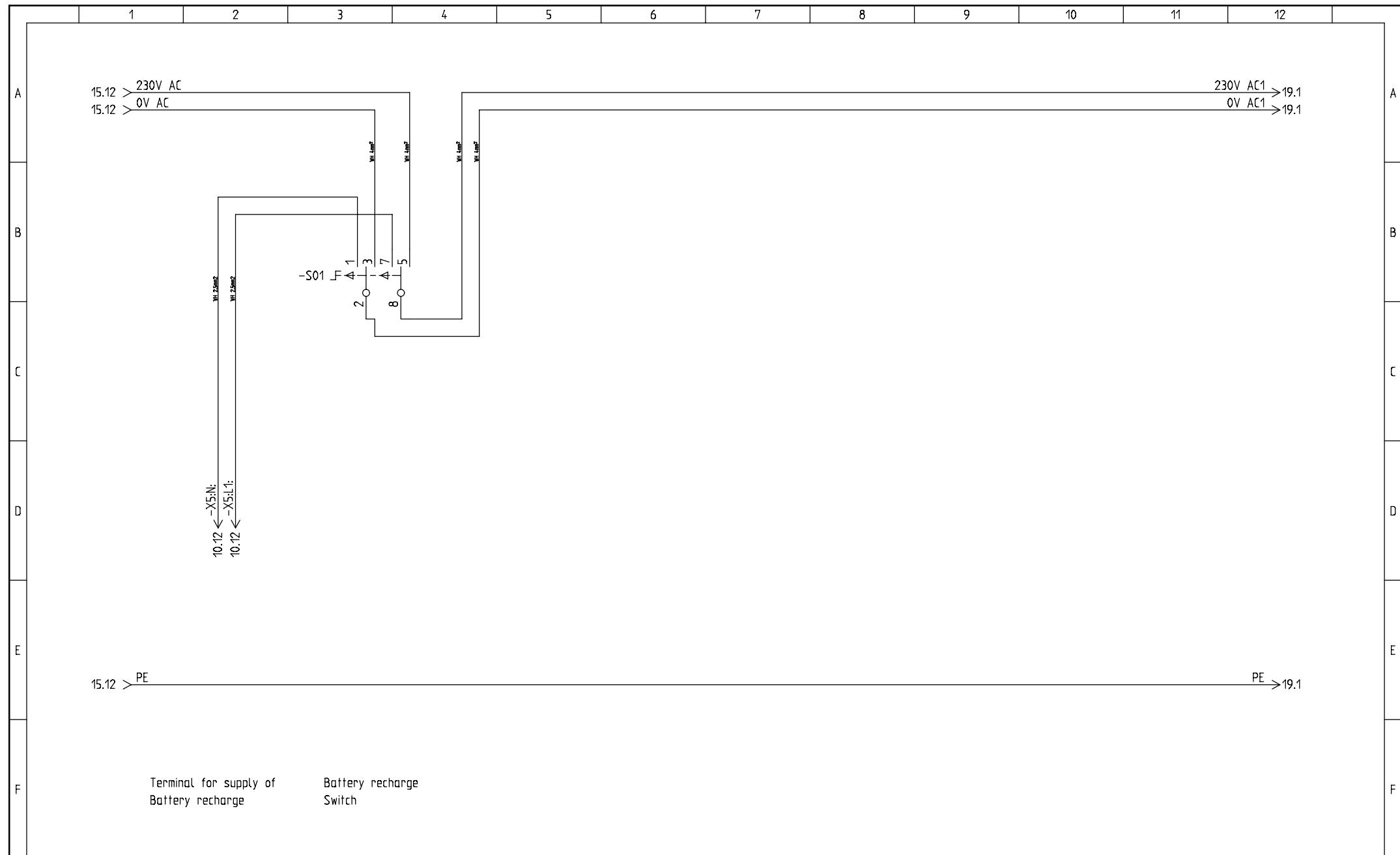
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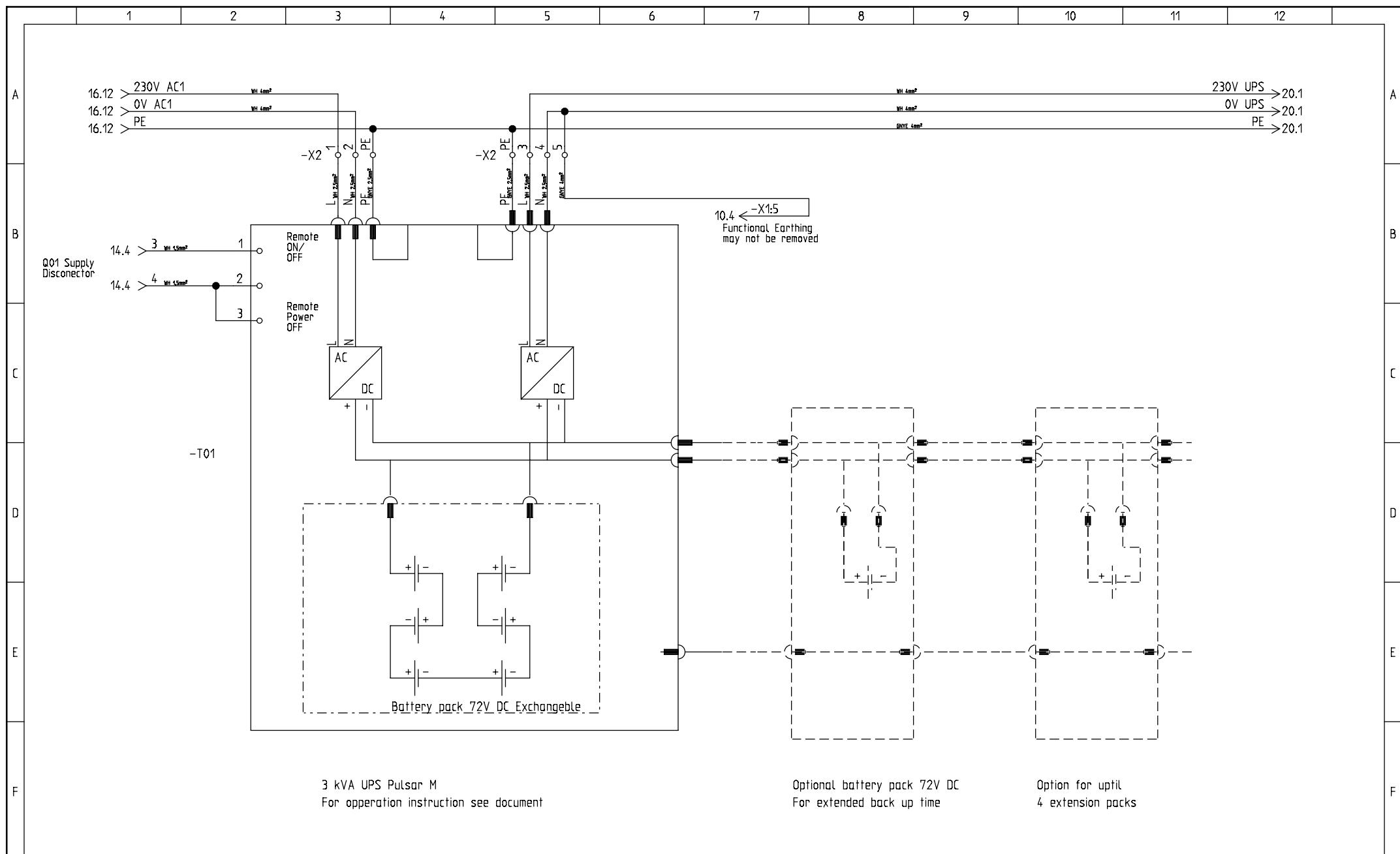
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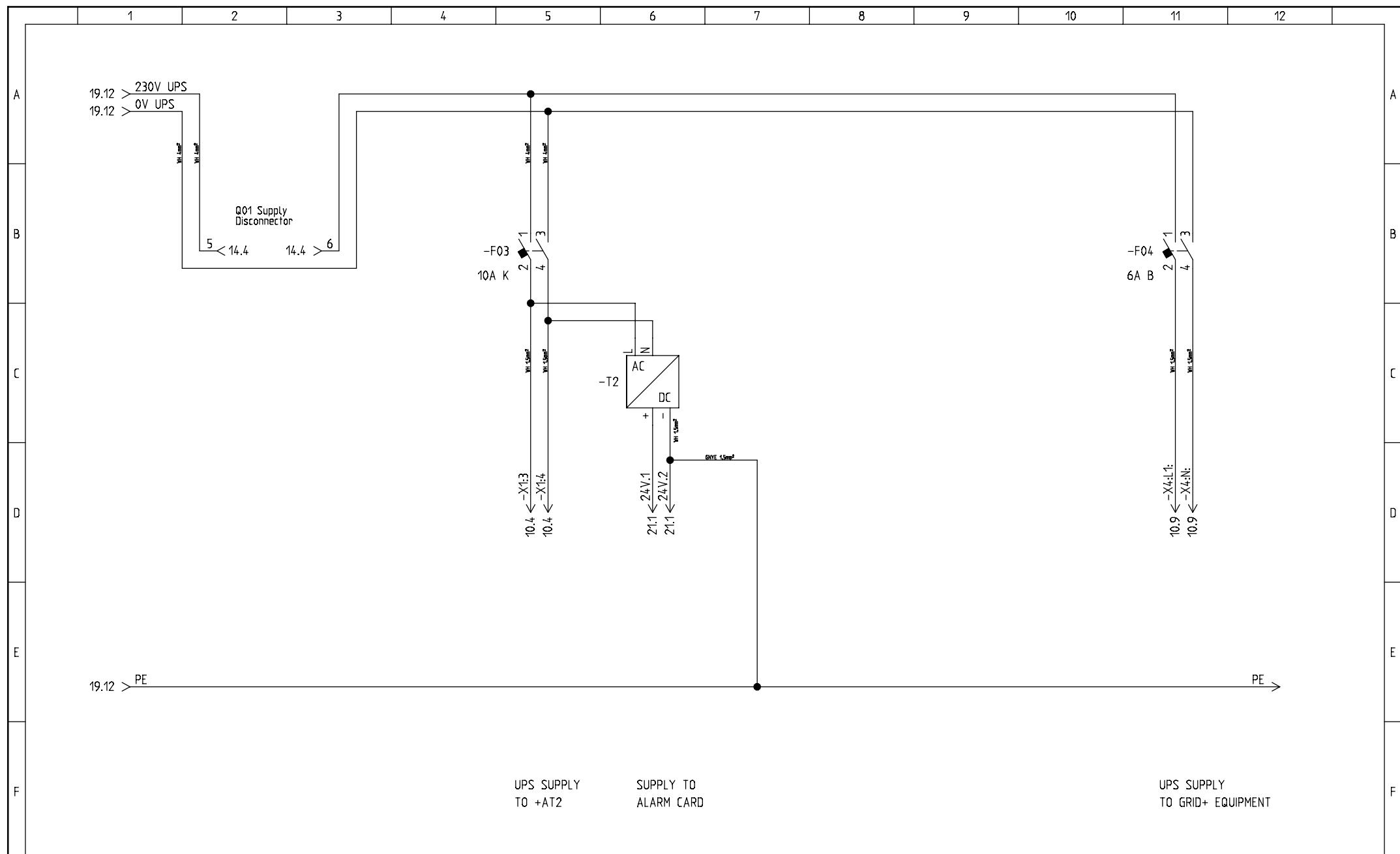
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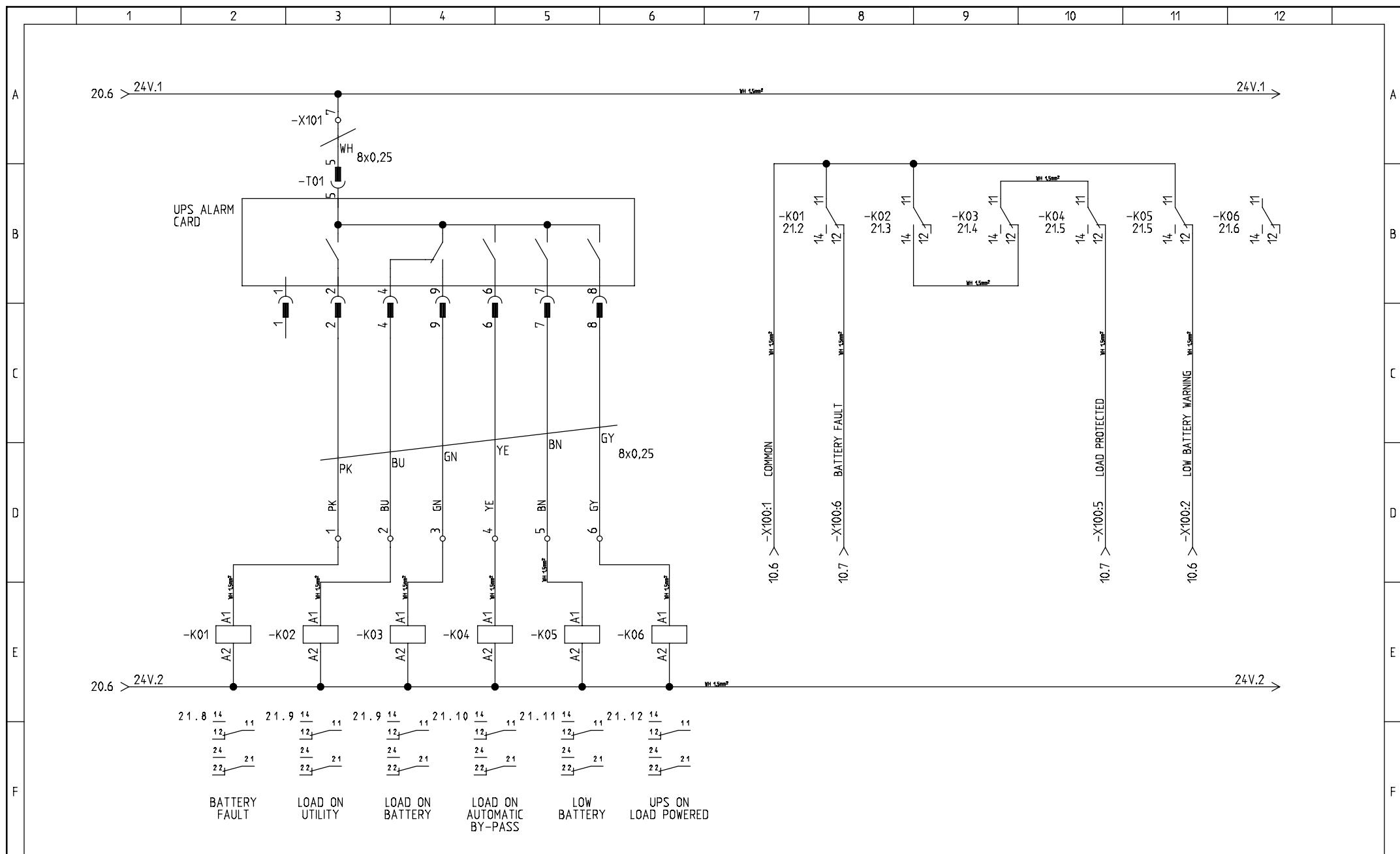












765191 UPS PANEL 3kVA 230V 50/60Hz

Component	Description	Qty per	Stk UM	Position Number
113975	BLIND COVER GREY	1,000	EA	
118588	LABEL UL 508A ENCLOSED ICP	1,000	EA	
118671	MARK WAGO +AT5 UPS PANEL	1,000	EA	
118934	LABEL ELECTRICAL WARNING UNIV.	1,000	EA	
119023	LABEL TYPE SIGN UPS PANEL 3kVA	1,000	EA	
119024	LABEL "UPS COMMISSIONING"	1,000	EA	
119025	LABEL "UPS RECHARGE"	1,000	EA	
119026	LABEL 25X432MM ROW 1.1 AT5 UPS	1,000	EA	
119027	WARNING LABEL HEAVY EQUIPMENT	1,000	EA	
119028	LABEL FOR TERMINAL ROW	1,000	EA	
119029	LABEL FOR DIN-RAIL	1,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60002619	LABEL "UPS PANEL +AT5"	1,000	EA	
60002670	LABEL	1,000	EA	
60006819	STICKER "EARTH" 14mm	5,000	EA	
60007458	CABLE TIE 140x2.5mm WH	20,000	EA	
60007630	CABLE GLAND M20 BRASS BMBC-02	3,000	EA	
60007633	CABLE GLAND M40 BRASS BMBC-05	1,000	EA	
60007639	LOCKNUT M20 BRASS BMBL-03	3,000	EA	
60007642	LOCKNUT M40 BRASS BMBL-06	1,000	EA	
60007829	WIRE TIN 16 150MM Ø8 IEC/UL	1,000	EA	
60009587	SCR CRS UH M4x10 4.8 FZB	8,000	EA	
60009605	SCR CRS PH M5x12 4.8 FZB	8,000	EA	
60009610	SCR CRS PH M6x14 4.8 FZB	44,000	EA	
60009639	SCR HEX SET M8x20 8.8 FZB	1,000	EA	
60009670	SCR HEX SET M10x16 8.8 FZB	2,000	EA	
60009673	SCR HEX SET M10x25 8.8 FZB	1,000	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	25,000	EA	
60009803	WASHER SPR 8 FZG	1,000	EA	
60009809	WASHER SPR 10 FZG	1,000	EA	
60009839	WASHER LOCK 5 FZB	8,000	EA	
60009841	WASHER LOCK 8 FZB	1,000	EA	
60009842	LOCK WASHER DIN 6798A 10 - FZB	1,000	EA	
60009842	LOCK WASHER DIN 6798A 10 - FZB	2,000	EA	
60009853	WASHER 21100016 6MM	44,000	EA	
60009873	NUT ISO 4032 M 8 - 8 - FZB	1,000	EA	
60009879	NUT HEX M10 8	1,000	EA	
60009895	NUT LIFTING EYE M10 FZB	2,000	EA	
60009900	NUT CLIP FOR 19" RACK M6	44,000	EA	
60010316	BASE PL CLAMP TS8 WA4547276	1,000	EA	
60010699	CONDENSATION PROT DRY BAG 500G	1,000	EA	
60013820	PROFILE ALU 19" SWING FRAME	1,000	EA	
60013894	BLOCK ALU F DIN-RAIL 19"	2,000	EA	
60024050	LOCKTITE 401 GLUE 20g	0,000	EA	
60095579	LABEL " CAUTION! RISK OF. "	1,000	EA	
60096851	TORX SCREW 2486.500 5.5X13MM	4,000	EA	
60096851	TORX SCREW 2486.500 5.5X13MM	4,000	EA	
60096851	TORX SCREW 2486.500 5.5X13MM	37,000	EA	
60096871	THREADED BLOCK PS4163.000 8MM	1,000	EA	
60096938	SLIDE RAIL 7492.500 HEAVY DUTY	6,000	EA	
60096957	CORNER BRA 7827.220 TS8 2200mm	4,000	EA	
60096968	PUNCH SECTION 8612.060 INNER	8,000	EA	
60096970	PUNCH SECTION 8612.160 OUTER	1,000	EA	
60100577	WIRING +AT5 UPS PANEL 25MM2	1,000	EA	
60111564	CABLE ENTRY PLATE ALU ZINC	1,000	EA	
765191/100	WIRESET FOR 765191	1,000	EA	
765191/101	WIRESET FOR 765191	1,000	EA	
765191/200	WIRING DUCT NO 1 FOR 765191	1,000	EA	
765191/201	WIRING DUCT NO 2 FOR 765191	1,000	EA	
765191/202	WIRING DUCT NO 3 FOR 765191	1,000	EA	
765191/203	WIRING DUCT NO 4 FOR 765191	1,000	EA	
765191/204	WIRING DUCT NO 5 FOR 765191	1,000	EA	
765191/205	WIRING DUCT NO 6 FOR 765191	1,000	EA	
765191/300	LID WIRING DUCT NO 1 765191	1,000	EA	
765191/301	LID WIRING DUCT NO 2 765191	1,000	EA	
765191/302	LID WIRING DUCT NO 3 765191	1,000	EA	
765191/303	LID WIRING DUCT NO 4 765191	1,000	EA	
765191/304	LID WIRING DUCT NO 5 765191	1,000	EA	
765191/305	LID WIRING DUCT NO 6 765191	1,000	EA	
765191/400	DIN-RAIL NO 1 FOR 765191	1,000	EA	
765191/401	DIN-RAIL NO 2 FOR 765191	1,000	EA	

765191/402	DIN-RAIL NO 3 FOR 765191	1,000	EA	
765191/403	DIN-RAIL NO 4 FOR 765191	1,000	EA	
765191/404	DIN-RAIL NO 5 FOR 765191	1,000	EA	
938902	WIRING UPS V82 3kVA 230V 50/60	0,000	EA	
961648	UPS V82 CIRCUIT DIAGRAMS	0,000	EA	
119031	LABEL B01	1,000	EA	B01
60009289	THERMOSTAT COOL 140 -30 F UL	1,000	EA	B01
119032	LABEL B02	1,000	EA	B02
60007481	CABLE RACK TK 5-7	1,000	EA	B02
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA	B02
60009578	SCREW ISO 7045 M 3 x 8 - FZB	1,000	EA	B02
119033	LABEL E01	1,000	EA	E01
60014729	HEATER FAN CR0 27 475/550W UL	2,000	EA	E01-E02
119034	LABEL E02	1,000	EA	E02
184965	AUTOMAT.FUSE S202-B 6	1,000	EA	F01
189757	MCB S202C10A 10A C 2P	1,000	EA	F02
185037	MCB S202 K10 10.0A	1,000	EA	F03
184965	AUTOMAT.FUSE S202-B 6	1,000	EA	F04
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K01
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K01
60004518	RETAINER FOR RT SOCKET RT16016	1,000	EA	K01
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K01
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K02
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K02
60004518	RETAINER FOR RT SOCKET RT16016	1,000	EA	K02
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K02
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K03
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K03
60004518	RETAINER FOR RT SOCKET RT16016	1,000	EA	K03
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K03
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K04
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K04
60004518	RETAINER FOR RT SOCKET RT16016	1,000	EA	K04
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K04
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K05
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K05
60004518	RETAINER FOR RT SOCKET RT16016	1,000	EA	K05
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K05
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K06
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K06
60004518	RETAINER FOR RT SOCKET RT16016	1,000	EA	K06
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K06
098435	MOUNT PLATE TS8 W/W	1,000	EA	MOUNT
60096979	ATTACHMENT MOUNT PLATE TS	2,000	EA	MOUNT
092048	VENTI. OUTLET FILTER 3326.207	1,000	EA	M01
119030	LABEL M01	1,000	EA	M01
60110934	FAN 230V 500M3/H 323X323X125MM	1,000	EA	M01
098309	SIDE PAN TS8 562X2197MM 7035	1,000	EA	PANEL
098310	SIDE PAN TS8 562x2197mm W.WORK	1,000	EA	PANEL
098329	ENCL TS8 8626.500 LEFT HANDED	1,000	EA	PANEL
098364	UPS ENCL W LEFT SIDE PANEL	1,000	EA	PANEL
098432	BLIND PLATE 19" 4U FOR FUSES	1,000	EA	PANEL
098433	FRT COVER 19" 17U RAL7012	1,000	EA	PANEL
098434	BLIND PLATE 19" 3U ENCL VENTED	5,000	EA	PANEL
60013862	FRT COVER 19" 4U RAL 7012	2,000	EA	PANEL
093498	AUX CONTACT HK-11 SIDEMOUNTED	1,000	EA	Q01
188256	CIRCUIT-BREAK MS325 16-20A	1,000	EA	Q01
60091912	END STOP WAGO 249-117 10MM	1,000	EA	Q01
185038	CH. OVER E221-4/2 16A/250V 2-P	1,000	EA	S01
60091912	END STOP WAGO 249-117 10MM	1,000	EA	S01
098436	MOUNT BRACKET F. PULSAR M LEFT	1,000	EA	T01
098437	MOUNT BRACKET F. PULSAR M RIGH	1,000	EA	T01
186414	MGE UPS PULSAR M 3000VA	1,000	EA	T01
186415	RELAY CARD FOR PULSAR M	1,000	EA	T01
60005005	POWER SUPPLY S82K-01524 110-23	1,000	EA	T02
60006073	TERMINAL WAGO 0.2-6.0MM2	5,000	EA	X1
60006085	END SEC 282-325 1-LEVEL GY	1,000	EA	X1
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X1
60006075	TERMINAL WAGO 0.08-2.5MM2	9,000	EA	X100
60006080	END SEC 870-933 1-LEVEL GY	1,000	EA	X100
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X100
60006075	TERMINAL WAGO 0.08-2.5MM2	8,000	EA	X101
60006080	END SEC 870-933 1-LEVEL GY	1,000	EA	X101
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X101
60006073	TERMINAL WAGO 0.2-6.0MM2	5,000	EA	X2

60006074	TERMINAL WAGO 0.2-6.0MM2	2,000	EA	X2
60006085	END SEC 282-325 1-LEVEL GY	1,000	EA	X2
60006091	PUSH-IN JUMPER BAR 282-402	1,000	EA	X2
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X2
60006075	TERMINAL WAGO 0.08-2.5MM2	1,000	EA	X4
60006076	TERMINAL WAGO 0.08-2.5MM2, BU	1,000	EA	X4
60006077	TERMINAL WAGO 0.08-2.5MM2	1,000	EA	X4
60006080	END SEC 870-933 1-LEVEL GY	1,000	EA	X4
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X4
60006075	TERMINAL WAGO 0.08-2.5MM2	1,000	EA	X5
60006076	TERMINAL WAGO 0.08-2.5MM2, BU	1,000	EA	X5
60006077	TERMINAL WAGO 0.08-2.5MM2	1,000	EA	X5
60006080	END SEC 870-933 1-LEVEL GY	1,000	EA	X5
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X5

Operating Instructions for UPS Panel 4,5 kVA



Operating Instructions

STANDBYE SUPPLY SYSTEM, UPS

CONTENT

1. SAFETY RULES:	3
2. UPS SEEN FROM FRONT:	3
3. UPS SEEN FROM BACK:	4
4. INSTALLATION:	5
5. START-UP:	5
6. DIAGNOSTICS:	6
7. MAINTENANCE:	7
8. REPLACEMENT OF THE ELECTRONIC MODULE:	8
9. REPLACEMENT OF THE BATTERY MODULE:	9

Operating Instructions UPS Procedure

STANDBYE SUPPLY SYSTEM, UPS

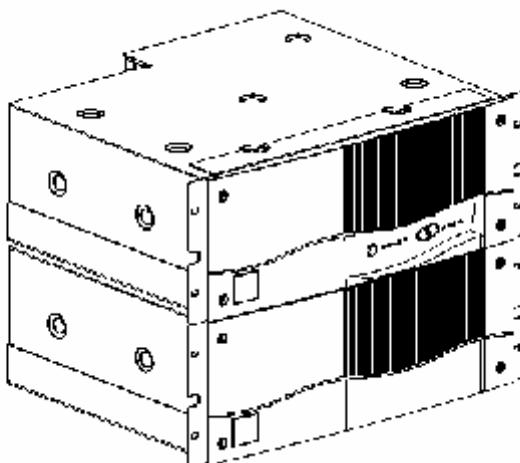
1. Safety rules:

1.1. Safety of persons

A UPS has its own internal power source (the battery). Consequently, the output terminals may be energized even if the UPS is disconnected from the AC-power source !!!!.

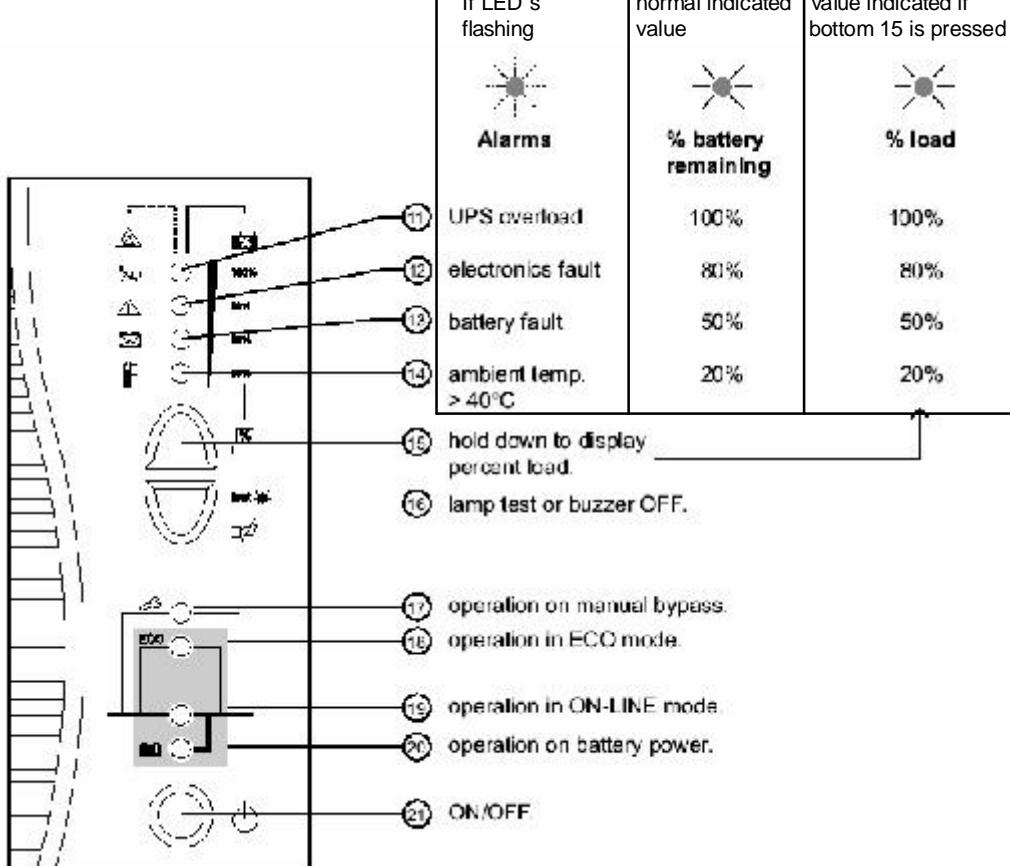
2. UPS seen from front:

4,5 and 6 kVA rack models:



	Dimensions in mm (H x W x D)
Electronic module	177 (4U) x 483 x 462
Battery module	177 (4U) x 403 x 462

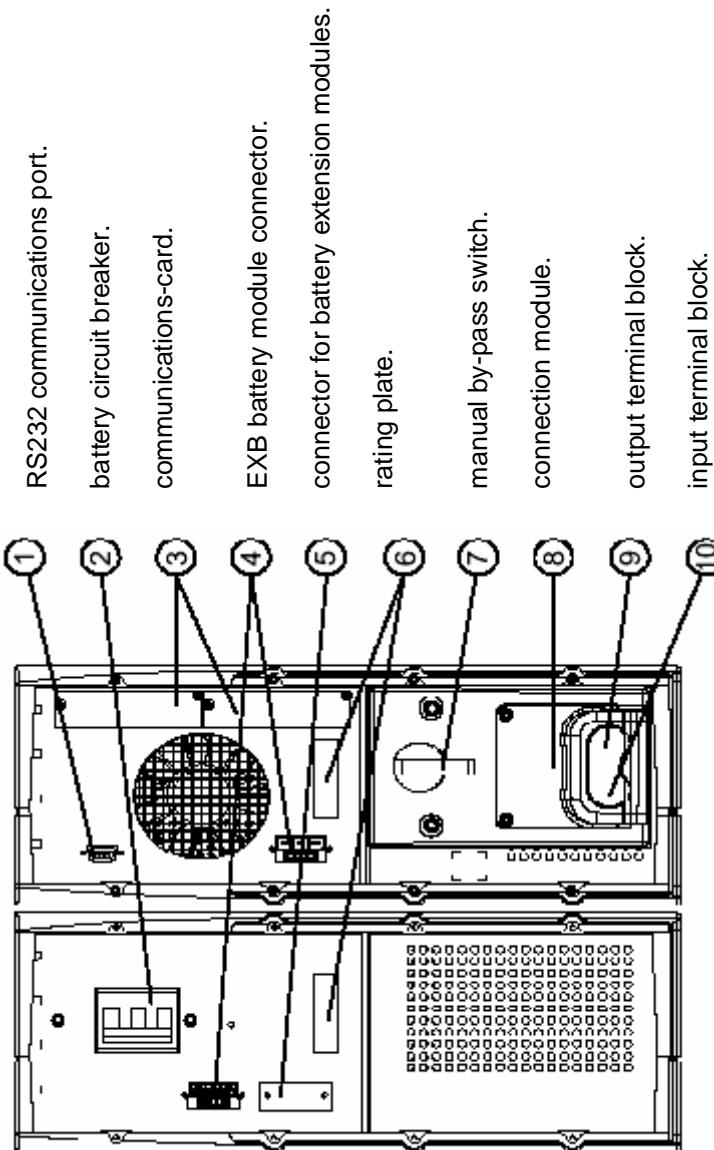
	Weight in kg
Electronic module	18
Battery module	51



Operating Instructions

STANDBYE SUPPLY SYSTEM, UPS

3. UPS seen from back:



Operating Instructions

STANDBYE SUPPLY SYSTEM, UPS

4. Installation:

Before carrying out any connections, check upstream protection in panel +AT2 is (OFF).
Connect outgoing cables in panel +AT2 and +AT5 (UPS Panel)

5. Start-up:

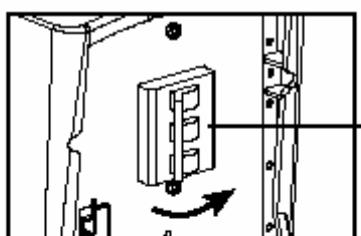
Switch off supply disconnector Q01
and control fuse F05.

Turn on supply from +AT2 upstream device.

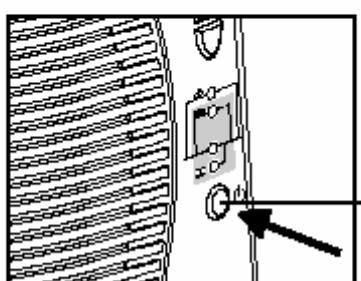
To minimize problems caused by moisture:

-Switch on Q01. Start heaters placed in bottom
of cabinet by turning thermostat to e.g. 40 °C.
-Let it run for 24 hours.

Check that voltage on -X1 terminal 1 and 2 is 230 VAC
-Turn thermostat back to 0 °C and switch on F05.



1. Insure battery circuit breaker(s) is ON. (2)
(placed on back of battery module)



2. Press the ON / OFF button (21).

The buzzer beeps three times.
After 30 seconds the UPS is fully operational.
and LED 19 goes ON.

If LED 19 or 20, not goes ON,
or if LED 11, 12, 13 or 14 flash, there is a fault

Operating Instructions

STANDBYE SUPPLY SYSTEM, UPS

6. Diagnostics:

Generally if a fault is detected switch off Q1 wait 30 sec. then switch on again.

Step	UPS status	Check list
1	<p>UPS starting up: Connect UPS to mains Switch battery circuit breaker to ON. Push N°21 ON button. Leds status in normal running: Leds 11 to 14 (battery charge) may be ON If it's not the case, go to step 2.</p> <p>Led 19 should be ON, if not see check list</p>	<p>Check mains voltage presence Check mains connection Check Battery circuit breaker position and battery connection Keep the UPS connected to the mains 8H Check the starting procedure in the user manual</p>
2	<p>If led 11 is blinking and buzzer is beeping: UPS has detected an overload. If it's not the case, go to step 3.</p>	<p>Try to remove some load from the UPS Check the type of load (PC, automation device, motor etc.)</p>
3	<p>If led 12 is blinking and buzzer is beeping : UPS has detected an internal fault. The load may or may not be provided anymore. If it's not the case, go to step 4</p>	<p>Turn the bypass switch to manual position</p>
4	<p>If led 13 is blinking and buzzer is beeping : UPS has detected a battery fault. If it's not the case, go to step 5</p>	<p>Keep the UPS connected to the mains 8H</p>
5	<p>If led 14 is blinking,: UPS has detected a temperature fault. If it's not the case, go to step 6</p>	<p>The room temperature is over 40°C Check the clearance behind the fan and in front of the UPS Check the fan is running</p>
6	<p>If led 20 is lit solid : UPS is running on batteries If it's not the case,go to step 7</p>	<p>Check mains voltage presence Check mains connection</p>
7	<p>If led 18 is ON : the load is provided directly by the mains. If it's not the case, go to step 8.</p>	<p>Check leds 11, 12, 13 and 14 to know which fault transferred the UPS to automatic bypass Check the LCO mode is not personalised Check the bypass rotary switch is not in its intermediate position</p>
8	<p>If led 17 is ON: UPS is running on manual bypass.</p>	<p>Check if UPS is really in bypass position and why</p>
9	<p>The UPS does not transfer the load on battery when mains is not present anymore.</p>	<p>Check the manual by-pass position is in NORMAL Follow step 4</p>

Operating Instructions

STANDBYE SUPPLY SYSTEM, UPS

7. Maintenance:

Troubleshooting requiring NEG Micon after-sales support

Indication	Signification	Correction
LED ⑫ flashes and the buzzer beeps.	<p>UPS electronics have detected a UPS fault.</p> <p>There are two possibilities:</p> <ul style="list-style-type: none">▶ the equipment connected to the UPS continues to be supplied, but directly from the AC-power source (via the automatic bypass (LED ⑯ ON));▶ the connected equipment is no longer supplied. <p> The equipment connected to the UPS is no longer protected.</p>	Follow the UPS replacement procedure
LED ⑬ flashes.	A battery fault was detected during the battery test.	Make sure that the battery circuit breaker(s) is closed. If that is the case, call the after-sales support because the battery is not OK, and needs replacement

Maintenance of battery when not in operation:

If the UPS remain de-energised for a long period, The batteries must be charged for 24 hours once every 3-month. Thus avoiding possible irreversible damage.

Be sure that all MCB are disconnected in the panel

Connect 230 VAC 10A to terminal X1 L to terminal 1 and N to terminal 2 PE to terminal PE

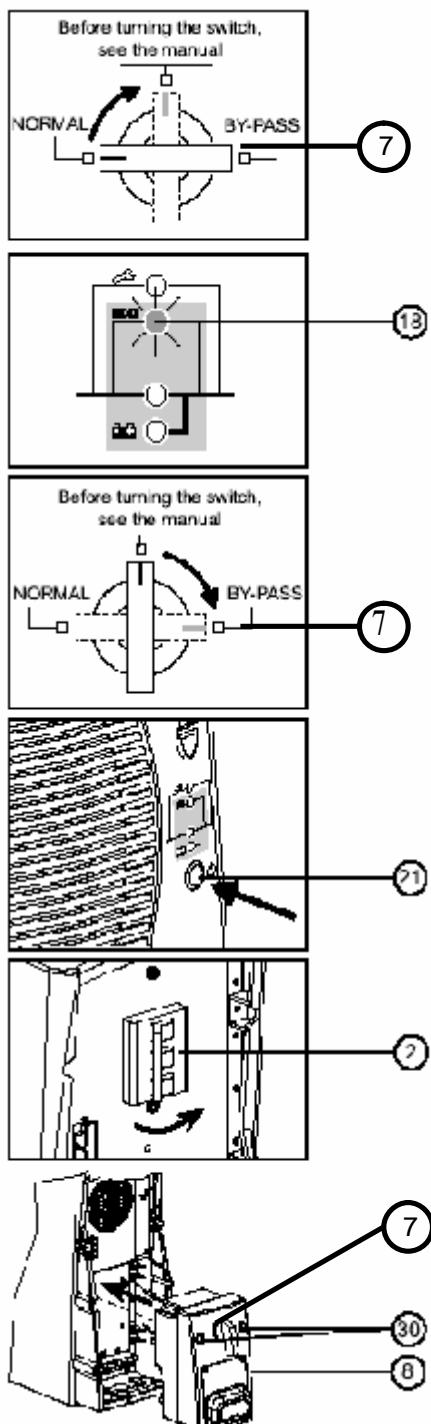
Turn on supply disconnector Q01 and turn on 230 VAC from supply.

Turn on UPS see page 3 position 21

Operating Instructions

STANDBYE SUPPLY SYSTEM, UPS

8. Replacement of the electronic module:



Disconnecting the connection module:

1. Turn the manual bypass switch ⑦ from the NORMAL to the intermediate position.
2. Check that LED ⑯ is ON before continuing to the BYPASS position.



If LED ⑯ is not ON, do not switch to the BYPASS position and call the after-sales support department.

3. Turn the manual bypass switch ⑦ from the intermediate position to the BYPASS position.

The connected equipment is supplied by the AC-power source, via the manual bypass.

4. Shut down the UPS by pressing button ⑮ (return to the OFF position).
5. Switch the battery circuit breaker(s) ② to the OFF position.
6. Remove the two fixing screws ⑩ to free the connection module ⑧.
7. Remove the connection cable(s) from the battery module(s). The UPS can be replaced. The connected equipment is supplied by the AC-power source.

Reconnecting the connection module:

1. Secure the connection module ⑧ using the two screws ⑩.
2. Reconnect the connection cable(s) to the battery module(s).
3. Switch the battery circuit breaker(s) ② to the ON position.



Check that UPS personalization settings still correspond to the equipment to be supplied (see section 3.5).

4. Start the UPS by pressing button ⑮.

5. Check that LED ⑯ is ON before turning the manual bypass switch ⑦ to the intermediate position.



If LED ⑯ is not ON, do not switch to the intermediate position and call the after-sales support department.

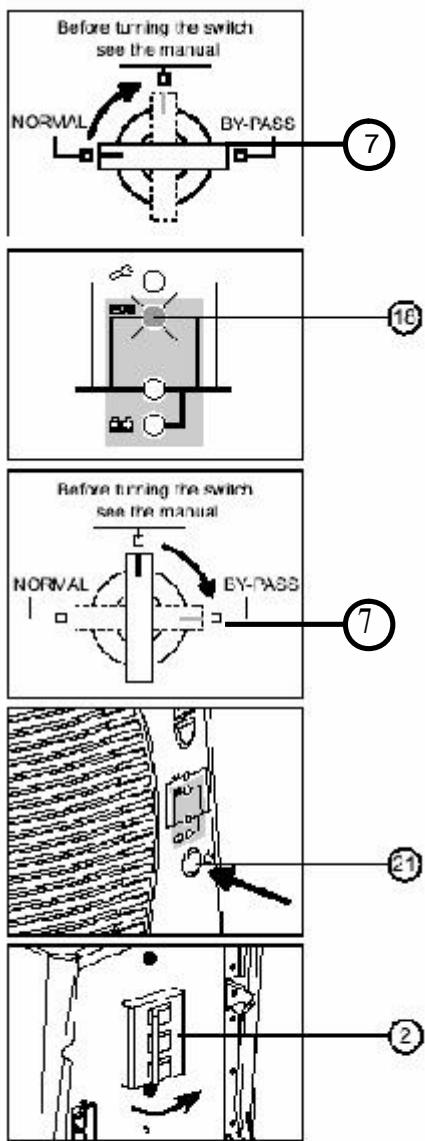
6. Turn the manual bypass switch ⑦ from the BYPASS position to the intermediate position and check that LED ⑯ is ON.
7. Turn the manual bypass switch ⑦ from the intermediate position to the NORMAL position.

The connected equipment is again protected by the UPS.

Operating Instructions

STANDBYE SUPPLY SYSTEM, UPS

9. Replacement of the battery module:



1. Turn the manual bypass switch (7) from the NORMAL to the intermediate position, placed on back of electronic module
2. Check that LED (18) is ON before continuing to the BYPASS position.



If LED (18) is not ON, do not switch to the BYPASS position and call the after-sales support department.

3. Turn the manual bypass switch (7) from the intermediate position to the BYPASS position.
The connected equipment is supplied by the AC-power source, via the manual bypass.
4. Shut down the UPS by pressing button (21) (return to the OFF position).
5. Switch the battery circuit breaker(s) (2) to the OFF position.
6. Remove the connection cable(S) from battery module(S)
The battery can now be replaced. The connected equipment is supplied by the AC-power source.



CAUTION!!! the battery box is very heavy 51 kg

Reconnecting the battery module:

7. Reconnect the connection cable(s) to the battery module(s).
8. Switch the battery circuit breaker(s) (2) to the ON position.

9. Start the UPS by pressing button (21)
10. Check that LED (18) is ON before turning the manual bypass switch (7) to the intermediate position.



If LED (18) is not ON, do not switch to the intermediate position and call the after-sales support department.

11. Turn the manual bypass switch (7) from the BYPASS position to the intermediate position and check that LED (18) is ON.
12. Turn the manual bypass switch (7) from the intermediate position to the NORMAL position.

The connected equipment is again protected by the UPS.

Change Info

Item no.	Item text:
60097529	Junction Box +AT6, V82-1.65MW & NM72/1650KW 1-Speed 690V 50Hz

Active revision for production

Drawing no.: 6013202

Version	Date	Init./App.	Description of change since last revision
01	04.10.2004	BOBN/BOBN	First version

LST no.: 21000096

Version	Date	Init./App.	Material BOM no.: 60097265 Description of change since last revision
03	10.03.2005	PNN/	60009842 changed from 2 to 1 pc. 60009809 changed from 84 to 85 pc. 60009638 changed from 8 to 12 pc. 60009803 changed from 20 to 24 pc. 60009761 added.

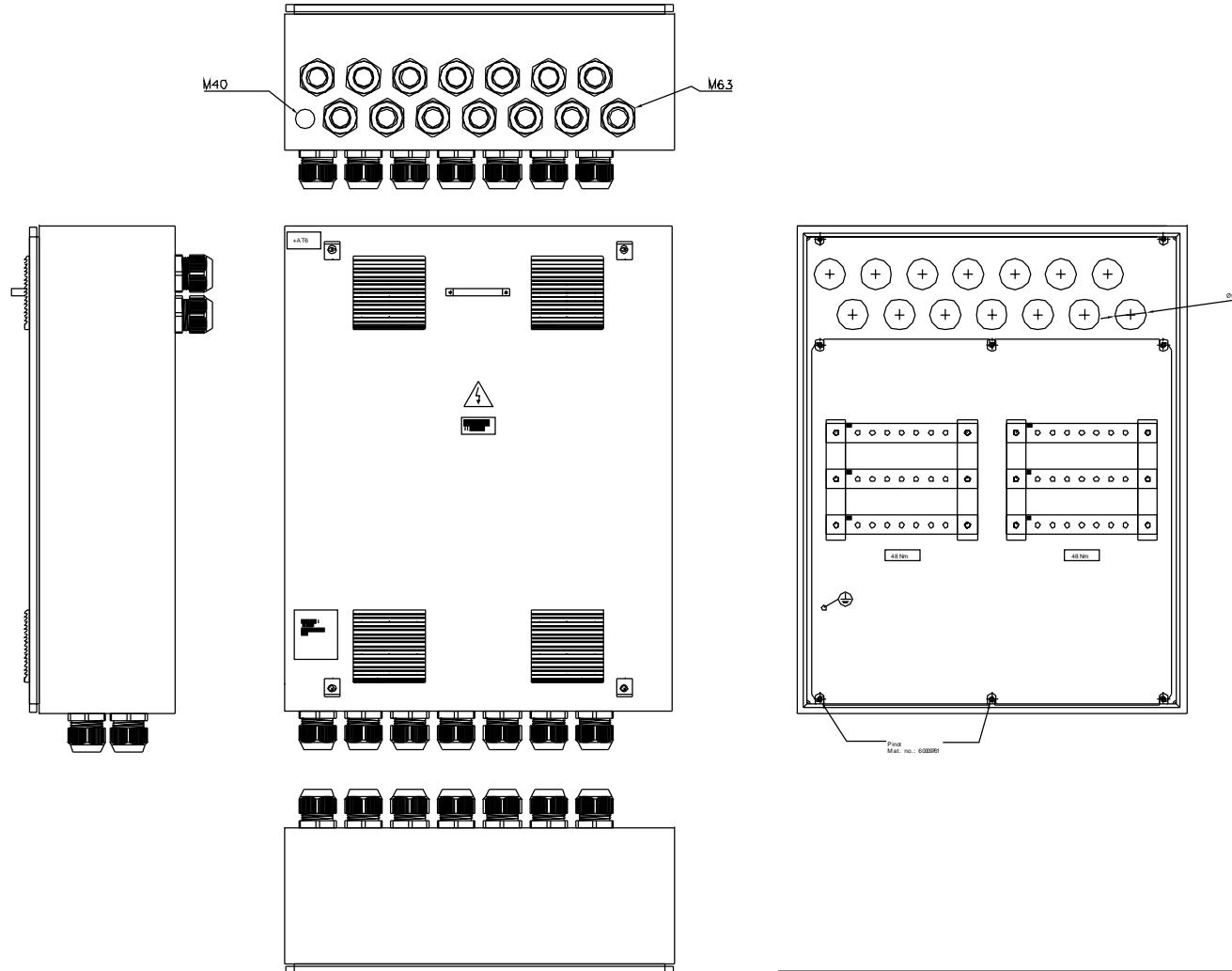
Old revisions for service

Drawing no.: xxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

LST no.: 21000096

Version	Date	Init./App.	Material BOM no.: 60097265 Description of change since last revision
02	30.09.2004	LBO+BOBN/BOBN	60009676 changed to 60034943, there have been two different no. on same item. 2 pc 60009761 screw ISO 4766 M8x35-22H added.
01	28.01.2004	FOM/FOM	First version



Item no. 60097265	Mass (kg) 50	Certificate -	Format A3	Surface treatment -	Revised by 041004	Created date 041004	Created by BOBN
Material -			Scale 1:10	Change no. 500000004672	PDM rev.	Approved date	Approved by
 VESTAS WIND SYSTEM A/S Alsvej 21, DK-8900 Randers www.vestas.com			Proj. ISO/E  AutoCAD	Item	Assembling Drawing Complet Junction Box +AT6 IEC		
		Status	Production	Replaces	Drawing no. 6013202	Rev. 01	

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Material Description	Object description	Quantity	Un	SortString
Lev	Obj			
1	60007330	ISOLATOR 15850201 8x40 for BUSBAR	12	PC 2.3+2.4
1	60013734	SUPPORT 383mm for 3xISOLATOR	4	PC 2.3
1	60007635	CABLE GLAND BMBC-07 M63 BRASS	28	PC 1.2
1	60007644	LOCKNUT BMBL-08 M63 BRASS	28	PC 1.2
1	60010369	CABINET AE 800x1000x300mm 1 DOOR w. WORK	1	PC 1.1
1	60010452	HANDEL for COMPONENT SHELVES	1	PC 1.7
1	60091253	Mounting plate +AT6 1650kW UL/IEC	1	PC 2.1
1	60091258	Copper Busbar 10x40x310mm	6	PC 2.5
1	60034943	Screw ISO 4017 M10 x 30 - 8.8 - FZB	1	PC 2.1
1	60009678	SCREW ISO 4017 M10 x 35 - 8.8 - FZB	42	PC 2.6
1	60009842	LOCK WASHER DIN 6798 A 10 - FZB	1	PC 2.1
1	60009879	NUT ISO 4032 M10 - 8	43	PC 2.5+2.11
1	60009809	SPRING WASHER DIN 6796 10 - FZG	85	PC 2.6+2.11
1	60009639	SCREW ISO 4017 M 8 x 20 - 8.8 - FZB	16	PC 2.1+2.5
1	60009638	SCREW ISO 4017 M 8 x 16 - 8.8 - FZB	12	PC 2.1+2.3
1	60009803	SPRING WASHER DIN 6796 8 - FZG	24	PC 2.3 - 2.5
1	60009841	LOCK WASHER DIN 6798 A 8 - FZB	8	PC 2.1
1	60009873	NUT ISO 4032 M 8 - 8 - FZB	4	PC 2.4
1	60020594	Cable W135 1x95mm ² 1m, from junction box	1	PC 2.11
1	60002430	THERMOLABEL "48 Nm"	3	PC 2.7
1	60002679	THERMOLABEL "WARNING! 3 x 690V"	1	PC 1.7
1	60006819	STICKER "JORD" 14mm	1,000	SH 2.11
1	60014044	LABELS +AT6 1650/900 BOX f. copper bar	1	PC 2.7
1	60002527	THERMOLABEL "+AT6"	1	PC 1.7
1	60006824	STICKER "LYN" 100mm	1	PC 1.7
1	60024084	FOAM POLYESTER 1800x300x30mm GREY	1	PC 1.5
1	60014619	FILTER PAD PFA2.000FM-500g 150x150mm	4	PC 1.7
1	60097270	Type sign f. +AT6 72-82/1650 IEC	1	PC 1.7
1	60097275	CABLE SHOE KIT for NM82C/1650 IEC	1	PC
1	60009761	SCREW ISO 4766 M 8 x 35 - 22H	2	PC
1	60109546	Sticker general use VESTAS TOWERS	1	PC 1.6

Change Info

Item no.	Item text:
60108741	Top Panel +AN1, V82-1.65MW 50Hz/60Hz

Active revision for production

Drawing no.: 934386

Version	Date	Init./App.	Description of change since last revision
2	03.01.2007	INI/FLT	Changed with ECO 219935_LABEL Q01 MAIN SWI CONTROL V – 118994 Page 030: Q01 label updated with new label 118994.

LST no.: 21000236

Version	Date	Init./App.	Bill of Material no.: 60108741
01	23.04.2007	INI/FLT	Description of change since last revision Changed with ECO 223161_BOM structure changed, Parent item 60108741 replaces 60107010.

Old revisions for service

Drawing no.: 934386

Version	Date	Init./App.	Description of change since last revision
1	20.10.2006	FLT/FLT	Changed with ECO 217571_Implementation of warning label Page 030: Updated with 4 new labels 118934.
0	20.06.2006	FLT/FLT	First version, released with ECO 217862_Implementation of CMS

LST no.: 21000236

Version	Date	Init./App.	Bill of Material no.: 60108741
xx	dd.mm.yyyy	xxx/xxx	Description of change since last revision Write the change.

Earlier Drawing and Bill of Material no Longer Active for Serial Production

Old Drawing no.: 6015601

Version	Date	Init./App.	Description of change since last revision
05	23.08.2006	INI/FLT	Changed with ECO 214516 Page 001 and 002: Updated Page 211: References to K07 corrected. Page 001, 002 Updated.
04	05.07.2005	INI/FLT	Page 032 and 033: X03 End plates added between 1 and N + between N and L. Page 200: Text added to X10, "BRANCH CIRCUIT PROTECTION BY FUSE, RATED 25A, 600V PROVIDED IN PANEL +AT2 LOCATION F29". Page 001, 002 Updated.
03	30.05.2005	INI/FLT	Page 051, 410 and 454: Text corrected to "water temperature after cooler 2"
02	12.05.2005	INI/FLT	Updated in connection with Prototype production
01	27.10.2004	CHO/FLT	First version

Old LST no.: 21000199

Version	Date	Init./App.	Old Bill of Material no.: 60107010
06	03.01.2007	INI/FLT	Description of change since last revision Changed with ECO 219935_LABEL Q01 MAIN SWI CONTROL V – 118994 60002589 replaced with 118994_Label "Q01 Main Switch Control Voltage".
05	20.10.2006	INI/FLT	Changed with ECO 217571 Added: 4 pcs. 118934_Label, electrical warning universal.
04	19.10.2006	INI/FLT	Changed with ECO 217288 D6015601 replaced with 934386 and D22000549 removed.
03	08.06.2006	SHL/FLT	Mapics implementation, controls DK Århus Phased out 60015605 and replaced with 51701701_Displ. OP-PAN. Phased out 60015648 and replaced with 51701601_TOI-II interface. Phased out 60015770 and replaced with 51711001_TAC 84C Vibr. guard 2 filter. Phased out 60015771 and replaced with 51700101_TAC 84C Vibr. guard RS485. Phased out 60015773 and replaced with 5170402_TAC 85-1Direction guard. Phased out 60015832 and replaced with 51705401_VS05E Accelerometer 12m. Phased out 60015847 and replaced with 51706201_Varistor Box X8.
02	30.06.2005	HRN/	Production requirement for serial production.
01	11.04.2005	CHO/FLT	First version

1	2	3	4	5	6	7	8	9	10	11	12	13
PAGE	CONTENT							DATE		REVISION		
001	Table of Contents							070103		2		
002	Table of Contents							070103		2		
030	Panel Front							070103		-		
031	Outline Front							060620		-		
032	Outline Rear							060620		-		
033	Outline terminal rows							060620		-		
034	Panel Bottom Layout							060620		-		
039	Cable Connections							060620		-		
040	Socket to X01 connections							060620		-		
041	Connections to +AN11 Trans							060620		-		
042	Connections to +AN12 Gear							060620		-		
043	Connections to +AN12 Gear							060620		-		
044	External Connections							060620		-		
045	Connections to +AN13 Yaw							060620		-		
046	Connections to +AN14 Gene							060620		-		
047	Connections to Slipring							060620		-		
048	External Connections							060620		-		
049	External connections Wind							060620		-		
050	External Connections Gene							060620		-		
051	External connections							060620		-		
060	Connections to motor box							060620		-		
061	External motor Connection							060620		-		
062	External motor Connection							060620		-		
080	Connections f. Sliprings							060620		-		
200	Supply							060620		-		
201	Supply to Hub							060620		-		
202	Battery Back up Supply							060620		-		
203	24V Valve / Motor Supply							060620		-		
204	24V Sensor supply							060620		-		
205	Sensor Supply							060620		-		
206	Relays							060620		-		
207	Vibration / Overspeed TAC							060620		-		
208	Over Speed TAC 85							060620		-		
209	TAC 84 Down wind							060620		-		
210	TAC 84 Lateral							060620		-		
211	Emergency relay							060620		-		



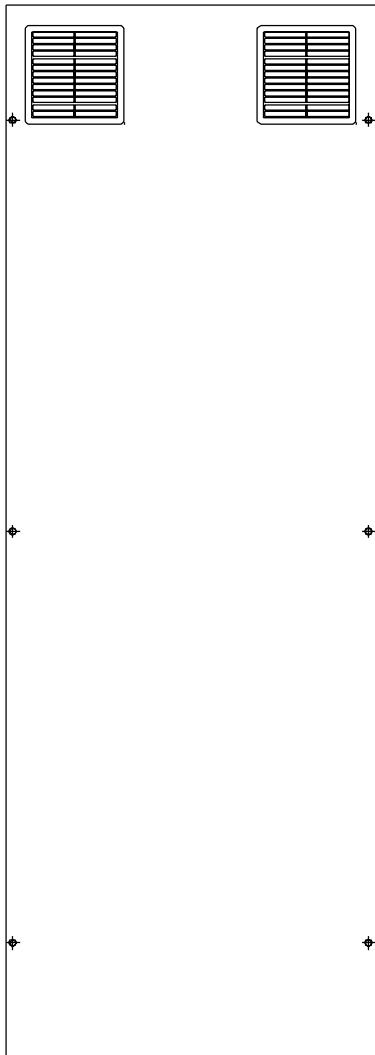


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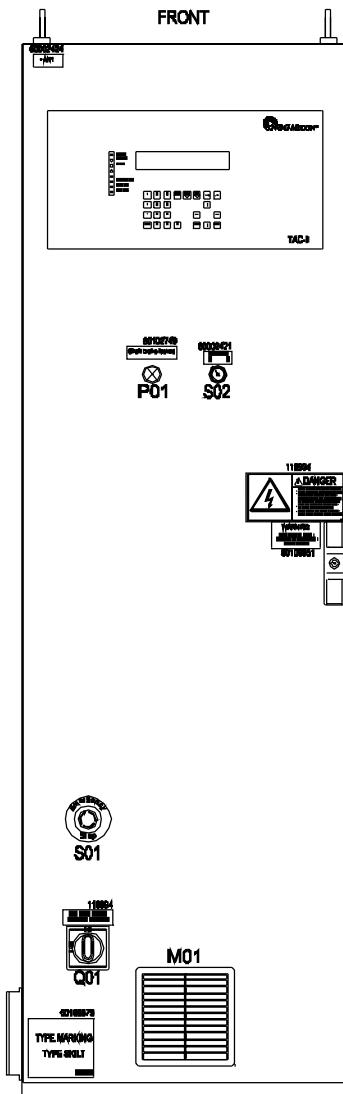
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Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved	070103	FLT	Comments	Customer Vestas Wind Systems A/S						
Revised	070103	INI	Rev.	2	Drawing no.	934386	Cont. sheet	030	Sheet	002

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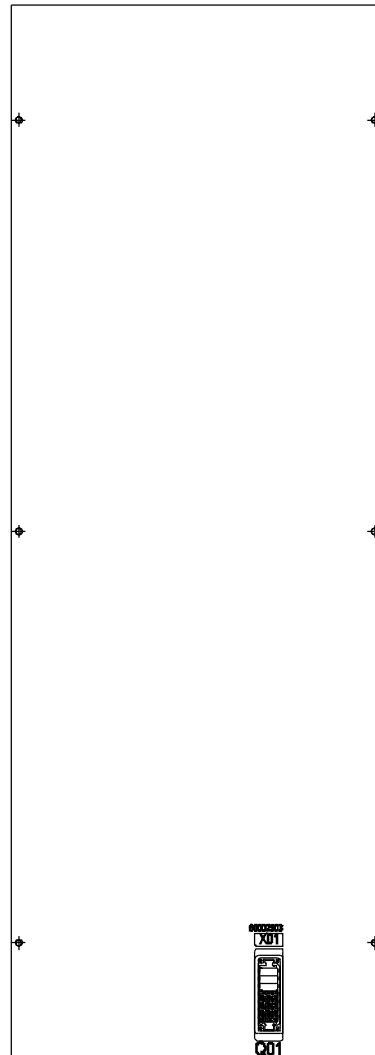
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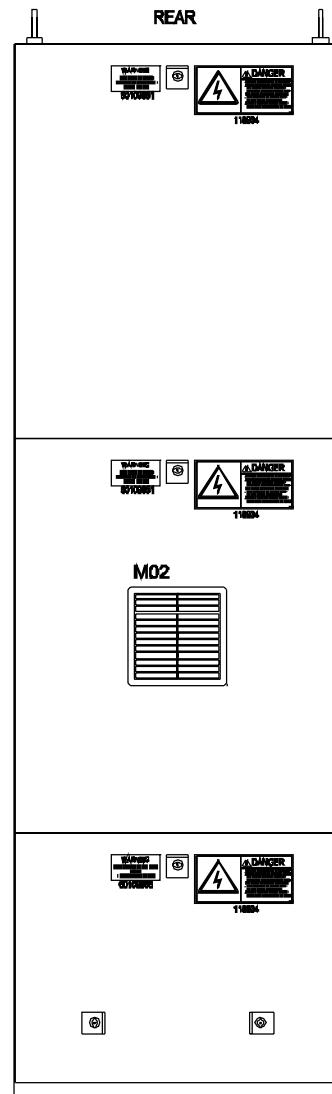
FRONT



LEFT-HAND SIDE



REAR



REAR

FRONT

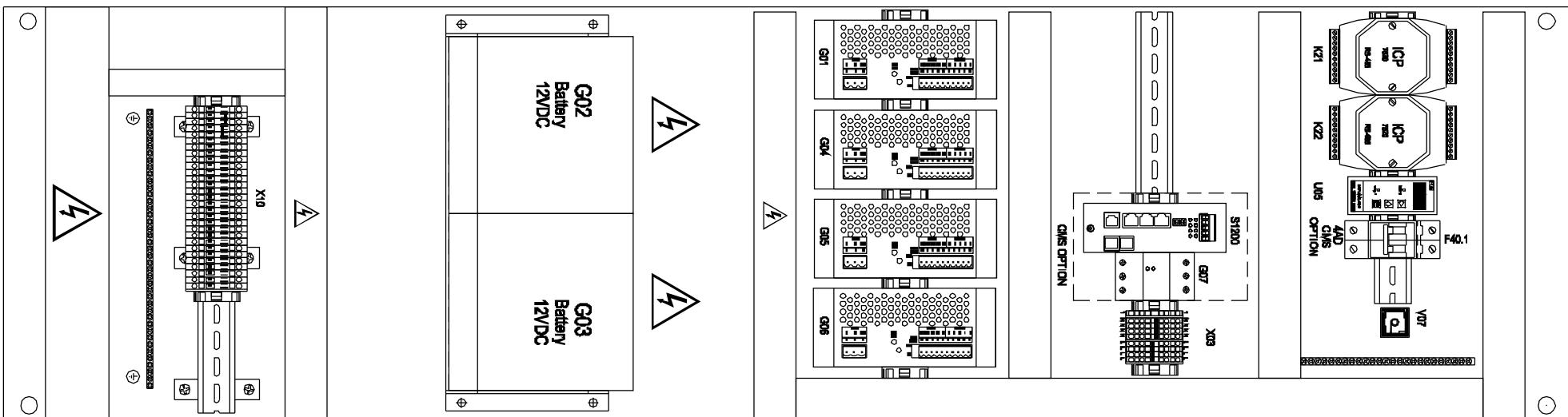
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Approved	070103	FLT	Comments			
Revised	070103	INI	Rev.	-	Drawing no.	934386
			Cont. sheet	031	Sheet	030

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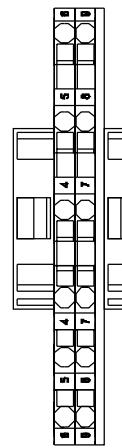
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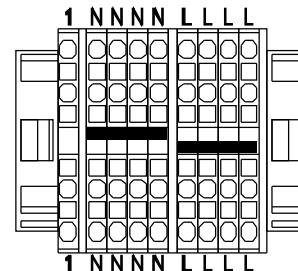
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Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved	060620	FLT	Comments			Customer	Vestas Wind Systems A/S			
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	033	Sheet	032

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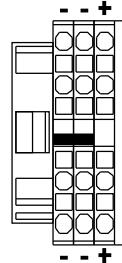
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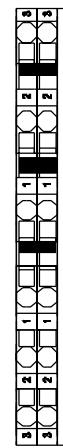
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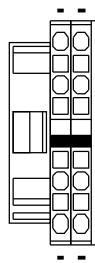
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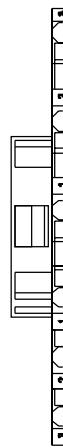
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X06



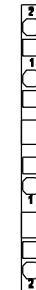
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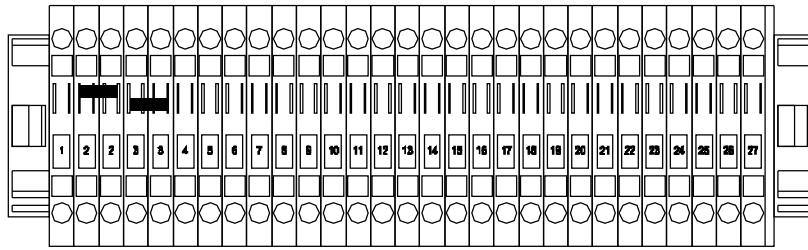
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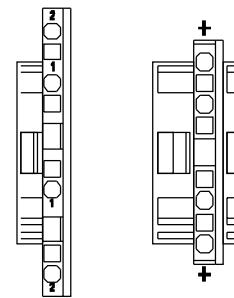
X09



X10

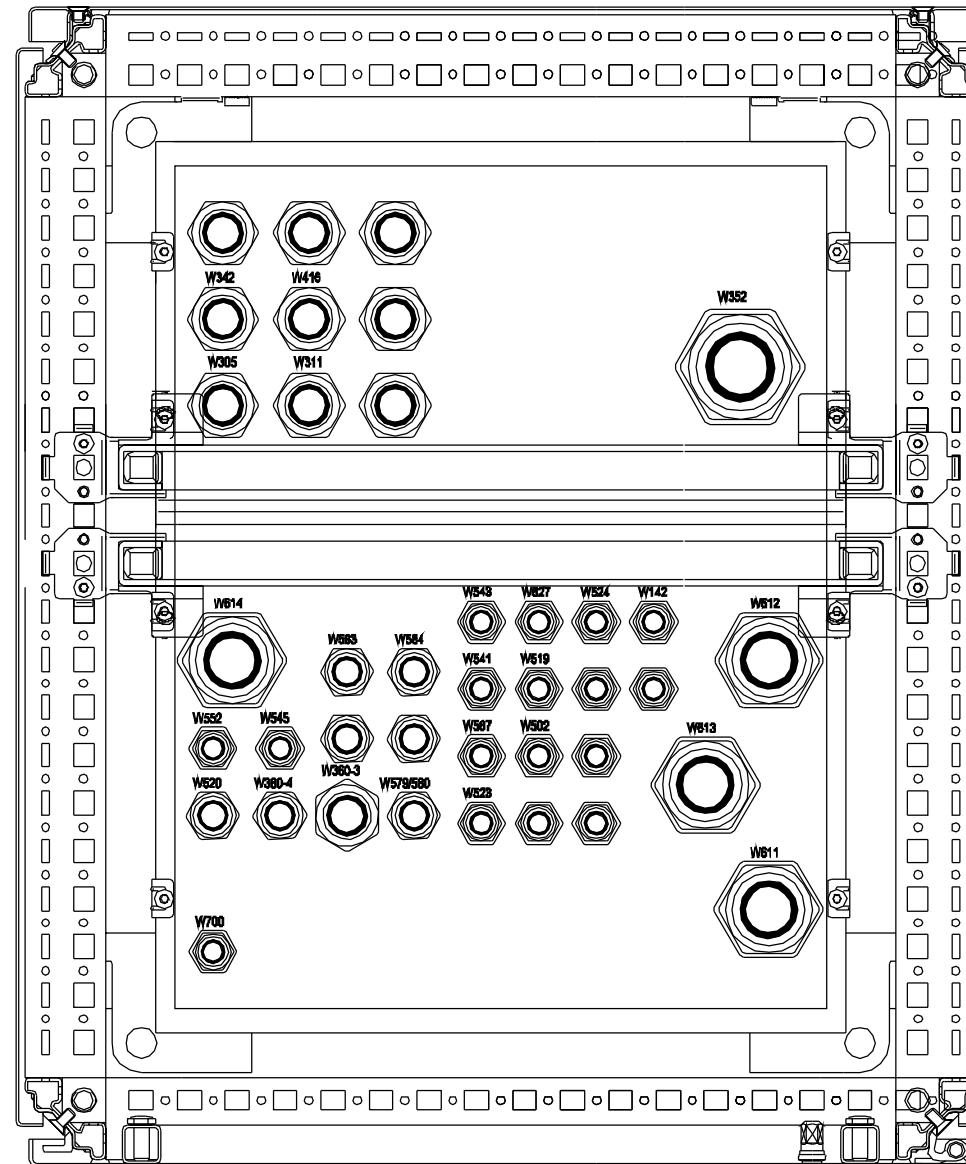


X11



24VDC 5

1	2	3	4	5	6	7	8	9	10	11	12	13
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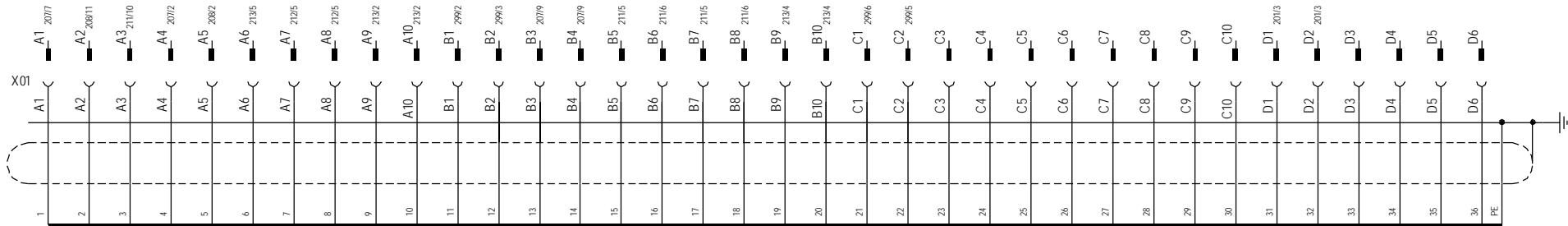
USE COPPER CONDUCTORS ONLY FOR EXTERNAL WIRES AND CABLES.

USE 60°C CABLES FOR CURRENTS LESS THAN 100Amps AND 75°C CABLES
FOR HIGHER CURRENTS.

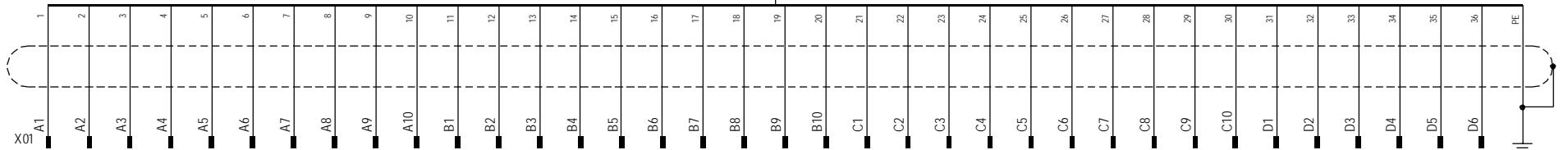


	Date	Initials	Function	Cable Connections		
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW		
Approved	060620	FLT	Comments		Customer	Vestas Wind Systems A/S
Revised	060620	FLT	Rev.	-	Drawing no.	934386
					Cont. sheet	040
					Sheet	039

1	2	3	4	5	6	7	8	9	10	11	12	13
SAFETY STOP SUPPLY	X01 A	1	A1	2077	A1	2077	A2	208011	A2	208011	A3	20110
SAFETY STOP	A2	2										
RESET EMERGENCY STOP	A3	3										
GENERATOR SPEED	A4	4										
ROTOR SPEED	A5	5										
0VDC IN TOP BOX	A6	6										
SAFETY STOP	A7	7										
SAFETY STOP	A8	8										
SAFETY STOP	A9	9										
SAFETY STOP	A10	10										
COMMUNICATION TO HUB	B1	11										
COMMUNICATION TO HUB	B2	12										
RS 485 COMMUNICATION TO SENSORES	B3	13										
RS 485 COMMUNICATION TO SENSORES	B4	14										
EMERGENCY LINE SUPPLY	B5	15										
EMERGENCY LINE SUPPLY	B6	16										
EMERGENCY LINE	B7	17										
EMERGENCY LINE	B8	18										
OVERRIDE FROM TOP BOX	B9	19										
NACELLE FAN 2 OVERLOAD	C1	21										
NACELLE FAN 2 OVERLOAD	C2	22										
SPARE	C3	23										
SPARE	C4	24										
SPARE	C5	25										
SPARE	C6	26										
SPARE	C7	27										
SPARE	C8	28										
SPARE	C9	29										
SPARE	C10	30										
SAFETY LINE	D1	31										
SAFETY LINE	D2	32										
SPARE	D3	33										
SPARE	D4	34										
SPARE	D5	35										
SPARE	D6	36										
PE												



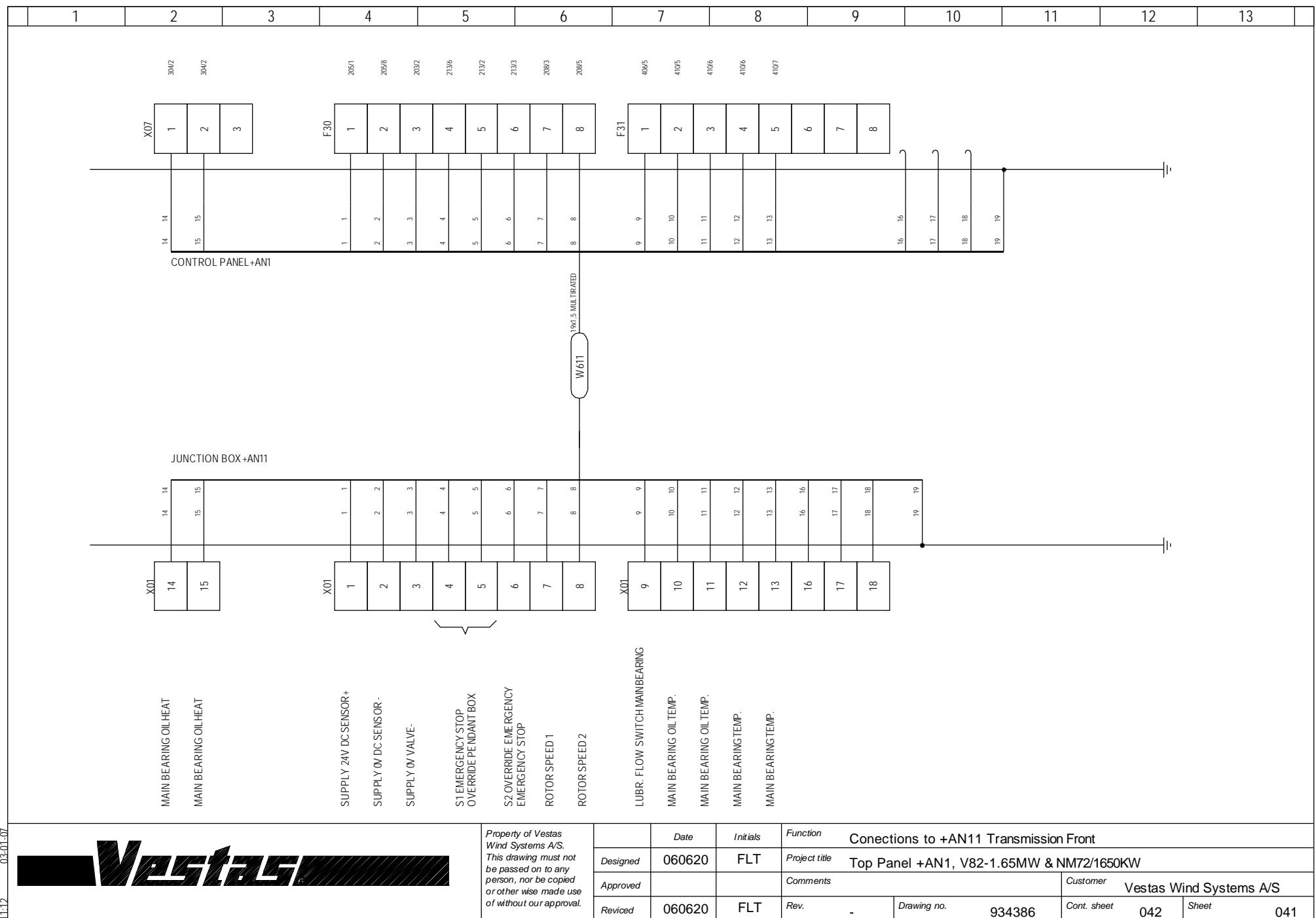
CONTROL PANEL+AT2



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Designed	Date	Initials	Function	Socket to X01 connections to +AT2		
060620		FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW		
Approved			Comments	Customer Vestas Wind Systems A/S		
060620		FLT	Rev.	-	Drawing no.	934386
					Cont. sheet	041
					Sheet	040





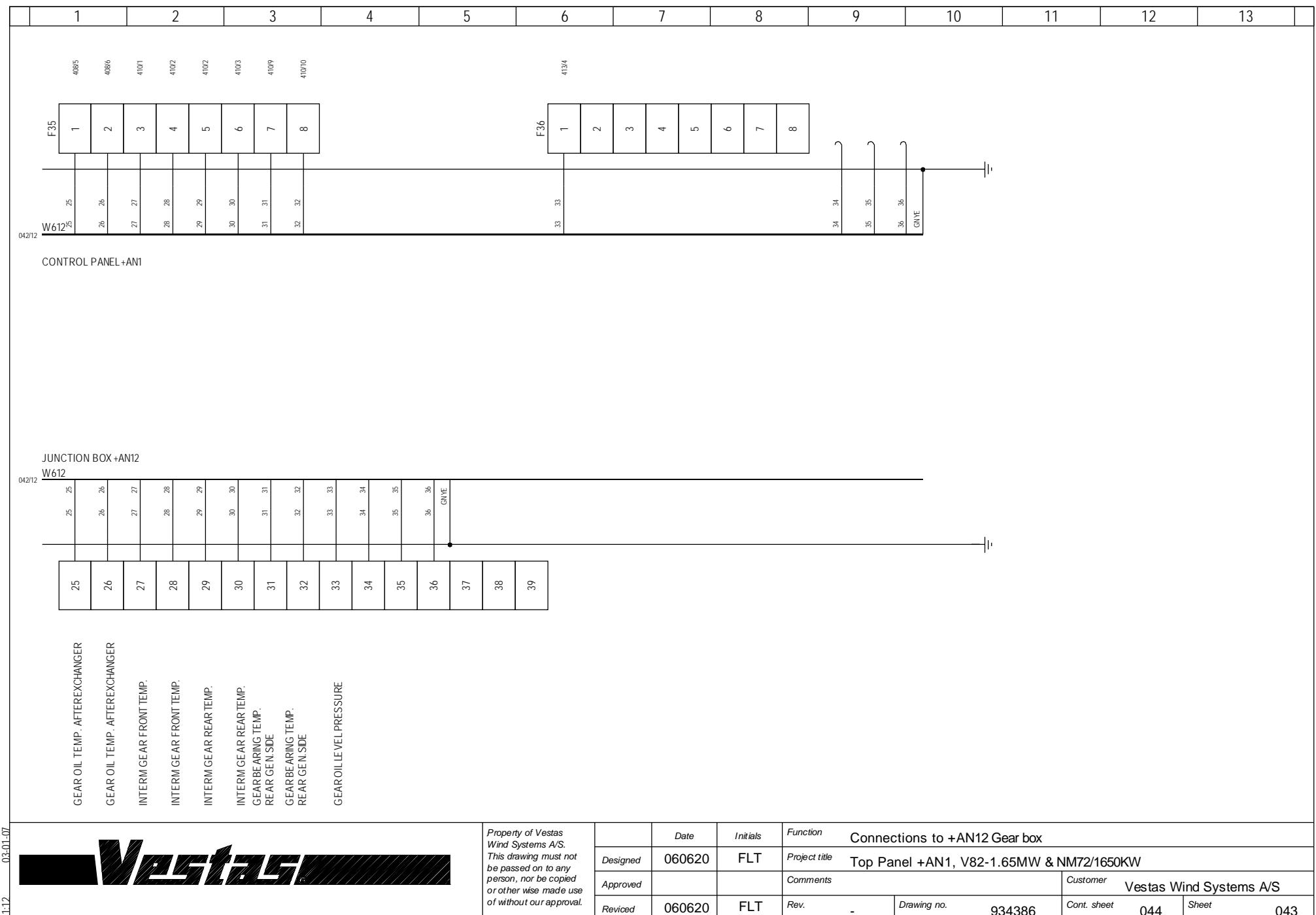
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SUPPLY 24V DC SENSOR+	X02	F32	205/2	1	1	1	1	1	1	1	1	1
SUPPLY W/DC SENSOR-	1	2	2	2	2	2	2	2	2	2	2	2
SUPPLY W/DC VALVE -	3	3	3	3	3	3	3	3	3	3	3	3
SUPPLY 24VDC BATTERY BU +	4	4	4	4	4	4	4	4	4	4	4	4
SUPPLY 24VDC BATTERY BU -	5	5	5	5	5	5	5	5	5	5	5	5
SHAFT BRAKE ACC. PRESSURE	6	6	6	6	6	6	6	6	6	6	6	6
SHAFT BRAKE PRESSURE	7	7	7	7	7	7	7	7	7	7	7	7
SHAFT BRAKE HOT	8	8	8	8	8	8	8	8	8	8	8	8
JUNCTION BOX +AN12												
SUPPLY 24V DC SENSOR+												
SUPPLY W/DC SENSOR -												
SUPPLY W/DC VALVE -												
SUPPLY 24VDC BATTERY BU +												
SUPPLY 24VDC BATTERY BU -												
SHAFT BRAKE LOCKED (NO)	9	9	9	9	9	9	9	9	9	9	9	9
SHAFT BRAKE LOCKED (NC)	10	10	10	10	10	10	10	10	10	10	10	10
	11	11	11	11	11	11	11	11	11	11	11	11
HIGH SPEED SHAFT COVER	12	12	12	12	12	12	12	12	12	12	12	12
SECURITY SWITCH	13	13	13	13	13	13	13	13	13	13	13	13
ACTIVE SHAFT BRAKE VALVE 1	14	14	14	14	14	14	14	14	14	14	14	14
ACTIVE SHAFT BRAKE VALVE 2	15	15	15	15	15	15	15	15	15	15	15	15
	16	16	16	16	16	16	16	16	16	16	16	16
GEAR OIL PRESSURE	17	17	17	17	17	17	17	17	17	17	17	17
GEAR OIL FILTER CLOGGED	18	18	18	18	18	18	18	18	18	18	18	18
GEAR OIL TEMPERATURE	19	19	19	19	19	19	19	19	19	19	19	19
GEAR OIL TEMPERATURE	20	20	20	20	20	20	20	20	20	20	20	20
GEAR BEARING FRONT TEMP.	21	21	21	21	21	21	21	21	21	21	21	21
GEAR BEARING FRONT TEMP.	22	22	22	22	22	22	22	22	22	22	22	22
GEAR BEARING REAR TEMP.	23	23	23	23	23	23	23	23	23	23	23	23
GEAR BEARING REAR TEMP.	24	24	24	24	24	24	24	24	24	24	24	24

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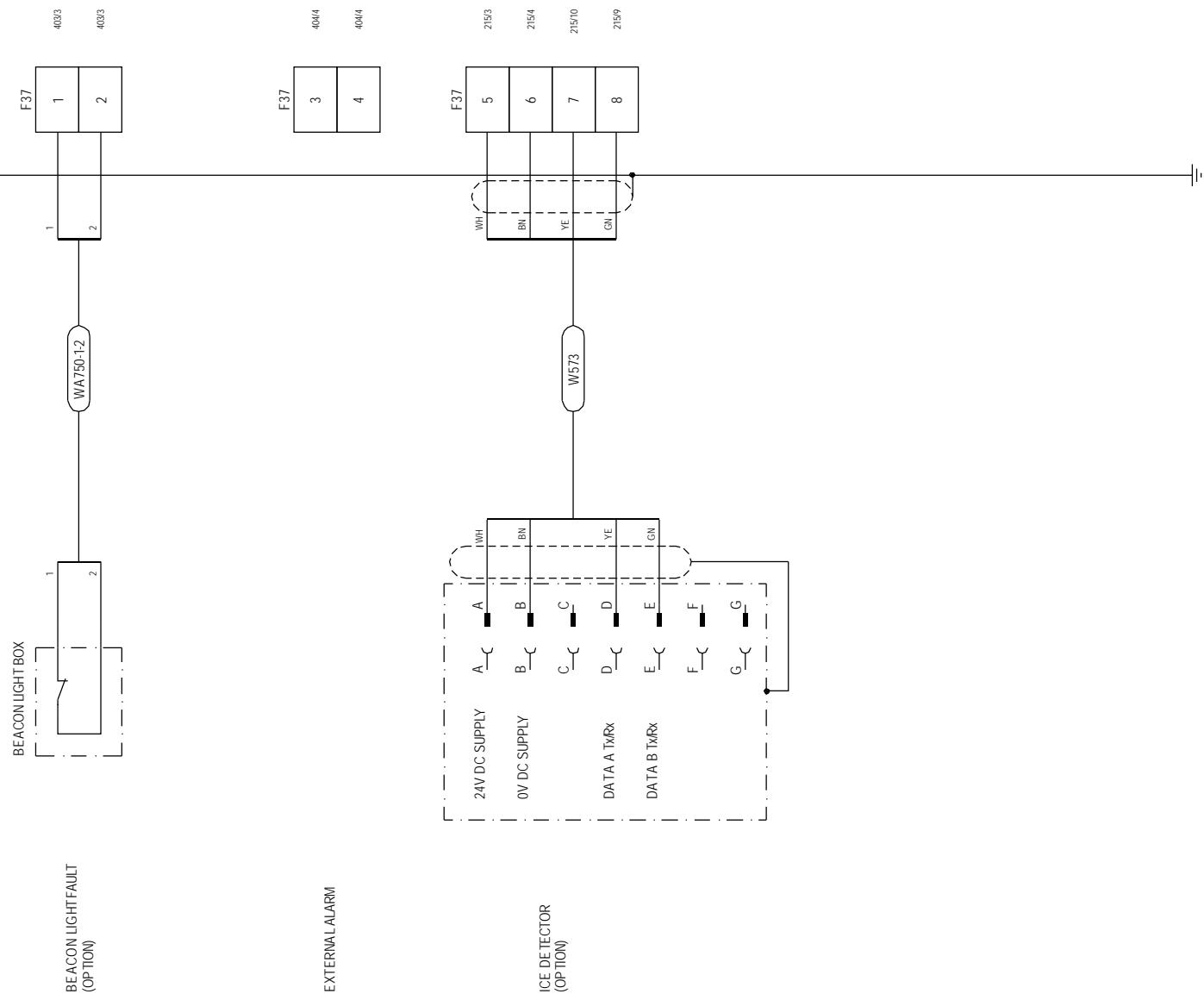
Designed	Date	Initials	Function	Connections to +AN12 Gear box							
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Revised	060620	FLT	Comments	Customer Vestas Wind Systems A/S							
			Rev.	-	Drawing no.	934386	Cont. sheet	043	Sheet	042	

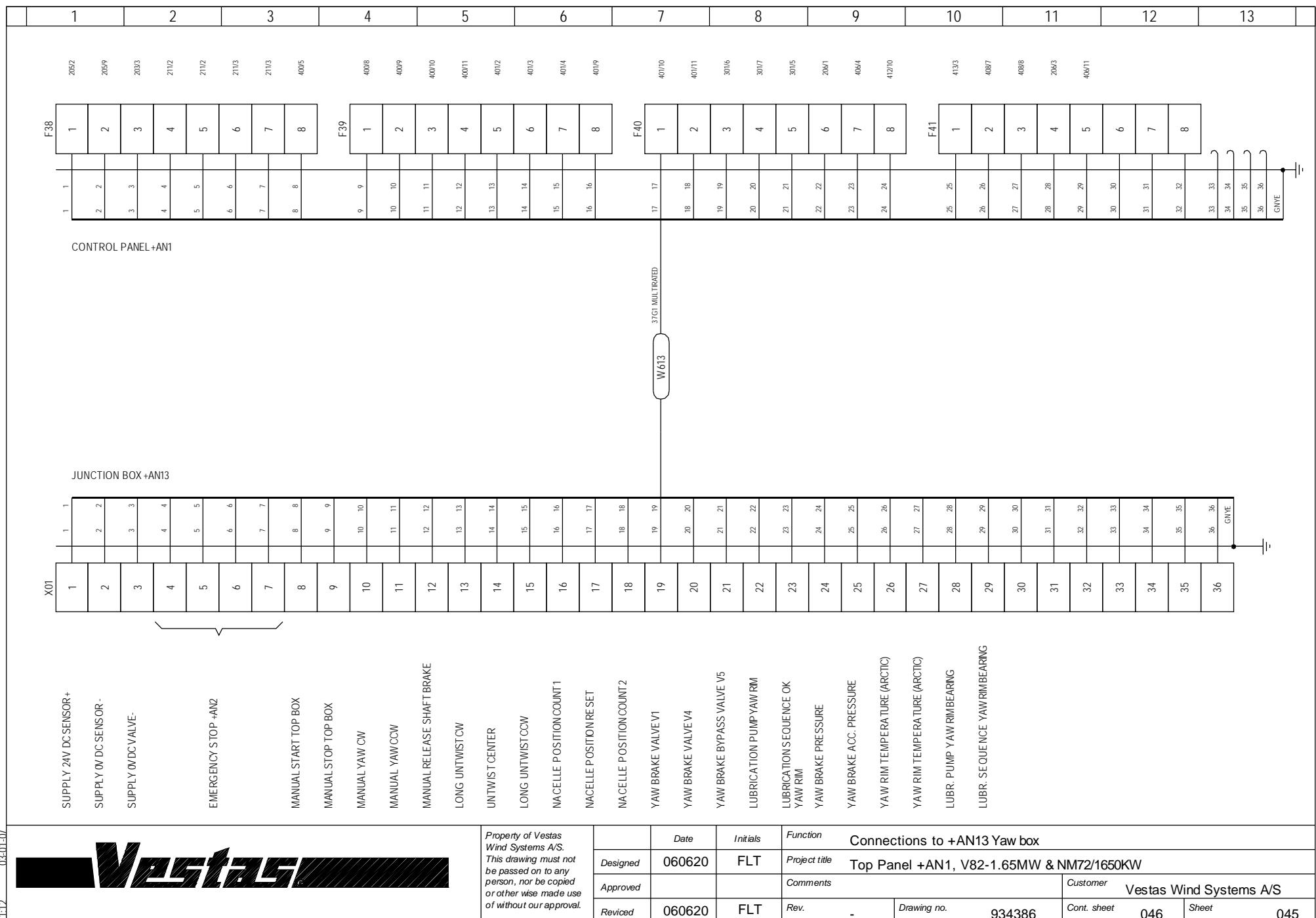
W612 043/1

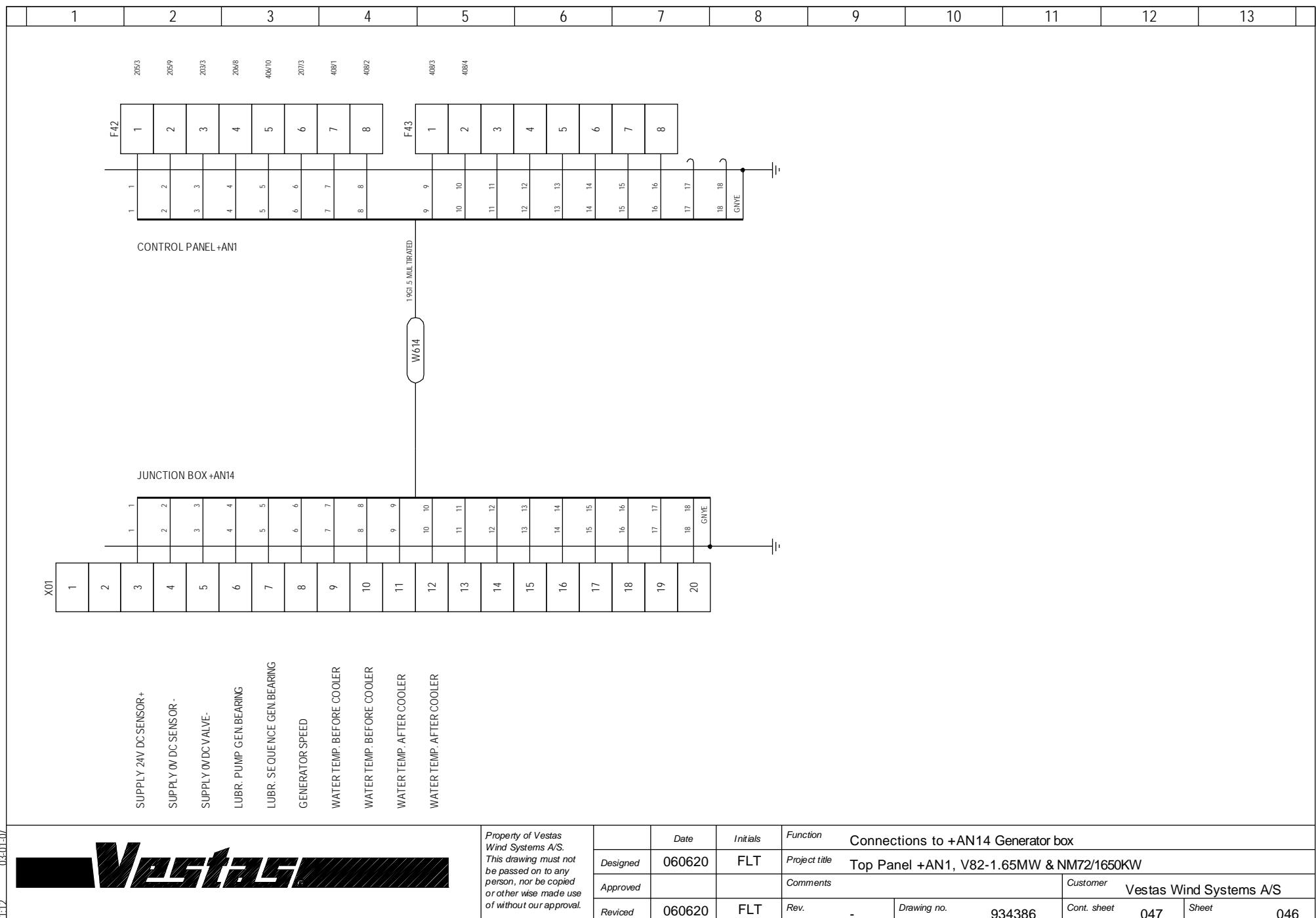
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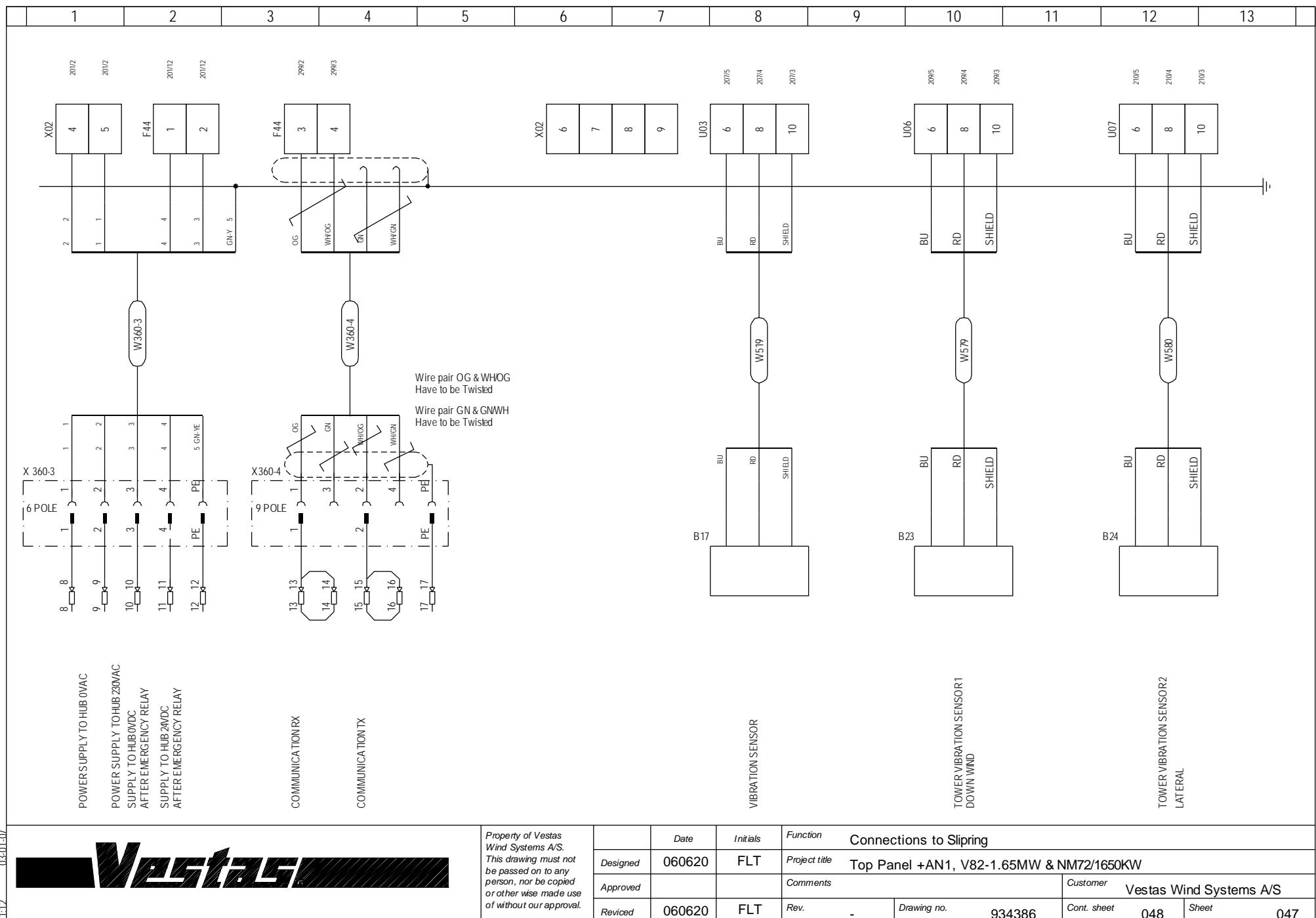


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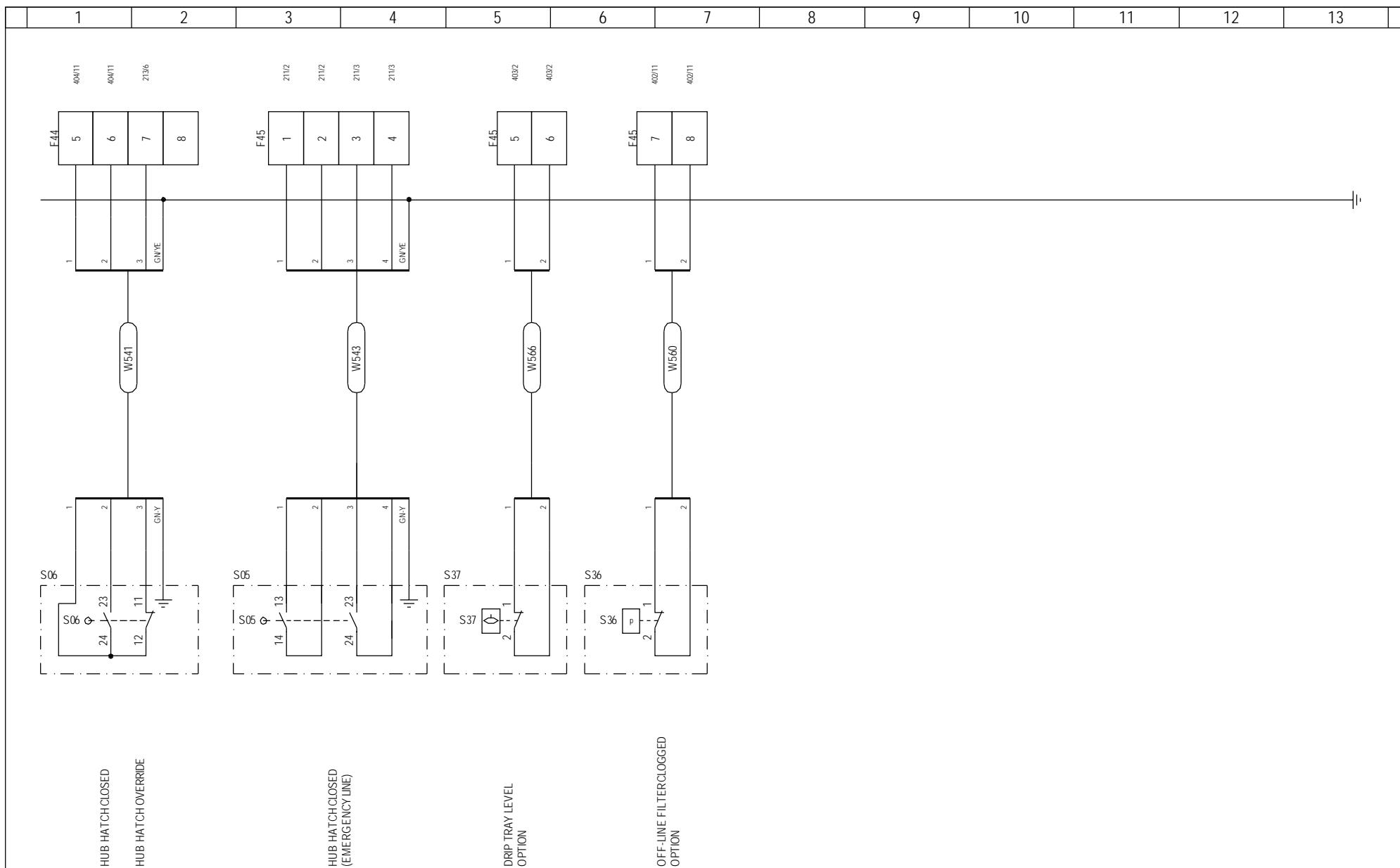


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03.01.04
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	Date	Initials	Function	Connections to Slipring						
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	048	Sheet	047

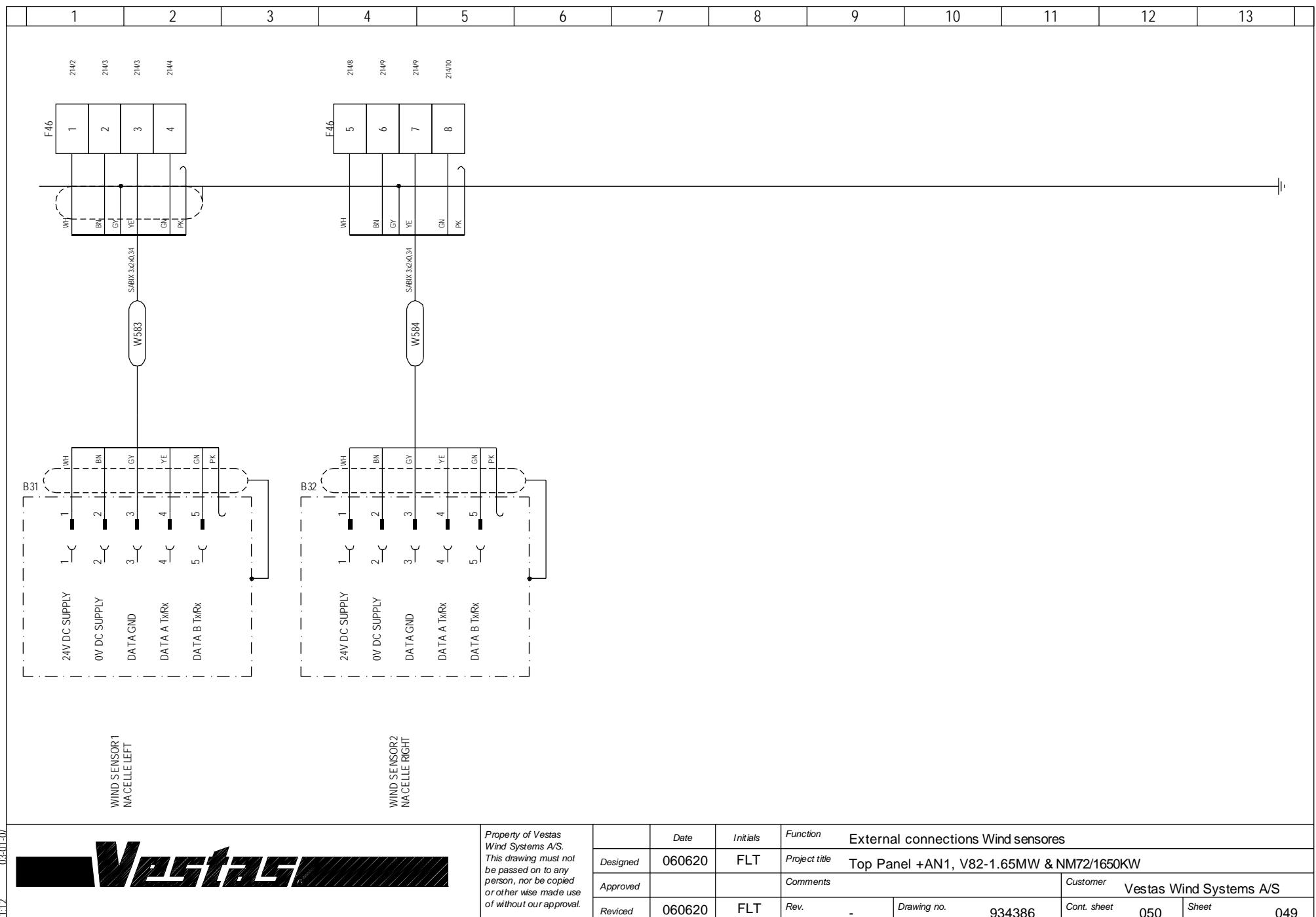


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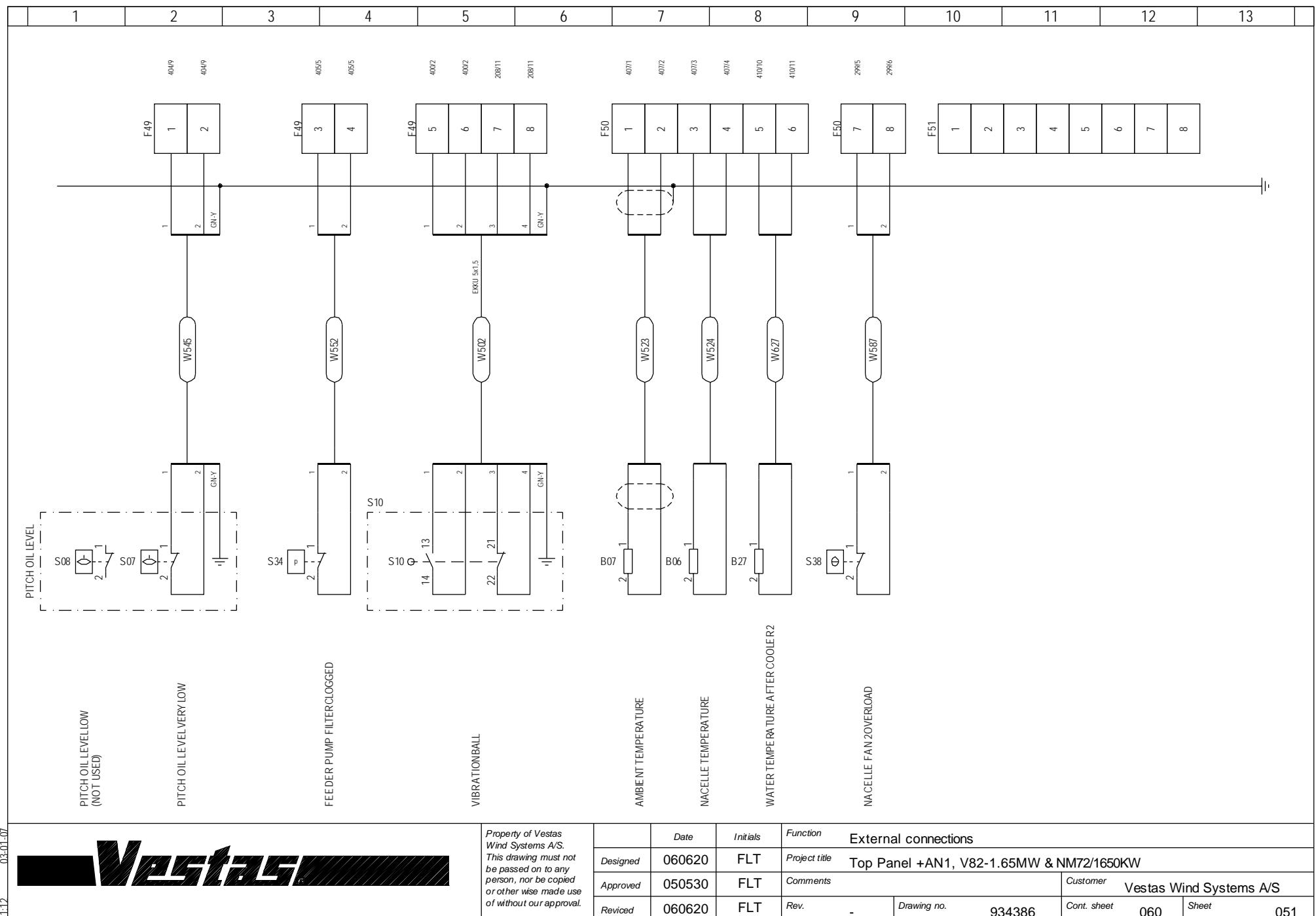
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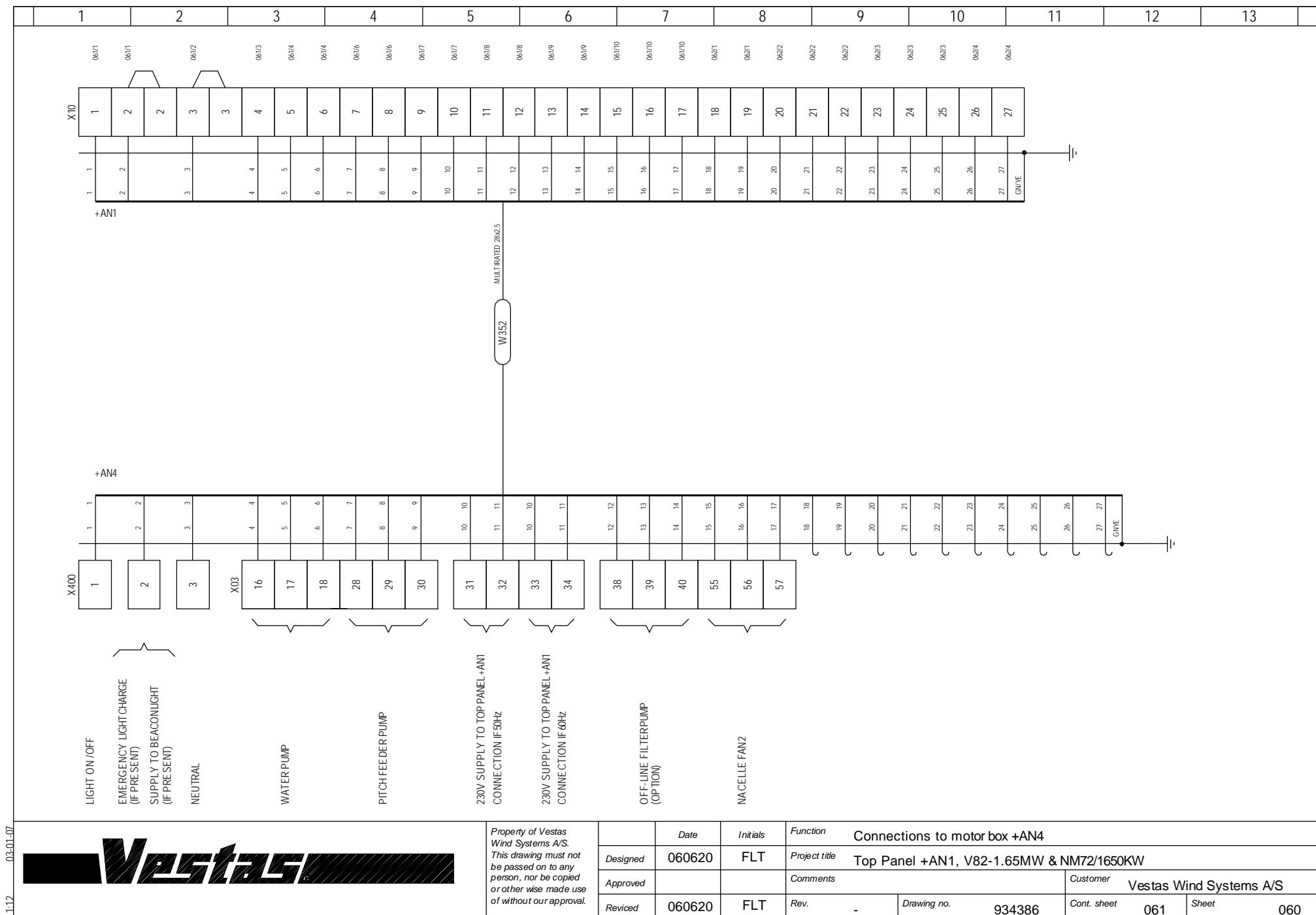
	Date	Initials	Function	External Connections						
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	049	Sheet	048

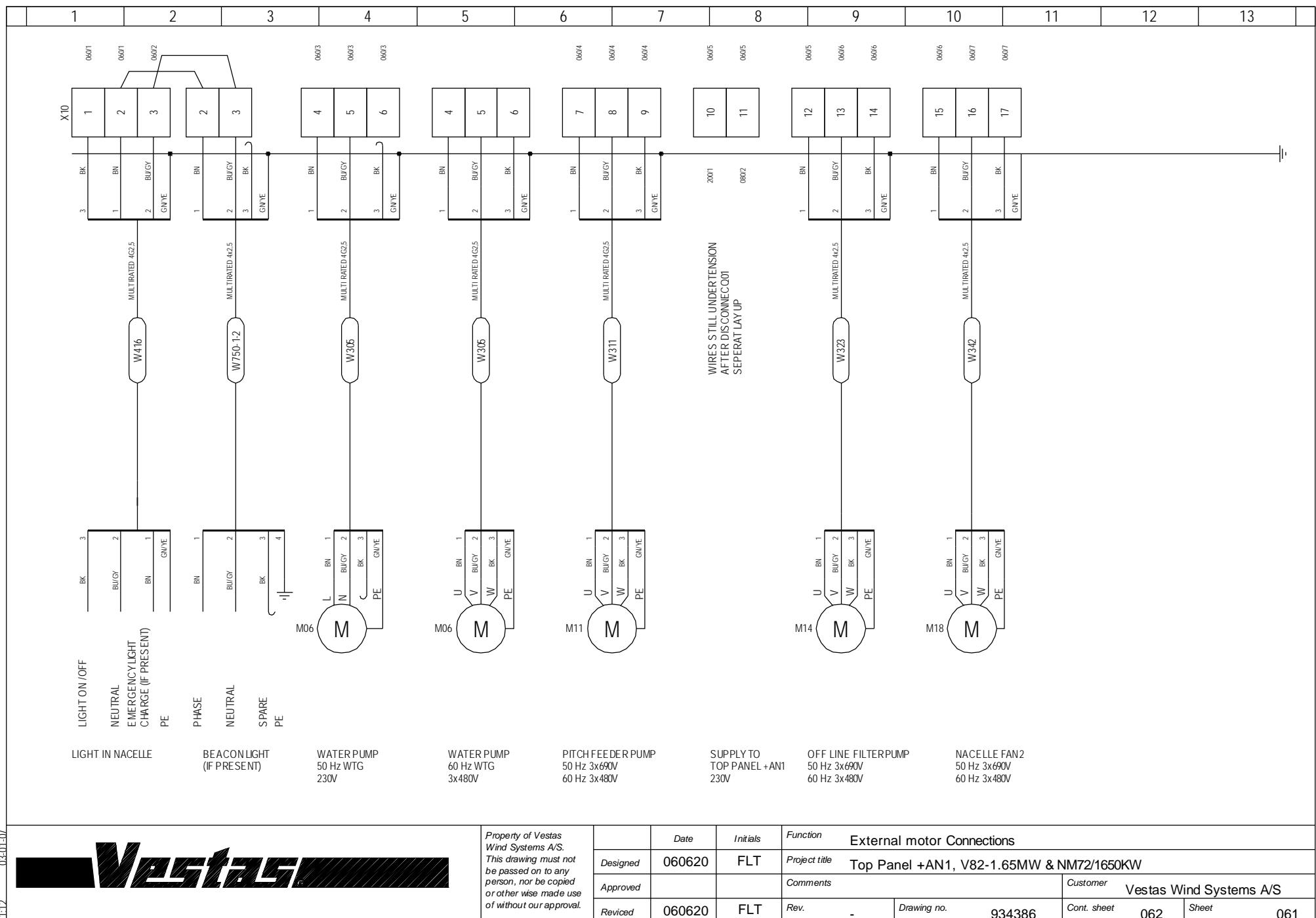


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GENERATOR W1 TEMPERATURE	11	10	1	1										
GENERATOR W2 TEMPERATURE	21	20	3	3										
GENERATOR W3 TEMPERATURE	31	30	5	5										
GENERATOR W1 TEMPERATURE ONLY ON 2 SP.GENERATORS	41	40	7	7										
GENERATOR W2 TEMPERATURE ONLY ON 2 SP.GENERATORS	51	50	9	9										
GENERATOR W3 TEMPERATURE ONLY ON 2 SP.GENERATORS	61	60	11	11										
GENERATOR BEARING FRONT TEMPERATURE	71	70	13	13										
GENERATOR BEARING REAR TEMPERATURE	81	80	15	15										
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Designed	060620	FLT	Project title Top Panel +AN1, V82-1.65MW & NM72/1650KW											
Approved			Comments						Customer Vestas Wind Systems A/S					
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	051	Sheet	050				

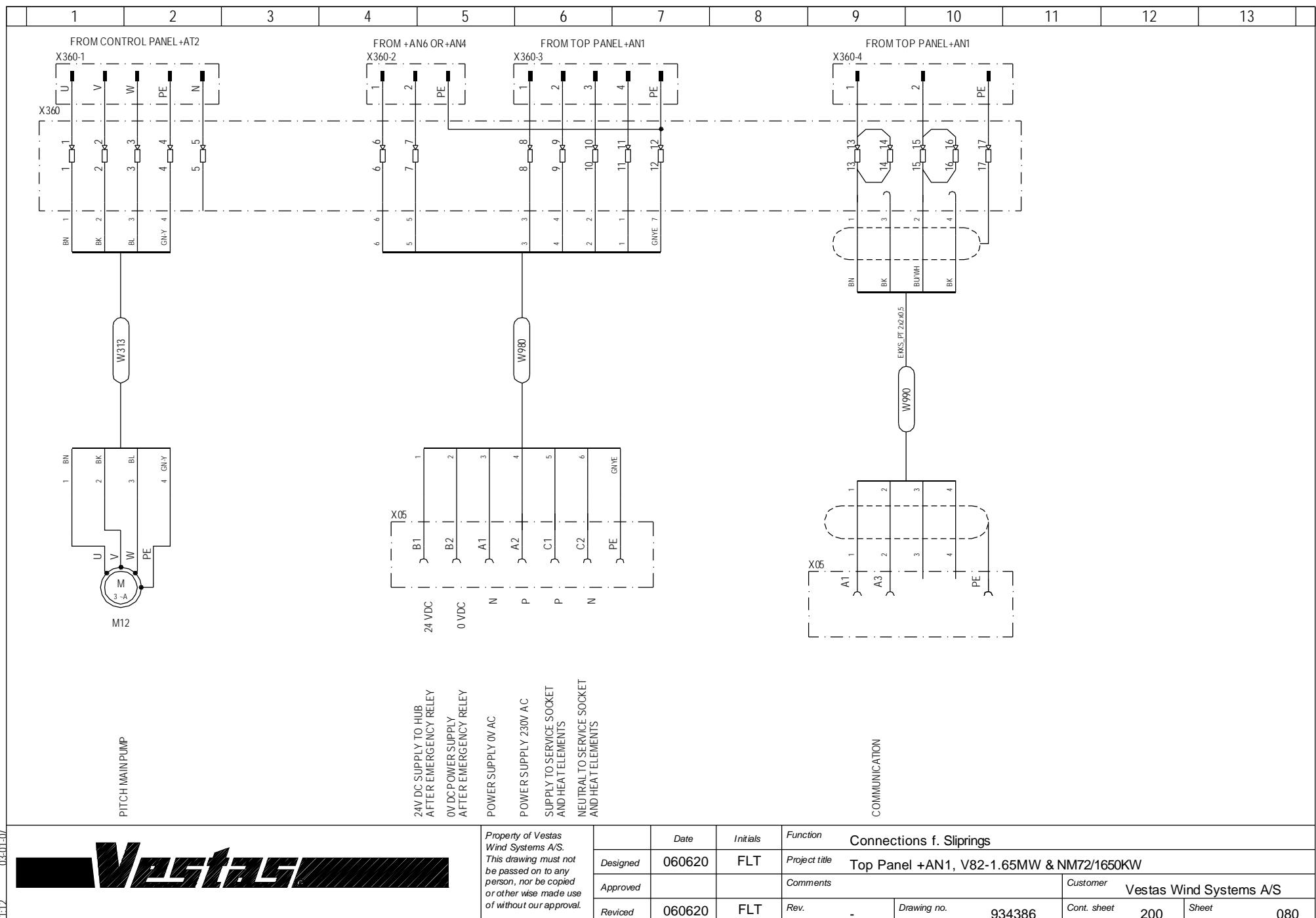


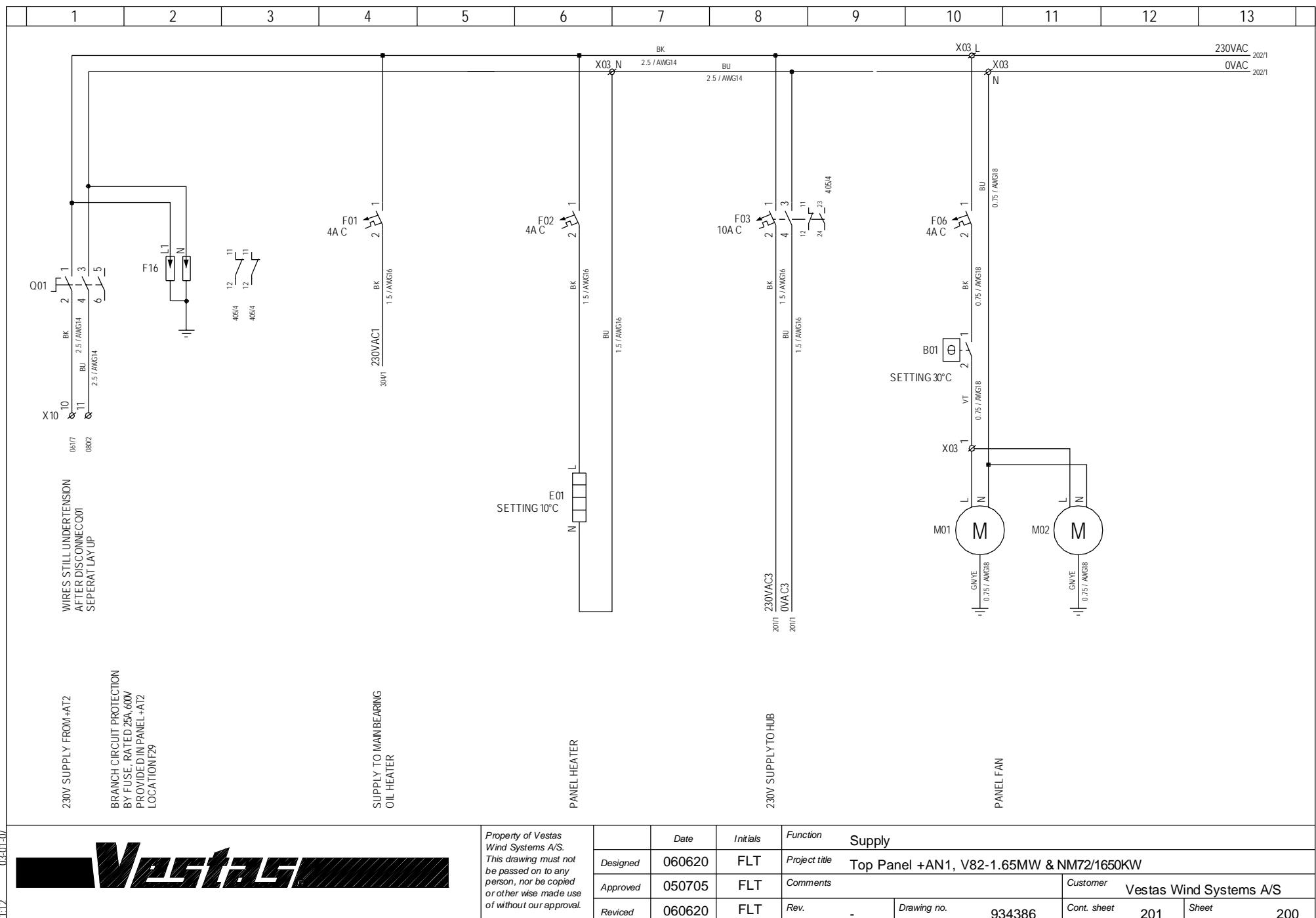


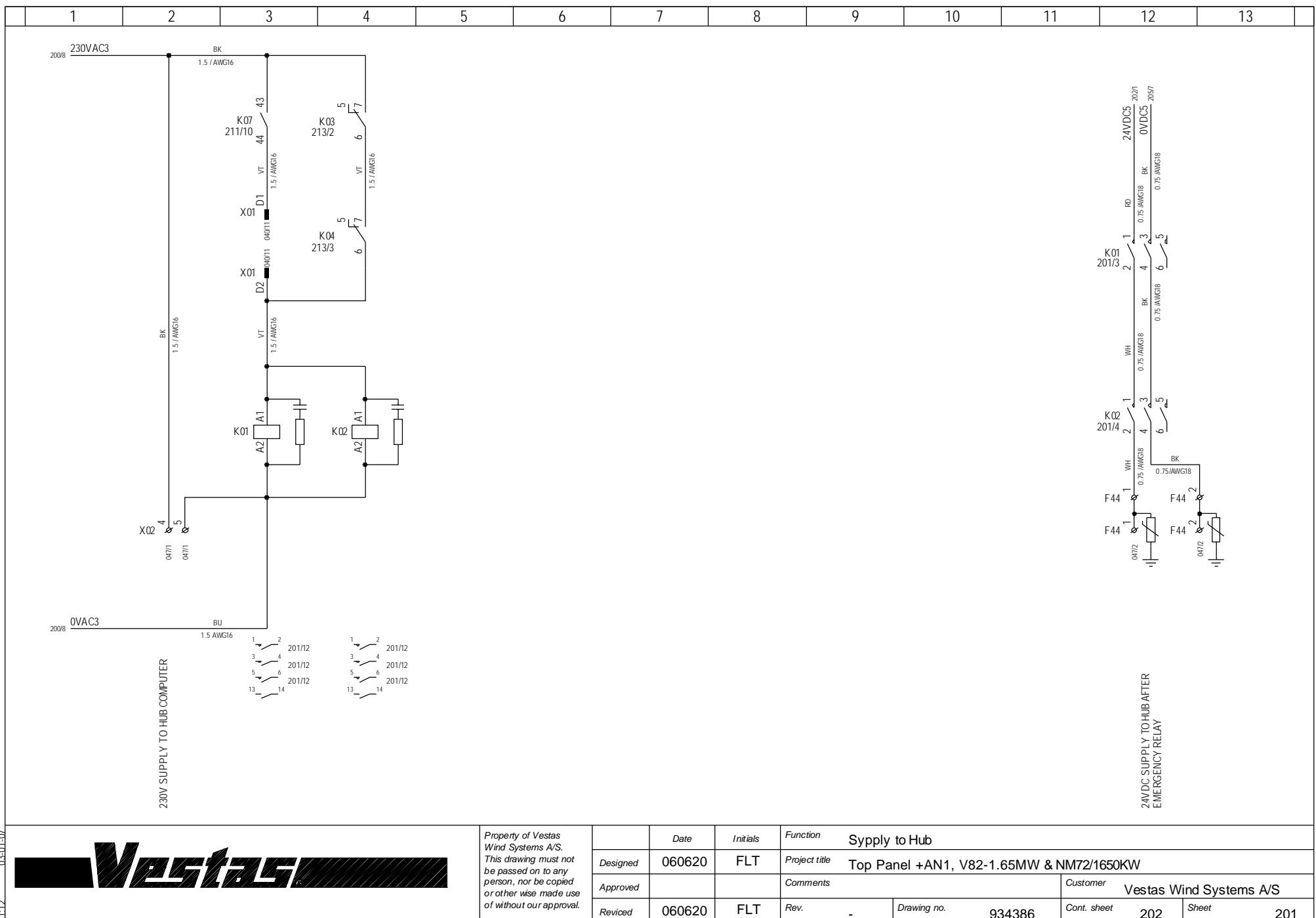


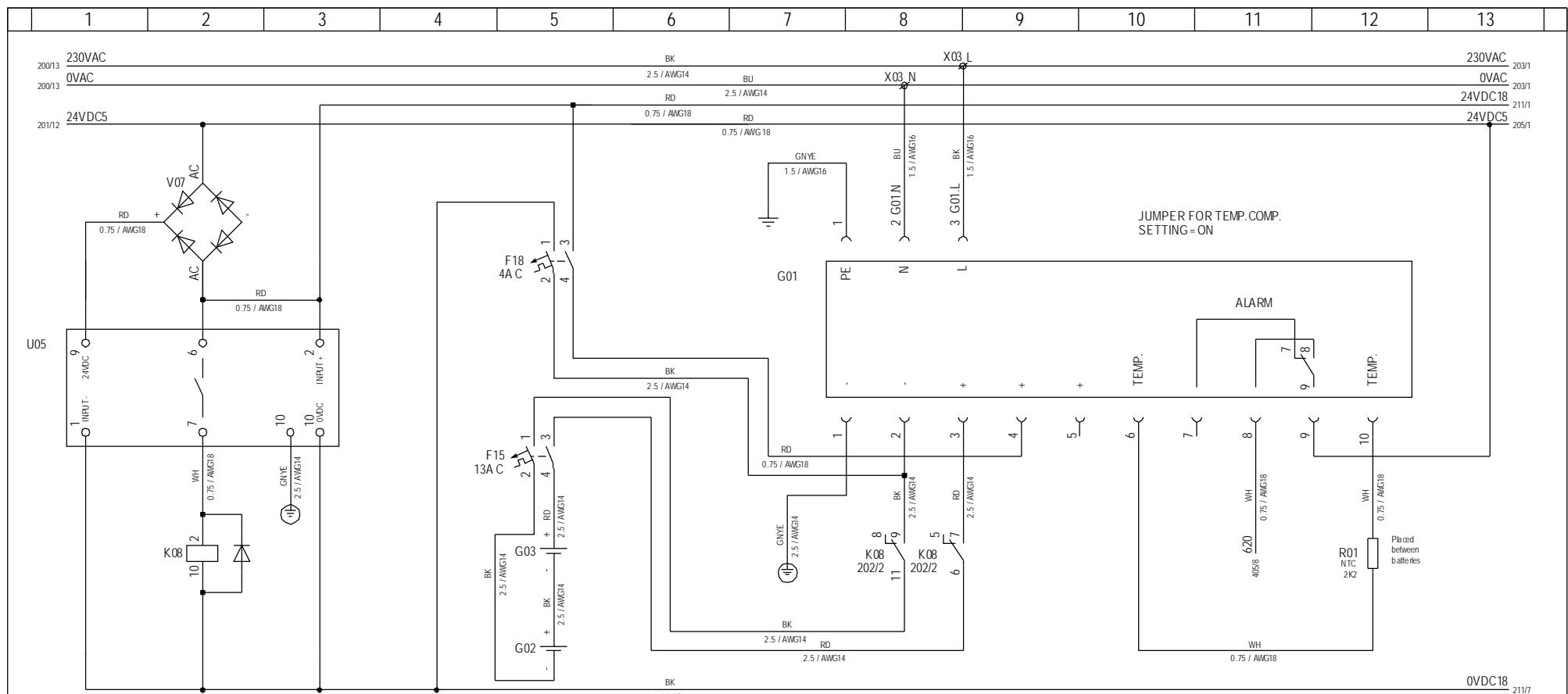


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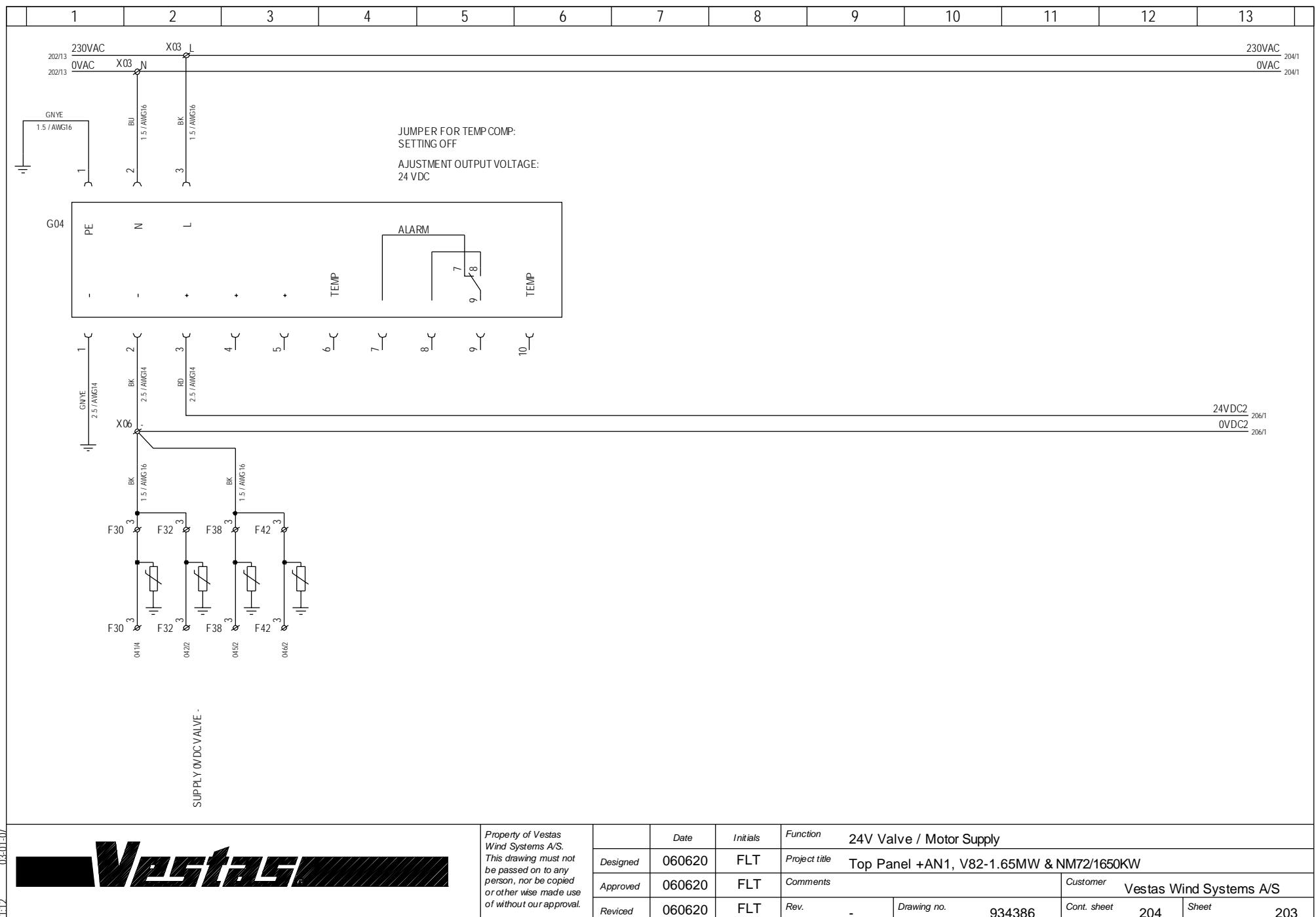
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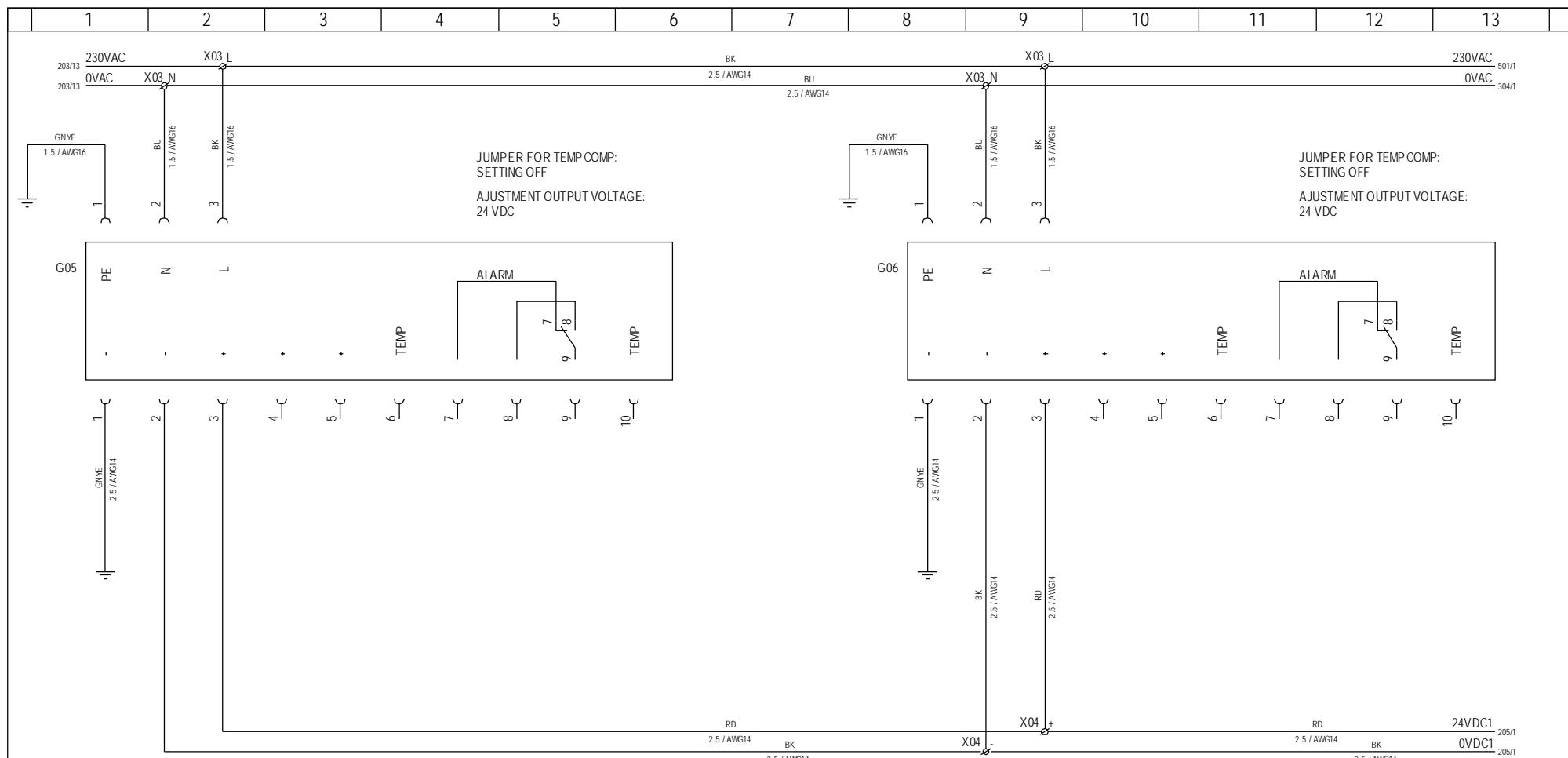
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7	6	202/8
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9	11	202/8
8		

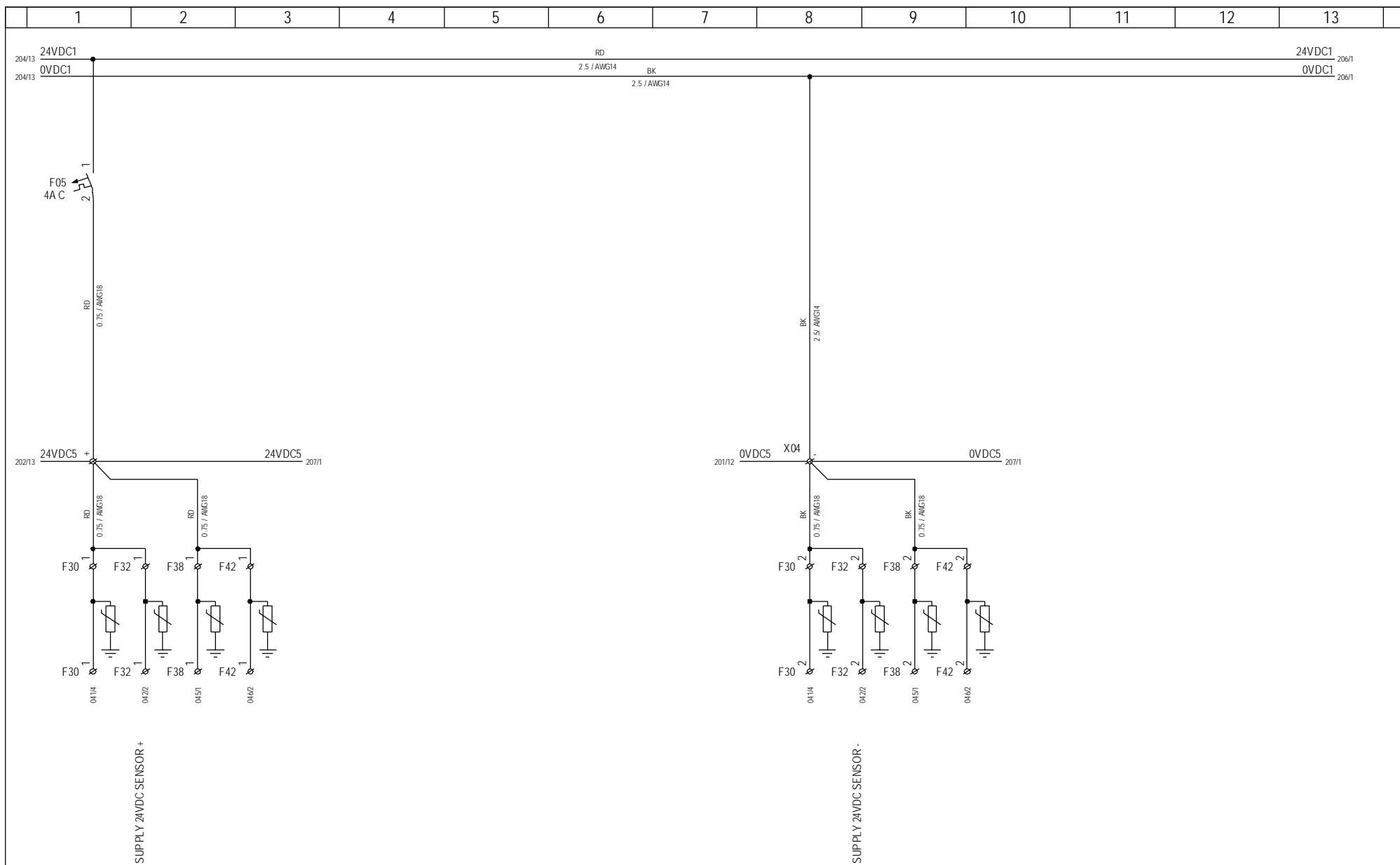
BATTERY CHARGER

BATTLES

TEMPERATURE COMPENSATION

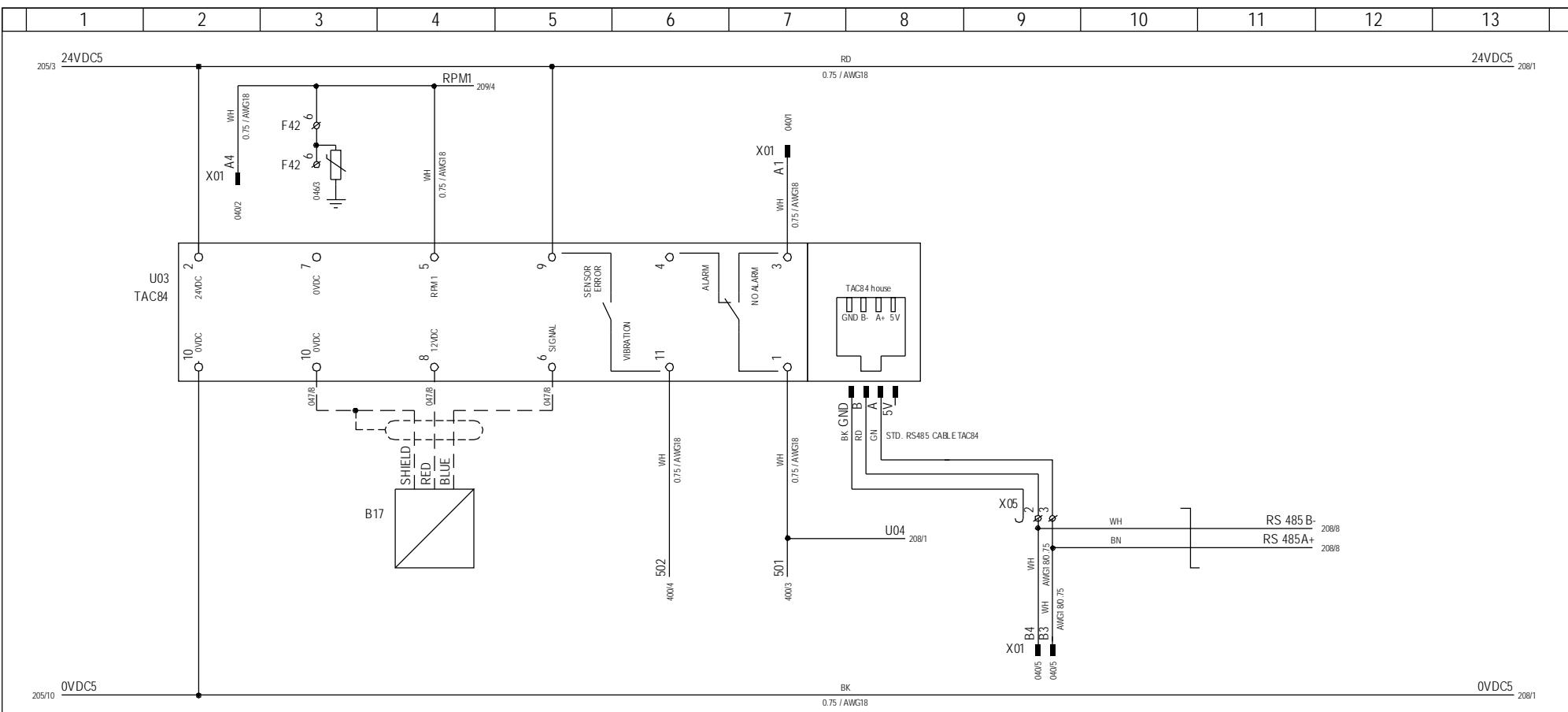






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<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function	Sensor Supply					
	Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW				
	Approved			Comments				Customer Vestas Wind Systems A/S	
	Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet 206	Sheet 205

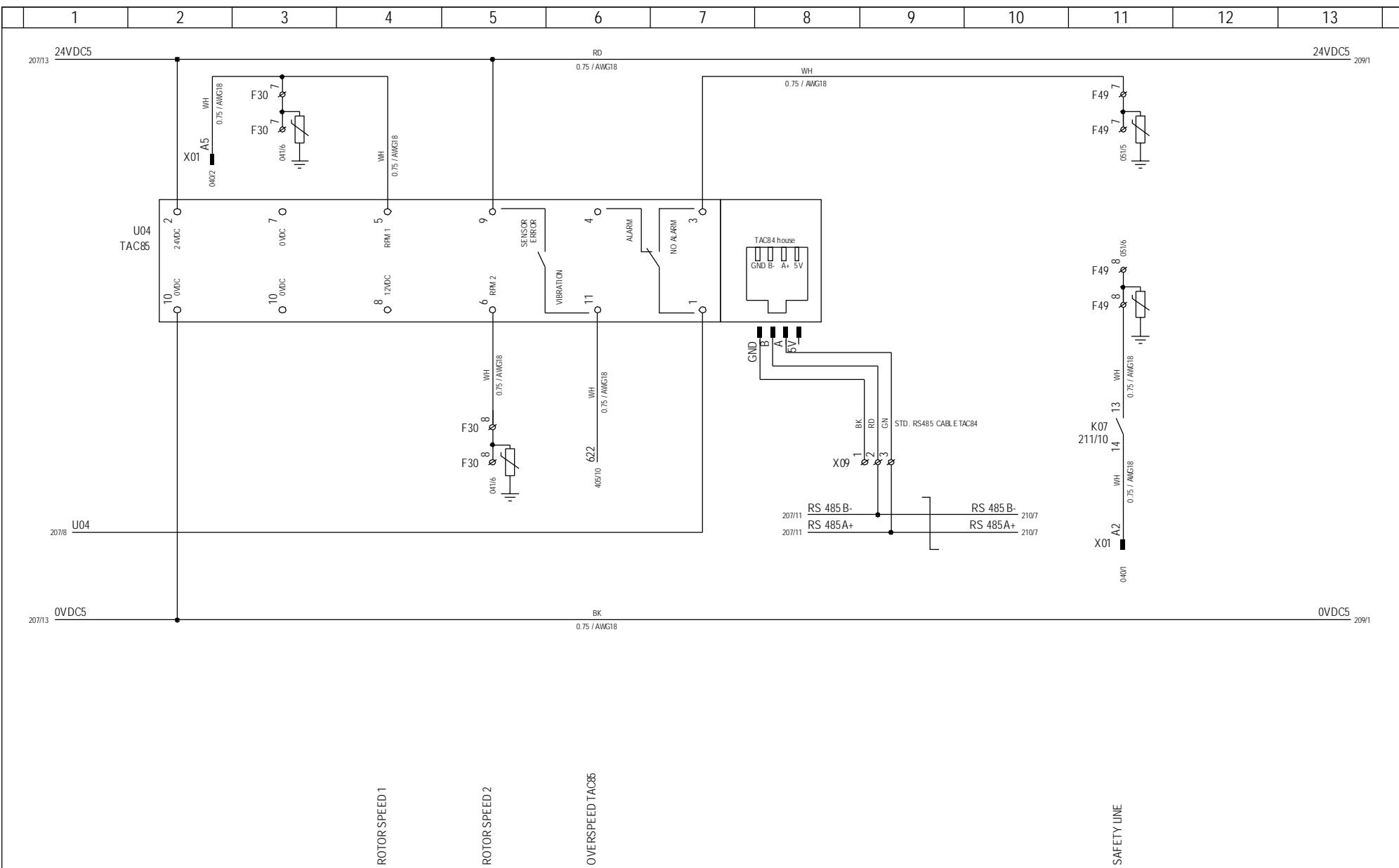


111:12 03-01-07

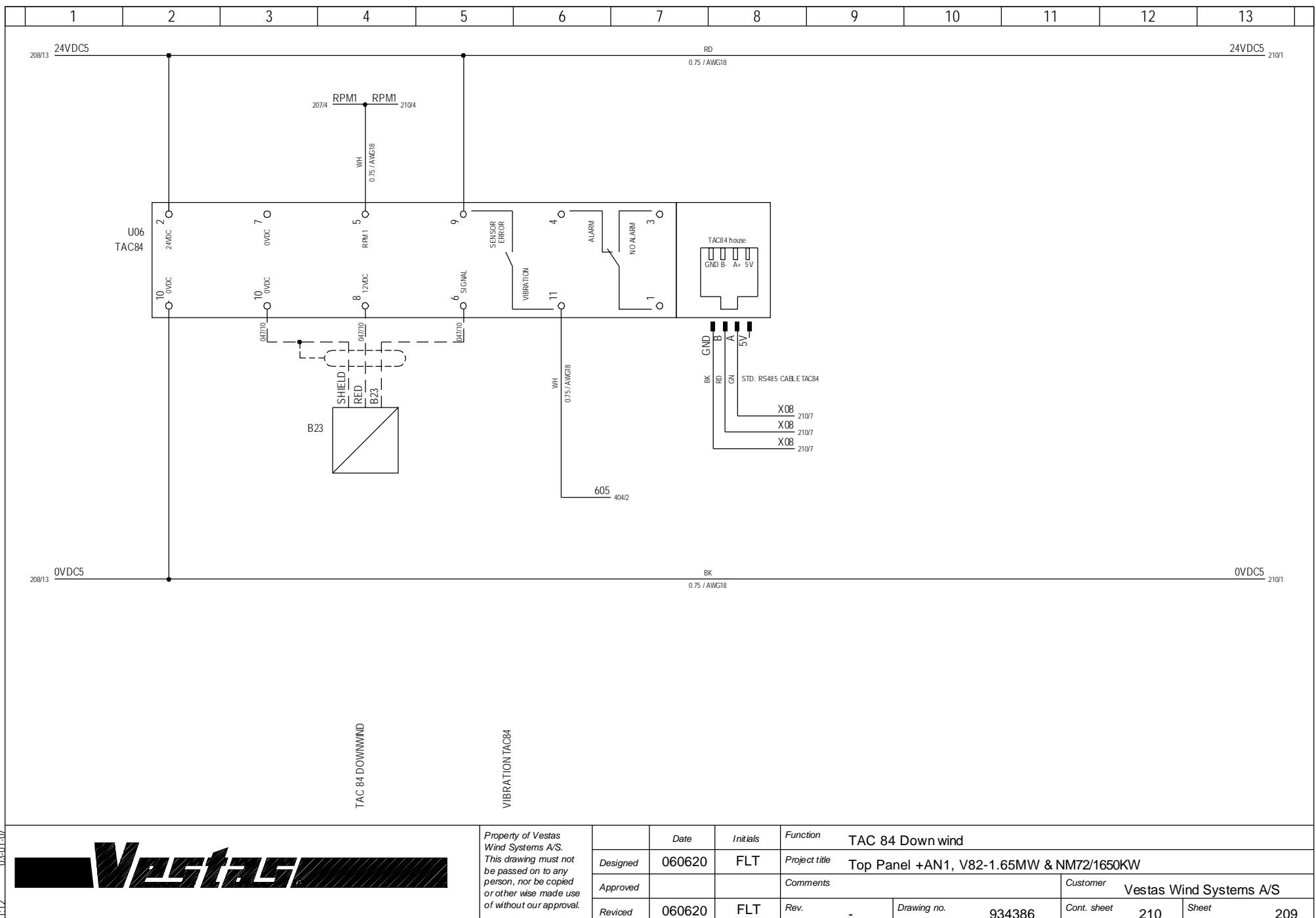
Vestas

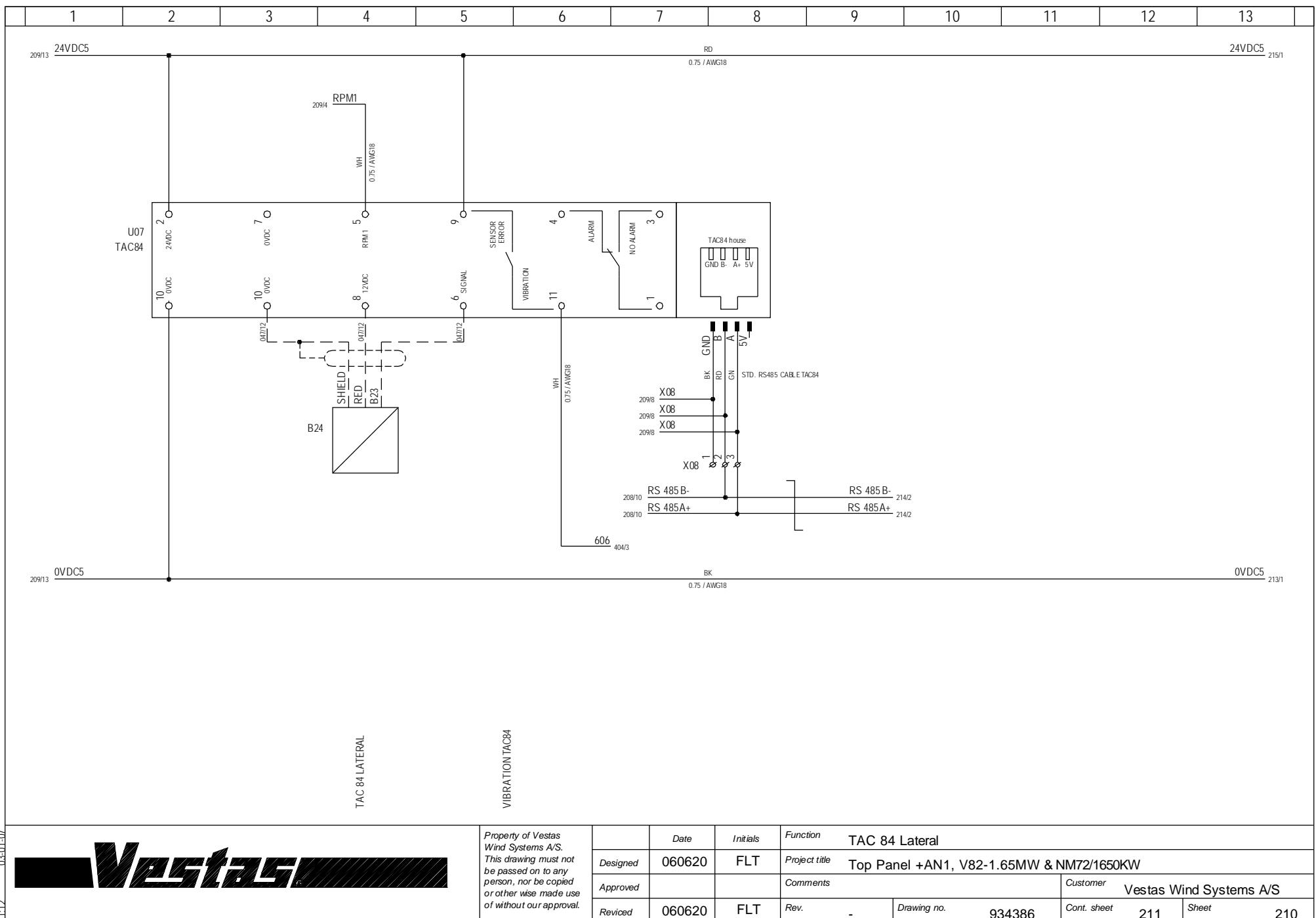
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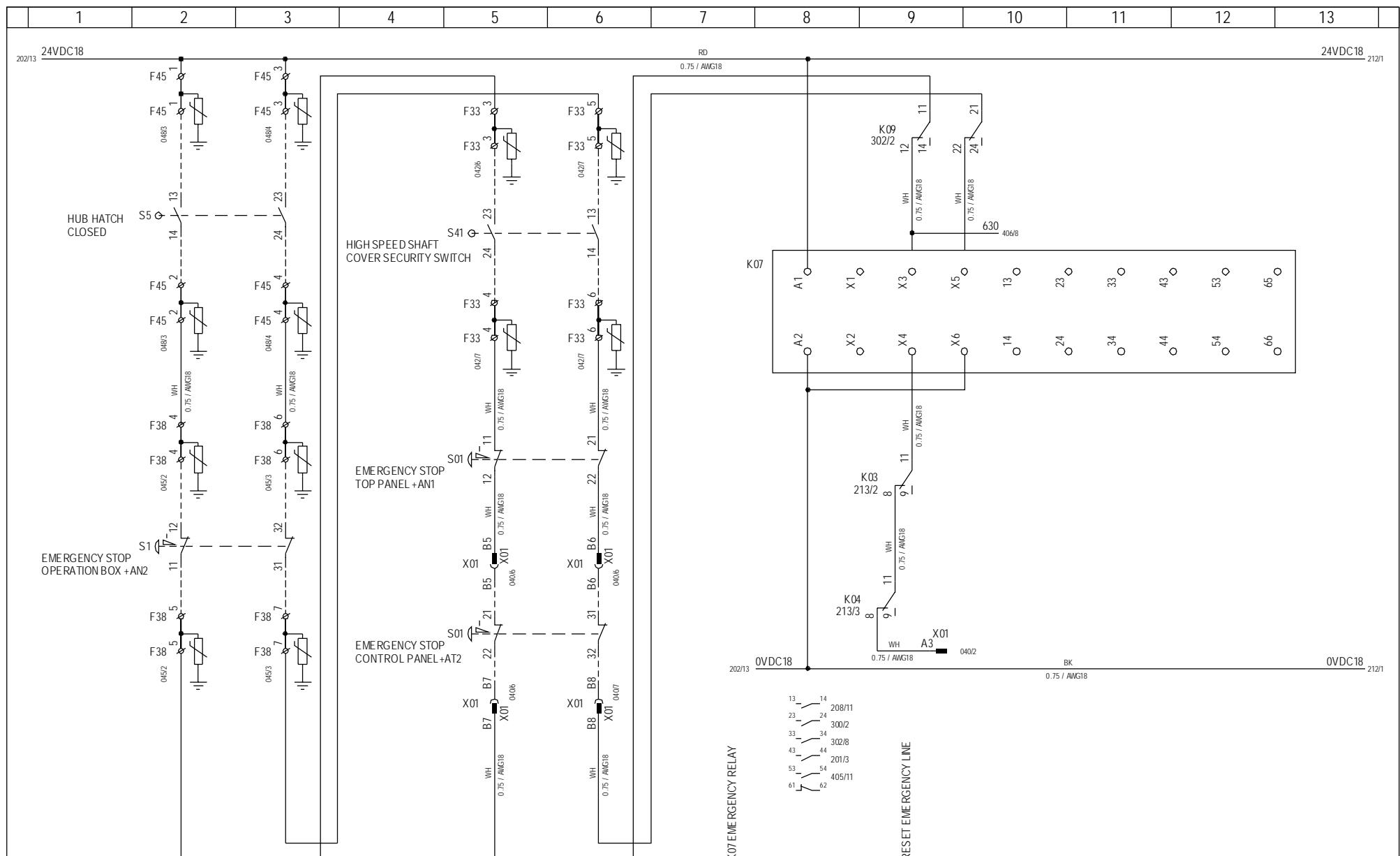
	Date	Initials	Function	Vibration / Overspeed TAC 84						
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	208	Sheet	207



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	Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW		
	Approved			Comments			Customer Vestas Wind Systems A/S
	Revised	060620	FLT	Rev.	-	Drawing no. 934386	Cont. sheet 209





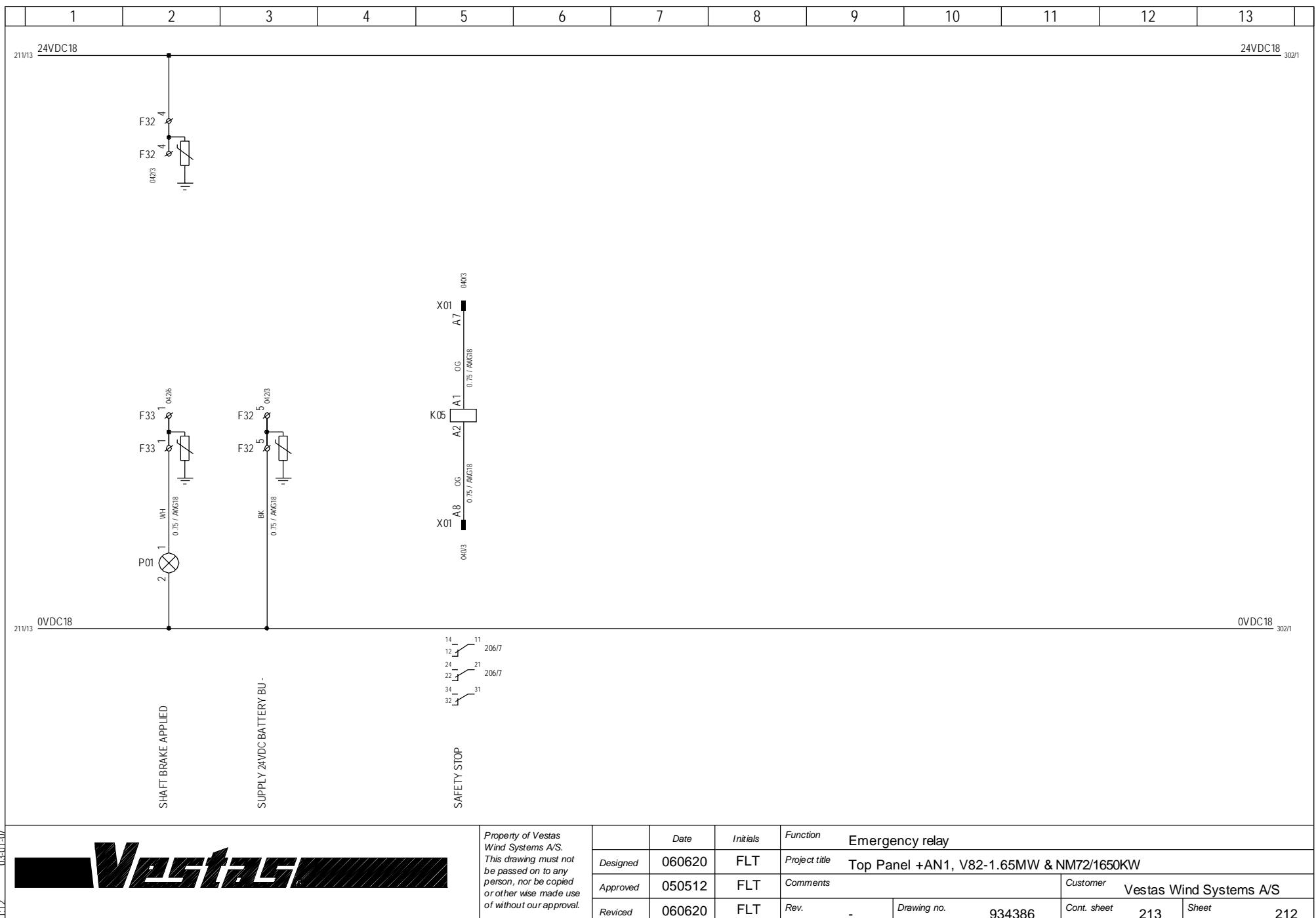


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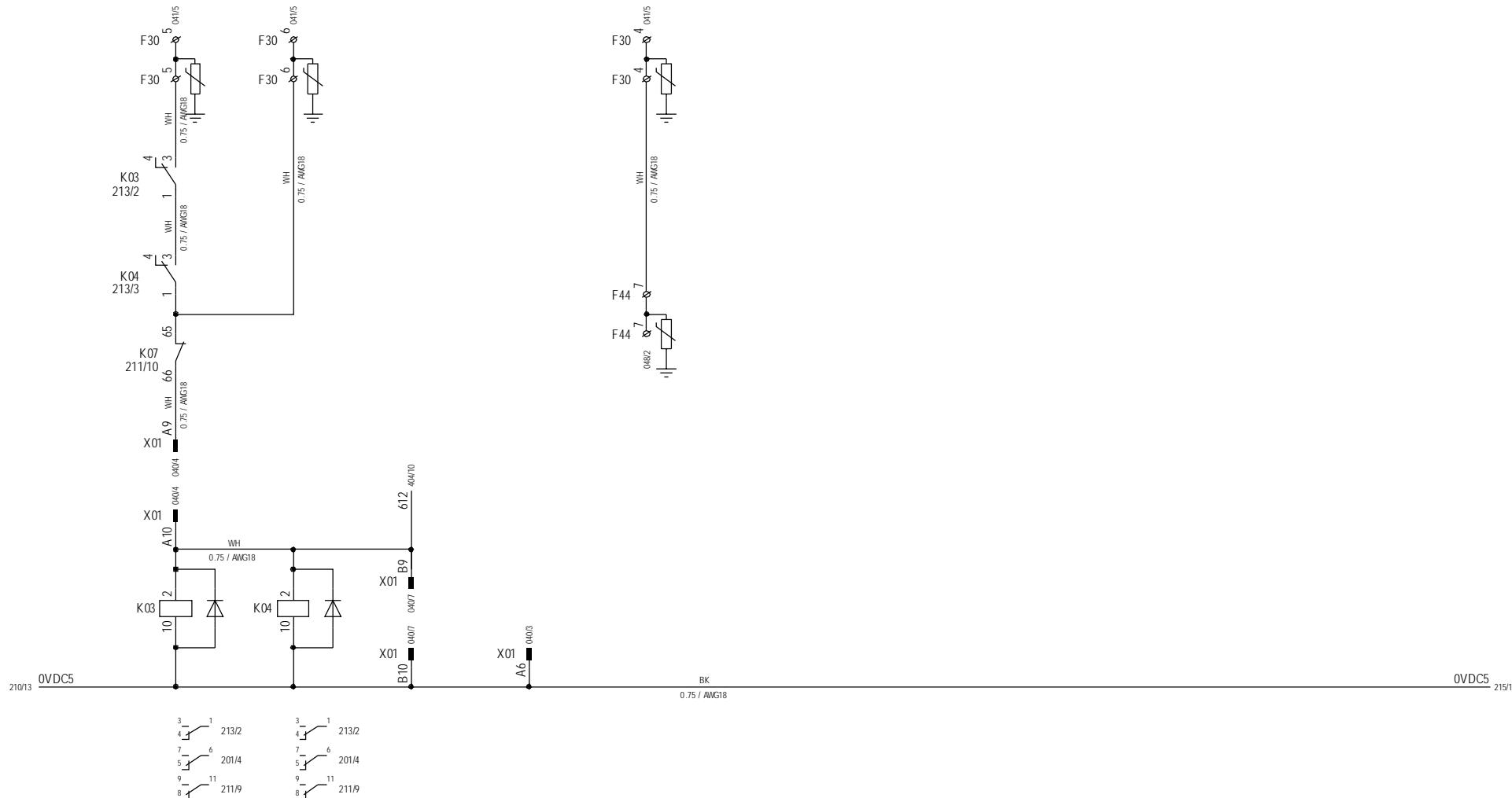
Vestas

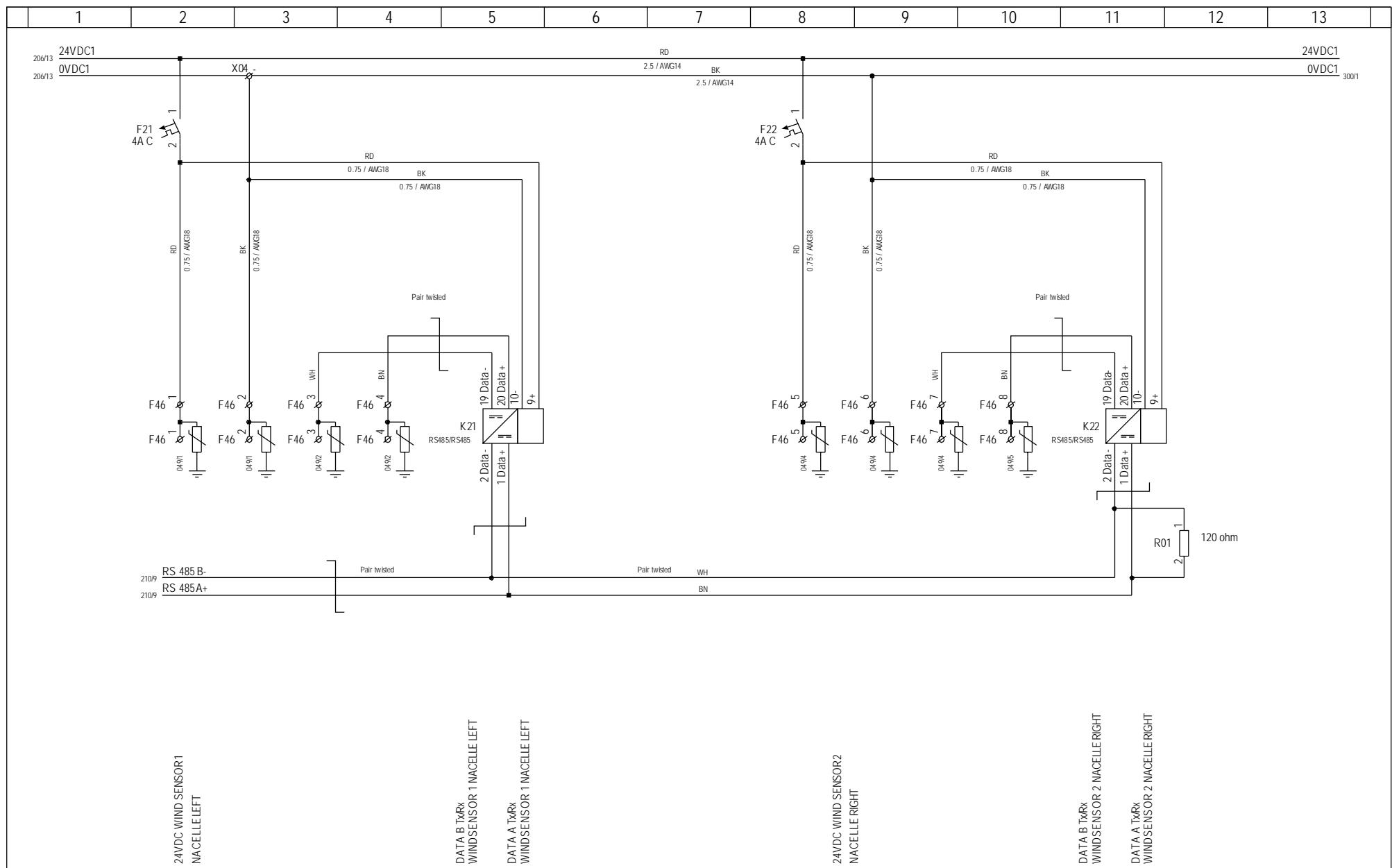
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	Date	Initials	Function	Emergency relay						
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments							
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	212	Sheet	211



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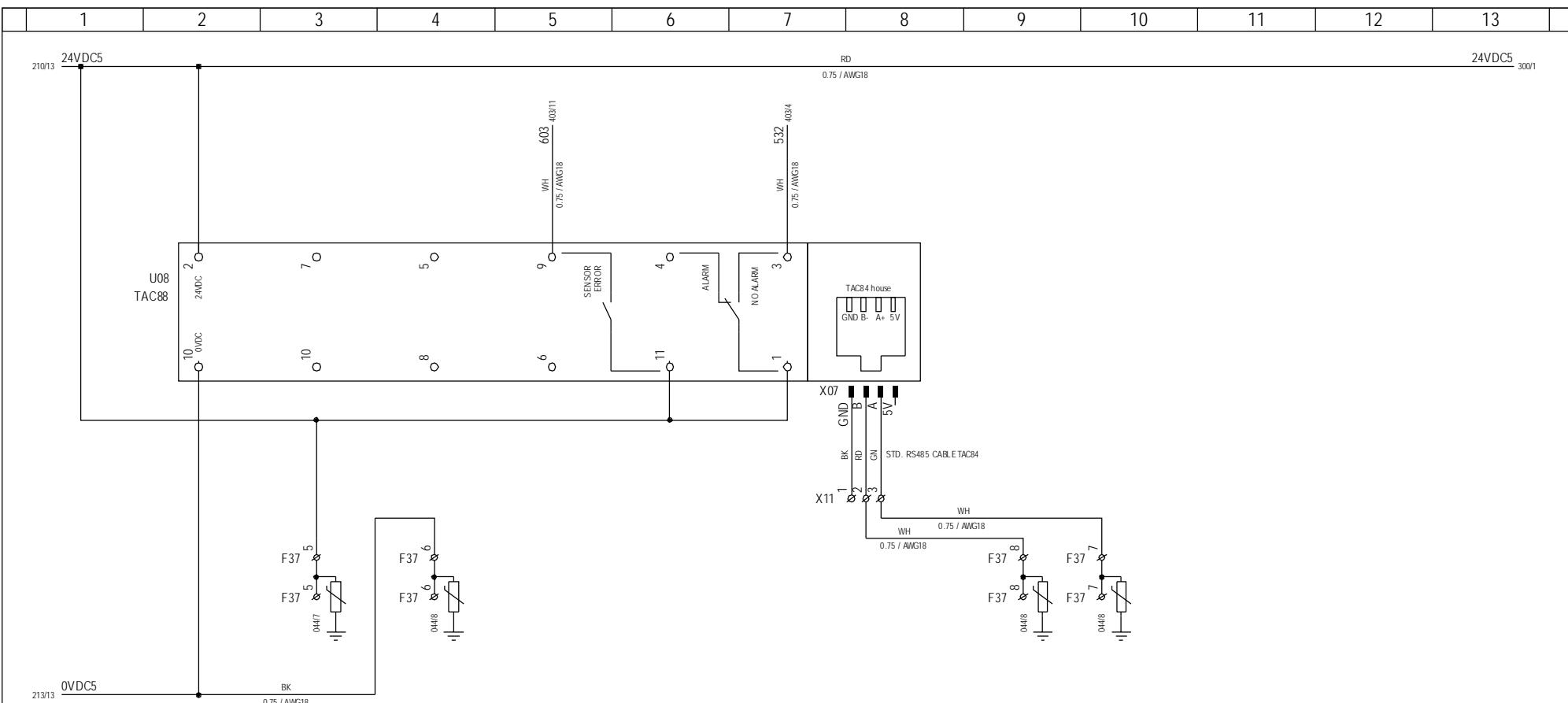


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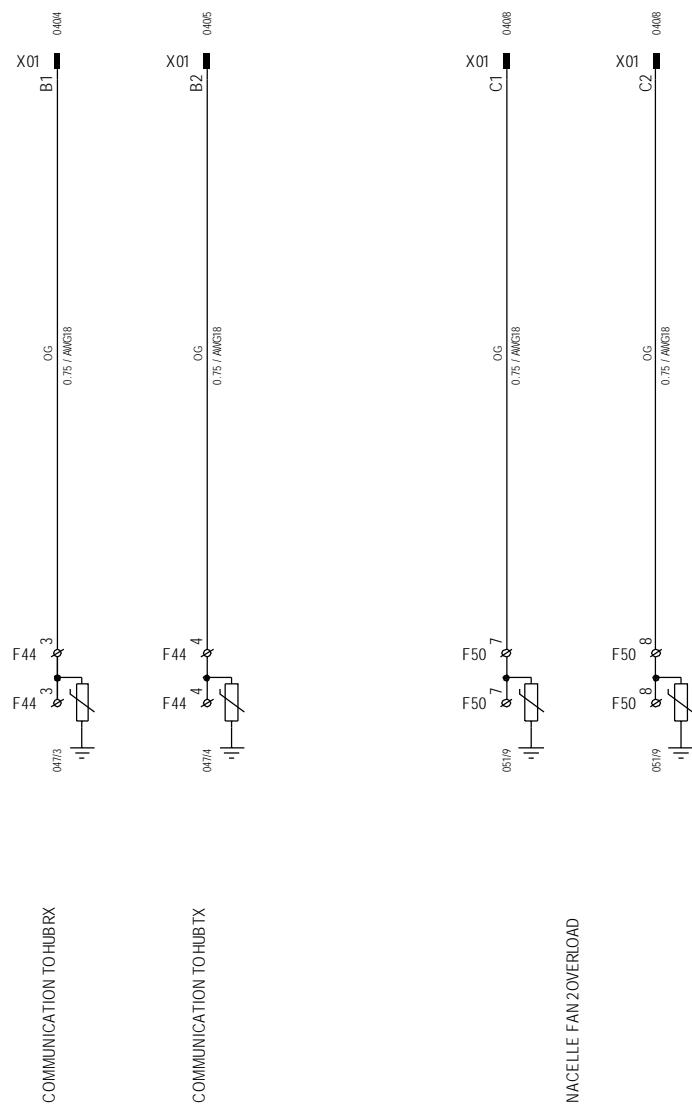
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Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	215	Sheet	214

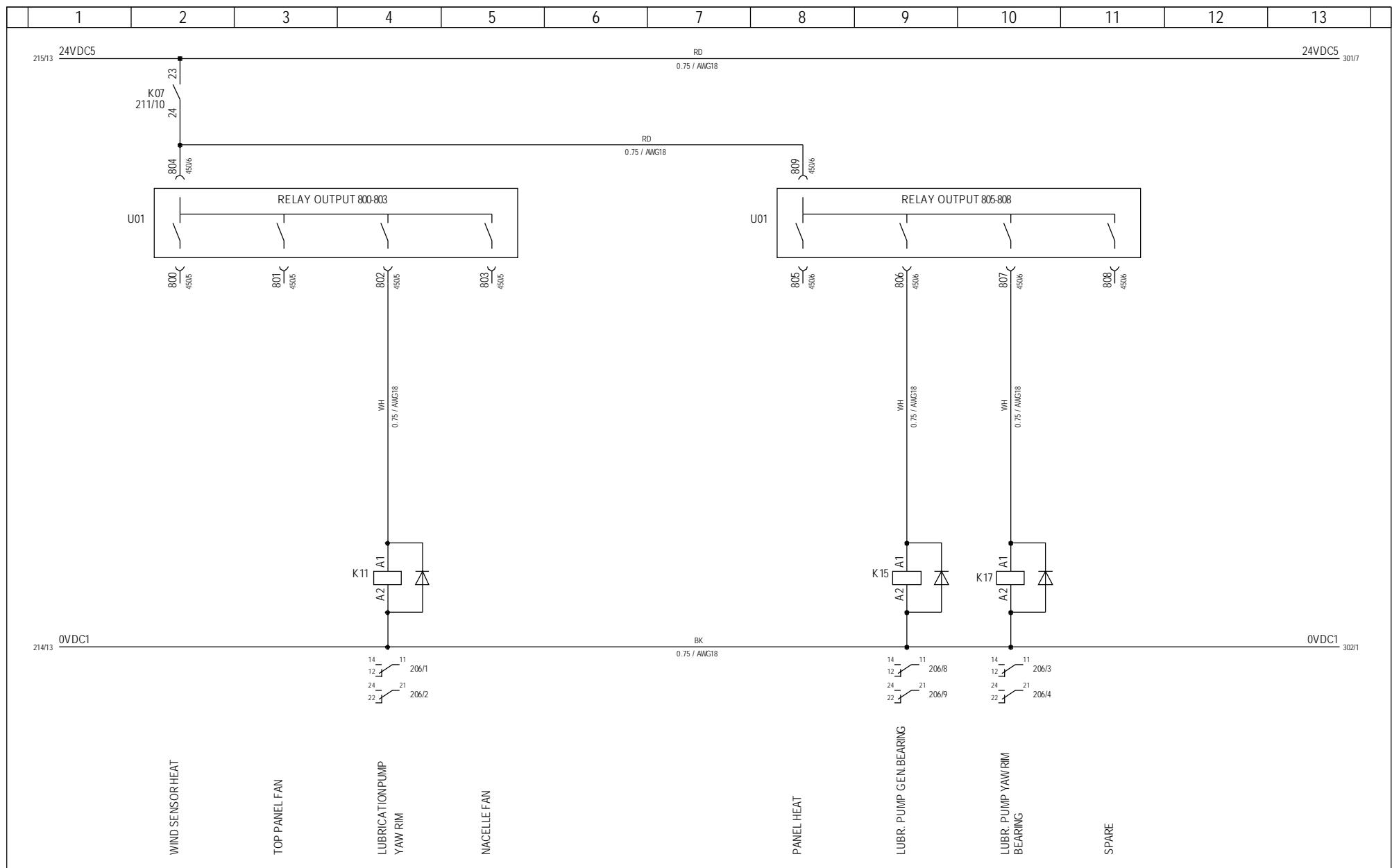


ICE SENSOR FAULT

ICE DEFCTED

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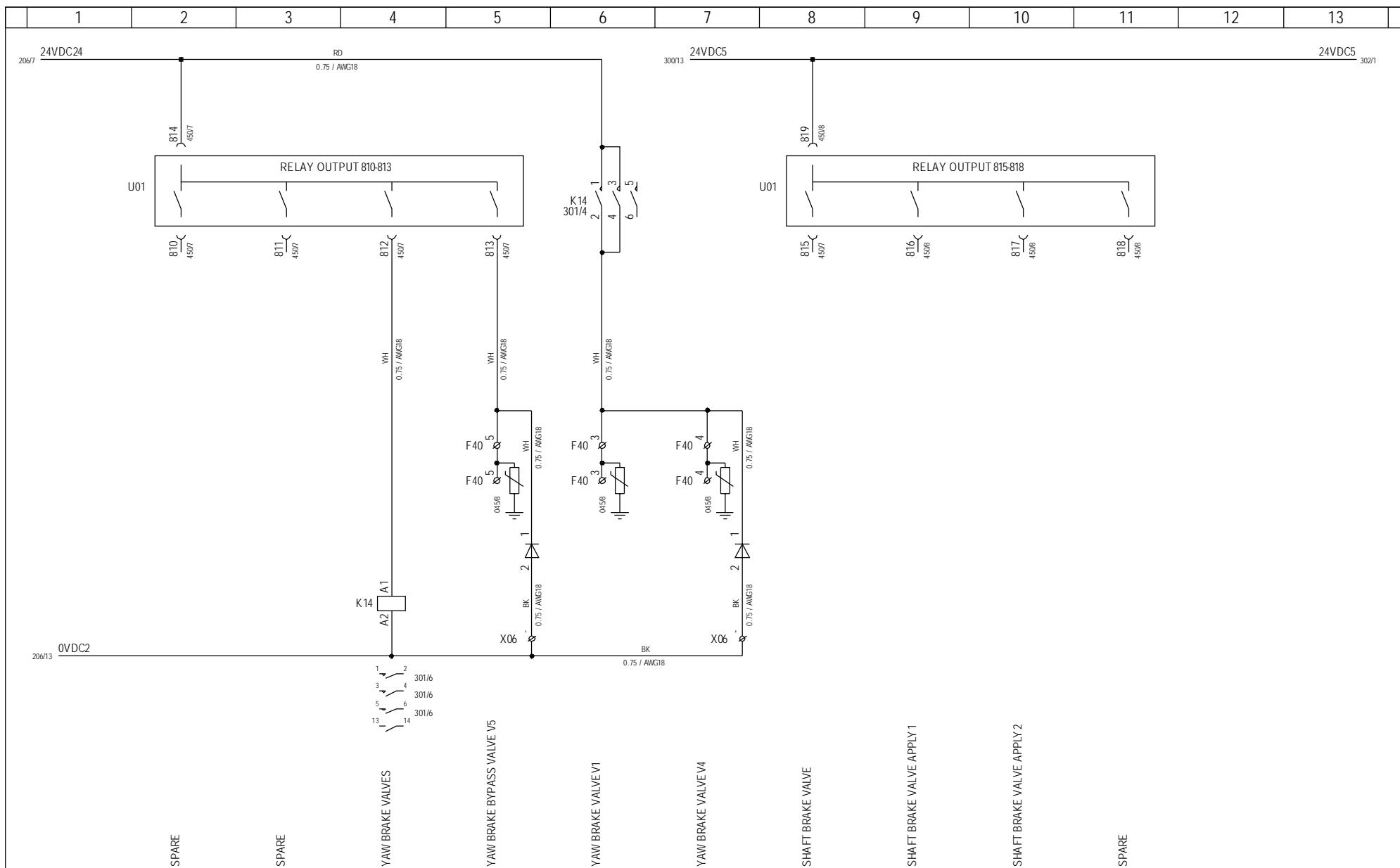


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	Date	Initials	Function	Output 800-809						
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	301	Sheet	300

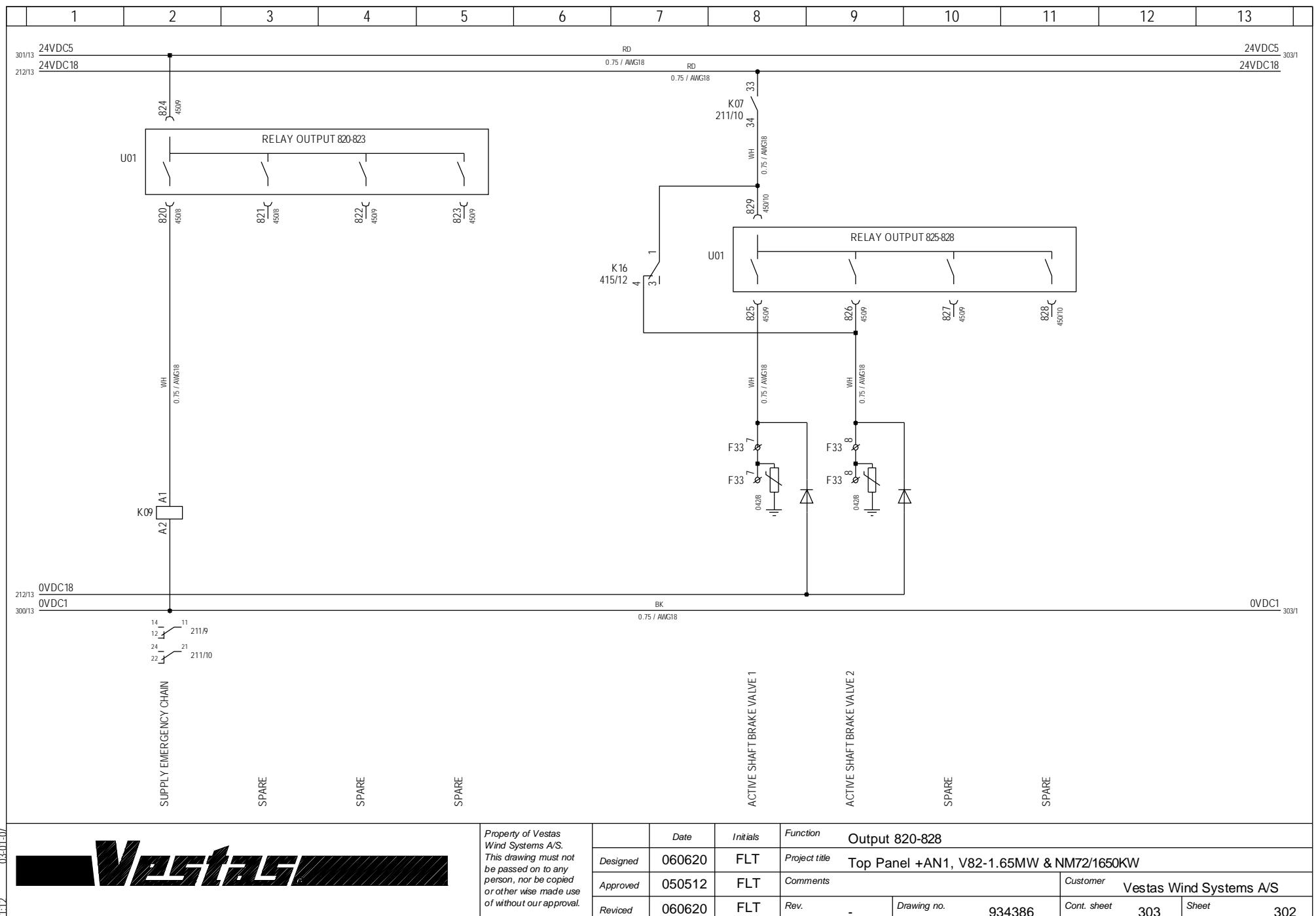


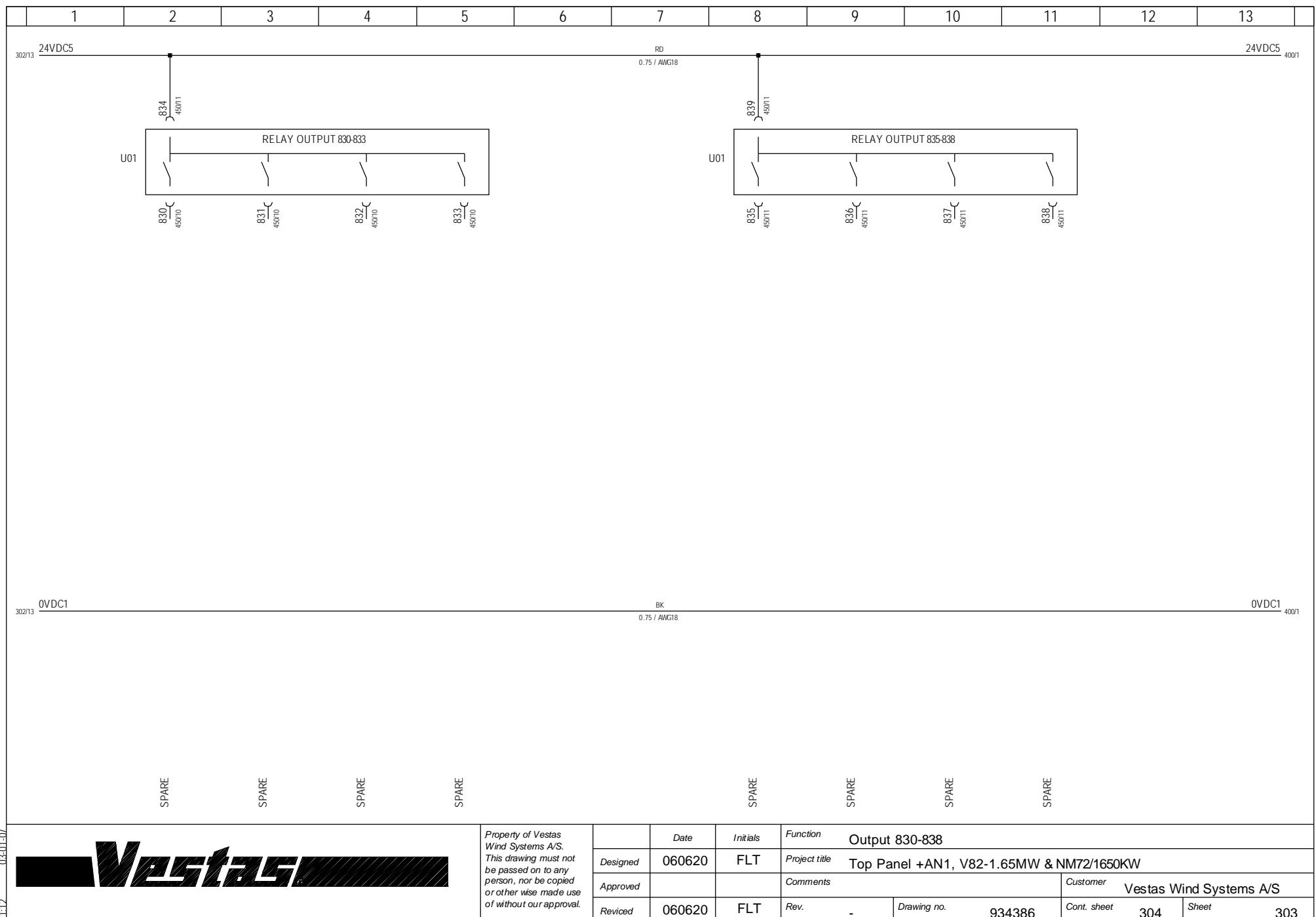
1-12 03-01-07

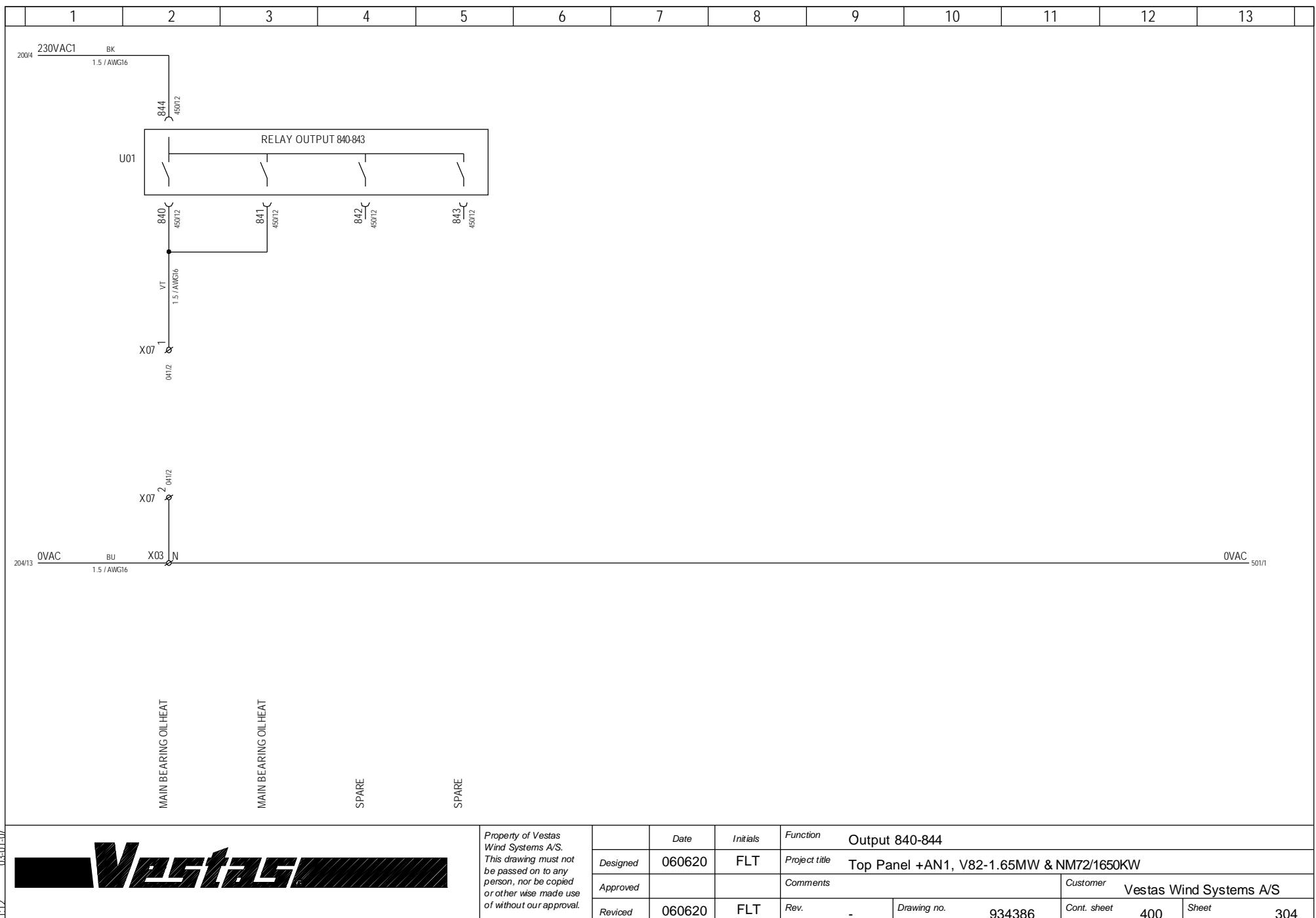
Vestas

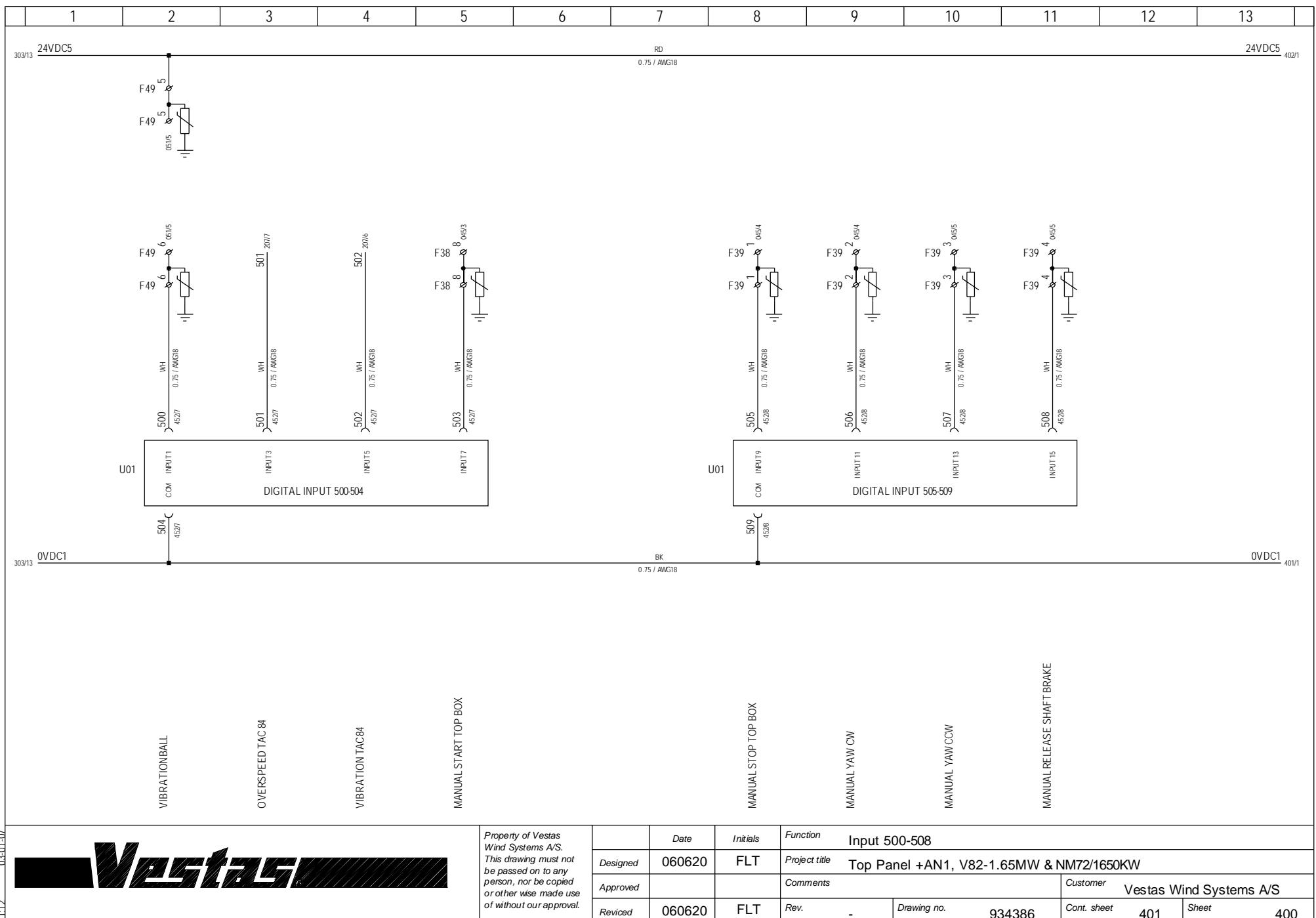
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	Date	Initials	Function	Output 810-818						
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments							
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	302	Sheet	301

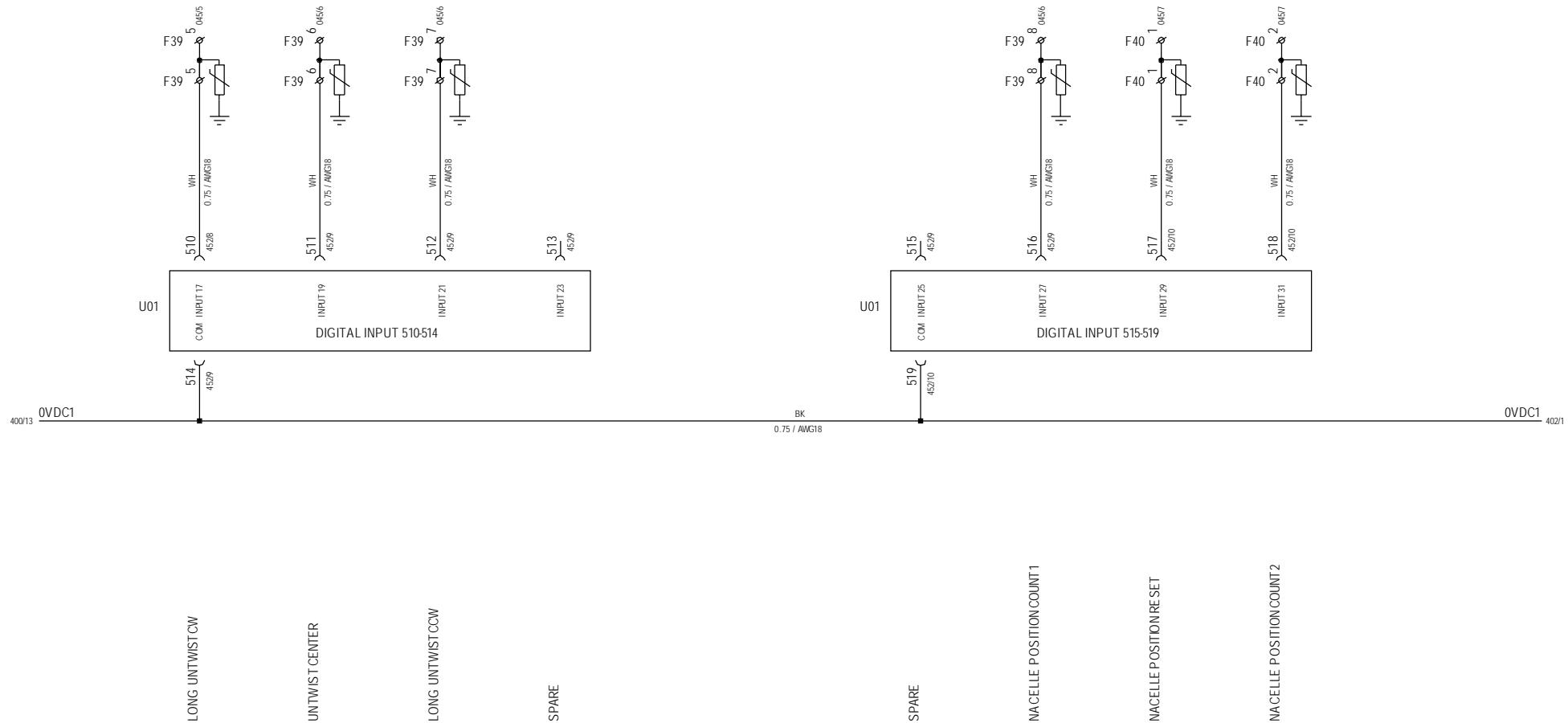




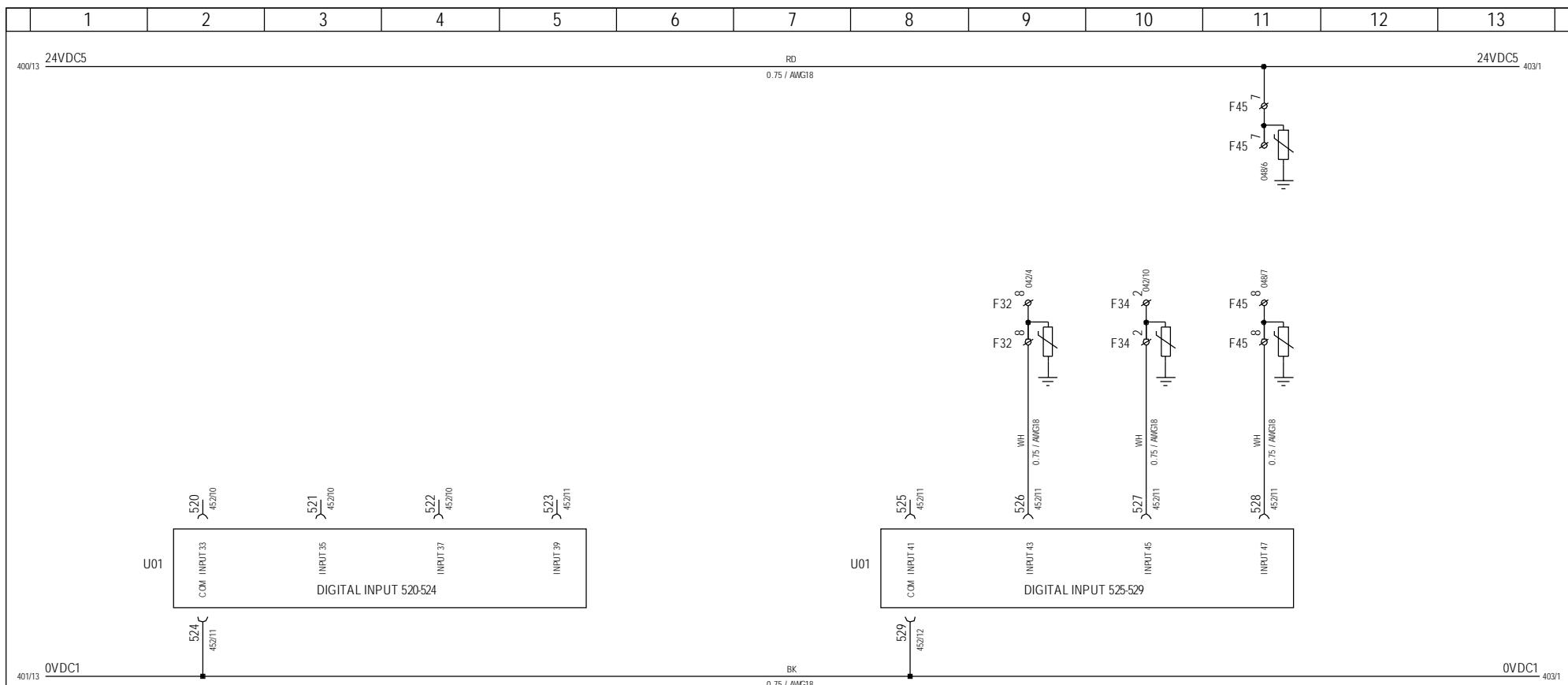




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	Date	Initials	Function	Input 510-518			
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW			
Approved			Comments	Customer Vestas Wind Systems A/S			
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet 402 Sheet 401

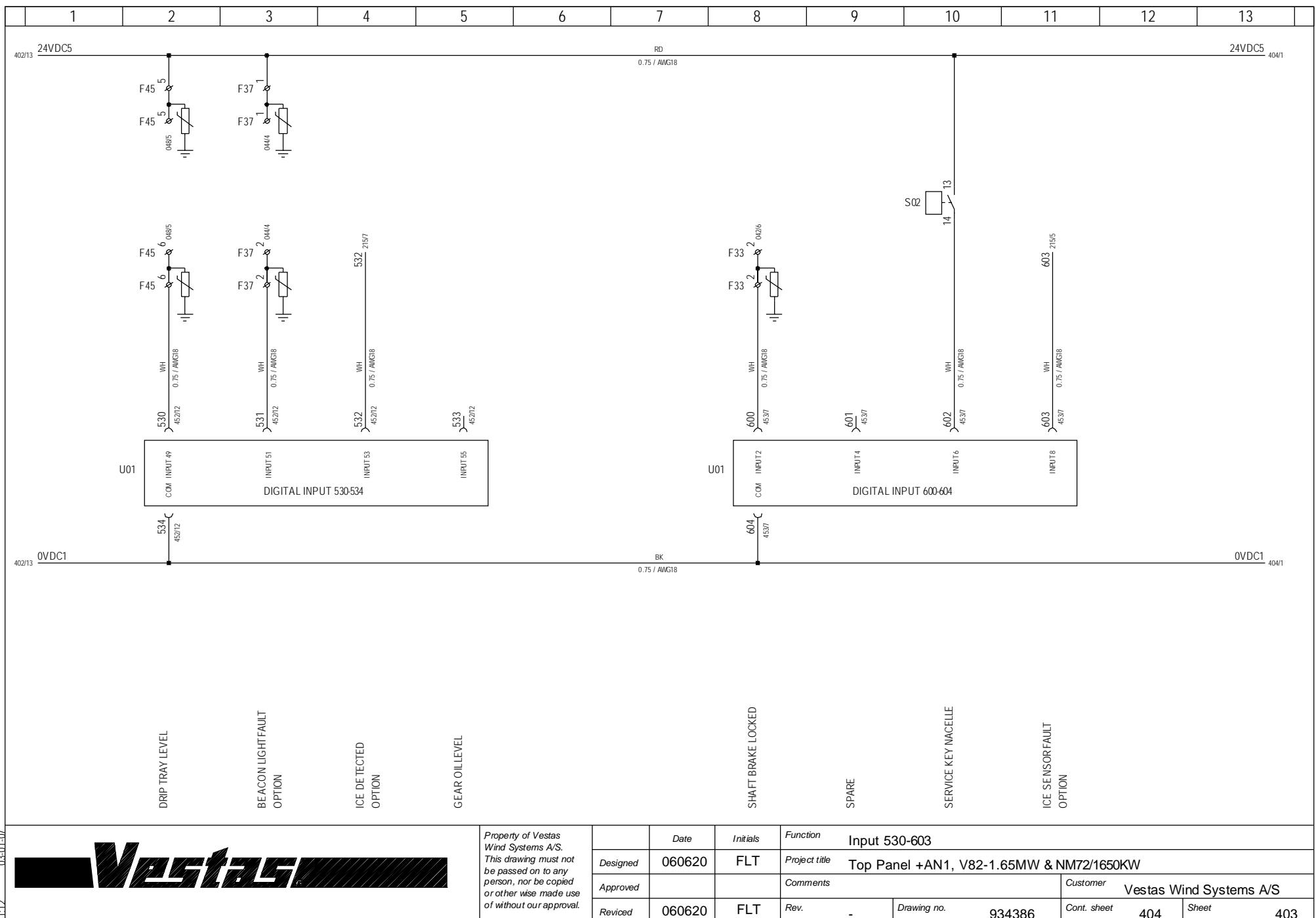


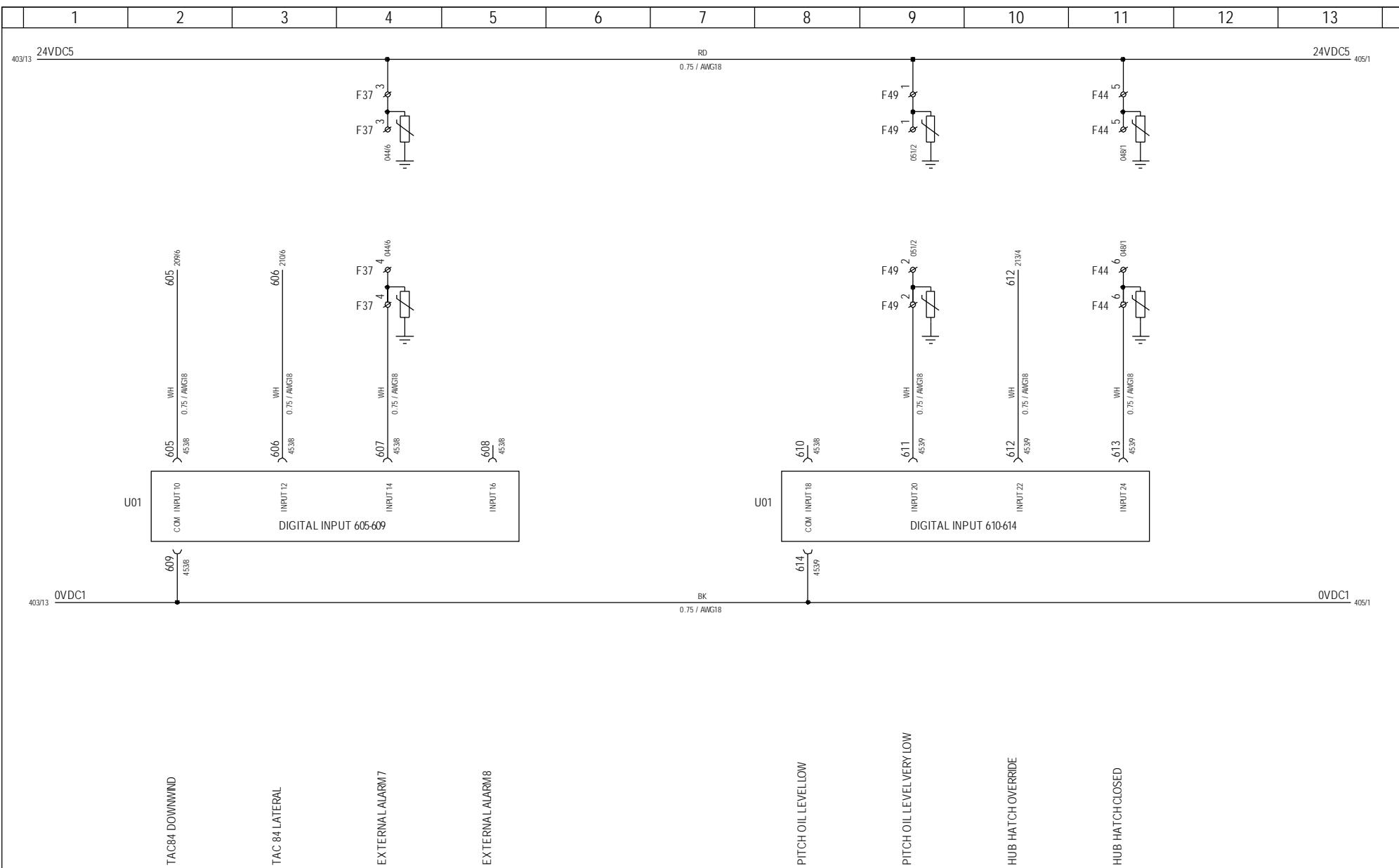
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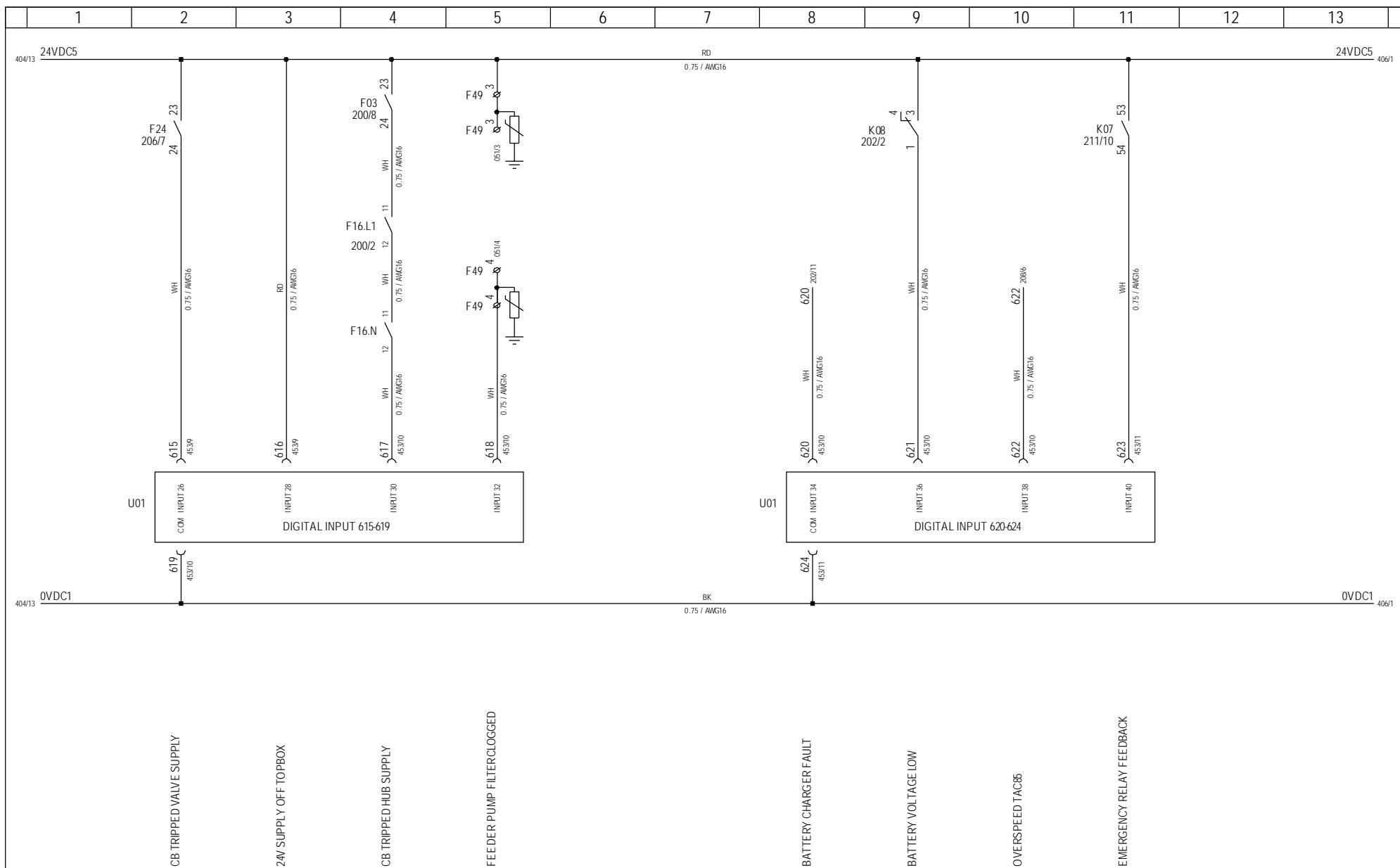
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Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	403	Sheet	402





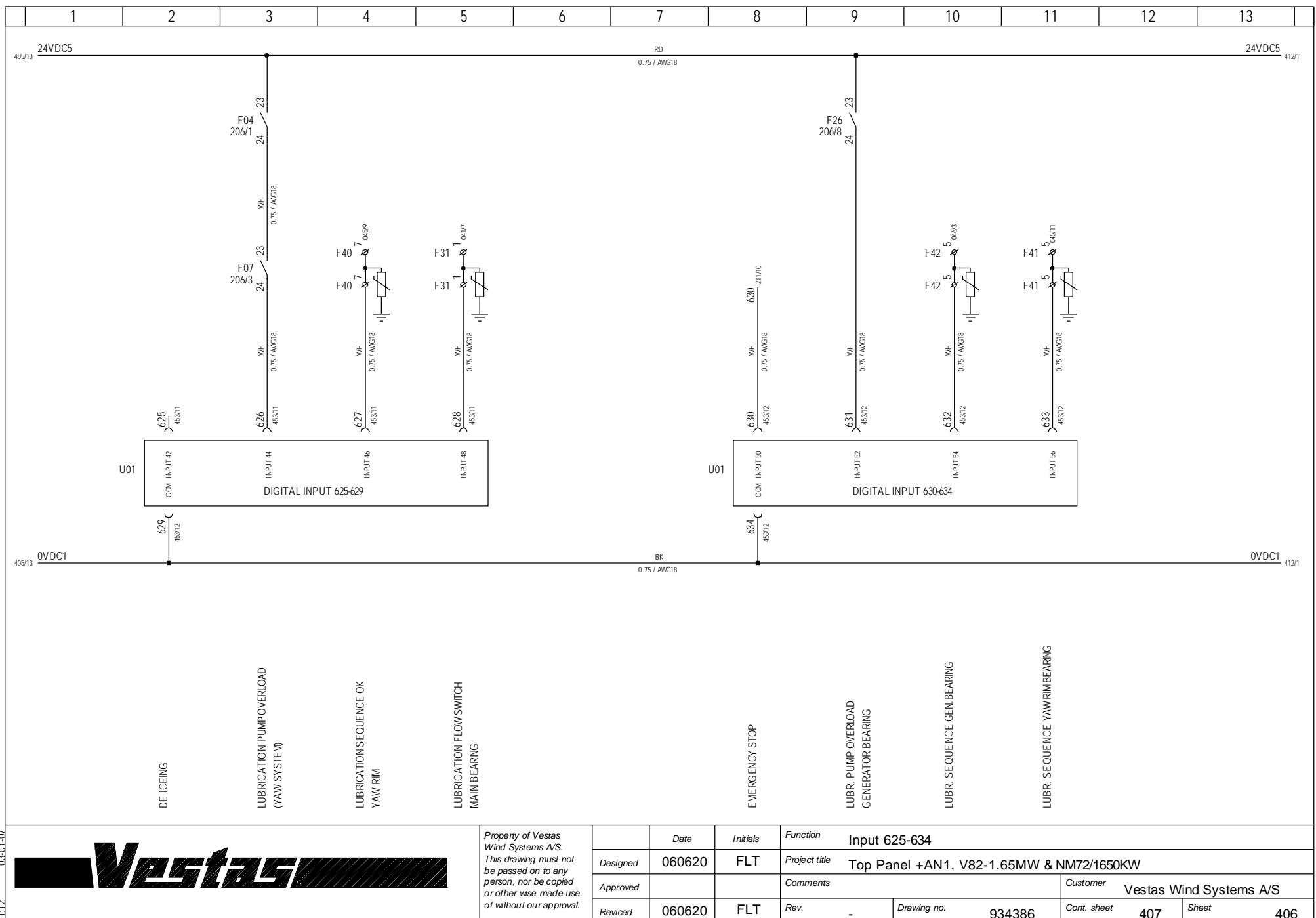
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	Date	Initials	Function	Input 604-613						
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments	Customer Vestas Wind Systems A/S						
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	405	Sheet	404

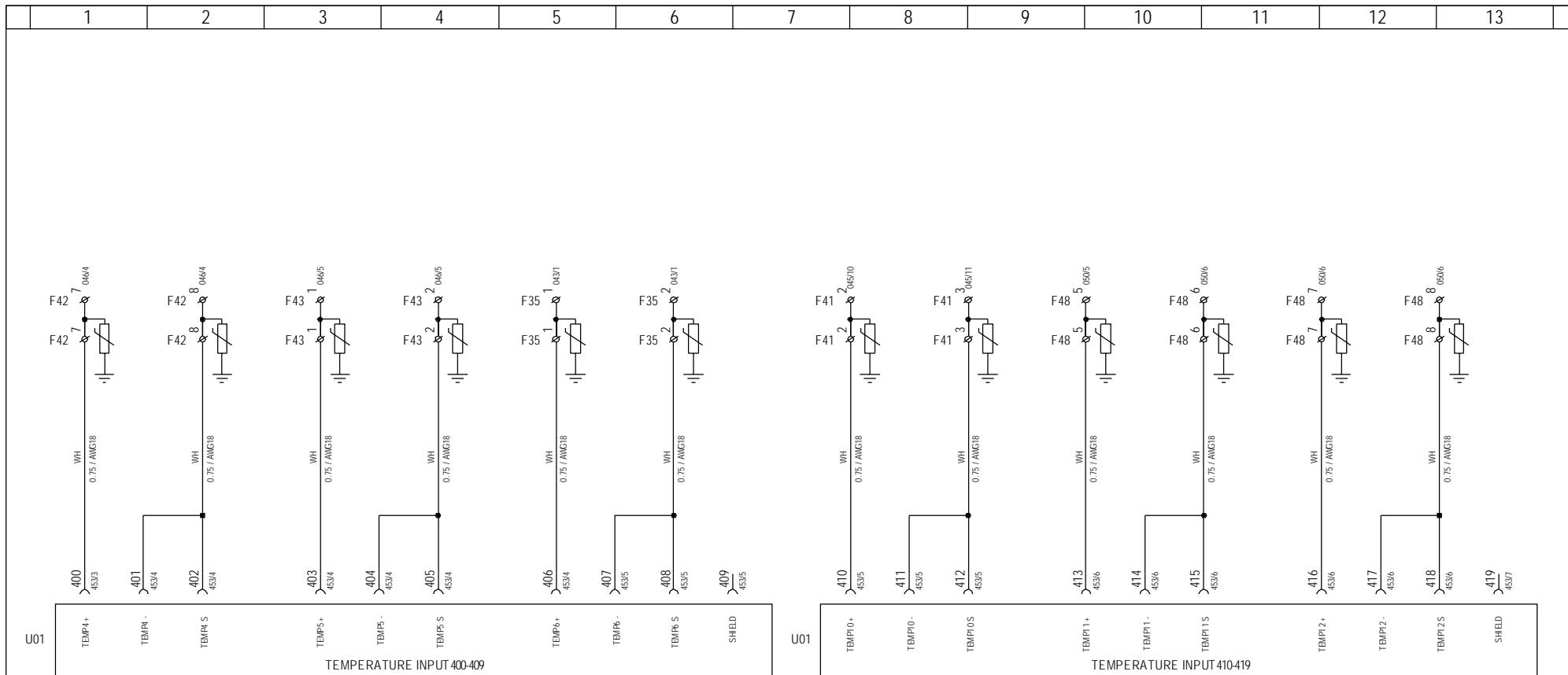


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<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function	Input 615-623						
	Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW					
	Approved			Comments				Customer		
	Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	406	Sheet



	1	2	3	4	5	6	7	8	9	10	11	12	13	
U01														
AMBIENT TEMPERATURE	300 4523	TEMP1+ 4524	0.75 / AMG18	F50 1	WH	05/17								
NACELLE TEMPERATURE	301 4524	TEMP1- 4524	0.75 / AMG18	F50 2	WH	05/17								
TEMPERATURE INPUT 300-309	302 4524	TEMP1 S 4524	0.75 / AMG18	F50 3	WH	05/17								
TOP BOX PANEL TEMPERATURE	303 4524	TEMP2+ 4524	0.75 / AMG18	F50 4	WH	05/18								
GEAR OIL TEMPERATURE	304 4524	TEMP2- 4524	0.75 / AMG18	B33										
TEMPERATURE INPUT 300-309	305 4524	TEMP2 S 4524	0.75 / AMG18	306 4524	WH	05/18								
GEAR BEARING FRONT TEMPERATURE	307 4525	TEMP3+ 4525	0.75 / AMG18	308 4525	WH	05/18								
GEAR BEARING REAR TEMPERATURE	309 4525	TEMP3- 4525	0.75 / AMG18	310 4525	WH	04/210								
TEMPERATURE INPUT 310-319	311 4525	TEMP7+ 4525	0.75 / AMG18	312 4525	WH	04/211								
GEAR BEARING FRONT TEMPERATURE	314 4526	TEMP8+ 4526	0.75 / AMG18	315 4526	WH	04/211								
GEAR BEARING REAR TEMPERATURE	316 4526	TEMP9+ 4526	0.75 / AMG18	317 4526	WH	04/212								
Vestas Wind Systems A/S														
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Designed	060620	FLT	Project title	Input 300-319										
Approved			Comments	Customer Vestas Wind Systems A/S										
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	408	Sheet	407				



GEAR OIL TEMPERATURE AFTER EXCHANGER

YAW RIM TEMPERATURE (ARCTIC)

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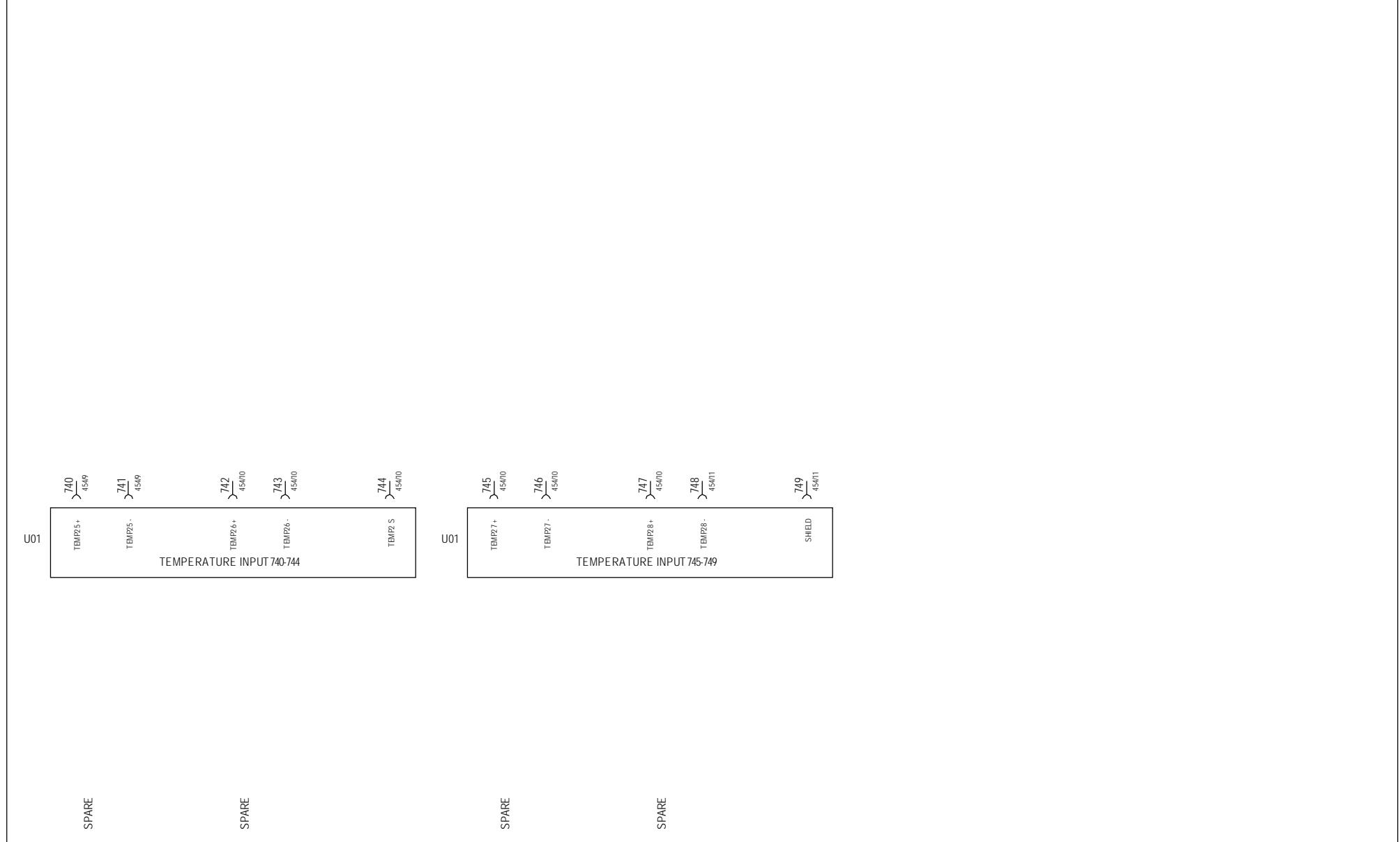
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Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
Approved			Comments			Customer	Vestas Wind Systems A/S			
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	409	Sheet	408

	1	2	3	4	5	6	7	8	9	10	11	12	13	
U01														
INTERIM GEAR FRONT TEMPERATURE														
TEMP19+ TBM19+ 0.75 / AMG18 4547	J25 F35 3 0432	J26 F35 4 0432	J27 F35 5 0432	J28 F35 6 0433	J30 F31 2 04177	J31 F31 3 04177	J32 F31 4 0418	J31 F31 5 0418	J35 F35 7 0433	J36 F35 8 0433	J37 F50 5 0518	J38 F50 6 0518	J39 F50 6 0518	
TEMP20+ TBM20+ 0.75 / AMG18 4547														
TEMPERATURE INPUT 725-729														
TBMP21+ TBM21+ 0.75 / AMG18 4548														
INTERIM GEAR REAR TEMPERATURE														
TEMP21+ TBM21+ 0.75 / AMG18 4548														
MAIN BEARING OIL TEMPERATURE														
TEMP22+ TBM22+ 0.75 / AMG18 4548														
MAIN BEARING TEMPERATURE														
TEMP23+ TBM23+ 0.75 / AMG18 4549														
GEAR/REARING TEMP. REAR GEN SIDE														
TEMP24+ TBM24+ 0.75 / AMG18 4549														
WATER TEMPERATURE AFTER COOLER 2														
SHIELD 729 4549														
SHIELD 730-734 4548														
SHIELD 735-739 4549														
Input 725-738														
Designed 060620 FLT	Date	Initials	Function											
Approved 050530 FLT	Comments	Customer Vestas Wind Systems A/S												
Revised 060620 FLT	Rev.	-	Drawing no.	934386	Cont. sheet	411	Sheet	410						

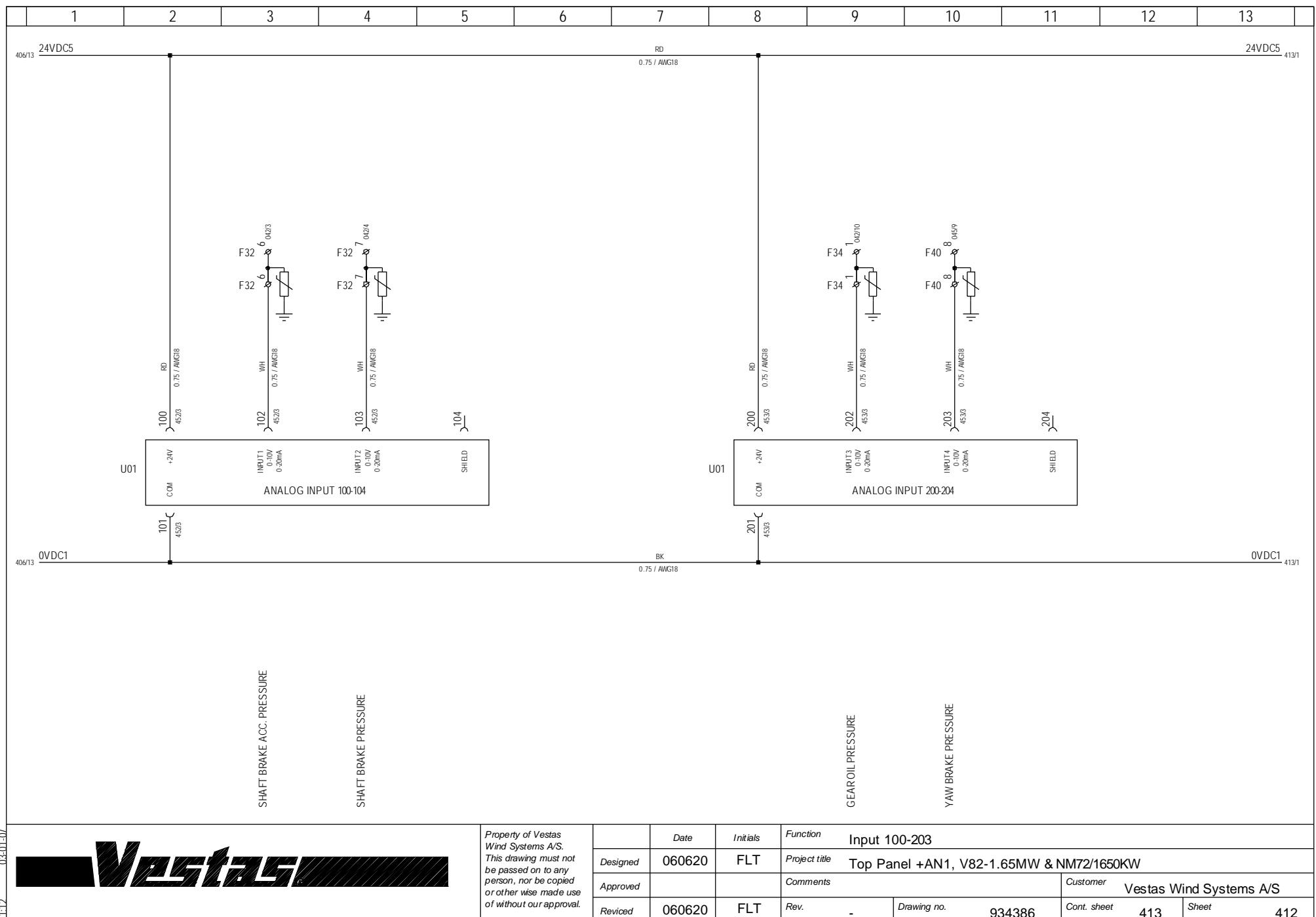


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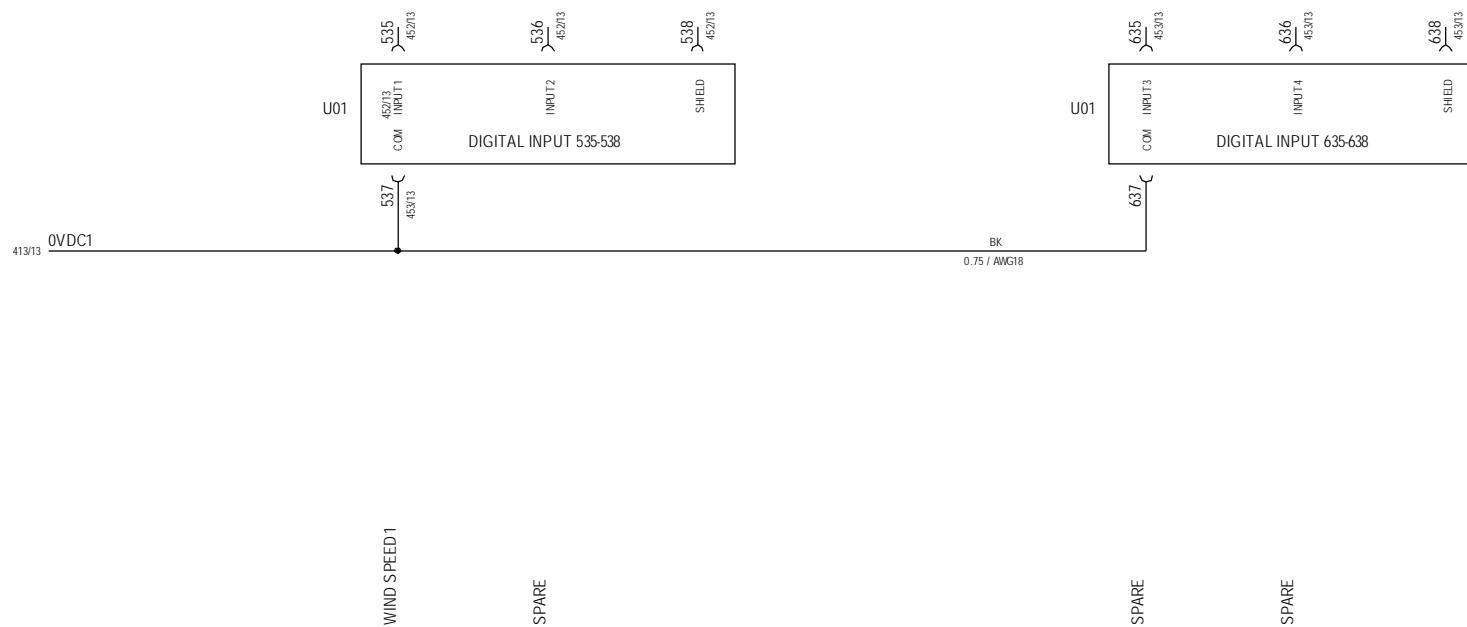


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Designed	060620	FLT	Project title Top Panel +AN1, V82-1.65MW & NM72/1650KW			Comments	Customer Vestas Wind Systems A/S		
Approved									
Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	412	Sheet 411



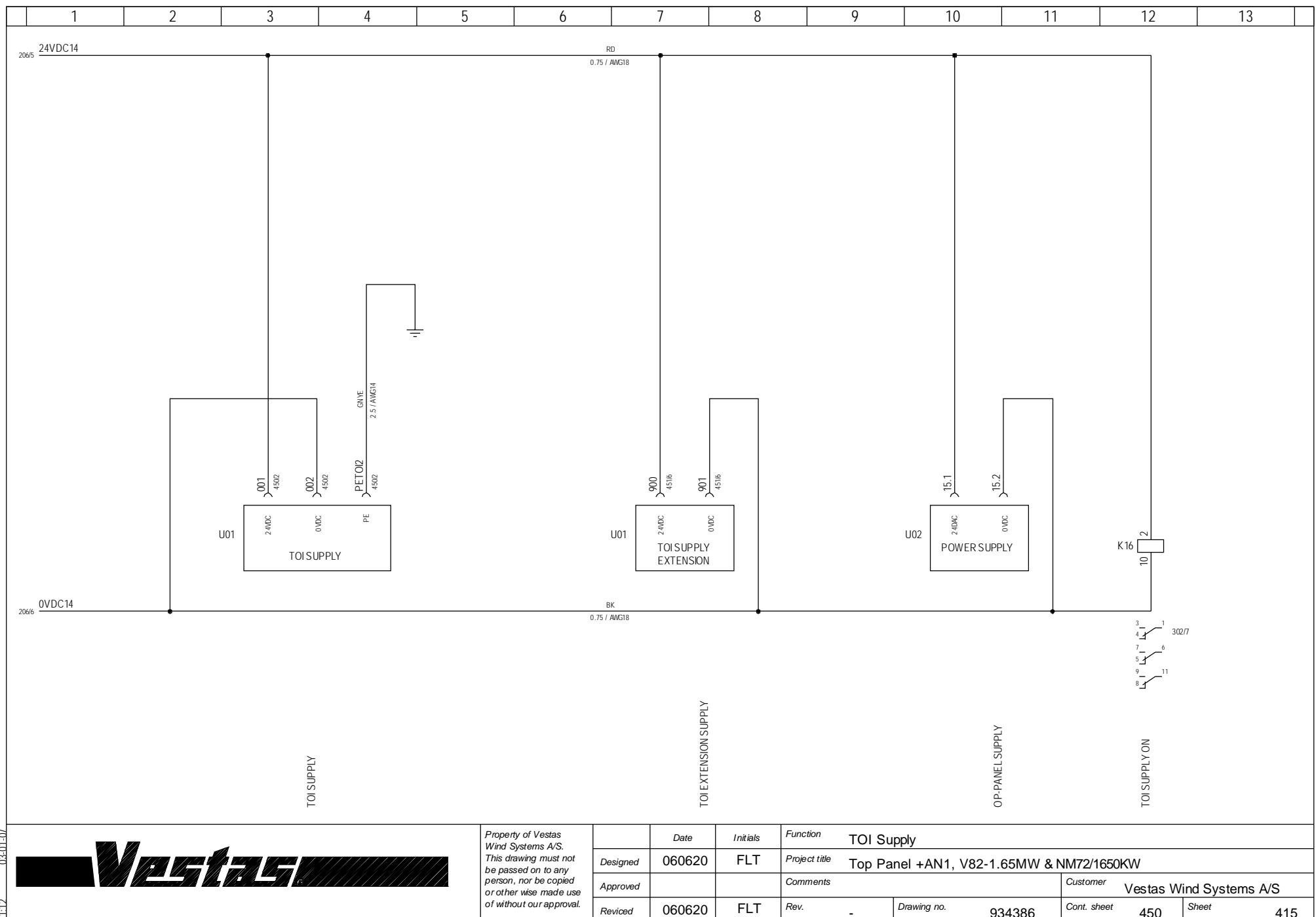
11:12 03-01-07

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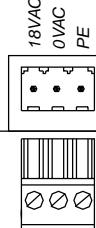


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	Date	Initials	Function	Input 535-638		
Designed	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW		
Approved			Comments			
Revised	060620	FLT	Rev.	Drawing no.	934386	Cont. sheet 415 Sheet 414



TOI 2 OUTPUT INTERFACE



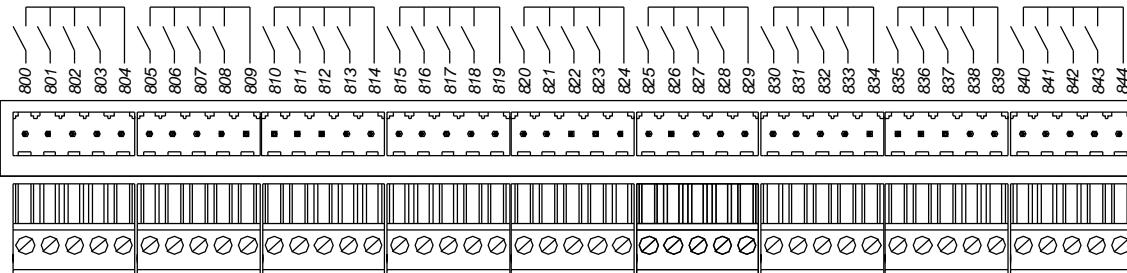
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415/3
415/4
415/4

500/2
500/3
500/4
500/4

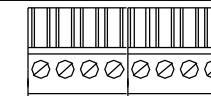
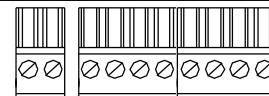
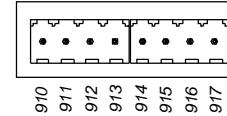
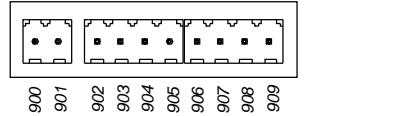
TOI SUPPLY 24VDC 14
TOI SUPPLY 0VDC 4
PE TOI2

RX1
TX2
RX2
TX2

WIND SENSOR HEAT
TOP PANEL FAN
LUBRICATION PUMP YAW RIM
NACELLE FAN
SUPPLY 24VDC
PANEL HEAT
LUBR. PUMP GEN BEARING
LUBR. PUMP YAW RIM BEARING
SPARE
SUPPLY 24VDC
SPARE
SPARE
YAW BRAKE VALVES
YAW BRAKE BYPASS VALVE V5
SUPPLY 24VDC
SHAFT BRAKE VALVE
SHAFT BRAKE VALVE APPLY1
SHAFT BRAKE VALVE APPLY2
SPARE
SUPPLY 24VDC
SUPPLY EMERGENCY CHAIN
SPARE
SPARE
SPARE
SUPPLY 24VDC
ACTIVE SHAFT BRAKE VALVE 1
ACTIVE SHAFT BRAKE VALVE 2
SPARE
SPARE
SPARE
SUPPLY 24VDC
SPARE
SPARE
SPARE
SPARE
SUPPLY 24VDC
SPARE
SPARE
SPARE
SUPPLY 230VAC6
SPARE
SPARE
MAIN BEARING OIL HEAT
MAIN BEARING OIL HEAT
SUPPLY 230VAC6



TOI 2 OUTPUT INTERFACE



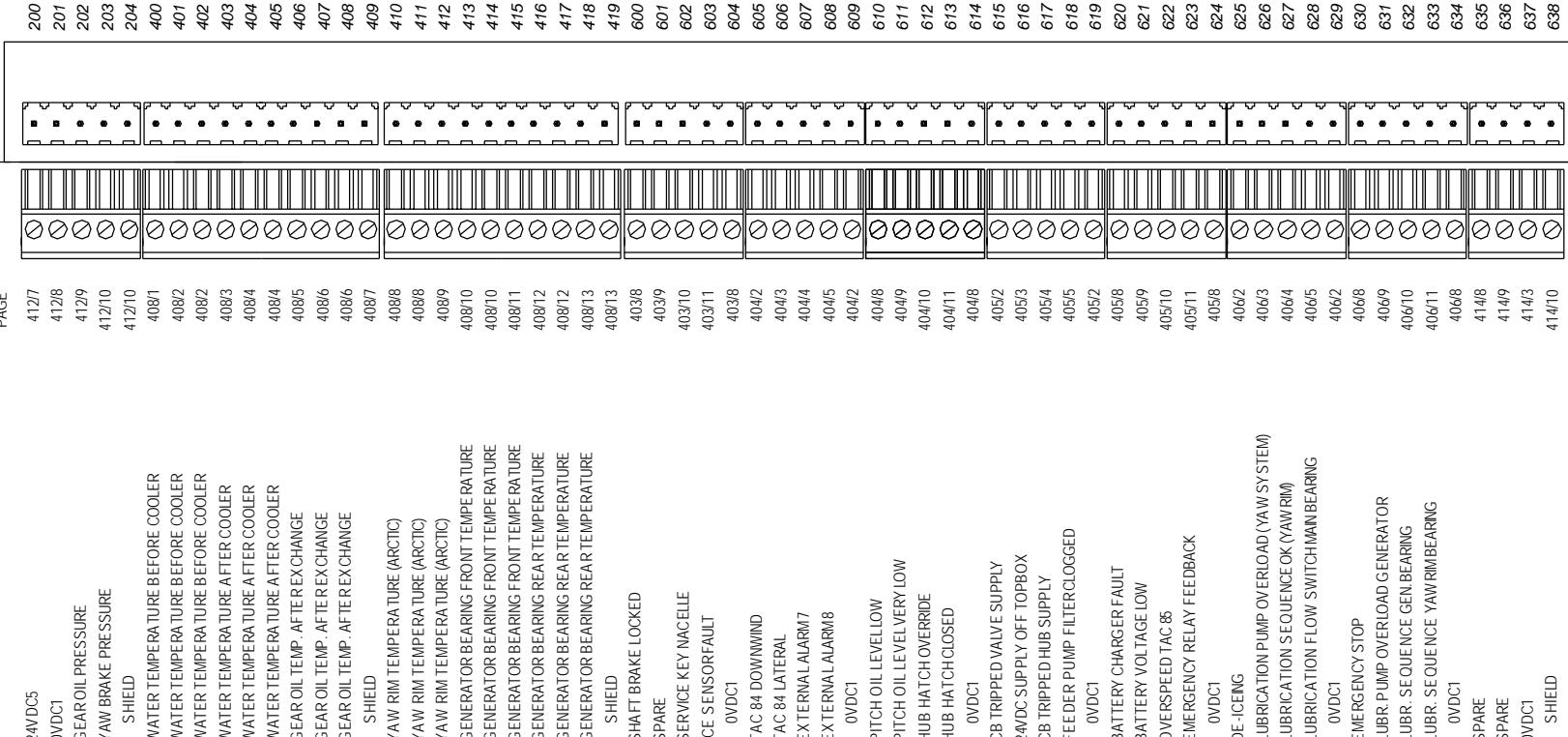
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TOI 2 INPUT INTERFACE

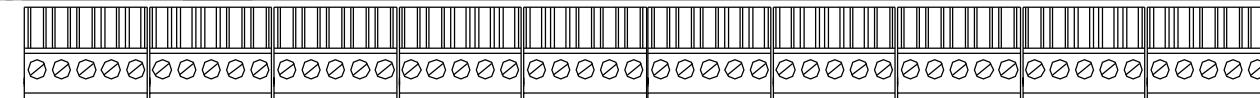
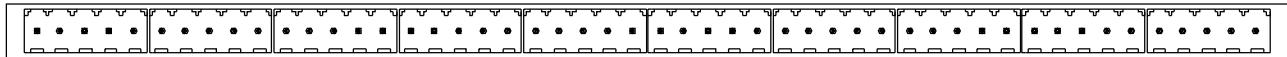


Vestas

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or otherwise made use
of without our approval.*

Property of Vestas Wind Systems A/S. <i>This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.</i>	Date	Initials	Function	TOI Outline Input						
	060620	FLT	Project title	Top Panel +AN1, V82-1.65MW & NM72/1650KW						
	Approved		Comments							
	Revised	060620	FLT	Rev.	-	Drawing no.	934386	Cont. sheet	454	Sheet

TOI 2 INPUT INTERFACE

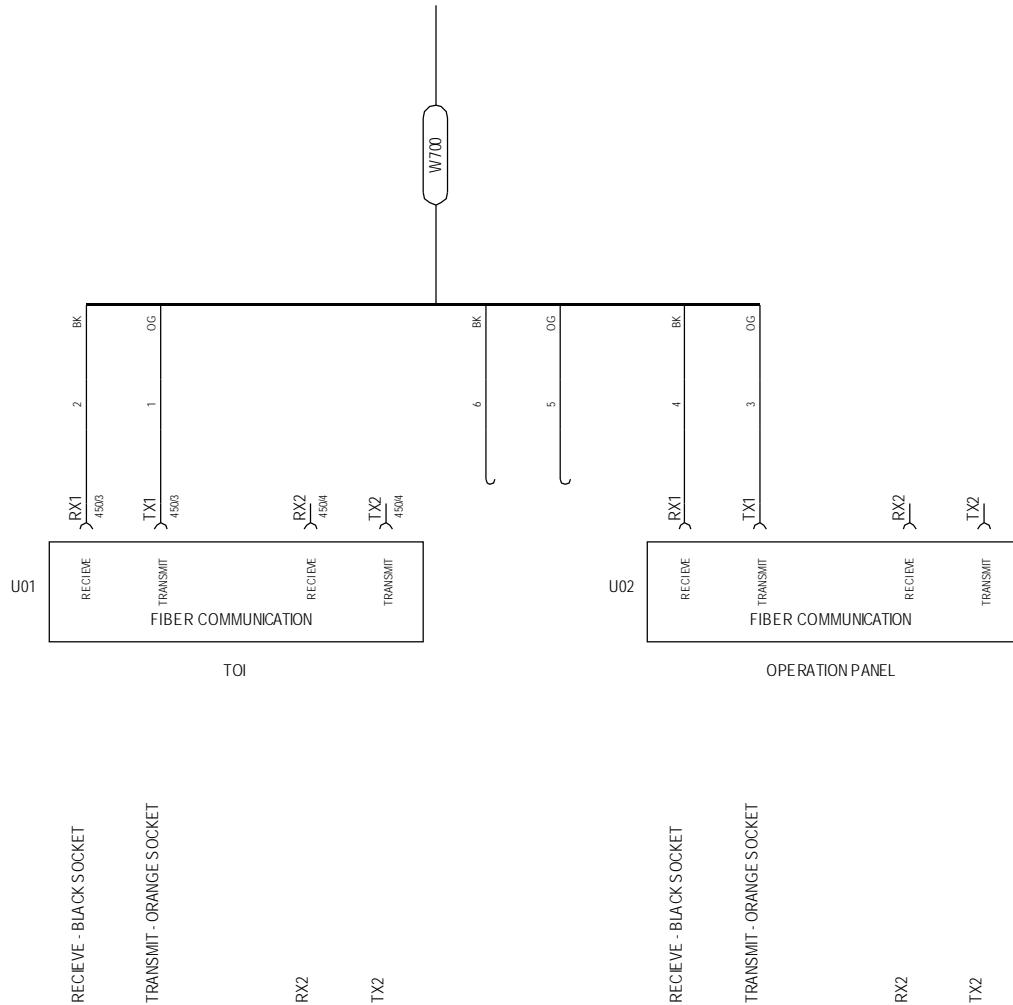


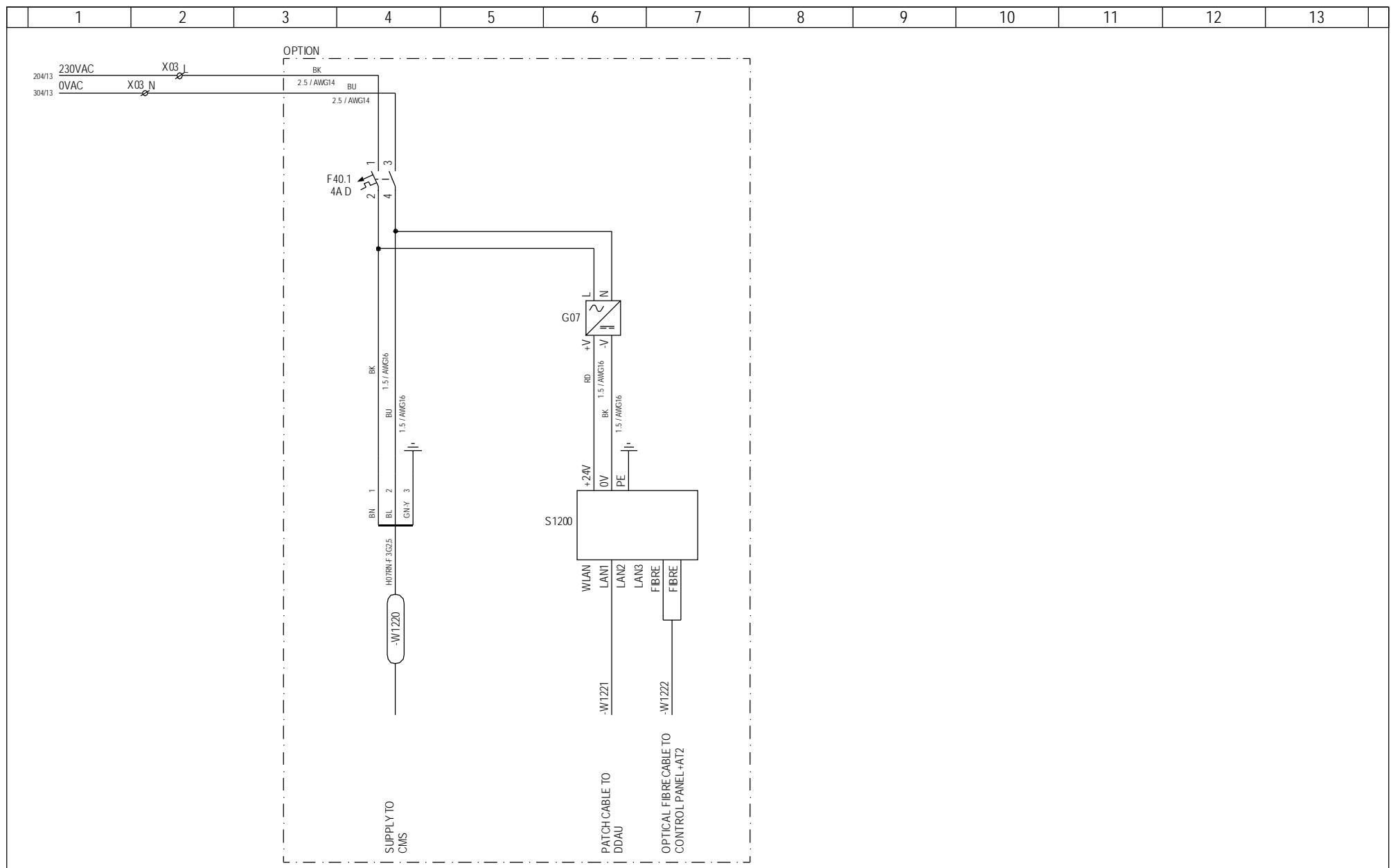
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FROM CONTROL PANEL +AT2





60108741 TOP PAN+AN1 NM72-V82 MRKIII 05

Component	Description	Qty per	Stk UM	Position Number
D1001707	Work instructions f. productio	0,000	EA	
118934	LABEL ELECTRICAL WARNING UNIV.	4,000	EA	
118994	LABEL Q01 MAIN SWI CONTROL V	1,000	EA	
193722	LOCKNUT MM20GPA POLYAMID	7,000	EA	
60006822	STICKER "LYN" 25MM	0,700	EA	
60006823	STICKER "LYN" 50MM	0,500	EA	
60100476	CABINET TS8 1 DOOR R7035	1,000	EA	
60108931	CABLE CONDUIT DIN RAIL TOP BOX	1,000	EA	
60108948	LABEL TYPE SIGN +AN1 NM72/V82	0,330	EA	
60109079	WIRING +AN1 V82 MRK3 0VDC	1,000	EA	
60109080	WIRING +AN1 V82 MRK3	1,000	EA	
60109081	WIRING +AN1 V82 MRK3 24VDC 5	1,000	EA	
60109082	WIRING +AN1 V82 MRK3 230V	1,000	EA	
60109083	WIRING +AN1 V82 MRK3 300-400	1,000	EA	
60109084	WIRING +AN1 V82 MRK3 500	1,000	EA	
60109085	WIRING +AN1 V82 MRK3 600	1,000	EA	
60109086	WIRING +AN1 V82 MRK3 700	1,000	EA	
60109087	WIRING +AN1 V82 MRK3 800	1,000	EA	
60109088	WIRING +AN1 V82 MRK3 BACKSIDE	1,000	EA	
60109089	WIRING +AN1 V82 MRK3 DATA	1,000	EA	
60109091	WIRING +AN1 V82 MRK3 G01	1,000	EA	
60109093	WIRING +AN1 V82 MRK3 X01	1,000	EA	
60109094	WIRING +AN1 V82 MRK3 INTERNAL	1,000	EA	
934386	TOP PAN+AN1 V82-1.65/NM72-1650	0,000	EA	
60108741/00	WIRING +AN1 V82 MK3 VARISTOR	1,000	EA	
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-F51
60006819	STICKER "EARTH" 14MM	0,200	EA	BACK
60007195	DIN RAIL FITTING TST 2/M6 100m	3,000	EA	BACK
60007197	SCREW FKSC M6x12MM	3,000	EA	BACK
60007472	CABLE TIE HOLDER MB3A-NN3P 20	1,000	EA	BACK
60009578	SCR CRS PH M3x8 FZB	5,000	EA	BACK
60009599	SCR CRS PH M4x14 4.8 FZB	5,000	EA	BACK
60009617	SCREW HFC 9046 M 4 x 16 - 4.8	3,000	EA	BACK
60009639	SCR HEX SET M8x20 8.8 FZB	1,000	EA	BACK
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	40,000	EA	BACK
60009795	WASHER SPR 6 FZG	4,000	EA	BACK
60009803	WASHER SPR 8 FZG	1,000	EA	BACK
60009838	LOCK WASHER DIN 6798 A4 - FZB	5,000	EA	BACK
60009841	WASHER LOCK 8 FZB	1,000	EA	BACK
60009861	NUT ISO 4032 M 4 - 6 - FZB	5,000	EA	BACK
60009873	NUT HEX M8 8 FZB	1,000	EA	BACK
60013412	ANGLE BRACKET 2x10x25MM	5,000	EA	BACK
60033040	SCR HEX SET M6x20 8.8 FZB	4,000	EA	BACK
60108956	MARK WAGO 2 +AN1 PANEL V82	1,000	EA	BACK
60109070	MOUNT PLATE TS8 W/W	1,000	EA	BACK
60009288	THERMOSTAT 60-0C COOL	1,000	EA	B01
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA	B06
60007481	CABLE RACK TK 5-7	1,000	EA	B33
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA	B33
60002320	STICKER GEN USE VCS	1,000	EA	CABINET
60002649	LABEL	1,000	EA	CABINET
60006819	STICKER "EARTH" 14MM	0,200	EA	CABINET
60007459	CABLE TIE WHITE 200x2.5mm	55,000	EA	CABINET
60007464	CABLE TIE WHITE 368x4.8mm	8,000	EA	CABINET
60007584	CABLE GLAND BM-EN-11 M16 PA 6	17,000	EA	CABINET
60007585	CABLE GLAND M20 PA6 BM-EN-12	7,000	EA	CABINET
60007586	CABLE GLAND M25 PA6 BM-EN-13	10,000	EA	CABINET
60007588	CABLE GLAND BM-EN-15 M40 PA 6	2,000	EA	CABINET
60007589	CABLE GLAND BM-EN-16 M50 PA 6	1,000	EA	CABINET
60007592	LOCKNUT M16 PA6 BML-1S	17,000	EA	CABINET
60007594	LOCKNUT M25 PA6 BML-13	10,000	EA	CABINET
60007596	LOCKNUT M40 PA6 BML-15	4,000	EA	CABINET
60007597	Locknut BML-16 M50 PA 6	1,000	EA	CABINET
60007829	WIRE TIN 16 150MM Ø8 IEC/UL	2,000	EA	CABINET
60008794	FIBRE PLUG ST-COUPLER AMP 05-5	4,000	EA	CABINET
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	CABINET
60009619	SCR M4.2x9.5 FZB	16,000	EA	CABINET
60009638	SCR HEX SET M8x16 8.8 FZB	5,000	EA	CABINET
60009838	LOCK WASHER DIN 6798 A4 - FZB	4,000	EA	CABINET
60009861	NUT ISO 4032 M 4 - 6 - FZB	4,000	EA	CABINET

60033450	SCR HEX SET M12x40 8.8 tZn	4,000	EA	CABINET
60034396	WASHER 12 200HV tZn	4,000	EA	CABINET
60042162	WASHER 8 140HV A2	2,000	EA	CABINET
60096851	TORX SCREW 2486.500 5.5X13MM	26,000	EA	CABINET
60096871	THREADED BLOCK PS4163.000 8MM	5,000	EA	CABINET
60096978	PUNCHED RAIL 8612.260	6,000	EA	CABINET
60102500	BRA F EL-BOX	2,000	EA	CABINET
60108709	CABLE ENTRY PLATE ALU ZINC	1,000	EA	CABINET
60108947	PVC COVER TOP PANEL	1,000	EA	CABINET
60109092	WIRING +AN1 V82 MRK3 PANEL	1,000	EA	CABINET
60109951	LABEL "WAR UNDER TENSION TO	1,000	EA	CABINET
60110413	CABLE GLAND M40 PLASTIC	2,000	EA	CABINET
60002424	LABEL "+AN1"	1,000	EA	CABINET FRONT
60108879	LABEL TYPE SIGN TOP PANEL V82	1,000	EA	CABINET FRONT
60112001	THERMO 25x150mm AN1 MRKIII 1	1,000	EA	CABINET FRONT
60014729	HEATER FAN CR0 27 230V 350W UL	1,000	EA	E01
60006819	STICKER "EARTH" 14MM	0,200	EA	FRONT
60007195	DIN RAIL FITTING TST 2/M6 100m	6,000	EA	FRONT
60007197	SCREW FKSC M6x12MM	6,000	EA	FRONT
60009578	SCR CRS PH M3x8 FZB	8,000	EA	FRONT
60009599	SCR CRS PH M4x14 4.8 FZB	3,000	EA	FRONT
60009617	SCREW HFC 9046 M 4 x 16 - 4.8	4,000	EA	FRONT
60009639	SCR HEX SET M8x20 8.8 FZB	2,000	EA	FRONT
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	64,000	EA	FRONT
60009803	WASHER SPR 8 FZG	2,000	EA	FRONT
60009838	LOCK WASHER DIN 6798 A4 - FZB	3,000	EA	FRONT
60009841	WASHER LOCK 8 FZB	2,000	EA	FRONT
60009861	NUT ISO 4032 M 4 - 6 - FZB	3,000	EA	FRONT
60009873	NUT HEX M8 8 FZB	2,000	EA	FRONT
60013412	ANGLE BRACKET 2x10x25MM	3,000	EA	FRONT
60108955	MARK WAGO 1 +AN1 PANEL V82	1,000	EA	FRONT
60109065	MOUNT PLATE TS8 W/W	1,000	EA	FRONT
60112190	THERMO 25x90mm AN1 MRKIII 2	1,000	EA	FRONT
60112191	THERMO 25x75mm AN1 MRKIII 3	1,000	EA	FRONT
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F01
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F02
60005160	MCB 5SX2210-7 10.0A C 2P	1,000	EA	F03
60005193	AUX CONTACT 5SX9100	1,000	EA	F03
60005135	MCB 5SX2103-7 3.0A C 1P	1,000	EA	F04
60005193	AUX CONTACT 5SX9100	1,000	EA	F04
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F05
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F06
60005135	MCB 5SX2103-7 3.0A C 1P	1,000	EA	F07
60005193	AUX CONTACT 5SX9100	1,000	EA	F07
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F14
60005162	MCB 5SX2213-7 13.0A C 2P	1,000	EA	F15
60000673	OVP 275FM	2,000	EA	F16
60000677	BUSBAR 2 OVPS	1,000	EA	F16
60009610	SCR CRS PH M6x14 4.8 FZB	1,000	EA	F16
60009795	WASHER SPR 6 FZG	1,000	EA	F16
60013281	BUSBAR CU 3x15x75MM FISH F.	1,000	EA	F16
60005154	MCB 5SX2204-7 4.0A C 2P	1,000	EA	F18
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F21
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F22
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	F24
60005193	AUX CONTACT 5SX9100	1,000	EA	F24
60005135	MCB 5SX2103-7 3.0A C 1P	1,000	EA	F26
60005193	AUX CONTACT 5SX9100	1,000	EA	F26
600091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	F26
51706201	VARISTOR BOX X8	22,000	EA	F30-51
60001869	CONN MSTBT F 4 LEADED	66,000	EA	F30-51
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	F37
60000719	BATT 115-230/24V10A ADC5423/83	1,000	EA	G01
60091912	END STOP WAGO 249-117 10MM	5,000	EA	G01-G06
60000711	BAT H4 12V 32Ah	1,000	EA	G02
60013657	SHELF F TWO H4 BATTERIES	1,000	EA	G02, G03
60013658	ANGLE F SHELF F TWO H4 BAT	2,000	EA	G02, G03
60000711	BAT H4 12V 32Ah	1,000	EA	G03
60000719	BATT 115-230/24V10A ADC5423/83	1,000	EA	G04
60000719	BATT 115-230/24V10A ADC5423/83	1,000	EA	G05
60000719	BATT 115-230/24V10A ADC5423/83	1,000	EA	G06
60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	K01
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	K01
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	K01

60004394	CONT 3RT10161AP02 230V 50/60Hz	1,000	EA	K02
60004450	RCUNIT 3RT19161CD00 127-240VAC	1,000	EA	K02
60004532	RELAY MT3230C4 10A 24V 3P	1,000	EA	K03
60005026	SOCKET MT 78740 11-POLED	1,000	EA	K03
60005028	FASTENING BRACKET F RELAY 3P	1,000	EA	K03
60004532	RELAY MT3230C4 10A 24V 3P	1,000	EA	K04
60005026	SOCKET MT 78740 11-POLED	1,000	EA	K04
60005028	FASTENING BRACKET F RELAY 3P	1,000	EA	K04
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K05
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K05
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K05
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K05
60004996	RELAY EMER 3TK2806OBB4 400V	1,000	EA	K07
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	K07
60004532	RELAY MT3230C4 10A 24V 3P	1,000	EA	K08
60005026	SOCKET MT 78740 11-POLED	1,000	EA	K08
60005028	FASTENING BRACKET F RELAY 3P	1,000	EA	K08
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K09
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K09
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K09
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K09
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K11
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K11
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K11
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K11
60004391	CONT 3RT1016-1BB41 24V DC	1,000	EA	K14
60004452	DIODE 3RT1916-1LM00 24-70V	1,000	EA	K14
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K15
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K15
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K15
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K15
60004532	RELAY MT3230C4 10A 24V 3P	1,000	EA	K16
60005026	SOCKET MT 78740 11-POLED	1,000	EA	K16
60005028	FASTENING BRACKET F RELAY 3P	1,000	EA	K16
60004513	RELAY RT424024 8A 24V 2P	1,000	EA	K17
60004517	SKT RT RT78625 2x12A 300VAC 2P	1,000	EA	K17
60004518	RETAINER FOR RT SOCEKT RT16016	1,000	EA	K17
60004520	DIODE MODULE RPML0024 12-24V	1,000	EA	K17
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	K17
60004933	RS485/RS485 REPEATER I-75	1,000	EA	K21
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	K21
60004933	RS485/RS485 REPEATER I-75	1,000	EA	K22
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	K22
60108632	FAN 55M3/H 230V	1,000	EA	M01
60108634	FILTER EXH 148x148x24	1,000	EA	M01
60108632	FAN 55M3/H 230V	1,000	EA	M02
60108634	FILTER EXH 148x148x24	1,000	EA	M02
60009752	SCR M4.8x19 FZB	4,000	EA	PACKING
60005838	PILOT LIGHT ISFA 616 400 R1002	1,000	EA	P01
60005848	HOLDER for 3 ELEMENTS SK616 01	1,000	EA	P01
60005850	LAMP BLOCK SK616 003-A	1,000	EA	P01
60005886	BULB BA9S 24V	1,000	EA	P01
60102749	LABEL "SHAFT BRAKE LOCKED"	1,000	EA	P01
60005768	SWI SWDIS 25A 3P OT25ET3	1,000	EA	Q01
60005774	HANDLE OHB 2RJ BK	1,000	EA	Q01
60005776	SWI COVER OTS32T3 3P	2,000	EA	Q01
60109951	LABEL "WAR UNDER TENSION TO	2,000	EA	REAR
60109966	LABEL "WAR NOT DISCONNECTED"	1,000	EA	REAR
60005824	MUSHROOM BUTTON ISAF616510R100	1,000	EA	S01
60005846	CONTACT ELEMENT SK616 001-B 1N	2,000	EA	S01
60005848	HOLDER for 3 ELEMENTS SK616 01	1,000	EA	S01
60005871	SIGN SK615546-2 "EMERGENCY STO	1,000	EA	S01
60002421	LABEL "SERVICE 0 1"	1,000	EA	S02
60005836	SELECT SWITCH ISFA616280R100 2	1,000	EA	S02
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S02
60005848	HOLDER for 3 ELEMENTS SK616 01	1,000	EA	S02
51713101	TOI-II INTERF EXT V82 TOP	1,000	EA	U01
60001911	CONN BLA F 2 LEADED	1,000	EA	U01
60001918	CONN BLA F 3 LEADED	1,000	EA	U01
60001927	CONN BLA F 4 LEADED	6,000	EA	U01
60001934	CONN BLA F 5 LEADED	7,000	EA	U01
60108384	BRA F TOI +AN1 1650KW V82 MRK3	2,000	EA	U01
51701701	DISP OP-PANEL 50u 1.5MW C	1,000	EA	U02
60001911	CONN BLA F 2 LEADED	1,000	EA	U02

60008830	PATCH CABLE DUPLEX MULTIMODE 6	2,000	EA	U02
60108881	BRA F FIBRE PLUG ST-COUPLER	1,000	EA	U02
51701001	TAC 84C VIB GUARD 2 FILTERS	1,000	EA	U03
51705401	VS05E ACCELEROMETER 12m	1,000	EA	U03
60005026	SOCKET MT 78740 11-POLED	1,000	EA	U03
60005027	FASTENING BRACKET for S-SYSTEM	1,000	EA	U03
60012101	WIRING RS485 - TAC84/85	1,000	EA	U03
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	U03
51700402	TAC 85-1 DIRECTION GUARD VWS	1,000	EA	U04
60005026	SOCKET MT 78740 11-POLED	1,000	EA	U04
60005027	FASTENING BRACKET for S-SYSTEM	1,000	EA	U04
60012101	WIRING RS485 - TAC84/85	1,000	EA	U04
60004924	TRIP AMPLIFIER 2231D-1050	1,000	EA	U05
60005026	SOCKET MT 78740 11-POLED	1,000	EA	U05
60005027	FASTENING BRACKET for S-SYSTEM	1,000	EA	U05
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	U05
51700101	TAC 84C VIB GUARD RS485 NMCS	1,000	EA	U06
60005026	SOCKET MT 78740 11-POLED	1,000	EA	U06
60005027	FASTENING BRACKET for S-SYSTEM	1,000	EA	U06
60012101	WIRING RS485 - TAC84/85	1,000	EA	U06
51700101	TAC 84C VIB GUARD RS485 NMCS	1,000	EA	U07
60005026	SOCKET MT 78740 11-POLED	1,000	EA	U07
60005027	FASTENING BRACKET for S-SYSTEM	1,000	EA	U07
60012101	WIRING RS485 - TAC84/85	1,000	EA	U07
60000980	DIODE BRID KBPC3506G 600V 35A	1,000	EA	V07
60002503	LABEL "-X01"	1,000	EA	X01
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X01
60006072	TERMINAL WAGO 870-551 3-LEV.0,	2,000	EA	X02
60006084	END SECTION 870-568 3-LEV GREY	1,000	EA	X02
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X02
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X02
60006078	TERMINAL WAGO DOUBLE 870-831 2	9,000	EA	X03
60006079	END PLATE 870-948	1,000	EA	X03
60006088	PUSH-IN JUMPER BAR 870-404 4-P	2,000	EA	X03
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X03
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X03
60006078	TERMINAL WAGO DOUBLE 870-831 2	3,000	EA	X04
60006079	END PLATE 870-948	1,000	EA	X04
60006086	PUSH-IN JUMPER BAR 870-402 2-P	1,000	EA	X04
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X04
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X04
60006072	TERMINAL WAGO 870-551 3-LEV.0,	2,000	EA	X05
60006084	END SECTION 870-568 3-LEV GREY	1,000	EA	X05
60006086	PUSH-IN JUMPER BAR 870-402 2-P	3,000	EA	X05
60006078	TERMINAL WAGO DOUBLE 870-831 2	2,000	EA	X06
60006079	END PLATE 870-948	1,000	EA	X06
60006086	PUSH-IN JUMPER BAR 870-402 2-P	1,000	EA	X06
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X06
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X06
60006072	TERMINAL WAGO 870-551 3-LEV.0,	1,000	EA	X07
60006084	END SECTION 870-568 3-LEV GREY	1,000	EA	X07
60091912	END STOP WAGO 249-117 10MM	1,000	EA	X07
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X07
60006072	TERMINAL WAGO 870-551 3-LEV.0,	2,000	EA	X08
60006084	END SECTION 870-568 3-LEV GREY	1,000	EA	X08
60006086	PUSH-IN JUMPER BAR 870-402 2-P	3,000	EA	X08
60006071	TERMINAL WAGO 870-501 2-LEV.0,	1,000	EA	X09
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	X09
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	X09
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X10
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X10
60096685	TERMINAL WAGO1-LEV 0.08-4.0MM2	29,000	EA	X10
60097064	END SEC 281-328 GY	1,000	EA	X10
60100036	PUSH-IN JUMPER BAR 2-POL	2,000	EA	X10
60007422	WIRE HOSE BLACK 30mm	0,320	M	2X160MM
60006078	TERMINAL WAGO DOUBLE 870-831 2	1,000	EA	24VDC5+
60006079	END PLATE 870-948	1,000	EA	24VDC5+
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	24VDC5+
60091912	END STOP WAGO 249-117 10MM	1,000	EA	24VDC5+
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	24VDC5+

Change Info

Item no.	Item text:
60112234	Operation Box +AN2

Active revision for production

Drawing no.: 6010125

Version	Date	Init./App.	Description of change since last revision
04	13.12.2007	INI /BIVA	Changed with ECO 232839 - All pages updated with new Vestas logo. Page 030: Layout, box bottom inside, position ID corrected. Page 040: Symbols for S2, S3 and S4 updated, terminal numbers corrected.

LST no.: 21000218

Version	Date	Init./App.	Material BOM no.: 60112234	Description of change since last revision
03	18.04.2007	HHU+INI/FLT		Changed with ECO 216586 + ECO 223407 _Updated for production in Spain Added items: 60073080 Bracket x 1 pc. 60009587 SCREW ISO 7046 M4 x 2 pc. 60009599 SCREW ISO 7045 x 4 pc. 60009838 LOCK WASHER DIN 6798 x 4 pc. 60009987 MAGNET x 2 pc. Removed item 60007458 CABLE TIE 140x2.5mm WH x 3 pc.

Old revisions for service

Drawing no.: 6010125

Version	Date	Init./App.	Description of change since last revision
03	10.03.2006	INI /FLT	Reason for changes, Push button box 60010964 is left out from ABB assortment, replaced with 769055 Page 001 Updated
02	29.09.2005	INI /FLT	Page 030: Layout updated with the new box. Reason for changes, new pushbutton series from ABB, dim. of PG changed. Layout corrected with new 60005849_SAFETY HOLDER and illustrated that terminals are placed inside the cover. PG21 changed to PG13.5
01	24.04.2003	INI /FLT	Page 40:Internal connections updated. First version in the new SAP no. system.

LST no.: 21000218

Version	Date	Init./App.	Material BOM no.: 60112234	Description of change since last revision
03	18.04.2007	HHU+INI/FLT		Changed with ECO 216586 + ECO 223407 _Updated for production in Spain Added items: 60073080 Bracket x 1 pc. 60009587 SCREW ISO 7046 M4 x 2 pc. 60009599 SCREW ISO 7045 x 4 pc. 60009838 LOCK WASHER DIN 6798 x 4 pc. 60009987 MAGNET x 2 pc. Removed item 60007458 CABLE TIE 140x2.5mm WH x 3 pc.
02	02.03.2006	INI/FLT		Reason for changes, Push button box 60010964 is left out from ABB assortment, replaced with 769055 60010964 changed to 769055_Push Bottom Box 4 holes 60002309 changed to 118928_Sign 60007541 changed to 193712_Cable gland FM20GPA polyamid. 60007557 changed to 193722_Locknut MM20GPA polyamid. 60005844 changed to 60005845_CE SK616 002-A 1NO din rail 60005847x1 pc CE SK616 002B 1NC din rail added 60007458x3 pc. Cable tie 140x2.5mm WH added. 60005881x4 pc. 60007665x1 pc. 60005849x3 pc. removed
01	03.10.20005	INI/FLT		Reason for changes, new pushbutton series from ABB. Added: 60007656_Reduction adapter PG21-PG13.5 60005849_Safety holder f.3 ELEMEN.1SFA616605R1100 (S2,S3,S4) 60110724_Wiring 70MM X-LINE 0,75MM2 RØD SV/SV Changed: 60007545 to 60007541_cable gland BS14 PG13.5 nylon 60005832 to 60112230_SS ISFA611210R1006 3POS BK 60005834 to 60112231_SS ISFA611212R1006 3POS RETUR 60005828 to 60112228_SS ISFA611202R1006 B-C RETURN 60005845 to 60005844_Contact element SK616 001-A 1NO

Earlier BOM no Longer Active for Serial Production

LST no.: 21000003

Version

02

Date

02.06.2005

Material BOM no.: 60015962

Init./App.

HRN/

FLT/FLT

Description of change since last revision

Production required changes.

First version in the new SAP no. system.

Change Info: 0000203

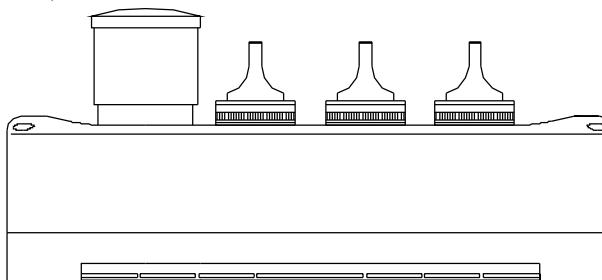


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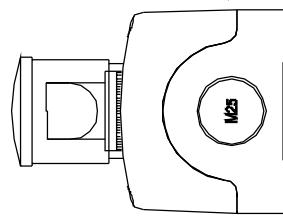
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Designed	010924	FLT	Project title	Operation Box +AN2						
Approved	071213	BIVA	Comments				Customer	Vestas Wind Systems A/S		
Revised	071213	INI	Rev.	04	Drawing no.	6010125	Cont. sheet	030	Sheet	001

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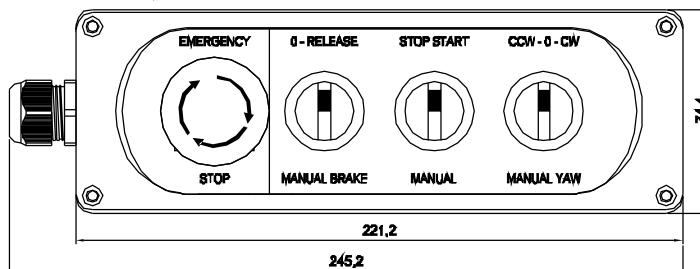
BOX SIDE



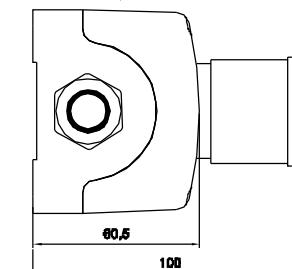
BOX RIGHT END



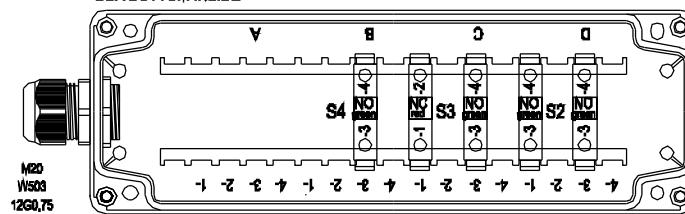
BOX FRONT



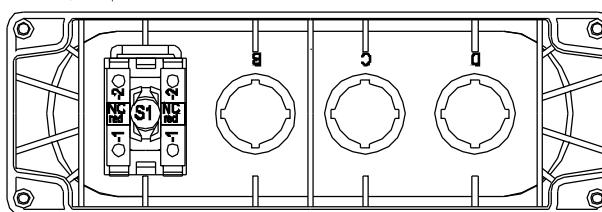
BOX LEFT END



BOX BOTTOM INSIDE



BOX COVER INSIDE

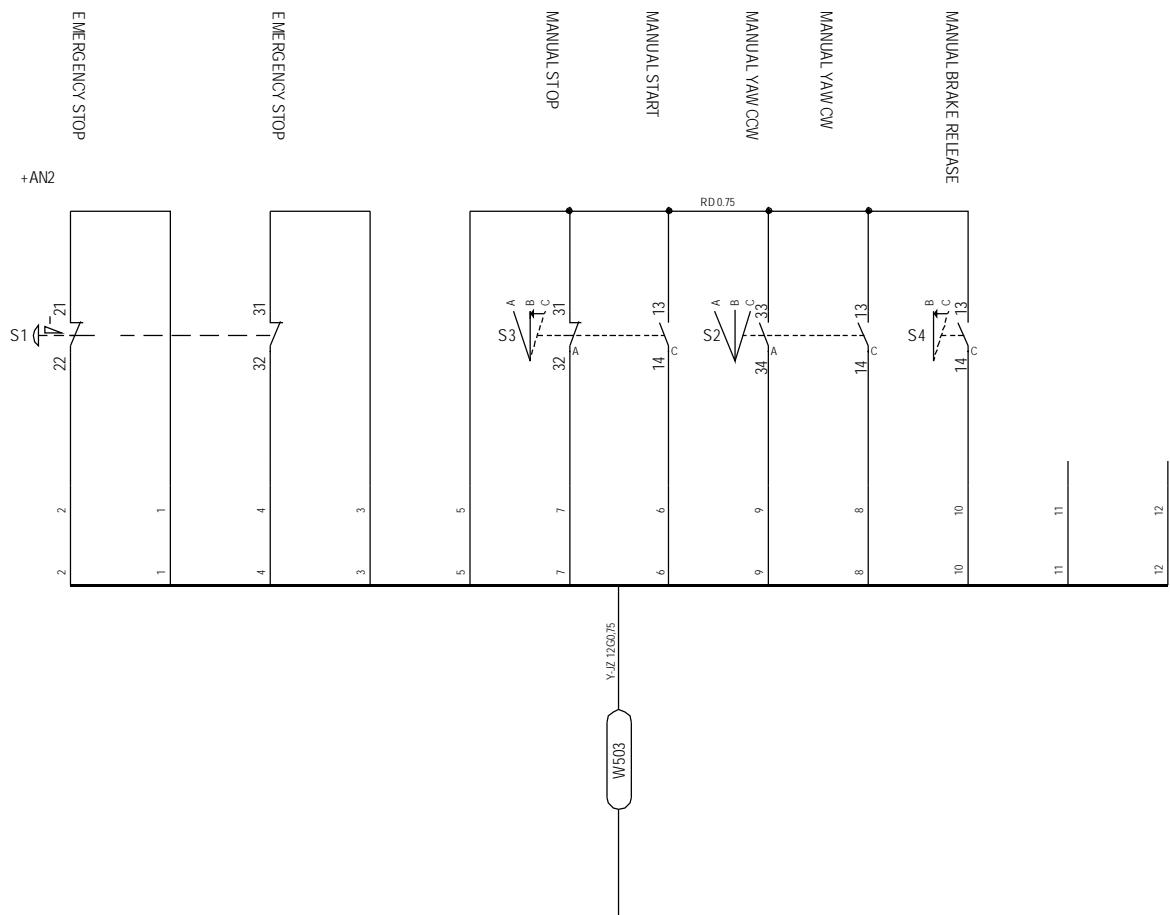


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	Date	Initials	Function	Layout	
Designed	010924	FLT	Project title	Operation Box +AN2	
Approved	071213	BIVA	Comments		Customer Vestas Wind Systems A/S
Revised	071213	INI	Rev.	Drawing no. 6010125	Cont. sheet 040 Sheet 030

1	2	3	4	5	6	7	8	9	10	11	12	13
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	Date	Initials	Function	Internal Connection		
Designed	010924	FLT	Project title	Operation Box +AN2		
Approved	071213	BIVA	Comments			
Revised	071213	INI	Rev.	Drawing no.	6010125	Customer Vestas Wind Systems A/S
				Cont. sheet	-	Sheet 040

Vestas
Wind Systems A/S

60112234 OPERATION BOX +AN2 30t

Component	Description	Qty per	Stk UM	Position Number
D6010125	OPERATION BOX +AN2 30t	0,000	EA	
60110664	CABLE F OPERATIONS BOX +AN2	1,000	EA	
60110724	WIRING 70MM X-LINE 0,75MM2	4,000	EA	
769055	PUSH BOTTON BOX W. 4 HOLES	1,000	EA	
118928	SIGN, OPERATION BOX +AN2 V82	1,000	EA	
193712	CABLE GLAND FM20GPA POLYAMID	1,000	EA	
193722	LOCKNUT MM20GPA POLYAMID	1,000	EA	
D1001713	WKI f. production of +AN2 NM72	0,000	EA	
60009587	SCR CRS UH M4x10 4.8 FZB	2,000	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	
60009987	MAGNET A43A-KSM4 43MM	2,000	EA	
60073080	BRA F CONTROL BOX AN2	1,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	4,000	EA	
60005824	MUSHROOM BUTTON ISAF616510R100	1,000	EA	S1
60005846	CONTACT ELEMENT SK616 001-B 1N	2,000	EA	S1
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S1
60112230	SS M3SS1-10B 3POS BK	1,000	EA	S2
60005845	CE SK616 002-A 1NO DIN RAIL	2,000	EA	S2
60112231	SS M3SS3-10B 3POS RETUR	1,000	EA	S3
60005847	CE SK616 002-B 1NC DIN RAIL	1,000	EA	S3
60005845	CE SK616 002-A 1NO DIN RAIL	1,000	EA	S3
60112228	SS M2SS3-10B B-C RETURN	1,000	EA	S4
60005845	CE SK616 002-A 1NO DIN RAIL	1,000	EA	S4

Change Info

Item no.	Item text:
60109799	Motor Box +AN4, V82-1.65MW 690V 50Hz MRK III

Active revision for production

Drawing no.: 6015969

Version	Date	Init./App.	Description of change since last revision
03	23.08.2005	INI/FLT	Page 030: X01 and X02 layout corrected.

LST no.: 21000204

Version	Date	Init./App.	Material BOM no.: 60109799 Description of change since last revision
04	18.04.2007	INI/FLT	Changed with ECO 223422_Updated for production in Spain. Added: 60007459 CABLE TIE WHITE 200x2.5mm x 2 pc. Removed: 60094881 MARKER CARD WAGO Nos 71-80 TYP x 0,1 pc. Quantity changed: 60009599 SCREW ISO 7045, 6 pc. to 14 pc. 60009751 SCREW, 10 pc. to 9 pc. 60009838 LOCK WASHER, 6 pc. to 14 pc. 60009861 NUT ISO 4032, 6 pc. to 14 pc. 60096685 TERMINAL, 71 pc. to 70 pc. 60105941 QUICK-RELEASE FASTENER, 6 pc. to 0,5 pc.

Old revisions for service

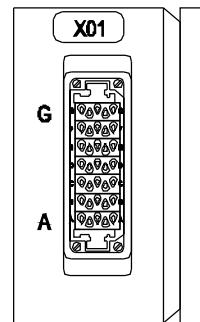
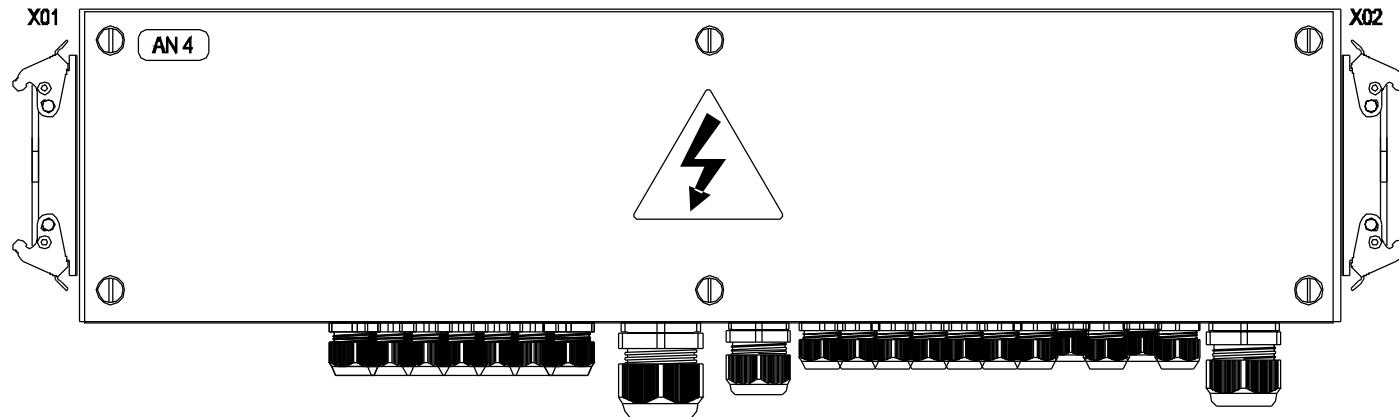
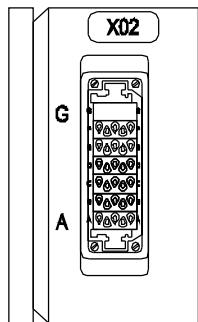
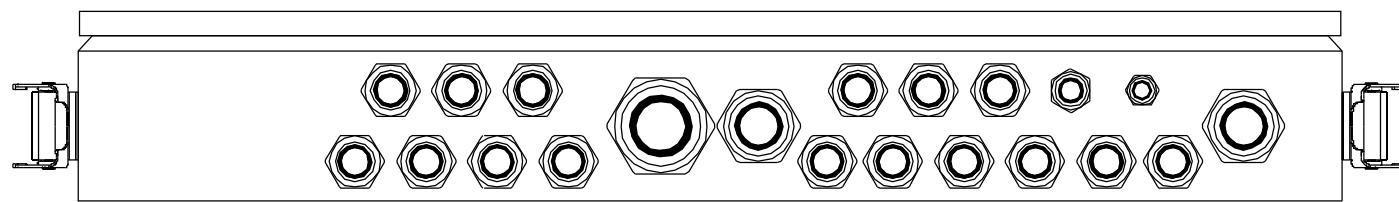
Drawing no.: 6015969

Version	Date	Init./App.	Description of change since last revision
02	11.07.2005	INI/FLT	Page 001: Updated. Page 106: Text corrected.
01	02.06.2005	INI/FLT	Page 001: Updated. Page 103, 105: Core colour changed from BN to BK Page 106: Core colour and dimension added.
00	04.02.2005	FLT/FLT	First version

LST no.: 21000204

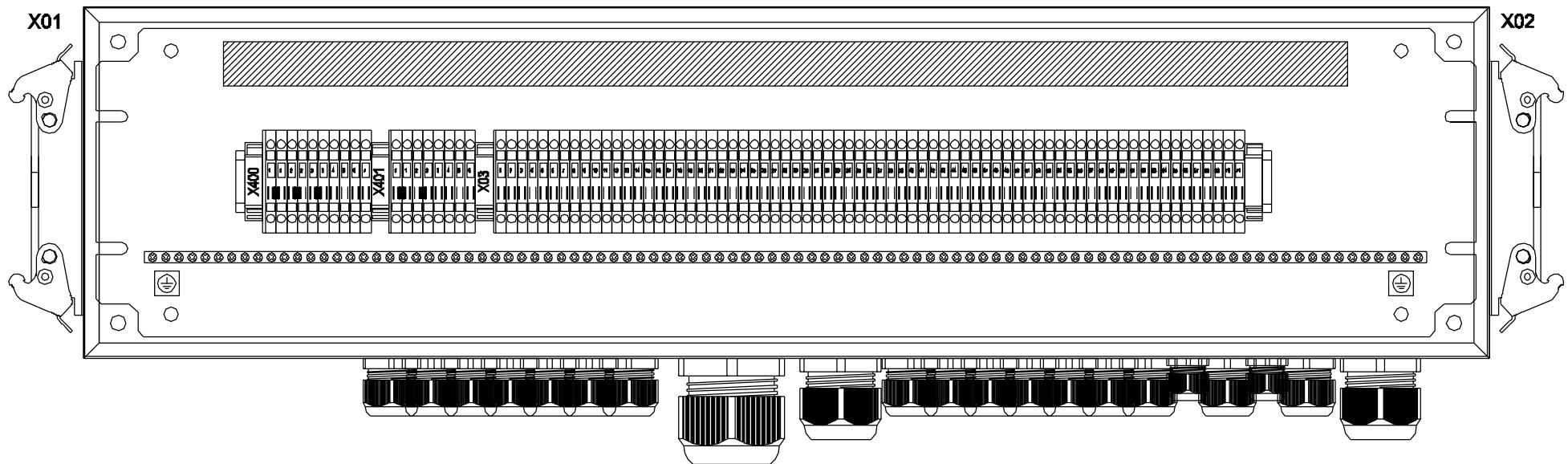
Version	Date	Init./App.	Material BOM no.: 60109799 Description of change since last revision
03	06.10.2005	HRN/MILJE	Production required change. 60007693 replaced with 60007584_Cable gland BM-EN-11 M16 PA6
02	25.05.2005	MILJE/FLT	Updates according to production 60110696 wiring X02, 60110701 wiring X400 and 60110702 wiring X01 added.
01	27.04.2005	FLT/FLT	First version

1	2	3	4	5	6	7	8	9	10	11	12	13	
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	Date	Initials	Function	Panel front		
Designed	050204	FLT	Project title	Motor Box +AN4		
Approved	050823	FLT	Comments	NM30t Mrk III	Customer	Vestas Wind Systems A/S
Revised	050823	INI	Rev.	-	Drawing no.	6015969
				Cont. sheet	031	Sheet 030

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23.08.05

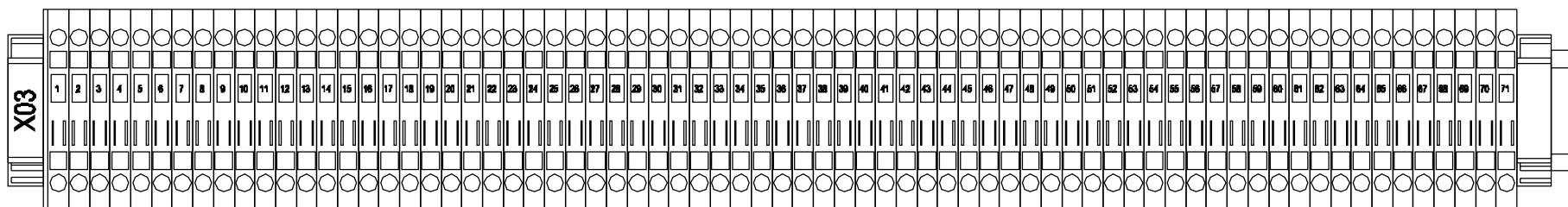
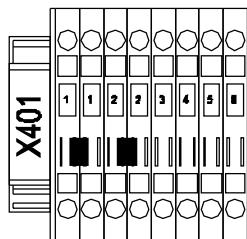
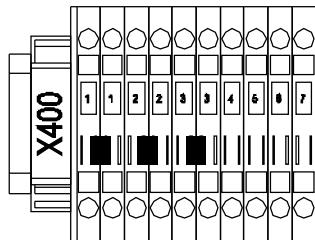
Vestas

12:14

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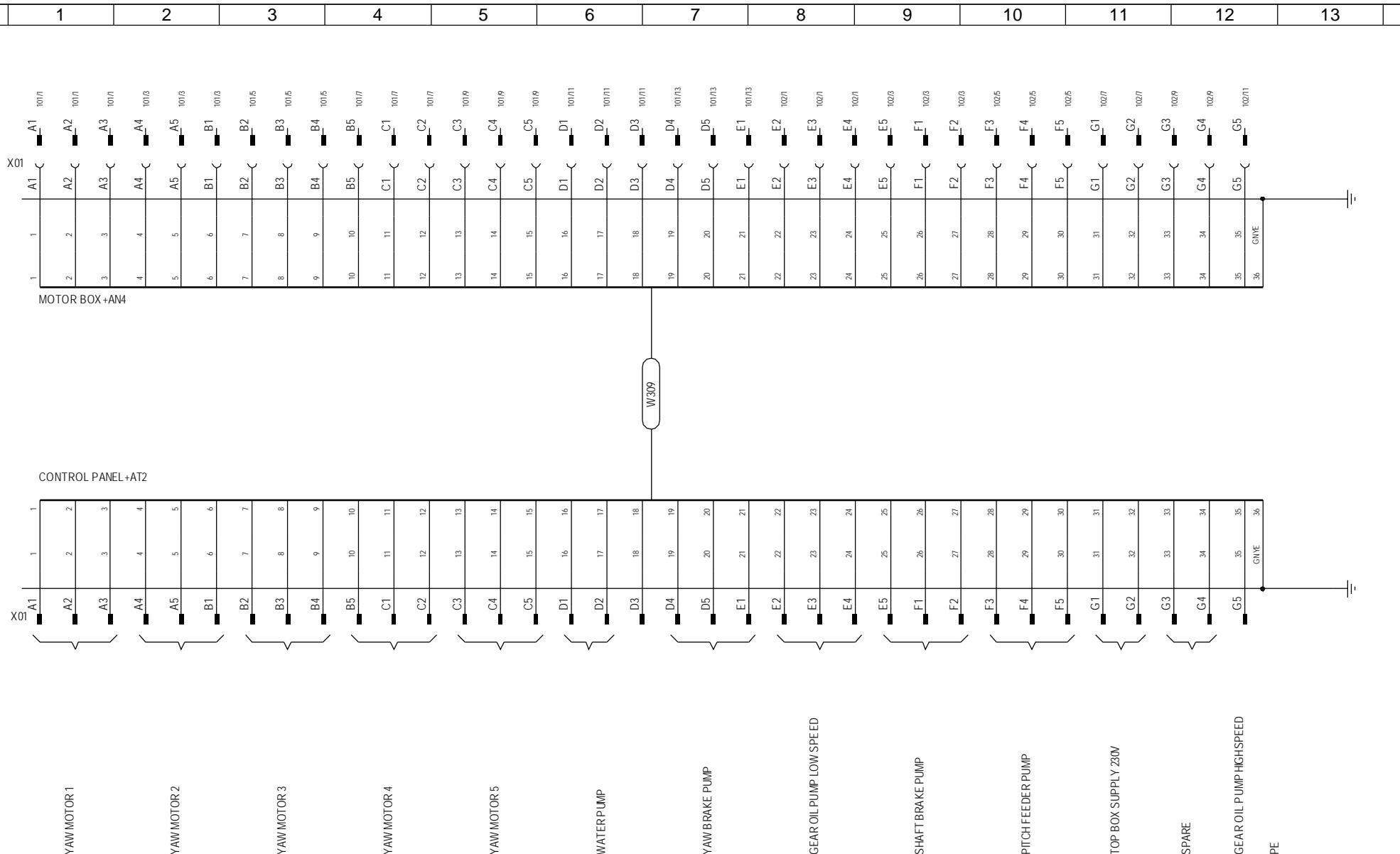
	Date	Initials	Function	Panel outline
Designed	050204	FLT	Project title	Motor Box +AN4
Approved			Comments	NM30t Mrk III
Revised	050204	FLT	Rev.	Drawing no. 6015969
			Cont. sheet	032
			Sheet	031

1 2 3 4 5 6 7 8 9 10 11 12 13

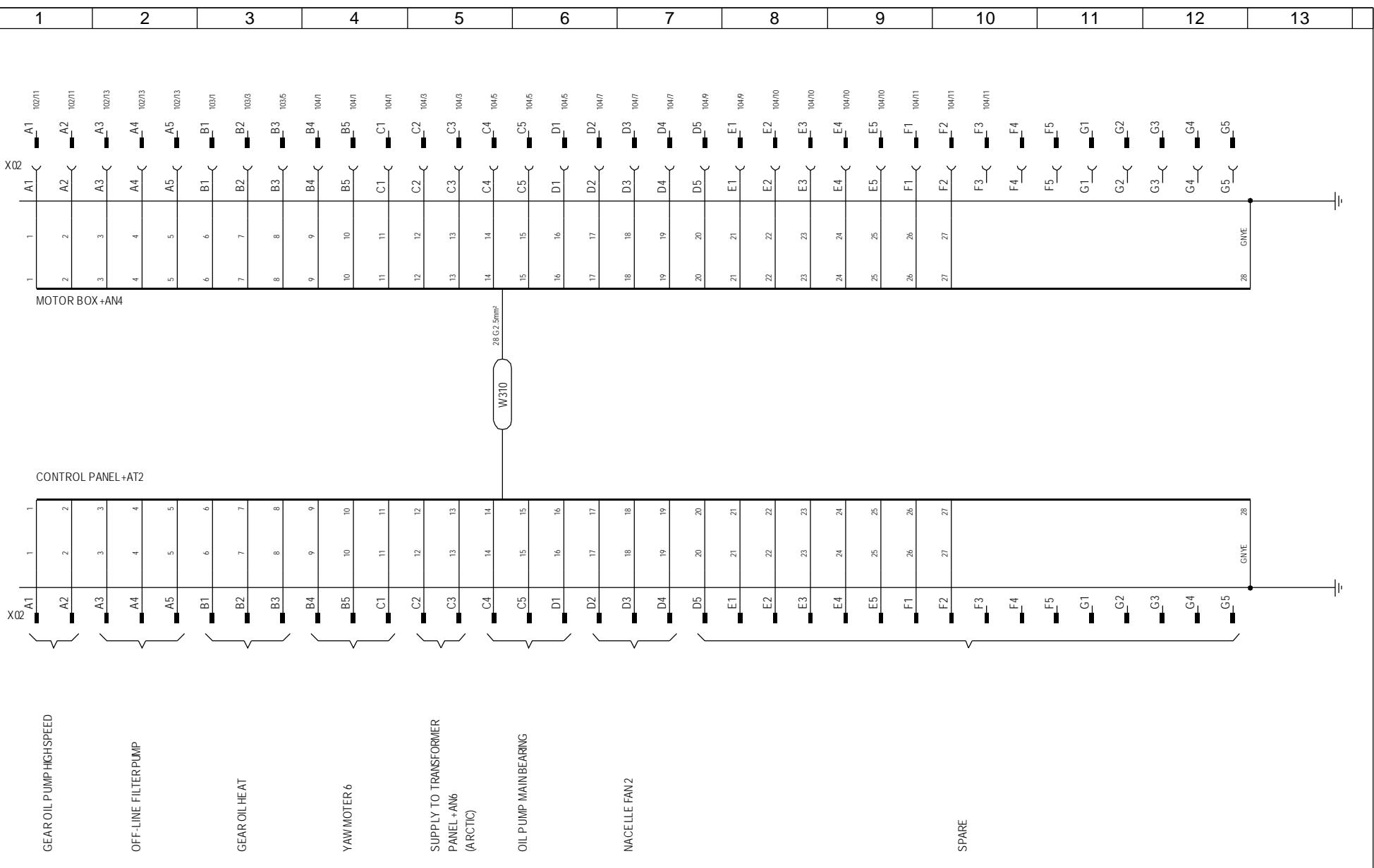
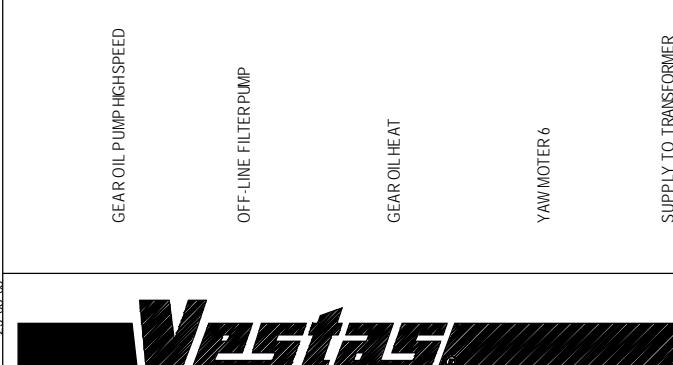




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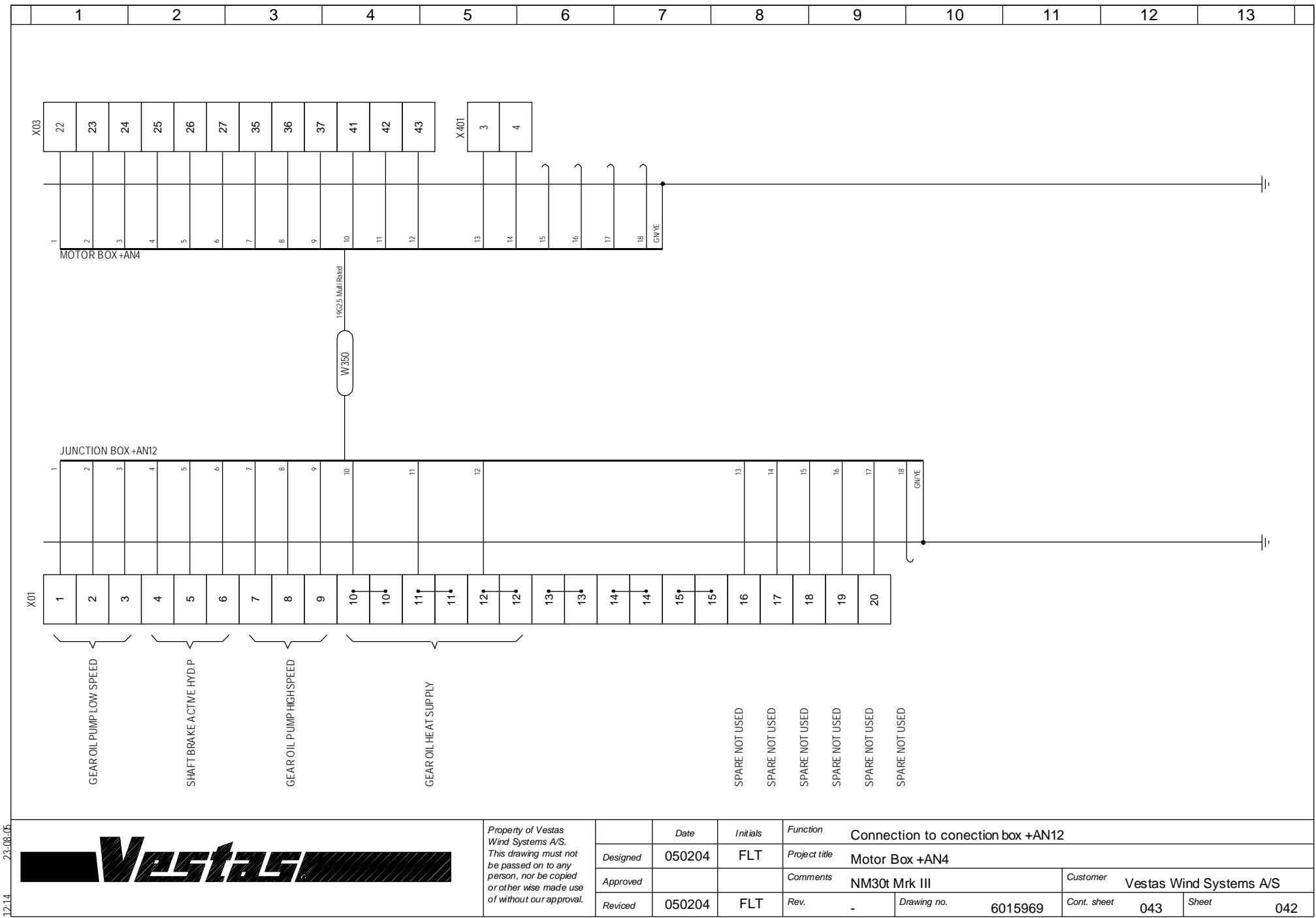


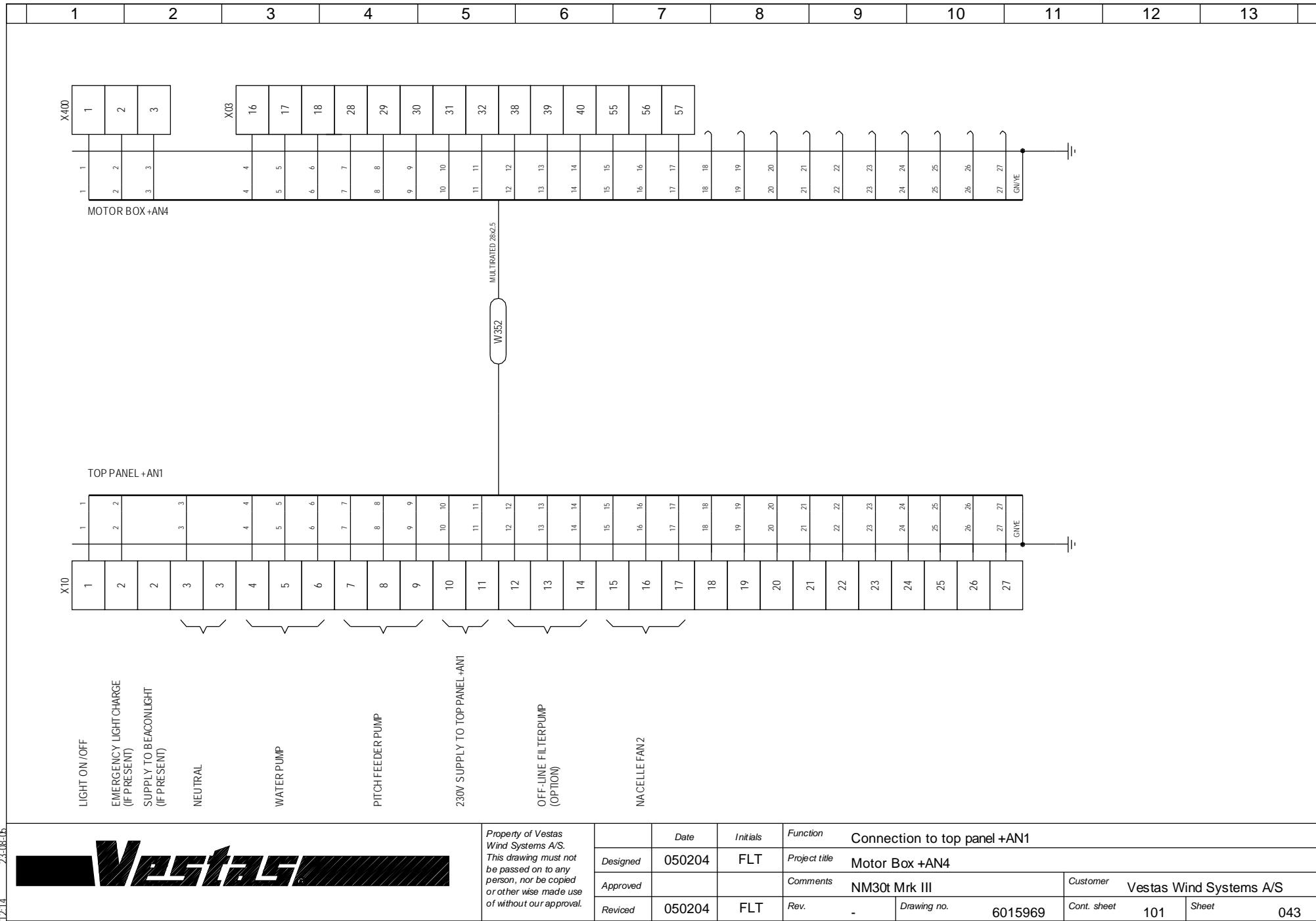
Connection to +AT2 control panel						
Designed	Date	Initials	Function	Project title		
050204	050204	FLT	Motor Box +AN4	NM30t Mrk III	Customer	
Approved			Comments	Vestas Wind Systems A/S		
Revised	050204	FLT	Rev.	-	Drawing no.	6015969
					Cont. sheet	041
					Sheet	040

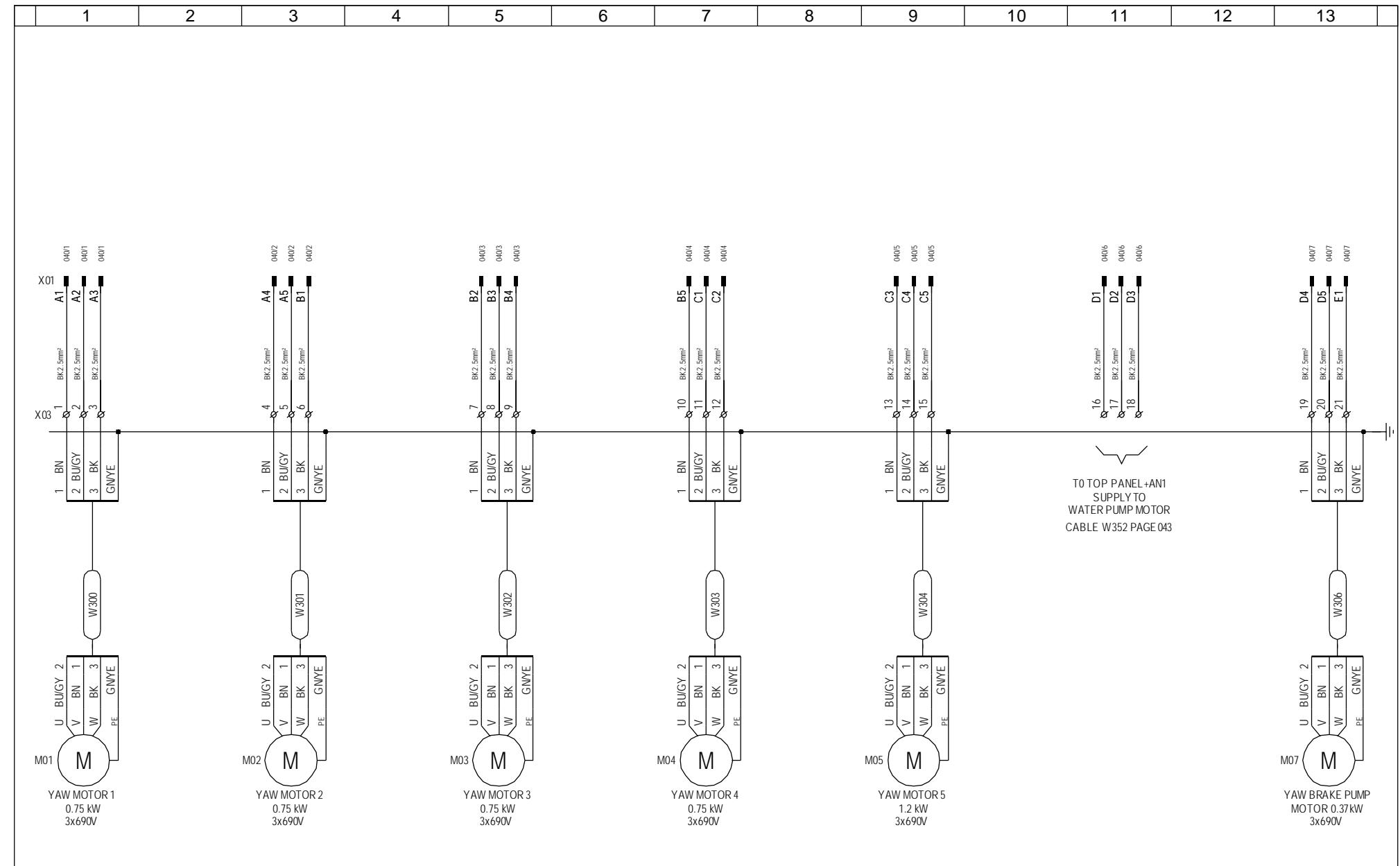


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Date Initials Function Connection to +AT2 control panel
 Designed 050204 FLT Project title Motor Box +AN4
 Approved Comments NM30t Mrk III
 Revised 050204 FLT Rev. Drawing no. 6015969 Customer Vestas Wind Systems A/S
 Cont. sheet 042 Sheet 041

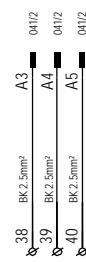
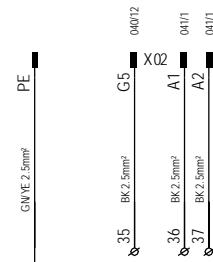
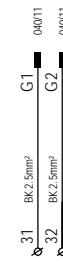
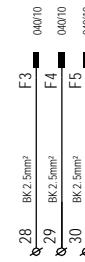
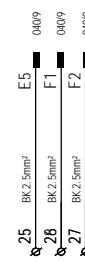






	Date	Initials	Function	External connections		
Designed	050204	FLT	Project title	Motor Box +AN4		
Approved			Comments	NM30t Mrk III		
Revised	050204	FLT	Rev.	-	Drawing no.	6015969
			Cont. sheet	102	Sheet	101

1	2	3	4	5	6	7	8	9	10	11	12	13	
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TO JUNCTION BOX +AN12
SUPPLY TO
GEAR OIL PUMP LOW SPEED
CABLE W350 PAGE 042

TO JUNCTION BOX +AN12
SUPPLY TO
SHAFT BRAKE ACTIVE HYD.P
CABLE W350 PAGE 042

TO TOP PANEL +AN1
SUPPLY TO
PITCH FEEDER PUMP
CABLE W352 PAGE 043

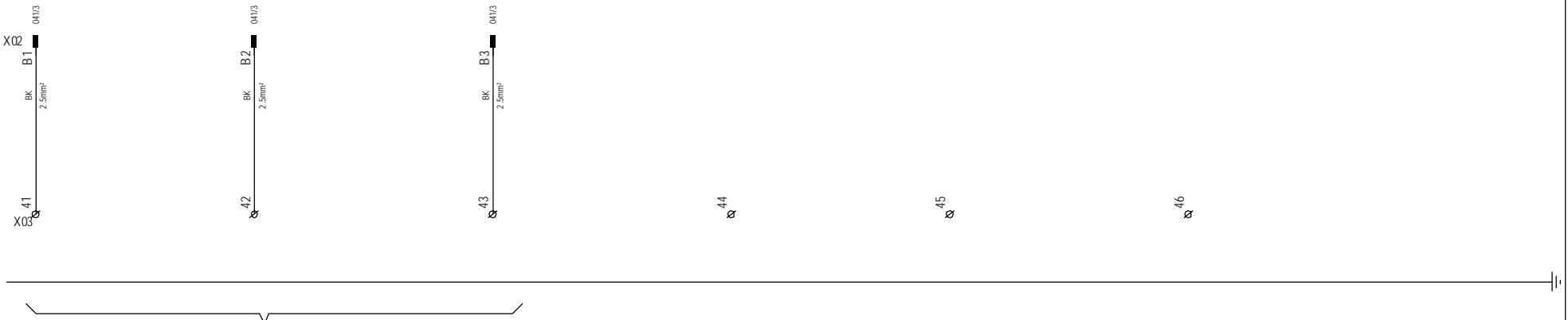
TO TOP PANEL +AN1
SUPPLY TO
230V TO TOP PANEL +AN1
CABLE W352 PAGE 043

TO JUNCTION BOX +AN12
SUPPLY TO
GEAR OIL PUMP HIGH SPEED
CABLE W350 PAGE 042

TO TOP PANEL +AN1
SUPPLY TO
OFF-LINE FILTERPUMP
CABLE W352 PAGE 043

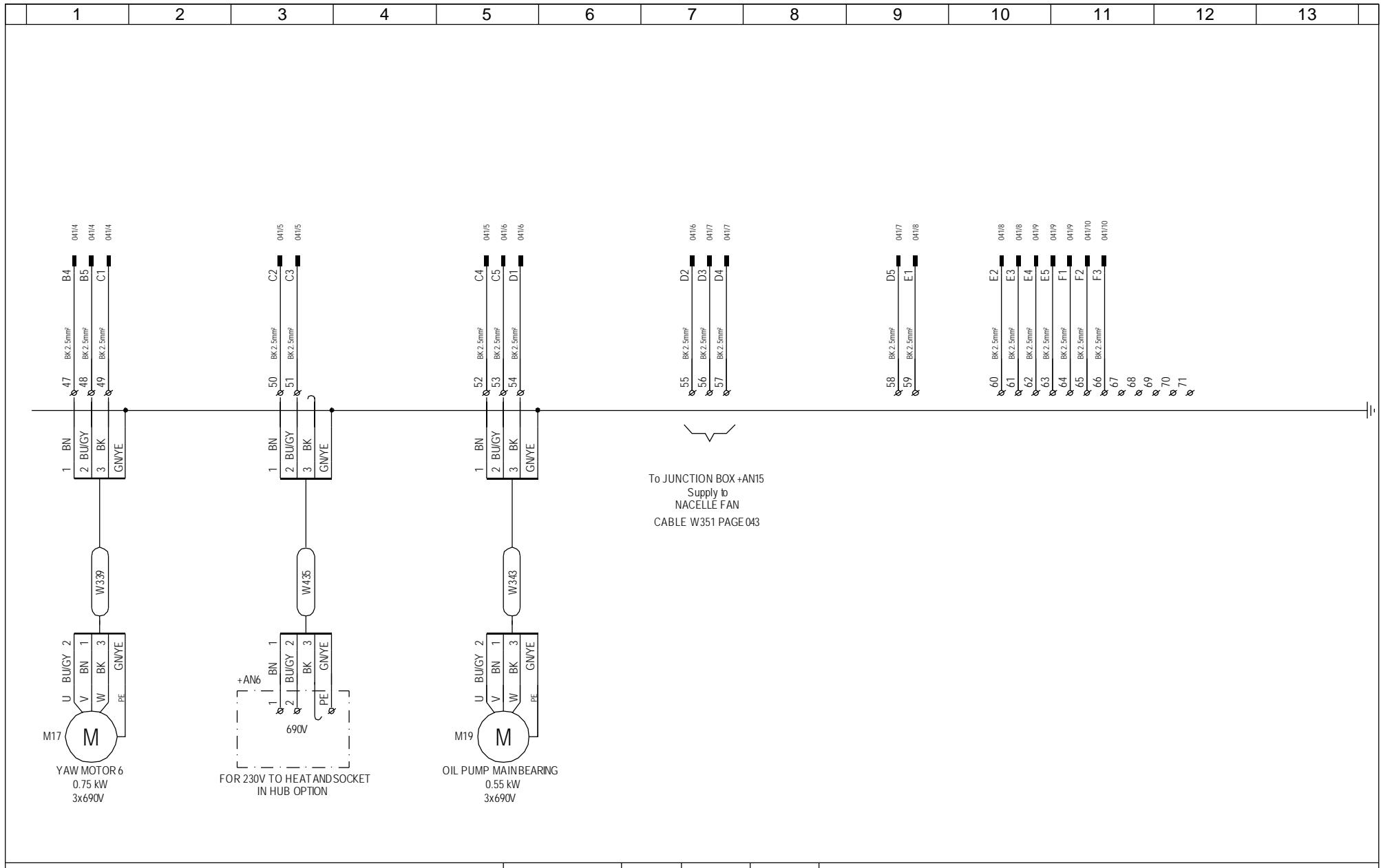
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Designed	050204	FLT	Project title	Motor Box +AN4			
Approved			Comments	NM30t Mrk III			
Revised	050204	FLT	Rev.	-	Drawing no.	6015969	
				Customer	Vestas Wind Systems A/S		
				Cont. sheet	103	Sheet	102

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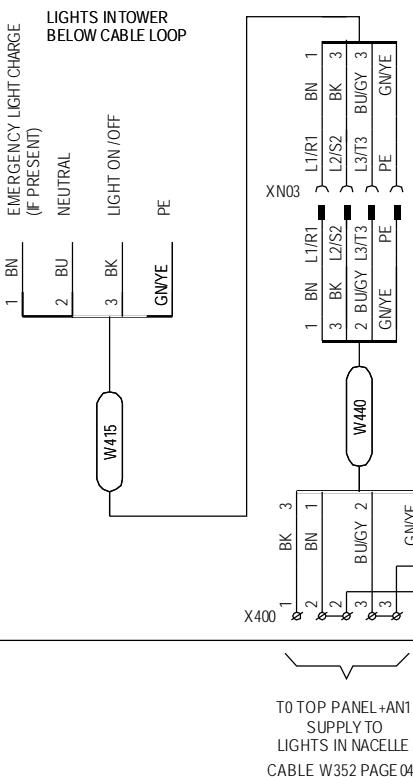
To JUNCTION BOX +AN12
Supply to
GEAR OIL HEAT
CABLE W350 PAGE 042

	Date	Initials	Function	External connections		
Designed	050204	FLT	Project title	Motor Box +AN4		
Approved	050602	FLT	Comments	NM30t Mrk III		
Revised	050602	INI	Rev.	-	Drawing no.	6015969
				Cont. sheet	104	Sheet
						103

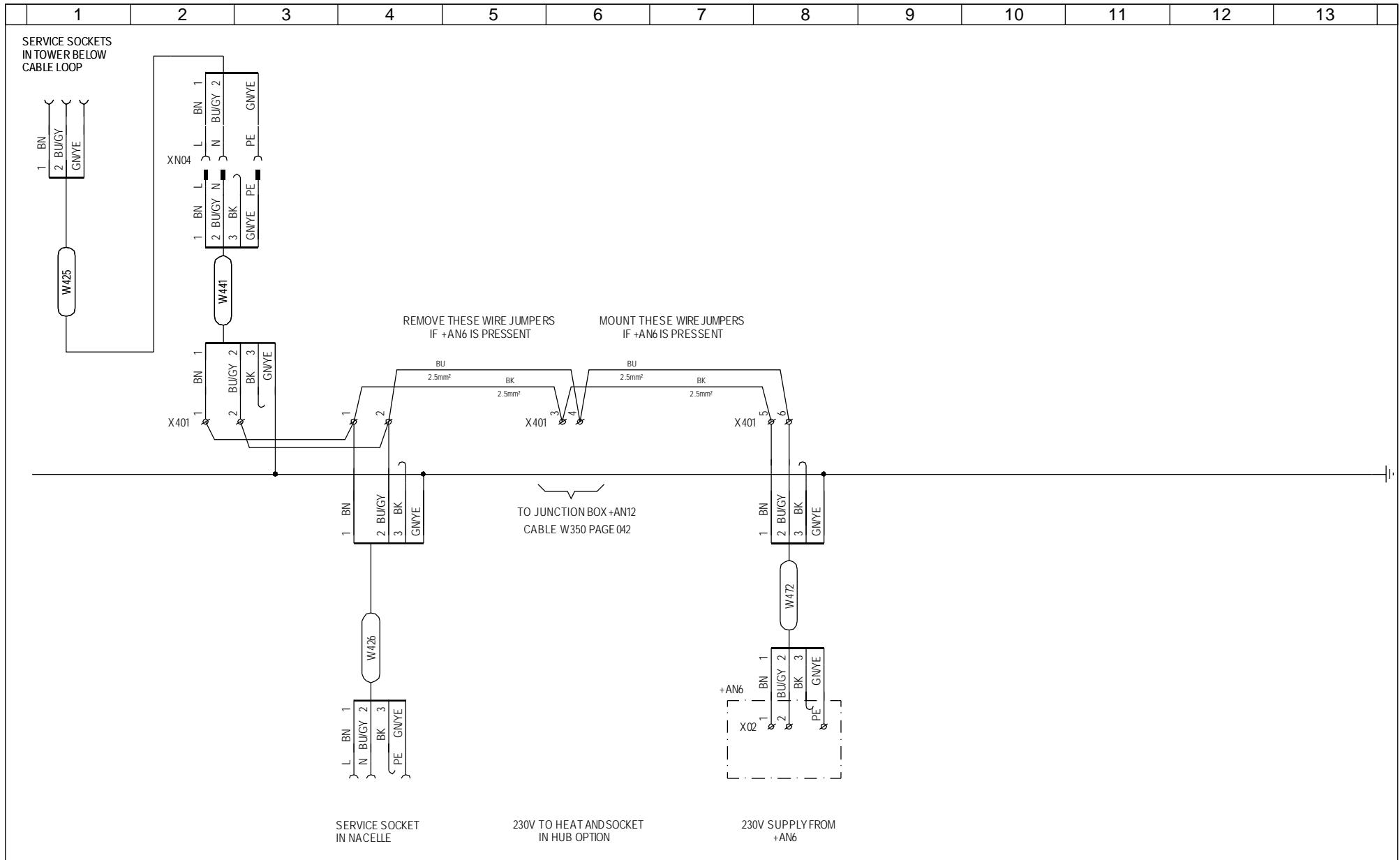


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Designed	050204	FLT	Project title	Motor Box +AN4		
Approved			Comments	NM30t Mrk III		
Revised	050204	FLT	Rev.	-	Drawing no.	6015969
				Cont. sheet	105	Sheet 104

1	2	3	4	5	6	7	8	9	10	11	12	13
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	Date	Initials	Function	External connections		
Designed	050204	FLT	Project title	Motor Box +AN4		
Approved	050602	FLT	Comments	NM30t Mrk III	Customer	Vestas Wind Systems A/S
Revised	050602	INI	Rev.	-	Drawing no.	6015969
				Cont. sheet	106	Sheet 105



	Date	Initials	Function	External connections
Designed	050204	FLT	Project title	Motor Box +AN4
Approved	050711	FLT	Comments	NM30t Mrk III
Revised	050711	INI	Rev.	Drawing no. 6015969
			Cont. sheet	-
			Sheet	106

60109799 MOTOR BOX+AN4 V82 MRK III

Component	Description	Qty per	Stk UM	Position Number
D1001693	Work instructions for producti	0,000	EA	
D1001710	Work instructions f. produktio	0,000	EA	
D6015969	MOTOR BOX +AN4, NM30t MRK III	0,000	EA	
D6016254	MOTOR BOX +AN4, NM30t MRK III	0,000	EA	
60109852	BOX KL RAL7035 W/W	1,000	EA	
60010402	MOUN PL KL 1574.150 W/W	1,000	EA	
60096809	WALL BRACKET RITTAL 1580.000	4,000	EA	
60014034	LABEL MOTOR BOX +AN4	1,000	EA	
60002446	LABEL "+AN4"	1,000	EA	
60002503	LABEL "-X01"	1,000	EA	
60002504	LABEL "-X02"	1,000	EA	
60006824	STICKER "LIGHTNING" 100MM	1,000	EA	
60007584	CABLE GLAND BM-EN-11 M16 PA 6	1,000	EA	
60007592	LOCKNUT M16 PA6 BML-1S	1,000	EA	
60007585	CABLE GLAND M20 PA6 BM-EN-12	1,000	EA	
60007593	LOCKNUT BML-12 M20 PA 6	1,000	EA	
60007586	CABLE GLAND M25 PA6 BM-EN-13	16,000	EA	
60007594	LOCKNUT M25 PA6 BML-13	16,000	EA	
60007547	CABLE GLAND PG36 NYLON BS18	1,000	EA	
60007559	LOCKNUT PG36 PA6 BLN18	1,000	EA	
60007589	CABLE GLAND BM-EN-16 M50 PA 6	1,000	EA	
60007597	Locknut BML-16 M50 PA 6	1,000	EA	
60007588	CABLE GLAND BM-EN-15 M40 PA 6	1,000	EA	
60007596	LOCKNUT M40 PA6 BML-15	1,000	EA	
60094860	MARKER CARD WAGO NOS 1-10	0,500	EA	
60094872	MARKER CARD WAGO NOS 11-20	0,100	EA	
60094874	MARKER CARD WAGO NOS 21-30	0,100	EA	
60094875	MARKER CARD WAGO NOS 31-40	0,100	EA	
60094876	MARK WAGO NOS 41-50 TYP WMB	0,100	EA	
60094879	MARK WAGO NOS 51-60 TYP WMB	0,100	EA	
60094880	MARK WAGO NOS 61-70 TYP WMB	0,100	EA	
60100036	PUSH-IN JUMPER BAR 2-POL	3,000	EA	
60097064	END SEC 281-328 GY	1,000	EA	
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	
60091912	END STOP WAGO 249-117 10MM	1,000	EA	
60097064	END SEC 281-328 GY	1,000	EA	
60100036	PUSH-IN JUMPER BAR 2-POL	2,000	EA	
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	
60091912	END STOP WAGO 249-117 10MM	1,000	EA	
60006819	STICKER "EARTH" 14MM	0,040	EA	
60007201	EARTH BAR 01130 9x6.5x1000MM	0,725	M	
60007182	DIN RAIL PP0735H 7x35MM	0,625	M	
60007359	CABLE CONDUIT 40x60mm 21160	0,625	M	
60013412	ANGLE BRACKET 2x10x25MM	6,000	EA	
60009578	SCR CRS PH M3x8 FZB	6,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60110696	WIRING X02 +AN4 UL MRKIII	1,000	EA	
60110701	WIRING X400 +AN4 UL MRKIII	1,000	EA	
60110702	WIRING X01 +AN4 UL MRKIII	1,000	EA	
D21000204	BOM_60109799_MOTOR BOX +AN4 V8	0,000	EA	
D22000354	CI-MOTOR BOX +AN4 NM72/82 for	0,000	EA	
D22000563	CI. MOTOR BOX +AN4 V82-1.65MW	0,000	EA	
D22000572	CI-MOTOR BOX +AN4, V82-1.65MW	0,000	EA	
60007459	CABLE TIE WHITE 200x2.5mm	2,000	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	14,000	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	9,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	14,000	EA	
60009861	NUT ISO 4032 M 4 - 6 - FZB	14,000	EA	
60105941	QUICK-RELEASE FASTENER KL BOX	0,500	EA	
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X01
60006576	HOUSING C14610F0240001 46P BUL	1,000	EA	X02
60097064	END SEC 281-328 GY	1,000	EA	X03
60091912	END STOP WAGO 249-117 10MM	2,000	EA	X03
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	X03
60096685	TERMINAL WAGO1-LEV 0.08-4.0MM2	70,000	EA	X03
60096685	TERMINAL WAGO1-LEV 0.08-4.0MM2	10,000	EA	X400
60096685	TERMINAL WAGO1-LEV 0.08-4.0MM2	8,000	EA	X401

Change Info

Item no.	Item text:
097930	Transformer Box +AN6, V82-1.65MW 690V 50Hz

Active revision for production

Drawing no.: 6016280

Version	Date	Init./App.	Description of change since last revision
00	2005-05-11	FLT/FLT	First version.

LST no.: 21000230

Version	Date	Init./App.	Bill of Material no.: 097930
02	2007-01-21	RUBUC/FLT	Description of change since last revision Implemented with ECO 233922 Replaced: 60009288 with 114447 THERMOSTAT KTS 01147.9-00

Old revisions for service

Drawing no.: xxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	yyyy-mm-dd	xxx/	Write the change

LST no.: 21000230

Version	Date	Init./App.	Bill of Material no.: 097930
01	2007-02-20	FLT+INI/FLT	Description of change since last revision Implemented with ECO 214812 + 221747, Changed from RAL 7032 to RAL 7035 First version.

Earlier Bill of Material no Longer Active for Serial Production.

LST no.: 21000094

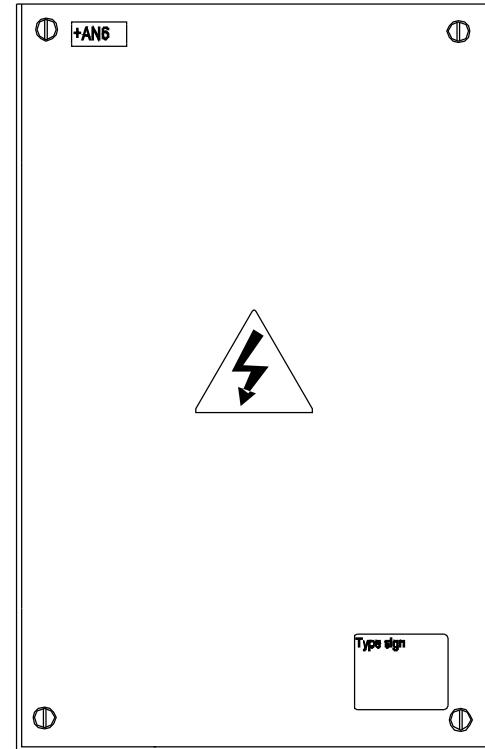
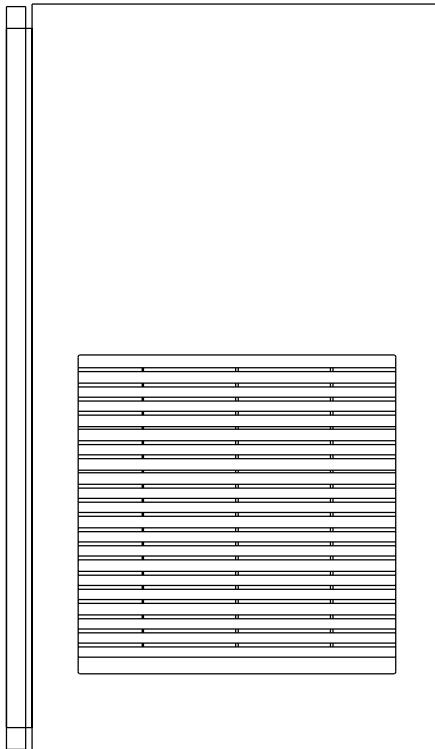
Bill of Material no.: 60099926 Cabinet RAL 7032

Description of change since last revision

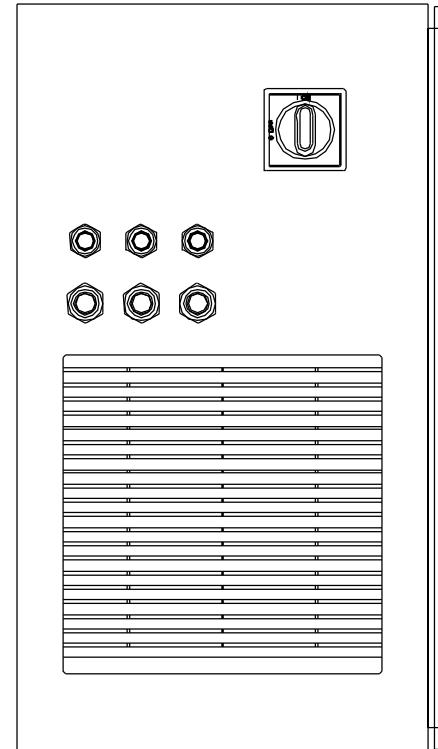
05	2005-01-07	FLT/FLT	60005765 this model is discontinued and replaced by 60110888 RCCB F202-25/0.03 2-POLED 25A 400VAC. The new one is also UL approved with file no. KDAX2.E244046.
04	2005-06-13	MILJE	Production requirement, serial production.
03	2005-05-24	HRN/FLT	Production required change - 60110372_Wiring added.
02	2004-09-27	CHO/CHO	Type sign label 60002792 changed to 60106616.
01	2004-07-05	CHO/CHO	First version

1	2	3	4	5	6	7	8	9	10	11	12	13
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RIGHT SIDE



LEFT SIDE



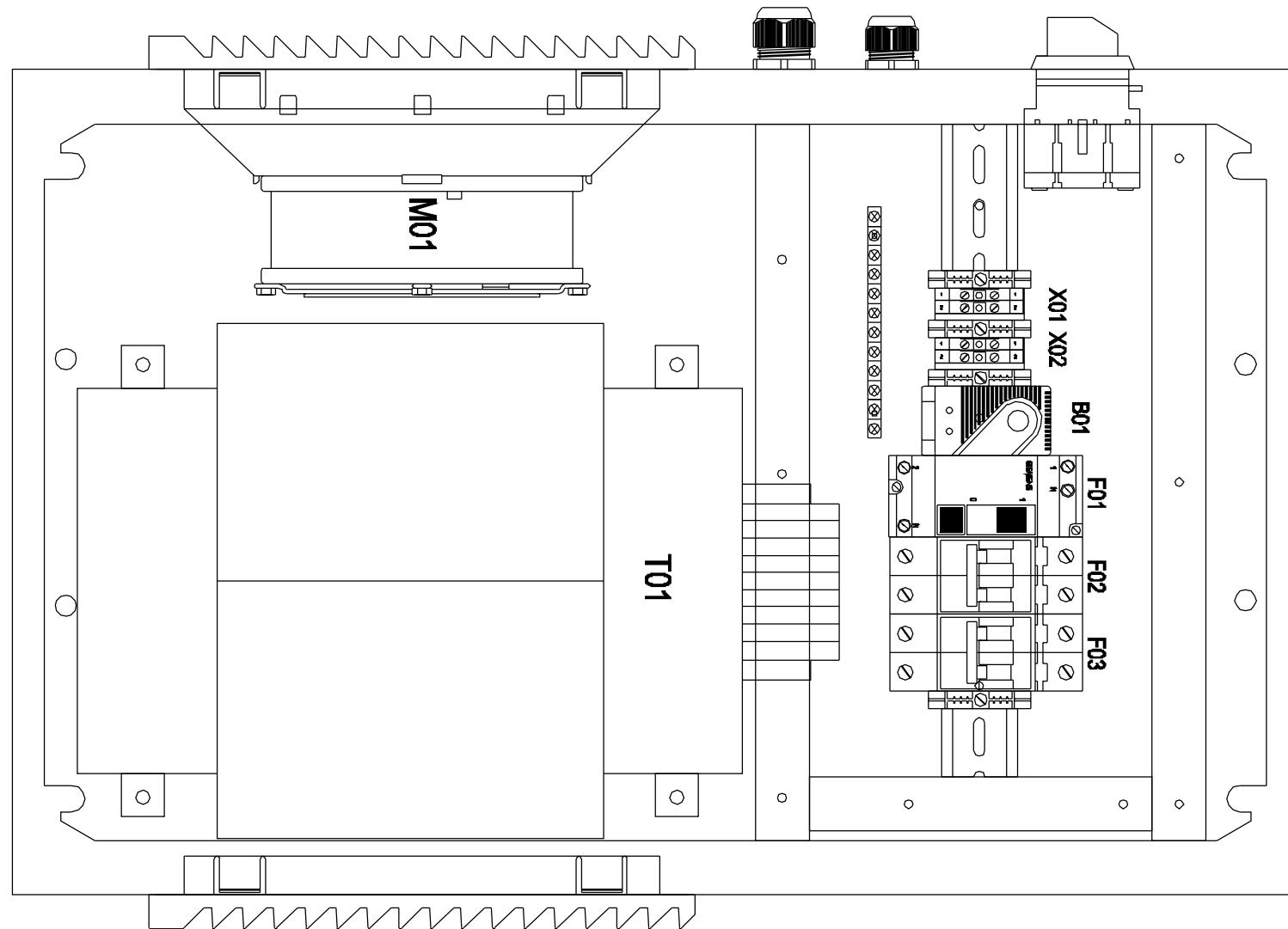
380 x 600 x 350 (WxHxD)

WEIGHT 65 kg.

	Date	Initials	Function	Front Layout
Designed	050511	FLT	Project title	Transformer Box +AN6 IEC MRK III
Approved			Comments	Customer Vestas Wind Systems A/S
Revised	050511	FLT	Rev. -	Drawing no. 6016280 Cont. sheet 031 Sheet 030

1 2 3 4 5 6 7 8 9 10 11 12 13

Q01



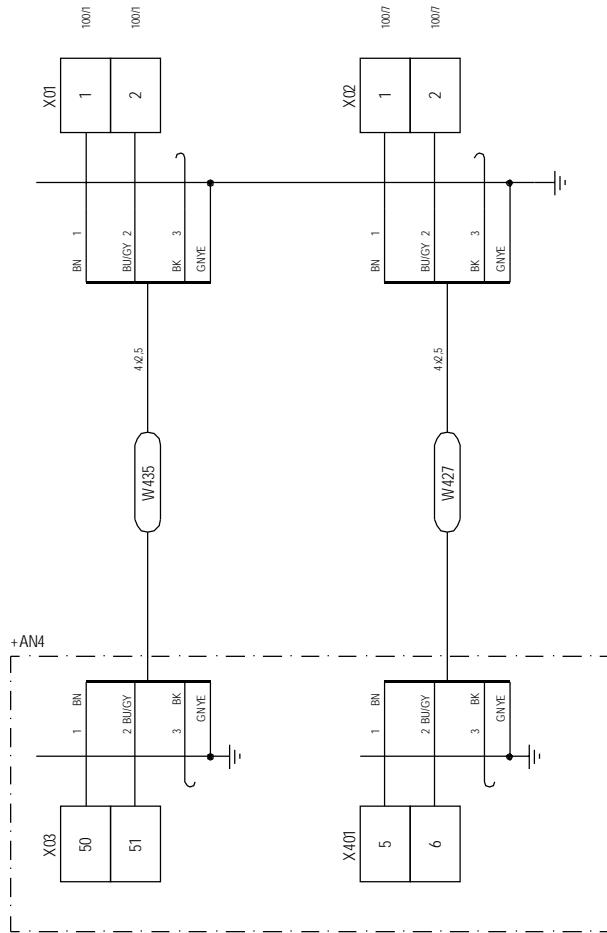
11.05.06

Vestas

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	Date	Initials	Function	Panel Outline
Designed	050511	FLT	Project title	Transformer Box +AN6 IEC MRK III
Approved			Comments	Customer Vestas Wind Systems A/S
Revised	050511	FLT	Rev. -	Drawing no. 6016280 Cont. sheet 040 Sheet 031

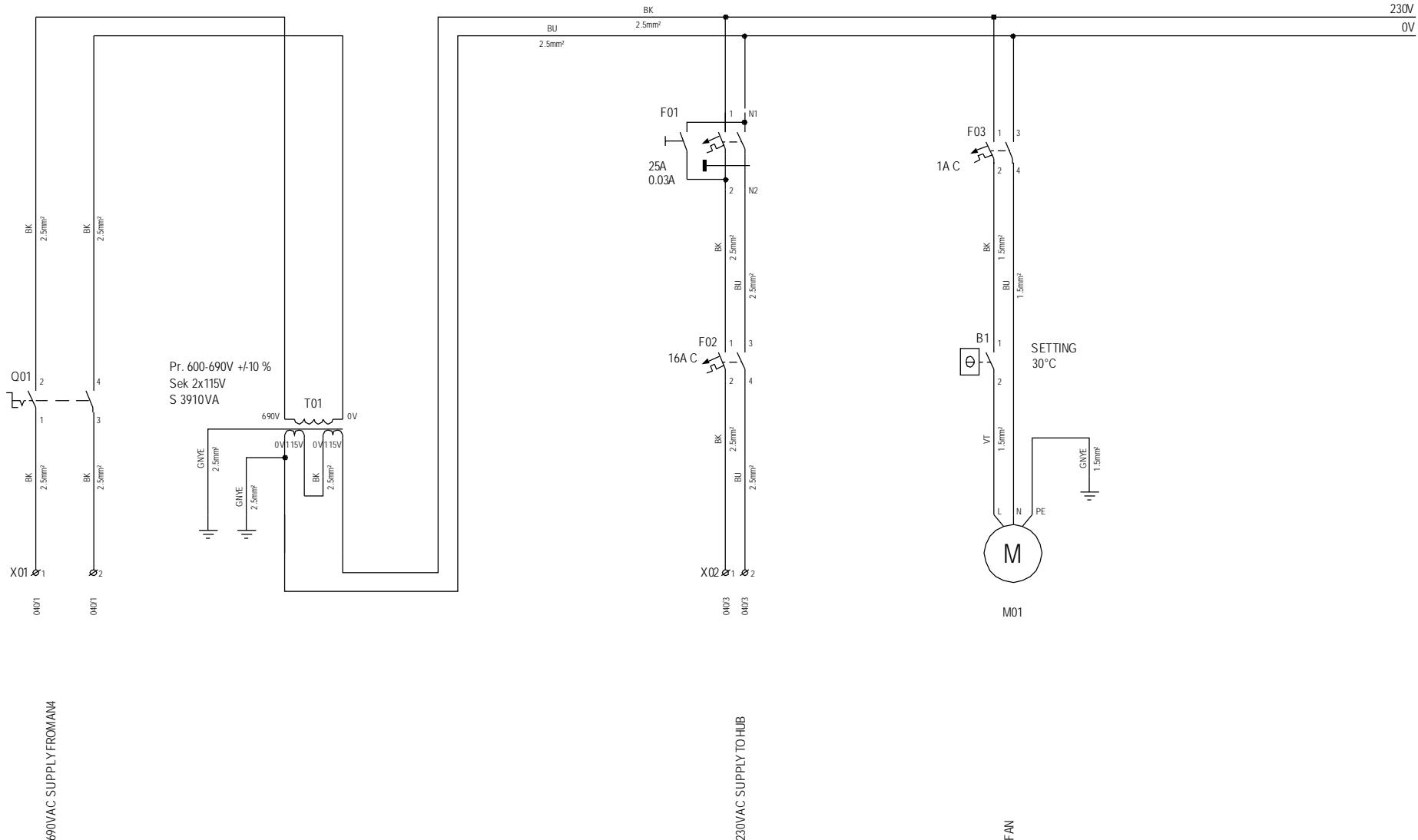
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690V SUPPLY
FROM +AN4

230VAC SUPPLY TO HEAT &
SERVICE SOCKET IN HUB

	Date	Initials	Function	External connections		
Designed	050511	FLT	Project title	Transformer Box +AN6 IEC MRK III		
Approved			Comments		Customer	Vestas Wind Systems A/S
Revised	050511	FLT	Rev. -	Drawing no. 6016280	Cont. sheet	100 Sheet 040



097930 TRAFO BOX +AN6 690V RAL 7035

Component	Description	Qty per	Stk UM	Position Number
D6016280	TRAFO BOX +AN6 690V MRK III	0,000	EA	
091839	FILT EXH 255x255x17.5 RAL 7035	1,000	EA	
091848	FAN 230M3/H 230V RAL 7035	1,000	EA	
114447	THERMOSTAT KTS 01147.9-00	1,000	EA	
117158	CABLE CONDUIT SEGMA 25X40MM	1,000	M	
193722	LOCKNUT MM20GPA POLYAMID	3,000	EA	
60002488	LABEL "+AN6"	1,000	EA	
60005150	MCB 5SX2201-7 1.0A C 2P	1,000	EA	
60005163	MCB 5SX2216-7 16.0A C 2P	1,000	EA	
60005768	LOAD BREAK SWITCH OT25ET3 3-PO	1,000	EA	
60005774	HANDLE OHB 2RJ BK	1,000	EA	
60005776	SWI COVER OTS32T3 3P	2,000	EA	
60005983	TERMINAL STD M4/6	4,000	EA	
60005998	END SEC FEM6 GY 118368.16	2,000	EA	
60006034	END STOP 9708/2 S35	4,000	EA	
60006819	STICKER "EARTH" 14mm	2,000	EA	
60006824	STICKER "LIGHTNING" 100MM	1,000	EA	
60007182	DIN RAIL PP0735H 7x35MM	1,000	M	
60007201	EARTH BAR 01130 9x6.5x1000MM	0,120	M	
60007585	CABLE GLAND M20 PA6 BM-EN-12	3,000	EA	
60007586	CABLE GLAND M25 PA6 BM-EN-13	3,000	EA	
60007594	LOCKNUT M25 PA6 BML-13	3,000	EA	
60009578	SCREW ISO 7045 M 3 x 8 - FZB	2,000	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	2,000	EA	
60009639	SCR HEX SET M8x20 8.8 FZB	4,000	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	8,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	2,000	EA	
60009841	WASHER LOCK 8 FZB	4,000	EA	
60009861	NUT ISO 4032 M 4 - 6 - FZB	2,000	EA	
60009877	NUT HEX FLANGE M8 8 FZB	4,000	EA	
60010375	MOUN PL AE 1338.601.01 W/W	1,000	EA	
60010445	WALL BRA 2508.000 25x10mm	4,000	EA	
60013412	ANGLE BRACKET 2x10x25MM	2,000	EA	
60014138	MARK CARD RC610 NOS 1-10	1,000	EA	
60103946	TRAFO 600-690/2x115 3910VA	1,000	EA	
60106616	LABEL TYPE SIGN TRAFO BOX	1,000	EA	
60110372	WIRING TRAFOBOX +AN6 IEC	1,000	EA	
60110888	RCCB F202-25/0.03 25A 0.03A 2P	1,000	EA	
765122	CABINET W. 1 DOOR AE 1338.500	1,000	EA	

Change Info

Item no.	Item text:
60108019	Junction Box +AN11, V82-1.65MW MRK III

Active revision for production

Drawing no.: 6015813

Version	Date	Init./App.	Description of change since last revision
02	23.08.2005	INI/FLT	Page 031: Layout of terminals corrected according to the production.

LST no.: 21000205

Version	Date	Init./App.	Material BOM no.: 60108019
03	18.04.2007	INI/FLT	Description of change since last revision Changed with ECO 223430_Updated for production in Spain. Quantity changed: 60006819 STICKER "JORD" 1 pc. to 0,185 pc. 60006824 STICKER "LYN" 1 pc. to 0,3 pc. 60009578 SCREW 2 pc. to 6 pc. 60009599 SCREW 6 pc. to 2 pc. 60105941 QUICK FASTENER 4 pc. to 0,3 pc.

Old revisions for service

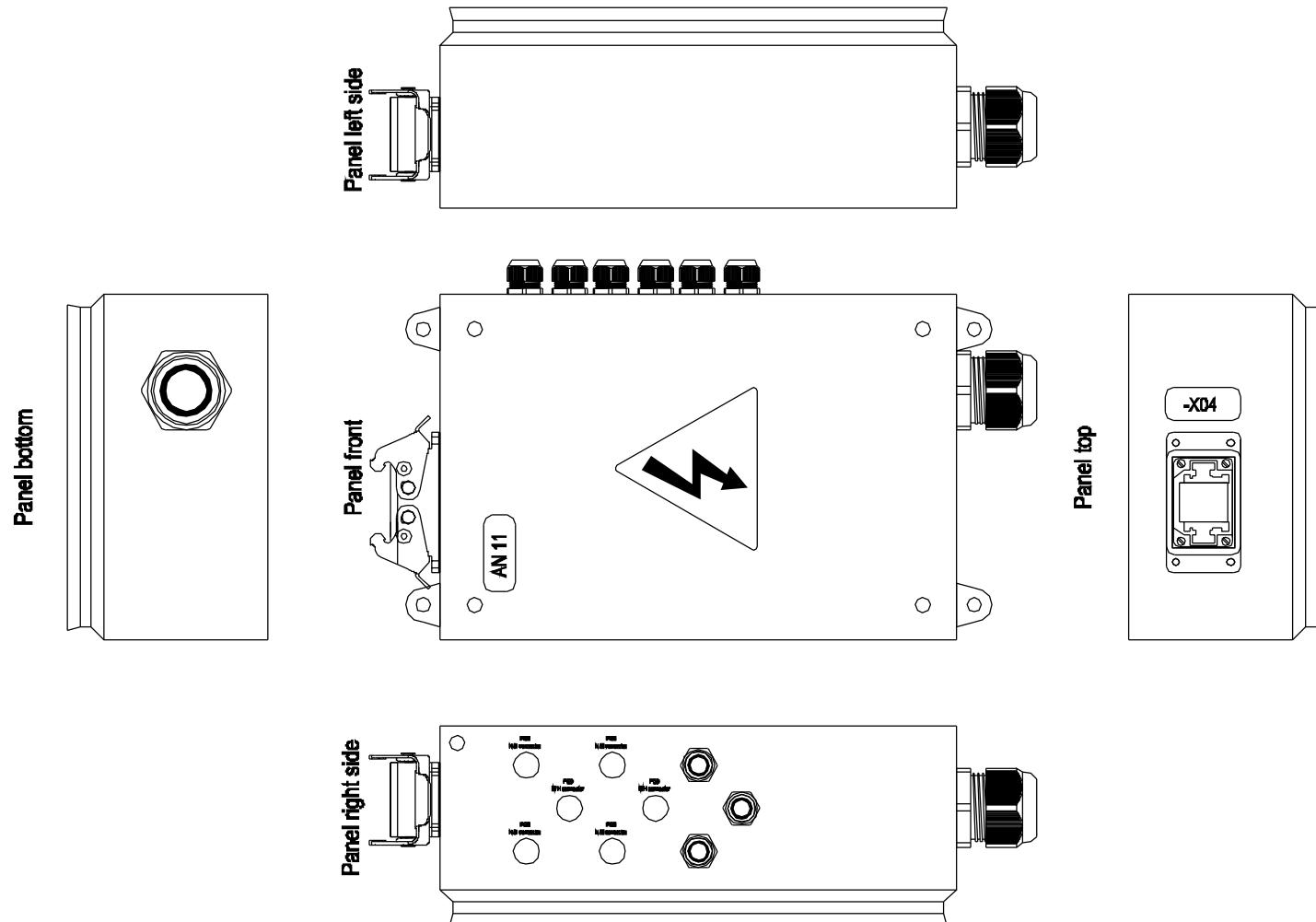
Drawing no.: 6015813

Version	Date	Init./App.	Description of change since last revision
01	27.04.2005	FLT/FLT	Updated in connection with prototype production.
00	13.12.2004	FLT/	First version

LST no.: 21000205

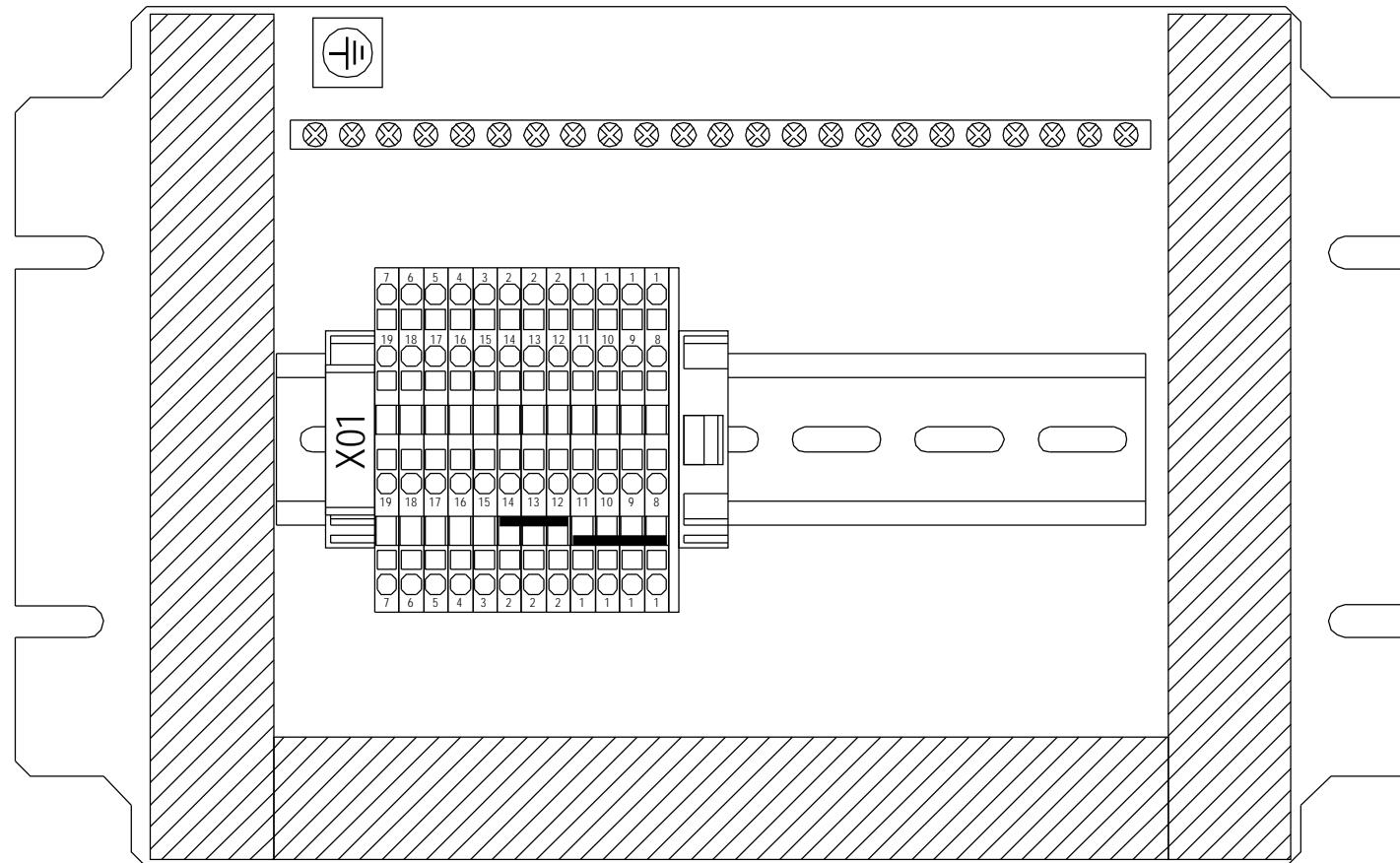
Version	Date	Init./App.	Material BOM no.: 60108019
02	13.06.2005	MILJE/	Description of change since last revision Production requirement serial production
01	17.05.2005	FLT+MILJE/FLT	First version

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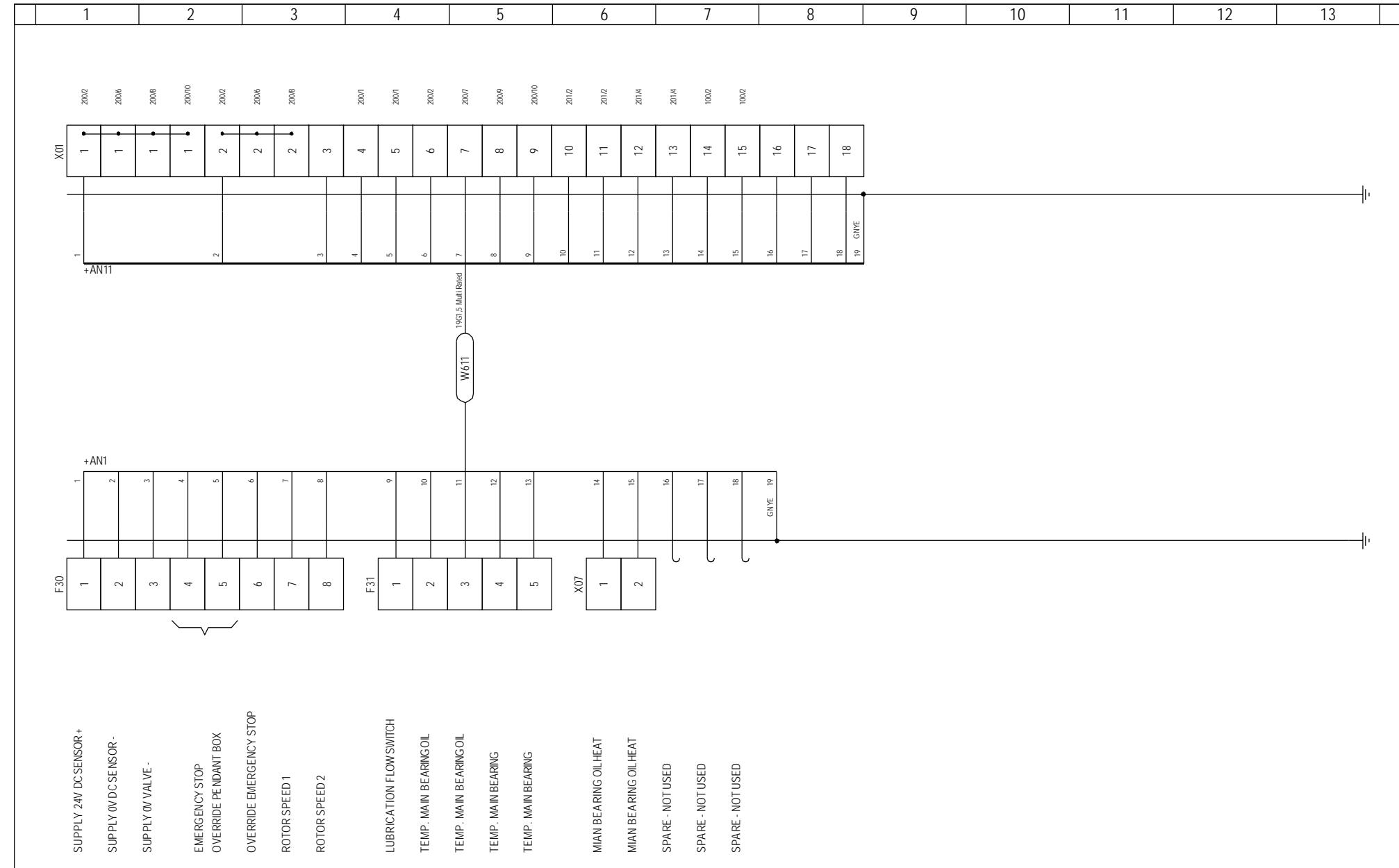


	Date	Initials	Function	Panel front		
Designed	041213	FLT	Project title	Junction Box +AN11		
Approved			Comments		Customer	
Revised	041213	FLT	Rev.	-	Drawing no.	6015813
					Cont. sheet	031
					Sheet	030

Mounting plate



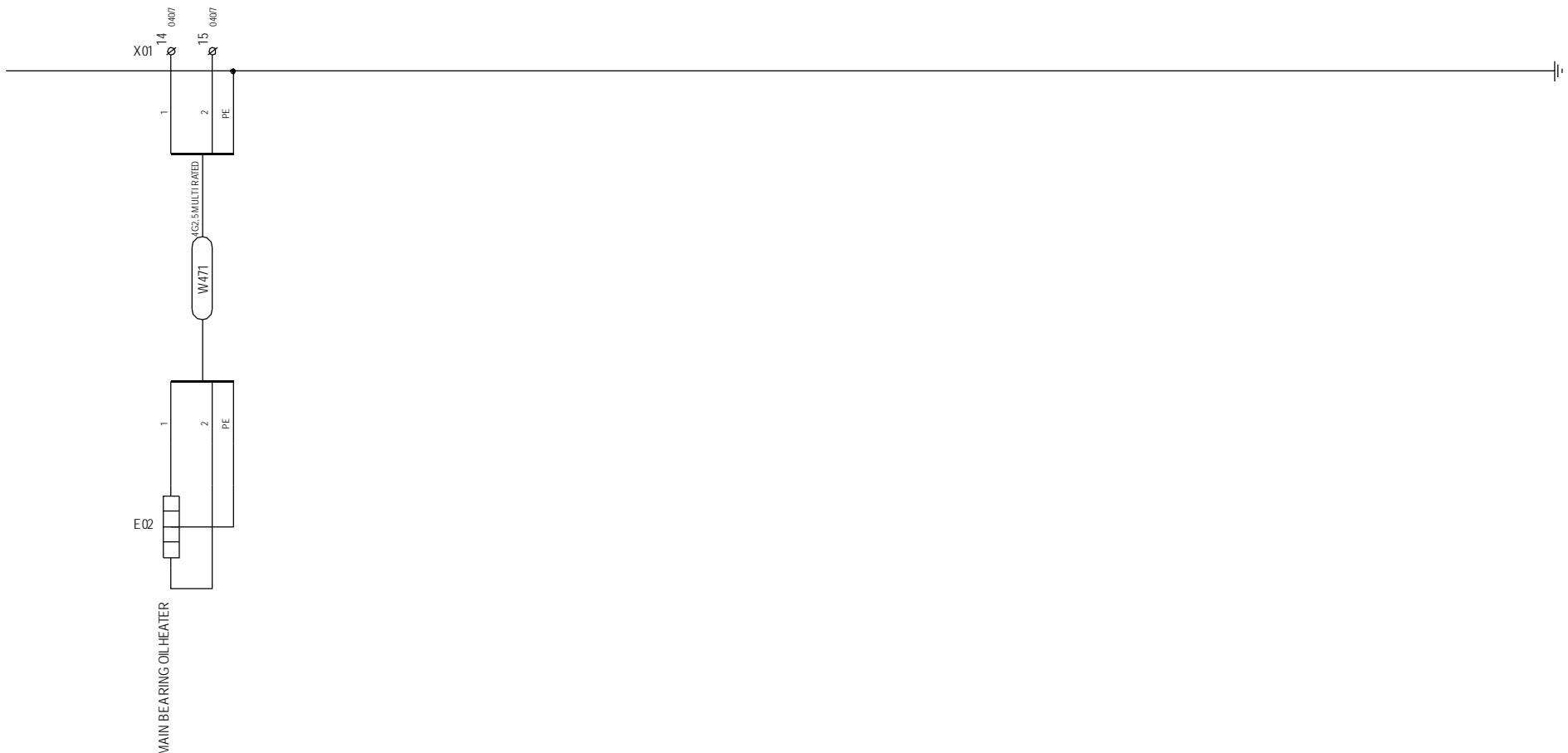
	Date	Initials	Function	Panel outline
Designed	041213	FLT	Project title	Junction Box +AN11
Approved	050823	FLT	Comments	Customer Vestas Wind Systems A/S
Revised	050823	INI	Rev. -	Drawing no. 6015813 Cont. sheet 040 Sheet 031



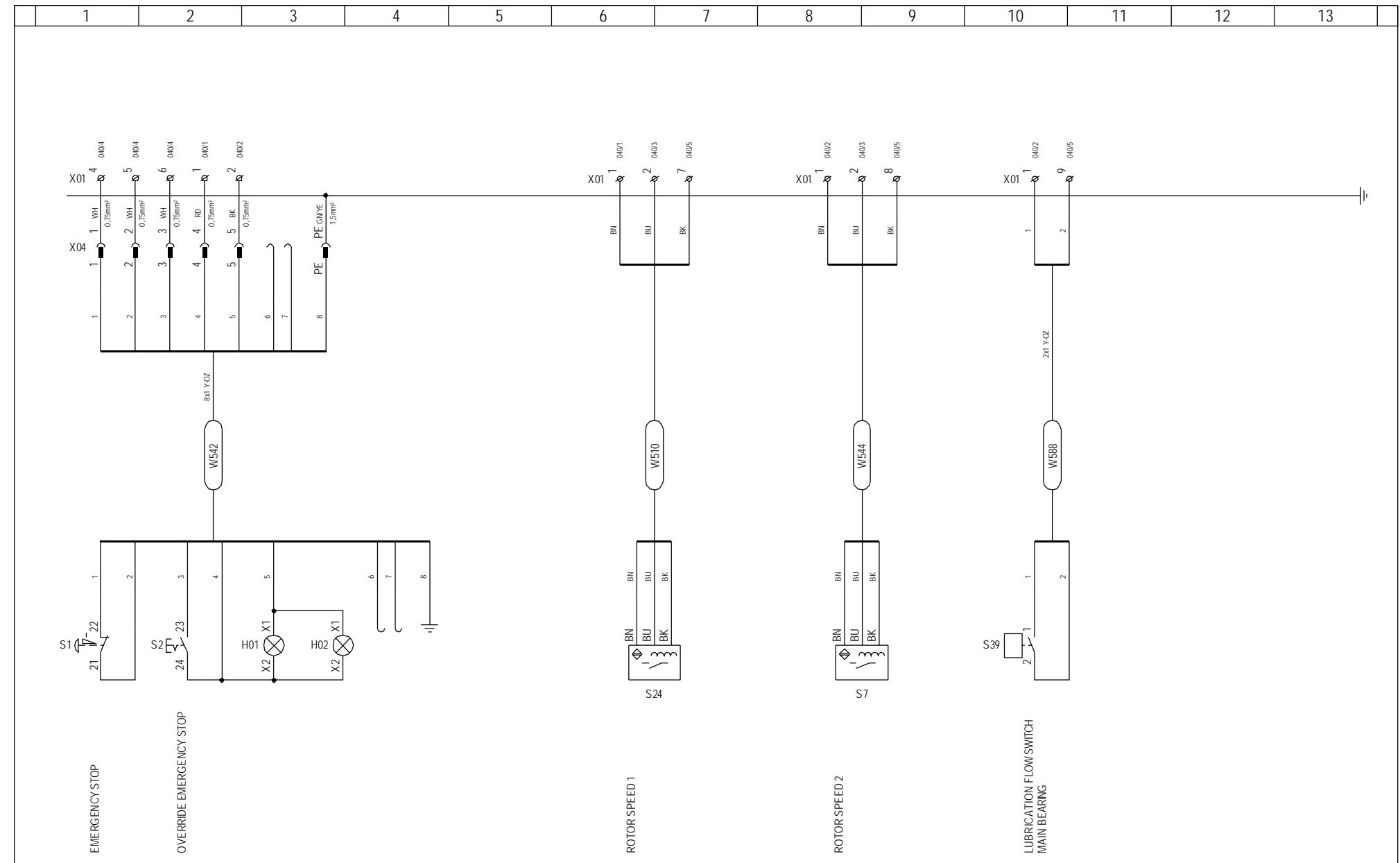
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Designed	Date	Initials	Function	Connection to +AN1 Top box		
Approved				Junction Box +AN11		
Revised	041213	FLT	Rev. -	Comments	Customer Vestas Wind Systems A/S	
					Drawing no.	6015813
				Cont. sheet	100	Sheet 040

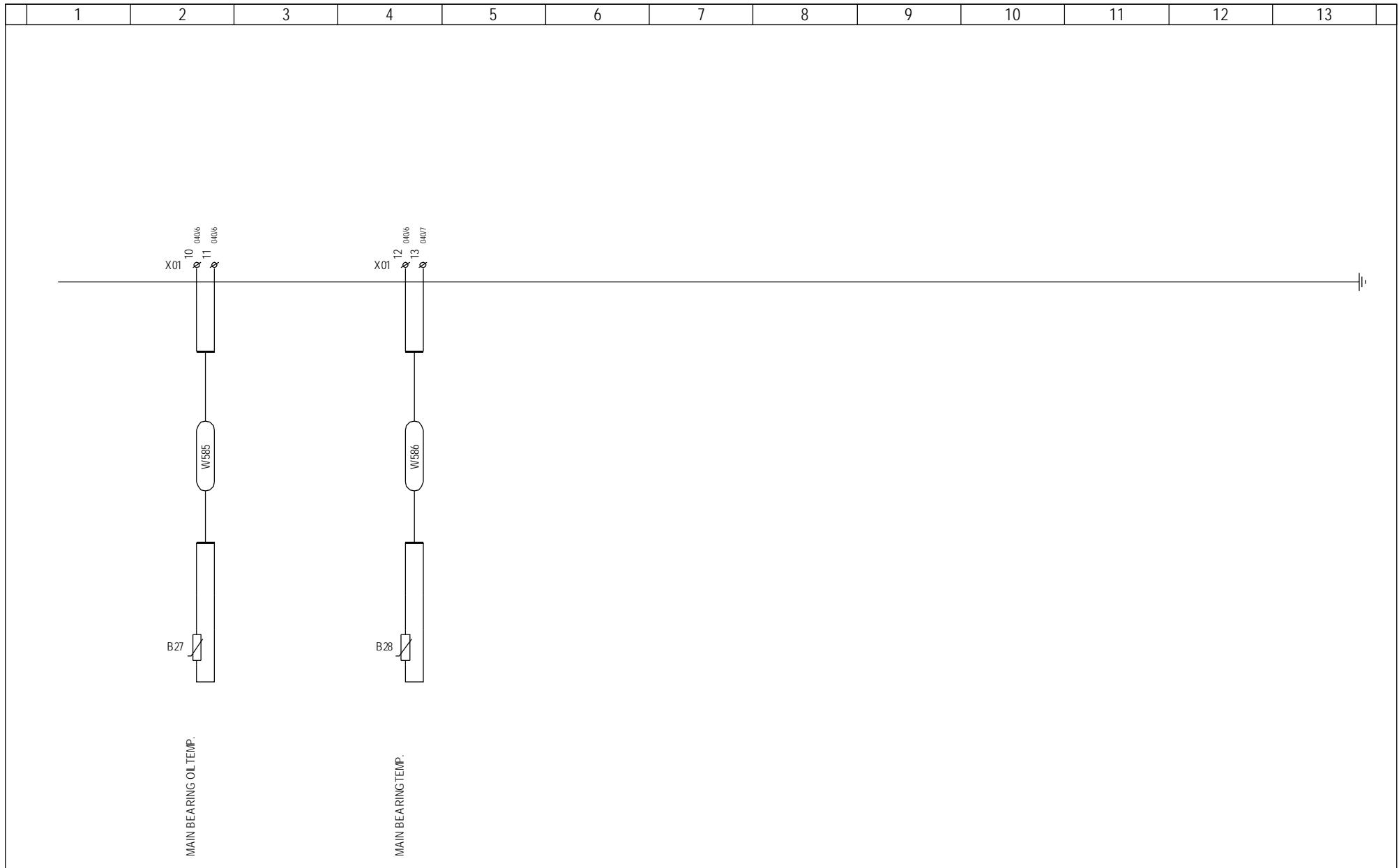
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	Date	Initials	Function	Externals connections to heat element		
Designed	041213	FLT	Project title	Junction Box +AN11		
Approved			Comments		Customer	Vestas Wind Systems A/S
Revised	041213	FLT	Rev.	-	Drawing no.	6015813
			Cont. sheet	200	Sheet	100



	Date	Initials	Function	Externals connections to signals		
Designed	041213	FLT	Project title	Junction Box +AN11		
Approved			Comments			
Revised	041213	FLT	Rev.	-	Drawing no.	6015813
			Customer	Vestas Wind Systems A/S		
			Cont. sheet	201	Sheet	200



	Date	Initials	Function	Externals connections to signals		
Designed	041213	FLT	Project title	Junction Box +AN11		
Approved			Comments		Customer	Vestas Wind Systems A/S
Revised	041213	FLT	Rev.	-	Drawing no.	6015813
			Cont. sheet	-	Sheet	201

60108019 BOX+AN11 '05 MRKIII

Component	Description	Qty per	Stk UM	Position Number
D1001694	Work instructions f. productio	0,000	EA	
D6015813	JUNCTION BOX +AN11	0,000	EA	
60108076	BOX KL 1503.510 RAL 7035 W/W	1,000	EA	
60096809	WALL BRACKET RITTAL 1580.000	4,000	EA	
60102739	MOUN PL KL W/W	1,000	EA	
60007588	CABLE GLAND BM-EN-15 M40 PA 6	1,000	EA	
60007596	LOCKNUT M40 PA6 BML-15	1,000	EA	
60007584	CABLE GLAND BM-EN-11 M16 PA 6	3,000	EA	
60007592	LOCKNUT M16 PA6 BML-1S	3,000	EA	
60007534	CONNECTOR PG9 FOR HOSE PROT	6,000	EA	
60007553	LOCKNUT PG9 PA6 BLN12	6,000	EA	
60007195	DIN RAIL FITTING TST 2/M6 100m	2,000	EA	
60013412	ANGLE BRACKET 2x10x25MM	2,000	EA	
60101923	LABEL +AN11	1,000	EA	
60009861	NUT ISO 4032 M 4 - 6 - FZB	6,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	6,000	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	10,000	EA	
60007197	SCREW FKSC M6x12MM	2,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60110878	MARK WAGO +AN11 PANEL V82	1,000	EA	
60111002	CABLE CONDUIT DIN RAIL	1,000	EA	
60111320	LABEL TYPE SIGN MARKING "-X01"	1,000	EA	
D21000205	BOM_60108019_Junction Box +AN11	0,000	EA	
D22000564	CI-JUNCTION BOX +AN11	0,000	EA	
60006819	STICKER "EARTH" 14MM	1,850	EA	
60006824	STICKER "LIGHTNING" 100MM	0,300	EA	
60009578	SCR CRS PH M3x8 FZB	6,000	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	2,000	EA	
60105941	QUICK-RELEASE FASTENER KL BOX	0,300	EA	
60006071	TERMINAL WAGO 870-501 2-LEV.0,	12,000	EA	-X01
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	-X01
60006087	PUSH-IN JUMPER BAR 870-403	1,000	EA	-X01
60006088	PUSH-IN JUMPER BAR 870-404 4-P	1,000	EA	-X01
60091912	END STOP WAGO 249-117 10MM	2,000	EA	-X01
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X01
60097599	HOUSING 24P BULKHEAD	1,000	EA	-X04
60006428	COVER METAL 6-POLED	1,000	EA	-X04
60103163	WIRING +AN11 -X04	1,000	EA	-X04
60002506	LABEL "-X04"	1,000	EA	-X04

Change Info

Item no.	Item text:
60108020	Junction Box +AN12, V82-1.65 MW

Active revision for production

Drawing no.: 6015816

Version	Date	Init./App.	Description of change since last revision
04	14.12.2007	INI/BIVA	Changed with ECO 232839. All pages updated with new Vestas logo Page 100: Correction of Shaft Brake Pump which is wired in terminals 4, 5 & 6. Correction of Gear Oil Pump H/S which is wired in terminals 7, 8 & 9

LST no.: 21000206

Version	Date	Init./App.	Material BOM no.: 60108020
03	19.04.2007	INI/FLT	Description of change since last revision Change with ECO 223463_Updated for production In Spain. Quantity changed: 60006819 STICKER "JORD" from 0,04 pc. to 0,018 pc. 60105941 QUICK-RELEASE FASTENER from 4 pc. to 0,33 pc.

Old revisions for service

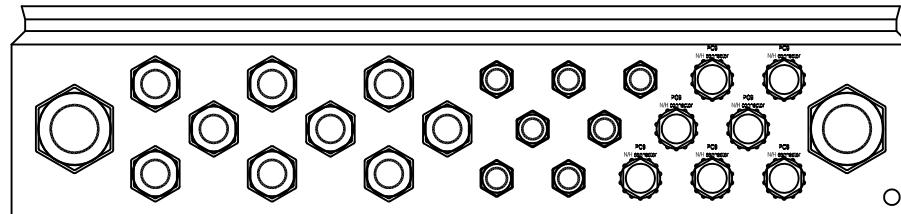
Drawing no.: 6015816

Version	Date	Init./App.	Description of change since last revision
03	06.06.2005	INI/FLT	Page 001: Updated
02	11.05.2005	FLT/FLT	Page 041: +AN12. X02 core 4 connection changed from terminal 5 to terminal 4. Updated in connection with prototype production. Connection of active shaft brake valve 1 and 2 changed. 031: Terminal row X02 one terminal no. 3 is removed and one terminal no. 5 is add. 041: Terminal row X02 one terminal no. 3 is removed and one terminal no. 5 is add.
01	15.02.2005	FLT/	201: Two terminals in X02 renamed from 3 to 5. Updated in connection with prototype production 030: 2 pc PG9 N/H connectors swapped with 2 pc M16 040: X401 terminal 3 and 4 added 101: W320 changed to W334. Connections to slip ring added.
00	13.12.2004	FLT/	First version

LST no.: 21000206

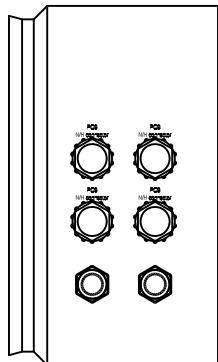
Version	Date	Init./App.	Material BOM no.: 60108020
02	13.06.2005	MILJE/	Description of change since last revision Production requirement, serial production
01	17.05.2005	FLT+MILJE/FLT	First version

1	2	3	4	5	6	7	8	9	10	11	12	13
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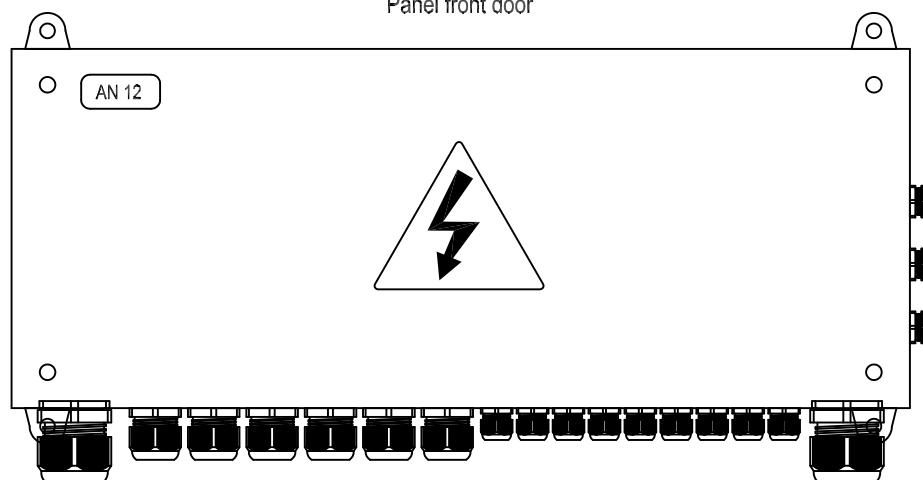


Panel bottom

Panel right side

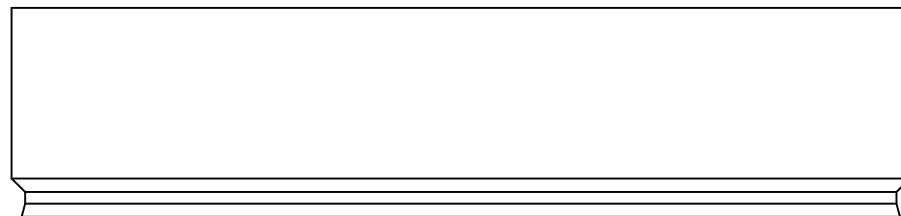
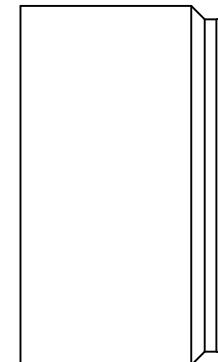


Panel front door



Panel top

Panel left side

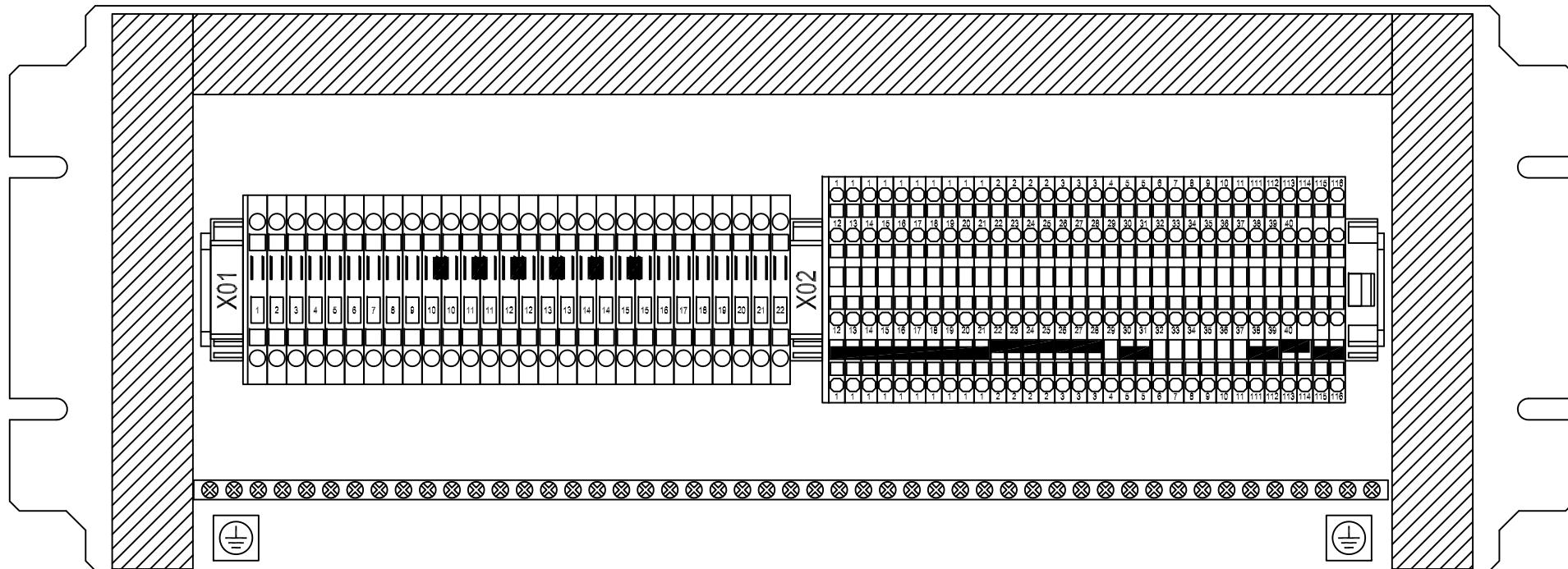


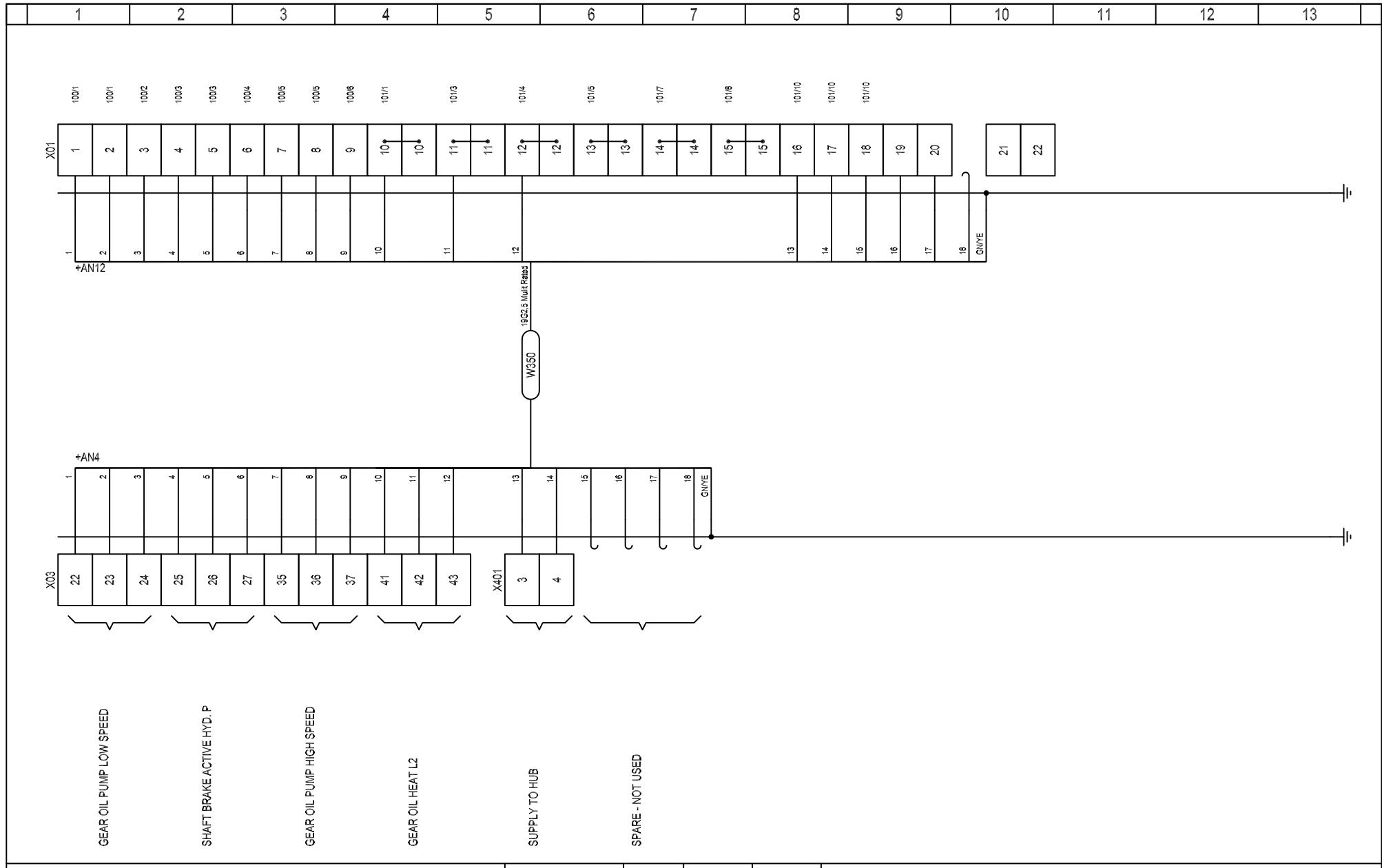
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	Date	Initials	Function	Panel front		
Designed	041213	FLT	Project title	Junction Box +AN12		
Approved	071214	BIVA	Comments		Customer	Vestas Wind Systems A/S
Revised	071214	INI	Rev.	-	Drawing no.	6015816
				Cont. sheet	031	Sheet
						030

1	2	3	4	5	6	7	8	9	10	11	12	13
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Mounting plate





12:08 14-12-07

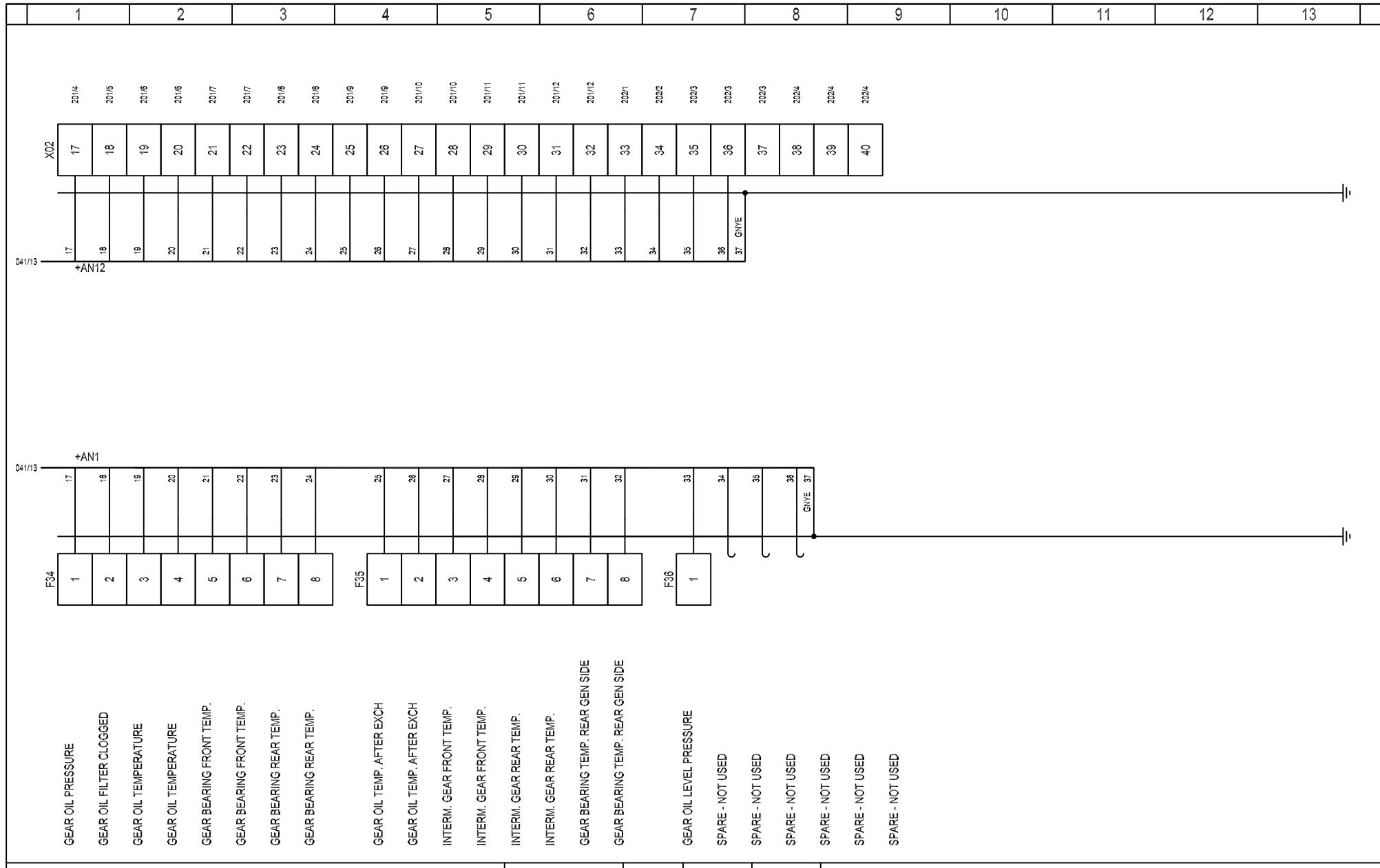
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	Date	Initials	Function	Connections to +AN4 Motor box						
Designed	041213	FLT	Project title	Junction Box +AN12						
Approved	071214	BIVA	Comments			Customer	Vestas Wind Systems A/S			
Revised	071214	INI	Rev.	-	Drawing no.	6015816	Cont. sheet	041	Sheet	040

Project Details:

	Date	Initials	Function	Connections to +AN1 Top box							
Designed	041213	FLT	Project title	Junction Box +AN12							
Approved	071214	BIVA	Comments								
Revised	071214	INI	Rev.	-	Drawing no.	6015816	Customer	Vestas Wind Systems A/S			
							Cont. sheet	042	Sheet	041	

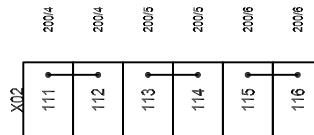


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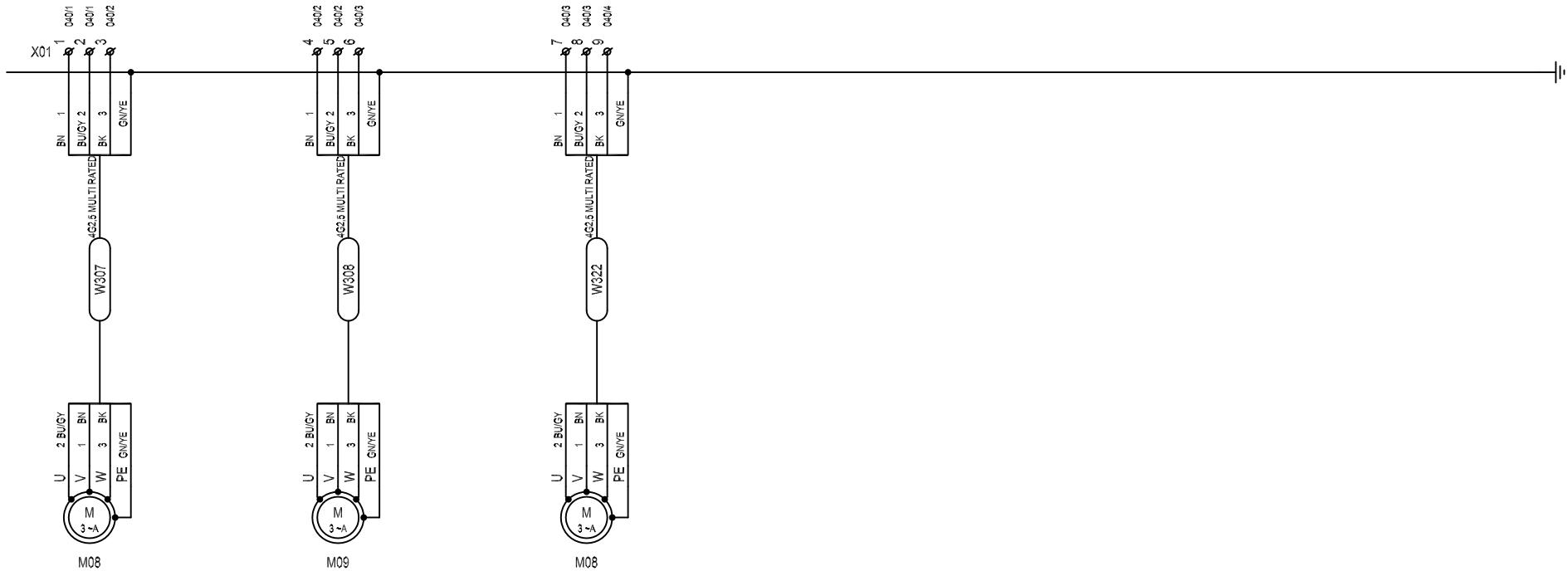
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	Date	Initials	Function	Connections to +AN1 Top box						
Designed	041213	FLT	Project title	Junction Box +AN12						
Approved	071214	BIVA	Comments				Customer	Vestas Wind Systems A/S		
Revised	071214	INI	Rev.	-	Drawing no.	6015816	Cont. sheet	043	Sheet	042

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GEAR OIL PUMP LOW SPEED

SHAFT BRAKE PUMP

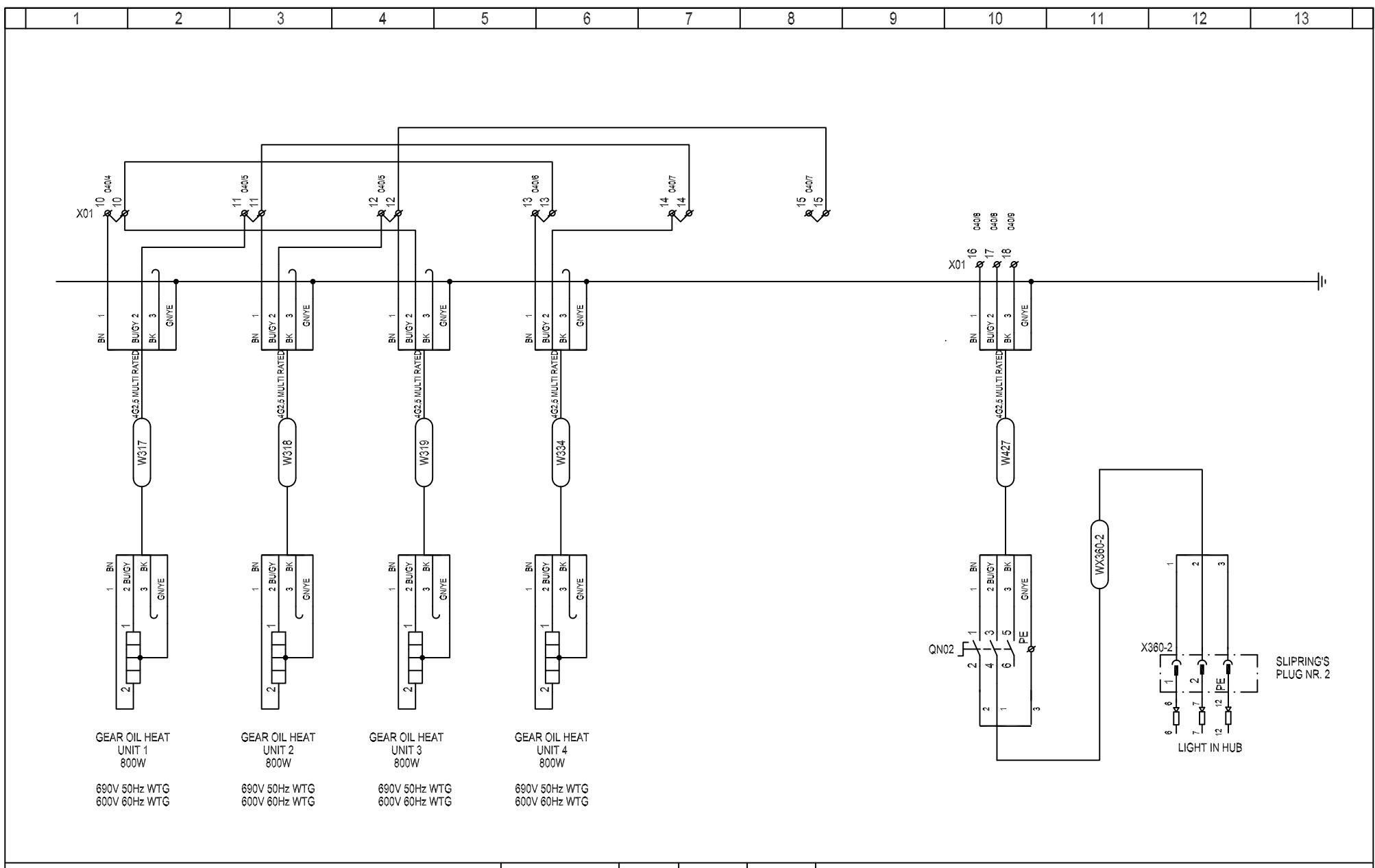
GEAR OIL PUMP HIGH SPEED

3 x 690V 50Hz WTG
3 x 480V 60Hz WTG

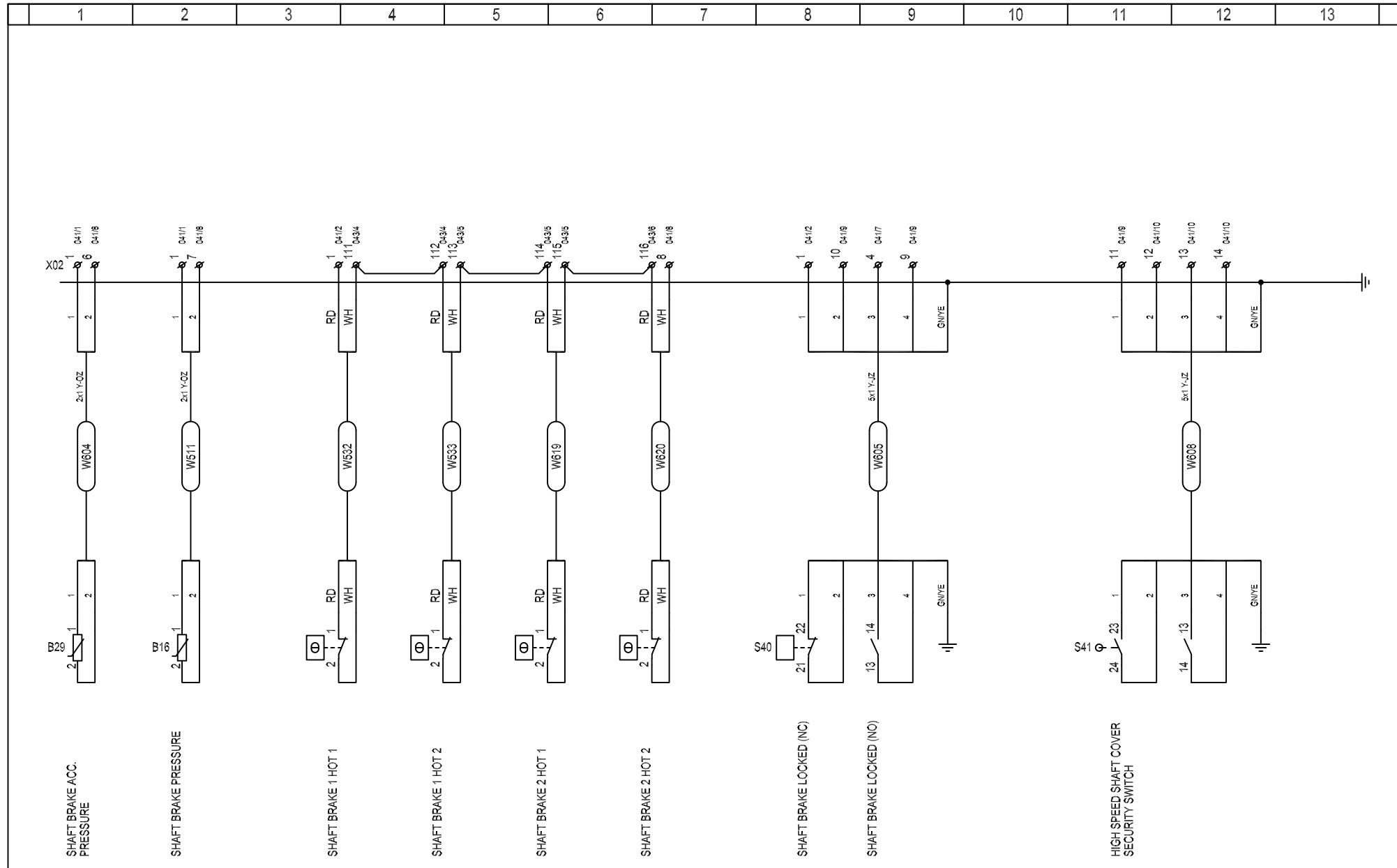
3 x 690V 50Hz WTG
3 x 480V 60Hz WTG

3 x 690V 50Hz WTG
3 x 480V 60Hz WTG

	Date	Initials	Function	External connections to motors		
Designed	041213	FLT	Project title	Junction Box +AN12		
Approved	071214	BIVA	Comments		Customer	Vestas Wind Systems A/S
Revised	071214	INI	Rev.	-	Drawing no.	6015816
			Cont. sheet	101	Sheet	100



	Date	Initials	Function	External connections to heating elements		
Designed	041213	FLT	Project title	Junction Box +AN12		
Approved	071214	BIVA	Comments		Customer	Vestas Wind Systems A/S
Revised	071214	INI	Rev.	-	Drawing no.	6015816
			Cont. sheet	200	Sheet	101



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	Date	Initials	Function	External connections to signals			
Designed	041213	FLT	Project title	Junction Box +AN12			
Approved	071214	BIVA	Comments				
Revised	071214	INI	Rev.	-	Drawing no.	6015816	Customer Vestas Wind Systems A/S Cont. sheet 201 Sheet 200

The schematic diagram illustrates a complex control circuit for a gear system, utilizing a combination of analog and digital components. Key elements include:

- Sensors:** V7, V8, B20, S32, B06, B09, B05, B14, B25, B26, B28.
- Logic Gates:** W606, W607, W637, W526, W522, W525, W521, W536, W581, W582, W625.
- Valves:** ACTIVE SHAFT BRAKE VALVE 1, ACTIVE SHAFT BRAKE VALVE 2, GEAR OIL FILTER CLOGGED, GEAR OIL TEMPERATURE, GEAR BEARING FRONT TEMP., GEAR BEARING REAR TEMP., GEAR OIL TEMP. AFTER EXCH., INTERM. GEAR FRONT TEMP., INTERM. GEAR REAR TEMP., GEAR BEARING TEMP. REAR GEN SIDE.

The circuit is organized into several horizontal sections corresponding to numbered slots (1-13) at the top:

- Slot 1:** ACTIVE SHAFT BRAKE VALVE 1. Contains a solenoid valve (V7) connected to terminals 1 and 2, with a normally closed contact (NC) connected to terminal 1.
- Slot 2:** ACTIVE SHAFT BRAKE VALVE 2. Contains a solenoid valve (V8) connected to terminals 1 and 2, with a normally closed contact (NC) connected to terminal 1.
- Slot 3:** GEAR OIL FILTER CLOGGED. Contains a normally open contact (NO) connected to terminal 1.
- Slot 4:** GEAR OIL TEMPERATURE. Contains a normally open contact (NO) connected to terminal 1.
- Slot 5:** GEAR BEARING FRONT TEMP. Contains a normally open contact (NO) connected to terminal 1.
- Slot 6:** GEAR BEARING REAR TEMP. Contains a normally open contact (NO) connected to terminal 1.
- Slot 7:** GEAR OIL TEMP. AFTER EXCH. Contains a normally open contact (NO) connected to terminal 1.
- Slot 8:** INTERM. GEAR FRONT TEMP. Contains a normally open contact (NO) connected to terminal 1.
- Slot 9:** INTERM. GEAR REAR TEMP. Contains a normally open contact (NO) connected to terminal 1.
- Slot 10:** GEAR BEARING TEMP. REAR GEN SIDE. Contains a normally open contact (NO) connected to terminal 1.
- Slot 11:** GEAR BEARING TEMP. REAR GEN SIDE. Contains a normally open contact (NO) connected to terminal 1.
- Slot 12:** GEAR BEARING TEMP. REAR GEN SIDE. Contains a normally open contact (NO) connected to terminal 1.
- Slot 13:** GEAR BEARING TEMP. REAR GEN SIDE. Contains a normally open contact (NO) connected to terminal 1.

Each section also includes a logic gate (W606, W607, W637, W526, W522, W525, W521, W536, W581, W582, W625) with its own set of connections and contacts. The circuit concludes with a common ground connection at the far right.

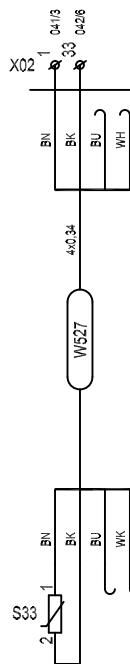
12.08 14-12-07

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	Designed	041213	FLT	Project title	Junction Box +AN12		
	Approved	071214	BIVA	Comments			Customer Vestas Wind Systems A/S
	Revised	071214	INI	Rev.	-	Drawing no. 6015816	Cont. sheet 202 Sheet 201

	1	2	3	4	5	6	7	8	9	10	11	12	13
GEAR OIL LEVEL PRESSURE													



SPARE - NOT USED
SPARE - NOT USED

34 0427
35 0427
36 0427
37 0428
38 0428
39 0428
40 0429

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	Date	Initials	Function	External connections to signals		
Designed	041213	FLT	Project title	Junction Box +AN12		
Approved	071214	BIVA	Comments		Customer	Vestas Wind Systems A/S
Revised	071214	INI	Rev.	-	Drawing no.	6015816
			Cont. sheet	-	Sheet	202

60108020 BOX+AN12 '05 MRKIII

Component	Description	Qty per	Stk UM	Position Number
D1001695	Work instructions f. productio	0,000	EA	
D6015816	JUNCTION BOX +AN12	0,000	EA	
60108090	BOX KL 1505.510 RAL 7035 W/W	1,000	EA	
60096809	WALL BRACKET RITTAL 1580.000	4,000	EA	
60102741	MOUN PL KL W/W	1,000	EA	
60110413	CABLE GLAND M40 PLASTIC	2,000	EA	
60007596	LOCKNUT M40 PA6 BML-15	2,000	EA	
60007586	CABLE GLAND M25 PA6 BM-EN-13	9,000	EA	
60007594	LOCKNUT M25 PA6 BML-13	9,000	EA	
60007584	CABLE GLAND BM-EN-11 M16 PA 6	9,000	EA	
60007592	LOCKNUT M16 PA6 BML-1S	9,000	EA	
60007534	CONNECTOR PG9 FOR HOSE PROT	11,000	EA	
60007553	LOCKNUT PG9 PA6 BLN12	11,000	EA	
60007195	DIN RAIL FITTING TST 2/M6 100m	4,000	EA	
60013412	ANGLE BRACKET 2x10x25MM	3,000	EA	
60101926	LABEL TYPE SIGN +AN12	1,000	EA	
60006824	STICKER "LIGHTNING" 100MM	0,330	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	16,000	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	3,000	EA	
60009861	NUT ISO 4032 M 4 - 6 - FZB	3,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	3,000	EA	
60009578	SCR CRS PH M3x8 FZB	3,000	EA	
60007197	SCREW FKSC M6x12MM	4,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60110879	MARK WAGO +AN12 PANEL V82	2,000	EA	
60111003	CABLE CONDUIT DIN RAIL AN12	1,000	EA	
60111322	LABEL TYPE SIGN MARKING	1,000	EA	
D21000206	BOM_60108020_Junction Box +AN1	0,000	EA	
D22000565	CI-JUNCTION BOX +AN12	0,000	EA	
60006819	STICKER "EARTH" 14MM	0,018	EA	
60105941	QUICK-RELEASE FASTENER KL BOX	0,330	EA	
60096685	TERMINAL WAGO1-LEV 0.08-4.0MM2	28,000	EA	-X01
60097064	END SEC 281-328 GY	1,000	EA	-X01
60100036	PUSH-IN JUMPER BAR 2-POL	6,000	EA	-X01
60091912	END STOP WAGO 249-117 10MM	1,000	EA	-X01
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X01
60110649	WIRING CONN BOX+AN12-X01MRKIII	1,000	EA	-X01
60006071	TERMINAL WAGO 870-501 2-LEV.0,	32,000	EA	-X02
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	-X02
60006090	PUSH-IN JUMPER BAR 870-410	1,000	EA	-X02
60006088	PUSH-IN JUMPER BAR 870-404 4-P	1,000	EA	-X02
60006087	PUSH-IN JUMPER BAR 870-403	1,000	EA	-X02
60006086	PUSH-IN JUMPER BAR 870-402 2-P	4,000	EA	-X02
60091912	END STOP WAGO 249-117 10MM	2,000	EA	-X02
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X02

Change Info

Item no.	Item text:
60108021	Junction Box +AN13, V82-1.65MW

Active revision for production

Drawing no.: 6015817

Version	Date	Init./App.	Description of change since last revision
01	21.02.2005	INI/FLT	Page 001 updated to show page 202 Page 040, 041 and 200: Text and references updated. Page 201: W598 corrected to W558 and references updated.

LST no.: 21000207

Version	Date	Init./App.	Material BOM no.: 60108021	Description of change since last revision
05	26.06.2007	INI/BIVA		Changed with ECO 226004_Replament 2 x 60007593 LOCKNUT repl. by 2 x 193722 LOCKNUT MM20GPA POLYAMID.

Old revisions for service

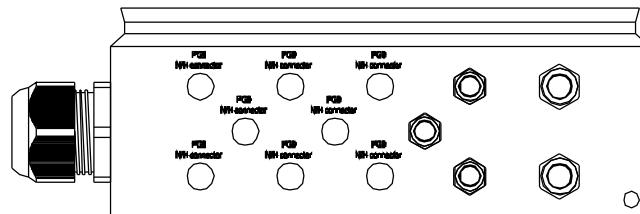
Drawing no.: 6015817

Version	Date	Init./App.	Description of change since last revision
00	13.12.2004	FLT/FLT	First version

LST no.: 21000207

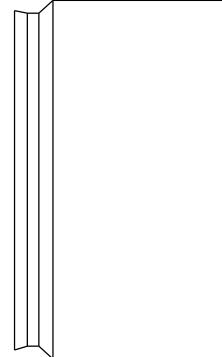
Version	Date	Init./App.	Material BOM no.: 60108021	Description of change since last revision
04	19.04.2007	INI/FLT		Changed with ECO 223454_Updated for production in Spain. Quantity changed: 60006819 STICKER "JORD" 14mm from 1 pc. to 0,018 pc. 60006824 "LYN" 1 pc. to 0,33 pc. 60105941 QUICK- FASTENER 4 pc. To 0,33 pc.
03	13.06.2005	MILJE/		Production requirement, serial production
02	25.05.2005	MILJE/FLT		Updates according to production, 2pc. 60091902_end stop added
01	17.05.2005	FLT+MILJE/FLT		First version

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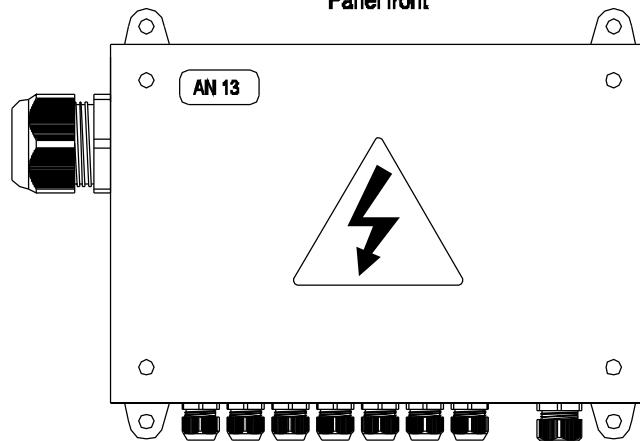


Panel bottom

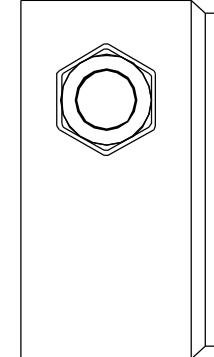
Panel right side



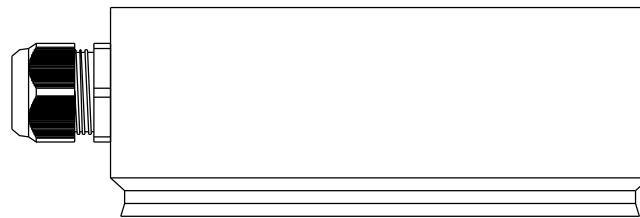
Panel front



Panel left side

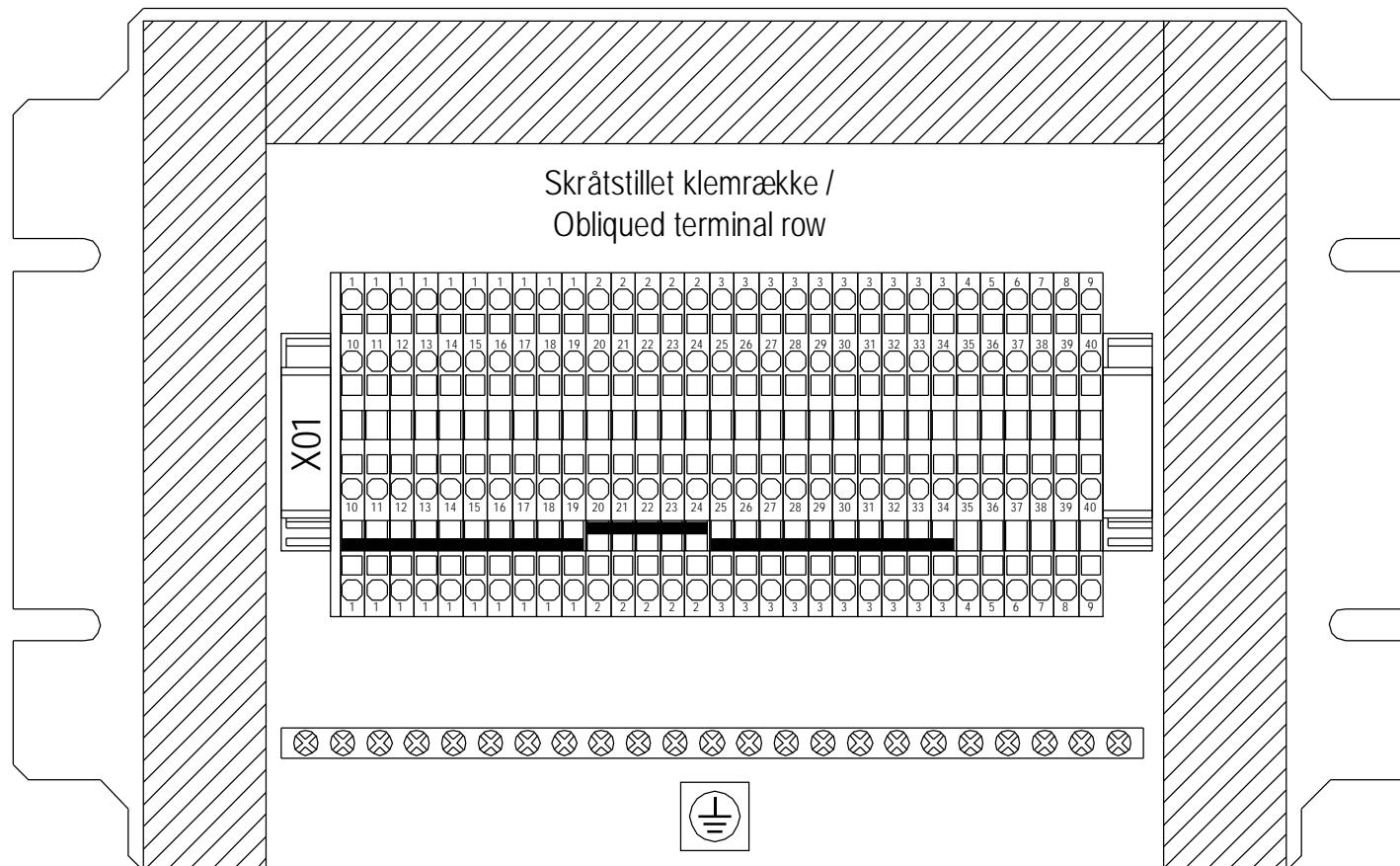


Panel top



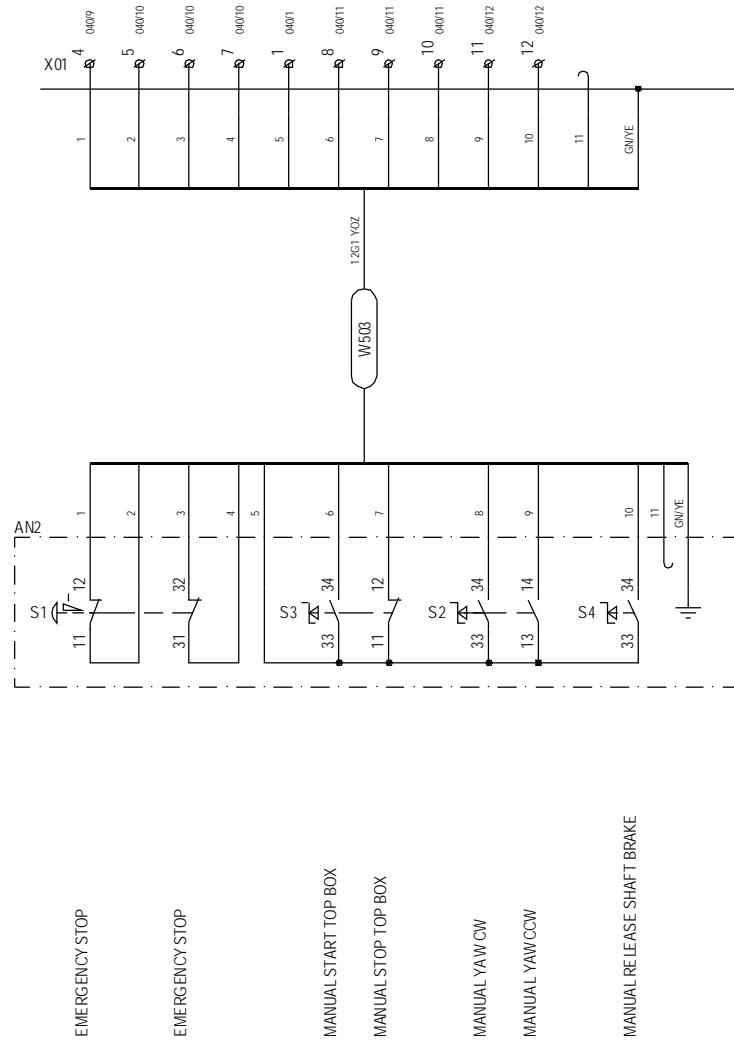
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Designed	041213	FLT	Project title	Junction Box +AN13
Approved			Comments	Customer Vestas Wind Systems A/S
Revised	041213	FLT	Rev. -	Drawing no. 6015817 Cont. sheet 031 Sheet 030

Mounting plate



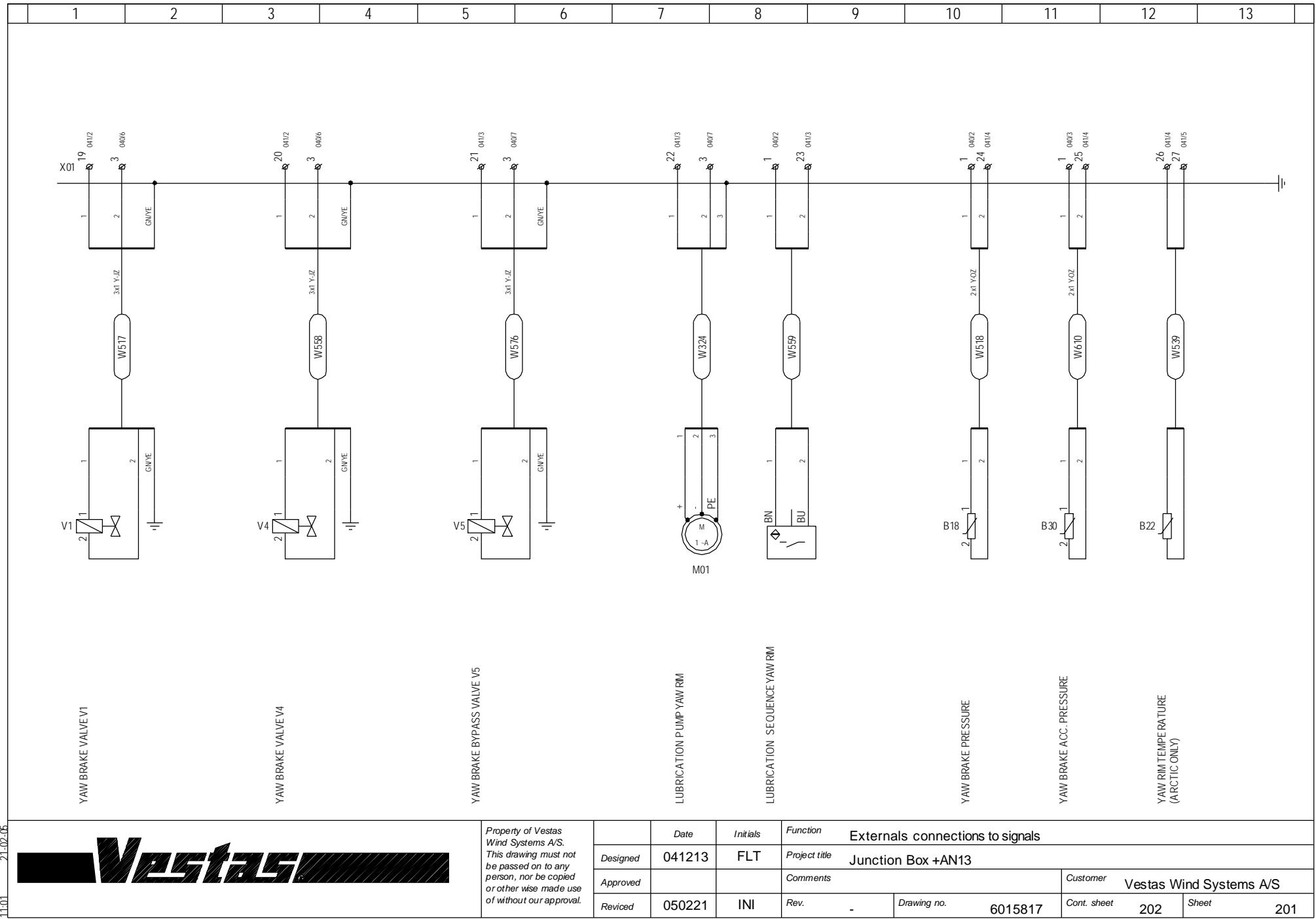
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SUPPLY 24VDC SENS OR +																
SUPPLY 0VDC SENSOR -	1	2														
SUPPLY 0VDC VALVE -	3															
EMERGENCY STOP +AN2	4															
EMERGENCY STOP +AN2	5															
EMERGENCY STOP +AN2	6															
EMERGENCY STOP +AN2	7															
MANUEL START TOP BOX	8															
F38																
+AN1	1	2	3	4	5	6	7	8	9	10	11	12	13			
X01	1	2	3	4	5	6	7	8	9	10	11	12	13			
+AN13	1	2	3	4	5	6	7	8	9	10	11	12	13			
X01																
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041/1																
W613	3/TG Multi Releed															
F39	9	10	11	12	13	14	15	16	17	18	19	20	21	041/1		
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MANUAL YAW CW																
MANUAL YAW CCW																
MANUAL RELEASE SHAFT BRAKE																
LONG UNTWIST CW																
UNTWIST CENTER																
LONG UNTWIST CCW																
041	041	Sheet	040													
Rev.	050221	INI	Rev.	-	Drawing no.	6015817	Cont. sheet	041	Sheet	040						
Designed	041213	FLT	Project title	Junction Box +AN13												
Approved			Comments													
Revised																
1:101	21.02.05	Vestas	Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.	Date	Initials	Function	Connection to +AN1 Top box									

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04Q13	16 +AN13	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	16 +AN1	
04Q13	NACELLE POSITION COUNT 1	NACELLE POSITION COUNT 2	NACELLE POSITION COUNT 3	NACELLE POSITION COUNT 4	NACELLE POSITION COUNT 5	NACELLE POSITION COUNT 6	NACELLE POSITION COUNT 7	NACELLE POSITION COUNT 8	NACELLE POSITION COUNT 9	NACELLE POSITION COUNT 10	NACELLE POSITION COUNT 11	NACELLE POSITION COUNT 12	NACELLE POSITION COUNT 13	
04Q13	YAW BRAKE VALVE V4	YAW BRAKE BYPASS VALVE V5	LUBRICATION PUMP YAW/RM	LUBRICATION SEQUENCE YAW/RM	YAW BRAKE PRESSURE	YAW BRAKE ACC. PRESSURE	YAW RIM TEMPERATURE (ARCTIC ONLY)	LUBRICATION PUMP YAW/RIM/BEARING	LUBRICATION SEQUENCE YAW/RIM/BEARING	SPARE - NOT USED				
21.02.05 11:01	Vestas	Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor copied or other wise made use of without our approval.	Designed Approved Revised	041213 050221	FLT Comments IN	Date Comments Rev.	Initials Comments Drawing no.	Function Junction Box +AN13 Customer Vestas Wind Systems A/S	Connection to +AN1 Top box	Cont. sheet 200	Sheet 041			



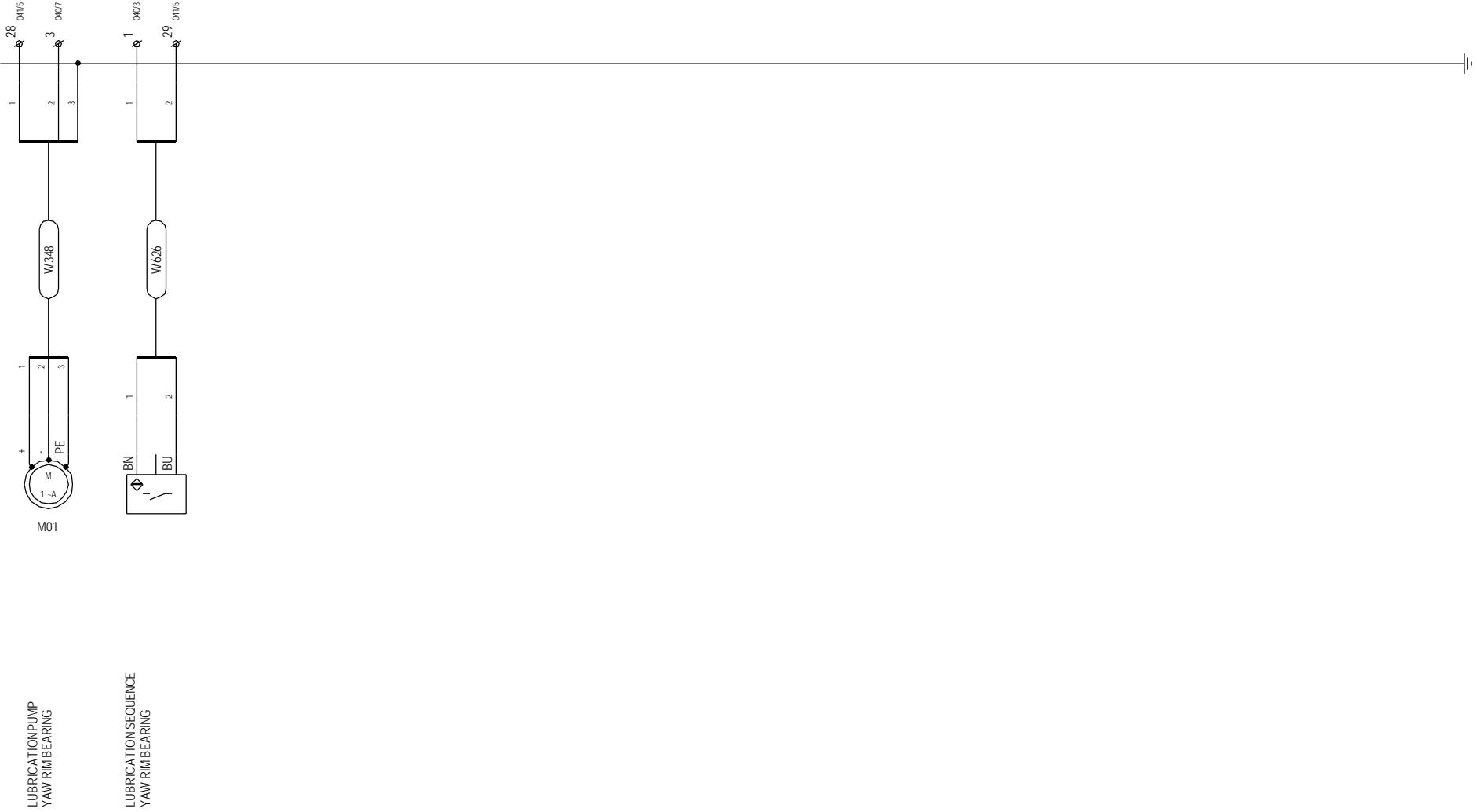
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	Date	Initials	Function	Externals connections to signals		
Designed	041213	FLT	Project title	Junction Box +AN13		
Approved			Comments			
Revised	050221	INI	Rev.	Drawing no.	Customer	Vestas Wind Systems A/S
			-	6015817	Cont. sheet	201
					Sheet	200



	Date	Initials	Function	Externals connections to signals		
Designed	041213	FLT	Project title	Junction Box +AN13		
Approved			Comments	Customer Vestas Wind Systems A/S		
Revised	050221	INI	Rev.	-	Drawing no.	6015817
				Cont. sheet	202	Sheet 201

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21.02.05



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	Date	Initials	Function	Externals connections to signals		
Designed	041213	FLT	Project title	Junction Box +AN13		
Approved			Comments		Customer	Vestas Wind Systems A/S
Revised	041213	FLT	Rev.	-	Drawing no.	6015817
			Cont. sheet	-	Sheet	202

60108021 JUNCTION BOX +AN13

Component	Description	Qty per	Stk UM	Position Number
D1001696	Work instructions f. productio	0,000	EA	
D6015817	JUNCTION BOX +AN13	0,000	EA	
60108147	BOX KL 1503.510 RAL 7035 W/W	1,000	EA	
60096809	WALL BRACKET RITTAL 1580.000	4,000	EA	
60102739	MOUN PL KL W/W	1,000	EA	
60110413	CABLE GLAND M40 PLASTIC	1,000	EA	
60007596	LOCKNUT M40 PA6 BML-15	1,000	EA	
60007585	CABLE GLAND BM-EN-12 M20 PA 6	2,000	EA	
60007584	CABLE GLAND BM-EN-11 M16 PA 6	3,000	EA	
60007592	LOCKNUT M16 PA6 BML-1S	3,000	EA	
60007534	CONNECTOR PG9 FOR HOSE PROT	8,000	EA	
60007553	LOCKNUT PG9 PA6 BLN12	8,000	EA	
60007196	DIN RAIL FTG TSTW 72x48MM	2,000	EA	
60013412	ANGLE BRACKET 2x10x25MM	2,000	EA	
60101927	LABEL +AN13	1,000	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	2,000	EA	
60009861	NUT ISO 4032 M 4 - 6 - FZB	2,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	2,000	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	10,000	EA	
60009578	SCR CRS PH M3x8 FZB	2,000	EA	
60007197	SCREW FKSC M6x12MM	2,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60110880	MARK WAGO +AN13 PANEL V82	2,000	EA	
60111002	CABLE CONDUIT DIN RAIL	1,000	EA	
60111320	LABEL TYPE SIGN MARKING "-X01"	1,000	EA	
D21000207	BOM_60108021_Junction Box +AN1	0,000	EA	
D22000566	CI-JUNCTION BOX +AN13	0,000	EA	
193722	LOCKNUT MM20GPA POLYAMID	2,000	EA	
60006819	STICKER "EARTH" 14MM	0,018	EA	
60006824	STICKER "LIGHTNING" 100MM	0,330	EA	
60105941	QUICK-RELEASE FASTENER KL BOX	0,330	EA	
60006071	TERMINAL WAGO 870-501 2-LEV.0,	31,000	EA	-X01
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	-X01
60006089	PUSH-IN JUMPER BAR 870-405	1,000	EA	-X01
60006090	PUSH-IN JUMPER BAR 870-410	2,000	EA	-X01
60091902	END STOP WAGO 249-116 6MM TS35	2,000	EA	-X01
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X01

Change Info

Item no.	Item text:
60108022	Junction Box +AN14, V82-1.65MW MRK III

Active revision for production

Drawing no.: 6015818

Version	Date	Init./App.	Description of change since last revision
02	18.05.2005	INI/FLT	Page 001 updated. Page 031: Earth label rotated.

LST no.: 21000208

Version	Date	Init./App.	Description of change since last revision
03	03.04.2007	HHU+INI/FLT	Changed with ECO 223431_ Updated for production in Spain. Quantity changed: 60006819 STICKER "JORD" _1 pc. to 0,018 pc. 60006824 "LYN" _1 pc. to 0,35 pc. 60105941 QUICK FASTENER_4 pc. to 0,33 pc. 60110881 MARK WAGO_1 pc. to 0,5 pc.

Old revisions for service

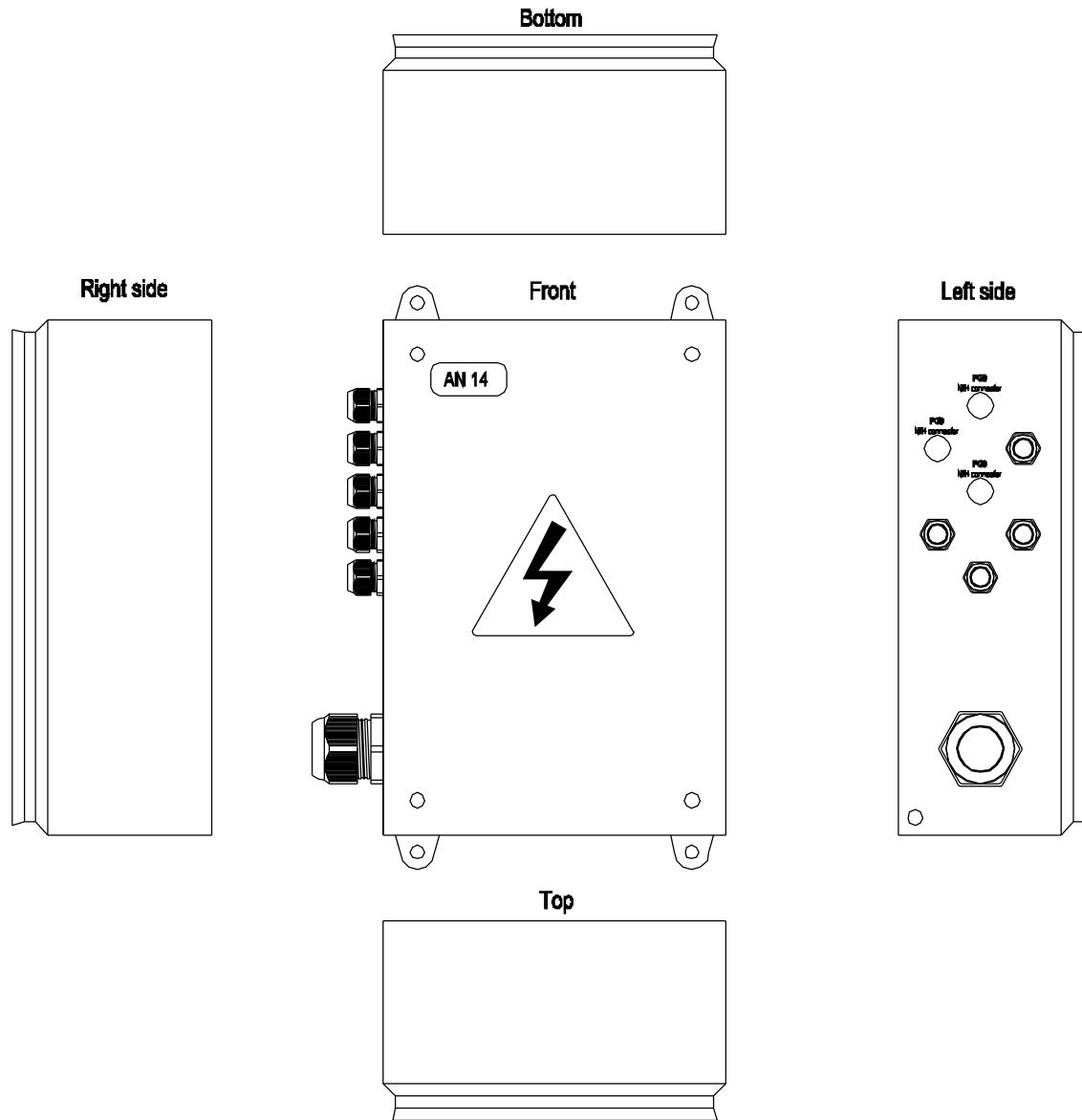
Drawing no.: 6015818

Version	Date	Init./App.	Description of change since last revision
01	21.02.2005	INI/	Not in use
00	13.12.2004	FLT/FLT	First version

LST no.: 21000208

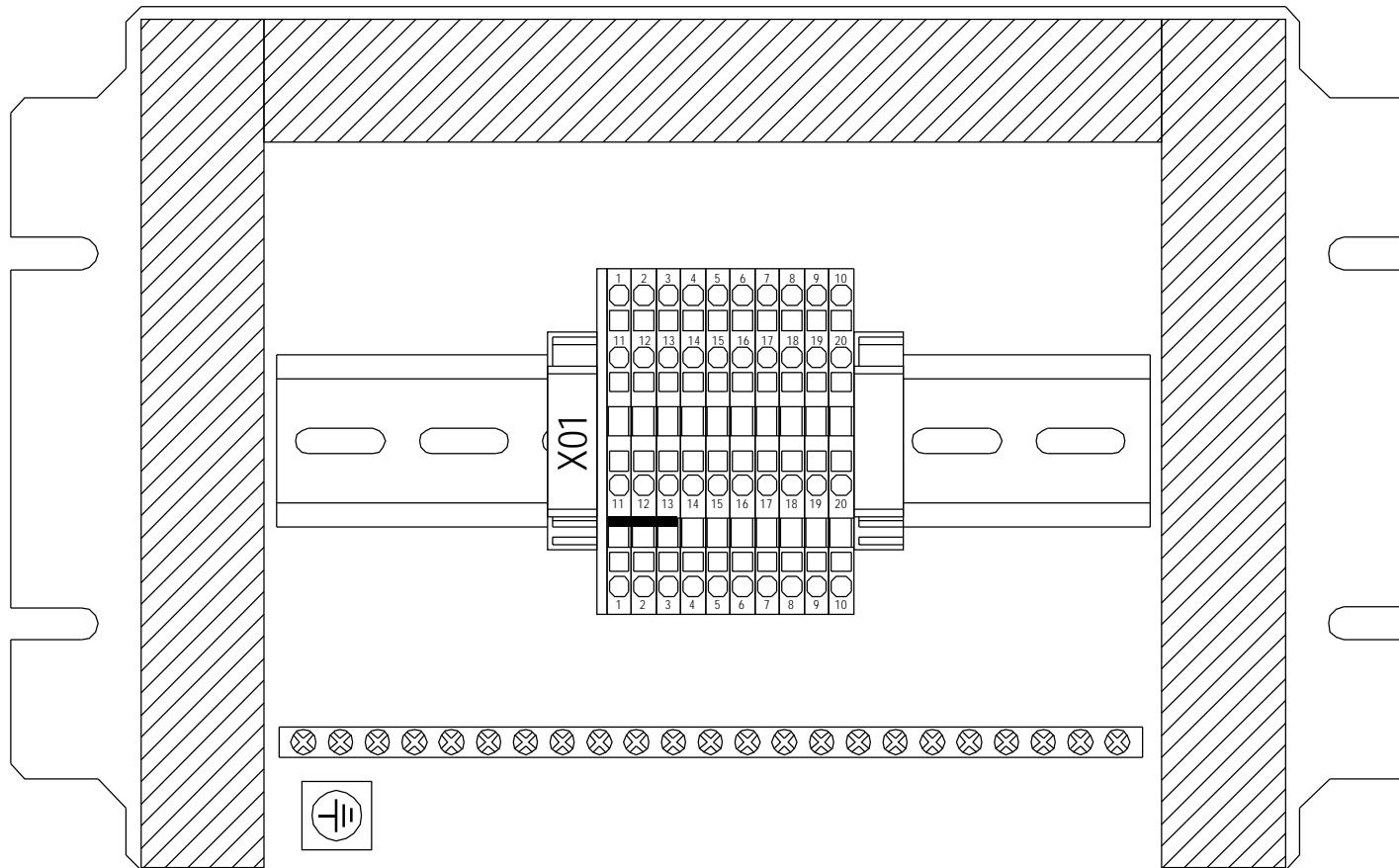
Version	Date	Init./App.	Description of change since last revision
02	13.06.2005	MILJE/	Production requirement serial production
01	17.05.2005	FLT+MILJE/FLT	First version

1	2	3	4	5	6	7	8	9	10	11	12	13	
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	Date	Initials	Function	Front	
Designed	041213	FLT	Project title	Junction Box +AN14	
Approved			Comments		Customer Vestas Wind Systems A/S
Revised	041213	FLT	Rev.	-	Drawing no. 6015818 Cont. sheet 031 Sheet 030

Mounting plate



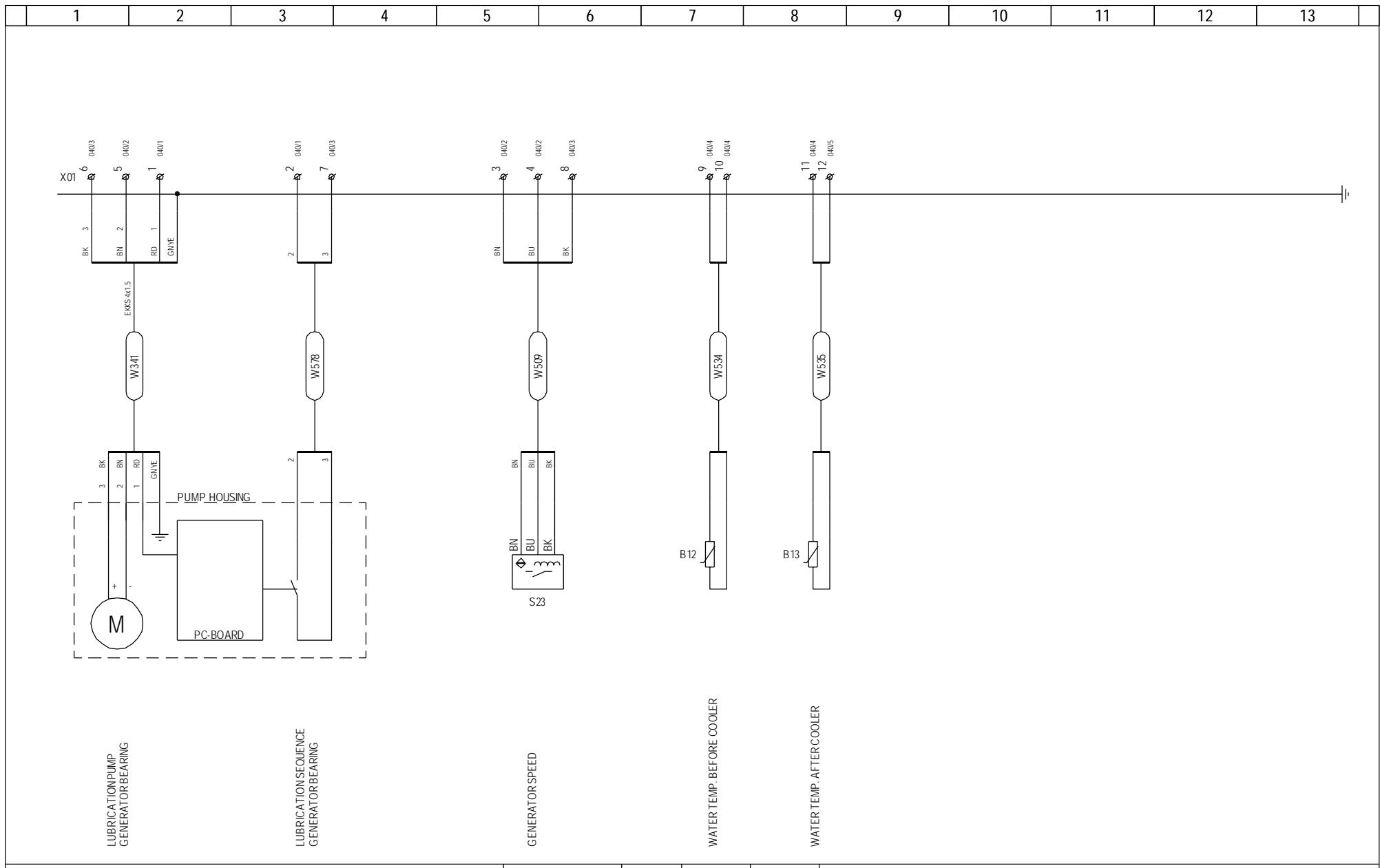
	Date	Initials	Function	Outline
Designed	041213	FLT	Project title	Junction Box +AN14
Approved	050518	FLT	Comments	Customer Vestas Wind Systems A/S
Revised	050518	INI	Rev. -	Drawing no. 6015818 Cont. sheet 040 Sheet 031

SUPPLY 24V DC SENSOR +

Vestas

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	Date	Initials	Function	Connections to +AN1 Top box						
Designed	041213	FLT	Project title	Junction Box +AN14						
Approved			Comments			Customer	Vestas Wind Systems A/S			
Revised	041213	FLT	Rev.	-	Drawing no.	6015818	Cont. sheet	200	Sheet	040



10-14 18-05-05

10.14 18-05-00

LUBRICATION PUMP
GENERATOR BEARING

LUBRICATION SEQUENCE
GENERATOR BEARING

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<i>Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or other wise made use of without our approval.</i>	Date	Initials	Function External connection to signals					
	Designed	041213	FLT	Project title Junction Box +AN14				
	Approved			Comments			Customer Vestas Wind Systems A/S	
	Revised	041213	FLT	Rev.	-	Drawing no. 6015818	Cont. sheet -	Sheet 200

60108022 BOX+AN14 '05 MRKIII

Component	Description	Qty per	Stk UM	Position Number
D1001697	Work instructions f. productio	0,000	EA	
D6015818	JUNCTION BOX +AN14	0,000	EA	
60108148	BOX KL 1503.510 RAL 7035 W/W	1,000	EA	
60096809	WALL BRACKET RITTAL 1580.000	4,000	EA	
60102739	MOUN PL KL W/W	1,000	EA	
60007588	CABLE GLAND BM-EN-15 M40 PA 6	1,000	EA	
60007596	LOCKNUT M40 PA6 BML-15	1,000	EA	
60007584	CABLE GLAND BM-EN-11 M16 PA 6	4,000	EA	
60007592	LOCKNUT M16 PA6 BML-1S	4,000	EA	
60007534	CONNECTOR PG9 FOR HOSE PROT	3,000	EA	
60007553	LOCKNUT PG9 PA6 BLN12	3,000	EA	
60013412	ANGLE BRACKET 2x10x25MM	2,000	EA	
60101928	LABEL +AN14	1,000	EA	
60006824	STICKER "LIGHTNING" 100MM	0,350	EA	
60006819	STICKER "EARTH" 14MM	0,018	EA	
60105941	QUICK-RELEASE FASTENER KL BOX	0,330	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	2,000	EA	
60009861	NUT ISO 4032 M 4 - 6 - FZB	2,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	2,000	EA	
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	8,000	EA	
60009578	SCR CRS PH M3x8 FZB	2,000	EA	
60002320	STICKER GEN USE VCS	1,000	EA	
60110881	MARK WAGO +AN14 PANEL V82	0,500	EA	
60111002	CABLE CONDUIT DIN RAIL	1,000	EA	
60111320	LABEL TYPE SIGN MARKING "-X01"	1,000	EA	
D21000208	BOM_60108022_Junction Box +AN14	0,000	EA	
D22000567	CI-JUNCTION BOX +AN14	0,000	EA	
60006071	TERMINAL WAGO 870-501 2-LEV.0,	10,000	EA	-X1
60006087	PUSH-IN JUMPER BAR 870-403	1,000	EA	-X1
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	-X1
60091912	END STOP WAGO 249-117 10MM	2,000	EA	-X1
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X1

Change Info

Item no.	Item text:
60019632	Nacelle Heater 2x10 kW 690V 50Hz

Active revision for production

Drawing no.: 6012661

Version	Date	Init./App.	Description of change since last revision
02	02.06.2005	INI/FLT	All pages updated with Vestas logo.

LST no.: 21000084

Version	Date	Init./App.	Material BOM no.: 60016183	Description of change since last revision
02	17.11.2006	INI/FLT		Changed with ECO 218664 60008058 replaced with 194173_Cable rubber 4G2,5 60

Old revisions for service

Drawing no.: 6012661

Version	Date	Init./App.	Description of change since last revision
01	08.10.2003	INI/RPJ	First version in SAP no. system. Drawing converted to another drawing program. Project title changed.

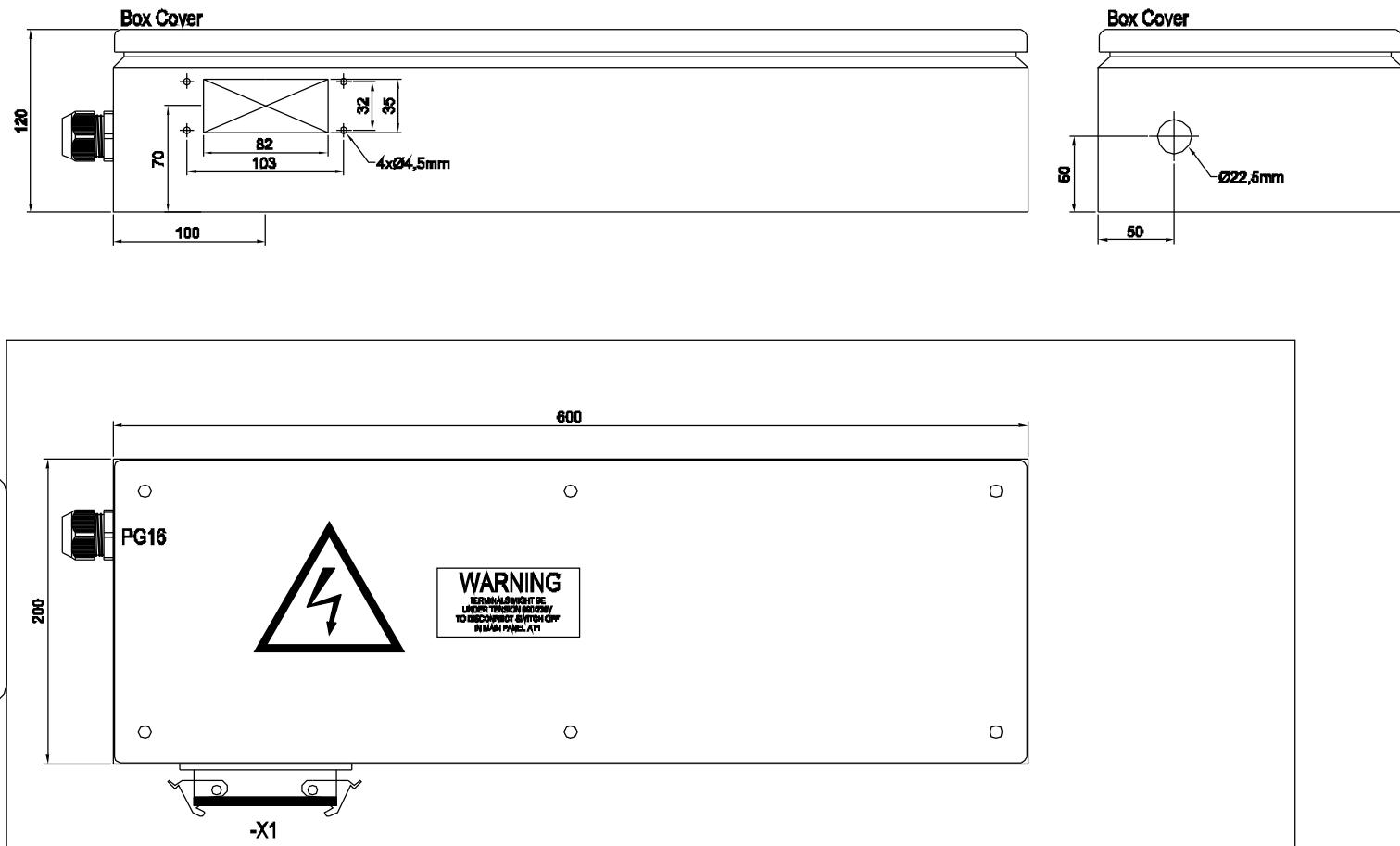
LST no.: 21000084

Version	Date	Init./App.	Material BOM no.: 60016183	Description of change since last revision
01	07.12.2000	RPJ/RPJ		First version in SAP no. system. Description text changed.

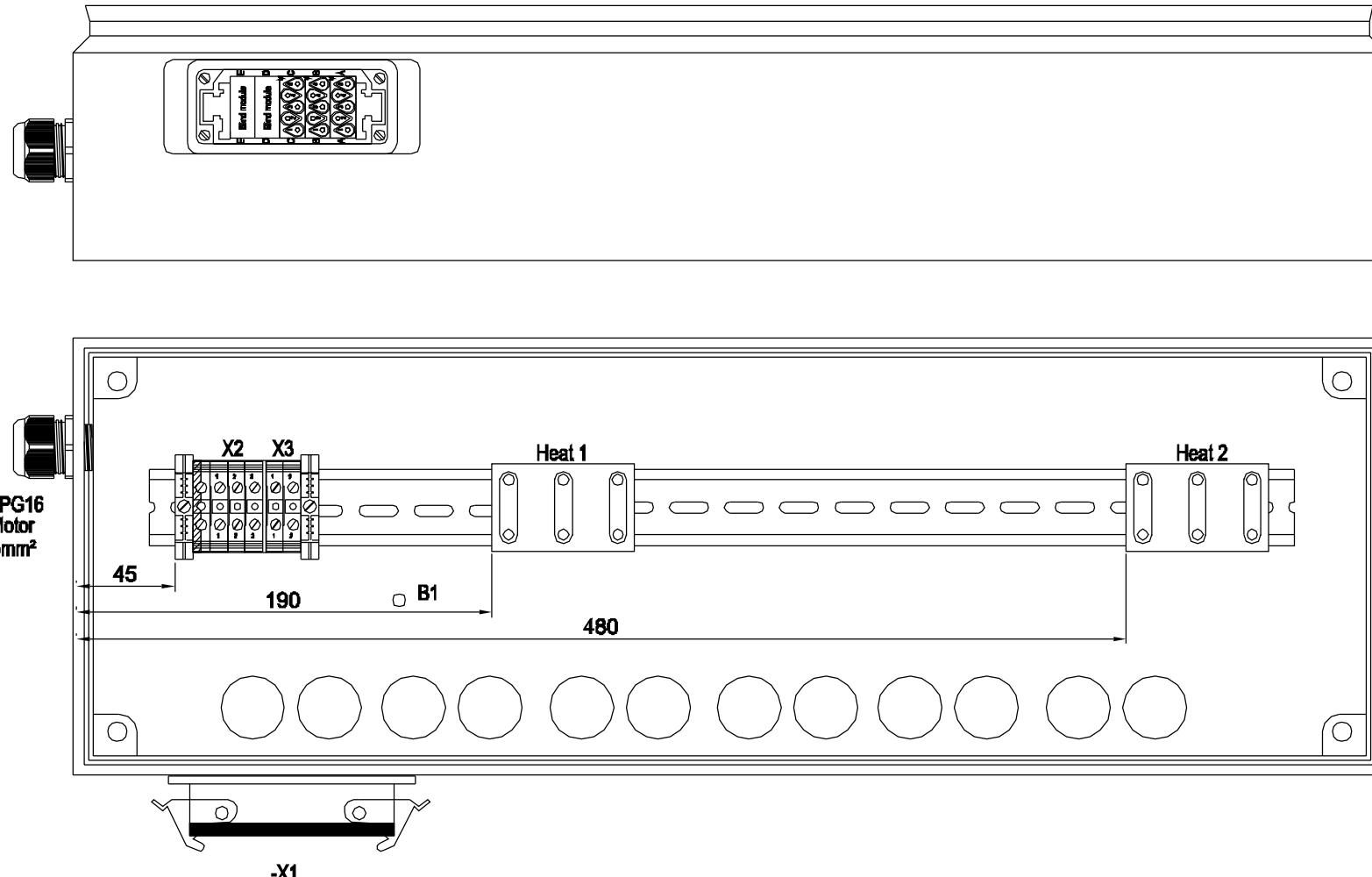
Earlier Drawings and Part Lists no Longer Active for Serial Production

Change Info: 0000500

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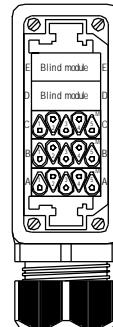


1	2	3	4	5	6	7	8	9	10	11	12	13	
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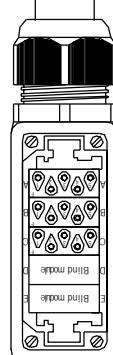


	Date	Initials	Function	Panel Outline		
Designed	011207	RPJ	Project title	Nacelle Heater 2x10 kW 690V 50Hz		
Approved			Comments	Customer Vestas Wind Systems A/S		
Revised	050602	INI	Rev. -	Drawing no.	6012661	Cont. sheet 100 Sheet 031

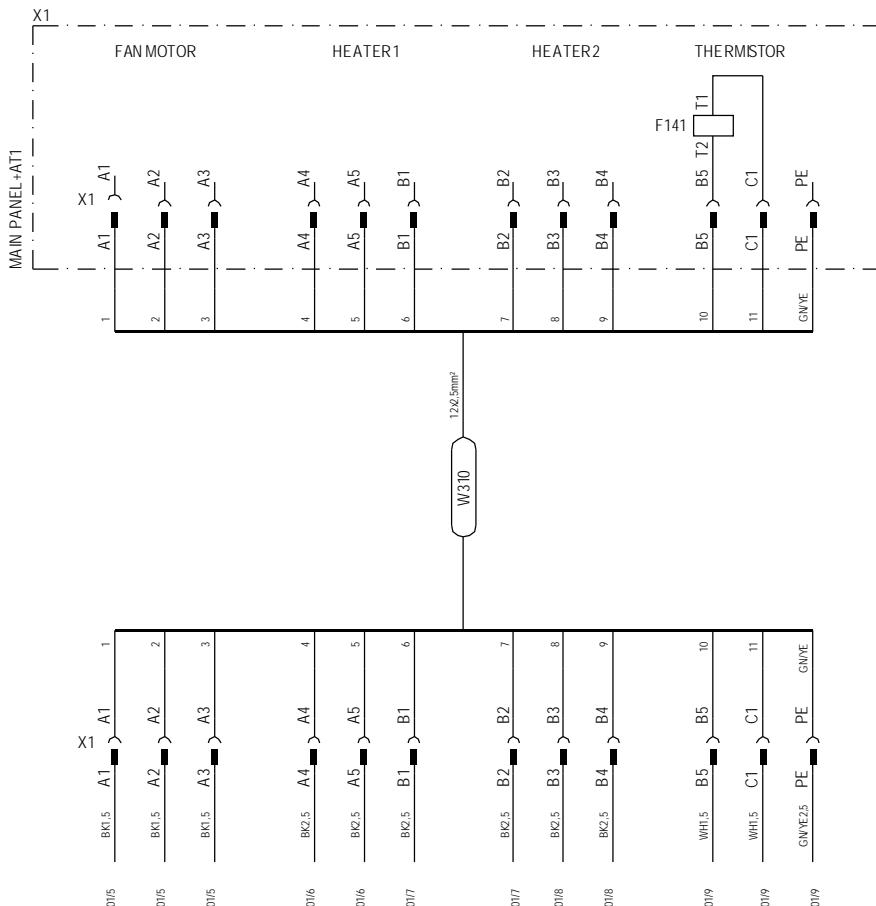
MAIN PANEL+AT1



CABLE TO
NACELLE HEATER



NACELLE HEATER



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Date Initials Function

Designed 011207 RPJ Project title

Nacelle Heater 2x10 kW 690V 50Hz

Approved Comments

Customer

Vestas Wind Systems A/S

Revised 050602 INI Rev. - Drawing no.

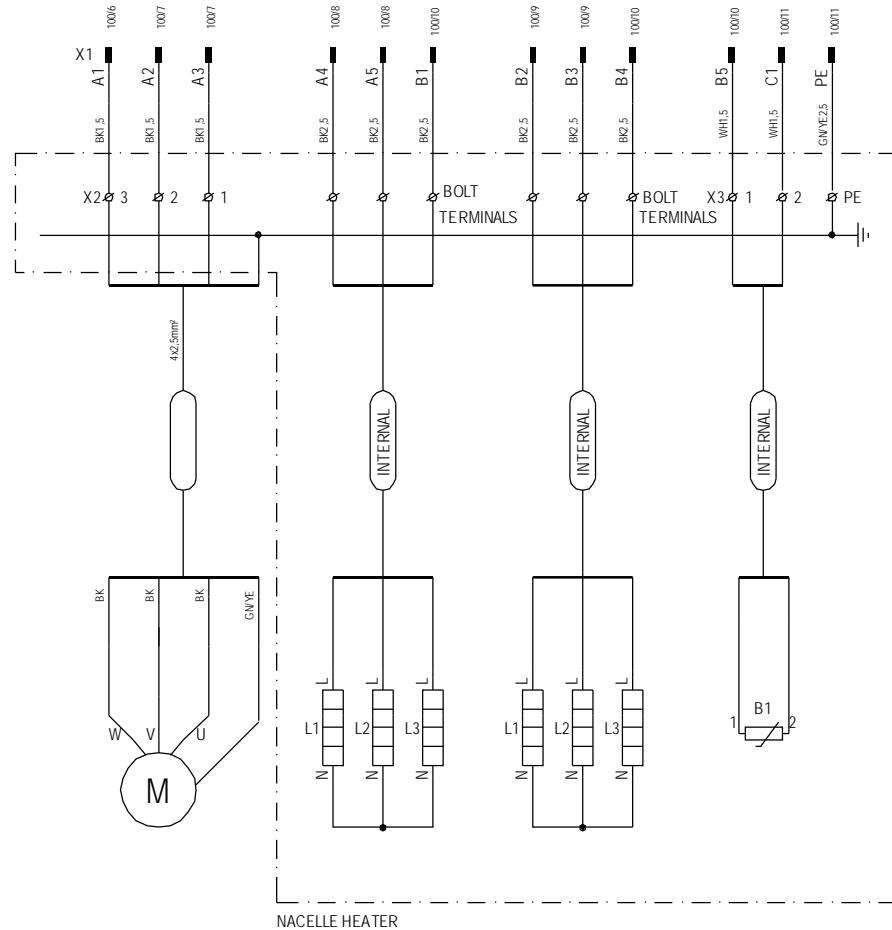
6012661

Cont. sheet

101

Sheet

100



HEATER FAN
3x690V
0.55kW, 0.93A

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HEAT UNIT 1
3x690V 1kW

HEAT UNIT 2
3x690V 1kW

TEMP. SENSOR

	Date	Initials	Function	Main Connections, Nacelle Heater
Designed	011207	RPJ	Project title	Nacelle Heater 2x10 kW 690V 50Hz
Approved			Comments	Customer Vestas Wind Systems A/S
Revised	050602	INI	Rev. -	Drawing no. 6012661 Cont. sheet - Sheet 101

60016183 NAC HEATER 2x10 kW 690V 50Hz

Component	Description	Qty per	Stk UM	Position Number
D6012661	NACELLE HEATER 2x10 kW, 690V 5	0,000	EA	
60006824	STICKER "LIGHTNING" 100MM	1,000	EA	
60014091	MARK CARD RC610 HEATER NM750	1,000	EA	
60002655	LABEL	1,000	EA	
60007603	CABLE GLAND PG16 BRASS BSBC-05	1,000	EA	
60007614	LOCKNUT PG16 BRASS BSL-05	1,000	EA	
60014736	HEATER 3x690V 2x10kW NM900	1,000	EA	
D21000084	60016183 MATERIAL BOM, NACELLE	0,000	EA	
D22000188	NACELLE HEATER 2x10 kW 690V 50	0,000	EA	
194173	MO. WIRE H07RN-F 4G2.5MM2	1,000	M	
60000601	RES PTC 100R 155C 1 MODUL	1,000	EA	B1
60002736	LABEL TYPE SIGN NACELLE HEATER	1,000	EA	Outside
60006571	HOUSING 32P BULKHEAD	1,000	EA	X1
60012189	WIRING NAC HEATER	1,000	EA	X1
60007351	CABLE CONDUIT 15x40mm 21153	0,530	M	X1
60002439	LABEL "-X1"	1,000	EA	X1
60005983	TERMINAL STD M4/6	3,000	EA	X2
60005998	END SEC FEM6 GY 118368.16	1,000	EA	X2
60006034	END STOP 9708/2 S35	2,000	EA	X2
60005984	TERMINAL GROUND M4/6P	1,000	EA	X2
60005983	TERMINAL STD M4/6	2,000	EA	X3
60005998	END SEC FEM6 GY 118368.16	1,000	EA	X3
60006034	END STOP 9708/2 S35	1,000	EA	X3

Change Info

<u>Item no.</u>	<u>Item text:</u>
60110471	Hub Computer Panel +AK4 CEE, V82-1.65MW
60110472	Hub Computer Panel +AK4 AUS, V82-1.65MW

Active revision for production

Drawing no.: D6015908

Version	Date	Init./App.	Description of change since last revision
05	2008-12-17	INI/PRO	Changed with ECO 251881_ For making a better workflow doing it the same way at all 3 HUB items. Cables are been changed to only PK and GNYE. Pages changed from 100 to 212, 215, 313 and 343.

BoM no.: 60110471

Version	Date	Init./App.	Doc. no.: D21000238 Hub Comp. Panel +AK4 CEE
05	2008-12-17	INI/PRO	Description of change since last revision Changed with ECO 251881_ For making a better workflow doing it the same way at all 3 HUB items. Cables are been changed to only PK and GNYE. Replaced: 60005140 repl. by 60005135 MCB 5SX2103-7 C 1-POL. 3.0A Added: 1 x 60112358 WIRING HUB CPU IEC/UL (34) 1 x 60010699 CONDENSATION PROTECTION DRY BA 4 x 60007459 CABLE TIE WHITE 200x2.5, 1x119161 LABEL AVOID TENSION, 1 x 119162 LABEL TYPE 1 ENCLOS., 1,92m 146470 FLEX HOSE 15,8MM BK Removed: 1 x 60021530 Cable W926, 2 x 60001890 MVSTBW 2,5/10 - ST -5,08 2 x 60001892 GMVSTBW 2,5/3 - ST - 7,62

BoM no.: 60110472

Version	Date	Init./App.	Doc. no.: D21000239 Hub Comp. Panel +AK4 AUS
03	2008-12-17	INI/PRO	Description of change since last revision Changed with ECO 251881_ For making a better workflow doing it the same way at all 3 HUB items. Cables are been changed to only PK and GNYE. Replaced: 60005140 repl. by 60005135 MCB 5SX2103-7 C 1-POL. 3.0A Added: 1 x 60112358 WIRING HUB CPU IEC/UL (34) 1 x 60010699 CONDENSATION PROTECTION DRY BA 4 x 60007459 CABLE TIE WHITE 200x2.5, 1x119161 LABEL AVOID TENSION, 1 x 119162 LABEL TYPE 1 ENCLOS., 1,92m 146470 FLEX HOSE 15,8MM BK Removed: 1 x 60021530 Cable W926, 2 x 60001890 MVSTBW 2,5/10 - ST -5,08 2 x 60001892 GMVSTBW 2,5/3 - ST - 7,62

BoM no.: 60022842

Version	Date	Init./App.	Document no.: D21000054 - Cables
03	27.04.2005	MILJE/FLT	Description of change since last revision Production requirement from proto type department.

BoM no.: 60019750

Version	Date	Init./App.	Document no.: D21000055 - Measuring Kit
02	27.02.2004	INI / KSS	Description of change since last revision Cables add. W923 no.60021527, W924 no.60021528, W925 no.60021529

Old revisions for service

Drawing no.: D6015908

Version	Date	Init./App.	Description of change since last revision
04	2008-06-12	INI/OLZED	Changed with ECO 240165 - All paged updated with new Vestas Logo Page 034: ID for socket no. X04 corrected to X05. Page 343: ID for X1 Emergency X01corrected to K01 Changed with ECO 227961 Page 033: 1 pc. M16 & 16 pcs. M20 not used cable gland removed. Page 034: Cable gland on panel updated.
03	2007-10-10	INI/BIVA	Changed with ECO 227101_Holes for cable glands changed in bottom. Page 033: Holes for Heating Mat changed. Page 034: 1 pc. cable gland changed from M16 to M12 and 3 pcs. M20 changed to M16.
02	2007-07-26	INI/BIVA	

01	2005-11-28	INI/KSS	Text changed or added for better understanding of the diagram. Page 210: X15 hub input D1 => D4 changed to DI 4 <= DI 1. Page 211: X16 hub input D5 => D8 changed to DI 8 <= DI 5. Page 212: Text (DI 12), (DI 11), (DI 10), (DI 9) added to input. Page 213: X18 hub input DI 9 => DI 12 changed to DI 16 <= DI 13. Text (DI 16), (DI 15), (DI 14), (DI 13) to input & text "only for internal use!" added. Page 214: Digital input-X18 corrected to Analog input. Text (ANI 6), (ANI 5), (ANI 4), (ANI 9) added to input. TAC Channel no added. Page 215: TAC Channel no added. Page 216: Text (ANI 8), (ANI 7) and TAC Channel no added. Page 310,311,312 & 313: Text (OP 1) to (OP 16) added. Page 340,341 & 342: Text (ANO 1) to (ANO 3) and chart of proportional value. Page 210, 211, 212, 213, 214, 215, 340, 341, 342, 600 & 601: Correction of terminal numbers in text "Supplied to -X.."
00	2005-01-20	CHO+INI/FLT	First version

BoM no.: 60110471

Version	Date	Init./App.	Doc. no.: D21000238 Hub Comp. Panel +AK4 CEE Description of change since last revision
04	2008-02-19	BJMAD/FLT	Changed with ECO 235102 - 60098773 LASER LABEL +AK4 Replaced by 092992 MARKING LABELS +AK4 GENERAL 0,03 pc., 092993 MARKING LABELS +AK4 G400 G401 0,005 pc., 092994 MARKING LABELS +AK4 S01 X06 0,005 pc.
03	2007-10-11	SHL+INI/BIVA	Changed with ECO 227533: 2 pcs. 60000719 PS ADC 5483R-3 10A-27,4 NM PIN replaced with 188453 Changed with ECO 227961: 60007584 CABLE GLAND BM-EN-11 M16 PA 6, 14 pcs. changed to 13 pcs. 60007592 LOCKNUT M16 PA6 BML-1S, 14 pcs. changed to 13 pcs. 60007585 CABLE GLAND BM-EN-12 M20 PA 6, 33 pcs. changed to 17 pcs. 193722 LOCKNUT MM20GPA POLYAMID, 33 pcs. changed to 17 pcs.
02	2007-07-26	INI/BIVA	Changed with ECO 227101_Holes for cable glands changed in bottom. 60007583 CABLE GLAND M12 changed from 1 pc. to 2 pcs. 60007591 LOCKNUT M12 changed from 1 pc. to 2 pcs. 60007584 CABLE GLAND M16 changed from 12 pcs. to 14 pcs. 60007592 LOCKNUT M16 changed from 12 pcs. to 14 pcs. 60007585 CABLE GLAND M20 changed from 36 pcs. to 33 pcs. 193722 LOCKNUT M20 changed from 36 pcs. to 33 pcs.
01	2007-07-03	SHL/FLT	MAPICS implementation, Controls DK Århus. Phased out 6005652 and replaced with 51701801_SIF HUB comp. cabinet.

BoM no.: 60110472

Version	Date	Init./App.	Doc. no.: D21000239 Hub Comp. Panel +AK4 AUS Description of change since last revision
02	2007-07-26	INI/BIVA	Changed with ECO 227101_Holes for cable glands changed in bottom. 60007583 CABLE GLAND M12 changed from 1 pc. to 2 pcs. 60007591 LOCKNUT M12 changed from 1 pc. to 2 pcs. 60007584 CABLE GLAND M16 changed from 12 pcs. to 14 pcs. 60007592 LOCKNUT M16 changed from 12 pcs. to 14 pcs. 60007585 CABLE GLAND M20 changed from 36 pcs. to 33 pcs. 193722 LOCKNUT M20 changed from 36 pcs. to 33 pcs.
01	2007-07-03	SHL/FLT	MAPICS implementation, Controls DK Århus. Phased out 6005652 and replaced with 51701801_SIF HUB comp. cabinet.

BoM no.: 60022842

Version	Date	Init./App.	Document no.: D21000054 - Cables Description of change since last revision
02	27.02.2004	INI / KSS	Cables removed W923 no.60021527, W924 no.60021528, W925 no.60021529
01	17.09.2003	INI / KSS	First version

BoM no.: 60019750

Version	Date	Init./App.	Document no.: D21000055 - Measuring Kit Description of change since last revision
01	17.09.2003	INI / KSS	Cables add. W923 no.60021527, W924 no.60021528, W925 no.60021529

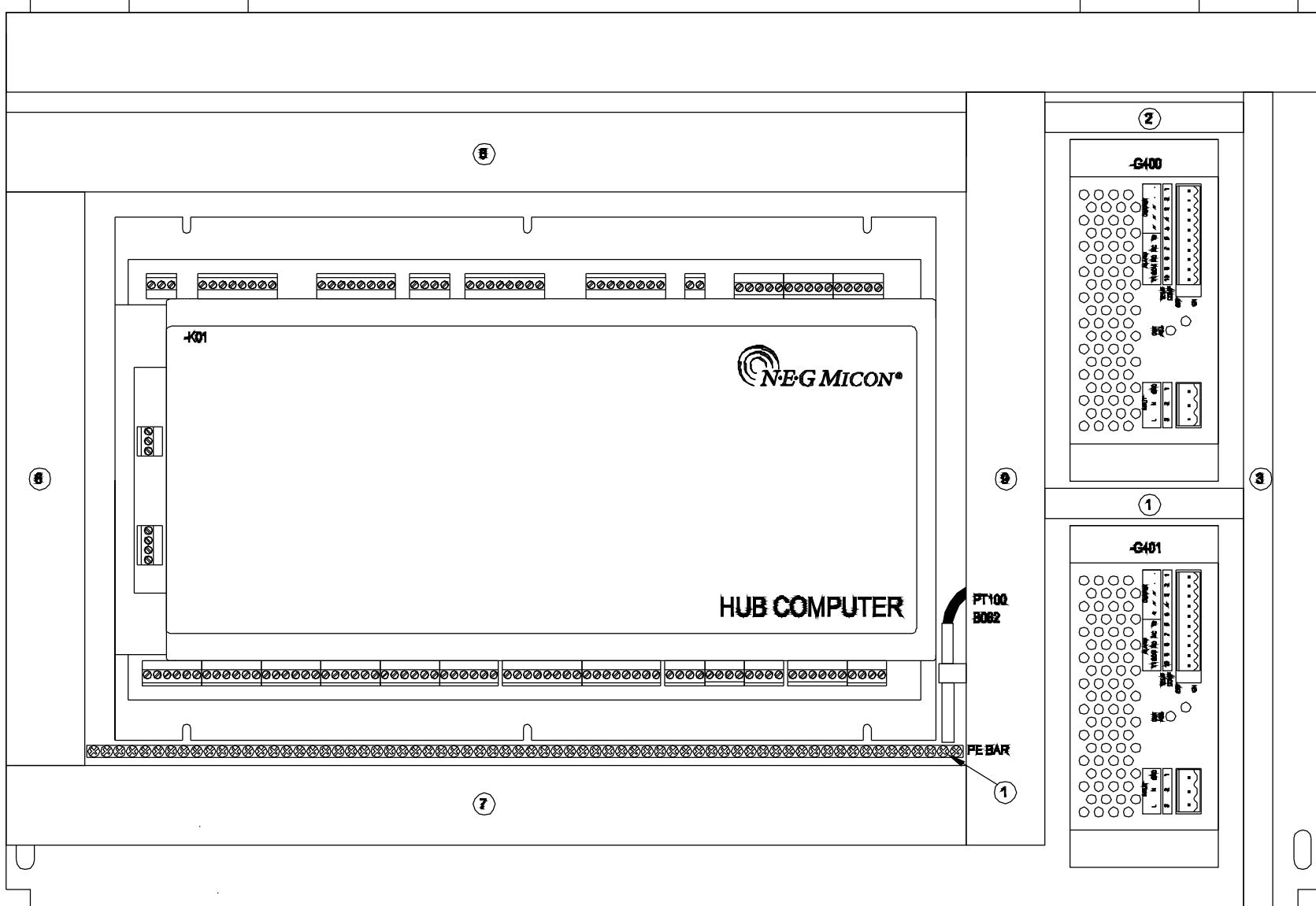
Earlier BoM no Longer Active for Serial Production

BoM no.: 60108963

Version	Date	Init./App.	Doc. no.: D21000200 Hub Comp. Panel +AK4 Description of change since last revision
02	24.05.2006	SHL/FLT	MAPICS implementation, Controls DK Århus. Phased out 6005652 and replaced with 51701801_SIF HUB comp. cabinet.
01	25.04.2005	CHO +INI/FLT	First version

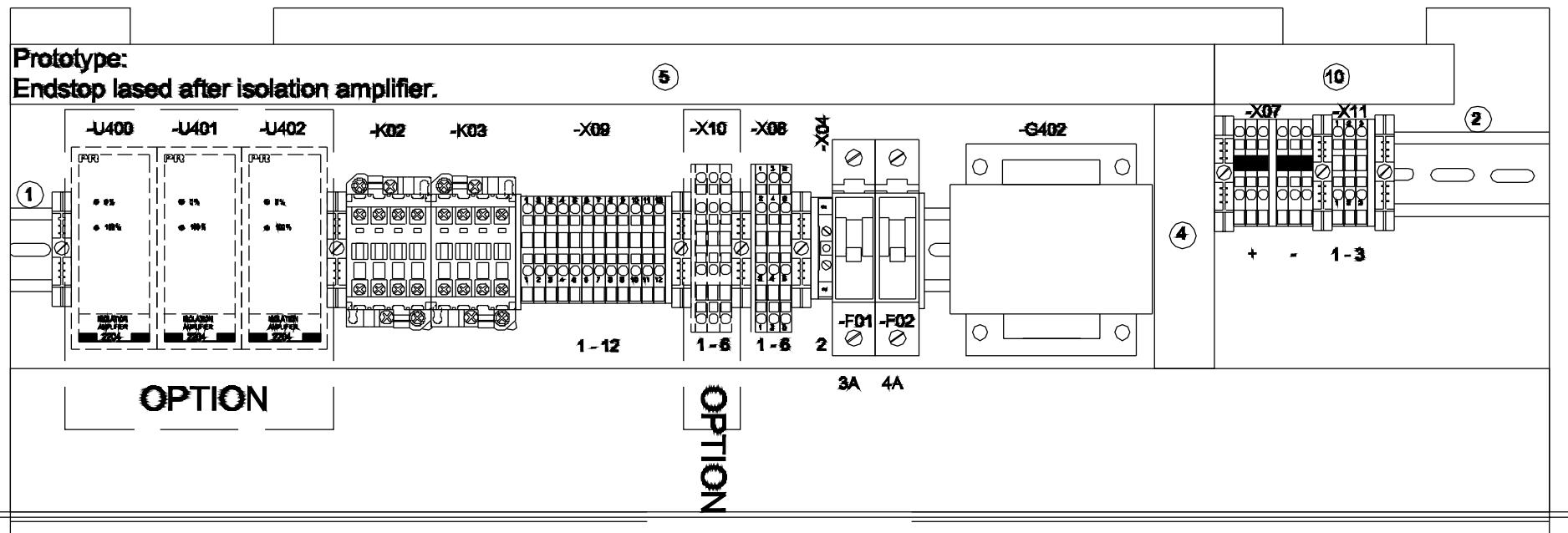
1	2	3	4	5	6	7	8	9	10	11	12	13
PAGE	CONTENT							DATE		REVISION		
001	Table of Contents							081217		05		
002	Table of Contents							081217		05		
030	Panel Outline							080612		-		
031	Panel outline							081217		-		
032	Panel Right-hand Side							080612		-		
033	Bottom Layout of Glands							080612		-		
034	Panel Front							080612		-		
035	Flange for X06 CEE Socket							081217		-		
036	Flange for X06 UL Socket							081217		-		
037	Flange for X06 Australian							081217		-		
040	External connections							080612		-		
041	Connection for sliprings							080612		-		
059	Terminal layout X09							080612		-		
061	External connections							080612		-		
062	External connections							080612		-		
070	External connections inpu							080612		-		
071	External connections inpu							080612		-		
072	External connections inpu							080612		-		
073	External connections outp							080612		-		
074	External connections outp							080612		-		
075	External connections outp							080612		-		
076	External connections outp							080612		-		
077	External Connections Prop							080612		-		
080	Connestions f. Sliprings							080612		-		
100	Power supply 24V DC Propv							081217		-		
101	Power supply 24V DC norma							081217		-		
102	Power supply for Input X1							081217		-		
103	Isolation amplifier 4-20m							081217		-		
105	Emergency relay 24 V DC3							081217		-		
110	OPTION Terminal layout he							081217		-		
210	Digital input -X15 DI 4							081217		-		
211	Digital input -X16 DI 8							081217		-		
212	Digital input -X17 CNT1							081217		-		
213	Digital input -X18 DI 1							080612		-		
214	Analog input -X18 Press							080612		-		
215	Analog input -X19 AN1 =							081217		-		

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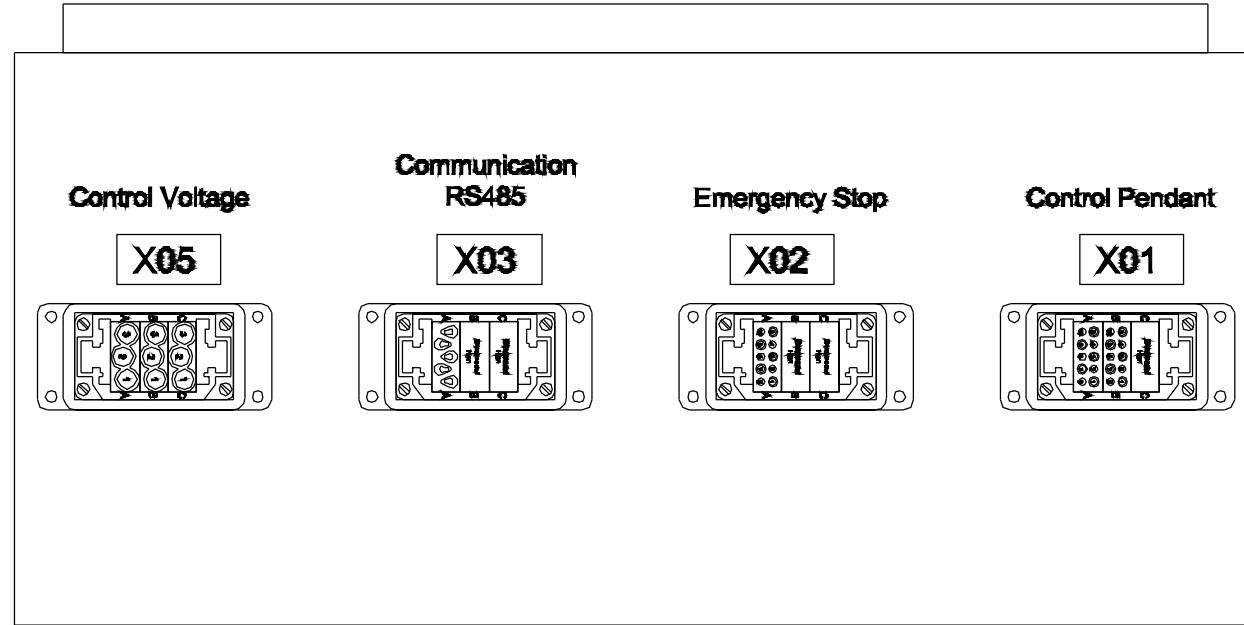
	Date	Initials	Function	Panel Outline
Designed	050120	CHO	Project title	Hub Computer Panel +AK4
Approved	080612	OLZED	Comments	V82-1.65MW
Revised	080612	INI	Rev.	Drawing no. 6015908
			Cont. sheet	031
			Sheet	030

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	Date	Initials	Function	Panel outline
Designed	050120	CHO	Project title	Hub Computer Panel +AK4
Approved	081217	PRO	Comments	V82-1.65MW
Revised	081217	INI	Rev.	Customer Vestas Wind Systems A/S Drawing no. 6015908 Cont. sheet 032 Sheet 031

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**Module C: Blind
Module B: 1 and 2
Module A: Complete**

**Module C: Blind
Module B: Blind
Module A: 1 and 3**

**Module C: Blind
Module B: Blind
Module A: 1,3 and 5**

**Module C: C1 and C2 230V AC Heating
Module B: 1 and 2 24 V DC After Emergency
Module A: A1 and A2 230V AC Power supply**

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	Date	Initials	Function	Panel Right-hand Side		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
				Cont. sheet	033	Sheet 032

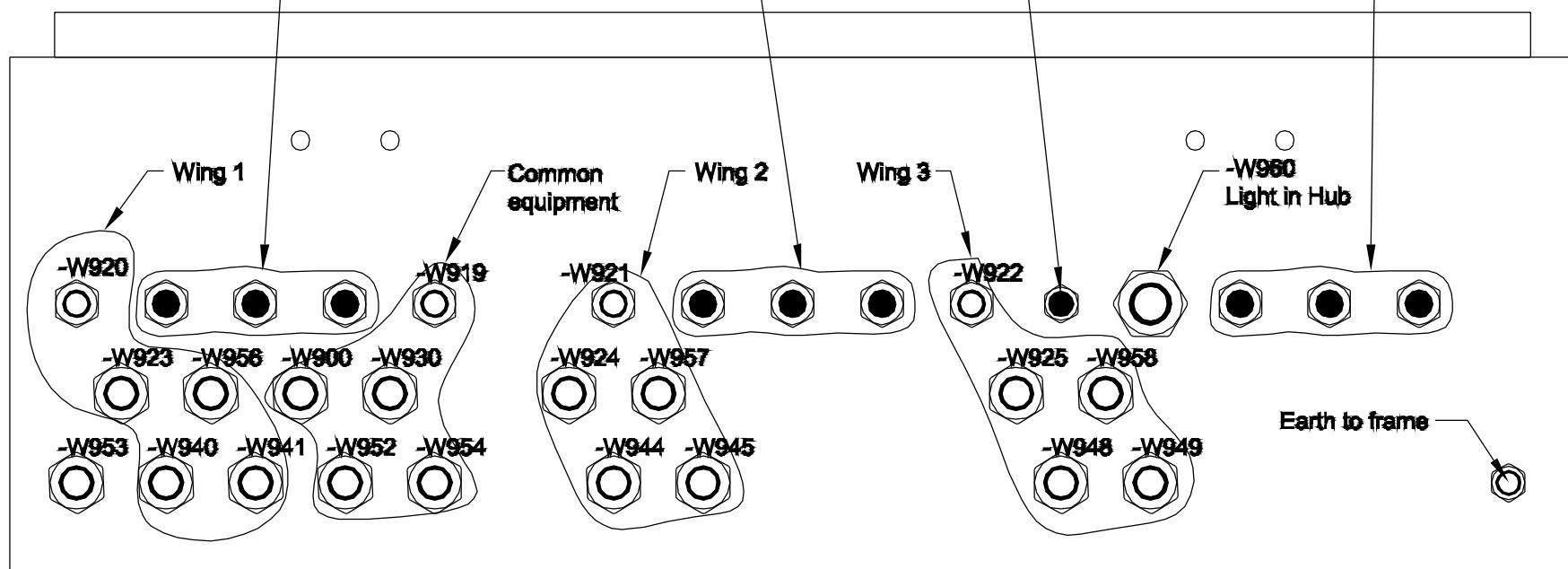
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Hub Heat Unit, Wing 2
 W974 Hub Heat Unit 4
 W976 Hub Heat Unit 5
 W977 Hub Heat Unit 6

Hub Heat Unit, Wing 3
 W972 Hub Heat Unit 7
 W975 Hub Heat Unit 8
 W978 Hub Heat Unit 9

W926 Option
 Pitch Accumulator
 Temperature B57

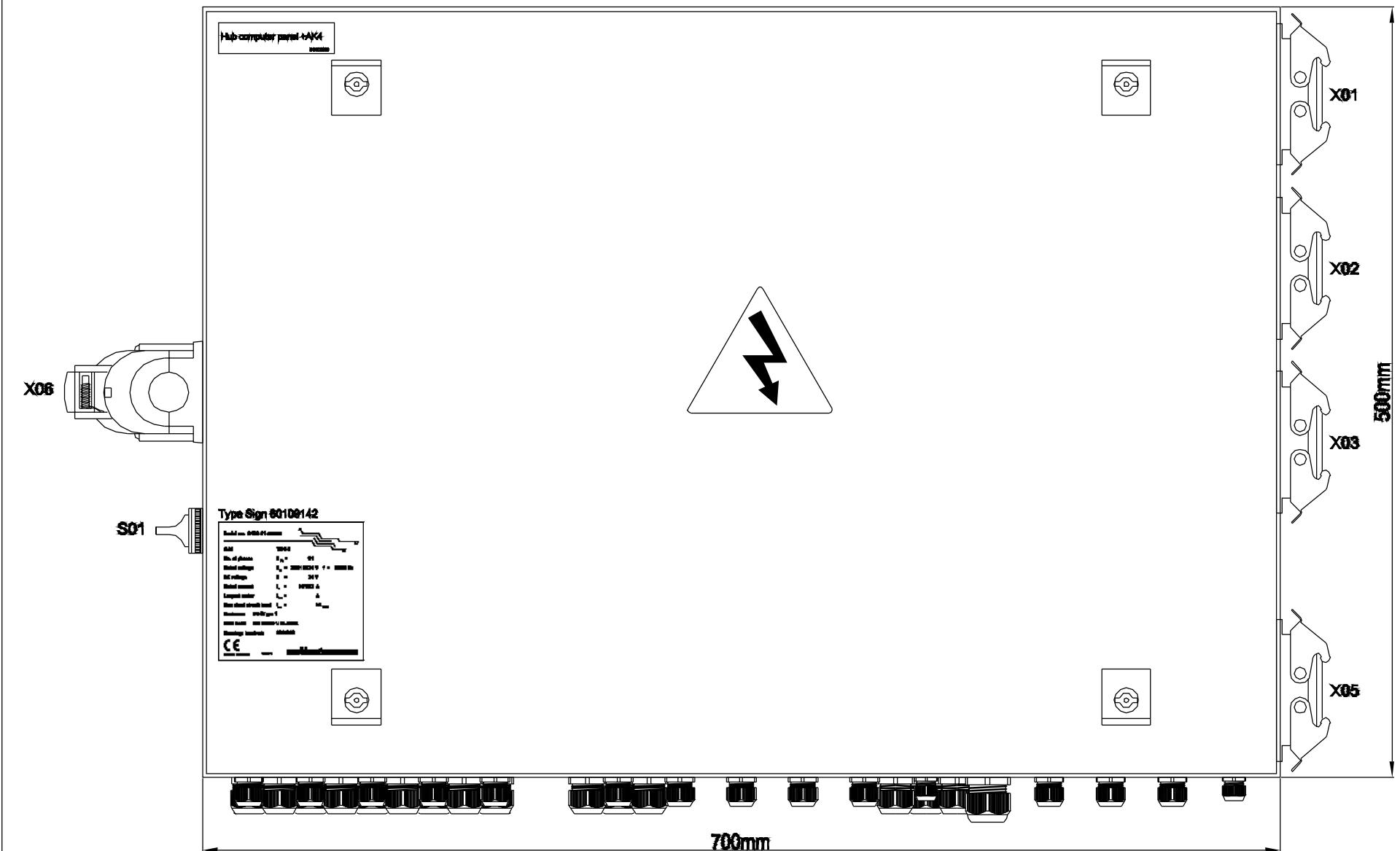
Hub Heat Unit, Wing 1
 W970 Hub Heat Unit 1
 W971 Hub Heat Unit 2
 W973 Hub Heat Unit 3



Bottom

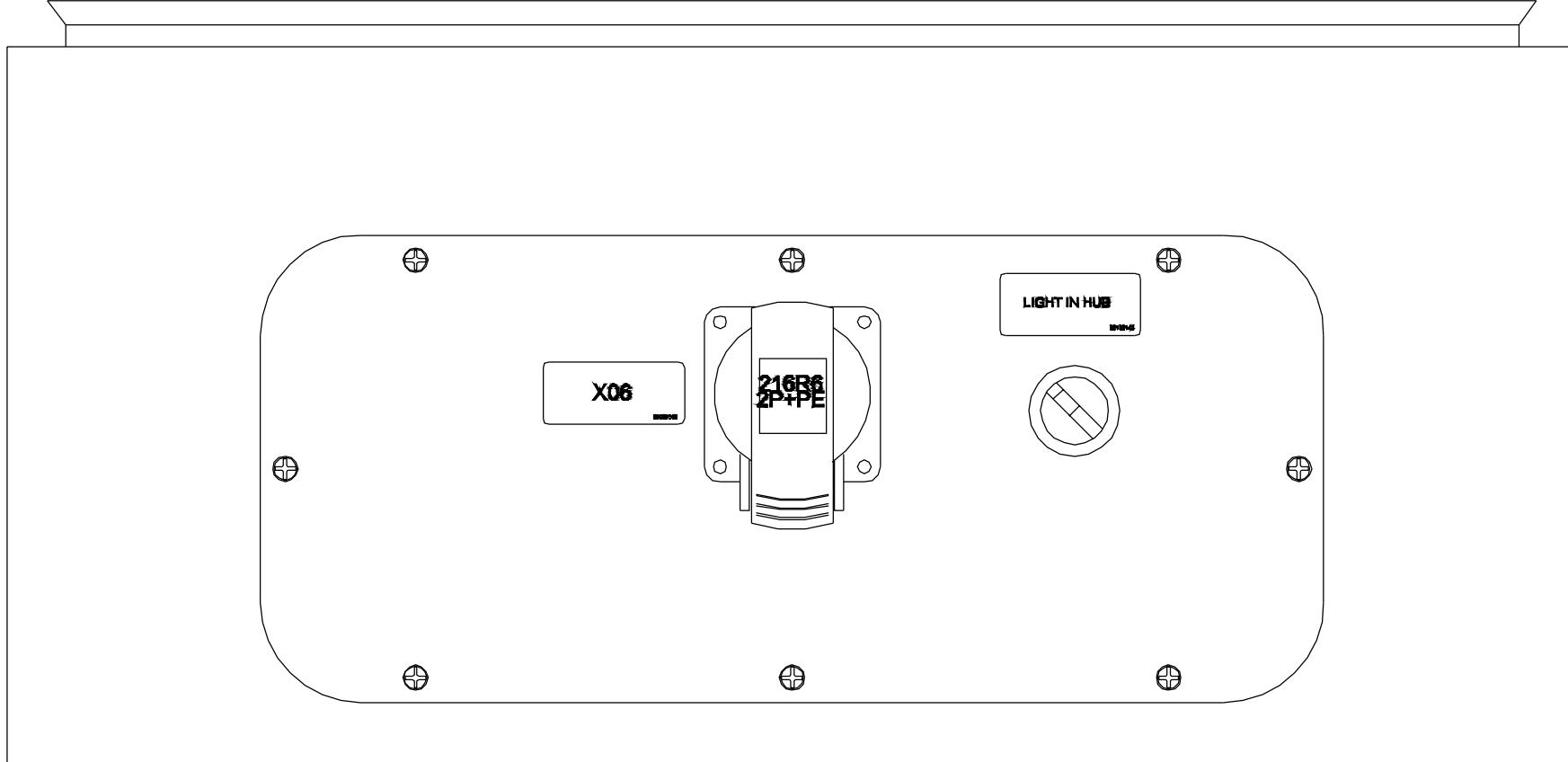
	Date	Initials	Function	Bottom Layout of Glands		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	080612	INI	Rev.	-	Drawing no.	6015908
				Cont. sheet	034	Sheet 033

1 2 3 4 5 6 7 8 9 10 11 12 13



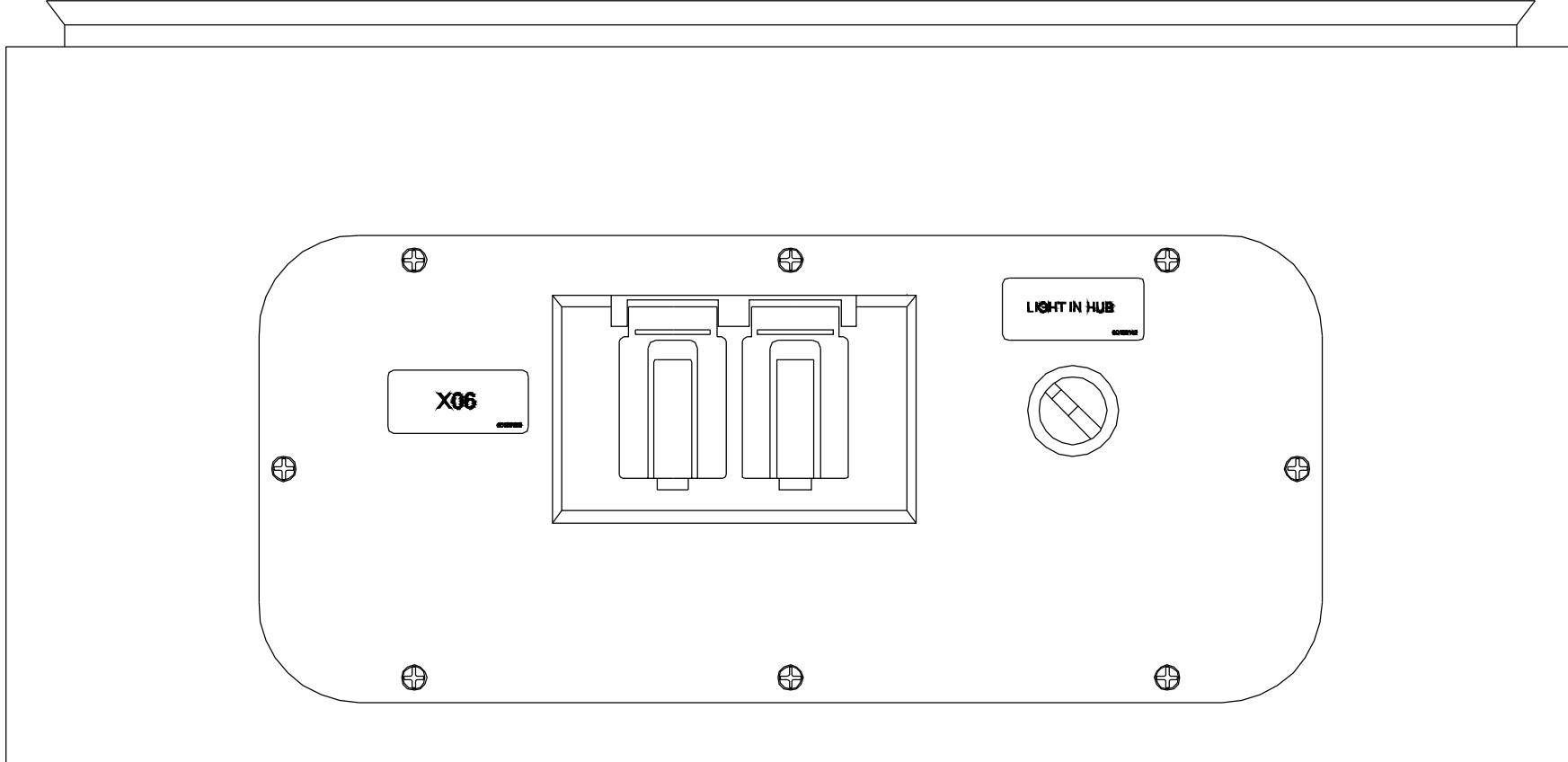
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Designed	050120	CHO	Project title	Hub Computer Panel +AK4
Approved	080612	OLZED	Comments	V82-1.65MW
Revised	080612	INI	Rev.	- Drawing no. 6015908
			Cont. sheet	035 Sheet 034

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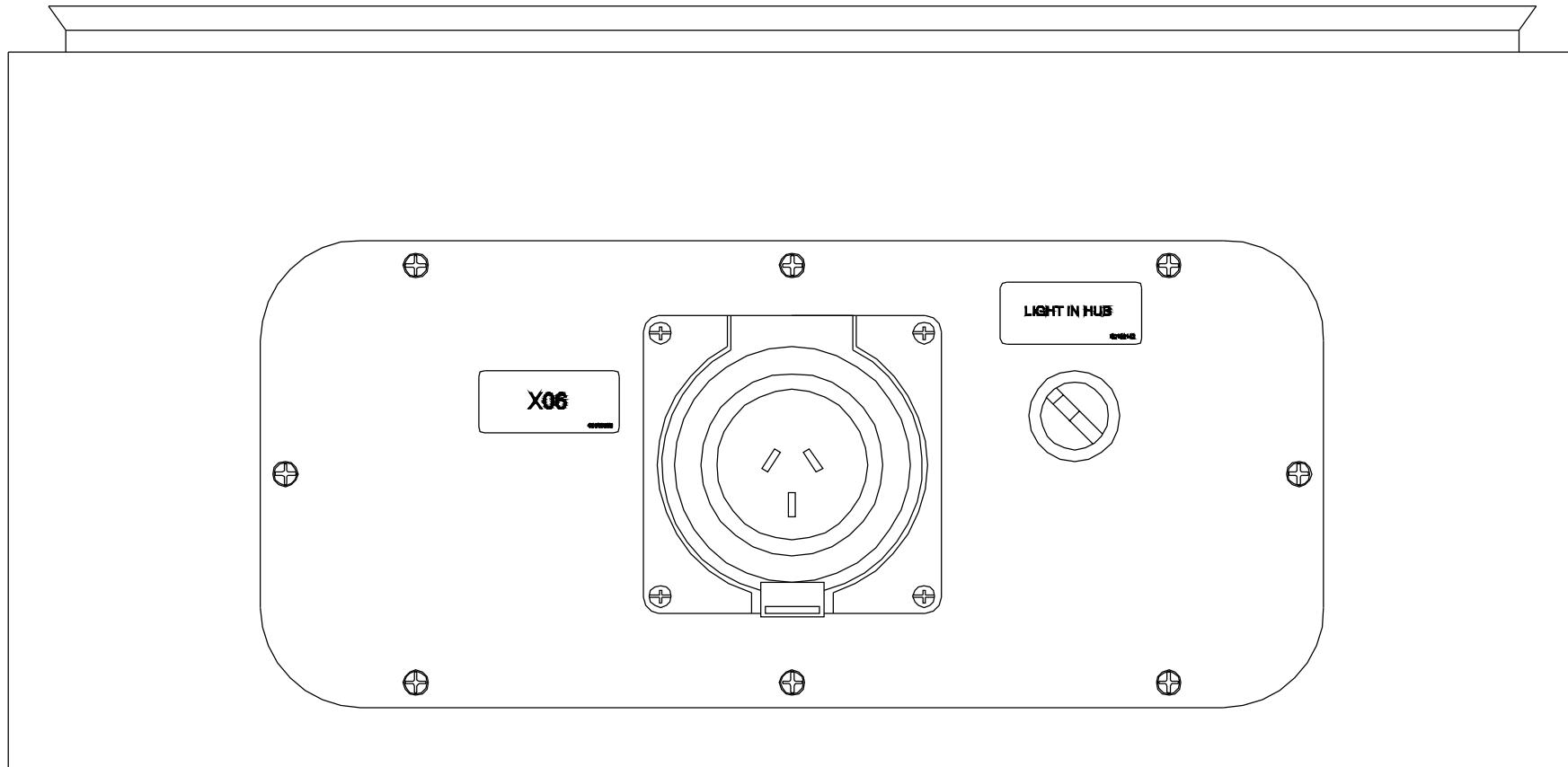
	Date	Initials	Function	Flange for X06 CEE Socket		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	081217	INI	Rev.	-	Drawing no.	6015908
					Cont. sheet	036
					Sheet	035

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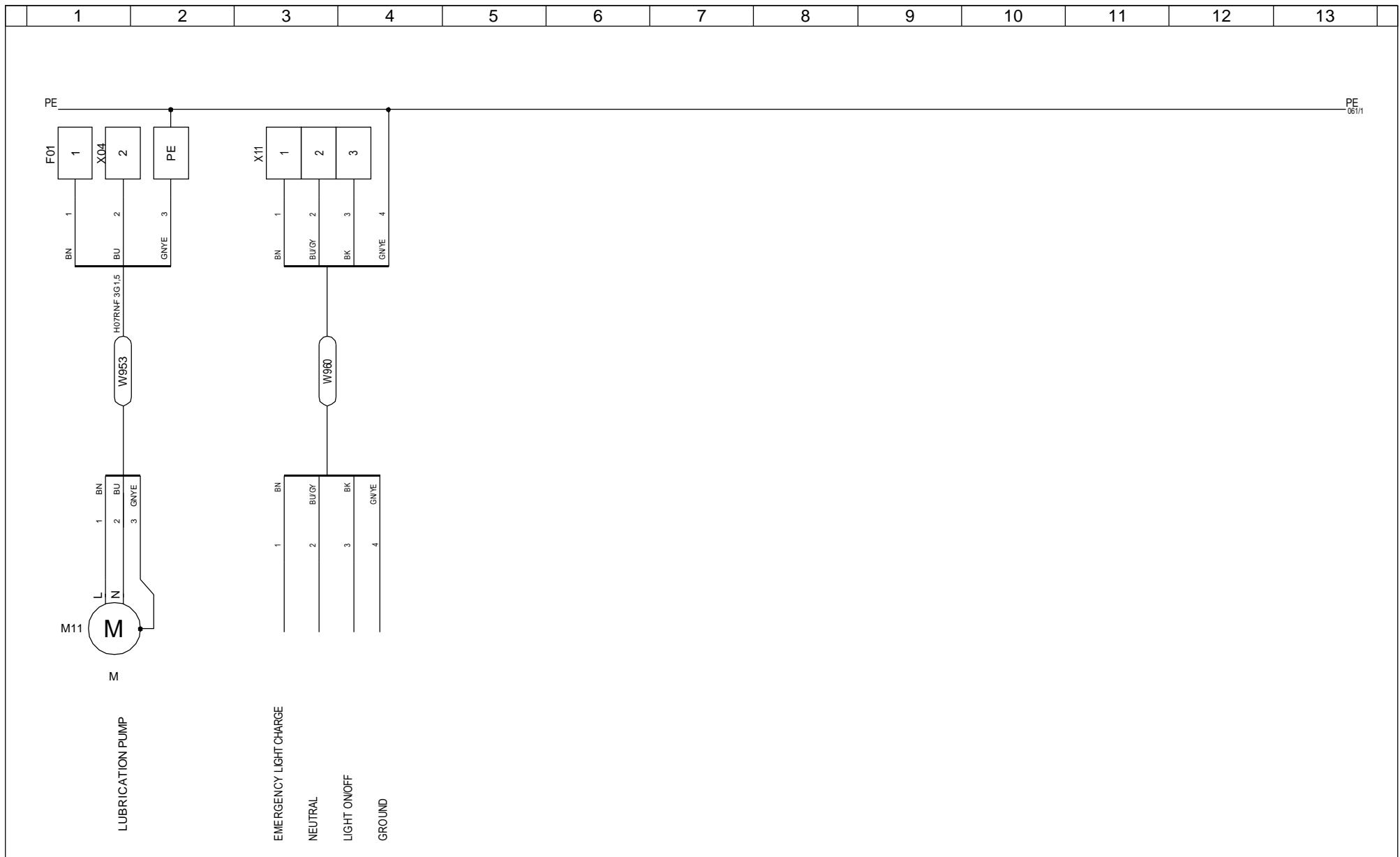


	Date	Initials	Function	Flange for X06 UL Socket		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW	Customer	
Revised	081217	INI	Rev.	-	Drawing no.	6015908
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						036

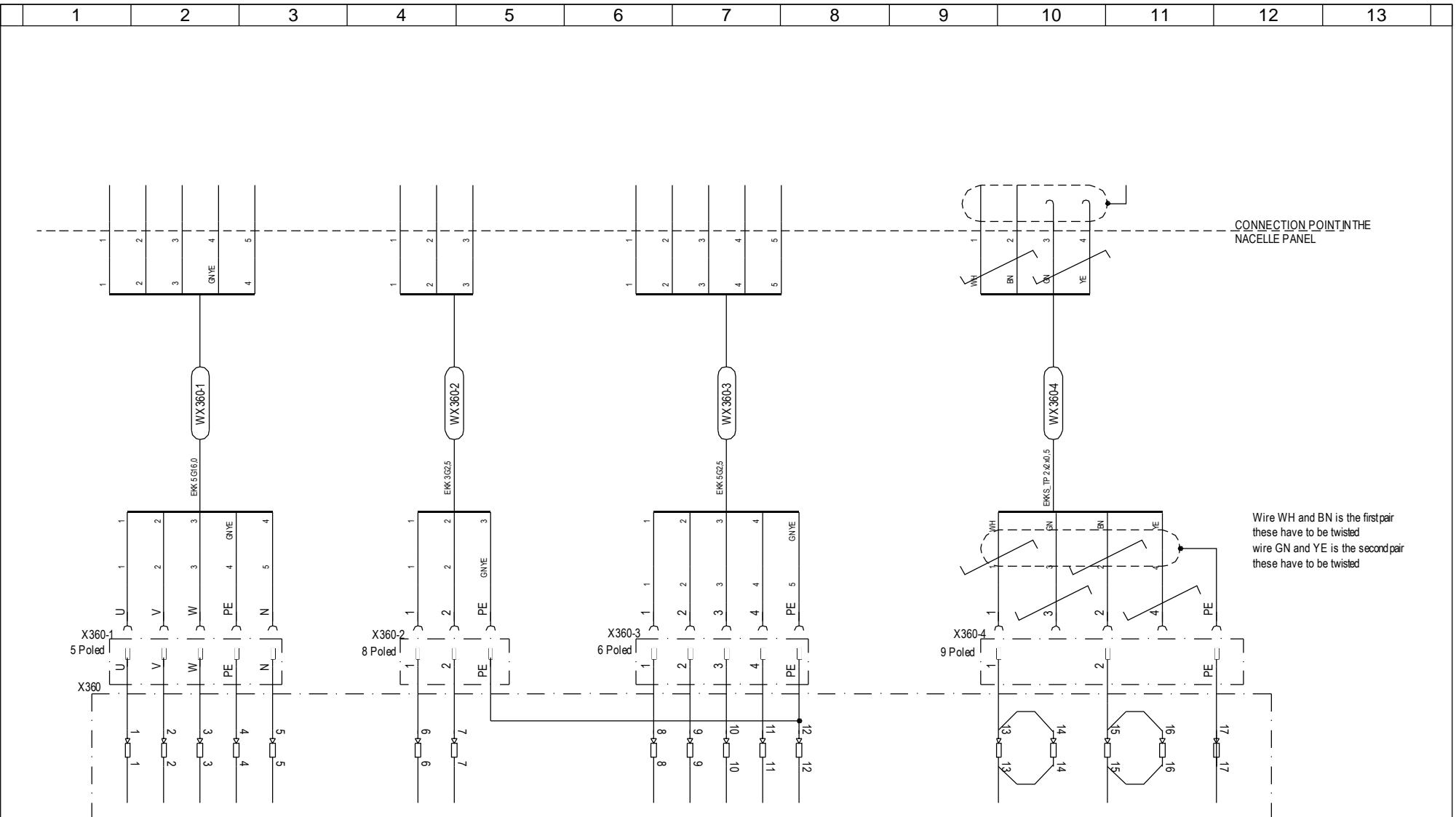
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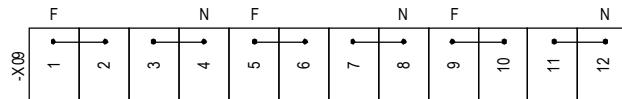
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Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	081217	INI	Rev.	-	Drawing no.	6015908
					Cont. sheet	040
					Sheet	037



	Date	Initials	Function	External connections		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	041	Sheet	040



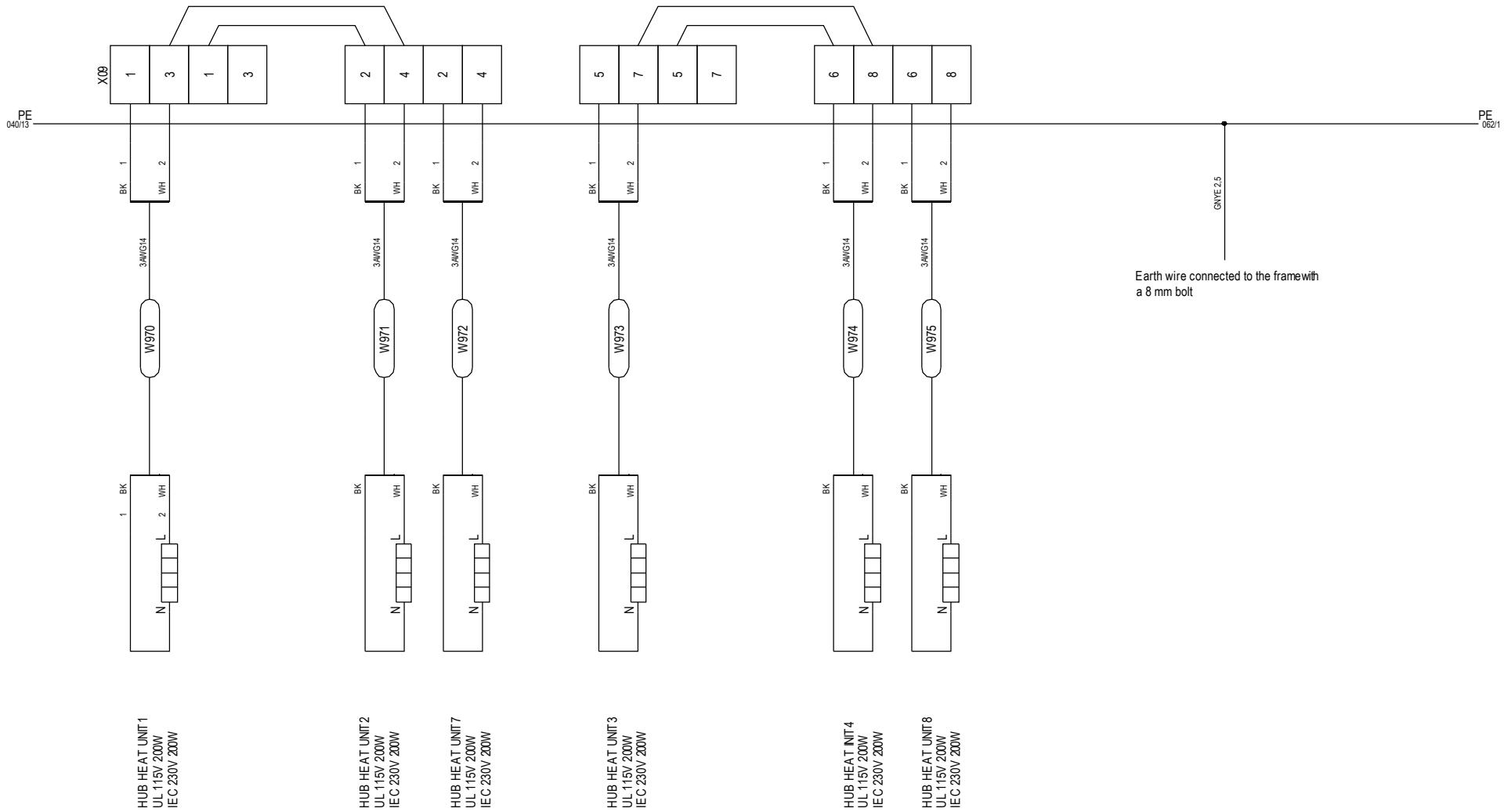
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Connection of heating elements
UL 115V AC Turbines connections.
IEC 230V AC Turbines connections.

	Date	Initials	Function	Terminal layout X09		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	080612	INI	Rev.	-	Drawing no.	6015908
					Cont. sheet	061
					Sheet	059

HEAT UNIT CONNECTION IN TURBINES



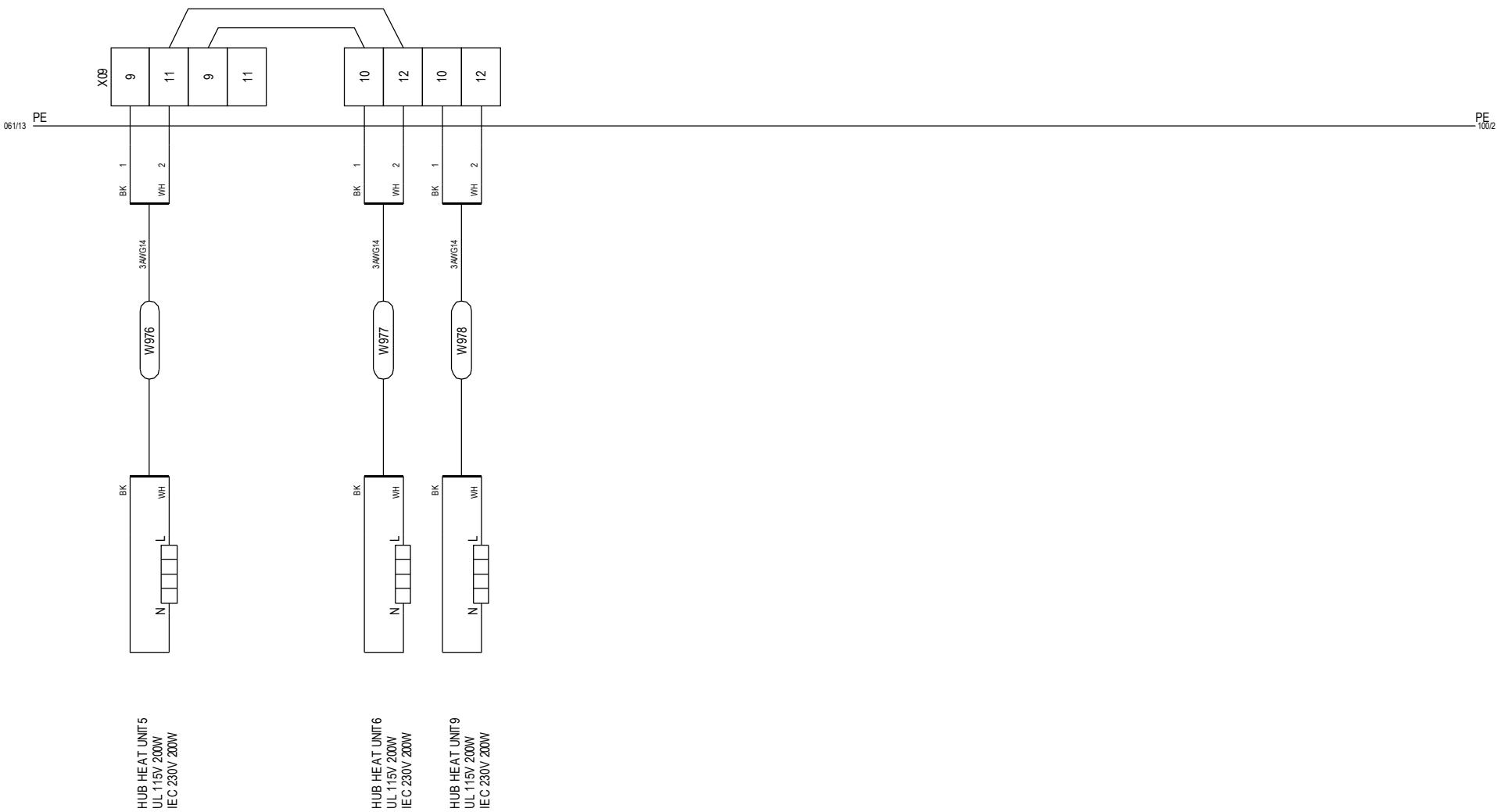
Earth wire connected to the frame with
a 8 mm bolt

HUB HEAT UNIT 1
UL 115V 200W
IEC 230V 200W

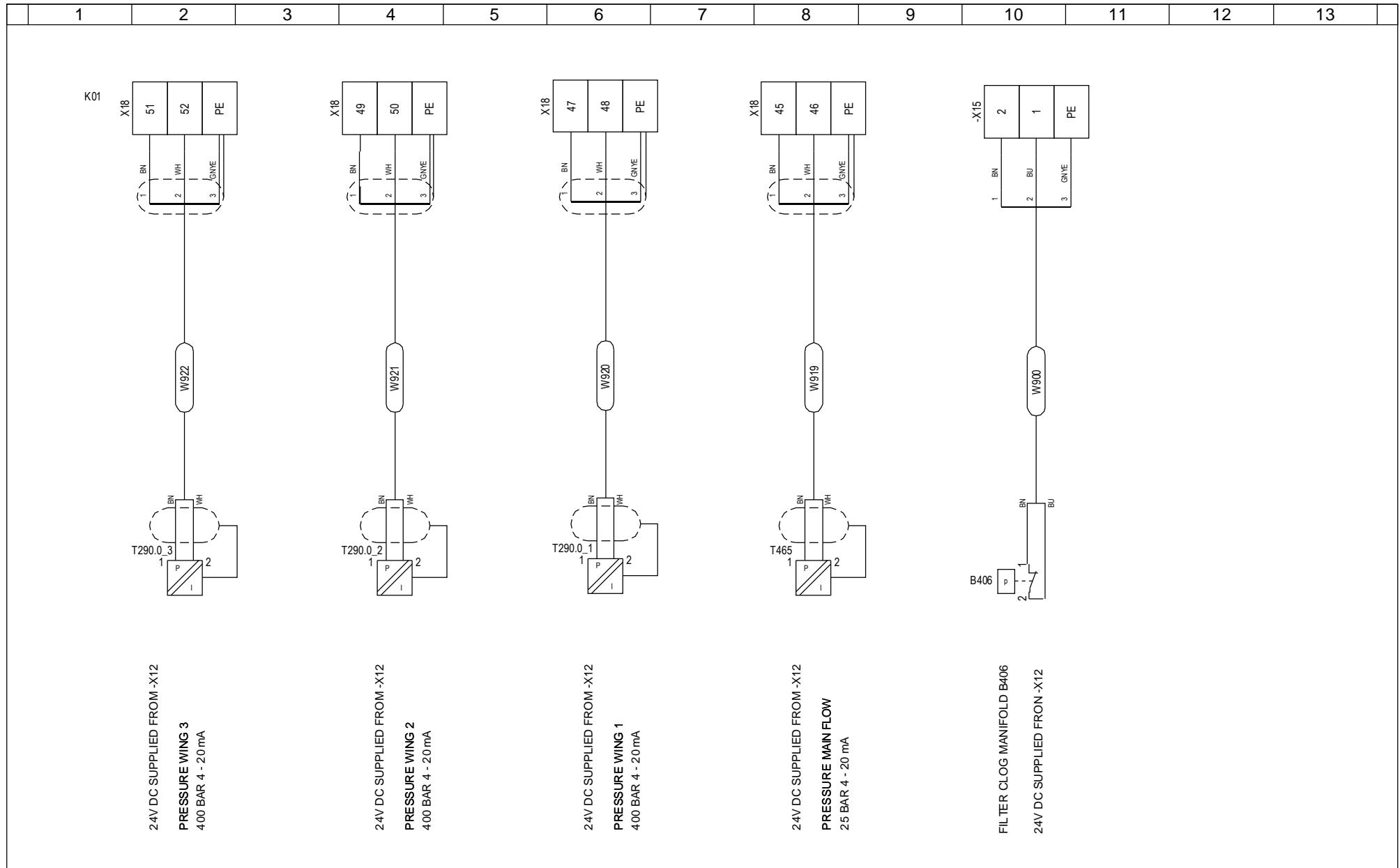
Vestas®

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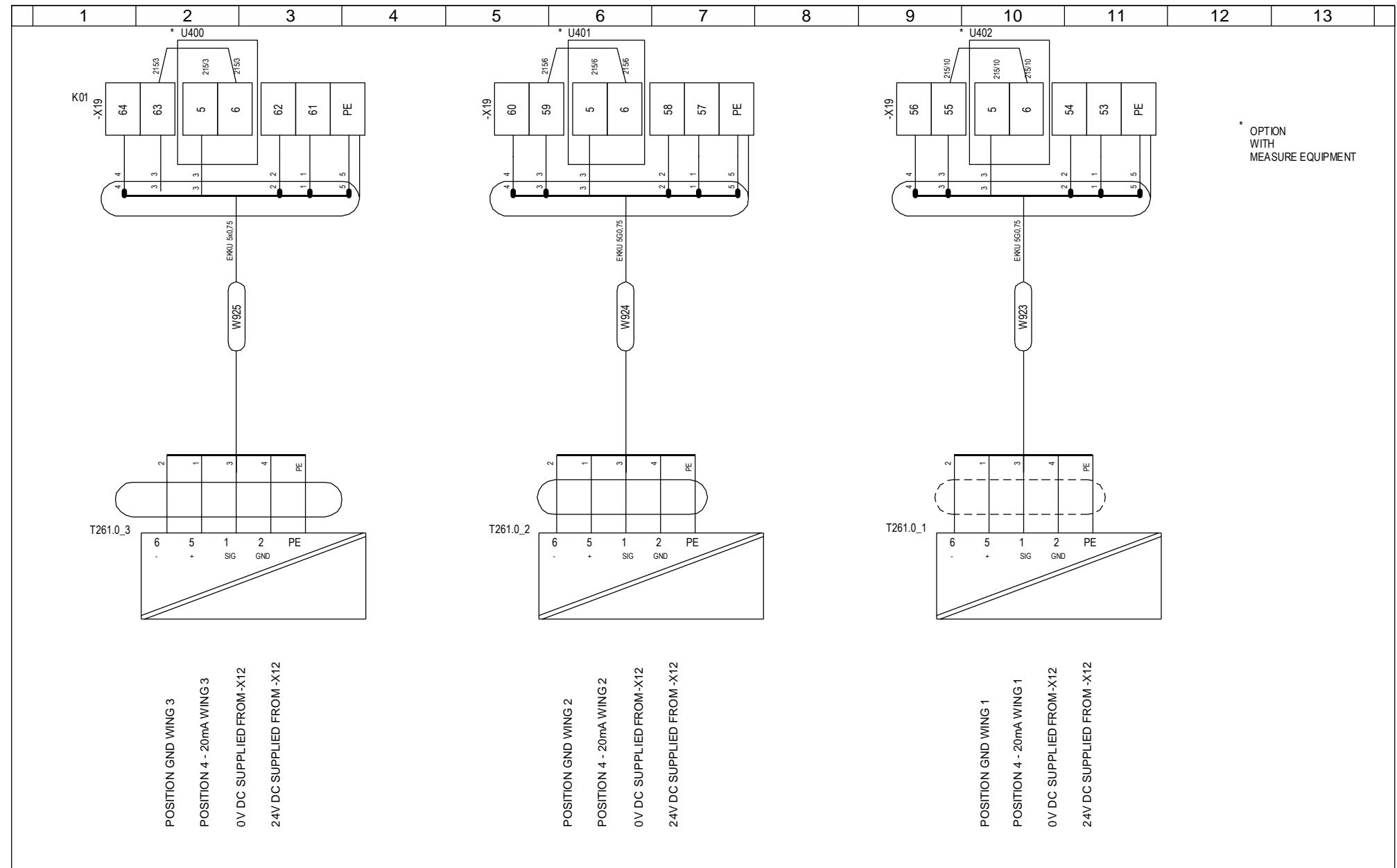
HEAT UNIT CONNECTION IN TURBINES



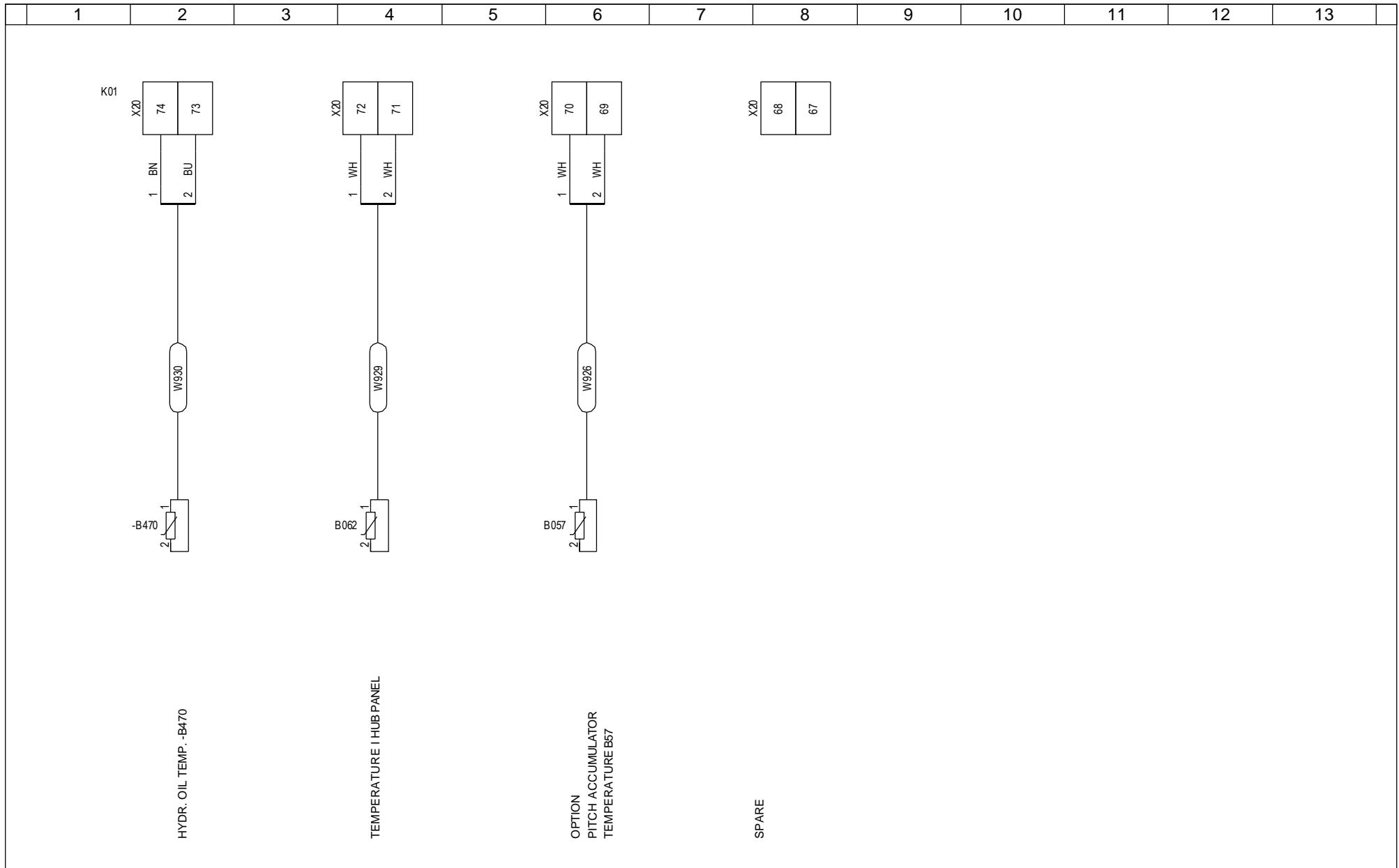
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Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	070	Sheet	062



	Date	Initials	Function	External connections input analog		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	071	Sheet	070

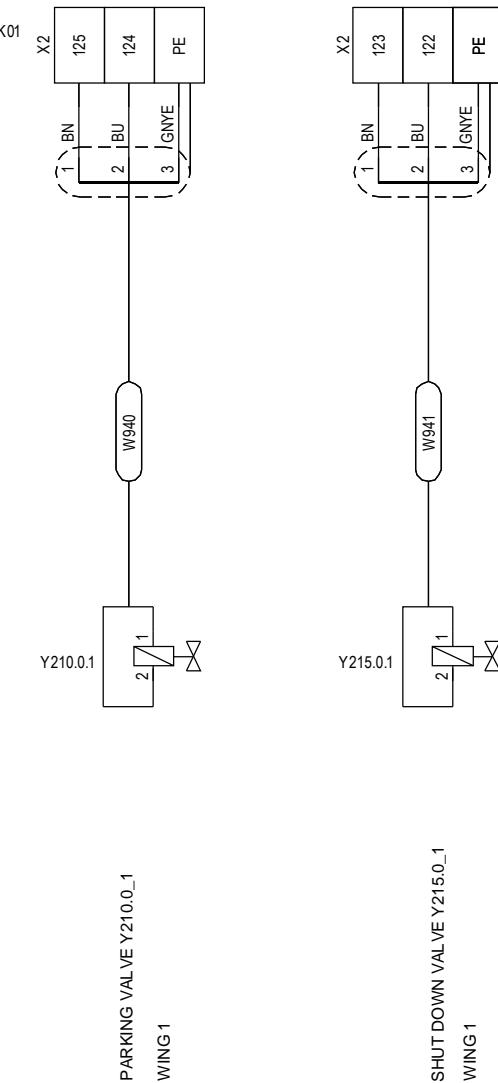


	Date	Initials	Function	External connections input analog			
Designed	050120	CHO	Project title	Hub Computer Panel +AK4			
Approved	080612	OLZED	Comments	V82-1.65MW			
Revised	080612	INI	Rev.	-	Drawing no.	6015908	Customer Vestas Wind Systems A/S Cont. sheet 072 Sheet 071



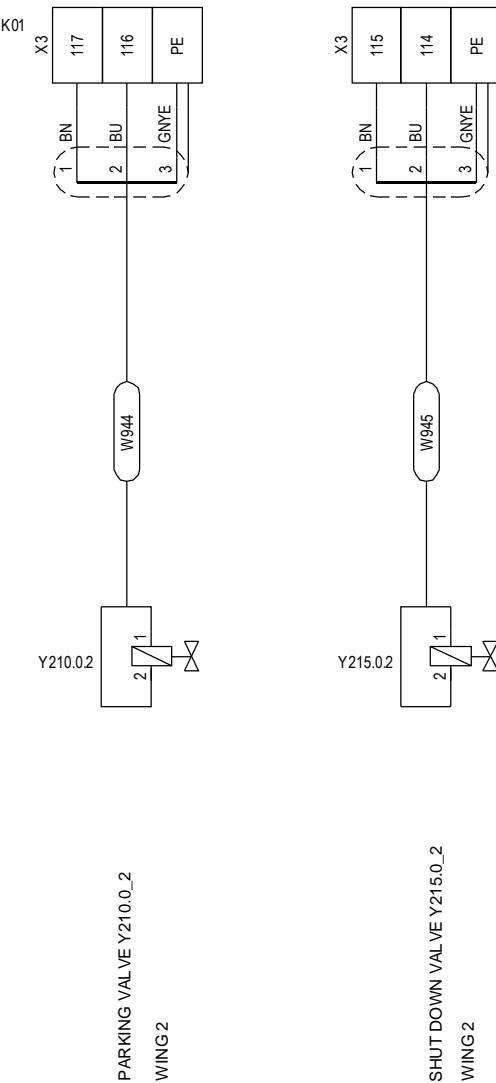
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Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
				Cont. sheet	073	Sheet 072

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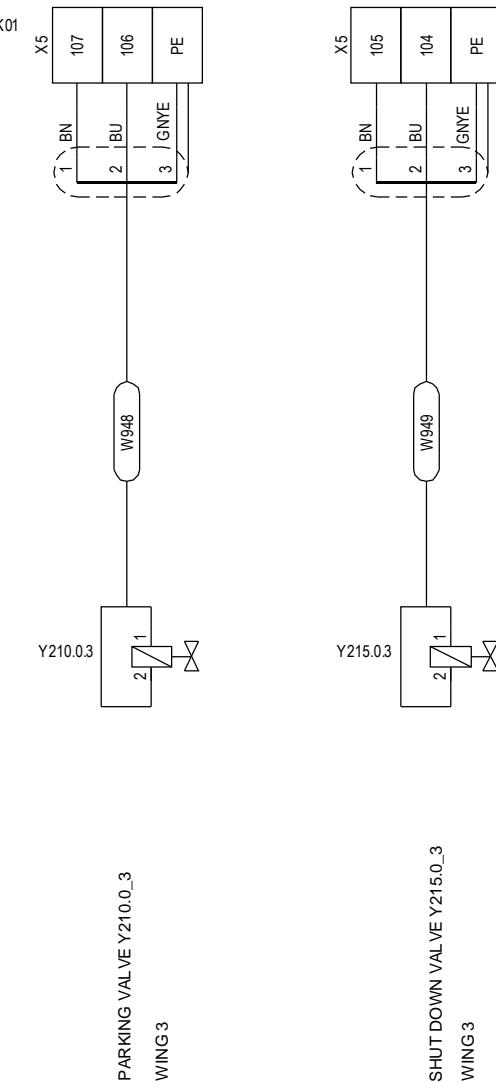
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Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	080612	INI	Rev.	-	Drawing no.	6015908
				Cont. sheet	074	Sheet 073

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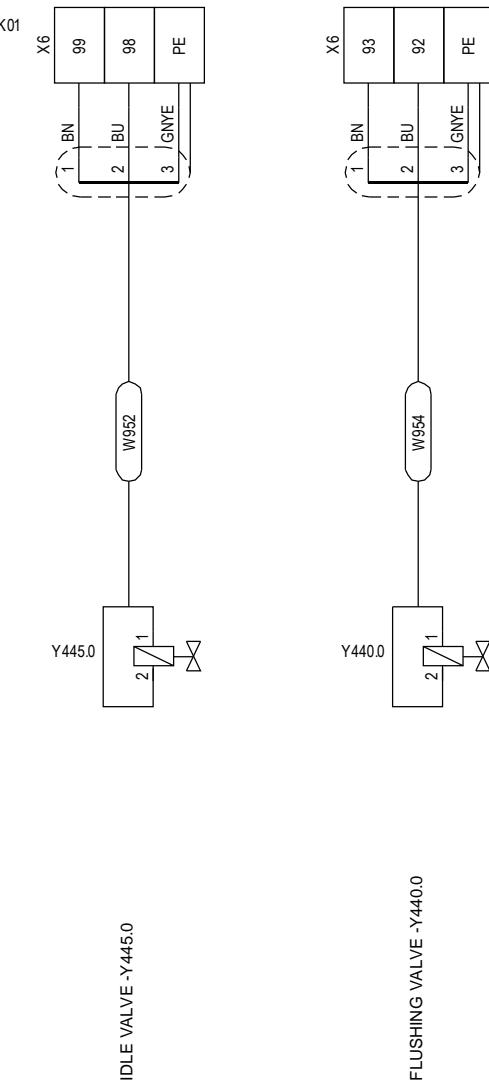


	Date	Initials	Function	External connections output analog		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	080612	INI	Rev.	-	Drawing no.	6015908
				Cont. sheet	075	Sheet 074

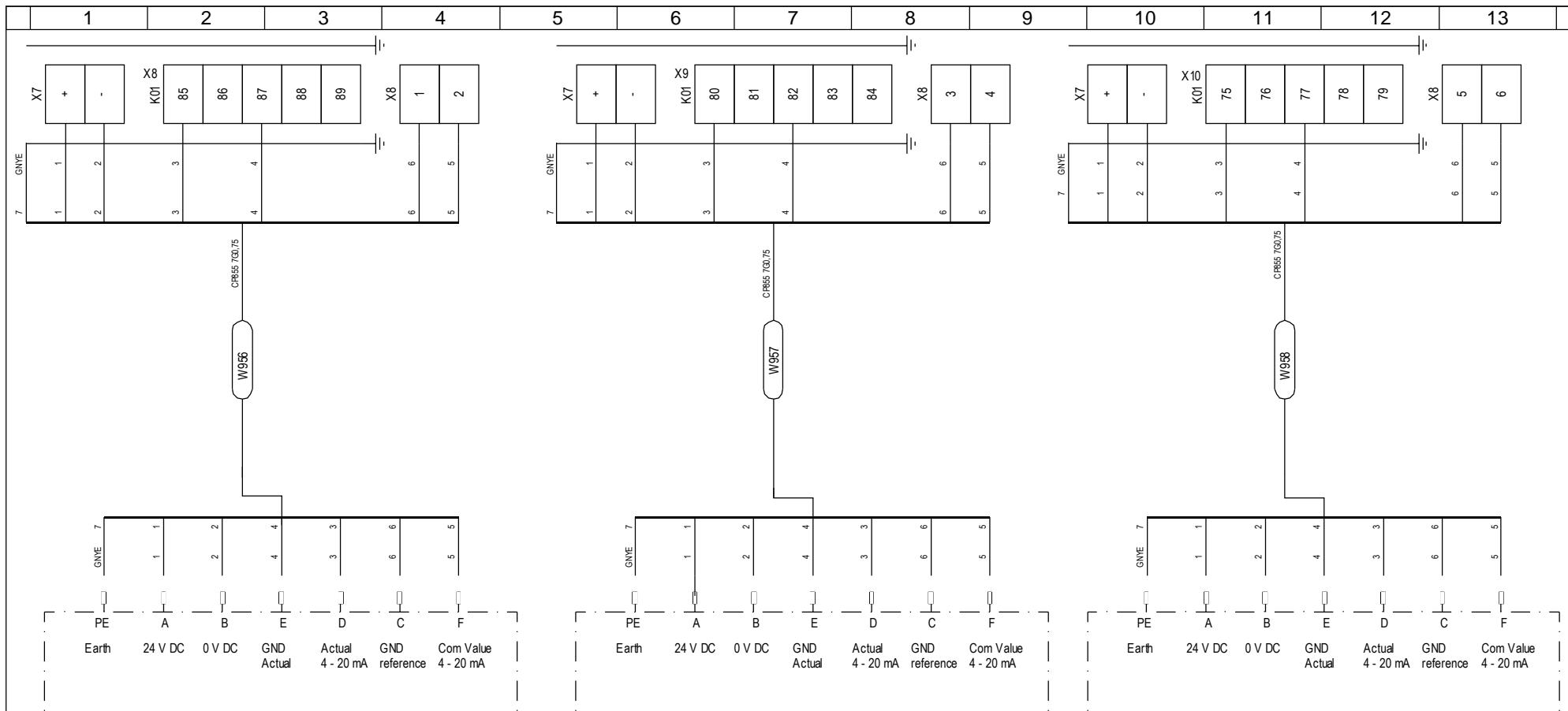
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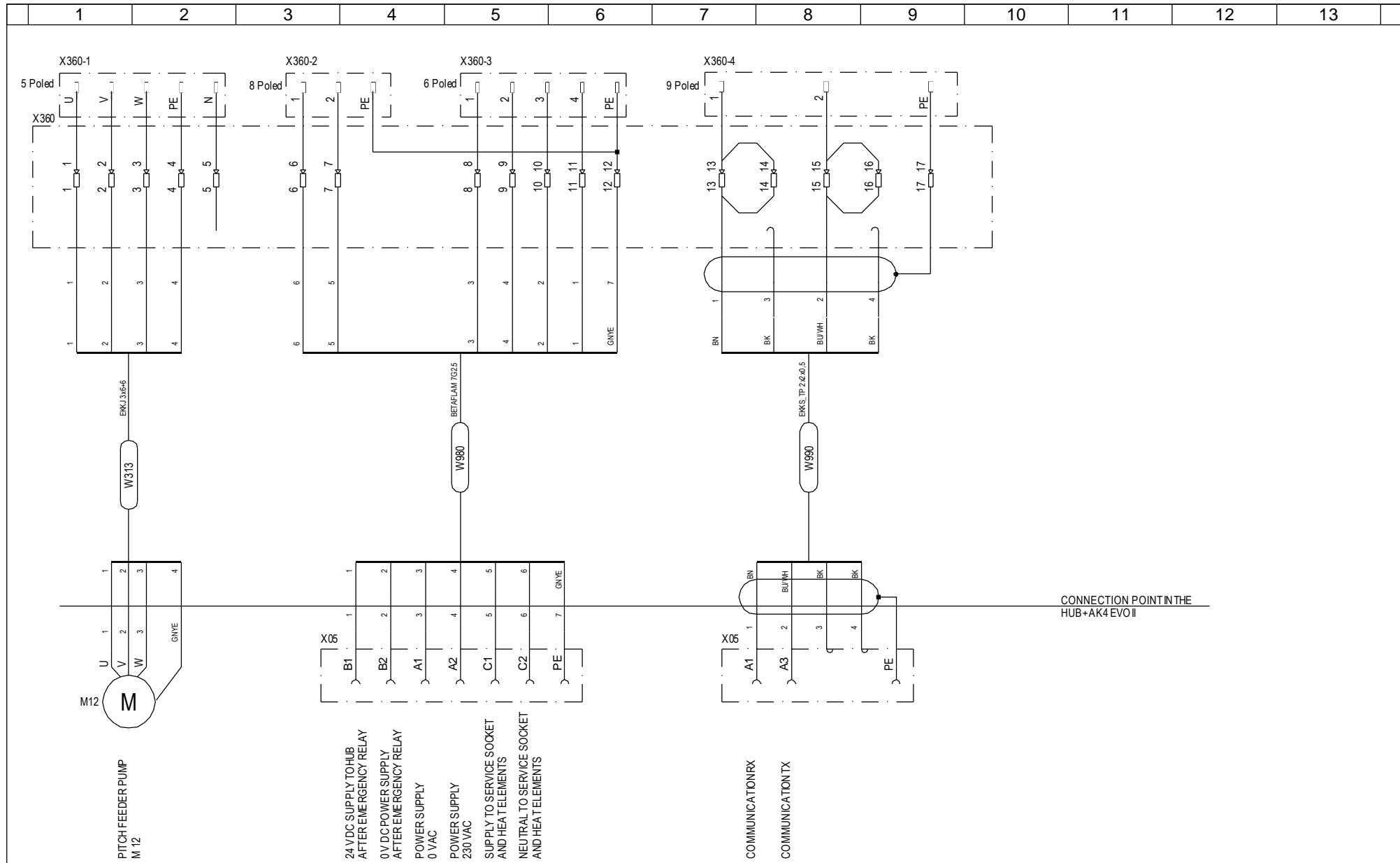


	Date	Initials	Function	External connections output analog		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	076	Sheet	075



	Date	Initials	Function	External connections output Digital		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	077	Sheet	076

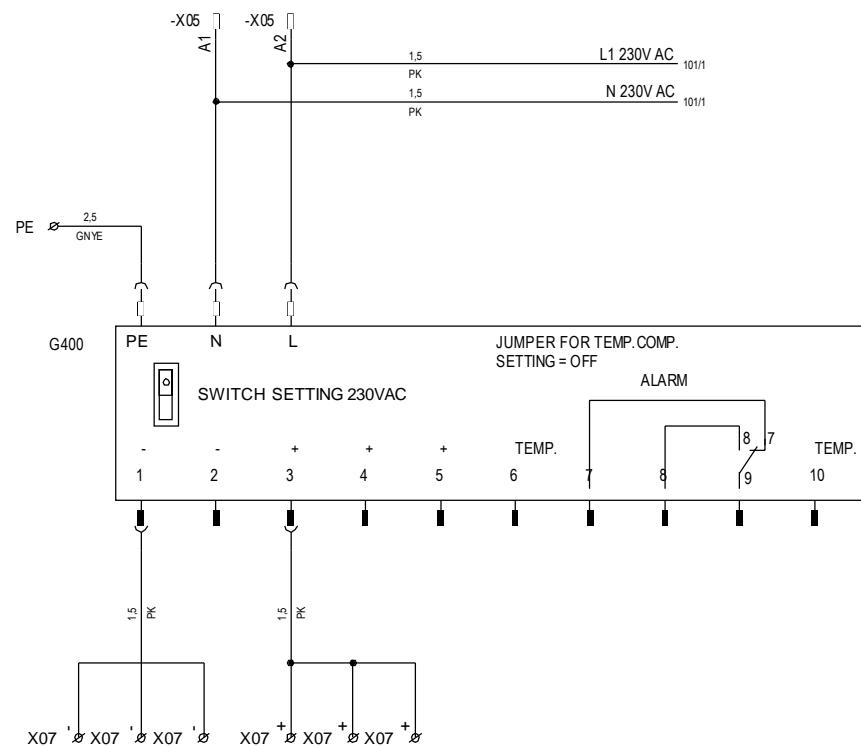


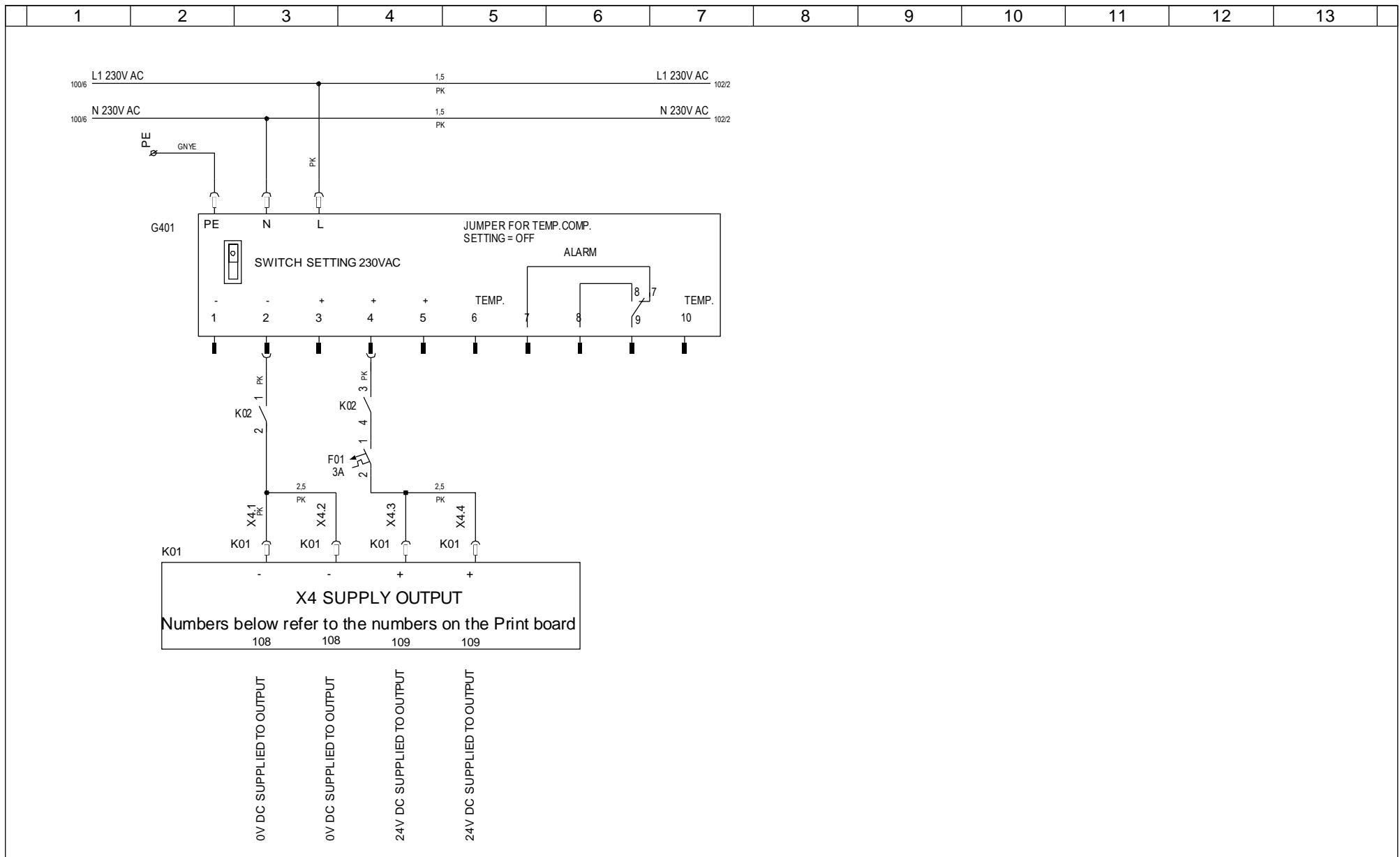


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	Date	Initials	Function	Connections f. Slirings
Designed	050120	CHO	Project title	Hub Computer Panel +AK4
Approved	080612	OLZED	Comments	V82-1.65MW
Revised	080612	INI	Rev.	Drawing no. 6015908
			Cont. sheet	100
			Sheet	080

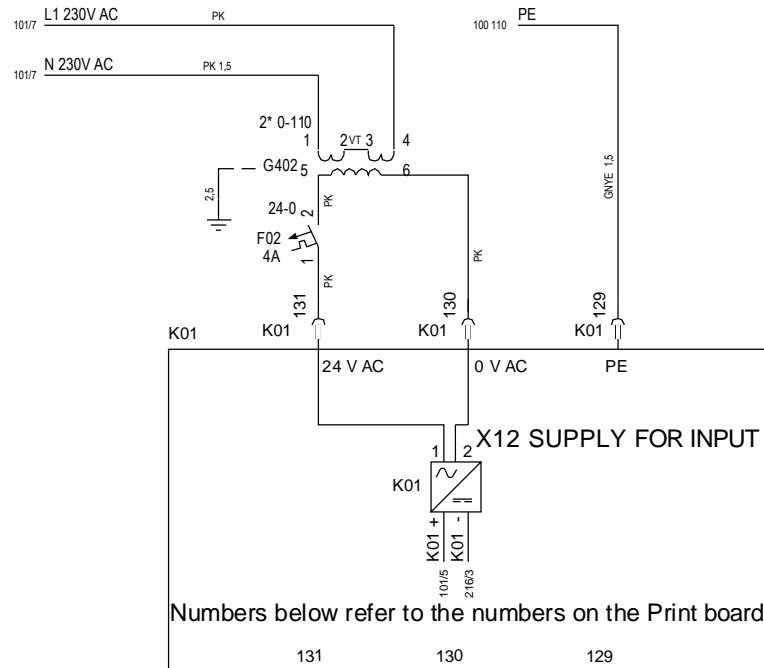
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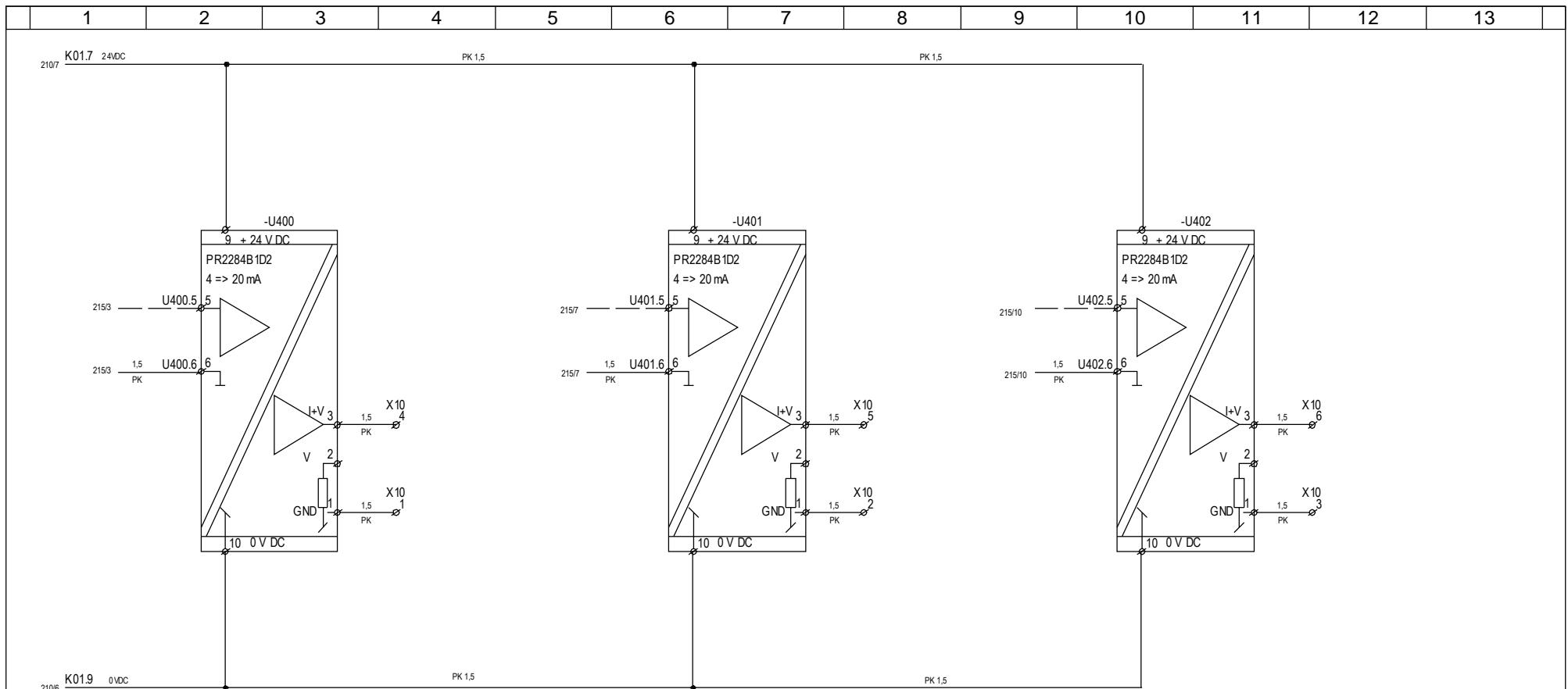
	Date	Initials	Function	Power supply 24V DC normal valves		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	102	Sheet	101

1	2	3	4	5	6	7	8	9	10	11	12	13	
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24V AC SUPPLY
ON INPUT TERMINALS
0V AC SUPPLY
ON INPUT TERMINALS
EARTH

	Date	Initials	Function	Power supply for Input X12		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	103	Sheet	102



OPTION

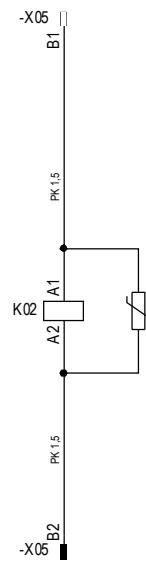
WING3

WING2

WING1

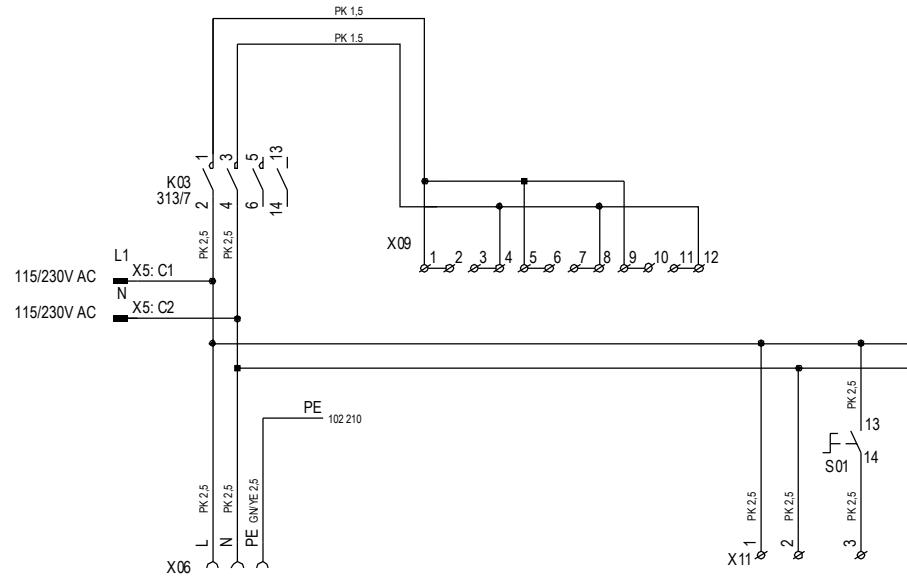
	Date	Initials	Function	Isolation amplifier 4-20mA, wing position		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	105	Sheet	103

1	2	3	4	5	6	7	8	9	10	11	12	13	
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1
 2 101/3
 3
 4 101/4
 5
 6
 13
 14

	Date	Initials	Function	Emergency relay 24 V DC3 from Nacelle		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW		
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	110	Sheet	105

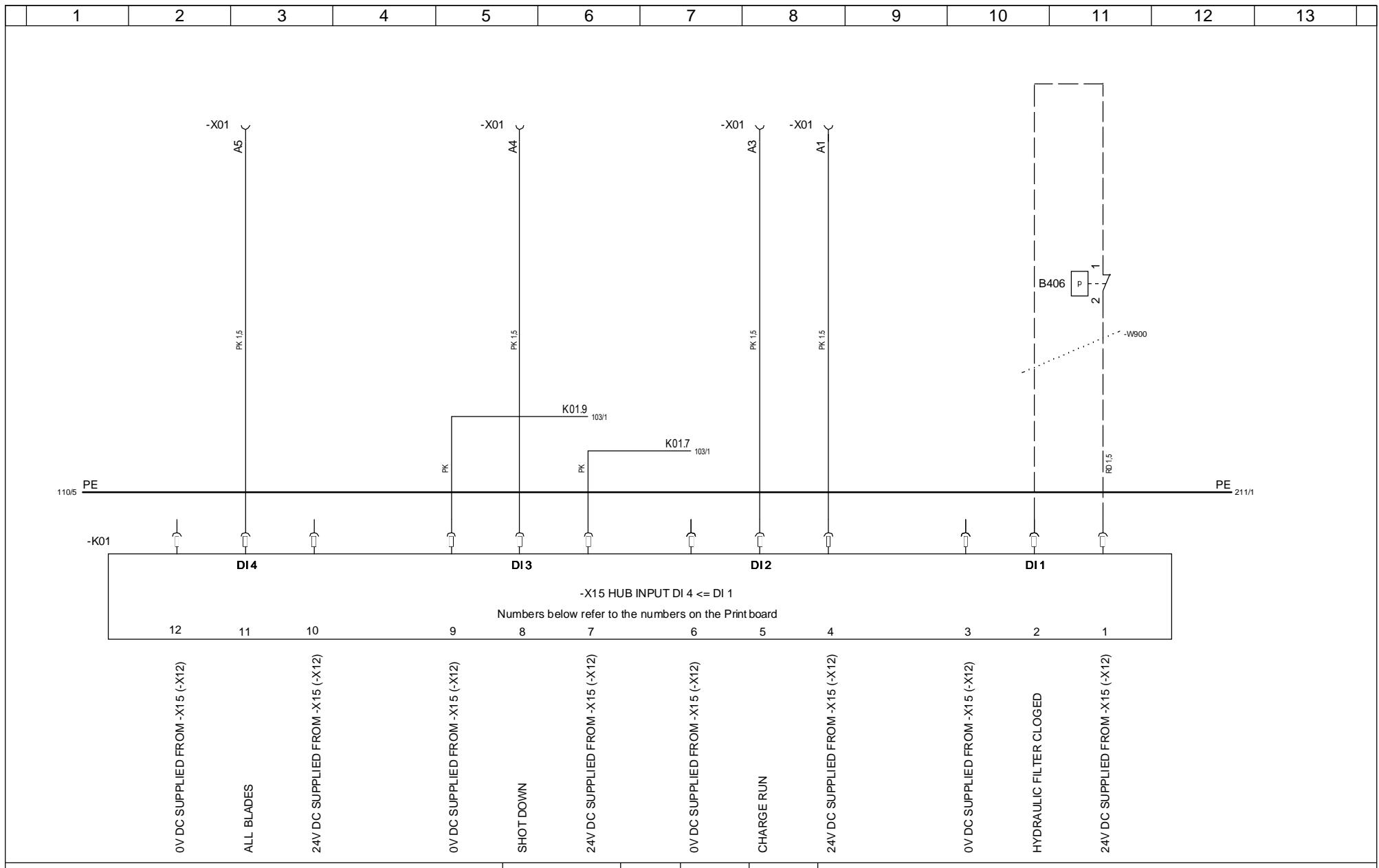


CEE PLUG
CONNECTION TO SERVICE
PLUGS IN THE HUB OPTIONS

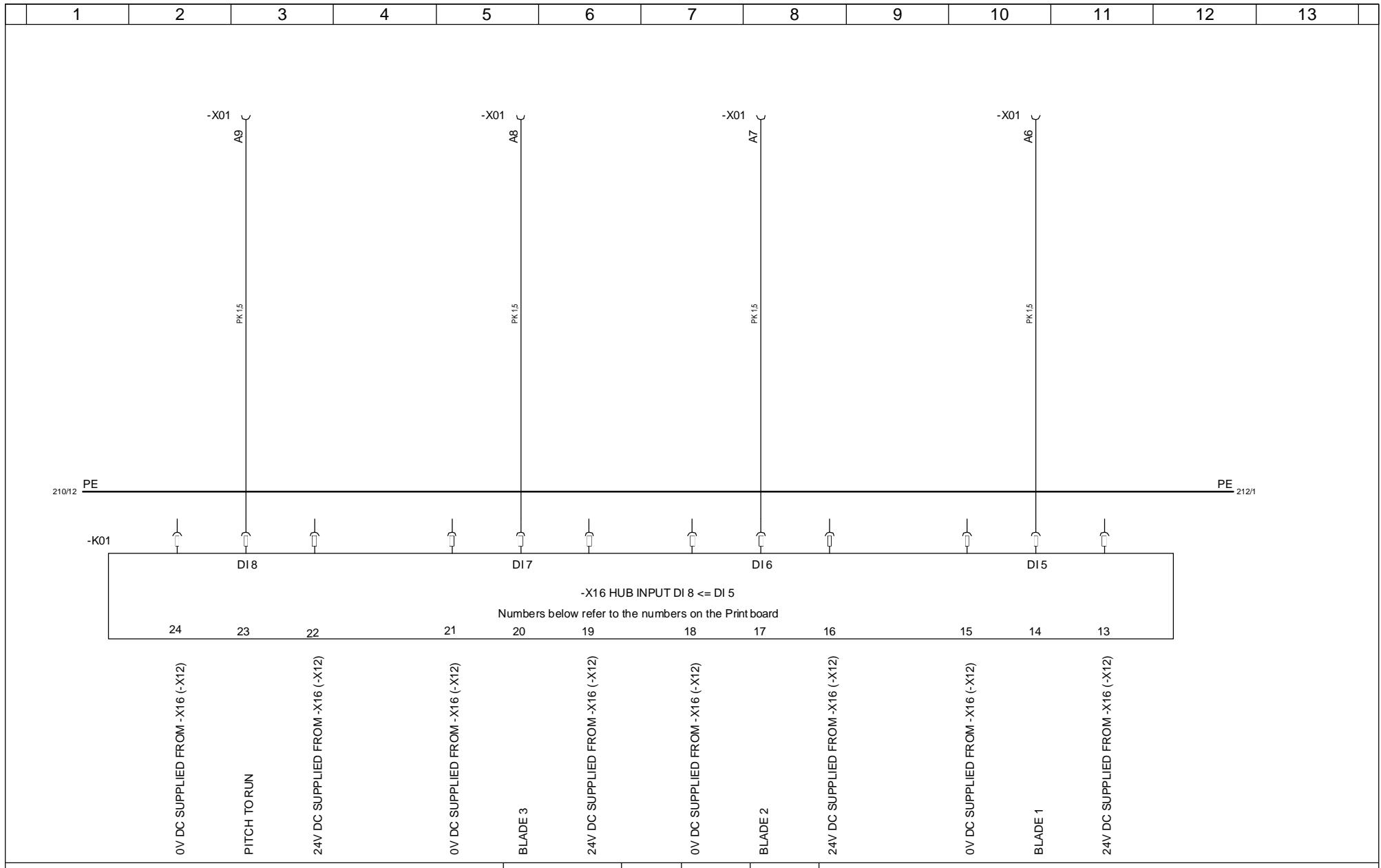
SEE X09 TERMINAL LAYOUT
PAGE 069

EMERGENCY LIGHT CHARGE
NEUTRAL
LIGHT ON/OFF

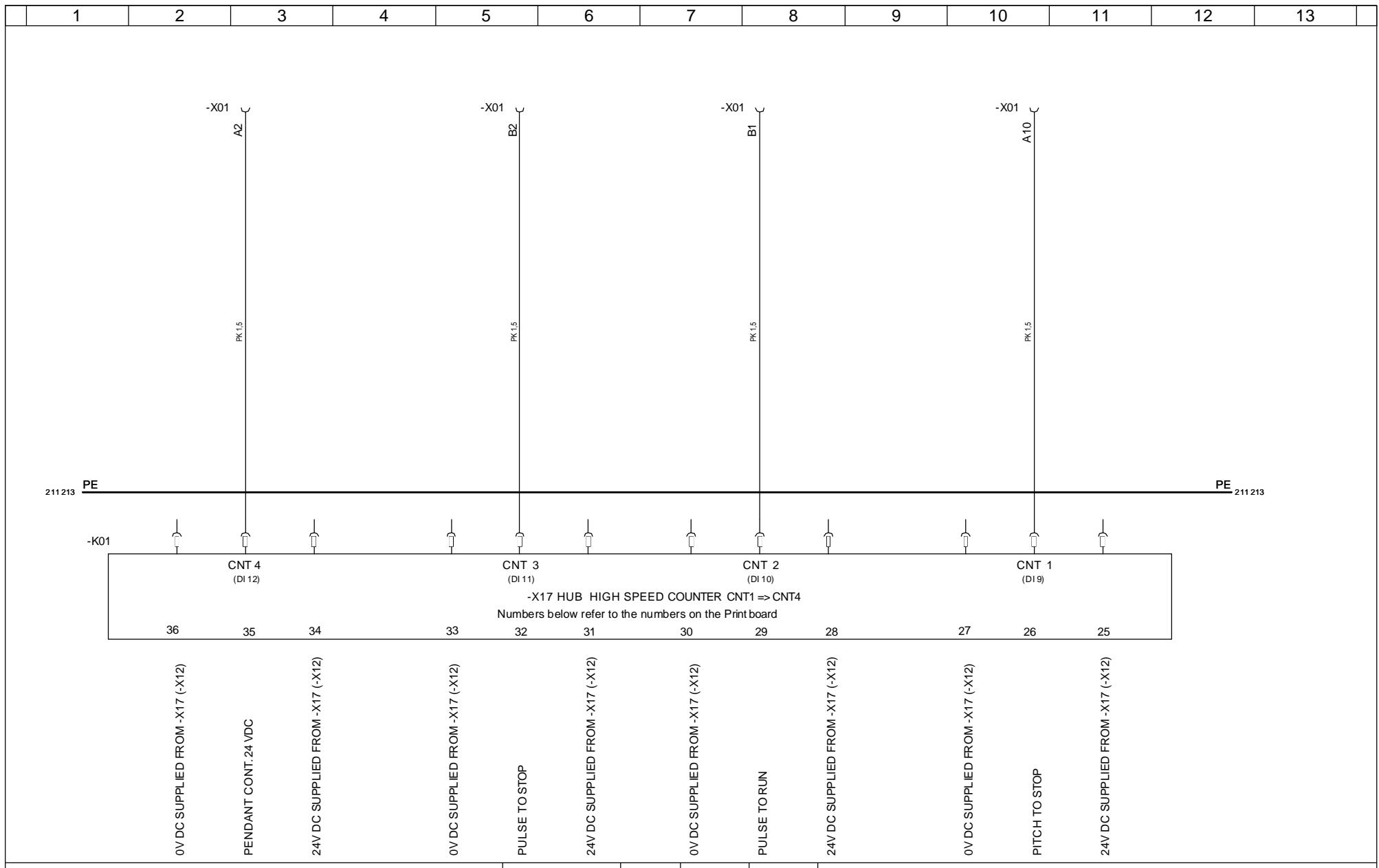
	Date	Initials	Function	OPTION Terminal layout heating		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	210	Sheet	110



	Date	Initials	Function	Digital input -X15 DI 4 => DI 1		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW		
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	211	Sheet	210

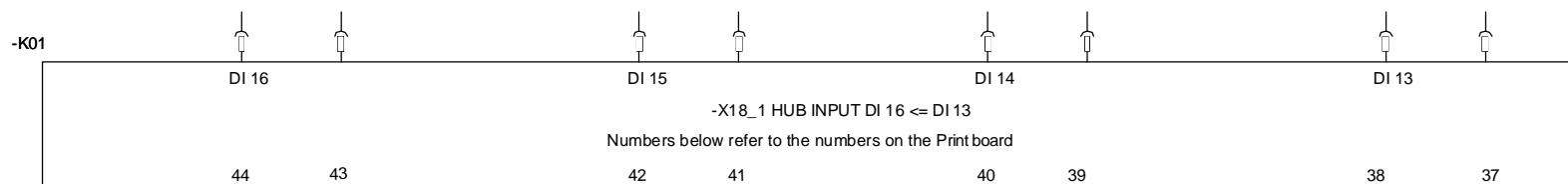


	Date	Initials	Function	Digital input -X16 DI 8 => DI 5		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW		
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	212	Sheet	211



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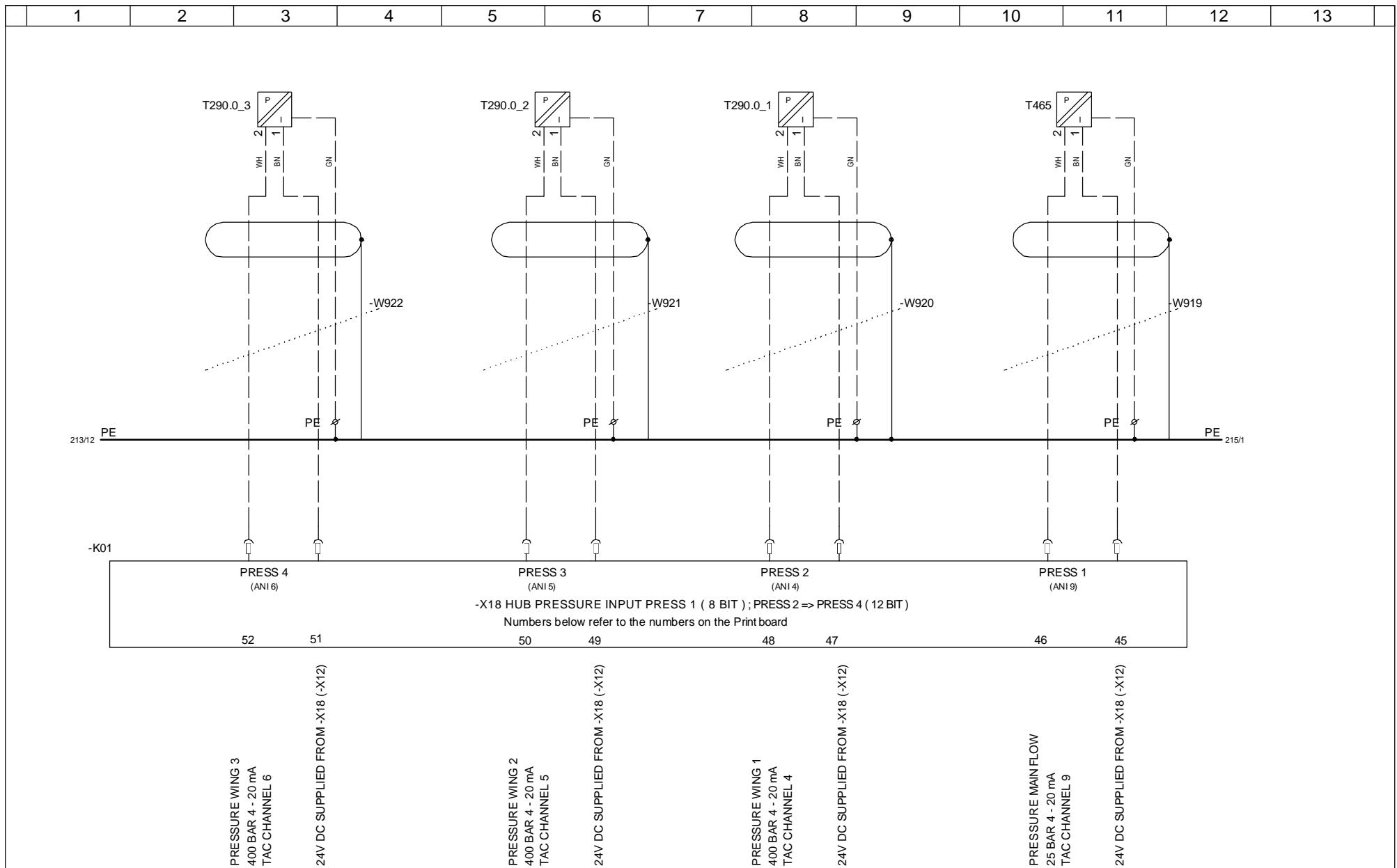
212/12 PE _____ PE 214/1



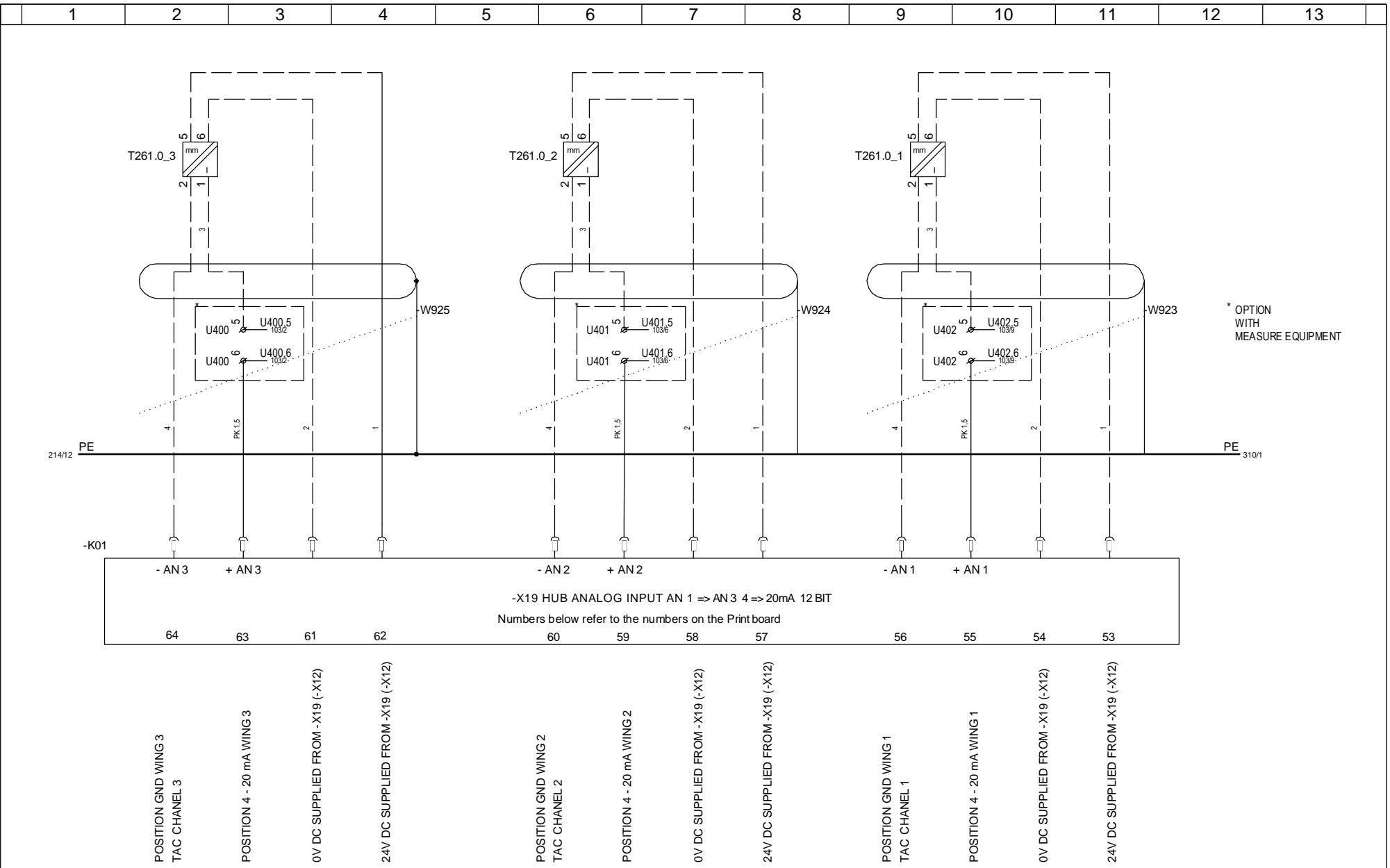
SPARE
24V DC SUPPLIED
FROM X18 (-X12)

ONLY FOR INTERNAL USE !

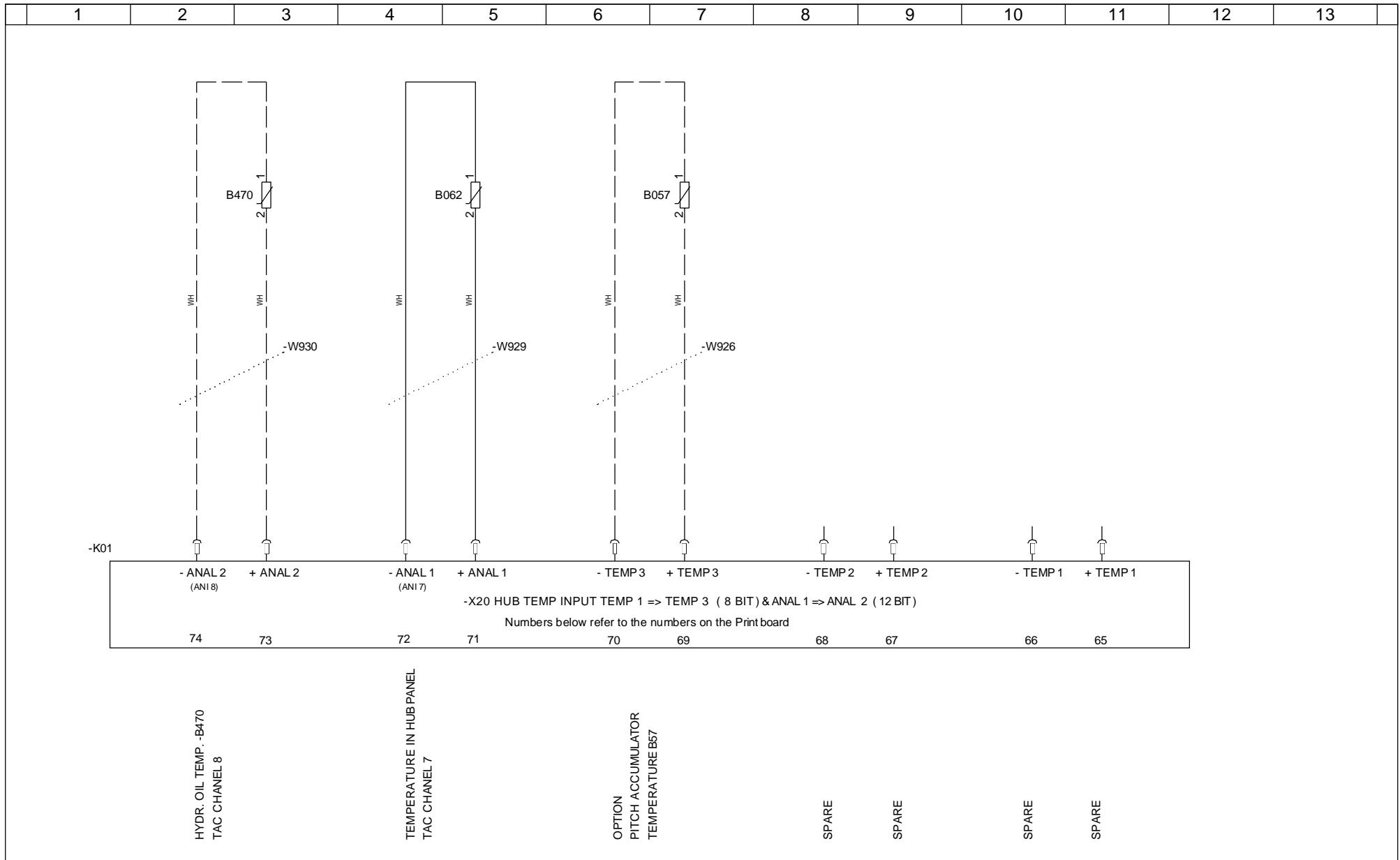
	Date	Initials	Function	Digital input -X18 DI 16 <= DI 13			
Designed	050120	CHO	Project title	Hub Computer Panel +AK4			
Approved	080612	OLZED	Comments	V82-1.65MW			Customer Vestas Wind Systems A/S
Revised	080612	INI	Rev.	-	Drawing no.	6015908	Cont. sheet 214 Sheet 213



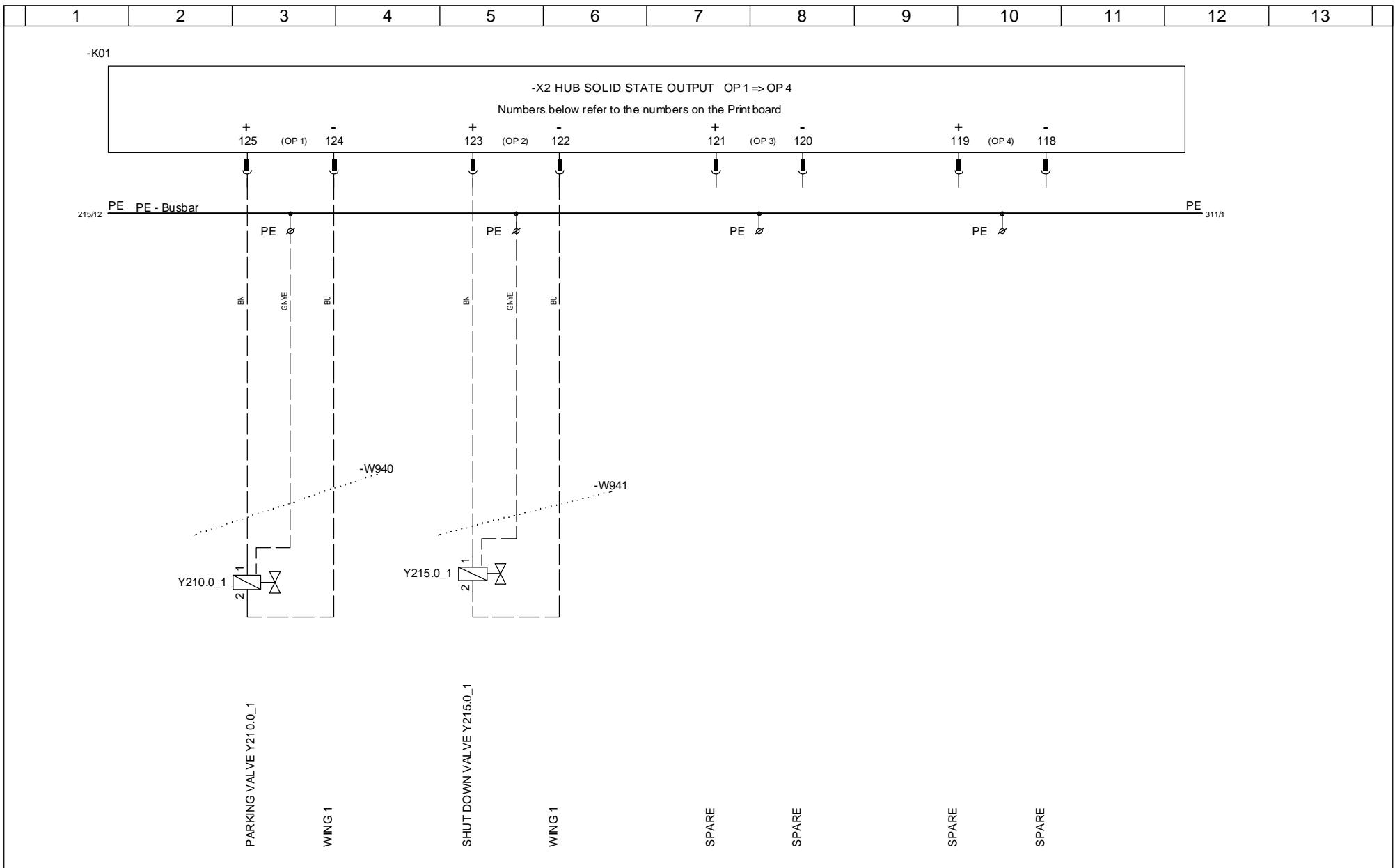
	Date	Initials	Function	Analog input -X18 Press 1 => Press 4		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	215	Sheet	214



	Date	Initials	Function	Analog input -X19 AN1 => AN3			
Designed	050120	CHO	Project title	Hub Computer Panel +AK4			
Approved	081217	PRO	Comments	V82-1.65MW			Customer Vestas Wind Systems A/S
Revised	081217	INI	Rev.	-	Drawing no.	6015908	Cont. sheet 216 Sheet 215



	Date	Initials	Function	Temp. input -X20 Temp 1 => Temp 3 and Analog 1 => 2		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	310	Sheet	216



	Date	Initials	Function	Digital output -X2 OP1 => OP4 WING 1		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	311	Sheet	310

1	2	3	4	5	6	7	8	9	10	11	12	13
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-K01

-X3 HUB SOLID STATE OUTPUT OP 5 => OP 8
Numbers below refer to the numbers on the Print board

+ 117 (OP 1) - 116 + 115 (OP 2) - 114 113 (OP 3) - 112 + 111 (OP 4) - 110

PE 310/12 PE 312/1

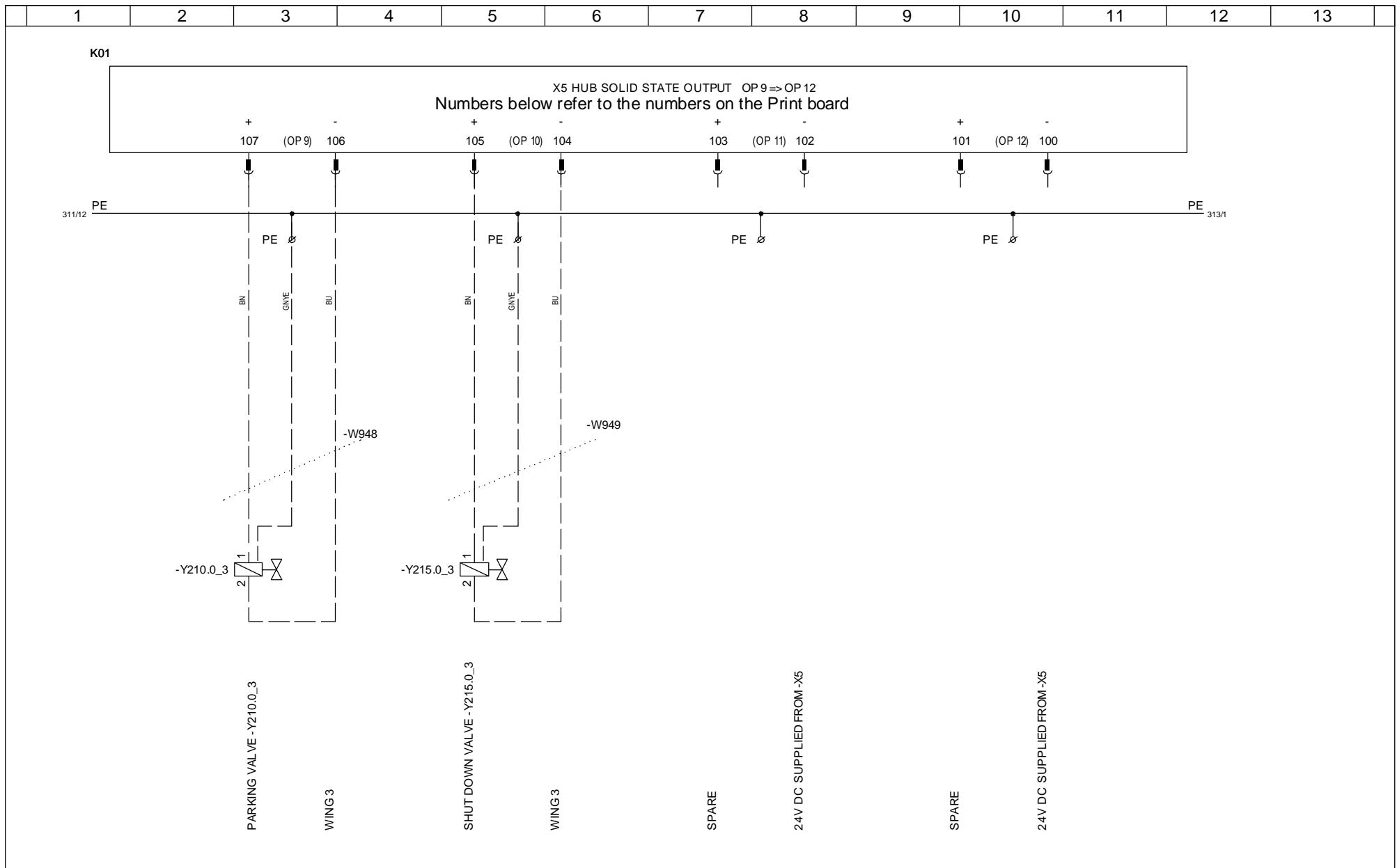
PARKING VALVE Y210.0_2 WING 2 SHUTDOWN VALVE Y215.0_2 WING 2 SPARE SPARE SPARE

14:43 17-12-08

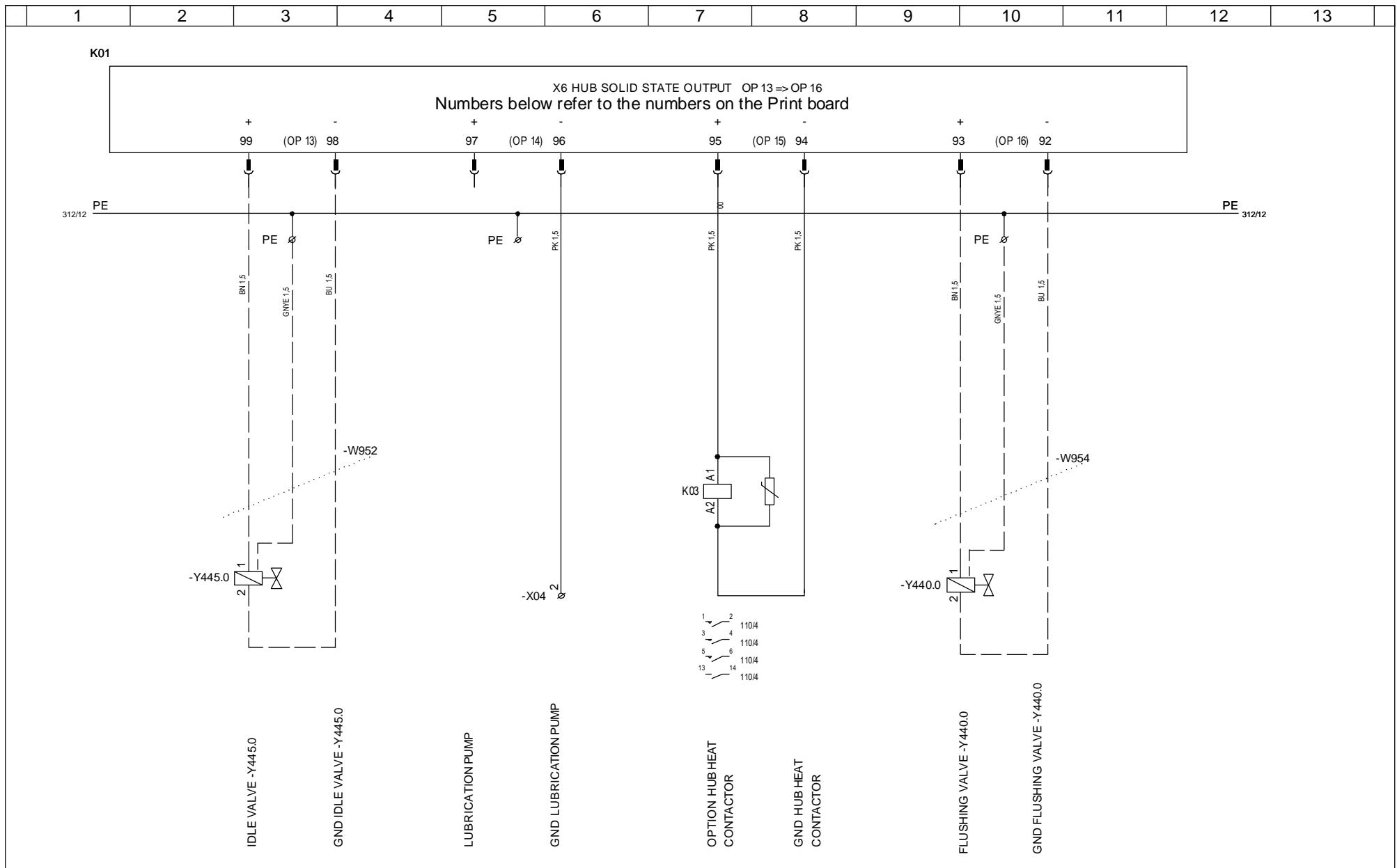
Vestas

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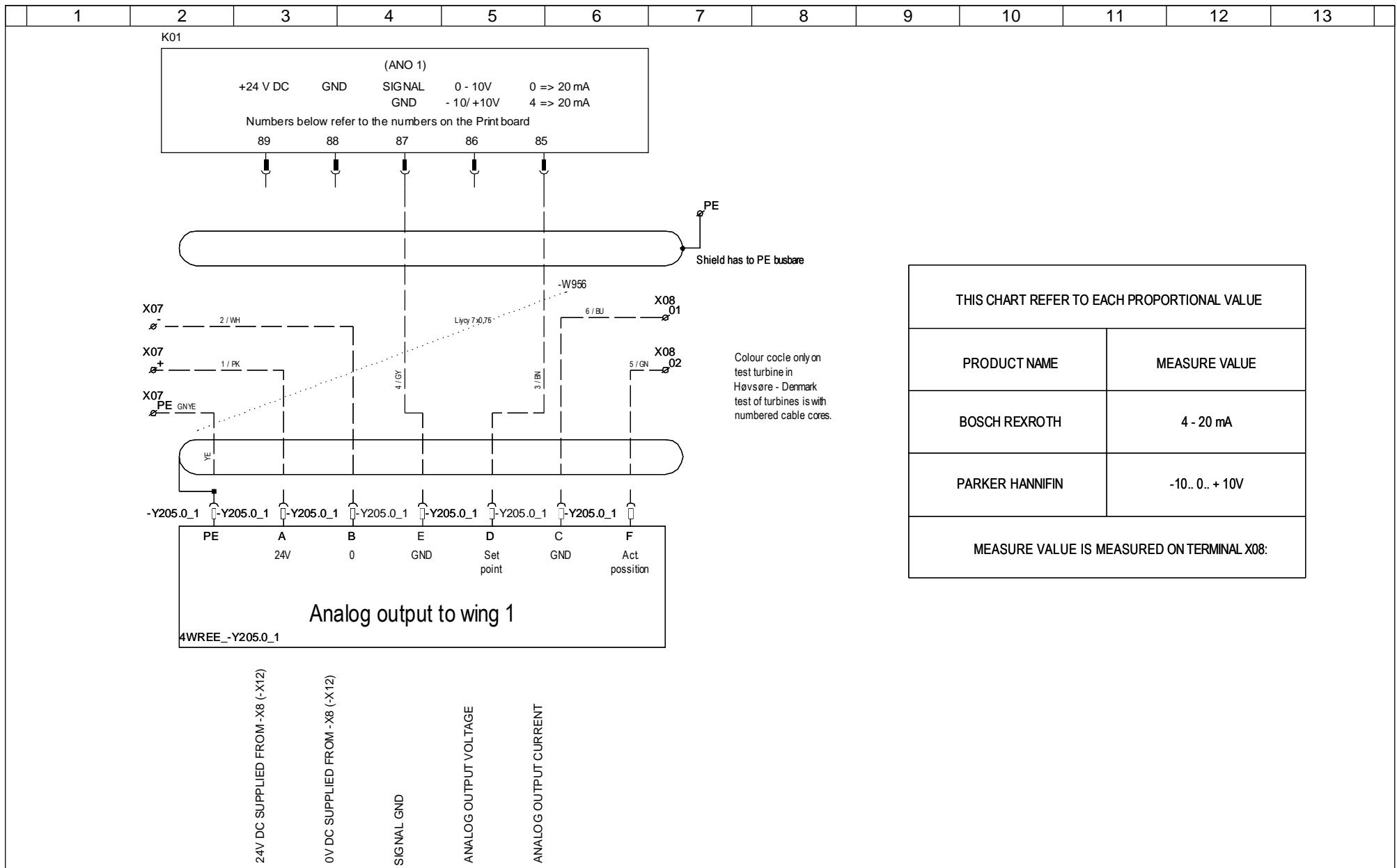
Property of Vestas Wind Systems A/S. This drawing must not be passed on to any person, nor be copied or otherwise made use of without our approval.	Date	Initials	Function	Digital output -X3 OP5 => OP8 WING 2						
	Designed	050120	CHO	Project title	Hub Computer Panel +AK4					
	Approved	080612	OLZED	Comments	V82-1.65MW		Customer	Vestas Wind Systems A/S		
	Revised	080612	INI	Rev.	-	Drawing no.	6015908	Cont. sheet	312	Sheet



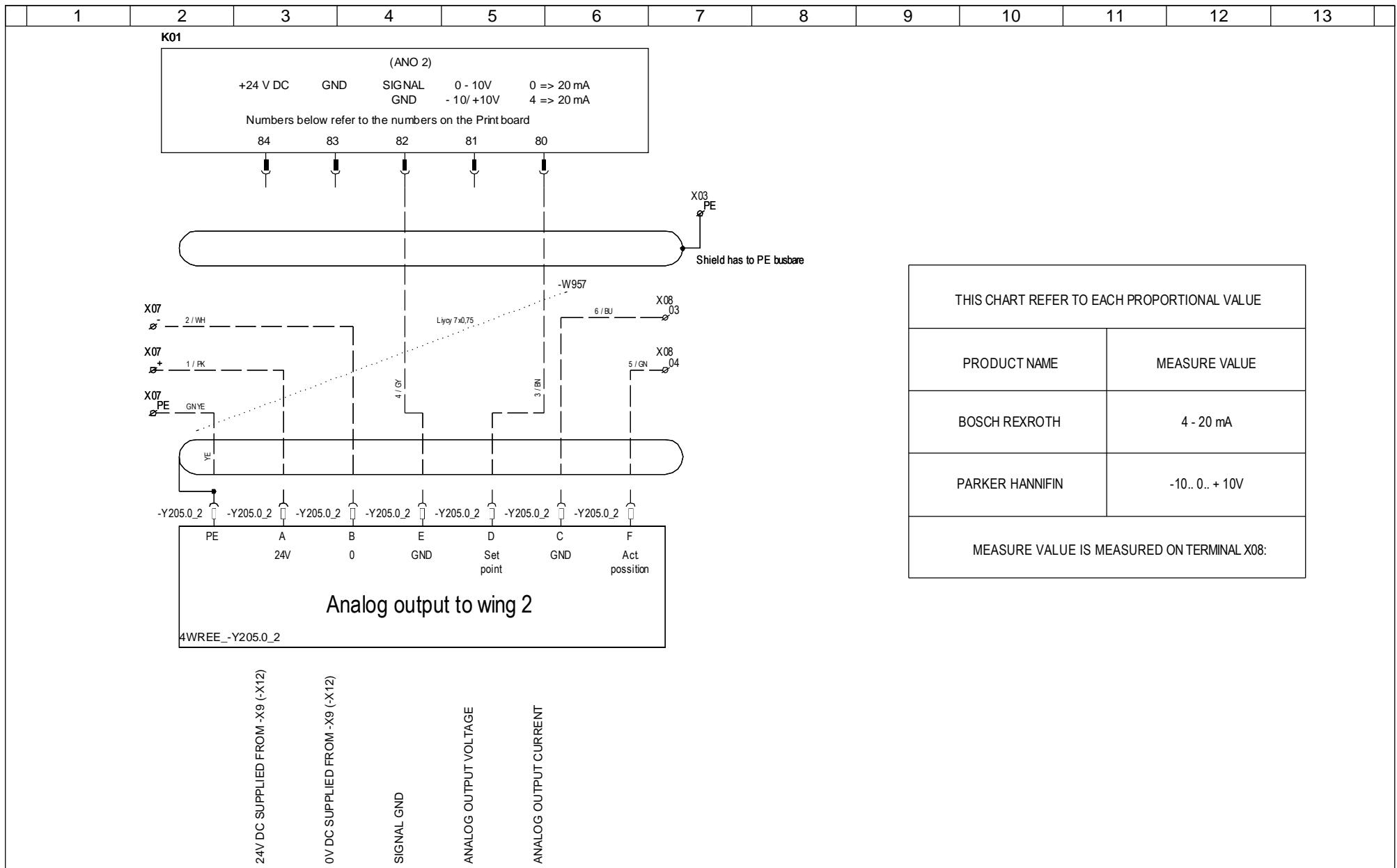
	Date	Initials	Function	Digital output -X5 OP9=>OP12 WING 3		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	313	Sheet	312



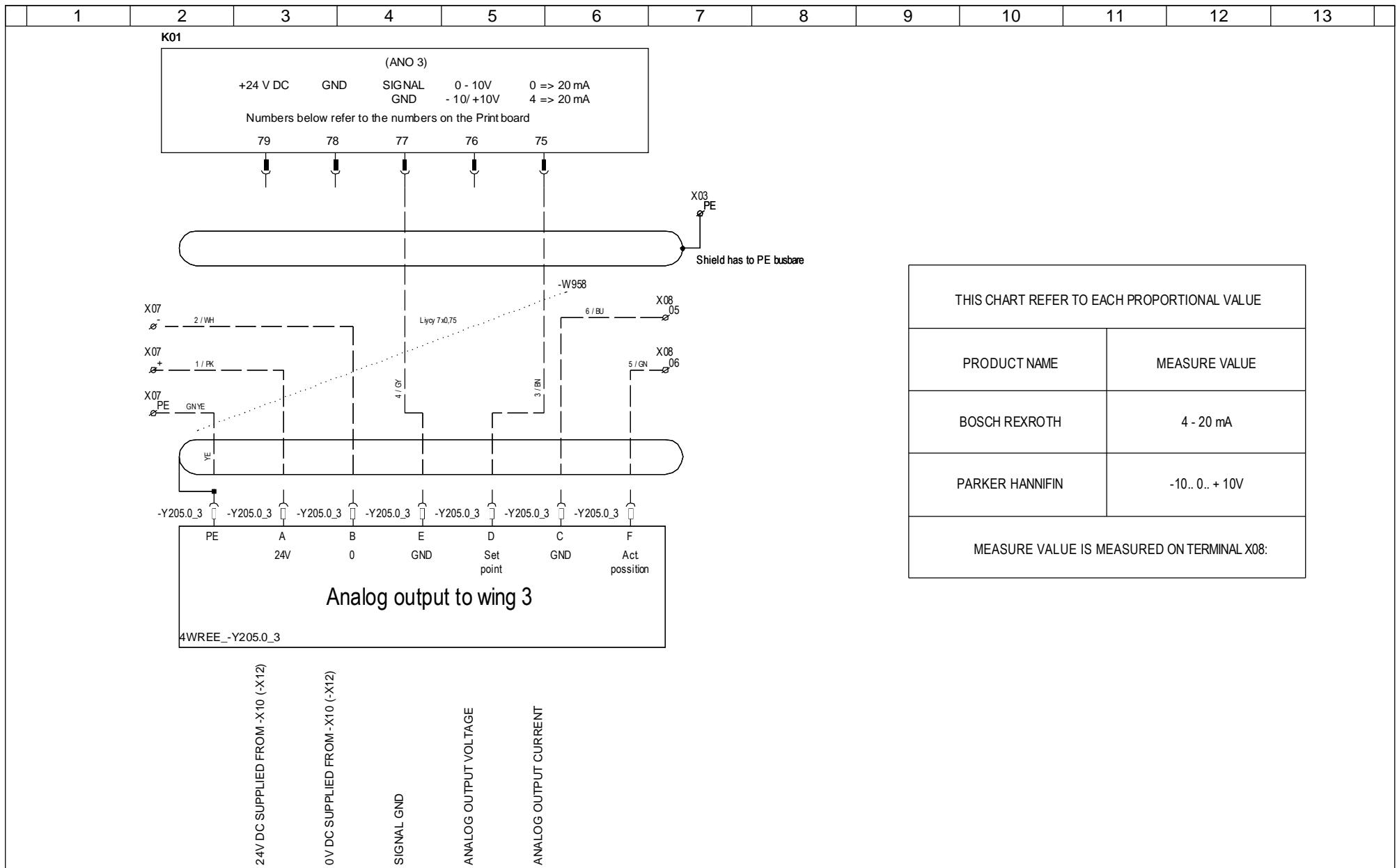
	Date	Initials	Function	Digital output -X6 OP13=>OP16		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW		
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	340	Sheet	313



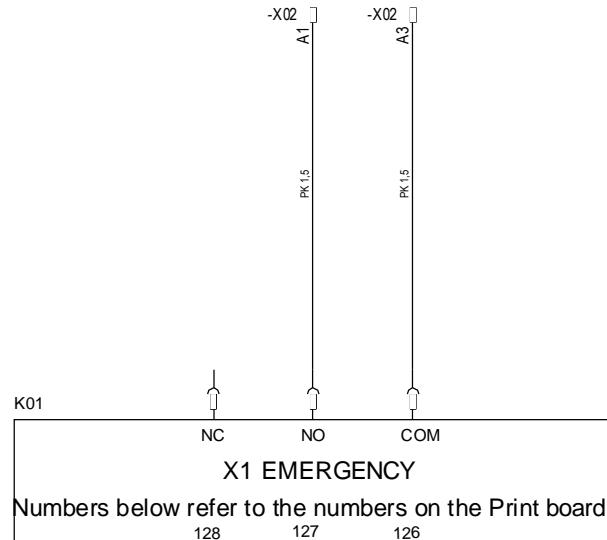
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Designed	050120	CHO	Project title	Hub Computer Panel +AK4						
Approved	080612	OLZED	Comments	V82-1.65MW		Customer	Vestas Wind Systems A/S			
Revised	080612	INI	Rev.	-	Drawing no.	6015908	Cont. sheet	341	Sheet	340



	Date	Initials	Function	Analog output -X9 OVUT2 & IOUT2 WING 2		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW		
Revised	080612	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	342	Sheet	341



1	2	3	4	5	6	7	8	9	10	11	12	13	
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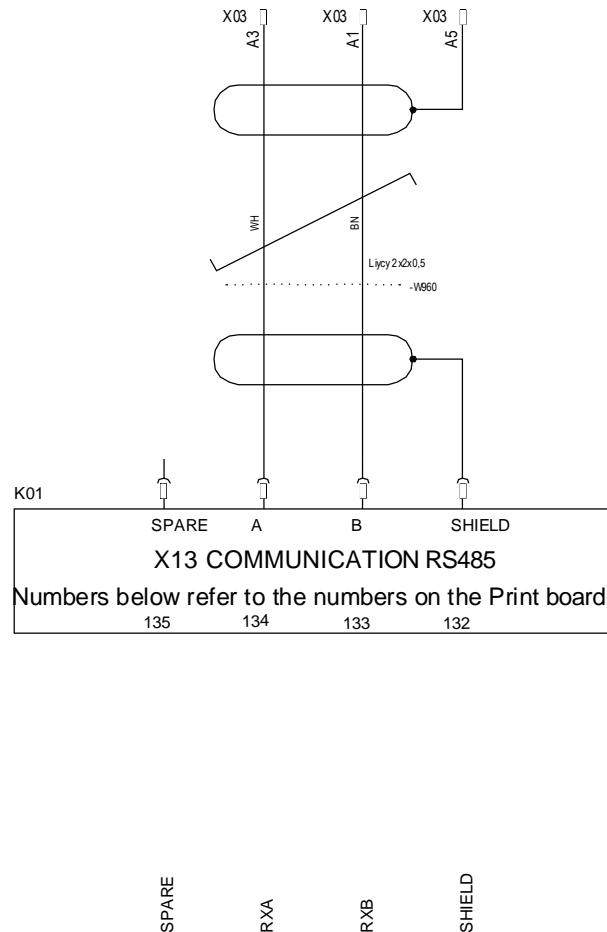
EMERGENCY STOP
RELAY NC

EMERGENCY STOP
RELAY NO

EMERGENCY STOP
RELAY COMMON

	Date	Initials	Function	Emergency line		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	081217	PRO	Comments	V82-1.65MW		
Revised	081217	INI	Rev.	-	Drawing no.	6015908
			Cont. sheet	500	Sheet	343

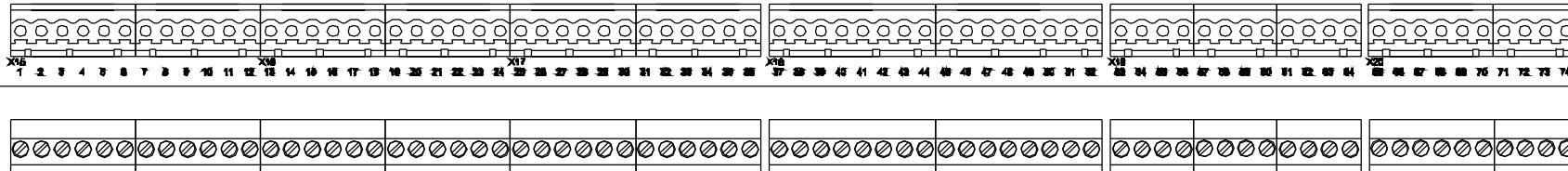
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	Date	Initials	Function	Bus communication RS 485		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	080612	INI	Rev.	-	Drawing no.	6015908
				Cont. sheet	600	Sheet 500

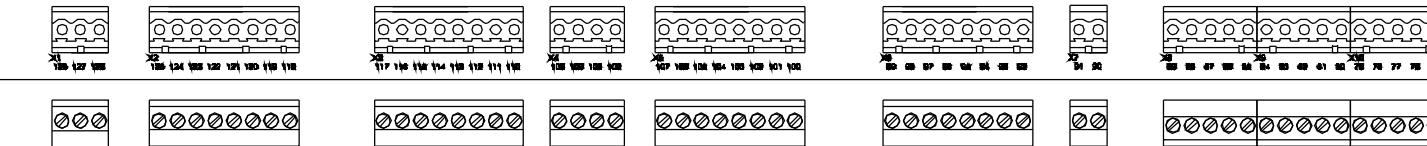
1 2 3 4 5 6 7 8 9 10 11 12 13

NAV Computer Input



1	2	3	4	5	6	7	8	9	10	11	12	13	
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NAV Computer Output



EMERGENCY STOP RELAY NC
 EMERGENCY STOP RELAY NO
 EMERGENCY STOP RELAY COMMON

 PARKING VALVE Y2100_1
 WING 1
 SHUT DOWN VALVE Y2150_1
 WING 1
 SPARE
 SPARE
 SPARE
 SPARE
 SPARE

PARKING VALVE Y2100_2
 WING 2
 SHUT DOWN VALVE Y2150_2
 WING 2
 SPARE
 SPARE
 SPARE
 SPARE
 SPARE
 2.4V DC SUPPLIED TO OUTPUT
 2.4V DC SUPPLIED TO OUTPUT
 0V DC SUPPLIED TO OUTPUT
 0V DC SUPPLIED TO OUTPUT

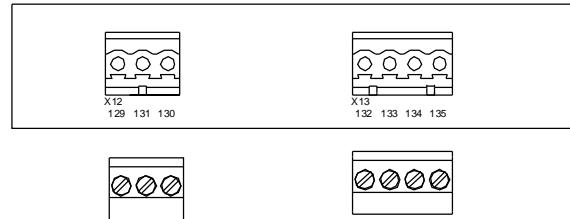
PARKING VALVE Y2100_3
 WING 3
 SHUT DOWN VALVE Y2150_3
 WING 3
 SPARE
 2.4V DC SUPPLIED FROM X5
 SPARE
 2.4V DC SUPPLIED FROM X5

IDLE VALVE Y445_0
 GND/IDLE VALVE Y445_0
 LUBRICATION PUMP
 GND LUBRICATION PUMP
 OPTION HUB HEAT CONTACTOR
 GND/HUB HEAT CONTACTOR
 FLUSHING VALVE Y440_0
 GND/FLUSHING VALVE Y440_0

2.4V DC SUPPLIED FROM M-X8 (X12)
 0V DC SUPPLIED FROM X8 (X12)
 SIGNAL GND
 ANALOG OUTPUT VOLTAGE
 2.4V DC SUPPLIED FROM M-X9 (X12)
 0V DC SUPPLIED FROM X9 (X12)
 SIGNAL GND
 ANALOG OUTPUT VOLTAGE
 2.4V DC SUPPLIED FROM X10 (X12)
 0V DC SUPPLIED FROM X10 (X12)
 SIGNAL GND
 ANALOG OUTPUT VOLTAGE
 ANALOG OUTPUT CURRENT

	Date	Initials	Function	NAV Computer output			
Designed	050120	CHO	Project title	Hub Computer Panel +AK4			
Approved	080612	OLZED	Comments	V82-1.65MW			
Revised	080612	INI	Rev.	-	Drawing no.	6015908	Cont. sheet 602 Sheet 601

1	2	3	4	5	6	7	8	9	10	11	12	13	
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EARTH
24V AC SUPPLY ON INPUT TERMINALS
0V AC SUPPLY ON INPUT TERMINALS

SHIELD
RXB
RXA
SPARE

	Date	Initials	Function	NAV Computer supply		
Designed	050120	CHO	Project title	Hub Computer Panel +AK4		
Approved	080612	OLZED	Comments	V82-1.65MW	Customer	Vestas Wind Systems A/S
Revised	080612	INI	Rev.	-	Drawing no.	6015908
					Cont. sheet	-
					Sheet	602

60110471 HUB CPU PAN+AK4 CEE V82-1.65MW

Component	Description	Qty per	Stk UM	Position Number
D1001213	MOUNTING MANUAL, HUB COMP. PAN	0,000	EA	
D6015908	HUB CPU PANEL+AK4 RAL7035 V82/	0,000	EA	
092992	MARKING LABELS +AK4 GENERAL	0,030	EA	
092993	MARKING LABELS +AK4 G400 G401	0,005	EA	
092994	MARKING LABELS +AK4 S01 X06	0,005	EA	
60006819	STICKER "EARTH" 14mm	0,020	EA	
60006824	STICKER "LIGHTNING" 100MM	0,330	EA	
60007583	CABLE GLAND M12 PA6 BM-EN-1S	2,000	EA	
60007591	LOCKNUT M12 PA6 BML-1S	2,000	EA	
60009578	SCREW ISO 7045 M 3 x 8 - FZB	9,000	EA	
60009578	SCREW ISO 7045 M 3 x 8 - FZB	1,000	EA	
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	
60011435	GASKET B 216 SKT 216R6 CEE	1,000	EA	
60014306	MARK +AK4 HUB COMP. EVO II	1,000	EA	
60100917	LABEL KIT HEAT BLANKET HUB	1,000	EA	
60110062	CABLE 4G1.5 W960 NM30T MRKIII	1,000	EA	
60110350/101	WIRING HUB CPU IEC/UL (35)	1,000	EA	
60110567	GLAND PL W/W RAL 7035 CEE	1,000	EA	
60112102	WIRING HUB CPU IEC/UL (1)	1,000	EA	
60112103	WIRING HUB CPU IEC/UL (2)	1,000	EA	
60112104	WIRING HUB CPU IEC/UL (3)	1,000	EA	
60112105	WIRING HUB CPU IEC/UL (4)	1,000	EA	
60112106	WIRING HUB CPU IEC/UL (5)	1,000	EA	
60112107	WIRING HUB CPU IEC/UL (6)	1,000	EA	
60112108	WIRING HUB CPU IEC/UL (7)	1,000	EA	
60112109	WIRING HUB CPU IEC/UL (8)	1,000	EA	
60112110	WIRING HUB CPU IEC/UL (9)	1,000	EA	
60112111	WIRING HUB CPU IEC/UL (10)	1,000	EA	
60112112	WIRING HUB CPU IEC/UL (11)	1,000	EA	
60112113	WIRING HUB CPU IEC/UL (12)	1,000	EA	
60112114	WIRING HUB CPU IEC/UL (13)	1,000	EA	
60112115	WIRING HUB CPU IEC/UL (14)	1,000	EA	
60112116	WIRING HUB CPU IEC/UL (15)	1,000	EA	
60112118	WIRING HUB CPU IEC/UL (16)	1,000	EA	
60112119	WIRING HUB CPU IEC/UL (17)	1,000	EA	
60112120	WIRING HUB CPU IEC/UL (18)	1,000	EA	
60112121	WIRING HUB CPU IEC/UL (19)	1,000	EA	
60112122	WIRING HUB CPU IEC/UL (20)	1,000	EA	
60112123	WIRING HUB CPU IEC/UL (21)	1,000	EA	
60112124	WIRING HUB CPU IEC/UL (22)	1,000	EA	
60112125	WIRING HUB CPU IEC/UL (23)	1,000	EA	
60112126	WIRING HUB CPU IEC/UL (24)	1,000	EA	
60112128	WIRING HUB CPU IEC/UL (26)	1,000	EA	
60112129	WIRING HUB CPU IEC/UL (25)	1,000	EA	
60112143	CABLES WING 1 HUB PANEL EVO II	1,000	EA	
60112144	CABLES WING 2 HUB PANEL EVO II	1,000	EA	
60112145	CABLES WING 3 HUB PANEL EVO II	1,000	EA	
60112146	CABLES COMMON HUB PANEL EVO II	1,000	EA	
60112147	EARTH BAR HUB PANEL EVO II	1,000	EA	
60112156	DIN RAIL 7x35x0.135 M	1,000	EA	
60112157	DIN RAIL 35x7x0.39 M	1,000	EA	
60112349	WIRING HUB CPU IEC/UL (27)	1,000	EA	
60112350	WIRING HUB CPU IEC/UL (28)	1,000	EA	
60112351	WIRING HUB CPU IEC/UL (29)	1,000	EA	
60112352	WIRING HUB CPU IEC/UL (30)	1,000	EA	
60112353	WIRING HUB CPU IEC/UL (31)	1,000	EA	
60112354	WIRING HUB CPU IEC/UL (32)	1,000	EA	
60112355	WIRING HUB CPU IEC/UL (33)	1,000	EA	
193722	LOCKNUT MM20GPA POLYAMID	17,000	EA	
60007584	CABLE GLAND M16 PA6 BM-EN-11	13,000	EA	
60007592	LOCKNUT M16 PA6 BML-11	13,000	EA	
60112358	WIRING HUB CPU IEC/UL (34)	1,000	EA	
60010699	CONDENSATION PROT DRY BAG 500G	1,000	EA	
60007459	CABLE TIE WHITE 200x2.5mm	4,000	EA	
119161	LABEL AVOID TENSION	1,000	EA	
119162	LABEL TYPE 1 ENCLOSURE	1,000	EA	
146470	FLEX HOSE 15,8MM BLACK	1,920	M	
60002320	STICKER GEN USE VCS	1,000	EA	+AK4
60002580	LABEL	1,000	EA	+AK4
60007586	CABLE GLAND M25 PA6 BM-EN-13	1,000	EA	+AK4
60007594	LOCKNUT M25 PA6 BML-13	1,000	EA	+AK4

60009617	SCREW HFC 9046 M 4 x 16 - 4.8	5,000	EA	+AK4
60009639	SCR HEX SET M8x20 8.8 FZB	4,000	EA	+AK4
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	32,000	EA	+AK4
60009802	WASHER M8 140HV FZB	4,000	EA	+AK4
60009877	NUT HEX FLANGE M8 8 FZB	4,000	EA	+AK4
60010159	MOUNTING PLATE 665x690x2mm	1,000	EA	+AK4
60010445	WALL BRA 2508.000 25x10mm	4,000	EA	+AK4
60108981	ENCL AE 1057.600.01 1D W/W	1,000	EA	+AK4
60109142	LABEL TYPE SIGN HUB COMPUTER	1,000	EA	+AK4
60110224	LABEL " LIGHT IN HUB" 20X45MM	1,000	EA	+AK4
60007481	CABLE RACK TK 5-7	1,000	EA	-B062
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA	-B062
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	-F02
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-F02/-G402
188453	PS ADC 5483R-3 10A-27,4 NM PIN	1,000	EA	-G400
60010158	MOUN PL W/W	1,000	EA	-G400
60009577	SCR CRS PH M3x6 FZB	8,000	EA	-G400-G401
60009580	SCREW ISO 7045 M4X10-FZB-H	12,000	EA	-G400-G401-SIF
188453	PS ADC 5483R-3 10A-27,4 NM PIN	1,000	EA	-G401
60010158	MOUN PL W/W	1,000	EA	-G401
60006942	TRAFO 2x110/24VAC 70VA	1,000	EA	-G402
51701801	SIF HUB COMPUTER CABINET EVOII	1,000	EA	-K01
60001914	CONN BLZ F 2 LEADED	1,000	EA	-K01
60001930	CONN BLZ F 4 LEADED	4,000	EA	-K01
60001937	CONN BLZ F 5 LEADED	3,000	EA	-K01
60001946	CONN BLZ F 6 LEADED	1,000	EA	-K01
60001960	CONN BLZ F 8 LEADED	5,000	EA	-K01
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-K02
60110379	CONT AL 9-30-10 24V DC	1,000	EA	-K02
60110382	VARISTOR 24-60V RV 5/50	1,000	EA	-K02
60110379	CONT AL 9-30-10 24V DC	1,000	EA	-K03
60110382	VARISTOR 24-60V RV 5/50	1,000	EA	-K03
60005827	SELECT SWITCH 1SFA611200R1006	1,000	EA	-S01
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	-S01
60005848	HOLDER for 3 ELEMENTS SK616 01	1,000	EA	-S01
60002503	LABEL "-X01"	1,000	EA	-X01
60006483	CONN MODULE BLIND MALE	1,000	EA	-X01
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X01
60006567	COVER F HOUSING 10P	1,000	EA	-X01
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X01
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X01
60002504	LABEL "-X02"	1,000	EA	-X02
60006483	CONN MODULE BLIND MALE	2,000	EA	-X02
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X02
60006567	COVER F HOUSING 10P	1,000	EA	-X02
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X02
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X02
60002505	LABEL "-X03"	1,000	EA	-X03
60006483	CONN MODULE BLIND MALE	2,000	EA	-X03
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X03
60006567	COVER F HOUSING 10P	1,000	EA	-X03
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X03
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X03
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-X04
60006078	TERMINAL WAGO DOUBLE 870-831 2	1,000	EA	-X04/-F01
60005135	MCB 5SX2103-7 3.0A C 1P	1,000	EA	-X04/-F01
60002507	LABEL "-X05"	1,000	EA	-X05
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X05
60006567	COVER F HOUSING 10P	1,000	EA	-X05
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X05
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X05
60002508	LABEL "-X06"	1,000	EA	-X06
60011434	SKT 216R6 2P+E 250V 16A CEE	1,000	EA	-X06
60021542	CABLE W953 LUBR PUMP M11	1,000	EA	-X06
60006078	TERMINAL WAGO DOUBLE 870-831 2	6,000	EA	-X07
60006079	END PLATE 870-948	2,000	EA	-X07
60006087	PUSH-IN JUMPER BAR 870-403	2,000	EA	-X07
60091902	END STOP WAGO 249-116 6MM TS35	2,000	EA	-X07
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X07;-X04
60006071	TERMINAL WAGO 870-501 2-LEV.0,	3,000	EA	-X08
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	-X08
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-X08
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X08
60006078	TERMINAL WAGO DOUBLE 870-831 2	12,000	EA	-X09
60006079	END PLATE 870-948	1,000	EA	-X09

60006086	PUSH-IN JUMPER BAR 870-402 2-P	6,000	EA	-X09
60091902	END STOP WAGO 249-116 6MM TS35	2,000	EA	-X09
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X09
60006079	END PLATE 870-948	1,000	EA	-X10
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X10
60006078	TERMINAL WAGO DOUBLE 870-831 2	3,000	EA	-X11
60006079	END PLATE 870-948	1,000	EA	-X11
60091902	END STOP WAGO 249-116 6MM TS35	2,000	EA	-X11
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X11
60007196	DIN RAIL FTG TSTW 72x48MM	3,000	EA	DIN 2
60007197	SCREW FKSC M6x12MM	3,000	EA	DIN 2
60112149	CABLE CONDUIT COVER 25x0.100 M	2,000	EA	Pos 1-2
60112158	CABLE CONDUIT 25x40MM 0.09 M	2,000	EA	Pos 1-2
60112150	CABLE CONDUIT COVER 25x0.44 M	1,000	EA	Pos 3
60112159	CABLE CONDUIT 25x40MM 0.435 M	1,000	EA	Pos 3
60112151	CABLE CONDUIT COVER 25x0.115 M	1,000	EA	Pos 4
60112160	CABLE CONDUIT 25x40MM 0.115 M	1,000	EA	Pos 4
60112152	CABLE CONDUIT COVER 25x0.615 M	1,000	EA	Pos 5
60112161	CABLE CONDUIT 25x40MM 0.61 M	1,000	EA	Pos 5
60112153	CABLE CONDUIT COVER 40x0.29 M	1,000	EA	Pos 6
60112162	CABLE CONDUIT 40x60MM 0.29 M	1,000	EA	Pos 6
60110350/200	CABLE CONDUIT 40x60MM 0.475M	1,000	EA	Pos 7
60112154	CABLE CONDUIT COVER 40x0.48 M	2,000	EA	Pos 7-8
60112163	CABLE CONDUIT 40x60MM 0.475 M	1,000	EA	Pos 8
60112155	CABLE CONDUIT COVER 40x0.405 M	1,000	EA	Pos 9
60112164	CABLE CONDUIT 40x60MM 0.435 M	1,000	EA	Pos 9

60110472 HUB CPU PAN+AK4 V82/NM72 AUS

Component	Description	Qty per	Stk UM	Position Number
D1001213	MOUNTING MANUAL, HUB COMP. PAN	0,000	EA	
D6015908	HUB CPU PANEL+AK4 RAL7035 V82/	0,000	EA	
092992	MARKING LABELS +AK4 GENERAL	0,030	EA	
092993	MARKING LABELS +AK4 G400 G401	0,005	EA	
092994	MARKING LABELS +AK4 S01 X06	0,005	EA	
118959	LABEL TYPE SIGN HUB COMP. AUS	1,000	EA	
193722	LOCKNUT MM20GPA POLYAMID	17,000	EA	
60006819	STICKER "EARTH" 14mm	0,020	EA	
60006824	STICKER "LIGHTNING" 100MM	0,330	EA	
60007583	CABLE GLAND M12 PA6 BM-EN-1S	2,000	EA	
60007584	CABLE GLAND M16 PA6 BM-EN-11	13,000	EA	
60007585	CABLE GLAND M20 PA6 BM-EN-12	17,000	EA	
60007591	LOCKNUT M12 PA6 BML-1S	2,000	EA	
60007592	LOCKNUT M16 PA6 BML-11	13,000	EA	
60009578	SCREW ISO 7045 M 3 x 8 - FZB	9,000	EA	
60009578	SCREW ISO 7045 M 3 x 8 - FZB	1,000	EA	
60011427	WA SKT 56SO310ARO 2P+E 250V	1,000	EA	
60014306	MARK +AK4 HUB COMP. EVO II	1,000	EA	
60021542	CABLE W953 LUBR PUMP M11	1,000	EA	
60037590	SCR SLOT CH M4x30 A2	4,000	EA	
60100917	LABEL KIT HEAT BLANKET HUB	1,000	EA	
60110062	CABLE 4G1.5 W960 NM30T MRKIII	1,000	EA	
60110350/101	WIRING HUB CPU IEC/UL (35)	1,000	EA	
60110571	GLAND PL W/W RAL 7035 AUS	1,000	EA	
60112102	WIRING HUB CPU IEC/UL (1)	1,000	EA	
60112103	WIRING HUB CPU IEC/UL (2)	1,000	EA	
60112104	WIRING HUB CPU IEC/UL (3)	1,000	EA	
60112105	WIRING HUB CPU IEC/UL (4)	1,000	EA	
60112106	WIRING HUB CPU IEC/UL (5)	1,000	EA	
60112107	WIRING HUB CPU IEC/UL (6)	1,000	EA	
60112108	WIRING HUB CPU IEC/UL (7)	1,000	EA	
60112109	WIRING HUB CPU IEC/UL (8)	1,000	EA	
60112110	WIRING HUB CPU IEC/UL (9)	1,000	EA	
60112111	WIRING HUB CPU IEC/UL (10)	1,000	EA	
60112112	WIRING HUB CPU IEC/UL (11)	1,000	EA	
60112113	WIRING HUB CPU IEC/UL (12)	1,000	EA	
60112114	WIRING HUB CPU IEC/UL (13)	1,000	EA	
60112115	WIRING HUB CPU IEC/UL (14)	1,000	EA	
60112116	WIRING HUB CPU IEC/UL (15)	1,000	EA	
60112118	WIRING HUB CPU IEC/UL (16)	1,000	EA	
60112119	WIRING HUB CPU IEC/UL (17)	1,000	EA	
60112120	WIRING HUB CPU IEC/UL (18)	1,000	EA	
60112121	WIRING HUB CPU IEC/UL (19)	1,000	EA	
60112122	WIRING HUB CPU IEC/UL (20)	1,000	EA	
60112123	WIRING HUB CPU IEC/UL (21)	1,000	EA	
60112124	WIRING HUB CPU IEC/UL (22)	1,000	EA	
60112125	WIRING HUB CPU IEC/UL (23)	1,000	EA	
60112126	WIRING HUB CPU IEC/UL (24)	1,000	EA	
60112128	WIRING HUB CPU IEC/UL (26)	1,000	EA	
60112129	WIRING HUB CPU IEC/UL (25)	1,000	EA	
60112143	CABLES WING 1 HUB PANEL EVO II	1,000	EA	
60112144	CABLES WING 2 HUB PANEL EVO II	1,000	EA	
60112145	CABLES WING 3 HUB PANEL EVO II	1,000	EA	
60112146	CABLES COMMON HUB PANEL EVO II	1,000	EA	
60112147	EARTH BAR HUB PANEL EVO II	1,000	EA	
60112156	DIN RAIL 7x35x0.135 M	1,000	EA	
60112157	DIN RAIL 35x7x0.39 M	1,000	EA	
60112349	WIRING HUB CPU IEC/UL (27)	1,000	EA	
60112350	WIRING HUB CPU IEC/UL (28)	1,000	EA	
60112351	WIRING HUB CPU IEC/UL (29)	1,000	EA	
60112352	WIRING HUB CPU IEC/UL (30)	1,000	EA	
60112353	WIRING HUB CPU IEC/UL (31)	1,000	EA	
60112354	WIRING HUB CPU IEC/UL (32)	1,000	EA	
60112355	WIRING HUB CPU IEC/UL (33)	1,000	EA	
60112358	WIRING HUB CPU IEC/UL (34)	1,000	EA	
60010699	CONDENSATION PROT DRY BAG 500G	1,000	EA	
60007459	CABLE TIE WHITE 200x2.5mm	4,000	EA	
119161	LABEL AVOID TENSION	1,000	EA	
119162	LABEL TYPE 1 ENCLOSURE	1,000	EA	
146470	FLEX HOSE 15,8MM BLACK	1,920	M	
60002320	STICKER GEN USE VCS	1,000	EA	+AK4

60002580	LABEL	1,000	EA	+AK4
60007586	CABLE GLAND M25 PA6 BM-EN-13	1,000	EA	+AK4
60007594	LOCKNUT M25 PA6 BML-13	1,000	EA	+AK4
60009617	SCREW HFC 9046 M 4 x 16 - 4.8	5,000	EA	+AK4
60009639	SCR HEX SET M8x20 8.8 FZB	4,000	EA	+AK4
60009751	SCREW HFC 208 M 4.8 X 9.5 -FZB	32,000	EA	+AK4
60009802	WASHER M8 140HV FZB	4,000	EA	+AK4
60009877	NUT HEX FLANGE M8 8 FZB	4,000	EA	+AK4
60010159	MOUNTING PLATE 665x690x2mm	1,000	EA	+AK4
60010445	WALL BRA 2508.000 25x10mm	4,000	EA	+AK4
60108981	ENCL AE 1057.600.01 1D W/W	1,000	EA	+AK4
60110224	LABEL " LIGHT IN HUB" 20X45MM	1,000	EA	+AK4
60007481	CABLE RACK TK 5-7	1,000	EA	-B062
60009279	PT100 180-4-2M Ø6x60mm	1,000	EA	-B062
60005136	MCB 5SX2104-7 4.0A C 1P	1,000	EA	-F02
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-F02/-G402
188453	PS ADC 5483R-3 10A-27,4 NM PIN	1,000	EA	-G400
60010158	MOUN PL W/W	1,000	EA	-G400
60009577	SCR CRS PH M3x6 FZB	8,000	EA	-G400-G401
60009580	SCREW ISO 7045 M4X10-FZB-H	12,000	EA	-G400-G401-SIF
188453	PS ADC 5483R-3 10A-27,4 NM PIN	1,000	EA	-G401
60010158	MOUN PL W/W	1,000	EA	-G401
60006942	TRAFO 2x110/24VAC 70VA	1,000	EA	-G402
51701801	SIF HUB COMPUTER CABINET EVOII	1,000	EA	-K01
60001914	CONN BLZ F 2 LEADED	1,000	EA	-K01
60001930	CONN BLZ F 4 LEADED	4,000	EA	-K01
60001937	CONN BLZ F 5 LEADED	3,000	EA	-K01
60001946	CONN BLZ F 6 LEADED	1,000	EA	-K01
60001960	CONN BLZ F 8 LEADED	5,000	EA	-K01
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-K02
60110379	CONT AL 9-30-10 24V DC	1,000	EA	-K02
60110382	VARISTOR 24-60V RV 5/50	1,000	EA	-K02
60110379	CONT AL 9-30-10 24V DC	1,000	EA	-K03
60110382	VARISTOR 24-60V RV 5/50	1,000	EA	-K03
60005827	SELECT SWITCH 1SFA611200R1006	1,000	EA	-S01
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	-S01
60005848	HOLDER for 3 ELEMENTS SK616 01	1,000	EA	-S01
60002503	LABEL "-X01"	1,000	EA	-X01
60006483	CONN MODULE BLIND MALE	1,000	EA	-X01
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X01
60006567	COVER F HOUSING 10P	1,000	EA	-X01
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X01
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X01
60002504	LABEL "-X02"	1,000	EA	-X02
60006483	CONN MODULE BLIND MALE	2,000	EA	-X02
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X02
60006567	COVER F HOUSING 10P	1,000	EA	-X02
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X02
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X02
60002505	LABEL "-X03"	1,000	EA	-X03
60006483	CONN MODULE BLIND MALE	2,000	EA	-X03
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X03
60006567	COVER F HOUSING 10P	1,000	EA	-X03
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X03
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X03
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-X04
60006078	TERMINAL WAGO DOUBLE 870-831 2	1,000	EA	-X04/-F01
60005135	MCB 5SX2103-7 3.0A C 1P	1,000	EA	-X04/-F01
60002507	LABEL "-X05"	1,000	EA	-X05
60006566	HOUSING 42P BULKHEAD	1,000	EA	-X05
60006567	COVER F HOUSING 10P	1,000	EA	-X05
60009599	SCR CRS PH M4x14 4.8 FZB	4,000	EA	-X05
60099102	FRAME F 3 MOD MALE 2+PE	1,000	EA	-X05
60002508	LABEL "-X06"	1,000	EA	-X06
60006078	TERMINAL WAGO DOUBLE 870-831 2	6,000	EA	-X07
60006079	END PLATE 870-948	2,000	EA	-X07
60006087	PUSH-IN JUMPER BAR 870-403	2,000	EA	-X07
60091902	END STOP WAGO 249-116 6MM TS35	2,000	EA	-X07
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X07;-X04
60006071	TERMINAL WAGO 870-501 2-LEV.0,	3,000	EA	-X08
60006083	END SECTION 870-518 2-LEVEL GR	1,000	EA	-X08
60091902	END STOP WAGO 249-116 6MM TS35	1,000	EA	-X08
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X08
60006078	TERMINAL WAGO DOUBLE 870-831 2	12,000	EA	-X09
60006079	END PLATE 870-948	1,000	EA	-X09

60006086	PUSH-IN JUMPER BAR 870-402 2-P	6,000	EA	-X09
60091902	END STOP WAGO 249-116 6MM TS35	2,000	EA	-X09
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X09
60006079	END PLATE 870-948	1,000	EA	-X10
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X10
60006078	TERMINAL WAGO DOUBLE 870-831 2	3,000	EA	-X11
60006079	END PLATE 870-948	1,000	EA	-X11
60091902	END STOP WAGO 249-116 6MM TS35	2,000	EA	-X11
60091915	END STOP LABEL HOLDER WAGO 249	1,000	EA	-X11
60007196	DIN RAIL FTG TSTW 72x48MM	3,000	EA	DIN 2
60007197	SCREW FKSC M6x12MM	3,000	EA	DIN 2
60112149	CABLE CONDUIT COVER 25x0.100 M	2,000	EA	Pos 1-2
60112158	CABLE CONDUIT 25x40MM 0.09 M	2,000	EA	Pos 1-2
60112150	CABLE CONDUIT COVER 25x0.44 M	1,000	EA	Pos 3
60112159	CABLE CONDUIT 25x40MM 0.435 M	1,000	EA	Pos 3
60112151	CABLE CONDUIT COVER 25x0.115 M	1,000	EA	Pos 4
60112160	CABLE CONDUIT 25x40MM 0.115 M	1,000	EA	Pos 4
60112152	CABLE CONDUIT COVER 25x0.615 M	1,000	EA	Pos 5
60112161	CABLE CONDUIT 25x40MM 0.61 M	1,000	EA	Pos 5
60112153	CABLE CONDUIT COVER 40x0.29 M	1,000	EA	Pos 6
60112162	CABLE CONDUIT 40x60MM 0.29 M	1,000	EA	Pos 6
60110350/200	CABLE CONDUIT 40x60MM 0.475M	1,000	EA	Pos 7
60112154	CABLE CONDUIT COVER 40x0.48 M	2,000	EA	Pos 7-8
60112163	CABLE CONDUIT 40x60MM 0.475 M	1,000	EA	Pos 8
60112155	CABLE CONDUIT COVER 40x0.405 M	1,000	EA	Pos 9
60112164	CABLE CONDUIT 40x60MM 0.435 M	1,000	EA	Pos 9

Material Description	Object description	Quantity	Un	SortString
Lev	Obj			
1	60021519	Cable W900 Filter Clog -B406	1	PC
1	60021523	Cable W919 -T465 HUB Pressure	1	PC
1	60021524	Cable W920 -T290_1 Pressure transducer W	1	PC
1	60021525	Cable W921 -T290_2 Pressure transducer W	1	PC
1	60021526	Cable W922 -T290_3 Pressure transducer W	1	PC
1	60021530	Cable W926	1	PC
1	60021533	Cable W930 -B470 Hydraulic olie	1	PC
1	60021534	Cable -W940 Parking valve Y210.0_1	1	PC
1	60021535	Cable -W941 Shot down Valve -Y215.0_1	1	PC
1	60021536	Cable -W944 Parking valve -Y210.0_2	1	PC
1	60021537	Cable -W945 Shot down Valve -Y215.0_2	1	PC
1	60021538	Cable -W948 Parking valve -Y210.0_3	1	PC
1	60021539	Cable -W949 Shot down Valve -Y215.0_3	1	PC
1	60021541	Cable W952 Idle Valve -Y445.0	1	PC
1	60021542	Cable W953 Lubrication Pump M11	1	PC
1	60021543	Cable W954 Flushing Valve Y440.0	1	PC
1	60021544	Cable -W956 Pro. valve -Y205.0_1 wing 1	1	PC
1	60021545	Cable -W957 Pro. valve -Y205.0_2 wing 2	1	PC
1	60021546	Cable -W958 Pro. Valve -Y205.0_3 wing 3	1	PC
1	60101018	Cable W923 _T261_1 Pos. transducer 1 Std	1	PC
1	60101148	Cable W924 -T261_2 Pos. Transducer 2 Std	1	PC
1	60101149	Cable W925 -T261_3 Pos. Transducer 3 Std	1	PC
1	60110062	CABLE -W960 NM30T. MRK III 4G1.5 UNI	1	PC

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1/1

LST: 2000055

Version: 02

Material 60019750
Description MEASURING KIT f.HUB CPU NM72 EVO-II

Obj	Object description	Quantity	Un SortStrng
60004912	ISOLATION AMPLIFIER 2284	3	PC
60005026	SOCKET MT 78740 11-POLED	3	PC
60005027	FASTENING BRACKET for S-SYSTEM	3	PC
60006034	END STOP 9708/2 S35	1	PC
60006071	TERMINAL WAGO 870-501 2-LEV.0,08-2,5mm ²	3	PC -X10
60006083	END SECTION 870-518 2-LEVEL GREY	1	PC -X10
60006034	END STOP 9708/2 S35	1	PC -X10
60012756	WIRING HUB CPU NM72-82/1500 IEC/UL	1	PC
60021527	Cable W923 _T261_1 Position transducer 1	1	PC
60021528	Cable W924 _T261_2 Position Transducer 2	1	PC
60021529	Cable W925 _T261_3 Position transducer 3	1	PC

Change Info

Item no.	Item text:
60112243	Hub Hatch Override Pendant 30t

Active revision for production

Drawing no.: 6010129

Version	Date	Init./App.	Description of change since last revision
07	22.03.2007	INI/FLT	Changed with ECO 222950 and SAP ECM 500000006852. Page 040: Cable number for NM2000 corrected to W504.

LST no.: 21000219

Version	Date	Init./App.	BOM no.: 60112243	Description of change since last revision
06	03.04.2007	HHU+INI/FLT		Changed with ECO 222950 + 223433_Updated for production in Spain. Added: 60110725 wiring120mm X-line 1,5mm ² reed_3 pcs. Removed: 60025271_Locklite 243 nut lock, is still used but not 2 cans, just a touch from a can.

Old revisions for service

Drawing no.: 6010129

Version	Date	Init./App.	Description of change since last revision
06	20.09.2006	INI/FLT	Changed with ECO 216938. Text in bottom/cover inside were mirror written. Page 030: Numbers and capital letters in the bottom/cover inside layout are been corrected
05	10.03.2006	INI/FLT	Reason for changes, Push button box 60010964 is left out from ABB assortment, replaced with 769055 Page 001 Updated Page 030: Layout updated with the new box.
04	06.01.2006	INI/FLT	Reason for change, layout of cover inside corrected. Page 030: Holder removed from S2, layout cover inside.
03	22.11.2005	INI/FLT	Reason for changes, ABB have changed series of push-button and revision 02 was not entirely correct. Page 001_Index, updated Page 030_Layout, cover inside, terminal S1.11/S1.12 corrected to S1.21/S1.22 and terminal S2.13 /S2.14 removed. Layout of bottom with terminal S2.23/S2.24 added. Page 040_Internal Connection, terminal S2.13/S2.14 corrected to S2.23/S2.24.
02	29.09.2005	INI/FLT	Reason for changes, new pushbutton series from ABB. Page 001: New index Page 030: Layout corrected with new 60005849_SAFETY HOLDER and illustrated that terminals are placed inside the cover. PG21 changed to PG13.5 Page 040: New page with updated internal connections.
01	14.05.2003	FLT/FLT	First version in SAP no. system.

LST no.: 21000219

Version	Date	Init./App.	BOM no.: 60112243	Description of change since last revision
05	20.09.2006	INI/FLT		Changed with ECO 216938. Following item are been added: 2x60009587_SCREW ISO 7046 M 4 x 10 - 4.8 - FZB - Z 2x60025271_LOCTITE 243 NUT LOCK 4x60009600_SCREW ISO 7045 M 4 x 16 - 4.8 - FZB - Z 4x60009838_LOCK WASHER DIN 6798 A 4 - FZB
04	02.03.2006	INI/FLT		Reason for changes, Push button box 60010964 is left out from ABB assortment, replaced with 769055 60010964 changed to 769055_Push Bottom Box 4 holes 60005874 + 60005876 changed to 118928_Sign 60007541 changed to 193712_Cable gland FM20GPA polyamid. 60007557 changed to 193722_Locknut MM20GPA polyamid. 60112246 changed to 185029_Lamp blockMLB-1B 60112248 changed to 185030_Push bottom blue MP1-10L 60007458x3 pc. Cable tie 140x2.5mm WH added. 60005881x2 pc. 60007656x1 pc. 60112245x2 pc. removed
03	06.01.2006	INI/FLT		Reason for change, version 02 was printed in a wrong view, so that phased out items were shown.
02	23.11.2005	INI/FLT		Reason for changes, ABB have changed series of push-button and revision 02 was not entirely correct. Replaced item, 60005844_CONTACT ELEMENT SK616 001-A 1NO with 60005845_CONTACT ELEMENT SK616 002-A 1NO DIN-RAIL Removed item 60112245 _HO 3 ELEMEN 1SF611605R1100

01	03.10.2005	INI/FLT	Reason for changes, new pushbutton series from ABB. 60005826 changed to 60112248_PB 1SFA616162R1015 RESET W "R" 60005848 changed to 60112245_HO 3 ELEMEN 1SFA611605R1100 60005842 changed to 60112244_PIL 1SFA 611 400 R1008 CLEAR 60005850 changed to 60112246_LAMP BLOCK 1SFA611620R1001 Added 60005881_INSERT for PUSH BUTTON 36122100.
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Earlier BOM no Longer Active for Serial Production

LST no.: 21000166		BOM no.: 60104917	
Version	Date	Init./App.	Description of change since last revision
04	13.06.2005	MILJE/MILJE	Production required changes.
03	29.03.2005	MILJE/MILJE	Production required change 2x60009987_ MAGNET A43A-KSM4 43mm added.
02	13.12.2004	MILJE/MILJE	1x60073080_ Bracket for control box +AN2 added 60108271 CABLE for OVERRIDE PENDANT added Following items is removed from BOM 60006456 HOUSING, 09300061541 6P+PE ANGLE PG16 1PC 60007543 CABLE GLAND BS15 PG16 NYLON 1PC 60006448 ADAPTER 09330062601 MALE 6P+PE SCREW 1PC 60008948 CABLE 8G0.75mm ² Y-JZ IEC 8,0 M
01	30.06.2004	CHO/CHO	First version

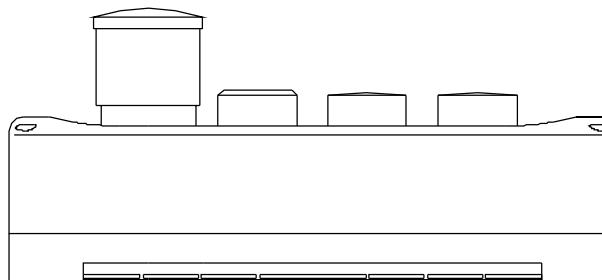


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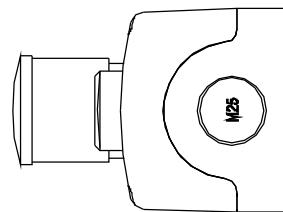
	Date	Initials	Function	Table of Contents						
Designed	010924	FLT	Project title	Hub Hatch Override Pendant						
Approved	070322	FLT	Comments				Customer	Vestas Wind Systems A/S		
Revised	070322	INI	Rev.	07	Drawing no.	6010129	Cont. sheet	030	Sheet	001

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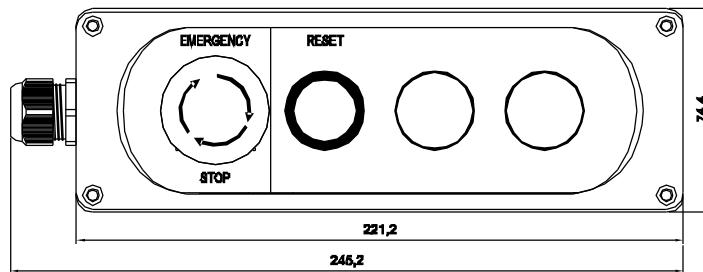
BOX SIDE



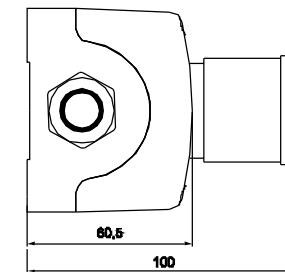
BOX RIGHT END



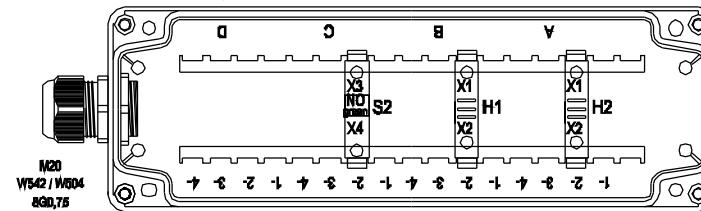
BOX FRONT



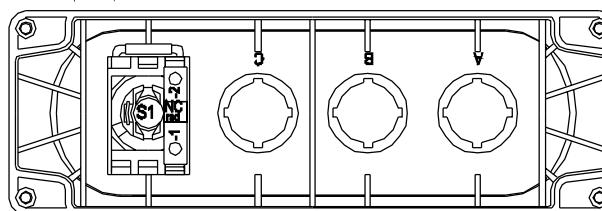
BOX LEFT END



BOX BOTTOM INSIDE

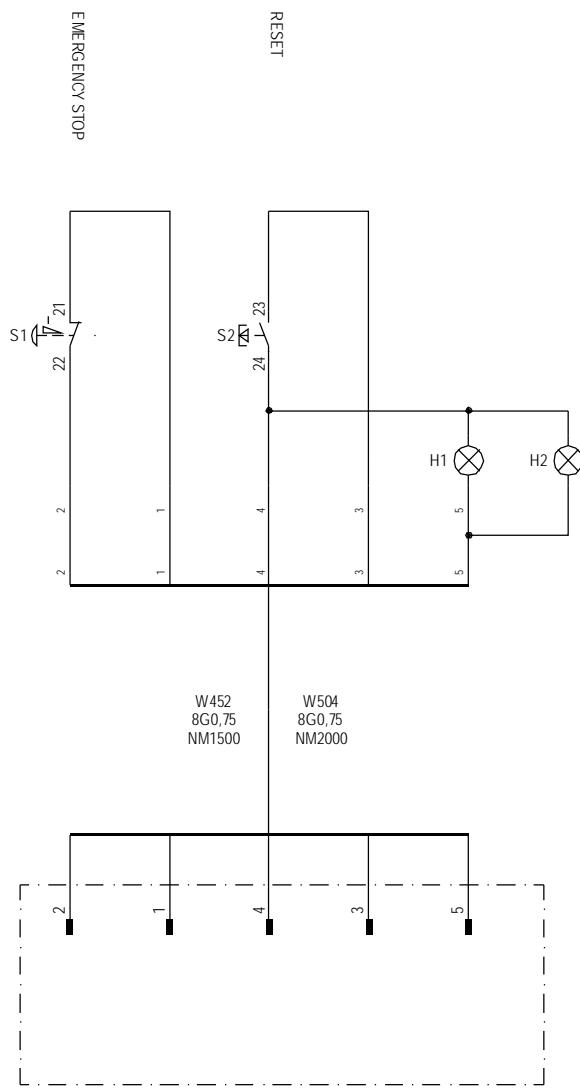


BOX COVER INSIDE



	Date	Initials	Function	Layout	
Designed	010924	FLT	Project title	Hub Hatch Override Pendant	
Approved	060920	FLT	Comments		Customer Vestas Wind Systems A/S
Revised	060920	INI	Rev.	-	Drawing no. 6010129 Cont. sheet 040 Sheet 030

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60112243 HUB HATCH OVERRIDE PENDANT 30t

Component	Description	Qty per	Stk UM	Position Number
D6010129	HUB HATCH OVERRIDE PENDANT	0,000	EA	
60108271	CABLE F OVERRIDE PENDANT	1,000	EA	
60009987	MAGNET A43A-KSM4 43MM	2,000	EA	
60073080	BRA F CONTROL BOX AN2	1,000	EA	
193712	CABLE GLAND FM20GPA POLYAMID	1,000	EA	
193722	LOCKNUT MM20GPA POLYAMID	1,000	EA	
118927	SIGN, HUB HATCH OVERR. PENDANT	1,000	EA	
769055	PUSH BOTTON BOX W. 4 HOLES	1,000	EA	
60007458	CABLE TIE 140x2.5mm WH	3,000	EA	
60009587	SCR CRS UH M4x10 4.8 FZB	2,000	EA	
60009600	SCREW ISO 7045 M 4 X 16 - 4.8	4,000	EA	
60009838	LOCK WASHER DIN 6798 A4 - FZB	4,000	EA	
60110725	WIRING 120MM X-LINE 1,5MM2	3,000	EA	
60112244	PIL 1SFA 611 400 R1008 CLEAR	1,000	EA	H1
60005886	BULB BA9S 24V	2,000	EA	H1+H2
185029	LAMP BLOCK MLB-1B	2,000	EA	H1, H2
60112244	PIL 1SFA 611 400 R1008 CLEAR	1,000	EA	H2
60005824	MUSHROOM BUTTON ISAF616510R100	1,000	EA	S1
60005846	CONTACT ELEMENT SK616 001-B 1N	1,000	EA	S1
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S1
60005845	CE SK616 002-A 1NO DIN RAIL	1,000	EA	S2
185030	PUSH-BOTTON BLUE MP1-10L	1,000	EA	S2

Change Info

Item no.	Item text:
60019483	Control Pendant

Active revision for production

Drawing no.: 6010130

Version	Date	Init./App.
03	03.05.2005	INI/FLT

Description of change since last revision

All pages updated with Vestas logo and to another no system

LST number: 21000005

Version	Date	Init./App.
06	11.05.2007	MOJDA/FLT

Material BOM no.: 60015995

Description of change since last revision

Changed with ECO 224800_Updated for production in Spain.

60005848 replaced by 60005849 HO 3 ELEMEN 1SFA616605R1100 1 pc. Pos. S1
60005848 replaced by 60005849 HO 3 ELEMEN 1SFA616605R1100 1 pc. Pos. S2
60005848 replaced by 60005849 HO 3 ELEMEN 1SFA616605R1100 1 pc. Pos. S4
60005848 replaced by 60005849 HO 3 ELEMEN 1SFA616605R1100 1 pc. Pos. S5
60005848 replaced by 60005849 HO 3 ELEMEN 1SFA616605R1100 1 pc. Pos. S6
60005848 replaced by 60005849 HO 3 ELEMEN 1SFA616605R1100 1 pc. Pos. S7
Item 60009587 SCREW ISO 7046 M 4 x 10 - 4.8_8 pc. added.

Old revisions for service

Drawing no.: 6010130

Version	Date	Init./App.
02	02.05.2005	FLT/FLT
01	14.05.2003	FLT/FLT

Description of change since last revision

Page 2: Test W529 removed.

First version in SAP no. system.

LST number: 21000005

Version	Date	Init./App.
05	13.06.2005	MILJE/
04	13.12.2004	MILJE/MILJE

Material BOM no.: 60015995

Description of change since last revision

Production requirement serial production,

Following items is removed

60008997 CABLE 18G1.5mm² Y-JZ IEC 2,5M
60006565 HOUSING C14610G0106008 3-mod. TOP ENTR 1PC
60098976 FRAME f. 3 MOD. C146 S10 00 2G8 FEM.2+PE 1PC
60099095 ADAPTER f.STAMP. C146 C10 001 G8FEM. 10P 2PC
60006484 MODULE BLIND C146B00001E8 FEMALE 1PC
60093531 CRIMP CONT. TN020160002 FEM. 0.5-1.5mm² 12PC
60007604 CABLE GLAND BSBC-06 PG21 BRASS 1PC
60006336 INSUL. END TERMINAL 18/0.75mm² 8mm CHAIN 19PC
60006476 substituted by 60098976 and 60006496 substituted by 60099095.
Item no 60006510 changed to 60093531
First version in the new SAP no. system.

Earlier Drawings and Part Lists no Longer Active for Serial Production

Change Info: 0000243

5-05

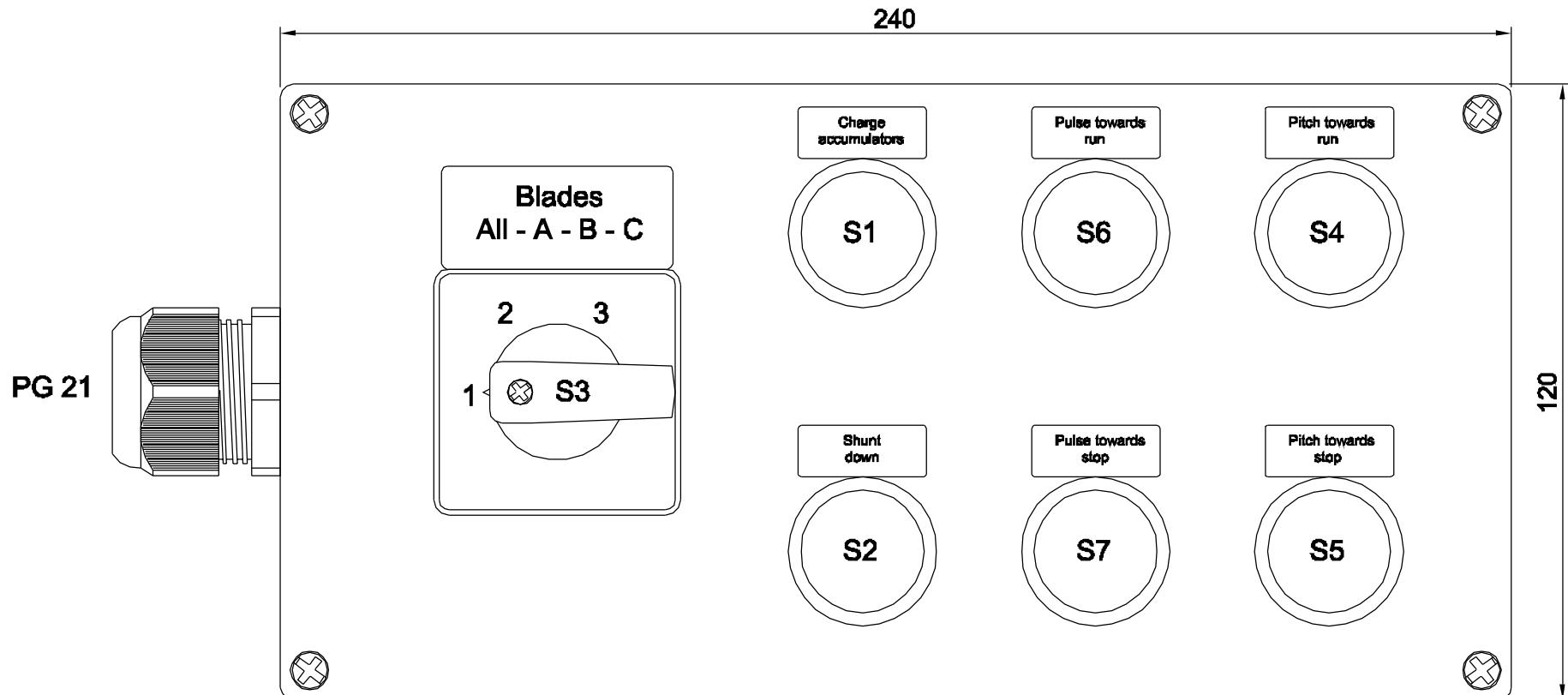
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	<i>Date</i>	<i>Initials</i>	<i>Function</i>	Table of Contents						
<i>Designed</i>	000411	MSL	<i>Project title</i>	Control Pendant						
<i>Approved</i>	050504	FLT	<i>Comments</i>							
<i>Revised</i>	050503	INI	Rev.	03	<i>Drawing no.</i>	6010130	<i>Cont. sheet</i>	030	<i>Sheet</i>	001

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Dim.: 240x120x100mm

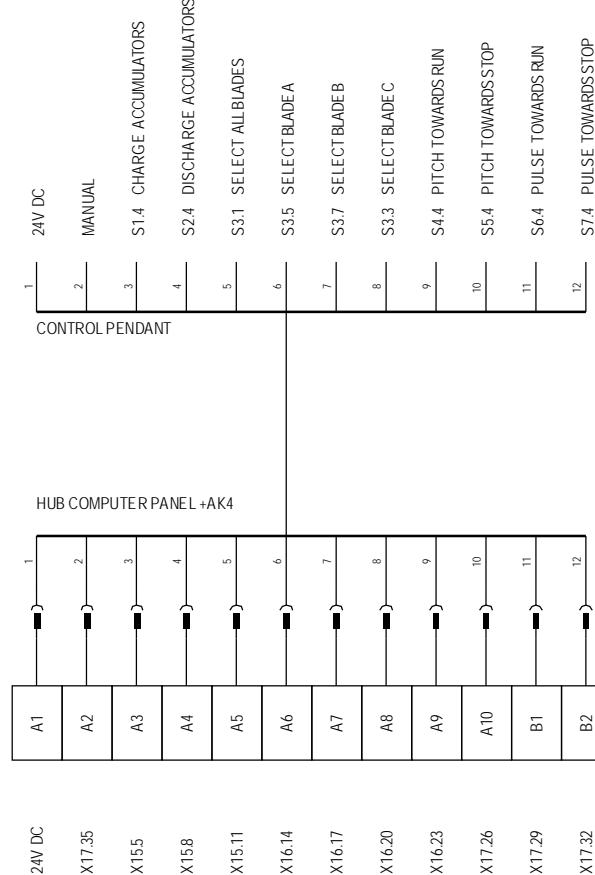
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Vestas

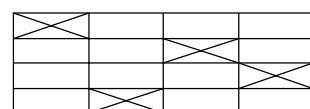
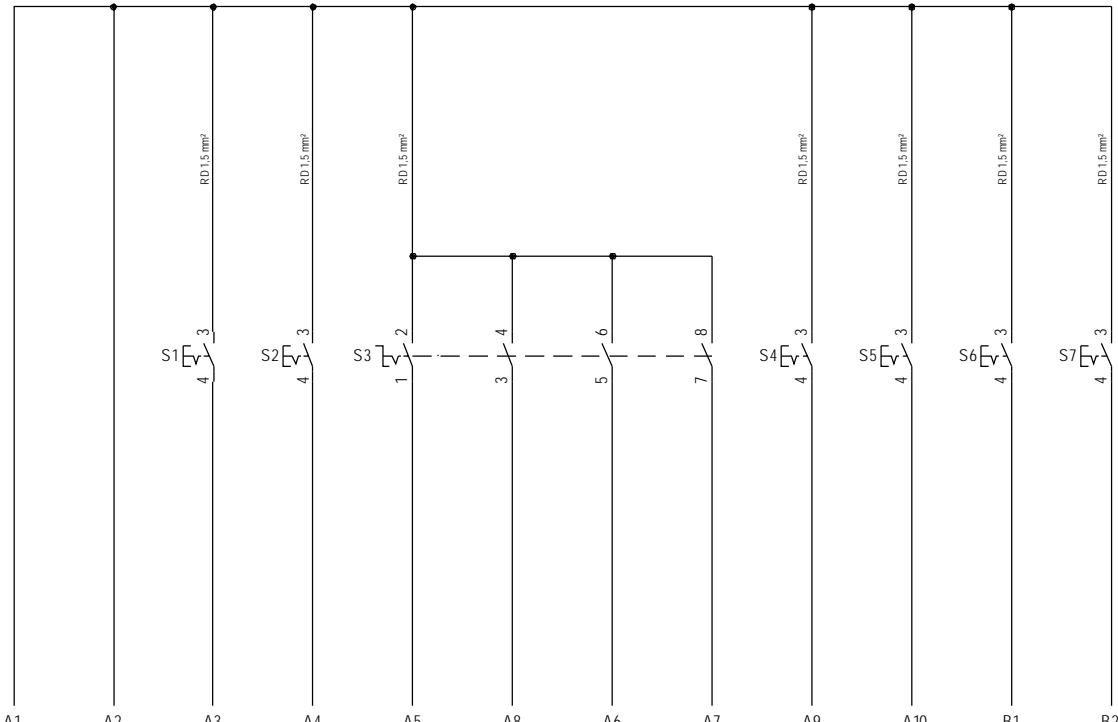
Property of Vestas
Wind Systems A/S.
This drawing must not
be passed on to any
person, nor be copied
or otherwise made use
of without our approval.

	Date	Initials	Function	Box Front		
Designed	000411	MSL	Project title	Control Pendant		
Approved	050504	FLT	Comments			
Revised	050503	INI	Rev.	Drawing no.	6010130	Customer Vestas Wind Systems A/S
			-	Cont. sheet	040	Sheet 030

1	2	3	4	5	6	7	8	9	10	11	12	13	
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1	2	3	4	5	6	7	8	9	10	11	12	13	
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60015995 CONTROL PENDANT NM72 HUB

Component	Description	Qty per	Stk UM	Position Number
D6010130	CONTROL PENDANT	0,000	EA	
60011008	BOX TS242 240x120x100mm	1,000	EA	
60002455	LABEL "PULS TOWARDS STOP"	1,000	EA	
60002457	LABEL "PITCH TOWARDS RUN"	1,000	EA	
60002459	LABEL "PULSE TOWARDS RUN"	1,000	EA	
60002461	LABEL "PITCH TOWARDS STOP"	1,000	EA	
60002463	LABEL "CHARGE ACCUMULATORS"	1,000	EA	
60002465	LABEL "SHUT DOWN"	1,000	EA	
60002467	LABEL "BLADES ALL A-B-C"	1,000	EA	
60009987	MAGNET A43A-KSM4 43MM	4,000	EA	
60009587	SCR CRS UH M4x10 4.8 FZB	8,000	EA	
D22000013	CI-CONTROL PENDANT	0,000	EA	
D21000005	60015995 BOM CONTROL PENDANT	0,000	EA	
60111290	LABEL TYPE SIGN CTRL PENDANT	1,000	EA	
60110725	WIRING 120MM X-LINE 1,5MM2	6,000	EA	
60072439	BRA F CTRL BOX-HUB NM1500C/72	1,000	EA	
60007557	LOCKNUT PG21 PA6 BLN16	1,000	EA	
60007545	CABLE GLAND PG21 NYLON BS16	1,000	EA	
60005803	PB 1SFA 616 100 R1006 BLACK	1,000	EA	S1
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S1
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S1
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S2
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S2
60005803	PB 1SFA 616 100 R1006 BLACK	1,000	EA	S2
60005862	TS 5318136328 4-POSITIONS	1,000	EA	S3
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S4
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S4
60005803	PB 1SFA 616 100 R1006 BLACK	1,000	EA	S4
60005803	PB 1SFA 616 100 R1006 BLACK	1,000	EA	S5
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S5
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S5
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S6
60005803	PB 1SFA 616 100 R1006 BLACK	1,000	EA	S6
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S6
60005844	CONTACT ELEMENT SK616 001-A 1N	1,000	EA	S7
60005849	HO 3 ELEMEN 1SFA616605R1100	1,000	EA	S7
60005803	PB 1SFA 616 100 R1006 BLACK	1,000	EA	S7

Change Info

<i>Item no.</i>	<i>Item text:</i>
None	Table of Tightening Torques of Electrical Components in Panels

Active revision for production

WKI number: 1000827

Revision	Date	Init./App.	Description of change since last revision
04	19.04.2006	KEGHA/SLB	Updated with new items.

LST no.: None

Revision	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx	Write the change

Old revisions for service

WKI number: 1000827

Revision	Date	Init./App.	Description of change since last revision
03	11.08.2005	INI/SLB	Torque in Lb.ft. added.
02	28.07.2004	RPJ/RPJ	Item numbers changed from XAL to SAP numbers. Entrellec terminals added.
01	21.08.2002	RPJ /RPJ	First version in the new SAP no. system.

LST no.: xxxxxxxx

Revision	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx	Write the change

Earlier Drawings and Part Lists no Longer Active for Serial Production

Change Info: 4002134

Date: 19.05.2006

Doc. Type: WKI

Doc. No.: 1000827

Version: 04

Approver: SLB

Creator: RPJ / Rev.: KEGHA

Tightening Torque

Component	Standard bolt / nut	Torque			Tools	Vestas item no.	Supplier item no.
		Interval		Prefered			
		min	max				
	[mm]	[mm]	[Nm]	[Lb.ft.]	[mm]		
Standard Bolts							
Standard bolt and nut	3 mm		0,128	0,09			
Standard bolt and nut	4 mm		0,290	0,21			
Standard bolt and nut	5 mm		0,575	0,42	8		
Standard bolt and nut	6 mm		9,9	7,30	10	60009622-9729	Steel 8,8
Standard bolt and nut	8 mm		24	17,70	12 / 13	60009622-9729	Steel 8,8
Standard bolt and nut	10 mm		48	35,40	16 / 17	60009622-9729	Steel 8,8
Standard bolt and nut	12 mm		70	51,63	18 / 19	60009622-9729	Steel 8,8
Standard bolt and nut	14 mm		75	55,32	22	60009622-9729	Steel 8,8
Standard bolt and nut	16 mm		90	66,38	24	60009622-9729	Steel 8,8
Standard bolt and nut							
CAPACITORS							
Capacitor 6,8kVAr 3x960V Vishay			2	1,48		60000920	50511/ PhMKP960.2.06.8
Capacitor 9,6kVAr 3x960V Vishay			2	1,48		60000921	50510/ PhMKP960.2.09.6
Capacitor 27,2kVAr 3x960V Vishay			10	7,38		60000934	50509/ PhMKDg 960.2.27.22
DIODES							
Diode STPS12045TV 2x60A 45V	4mm	1,5	1,3	0,96		60000972	567-449
Circuit Breakers							
ABB Circuit Breaker E2N	12 mm		70	51,63	18 / 19	60005748	25900314
Fixing on mounting plate	10 mm		48	35,40	16 / 17		
ABB Circuit Breaker S6H800 PR212 complete						60005675	25700308
- Relay screws to breaker			9	6,64			
- Relay screws to busbars			30	22,13			
-Cable terminal to breaker			9	6,64			
-Cable terminal to cable 70-185			43	31,72			
ABB Circuit Breaker S4H	8 mm		9	6,64		60005660	25700245
Fixing on mounting plate			2	1,48			
Siemens Circuit Breakers S00		0,8	1,2	1	0,74	PZ2	60004779-4790
Siemens Circuit Breakers S0		2	2,5	2,3	1,70	PZ2	60004779-4790
Siemens Circuit Breakers S2		3	4,5	3,8	2,80	PZ2	60004779-4790
Siemens Circuit Breakers S3		4	6	5	3,69	Hexagon	60004779-4790
Siemens Transverse Auxiliary Switch 1NO + 1NC f. S00, S0, S2, S3		0,8	1,2	1	0,74	PZ2	60004778
Siemens Transverse Auxiliary Switch 1changeover contact f. S00, S0, S2, S3		0,8	1,2	1	0,74	PZ2	60004777
Siemens Lateran Auxiliary Switch 1NO + 1NC f. S00, S0, S2, S3		0,8	1,2	1	0,74	PZ2	60004779
Siemens Lateral Auxiliary Switch 2NO f. S00, S0, S2, S3		0,8	1,2	1	0,74	PZ2	60004780
Siemens Lateral Auxiliary Switch 2NC f. S00, S0, S2, S3		0,8	1,2	1	0,74	PZ2	60004781
Miniature Circuit Breakers							

Date: 19.05.2006	Doc. Type: WKI	Doc. No.: 1000827	Version: 04	Approver: SLB	Creator: RPJ / Rev.: KEGHA	
Tightening Torque						
Component	Standard bolt / nut	Torque		Tools	Vestas item no.	Supplier item no.
		Interval	Prefered			
		min	max			
		[mm]	[Nm]	[Lb.ft.]	[mm]	
Type ABB S230 6-40A 1-3 Pol			2	1,48		
Type ABB S260 0,5-63A 1-4 Pol			2	1,48		
Type ABB S270 0,5-63A 1-4 Pol			2	1,48		
Type ABB S280 0,2-63A 1-4 Pol			2	1,48		
Type ABB S290 80,100,125A 1-4 Pol			4,5	3,32		
Type ABB S200 0,5-63A 1-4 Pol			2,8	2,07		
Siemens MCB 5SX2.., 5SX4.., 5SX5.. 5SX7...0,5-63A	Top terminal	2,5	2	1,48	PZ2	60005131-5193
Siemens MCB 5SX2.., 5SX4.., 5SX5.. 5SX7...0,5-63A	Bottom terminal	3	2	1,48	PZ2	60005131-5193
Siemens MCB 63A 4pol C 5SP4463-7		3	3,5	3,2	2,36	60005192
Siemens MCB 16A 4pol C 5SY6616-7		2,5	3	2,7	1,99	60005191
Siemens Auxiliary Contact 1NO + 1NC f. 5SX2/4/5			0,5	0,37	PZ2	60005193
Siemens Circuit Breaker Auxiliary Contact 1NO + 1NC			0,5	0,37	PZ2	??
Miniature Circuit Breakers with residual current release						
Siemens Residual Current Circuit Breakers 6A C 2 pol 0,03A		2,5	3	2,8	2,07	PZ2
Siemens Residual Current Circuit Breakers 10A C 2 pol 0,03A		2,5	3	2,8	2,07	PZ2
Siemens Residual Current Circuit Breakers 13A C 2 pol 0,03A		2,5	3	2,8	2,07	PZ2
Siemens Residual Current Circuit Breakers 16A C 2 pol 0,03A		2,5	3	2,8	2,07	PZ2
Residual Current Circuit Breakers						
Siemens Residual Current Circuit Breakers 16A 2 pol 30mA		2,5	3	2,8	2,07	PZ2
Siemens Residual Current Circuit Breakers 25A 2 pol 30mA		2,5	3	2,8	2,07	PZ2
Siemens Residual Current Circuit Breakers 25A 4 pol 30mA		2,5	3	2,8	2,07	PZ2
Siemens Residual Current Circuit Breakers 40A 4 pol 30mA		2,5	3	2,8	2,07	PZ2
Siemens Residual Current Circuit Breakers 63A 4 pol 30mA		2,5	3	2,8	2,07	PZ2
ABB Residual Current Circuit Breakers 25A 2 pol 30mA F202A-25/0,03				2,8	PZ2	185082
Siemens Residual Current Module 0,03A for MCB		2,5	3	2,8	2,07	PZ2
Siemens Auxiliary Contact 1NO + 1NC 5SX9 260				0,5	0,37	PZ2
Siemens Auxiliary Contact 1NO + 1NC 5SW3000		0,6	0,8	0,7	0,52	PZ2
Load break switches and Fuse material						
ABB Fuse Switch OESA250 D3-52 NH1		10 mm		22	16,23	16 / 17
ABB Aux contact 1no/1nc f. OESA_PL 200-800A				0,8	0,59	60005641
ABB Fuse Switch OS 125 D04 N2 125A		8 mm		8	5,90	12 / 13
						340020070

Date: 19.05.2006	Doc. Type: WKI	Doc. No.: 1000827	Version: 04	Approver: SLB	Creator: RPJ / Rev.: KEGHA	
Tightening Torque						
Component	Standard bolt / nut	Torque		Tools	Vestas item no.	Supplier item no.
		Interval	Preferred			
		min	max			
	[mm]	[Nm]	[Lb.ft.]	[mm]		
ABB Load break switch OT16E			0,8	0,59		
ABB Load break switch OT25E			0,8	0,59	60005768	OT25ET3
ABB Load break switch OT32E			0,8	0,59	184922	
ABB Load break switch OT45E			2	1,48		
ABB Load break switch OT45M			2	1,48	60005605	OT45 M4
ABB Load break switch OT63E			2	1,48	60005772	OT63ET4
ABB Load break switch OT80E			2,5	1,84		
ABB Load break switch OT100E			6	4,43		
ABB Load break switch OT125E			6	4,43	60005606	OT125ET3
ABB Load break switch OT160E			6	4,43	60005607	OT160ET4
ABB aux. Switch for OT16 - 125			0,8	0,59	60005625	0A1 GA10 1
ABB aux. Switch for OT125 - 160			0,8	0,59	60005627	OBEA 10
ABB Load Switch OETL400 D1	10 mm		17	12,54	16 / 17	60005609
ABB change over switch 3p 16A OT16E3C			0,8	0,59	184819	OT16E3C
ABB Fuse holder baseline NH00	30	44	44	32,45		60005062
WOHNER Fuse Switch for Mounting on Busbar NH00 3pol	8 mm	12	14	13	9,59	12 / 13
Ferraz Fuse holder 3P600V UL F6R			13,5	13,5	9,96	
Contactors and relays						
ABB Contactor EH1200 Contactor	10 mm		48	35,40	16 / 17	
ABB Contactor EH1200 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH1200 Earth Connection	10 mm		18	13,28	Hexagon	
ABB Contactor EH1200 Fixing on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH800 Contactor	10 mm		48	35,40	16 / 17	
ABB Contactor EH800 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH800 Earth Connection	10 mm		18	13,28	Hexagon	
ABB Contactor EH800 Fixing on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH700 Contactor	10 mm		48	35,40	16 / 17	
ABB Contactor EH700 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH700 Earth Connection	10 mm		18	13,28	Hexagon	
ABB Contactor EH700 Fixing on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH550 Contactor	10 mm		48	35,40	16 / 17	
ABB Contactor EH550 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH550 Earth Connection	10 mm		18	13,28	Hexagon	
ABB Contactor EH550 Fixing on Mounting plate	6 mm		3	2,21	PZ2	

Date: 19.05.2006	Doc. Type: WKI	Doc. No.: 1000827	Version: 04	Approver: SLB	Creator: RPJ / Rev.: KEGHA	
Tightening Torque						
Component	Standard bolt / nut	Torque		Tools	Vestas item no.	Supplier item no.
		Interval	Prefered			
		min	max			
	[mm]	[Nm]	[Lb.ft.]	[mm]		
ABB Contactor EH370 Contactor	10 mm		48	35,40	16 / 17	364 56 850
ABB Contactor EH370 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH370 Earth Connection	10 mm		18	13,28	Hexagon Socket	
ABB Contactor EH370 Fixing on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH300 Contactor	10 mm		48	35,40	16 / 17	364 56 655
ABB Contactor EH300 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH300 Fix on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH260 Contactor	10 mm		48	35,40	16 / 17	364 55 265
ABB Contactor EH260 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH260 Fix on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH210 Contactor	10 mm		48	35,40	16 / 17	364 54 655
ABB Contactor EH210 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH210 Fix on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH160 Contactor	10 mm		48	35,40	16 / 17	364 52 810
ABB Contactor EH160 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH160 Fix on Mounting plate	6 mm		3	2,21	PZ2	
ABB Contactor EH145 Contactor	6 mm		9,9	7,30	10	EH 145 AR 400-415/60
ABB Contactor EH145 Coil	3,5 mm	0,8	1,2	1	0,74	PZ2
ABB Contactor EH145 Fix on Mounting plate	5 mm		3	2,21	PZ2	
ABB Contactor A9-30-10-80	3,5 mm	1,2	1		093332	
ABB aux contact for EH			1,2	1	0,74	60004318 CAL16-11A
ABB contactor UA75 contactor			6,5	6	4,43	60004349 UA75-30-00-R
ABB aux contact for A9-A110			1,2	1	0,74	60004362 CA5-10
Siemens Contactor S00 Coil	3 mm	0,8	1,2	1	0,74	3RT1X 1X
Siemens Contactor S00 Contactor	3 mm	0,8	1,2	1	0,74	3RT1X 1X
Siemens Contactor S0 Coil	3 mm	0,8	1,2	1	0,74	3RT10 2X
Siemens Contactor S0 Contactor	4 mm	2	2,5	2,3	1,70	PZ2
Siemens Contactor S2 Coil	3 mm	0,8	1,2	1	0,74	3RT10 3X
Siemens Contactor S2 Contactor	6 mm	3	4,5	3,8	2,80	PZ2
Siemens Contactor S3 Coil	3 mm	0,8	1,2	1	0,74	3RT10 4X
Siemens contactor S3 Contactor	6 mm	4	6	5	3,69	Hexagon

Date: 19.05.2006	Doc. Type: WKI	Doc. No.: 1000827	Version: 04	Approver: SLB	Creator: RPJ / Rev.: KEGHA					
Tightening Torque										
Component	Standard bolt / nut	Torque			Tools	Vestas item no.	Supplier item no.			
		Interval	Prefered							
		min	max							
	[mm]	[Nm]		[Lb.ft.]	[mm]					
Siemens Aux. Contact for contactors 3RH1921-1CA01		0,8	1,2	1	0,74	60004443	3RH1921-1CA01			
Siemens Aux. Contact for contactors 3RH1921-1FA22		0,8	1,2	1	0,74	60004444	3RH1921-1FA22			
Siemens Emergency-stop Relay 3TK2806-0BB4	3,5 mm	0,8	1,2	1	0,74	60004996	3TK2806-OBB4			
Schrack Relay socket 2POL 10A RT78625				0,8	0,59	60004517	RT78625			
Lightning protection										
Dehnguard 600			3	2,21	PZ2	188521	900 627			
Dehnguard 600FM			3	2,21	PZ2	60000674				
Dehnguard 600FM Auxiliary contact		0,5	0,8	0,7	0,52					
Dehnguardr 440FM			3	2,21	PZ2	60000673	900 627			
Dehnguard 440FM Auxiliary contact		0,5	0,8	0,7	0,52					
Dehnguard 320			3	2,21	PZ2	195052				
Dehnguard 275FM			3	2,21	PZ2	60000672	900 620			
Dehnguard 275FM Auxiliary contact		0,5	0,8	0,7	0,52					
Dehnguard 150			3	2,21	PZ2	188488				
Dehnguard 75			3	2,21	PZ2	188508				
Dehnguard 75FM			3	2,21	PZ2	60000671	900 624			
Dehnguard 75FM Auxiliary contact		0,5	0,8	0,7	0,52					
Dehnguard DG TNC 600 / 1000 FM/S			5	3,69	PZ2	60000684	900 545S			
Dehngap B N-PE SPD Uc 1000V			7	5,16	PZ2	60000680	900130S			
Dehngap T- C SPD N-PE Uc 255V			5	3,69	PZ2	60000681	900133			
Dehn terminal DK			5	3,69	PZ2	60000687	900699			
PHOENIX CONTACT Overvoltage protection RS485 MT RS485	M3		0,8	0,59		60000693	2762265			
Pushbuttons and lamps										
ABB PDA aux.contact 1NC/1NC					0,9	60005844-47	SK 616 001-A...-2-B			
ABB PDA Lamp holder					0,9	60005850	SK 616 003-A			
Terminals										
Entrelec Terminal M2,5/5 2,5mm2		0,4	0,6	0,5	0,37	60005970	24517080			
Entrelec Terminal M4/6 4mm2		0,5	0,8	0,7	0,52	60005983	24519250			
Entrelec Terminal M6/8 6mm2		0,8	1	0,9	0,66	60005996	24519300			
Entrelec Terminal M10/10 10mm2		1,2	1,4	1,3	0,96	60006003	24523800			
Entrelec Terminal M16/12 16mm2		1,2	1,4	1,3	0,96	60006008	24519550			

Date: 19.05.2006	Doc. Type: WKI	Doc. No.: 1000827	Version: 04	Approver: SLB	Creator: RPJ / Rev.: KEGHA					
Tightening Torque										
Component	Standard bolt / nut	Torque			Tools	Vestas item no.	Supplier item no.			
		Interval	Prefered							
		min	max							
	[mm]		[Nm]	[Lb.ft.]	[mm]					
Entrelec Terminal M35/16 35mm2		2,8	3	2,9	2,14	60006012	24519400			
Entrelec Terminal M70/22 70mm2		6	7	6,5	4,79	60006019	24521750			
Entrelec fuse terminal M10/16 10mm2		0,8	1	0,9	0,66	60005977	24522300			
Entrelec fuse terminal M4/8 4mm2		0,5	0,8	0,7	0,52	60005975	24520000			
Jumber bar BJM5 & BJM5D	Entrelec	0,6		0,6	0,44					
Jumber bar BJM6 & BJM6D	Entrelec	0,6		0,6	0,44					
Jumber bar BJM62	Entrelec	0,6		0,6	0,44					
Jumber bar BJM8	Entrelec	0,6		0,6	0,44					
Jumber bar BJM10	Entrelec	0,6		0,6	0,44					
Jumber bar BJM12	Entrelec	0,6		0,6	0,44					
Jumber bar BJM16	Entrelec		1,2	1,2	0,89					
Jumber bar BJS22	Entrelec	2	3	2,9	2,14					
ERICO/Entrelec Distribution Terminal BRU 250A Connection 35 - 120mm2 (1 piece)			19	14,01	Hexagon	60006028	15870615			
BRU 250 Outlet X2 6 - 25mm2 (2 piece)			3,5	2,58						
BRU 250 Outlet X5 2,5 - 16mm2 (5 piece)			2	1,48						
BRU 250 Outlet X4 2,5 - 10mm2 (4 piece)			2	1,48						
ENSTO Terminal KE58 (2x150 - 1x300 mm2) ALU/CU Terminal	8 mm		35	25,81	Hexagon	60006050	KE58			
ENSTO Terminal KE58 Mounting on Busbar	12 mm		70	51,63	18 / 19					
ENSTO Terminal KE37 (300 mm2) ALU Terminal	8 mm		35	25,81	Hexagon	60006049	KE37			
ENSTO Terminal KE37 Mounting on Busbar	12 mm		70	51,63	18 / 19					
ENSTO Terminal KE40.4 (240 mm2) ALU	8 mm	30	40	35	25,81	Hexagon	60006048			
ENSTO Terminal KE40.4 Mounting on Busbar	12 mm			70	51,63	18 / 19	KE40.4			
Phoenex UKK 3 MSTB 5,08		0,5	0,6	0,55	0,41	60006036	2770888			
VAN ALFEN Terminal Cu 25t/m 95mm2 Terminal <50mm2			25	18,44		60006060	2645.095-M10-DA			
VAN ALFEN Terminal Cu 25t/m 95mm2 Terminal >50mm2			40	29,50						
VAN ALFEN Terminal Cu 25t/m 95mm2 Mounting on Busbar			45	33,19						
VAN ALFEN Terminal Cu 35t/m 120mm2 Terminal			40	29,50		60006061	2645.150/M10S			
VAN ALFEN Terminal Cu 35t/m 120mm2 Mounting on Busbar			45	33,19						
VAN ALFEN Terminal Cu 70t/m 185mm2 Terminal			40	29,50		60006062	2645.185/M12			
VAN ALFEN Terminal Cu 70t/m 182mm2 Mounting on Busbar			30	22,13						
Wöhner groundbar 01 130		3				60007201				
Wieland 35mm2 terminal 2,5-35mm2	6 mm		3			190986	57.535.0155.0			

Date: 19.05.2006

Doc. Type: WKI

Doc. No.: 1000827

Version: 04

Approver: SLB

Creator: RPJ / Rev.: KEGHA

Tightening Torque

Component	Standard bolt / nut	Torque		Tools	Vestas item no.	Supplier item no.
		Interval	Preferred			
		min	max			
		[mm]	[Nm]	[Lb.ft.]	[mm]	
Current Transformer						
GARRE Current Transformer 2000/1 K100K			2	1,48	60007164	K100K 100-4813-2BK-1kV
GARRE Current Transformer 250/1 G33			2	1,48	60007141	G33 024-3513-4A
Transformer						
KOHSEL Voltage Transformer EI66/25		0,5	0,8	0,7	0,52	60006928
KOHSEL Voltage Transformer EI66/25 230VAC		0,5	0,8	0,7	0,52	60006921
KOHSEL Transformer UI150/75 400-690/230VAC				6		188290
KOHSEL Transformer UI150/75 400-690/100-110VAC				6		188289
DanTrafo Trafo UI180/78 400/690V+/-10%/230V		1,2	4	3	2,21	60007030
Busbar systems						
Siemens busbar holder 8US1923-2AA00		4	4	4	2,95	60007240
Erico Insulator ISO 15M4	4 mm			2,66	1,96	
Erico Insulator ISO 20M4	4 mm			2,66	1,96	
Erico Insulator ISO 20M6	6 mm			9,1	6,71	60007324
Erico Insulator ISO 25M5	5 mm			5,2	3,84	
Erico Insulator ISO 25M6	6 mm			9,1	6,71	60007325
Erico Insulator ISO 30M6	6 mm			9,1	6,71	60007326
Erico Insulator ISO 30M8	8 mm			22	16,23	60007329
Erico Insulator ISO 35M6L	6 mm			9,1	6,71	60007327
Erico Insulator ISO 35M8	8 mm			22	16,23	
Erico Insulator ISO 35M10	10 mm			44	32,45	
Erico Insulator ISO 40M6	6 mm			9,1	6,71	60007328
Erico Insulator ISO 40M8	8 mm			22	16,23	60007330
Erico Insulator ISO 40M10	10 mm			44	32,45	60007332
Erico Insulator ISO 45M6	6 mm			9,1	6,71	
Erico Insulator ISO 45M8	8 mm			22	16,23	
Erico Insulator ISO 45M8L	8 mm			22	16,23	
Erico Insulator ISO 45M10	10 mm			44	32,45	
Erico Insulator ISO 50M6	6 mm			9,1	6,71	
Erico Insulator ISO 50M8	8 mm			22	16,23	60007331
Erico Insulator ISO 50M10	10 mm			44	32,45	60007333
Erico Insulator ISO 60M8	8 mm			22	16,23	
Erico Insulator ISO 60M10	10 mm			44	32,45	60007334
Erico Insulator ISO 70M12	12 mm			76	56,05	
Erico Insulator ISO 70M16	16 mm			189	139,40	
Erico Insulator ISO 75M12	12 mm			76	56,05	60007335
Erico Insulator ISO 75M16	16 mm			189	139,40	
Erico Insulator ISO 80M12	12 mm			76	56,05	60007336

Date: 19.05.2006	Doc. Type: WKI	Doc. No.: 1000827	Version: 04	Approver: SLB	Creator: RPJ / Rev.: KEGHA					
Tightening Torque										
Component	Standard bolt / nut	Torque			Tools	Vestas item no.	Supplier item no.			
		Interval	Prefered							
		min	max							
	[mm]		[Nm]	[Lb.ft.]	[mm]					
Erico Insulator ISO 80M16	16 mm		189	139,40						
Erico Insulator ISO 100M12	12 mm		76	56,05		60007337				
Erico Insulator ISO 100M16	16 mm		189	139,40						
Power supply units										
Omron power supply 10A 24Vdc			0,74	0,55		60015070	S82K-24024-10A			
Omron power supply 0,6A 24Vdc			0,74	0,55		60015067	S82K-01524			
Omron power Supply 1,2A 12Vdc			0,74	0,55		60015069	S82K-01512			
Powernet 115-230/24V 5A ADC5183	3 mm	0,5	0,6	0,5	0,37	60000717	ADC5183			
Powernet 115-230/24V 10A ADC5483	3 mm	0,5	0,6	0,5	0,37	60000719	ADC5483			
Ventilation components										
Phannenberg Ventilator PF3000		0,5	0,8	0,7		194959				
Stego Termostat KTS		0,3	0,5	0,4		114447				
Panel/Service outlet										
ABB Service socket for Dinrail G.		1,2	1,2	0,89		60011324	13450000			
Panel inlet										
ABB CEE inlet 2P+PE 230V 16A			0,8			185050	2CMA193338R1000			
Control System Own Components										
TAC1 Computer	3 mm	0,5	0,6	0,5	0,37					
TAC2 Computer	3 mm	0,5	0,6	0,5	0,37					
TOI1 Interface	3 mm	0,5	0,6	0,5	0,37					
TOI2 Interface	3 mm	0,5	0,6	0,5	0,37					
TAC 40 Triggerboard 690V	3 mm	0,5	0,6	0,5	0,37					
TAC 41 Triggerboard 960V	3 mm	0,5	0,6	0,5	0,37					
Socket 11 pol for TAC 70, 80, 81, 82, 83, 84, 85, 86, 87	3 mm	0,5	0,6	0,5	0,37					
Varisterbox x 8	3 mm	0,5	0,6	0,5	0,37					
Resistor Modul	3 mm	0,5	0,6	0,5	0,37					
Power converters										
C-Thiim P-Conv. WAD 200kW/690V 4-20mA		1	1	1	0,74	60004961				

Change Info

<i>Item no.</i>	<i>Item text:</i>
None	Condition Monitoring System, V82-1.65MW

Active revision for production

Drawing no.: 934391

Version	Date	Init./App.	Description of change since last revision
0	21.06.2006	FLT/FLT	First version

LST no.: xxxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

Old revisions for service

Drawing no.: xxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

LST no.: xxxxxxxx

Version	Date	Init./App.	Description of change since last revision
xx	dd.mm.yyyy	xxx/	Write the change

A

A

B

B

C

C

D

D

E

E

F

F



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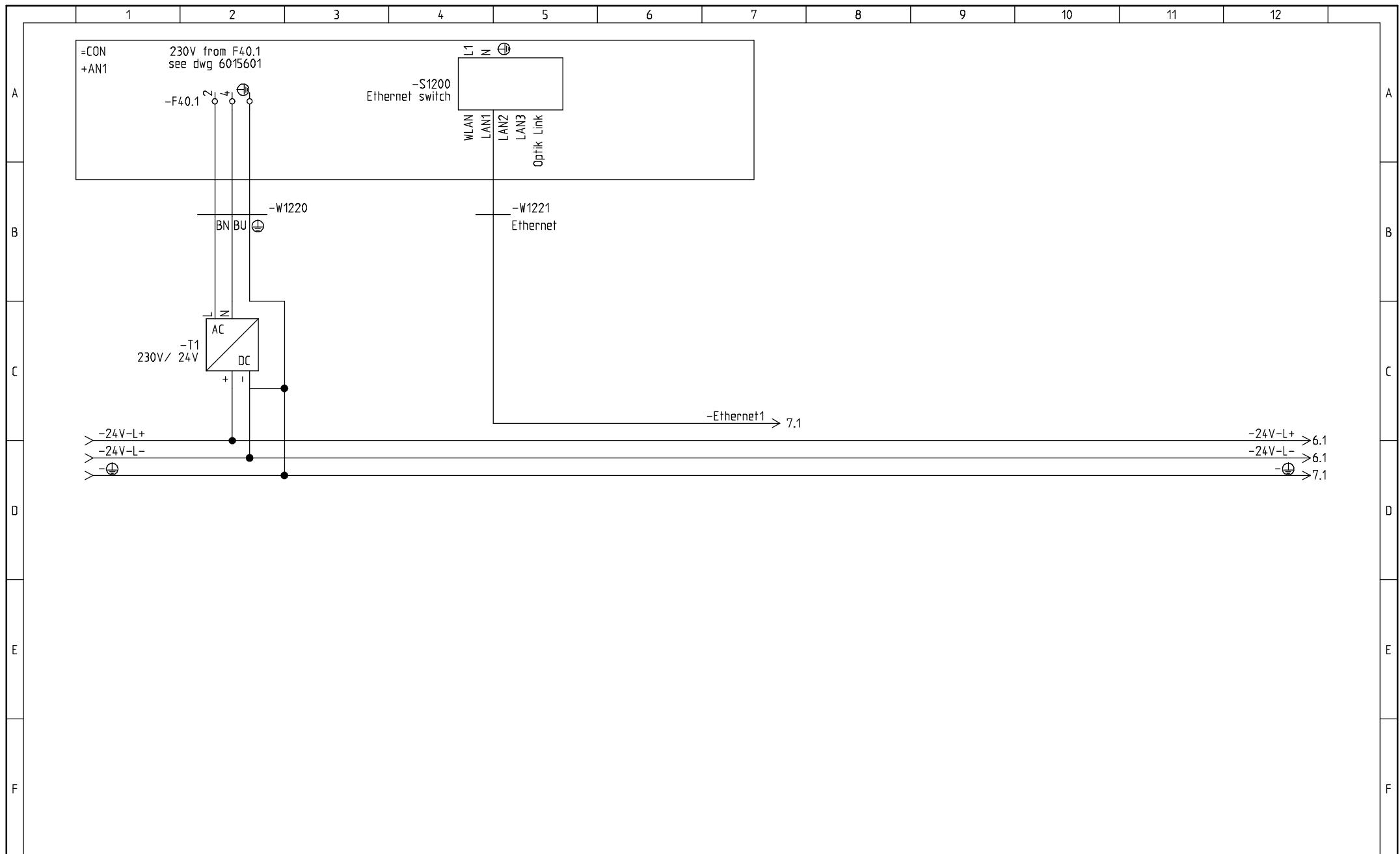
Vestas is the world leader in wind technology and a driving force in the development of the wind power industry.

CODE FOR DESIGNATION OF COLOURS

A BK: BLACK
 BN: BROWN
 RD: RED
 OG: ORANGE
 YE: YELLOW
 GN: GREEN
 BU: BLUE (or LIGHT BLUE)
 VT: VIOLET (PURPLE)
 GY: GREY (SLATE)
 WH: WHITE
 PK: PINK
 GD: GOLD
 TQ: TURQUISE
 SR: SILVER
 GNYE: GREEN-AND-YELLOW or
 SC: SCREEN

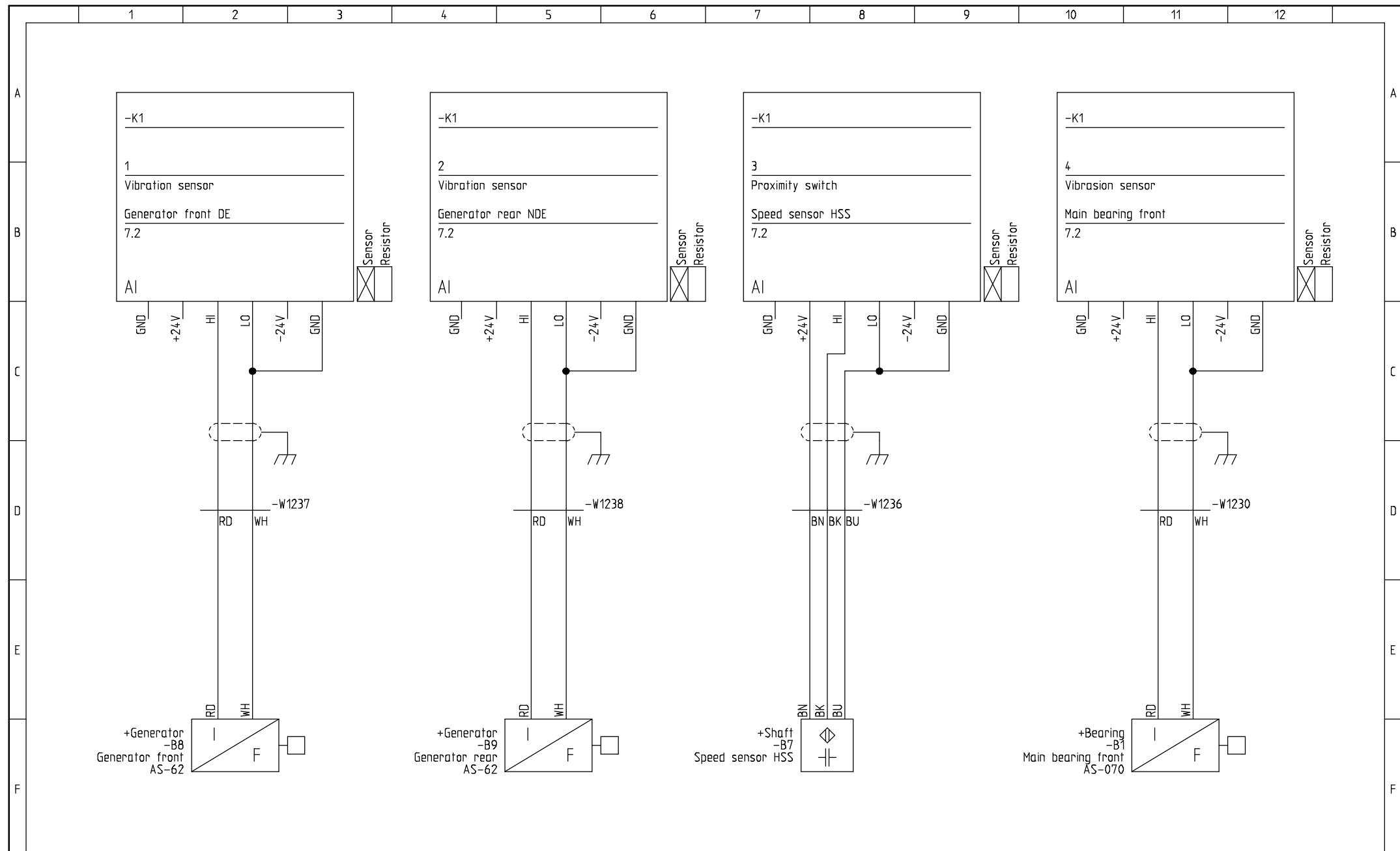
VESTAS TERM:

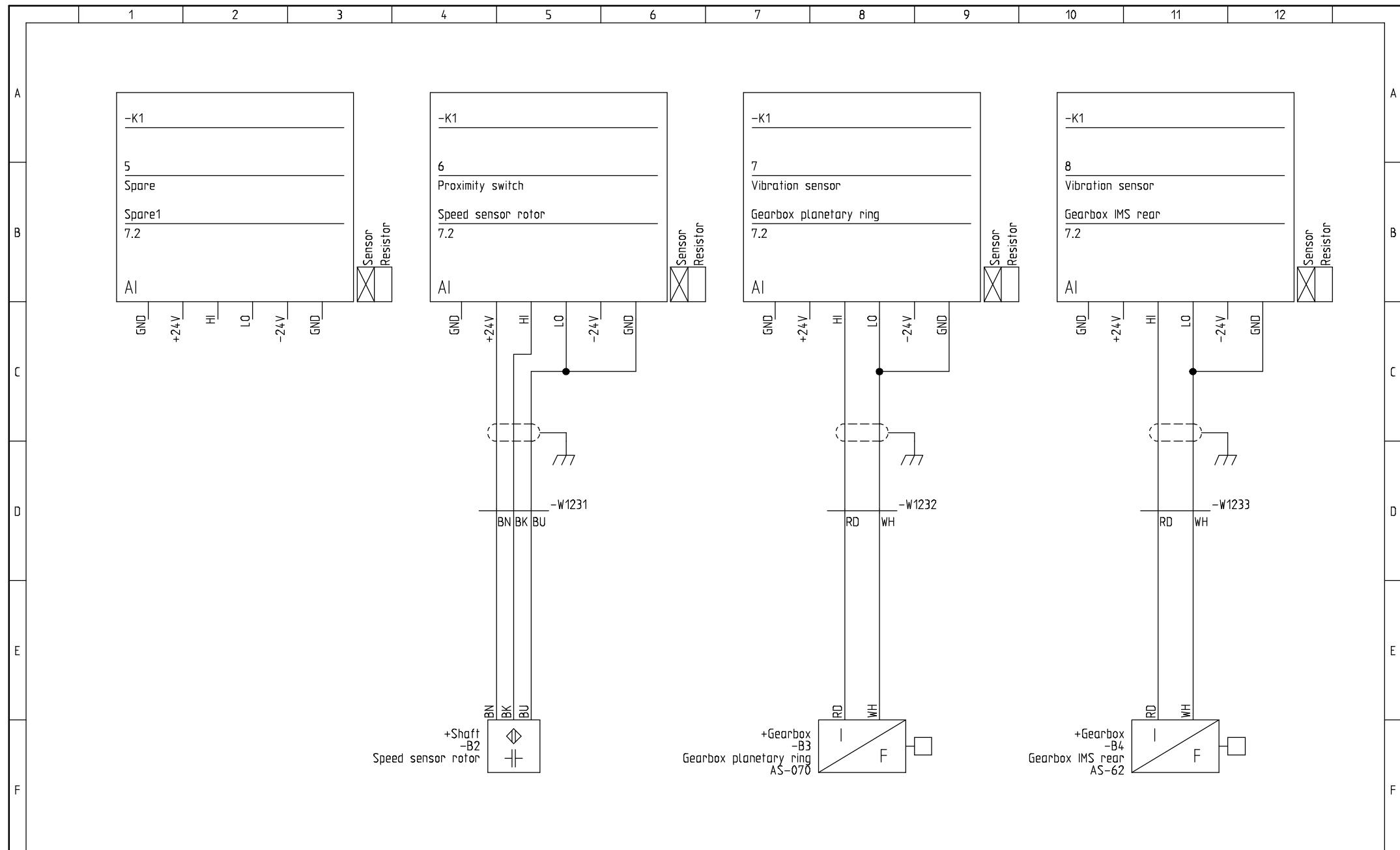
- *1: BLACK WIRE AT BROWN
- *2: BLACK WIRE AT BLUE

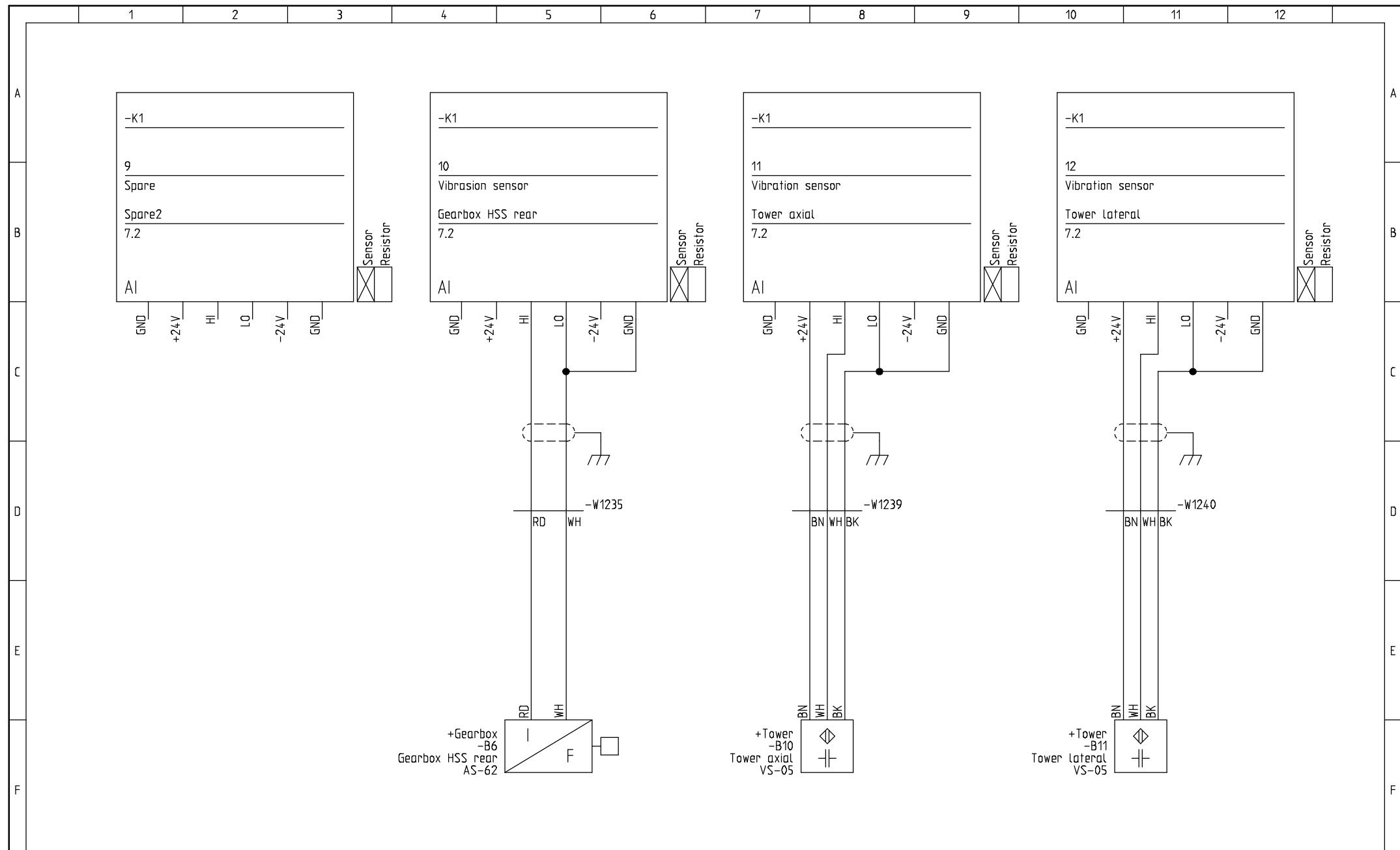


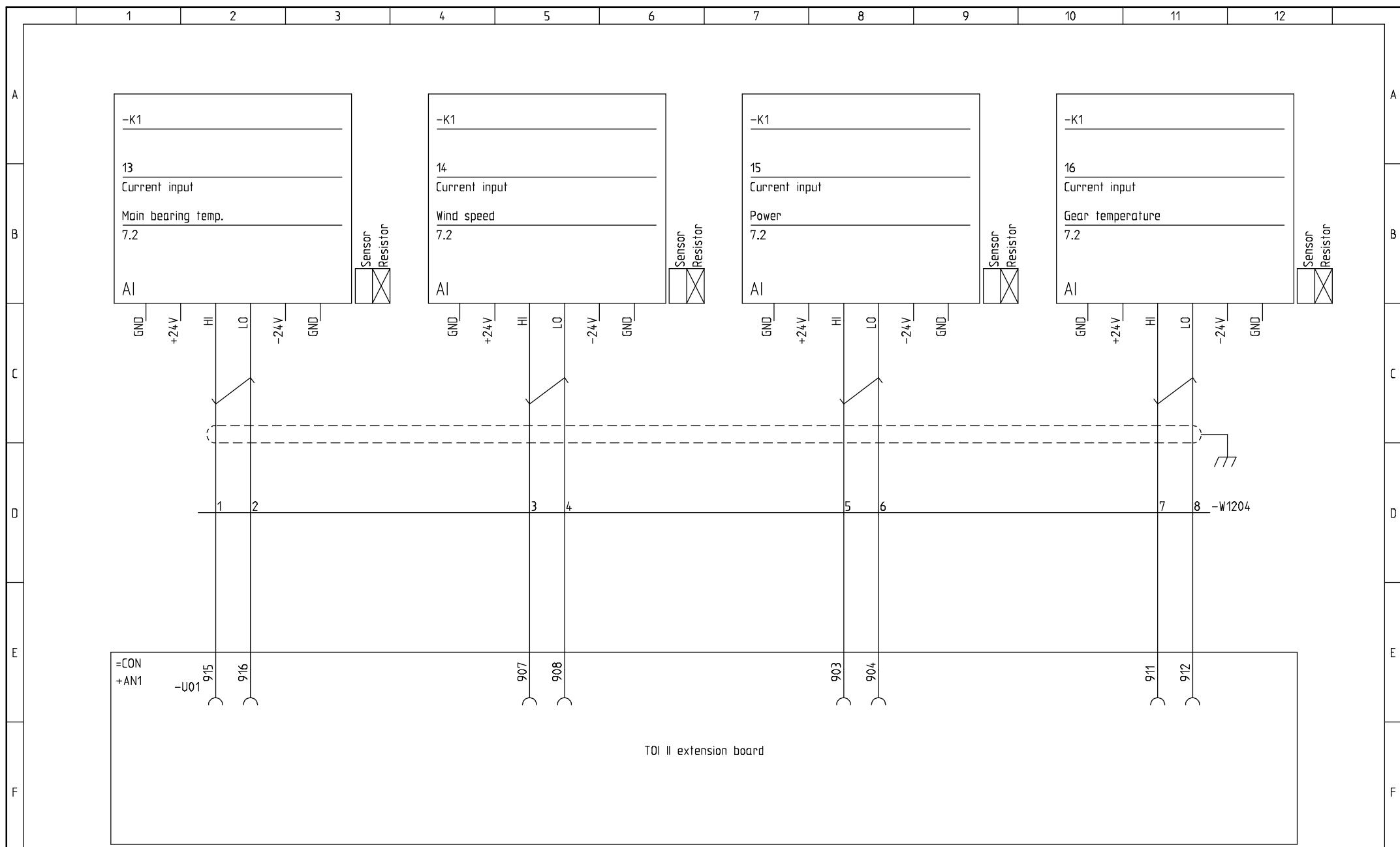
 Vestas Wind Systems A/S Alvej 21 8900 Rønne Denmark Tel.: +45 97 30 00 00 Fax: +45 97 30 00 01	Vestas CMS DDAU-2	Interface VMP Brüel & Kjær Vibro	Plot date: 21-06-2006	Proj. no.: VCMS_V82	Draw. no.: 934391	Init.: FLT	Rev.: R0	Page: 1
	B&K Vibro		Plot time: 15:58:38	Date: 18-02-2005	Function.: =CMS	Location.: +DDAU-2	Proj. pages: 9	Next page: =CMS/2

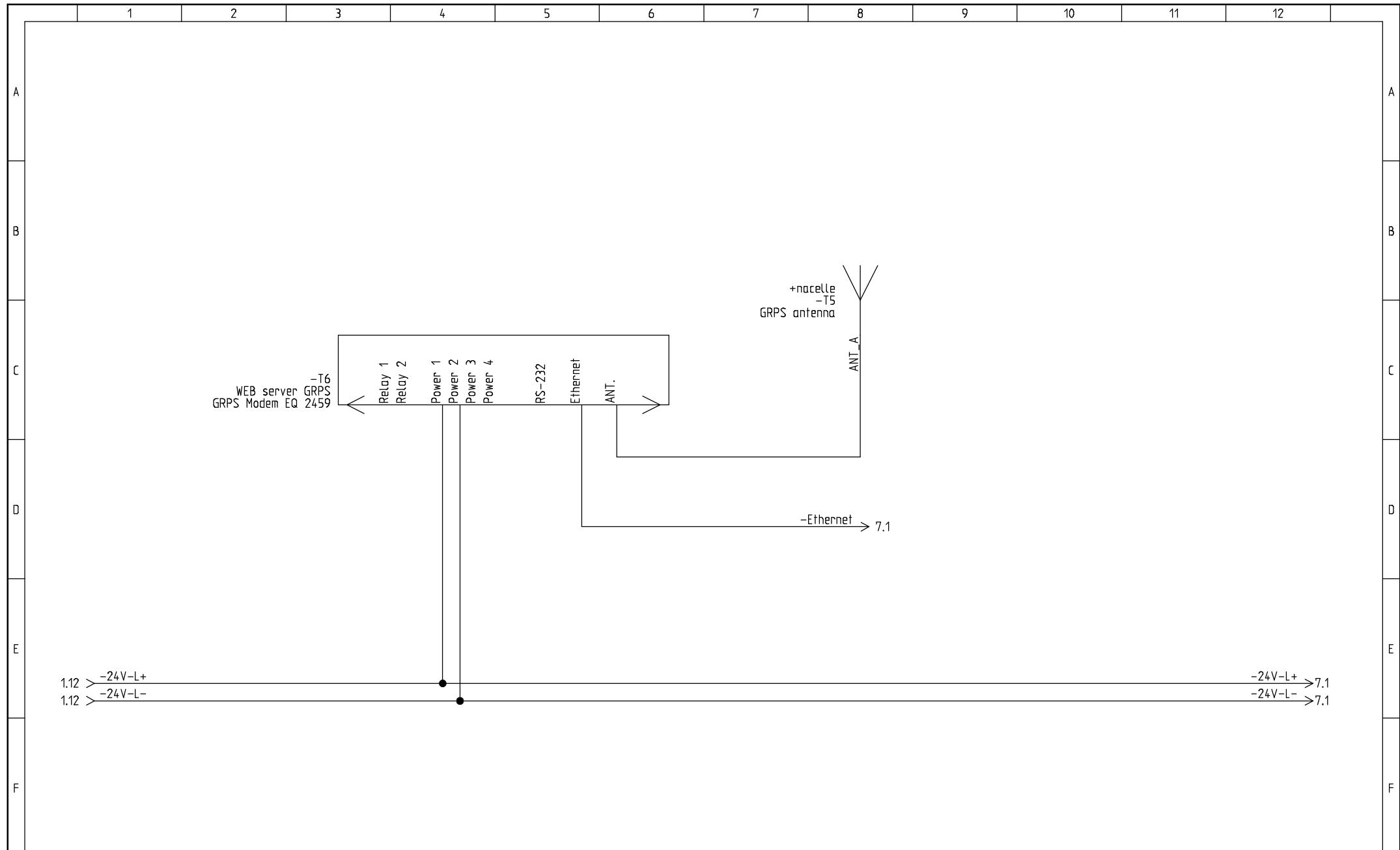
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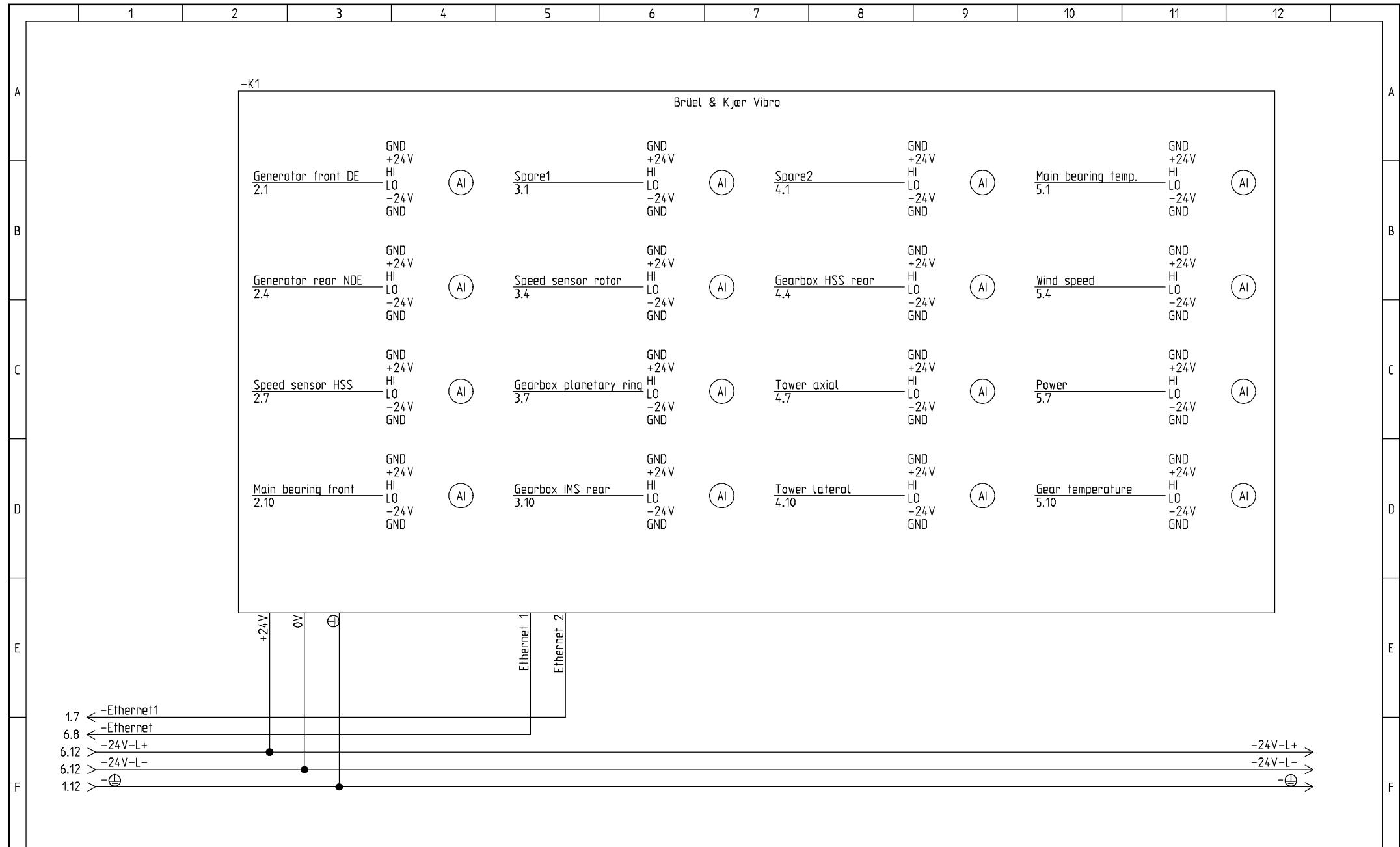


Table of contents

Component list

Component list

Cable list

Cable core list

Cable no.	Cable Pipe	Size	Colour	Connection 1	Connection 2	Page	Column
-W1204				=CMS+DDAU-2-K1:HI	=CON+AN1-U01:915	5	2
-W1204				=CMS+DDAU-2-K1:L0	=CON+AN1-U01:916	5	2
-W1204				=CMS+DDAU-2-K1:HI	=CON+AN1-U01:907	5	5
-W1204				=CMS+DDAU-2-K1:L0	=CON+AN1-U01:908	5	5
-W1204				=CMS+DDAU-2-K1:HI	=CON+AN1-U01:903	5	8
-W1204				=CMS+DDAU-2-K1:L0	=CON+AN1-U01:904	5	8
-W1204				=CMS+DDAU-2-K1:HI	=CON+AN1-U01:911	5	11
-W1204				=CMS+DDAU-2-K1:L0	=CON+AN1-U01:912	5	11
-W1220		1,5	BN	=CON+AN1-F40:1:2	=CMS+DDAU-2-T1:L	1	2
-W1220		1,5	BU	=CON+AN1-F40:1:4		1	2
-W1220		1,5	⊕	=CON+AN1-X2:⊕		1	2
-W1221				=CON+AN1-S1200:LAN1	=CMS+DDAU-2-K1:Ethernet 2	1	5
-W1230		0.75	RD	=CMS+DDAU-2-K1:HI	=CMS+Bearing-B1:RD	2	11
-W1230		0.75	WH	=CMS+DDAU-2-K1:L0	=CMS+Bearing-B1:WH	2	11
-W1231		0,5	BN	=CMS+DDAU-2-K1:+24V	=CMS+Shaft-B2:BN	3	5
-W1231		0,5	BK	=CMS+DDAU-2-K1:HI	=CMS+Shaft-B2:BK	3	5
-W1231		0,5	BU	=CMS+DDAU-2-K1:L0	=CMS+Shaft-B2:BU	3	5
-W1232		0.75	RD	=CMS+DDAU-2-K1:HI	=CMS+Gearbox-B3:RD	3	8
-W1232		0.75	WH	=CMS+DDAU-2-K1:L0	=CMS+Gearbox-B3:WH	3	8
-W1233		0.75	RD	=CMS+DDAU-2-K1:HI	=CMS+Gearbox-B4:RD	3	11
-W1233		0.75	WH	=CMS+DDAU-2-K1:L0	=CMS+Gearbox-B4:WH	3	11
-W1235		0.75	RD	=CMS+DDAU-2-K1:HI	=CMS+Gearbox-B6:RD	4	5
 Vestas Wind Systems A/S Alsevej 21 8900 Randers Denmark Tel.: +45 97 30 00 00 Fax: +45 97 30 00 01	<small>WARNING: PROPRIETARY AND CONFIDENTIAL INFORMATION. This document and the information set forth herein (the "Information") are confidential and proprietary to Vestas Wind Systems A/S ("Vestas"). Constitute trade secrets and derive independent value, actual or potential, from not being generally known. In consideration of you receiving this document you agree to keep the Information secret, (i) only to use the Information for your own needs to accomplish the tasks agreed with Vestas, (ii) not to disclose any part of the Information to any third party and (iii) not make copies or reproductions thereof whatsoever means.</small>	Vestas CMS DDAU-2 B&K Vibro	Interface VMP Brüel & Kjær Vibro	Proj. no.: VCMS_V82 Date: 18-02-2005	Draw. no.: =CMS +DDAU-2	Rev.: R0	Init.: FLT Page: 1

Cable core list

Order by Function (=), Location (+) and PLC (-)

PLC I/O list

Function (=)	Location (+)	PLC (-)	Operand	Symboladresse	Description	Conn. nr.	Connection	Page	Col.
=CMS	+DDAU-2	-K1	Generator front DE	1	Vibration sensor	GND		2	1
=CMS	+DDAU-2	-K1	Generator front DE	1	Vibration sensor	GND	=CMS+DDAU-2-K1:L0	2	1
=CMS	+DDAU-2	-K1	Generator front DE	1	Vibration sensor	HI	=CMS+Generator-B8:RD	2	1
=CMS	+DDAU-2	-K1	Generator front DE	1	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	2	1
=CMS	+DDAU-2	-K1	Generator front DE	1	Vibration sensor	LO	=CMS+Generator-B8:WH	2	1
=CMS	+DDAU-2	-K1	Generator front DE	1	Vibration sensor	+24V		2	1
=CMS	+DDAU-2	-K1	Generator front DE	1	Vibration sensor	-24V		2	1
=CMS	+DDAU-2	-K1	Generator rear NDE	2	Vibration sensor	GND	=CMS+DDAU-2-K1:L0	2	4
=CMS	+DDAU-2	-K1	Generator rear NDE	2	Vibration sensor	GND		2	4
=CMS	+DDAU-2	-K1	Generator rear NDE	2	Vibration sensor	HI	=CMS+Generator-B9:RD	2	4
=CMS	+DDAU-2	-K1	Generator rear NDE	2	Vibration sensor	LO	=CMS+Generator-B9:WH	2	4
=CMS	+DDAU-2	-K1	Generator rear NDE	2	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	2	4
=CMS	+DDAU-2	-K1	Generator rear NDE	2	Vibration sensor	+24V		2	4
=CMS	+DDAU-2	-K1	Generator rear NDE	2	Vibration sensor	-24V		2	4
=CMS	+DDAU-2	-K1	Speed sensor HSS	3	Proximity switch	GND	=CMS+DDAU-2-K1:L0	2	7
=CMS	+DDAU-2	-K1	Speed sensor HSS	3	Proximity switch	GND		2	7
=CMS	+DDAU-2	-K1	Speed sensor HSS	3	Proximity switch	HI	=CMS+Shaft-B7:BK	2	7
=CMS	+DDAU-2	-K1	Speed sensor HSS	3	Proximity switch	LO	=CMS+DDAU-2-K1:GND	2	7
=CMS	+DDAU-2	-K1	Speed sensor HSS	3	Proximity switch	LO	=CMS+Shaft-B7:BU	2	7
=CMS	+DDAU-2	-K1	Speed sensor HSS	3	Proximity switch	+24V	=CMS+Shaft-B7:BN	2	7
=CMS	+DDAU-2	-K1	Speed sensor HSS	3	Proximity switch	-24V		2	7
=CMS	+DDAU-2	-K1	Main bearing front	4	Vibration sensor	GND		2	10
=CMS	+DDAU-2	-K1	Main bearing front	4	Vibration sensor	GND	=CMS+DDAU-2-K1:L0	2	10
=CMS	+DDAU-2	-K1	Main bearing front	4	Vibration sensor	HI	=CMS+Bearing-B1:RD	2	10
=CMS	+DDAU-2	-K1	Main bearing front	4	Vibration sensor	LO	=CMS+Bearing-B1:WH	2	10
=CMS	+DDAU-2	-K1	Main bearing front	4	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	2	10
=CMS	+DDAU-2	-K1	Main bearing front	4	Vibration sensor	+24V		2	10
=CMS	+DDAU-2	-K1	Main bearing front	4	Vibration sensor	-24V		2	10
=CMS	+DDAU-2	-K1	Spare1	5	Spare	GND		3	1
=CMS	+DDAU-2	-K1	Spare1	5	Spare	GND		3	1
=CMS	+DDAU-2	-K1	Spare1	5	Spare	HI		3	1
=CMS	+DDAU-2	-K1	Spare1	5	Spare	LO		3	1

Order by Function (=), Location (+) and PLC (-)

PLC I/O list

Function (=)	Location (+)	PLC (-)	Operand	Symboladresse	Description	Conn. nr.	Connection	Page	Col.
=CMS	+DDAU-2	-K1	Spare1	5	Spare	+24V		3	1
=CMS	+DDAU-2	-K1	Spare1	5	Spare	-24V		3	1
=CMS	+DDAU-2	-K1	Speed sensor rotor	6	Proximity switch	GND		3	4
=CMS	+DDAU-2	-K1	Speed sensor rotor	6	Proximity switch	GND	=CMS+DDAU-2-K1:L0	3	4
=CMS	+DDAU-2	-K1	Speed sensor rotor	6	Proximity switch	HI	=CMS+Shaft-B2:BK	3	4
=CMS	+DDAU-2	-K1	Speed sensor rotor	6	Proximity switch	LO	=CMS+Shaft-B2:BU	3	4
=CMS	+DDAU-2	-K1	Speed sensor rotor	6	Proximity switch	LO	=CMS+DDAU-2-K1:GND	3	4
=CMS	+DDAU-2	-K1	Speed sensor rotor	6	Proximity switch	+24V	=CMS+Shaft-B2:BN	3	4
=CMS	+DDAU-2	-K1	Speed sensor rotor	6	Proximity switch	-24V		3	4
=CMS	+DDAU-2	-K1	Gearbox planetary ring	7	Vibration sensor	GND		3	7
=CMS	+DDAU-2	-K1	Gearbox planetary ring	7	Vibration sensor	GND	=CMS+DDAU-2-K1:L0	3	7
=CMS	+DDAU-2	-K1	Gearbox planetary ring	7	Vibration sensor	HI	=CMS+Gearbox-B3:RD	3	7
=CMS	+DDAU-2	-K1	Gearbox planetary ring	7	Vibration sensor	LO	=CMS+Gearbox-B3:WH	3	7
=CMS	+DDAU-2	-K1	Gearbox planetary ring	7	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	3	7
=CMS	+DDAU-2	-K1	Gearbox planetary ring	7	Vibration sensor	+24V		3	7
=CMS	+DDAU-2	-K1	Gearbox planetary ring	7	Vibration sensor	-24V		3	7
=CMS	+DDAU-2	-K1	Gearbox IMS rear	8	Vibration sensor	GND	=CMS+DDAU-2-K1:L0	3	10
=CMS	+DDAU-2	-K1	Gearbox IMS rear	8	Vibration sensor	GND		3	10
=CMS	+DDAU-2	-K1	Gearbox IMS rear	8	Vibration sensor	HI	=CMS+Gearbox-B4:RD	3	10
=CMS	+DDAU-2	-K1	Gearbox IMS rear	8	Vibration sensor	LO	=CMS+Gearbox-B4:WH	3	10
=CMS	+DDAU-2	-K1	Gearbox IMS rear	8	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	3	10
=CMS	+DDAU-2	-K1	Gearbox IMS rear	8	Vibration sensor	+24V		3	10
=CMS	+DDAU-2	-K1	Gearbox IMS rear	8	Vibration sensor	-24V		3	10
=CMS	+DDAU-2	-K1	Spare2	9	Spare	GND		4	1
=CMS	+DDAU-2	-K1	Spare2	9	Spare	GND		4	1
=CMS	+DDAU-2	-K1	Spare2	9	Spare	HI		4	1
=CMS	+DDAU-2	-K1	Spare2	9	Spare	LO		4	1
=CMS	+DDAU-2	-K1	Spare2	9	Spare	+24V		4	1
=CMS	+DDAU-2	-K1	Spare2	9	Spare	-24V		4	1
=CMS	+DDAU-2	-K1	Gearbox HSS rear	10	Vibration sensor	GND	=CMS+DDAU-2-K1:L0	4	4
=CMS	+DDAU-2	-K1	Gearbox HSS rear	10	Vibration sensor	GND		4	4
=CMS	+DDAU-2	-K1	Gearbox HSS rear	10	Vibration sensor	HI	=CMS+Gearbox-B6:RD	4	4

Order by Function (=), Location (+) and PLC (-)

PLC I/O list

Function (=)	Location (+)	PLC (-)	Operand	Symboladresse	Description	Conn. nr.	Connection	Page	Col.
=CMS	+DDAU-2	-K1	Gearbox HSS rear	10	Vibration sensor	LO	=CMS+Gearbox-B6:WH	4	4
=CMS	+DDAU-2	-K1	Gearbox HSS rear	10	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	4	4
=CMS	+DDAU-2	-K1	Gearbox HSS rear	10	Vibration sensor	+24V		4	4
=CMS	+DDAU-2	-K1	Gearbox HSS rear	10	Vibration sensor	-24V		4	4
=CMS	+DDAU-2	-K1	Tower axial	11	Vibration sensor	GND	=CMS+DDAU-2-K1:LO	4	7
=CMS	+DDAU-2	-K1	Tower axial	11	Vibration sensor	GND		4	7
=CMS	+DDAU-2	-K1	Tower axial	11	Vibration sensor	HI	=CMS+Tower-B10:WH	4	7
=CMS	+DDAU-2	-K1	Tower axial	11	Vibration sensor	LO	=CMS+Tower-B10:BK	4	7
=CMS	+DDAU-2	-K1	Tower axial	11	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	4	7
=CMS	+DDAU-2	-K1	Tower axial	11	Vibration sensor	+24V	=CMS+Tower-B10:BN	4	7
=CMS	+DDAU-2	-K1	Tower axial	11	Vibration sensor	-24V		4	7
=CMS	+DDAU-2	-K1	Tower lateral	12	Vibration sensor	GND	=CMS+DDAU-2-K1:LO	4	10
=CMS	+DDAU-2	-K1	Tower lateral	12	Vibration sensor	GND		4	10
=CMS	+DDAU-2	-K1	Tower lateral	12	Vibration sensor	HI	=CMS+Tower-B11:WH	4	10
=CMS	+DDAU-2	-K1	Tower lateral	12	Vibration sensor	LO	=CMS+Tower-B11:BK	4	10
=CMS	+DDAU-2	-K1	Tower lateral	12	Vibration sensor	LO	=CMS+DDAU-2-K1:GND	4	10
=CMS	+DDAU-2	-K1	Tower lateral	12	Vibration sensor	+24V	=CMS+Tower-B11:BN	4	10
=CMS	+DDAU-2	-K1	Tower lateral	12	Vibration sensor	-24V		4	10
=CMS	+DDAU-2	-K1	Main bearing temp.	13	Current input	GND		5	1
=CMS	+DDAU-2	-K1	Main bearing temp.	13	Current input	GND		5	1
=CMS	+DDAU-2	-K1	Main bearing temp.	13	Current input	HI	=CON+AN1-U01:915	5	1
=CMS	+DDAU-2	-K1	Main bearing temp.	13	Current input	LO	=CON+AN1-U01:916	5	1
=CMS	+DDAU-2	-K1	Main bearing temp.	13	Current input	+24V		5	1
=CMS	+DDAU-2	-K1	Main bearing temp.	13	Current input	-24V		5	1
=CMS	+DDAU-2	-K1	Wind speed	14	Current input	GND		5	4
=CMS	+DDAU-2	-K1	Wind speed	14	Current input	GND		5	4
=CMS	+DDAU-2	-K1	Wind speed	14	Current input	HI	=CON+AN1-U01:907	5	4
=CMS	+DDAU-2	-K1	Wind speed	14	Current input	LO	=CON+AN1-U01:908	5	4
=CMS	+DDAU-2	-K1	Wind speed	14	Current input	+24V		5	4
=CMS	+DDAU-2	-K1	Wind speed	14	Current input	-24V		5	4
=CMS	+DDAU-2	-K1	Power	15	Current input	GND		5	7
=CMS	+DDAU-2	-K1	Power	15	Current input	GND		5	7

Terminal matrix

Terminal matrix

Terminal strip
-U01

Connection 1	Term.	No.	Connection 2
O	903	=CMS+DDAU-2-K1:H1	
O	904	=CMS+DDAU-2-K1:I0	
O	907	=CMS+DDAU-2-K1:H1	
O	908	=CMS+DDAU-2-K1:I0	
O	911	=CMS+DDAU-2-K1:H1	
O	912	=CMS+DDAU-2-K1:I0	
O	915	=CMS+DDAU-2-K1:H1	
O	916	=CMS+DDAU-2-K1:I0	

Cable description	Cable type	Cable name	----- Cable -----				
 Vestas Wind Systems A/S Aisvej 21 8900 Randers Denmark Tel.: +45 97 30 00 00 Fax: +45 97 30 00 01		Vestas CMS DDAU-2 B&K Vibro	-U01	Project:	Drawing no.:	Rev.:	Init.:
				VCMS_V82	934391	R0	FLT
				Date:	Function:	Location:	Page:
				20-06-2006	=CON	+AN1	2

Terminal matrix