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ABB Automation Technologies AB
Robotics
SE-721 68 Västerås
Sweden

Customer	:
Robot serial number(s)	:
Drawing number	:
Drawing version	:

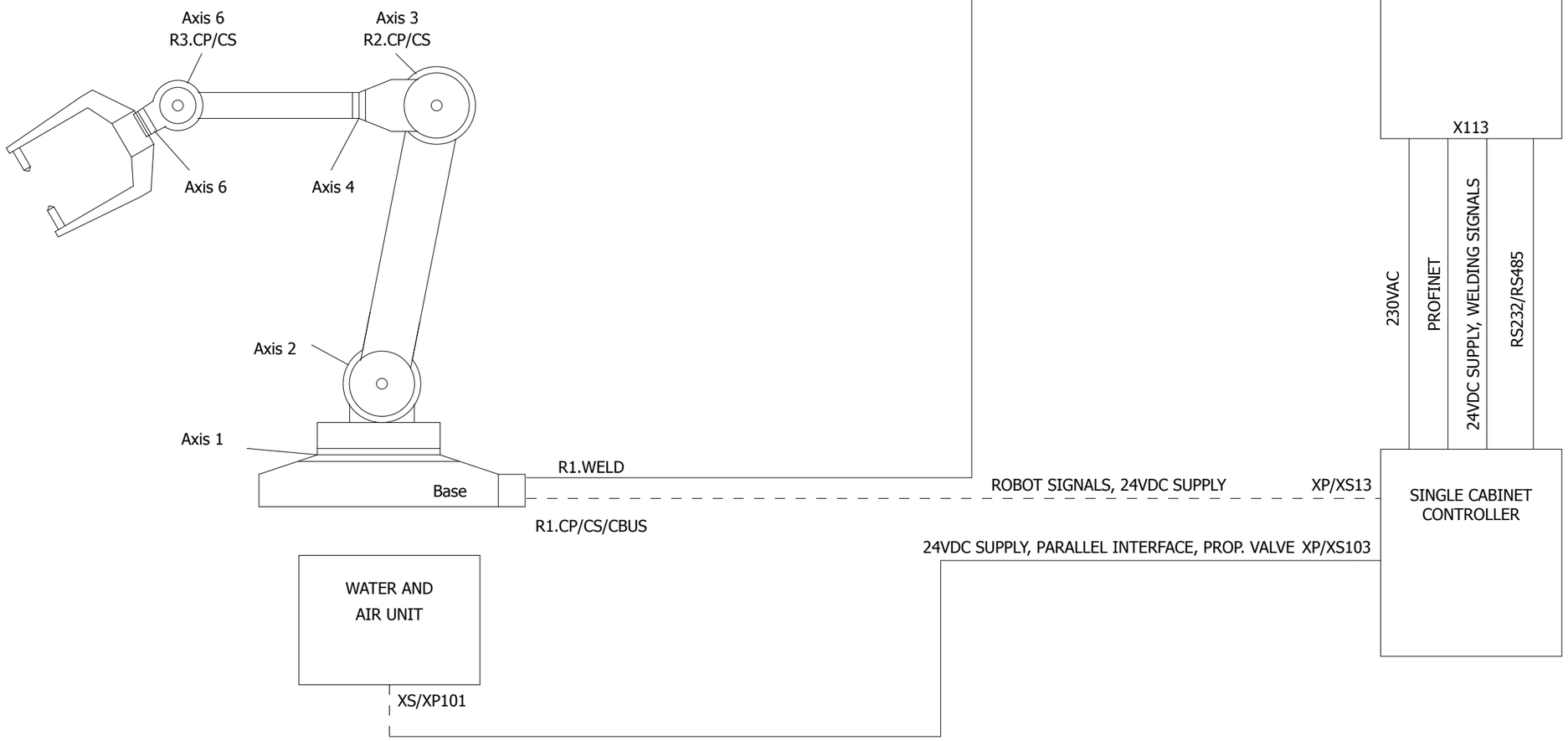
Manufacture	:
Type	:
Type of installation	:
Control cabinet	:
Mains voltage	:
Supply	:
Control voltage	:
Year of construction	:

Project start	:
Project manager	:
Last revision	:
Designed by	:
Designed date	:
Number of pages	:
	:

Table of contents

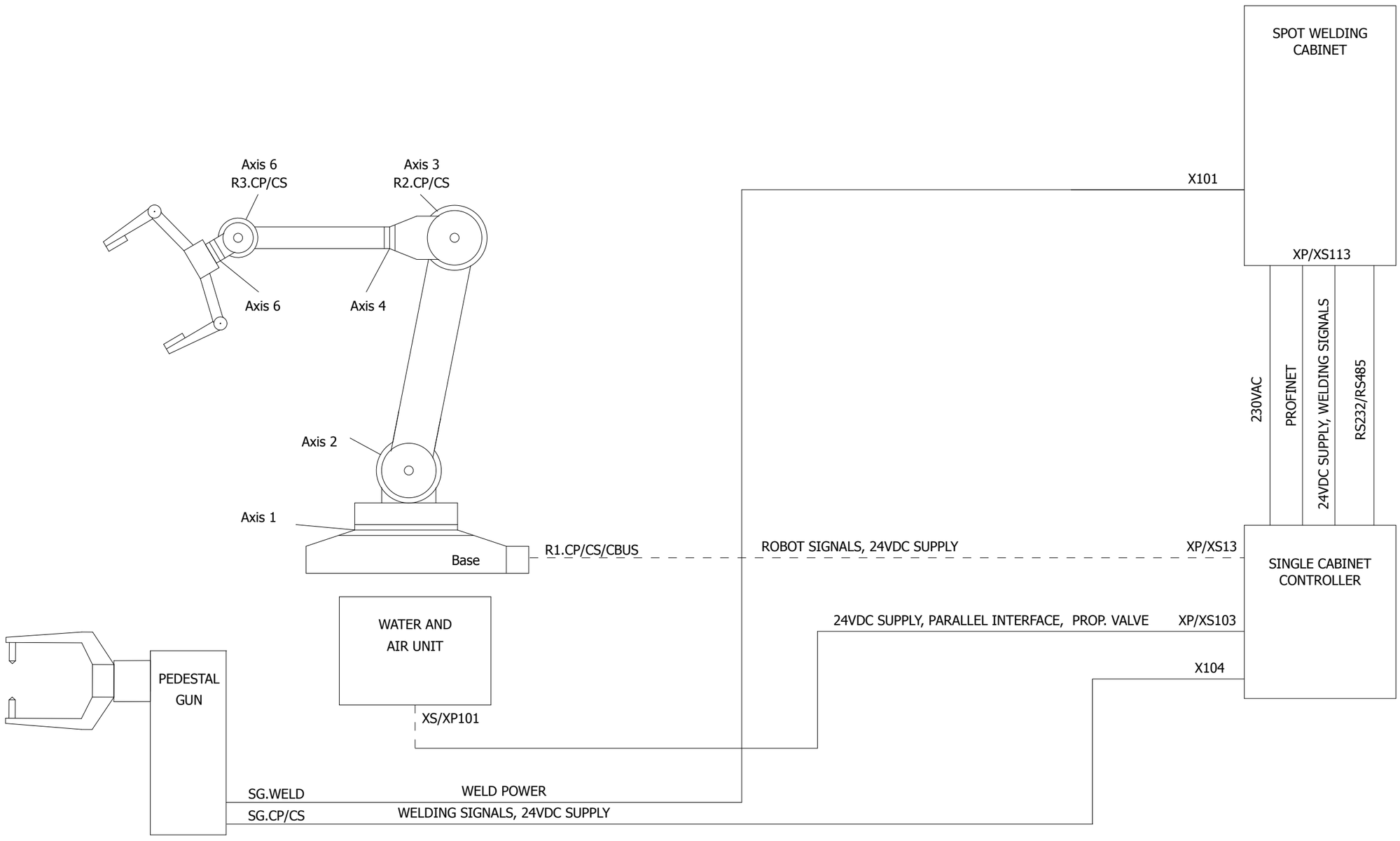
ABB_table_of_contents

BLOCK DIAGRAM TYPE S (pneumatic gun)
IRBDP SW2
Single cabinet controller, IRC5: See circuit diagram, 3HAC024480-011.
Dashed cables: See circuit diagram DressPack, 3HAC026209-001



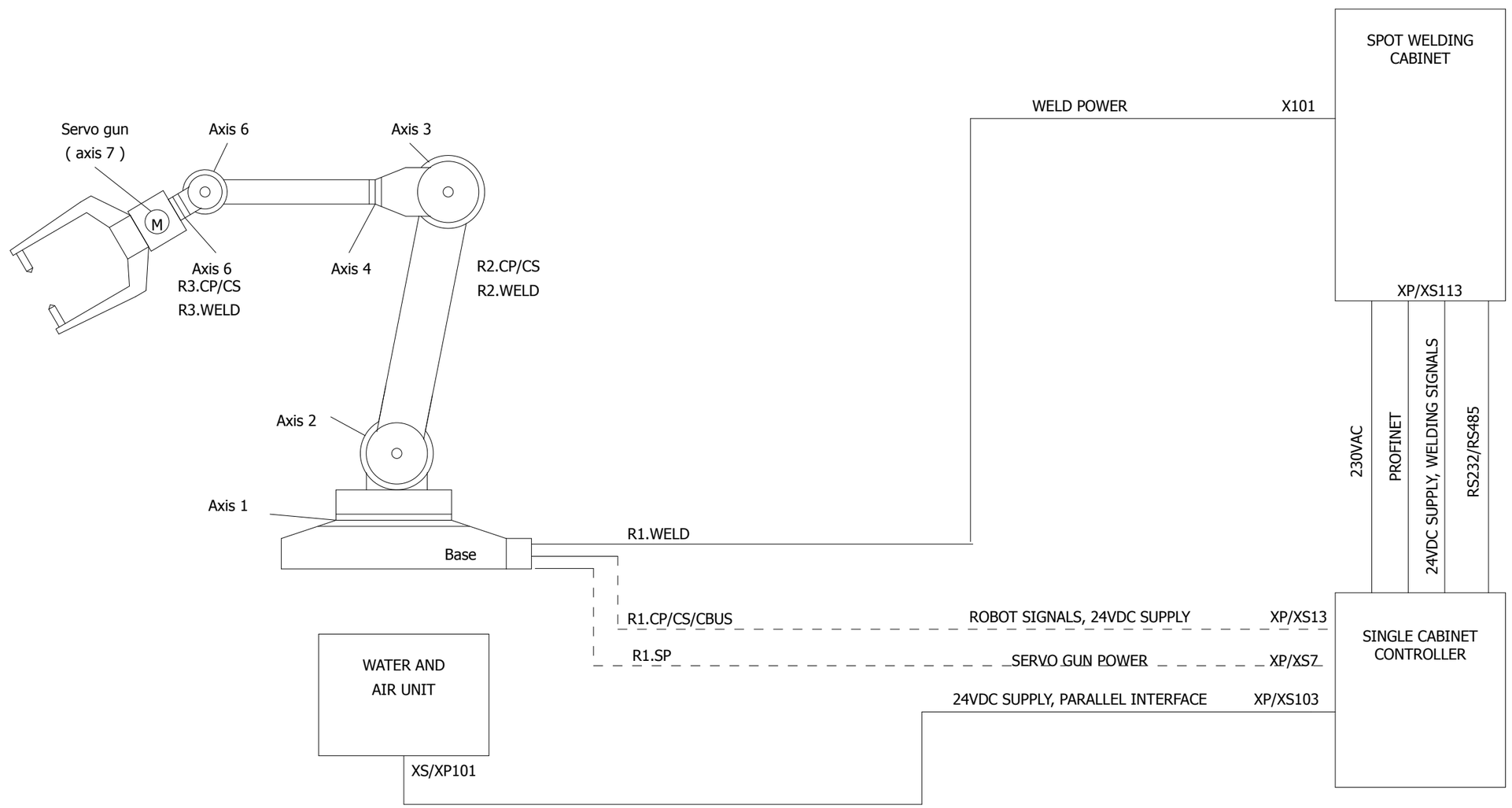
Latest revision:	REGION E	ABB Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BLOCK DIAGRAM TYPE S SPOT PACK	Status: APPROVED 2014-01-30 Document no. 3HAC044736-001	Plant: = SP Location: + S Sublocation: + Rev. Ind 00 Page 50 Next +HS/52 Total
Prepared by, date: THSTA	Approved by, date: SEMATO1				

BLOCK DIAGRAM TYPE HS (material handling and pneumatic gun)
IRBDP SW2
Single cabinet controller, IRC5: See circuit diagram, 3HAC024480-011.
Dashed cables: See circuit diagram DressPack, 3HAC026209-001



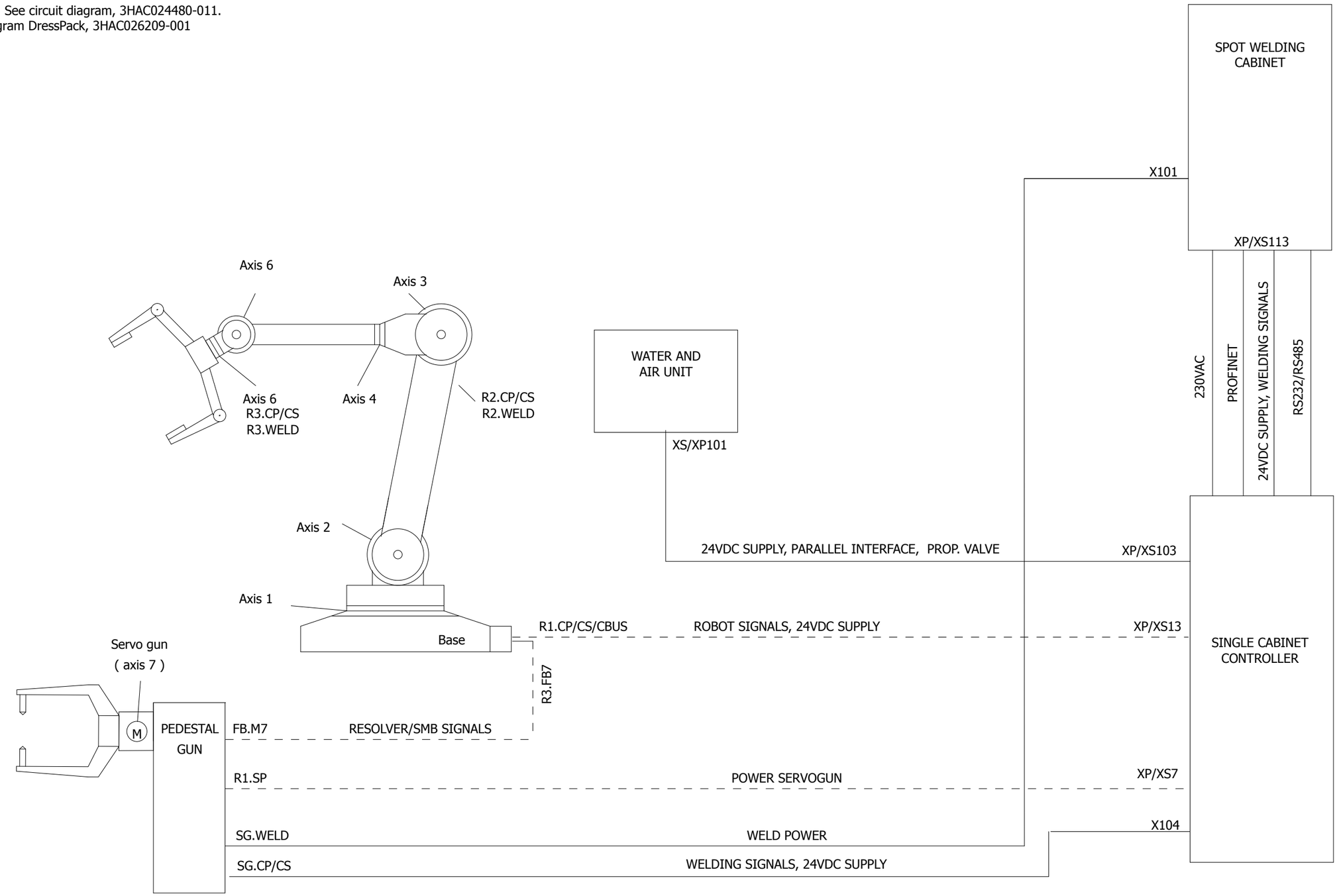
Latest revision:	REGION E	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BLOCK DIAGRAM TYPE HS	Status: APPROVED 2014-01-30	Plant: = SP Location: + HS Sublocation: +
Prepared by, date: THSTA / Approved by, date: SEMATO1			SPOT PACK	Document no. 3HAC044736-001	Rev. Ind 00 / Page 52 / Next +Se/53 / Total

BLOCK DIAGRAM TYPE Se (servo gun)
IRBDP SW2
Single cabinet controller, IRC5: See circuit diagram, 3HAC024480-011.
Dashed cables: See circuit diagram DressPack, 3HAC026209-001



Latest revision:	REGION E	ABB Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BLOCK DIAGRAM TYPE HSe	Status: APPROVED 2014-01-30	Plant: = SP Location: + Se Sublocation: +
Prepared by, date: THSTA / Approved by, date: SEMATO1			SPOT PACK	Document no. 3HAC044736-001	Rev. Ind 00 / Page 53 / Next +HSe/5 / Total

BLOCK DIAGRAM TYPE HSe (material handling and servo gun)
IRBDP SW2
Single cabinet controller, IRC5: See circuit diagram, 3HAC024480-011.
Dashed cables: See circuit diagram DressPack, 3HAC026209-001



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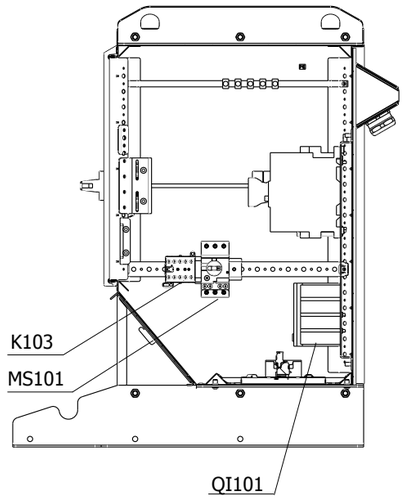
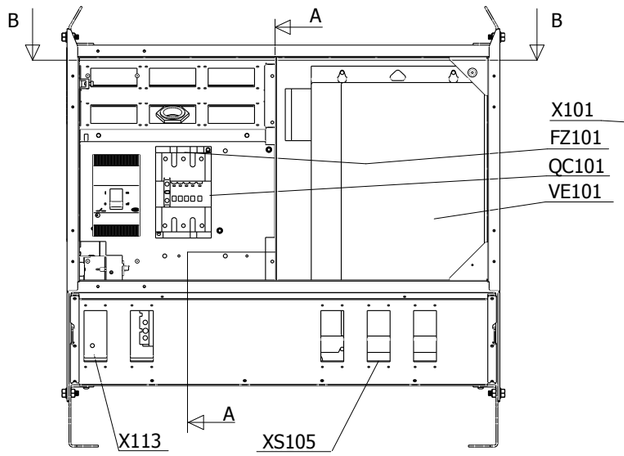
Prepared by, date: THSTA	Approved by, date: SEMATO1				

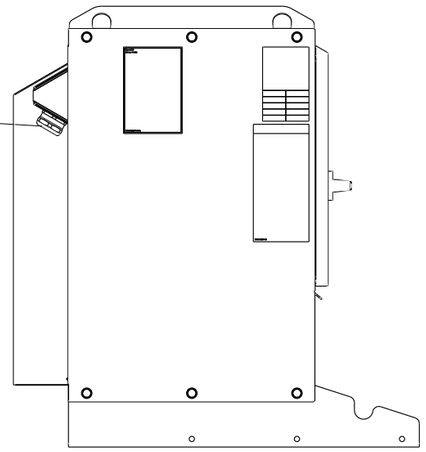
LEFT A-A



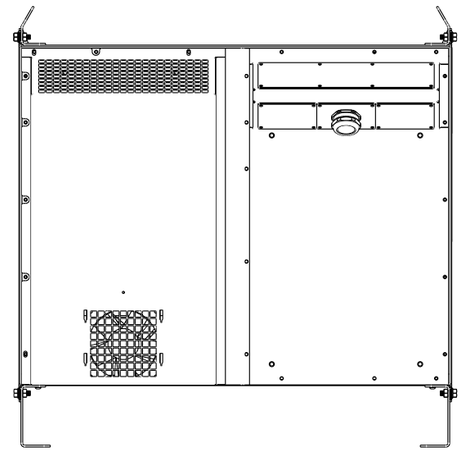
FRONT



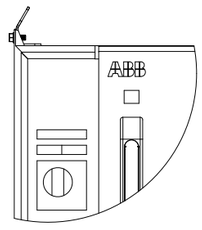
LEFT



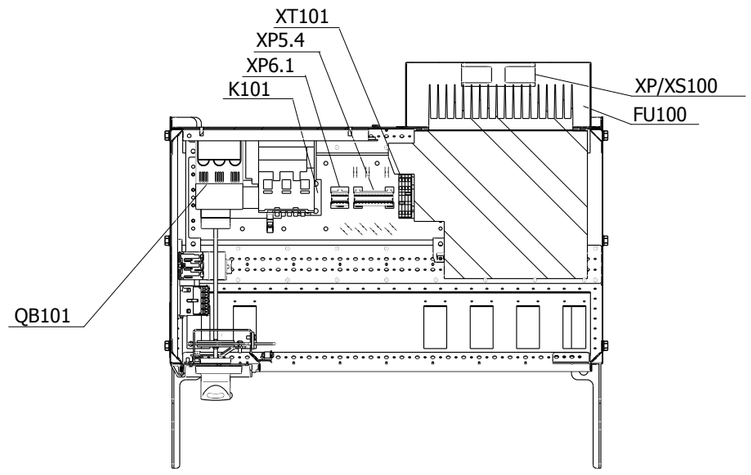
BACK



DOOR



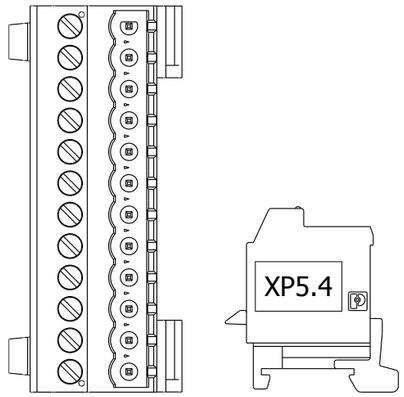
TOPP B-B



Latest revision:		REGION E	ABB	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET VIEW SPOT WELDING CABINET - STD PROFINET	Status: APPROVED 2014-01-30	Plant: = SP Location: + CAB Sublocation: +
Prepared by, date: THSTA	Approved by, date: SEMATO1				SPOT PACK	Document no. 3HAC044736-001	Rev. Ind 00

1	2	3	4	5	6	7	8

BLOCK DIAGRAM TYPE S



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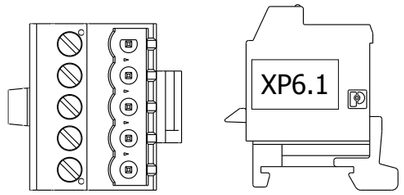
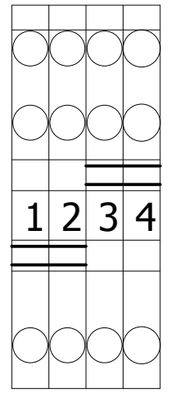
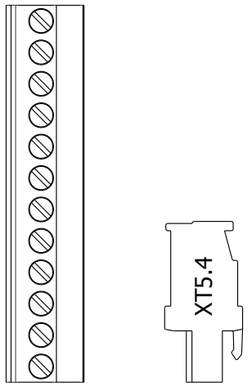


3HAB7391-5

XT101





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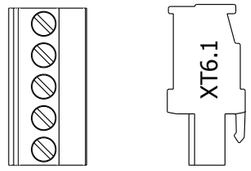


3HAB7404-5

Latest revision:	REGION E	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET CONNECTOR LAYOUT - IRBDP SW5	Status: 2014-01-30 APPROVED	Plant: = SP Location: + CON Sublocation: +
Prepared by, date: THSTA / Approved by, date: SEMATO1			SPOT PACK	Document no. 3HAC044736-001	Rev. Ind 00 / Page 57 / Next =SWCE / Total

SINGLE CABINET

-XS/XP60: 7, 8, 9, 10, 13

CP/CS 35: 8:WHBK, 8:BK, 8:WHOG, 8:OG, 1:WHBK, 1:BK

-X113

SPOT WELDING CABINET

XT5.4: 4, 2, 3, 1, 8

-XT31: +24VDC (2), 0VDC (6)

6:WH 0,75 | 4:WH 0,75 | 7:WH 0,75 | 5:WH 0,75

-XT101: 4, 3, 2, 1

-F5 OPTION: SERVICE OUTLET: 2 — 230VAC

-F4 OPTION: SERVICE OUTLET: 3 — 0VAC

-F5: 2 — N(0)

POWER 3: 1, BK | 2, BK | GNYE

-K101 OPTION 790-1: A1(3+), A2(-4), 2, 1

-1081 AWG18 OG

-1082 AWG18 OG

-1057 AWG18 OG

-1051 AWG18 OG

-1064 AWG18 OG

-1065 AWG18 OG

-XT6.1: 1, 2, 3, 4

-1060 AWG18 OG

-1061 AWG18 OG

-1062 AWG18 OG

-1063 AWG18 OG

-QC101: 14, 13

-QB101: 11, 14

-FZ101 OPTION: 790-1

-QC101: A1, A2

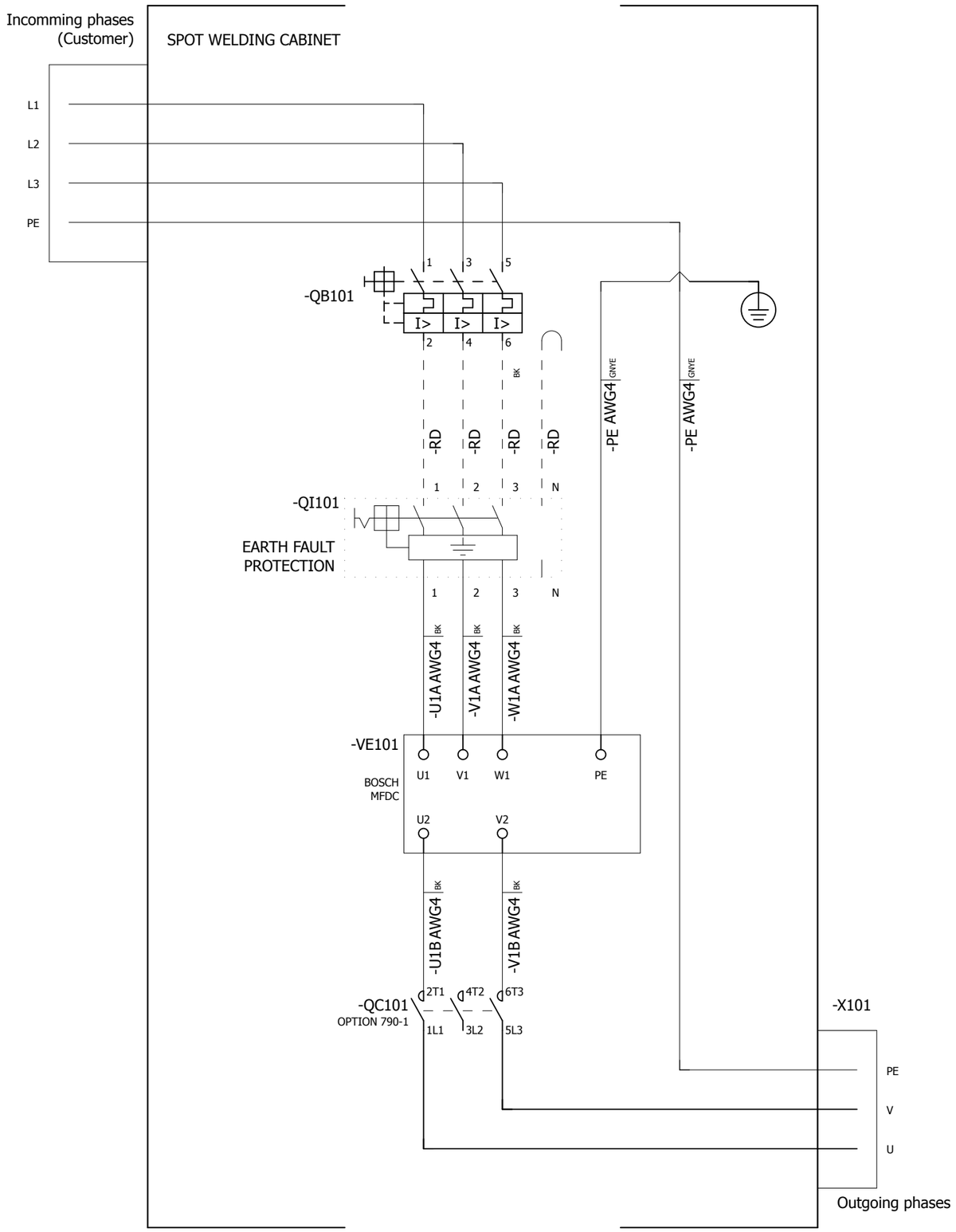
/ -1080 / EPV / -1054 / -1050

SEE PAGE 105
BOSCH MFDC PROFINET - SIGNAL

OPTION: BOSCH MFDC

13 14 .2

Latest revision:	REGION E	ABB	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC PROFINET POWER SUPPLY, 24VDC, 230VAC	Status: APPROVED 2014-01-30 Document no. 3HAC044736-001 Rev. Ind 00
Prepared by, date: THSTA	Approved by, date: SEMATO1				Plant: = SWCE Location: + P Sublocation: + 24V Page 101 Next =SWC+ Total



Latest revision:	REGION E	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC	Status: APPROVED 2014-01-30	Plant: = SWC Location: + P Sublocation: + B	
				Document no. 3HAC044736-001	Rev. Ind 00	Page 103 Next =SWCA Total
Prepared by, date: THSTA	Approved by, date: SEMATO1		POWER - WELD TIMER PHASES			

SINGLE CABINET

-XS/XP60: V-REG 23, V-REG 24, KSR 21, KSR 22

-A39.X1: Rx- 1, Tx- 3, Tx+ 2, Rx+ 9, 0V 5

-I/O1.ETH2: SHIELD, Tx+ 1, Tx- 2, Rx+ 3, Rx- 6

CP/CS AWG24 35: 5WHYE, 5:YE, 4:WHOG, 4:OG

AWG26 8: 1:BU, 1:WHBU, 2:OG, 2:WHOG, 3:GN, 3:WHGN

AWG26 4x2: 2/RD, 2/BK, 1/WH, 1/BU

-X113

SPOT WELDING CABINET

SEE PAGE: 101
POWER SUPPLY

-XT101: 1, 3

-XT5.4: 1, 8, 11, 12, 9, 10

-1050 AWG18 OG

-1054 AWG18 OG

-1080 AWG18 OG

FAN UNIT -XS100
OPTION: 788-1
AWG21 2: 1,BK, 2,BK

-1089 AWG18 OG

-1090 AWG18 OG

-1091 AWG18 OG

-1092 AWG18 OG

-1093 AWG18 OG

AWG24 2: RD, BK

AWG24 2: RD, BK

AWG20 BU

-VE101
BOSCH MFDC PROFINET
X4-7, X4-6, X4-3, X4-13, X4-14, X4-1, X2-4, X8-2, X2-2, X4-2, X4-9, X4-10, X4-11, X4-12, X2-1, X2-5

OPTION: 796-1 EPV

-X3: X3-6, X3-7, X3-8, X3-4, X3-5
U SEC.

-X3C: 5, 3, 4

-X7E1: 1, 2, 3, 6
PROFINET

Latest revision:		REGION E	ABB	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC PROFINET	Status: APPROVED 2014-01-30	Plant: = SWCAE Location: + B Sublocation: +
Prepared by, date: THSTA	Approved by, date: SEMATO1				SIGNAL	Document no. 3HAC044736-001	Rev. Ind 00
							Page 105 Next +PG.RG Total

CI502 DIGITAL I/O UNIT

-A56

1.0 DI	Spare		
1.1 DI	Spare		
1.2 DI	Spare		
1.3 DO	Spare		
1.4 DI	Spare		
1.5 DI	Spare		
1.6 DI	Spare		
1.7 DI			
1.8 +24V			
1.9 0V			

DI 1001 Spare /N.C AWG20 BU	/ Mains_on	+RG/108.4 +./109.4	
DI 1002 Spare /N.C AWG20 BU	/ Tip_Dress_on	+RG/108.4 +./109.4	
DO 1008 Spare /N.C AWG20 BU	Start_tip_dress /	+RG/108.4 +./109.4	

-CH2:2.0 DI	-1003 AWG20 BU	/ diWeldContact	+RG/108.2 +./109.2	
2.1 DI	-1004 AWG20 BU	/ diTrafoTempOK	+RG/108.2 +./109.2	
2.2 DI	-1005 AWG20 BU	/ diGunOpen	+RG/108.2 +./109.2	
2.3 DI	-1006 AWG20 BU	/ diHighLiftOpen	+RG/108.2 +./109.2	
2.4 DI	-1047 AWG20 BU	/ diAirOK	=WA_AE+SWC/110.2 =WA_AE+WA/112.3	
2.5 DI	-1049 AWG20 BU	/ diPressureOK	=WA_AE+SWC/110.2 =WA_AE+WA/112.3	
2.6 DI	-1045 AWG20 BU	/ diWaterFlow1OK	=WA_AE+SWC/110.2 =WA_AE+WA/112.3	
2.7 DI	-1046 AWG20 BU	/ diWaterFlow2OK	=WA_AE+SWC/110.2 =WA_AE+WA/112.3	
2.8 UP+24V	-831 AWG18 BU	/ UP(+24V)	+RG/108.2 +./109.2	
2.9 ZP 0V	-830 AWG18 BU	/ ZP_0V	+RG/108.2 +./109.2	

	-1007 AWG20 BU	/ doTimerOn	+RG/108.2 +./109.2	
-CH3:3.0 DO	-1009 AWG20 BU	/ doWeldPowerContact	+RG/108.2 +./109.2	
3.1 DO	-1010 AWG20 BU	/ doEqualize	+RG/108.2 +./109.2	
3.2 DO	-1011 AWG20 BU	/ doCloseGun	+RG/108.2 +./109.2	
3.3 DO	-1012 AWG20 BU	/ doOpenHighLift	+RG/108.2 +./109.2	
3.4 DO	-1013 AWG20 BU	/ doCloseHighLift	+RG/108.2 +./109.2	
3.5 DO	-1048 AWG20 BU	/ doStartWater	=WA_AE+SWC/110.2 =WA_AE+WA/112.3	
3.6 DO	-1053 AWG20 BU	/ doEpValveOn	=WA_AE+SWC/110.2 =WA_AE+WA/112.3	
3.7 DO	-833 AWG18 BU			
3.8 UP +24V	-832 AWG18 BU			
3.9 ZP 0V				

SINGLE CABINET
CP/CS

SPOT WELDING CABINET
-XT5.4/XP5.4

XS/XP60

-X113

+PG.RG/107.3 / +PG.RG-diGunOpen
+PG.RG/107.3 / +PG.RG-diWeldContact
+PG.RG/107.3 / +PG.RG-diTrafoTempOK
+PG.RG/107.3 / +PG.RG-diHighLiftOpen

AWG24 35
8:WHBK Spare
8:BK doWeldPowerContact
8:WHOG diWeldContact
8:OG doTimerOn
1:WHBK EPV
1:BK
10:YE
9:WHRD
9:RD
4:WHOG Spare/KSR
4:OG Spare/KSR
5:WHYE VOLT REG.
5:YE VOLT REG.

-1081 /
-1082 /
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-1080 /
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EPV1 /
OPTION 796-1
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BOSCH MFDC PROFINET

-3HAC15654-1
1:WHBU
1:BU
2:WHOG
2:OG

-XS/XP61
OPTION 873

+PG.RG/107.3 +PG.RG-doTimerOn /
+PG.RG/107.3 +PG.RG-doWeldPowerContact /
+PG.RG/107.3 +PG.RG-doEqualize /
+PG.RG/107.3 +PG.RG-doCloseGun /
+PG.RG/107.3 +PG.RG-doOpenHighLift
+PG.RG/107.3 +PG.RG-doCloseHighLift

Start_tip_dress / +PG.RG/107.3
Mains_on +PG.RG/107.3 /
Tip_Dress_on +PG.RG/107.3 /

+PG.RG/107.3 / +PG.RG-ZP_0V
+PG.RG/107.3 +PG.RG-UP(+24V) /

-XT5.1
AWG24 16
OG
YE
BU
GN
RD

-XS/XP13
diGunOpen
diHighLiftOpen
diTrafoTempOK
doEqualize
doCloseGun

AWG24 8
2/OG 2/OG
2/WH 2/WH
1/BU 1/BU
1/WH 1/WH
BK
BN

VOLT REG.
VOLT REG.
KSR
KSR
doOpenHighLift
doCloseHighLift

SEE CIRCUIT DIAGRAM 3HA026209-001
CABLE TO R1.CP/CS

SEE PAGE: 105
Bosch MFDC PROFINET

USE 3, 7 IF
POWERSUPPLY
G5 IS AVAILABLE

-XT31
-XT31 .1

-XT6.1
AWG20 24
BK
BN
RD
OG
GN
YE
VT
BU

+.RG-1088 AWG16 BU
+.RG-1089 AWG16 BU
AWG16 BU
AWG16 BU

24V
0V
24V
0V

1014 / =WA_AE+SWC/110.2
835 / =WA_AE+SWC/110.2
834 =WA_AE+SWC/110.2
BOSCH MFDC PROFINET

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Prepared by, date: THSTA	Approved by, date: SEMATO1				ROBOT GUN (RG)	Document no. 3HAC044736-001	Rev. Ind 00 / Page 108 / Next +PG/10 / Total

1	2	3	4	5	6	7	8

SINGLE CABINET
CP/CS

XS/XP60

+.RG/107.3 / +PG.RG-diGunOpen
+.RG/107.3 / +PG.RG-diWeldContact
+.RG/107.3 / +PG.RG-diTrafoTempOK
+.RG/107.3 / +PG.RG-diHighLiftOpen

+.RG/107.3 +PG.RG-doTimerOn /
/+.RG/107.3 doWeldPowerContact
+.RG/107.3 +PG.RG-doCloseGun /
+.RG/107.3 +PG.RG-doOpenHighLift
+.RG/107.3 +PG.RG-doCloseHighLift
+.RG/107.3 +PG.RG-doEqualize /

+.RG/107.3 / +PG.RG-ZP_0V
+.RG/107.3 +PG.RG-UP(+24V) /

-3HAC15654-1

-XS/XP61
OPTION 873

Start_tip_dress / +.RG/107.3
Mains_on +.RG/107.3 /
Tip_Dress_on +.RG/107.3 /

AWG24
35

8:WHBK
8:BK
8:WHOG
8:OG
1:WHBK
1:BK
10:YE
9:WHRD
9:RD
4:WHOG
4:OG
5:WHYE
5:YE

Spare
doWeldPowerContact
diWeldContact
doTimerOn
EPV
Spare/KSR
Spare/KSR
VOLT REG.
VOLT REG.

-X113

SPOT WELDING CABINET
-XT5.4

-1081 /
-1082 /
-1080 /
EPV1 /

SEE PAGE: 101 Bosch MFDC PROFINET
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OPTION 796-1 SEE PAGE: 105 BOSCH MFDC PROFINET
SEE PAGE: 105 Bosch MFDC PROFINET

-XS/XP5.7

-XT5.6

-X104

AWG24

-SG.CP/CS

PEDESTAL GUN
(CUST. CONN.)

KSR
KSR
VOLT REG.
VOLT REG.

1:WHBK
1:BK
6:WHGN
6:GN
6:WHBU
6:BU
9:BN
2:WHBN
2:BN
3:WHRD
3:RD

doOpenHighLift
doCloseHighLift
doCloseGun
diGunOpen
diHighLiftOpen
doEqualize
diTrafoTempOK
SPARE
SPARE
SPARE

0,75
0,75
0,75
0,75

24VDC
0VDC

SEE PAGE: 108
Robot Gun (RG)

USE 3, 7 IF
POWERSUPPLY
G5 IS AVAILABLE

-XT31
-XT31 .1

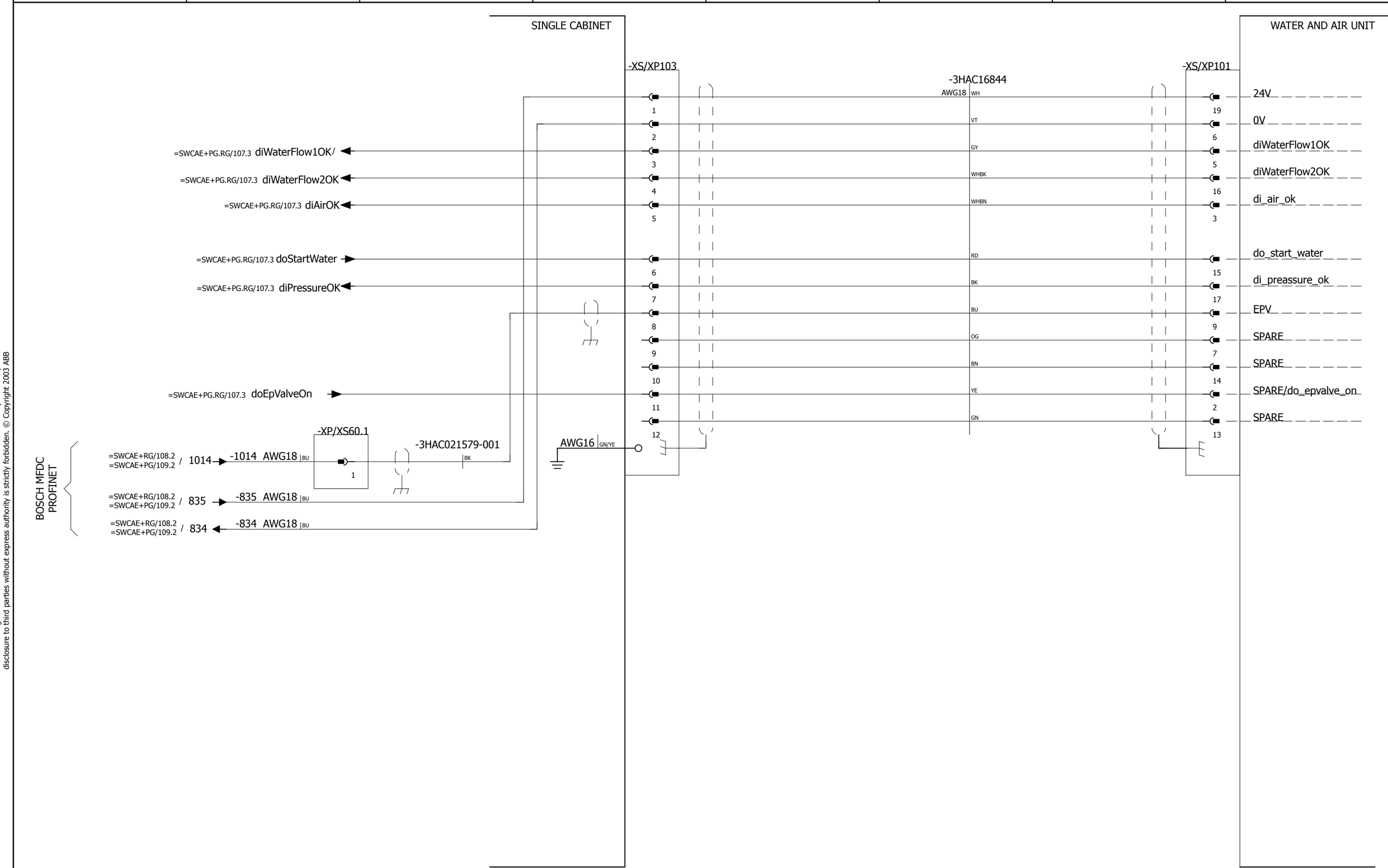
1088
1089

-1090 AWG18 |BU
-1091 AWG18 |BU

=+-1014 / =WA_AE+SWC/110.2
=+-835 / =WA_AE+SWC/110.2
=+-834 / =WA_AE+SWC/110.2

BOSCH MFDC PROFINET

Latest revision:		REGION E	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC	Status: APPROVED 2014-01-30
Prepared by, date: THSTA	Approved by, date: SEMATO1			PEDESTAL GUN (PG)	Plant: = SWCAE Location: + PG Sublocation: +
					Document no. 3HAC044736-001 / Rev. Ind 00 / Page 109 / Next =WA_AE / Total



Latest revision:	REGION E	ABB	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC PROFINET	Status: APPROVED 2014-01-30	Plant: = WA_AE Location: + SWC Sublocation: +	
Prepared by, date: THSTA / Approved by, date: SEMATO1				WATER AND AIR UNIT - SWC	Document no. 3HAC044736-001	Rev. Ind 00	Page 110 Next +WA/11 Total

-SPLITBOX2

-XS/XP101

24 VDC — 19
0 VDC — 6
=SWCAE+PG.RG/107.3 diWaterFlow1OK / — 5
=SWCAE+PG.RG/107.3 diWaterFlow2OK / — 16
=SWCAE+PG.RG/107.3 diAirOK / — 3
=SWCAE+PG.RG/107.3 doStartWater / — 15
=SWCAE+PG.RG/107.3 / -diPressureOK — 17
Sh105 Option 756-1 EPV/SPARE — 9
SPARE — 7
SPARE — 14
=SWCAE+PG.RG/107.3 doEpValveOn / — 2
SPARE — 13

-J1

MECHANICAL

0V
SIGNAL
-VD101.1 (1, 2)
WATER VALVE

-J2

24V
0V
SIGNAL BK
SIGNAL WH
BU
BN
-SF101.2
FLOW CONTROL 1

-J3

24V
0V
SIGNAL BK
SIGNAL WH
BU
BN
-SF101.3
OPTION: FLOW CONTROL 2
(1*)

-J4

24V
SIGNAL
0V
BU
WH
SIGNAL BK
BN
-SF101.4
PRESSURE SWITCH

-J5

24V
PROP. REG.
0V
FEED BACK
-PV1
OPTION: PROP. VALVE 1 PNEU.

-J6

VALID FOR

3HAC027294-001
3HAC027294-002
3HAC027294-003

(1*) TERMINAL 1 AND 4 STRAPPED IF NOT USED.

Latest revision:	REGION E	ABB	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC	Status: APPROVED 2014-01-30	Plant: = WA_AE Location: + WA Sublocation: +
					Document no. 3HAC044736-001	Rev. Ind 00
						Page 112 Next =PN+IR Total
Prepared by, date: THSTA	Approved by, date: SEMATO1			WATER AND AIR UNIT - SPLIT BOX		

SINGLE CABINET

SPOT WELDING CABINET

Phoenix Contact FL switch SFN 5TX 2891152
-A62

-XT31
1 1043 AWG18 BU
5 1044 AWG18 BU
L
L1+
M

P5
1 TX+
2 TX-
3 RX+
6 RX-

MAIN COMPUTER DSQC 639
-A31
LAN1
1 TX+
2 TX-
3 RX+
6 RX-

P4
1 TX+
2 TX-
3 RX+
6 RX-

CI502 DIGITAL I/O UNIT
-A56
ETH1
1 TX+
2 TX-
3 RX+
6 RX-

ETH2
1 TX+
2 TX-
3 RX+
6 RX-

AWG26
4x2
2/RD
2/BK
1/WH
1/BU

-X113

X7E1.1 /
X7E1.2 /
X7E1.3 /
X7E1.6 /

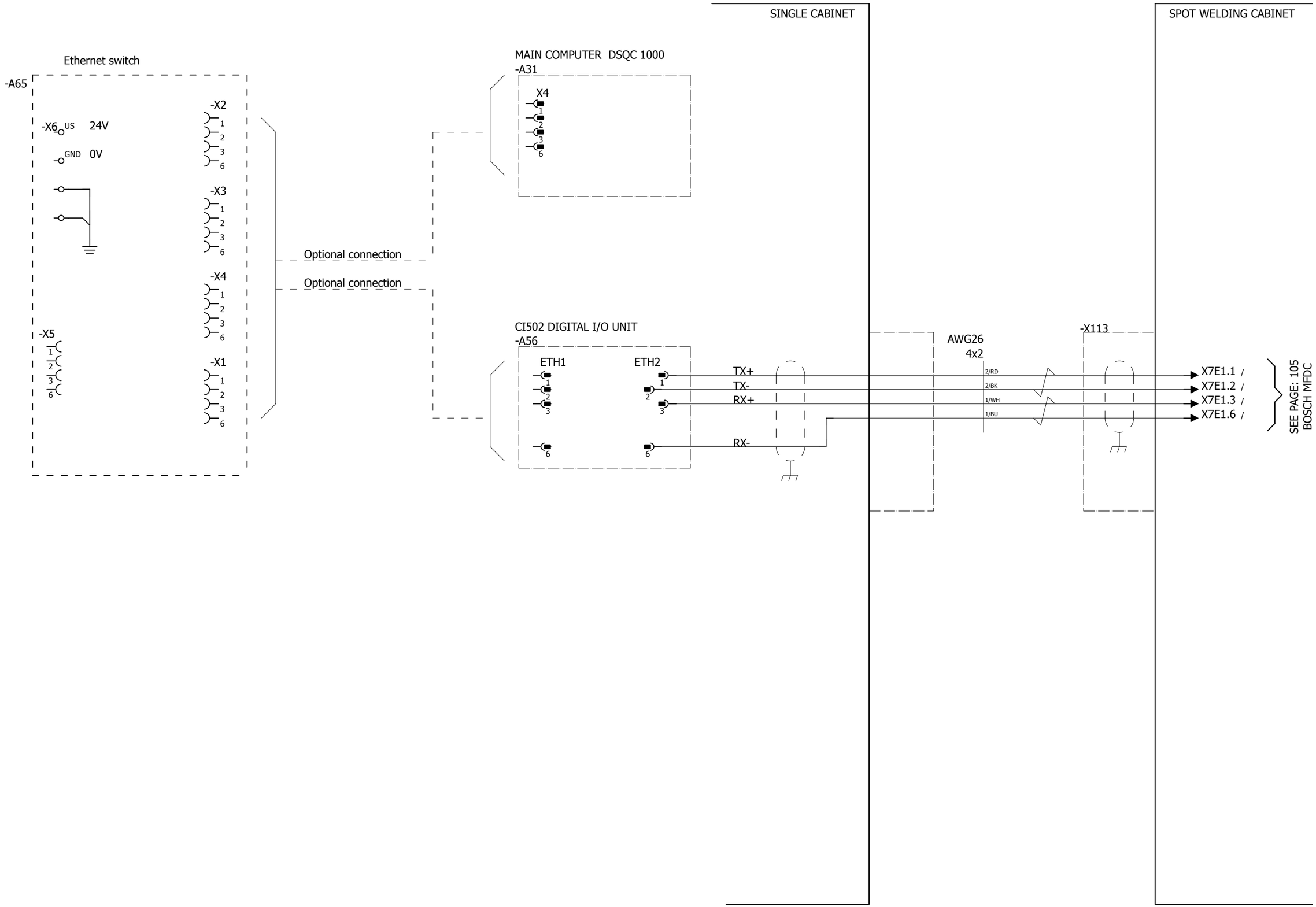
SEE PAGE: 105
BOSCH MFDC
PROFINET

-P3
1 TX±
2 TX-
3 RX±
6 RX-

P2
1 TX±
2 TX-
3 RX±
6 RX-

-P1
1 TX±
2 TX-
3 RX±
6 RX-

Latest revision:		REGION E	ABB	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC CPU DSQC 639	Status: APPROVED 2014-01-30	Plant: = PN Location: + IRC5 Sublocation: +
Prepared by, date: THSTA	Approved by, date: SEMATO1				PROFINET AND I/O	Document no. 3HAC044736-001	Rev. Ind 00



Latest revision:	REGION E	ABB	Lab/Office: DMRO SE/	SWC IRC5 Design 2014 PROFINET BOSCH MFDC CPU DSQC 1000	Status: 2014-01-30 APPROVED	Plant: = PN Location: + IRC5 Sublocation: +	
					Document no. 3HAC044736-001	Rev. Ind 00	Page 114.a Next Total
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