

AQUA COOLING SOLUTIONS LIMITED

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Customer	: Nautilus Data Technologie	Control panel by	: Shellau
Plant Designation	: HMI	Incoming supply	: 120VAC 60Hz
Drawing number	: P15033/HMI	Feeder	:
Project Number	:	Control voltage	: 24VDC
End User	: Nautilus Data Technologie	Manufacturing date	: November 2015
Site Location	: 1260 Nimitz Avenue	Degree of protect.	: IP54
	Vallejo	Panel Location	:
	CA 94592		
Created on	: 03. Nov. 2015		
Responsible for project	: M. CARMODY		
Date changed	: 04. Nov. 2015	Highest Page No.	: 61
Editor	: MDC	No. of pages	: 12

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GENERAL SPECIFICATIONS AND TECHNICAL INFORMATION

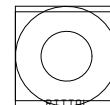
CONTROL PANEL DETAILS	SPECIFICATION	NOTE COMMENTS: -	PAINT FINISH	SPECIFICATION
TOTAL SIZE OF ENCLOSURE/CONTROL PANEL/S	380(H)x600(W)x210(D)mm	RITTAL: TS RANGE (1200/800mm Width) SECTIONS	GLOSS: SEMI GLOSS: MATT: POWDER-COATED etc	RITTAL STANDARD PAINT FINISH
APPROXIMATE OVERALL WEIGHT	25kg.		EXTERIOR COLOUR (EXCLUDING DOORS)	RITTAL POWDER-COATED TEXTURED (RAL 7035)
SYSTEM SUPPLY	1 PHASE/NEUTRAL/EARTH 230VAC/50Hz		EXTERIOR COLOUR (DOORS)	RITTAL POWDER-COATED TEXTURED (RAL 7035)
SYSTEM SUPPLY TYPE	TN-S		INTERIOR COLOUR (EXCLUDING BACKPLATE)	RITTAL POWDER-COATED TEXTURED (RAL 7035)
SYSTEM SUPPLY REQUIREMENTS	6AMP SUPPLY		INTERIOR COLOUR (INSIDE OF DOORS)	RITTAL POWDER-COATED TEXTURED (RAL 7035)
SYSTEM SUPPLY ALLOWANCES FOR DIVERSITY	DIVERSITY 100%FLC CONNECTED		MOUNTING PLATE/S	RITTAL STANDARD (ZINC PLATED)
SYSTEM SUPPLY DESIGN CURRENT REQUIREMENTS			BASE/PLINTH (FITTED)	RITTAL STANDARD (RAL 7022)
MAIN SUPPLY ISOLATOR TYPE 400AMP FUSE DISCONNECTOR			CABLE CHAMBER (NOT FITTED)	RITTAL POWDER-COATED TEXTURED (RAL 7035)
SHORT CIRCUIT CAPACITY				
APPARENT POWER (KVA CONNECTED)		$P = V \times I \times 1.732$		
ACTIVE POWER (KW CONNECTED)		$P = V \times I \times 1.732 \times 0.8$		
DC CONTROL POWER (WATTS CONNECTED)		POWER SUPPLY UNIT 400VAC/24VDC/60AMP/1440W.		
ENCLOSURE LIGHTS & SOCKETS, VOLTAGE	230VAC			
CONTROL & INDICATION VOLTAGE	24VDC			
PROTECTION	SPECIFICATION	COMMENTS: -	PLC EQUIPMENT	SPECIFICATION
BS/EN/IEC STANDARDS IMPLEMENTED	EN292/BSEN954-1/BSEN60204-1/BS7671	NOTE: -ALL APPLICABLE & RELEVANT STANDARDS etc.	PLC MAKE	ALLEN BRADLEY
DEGREE OF ENCLOSURE PROTECTION (IP RATING)	IP54		PLC TYPE	POINT IO
DETAILS OF EQUIPMENT BY BARRIER SCREENING	25VAC/60VDC AND ABOVE (IP20B)	NOTE: -DRY ENVIRONMENTS MAINTAINED (EN60204)	PLC INTERFACE	ETHERNET
EQUIPOTENTIAL BONDING IMPLEMENTED	YES	BS7671 STANDARDS		
AUTOMATIC DISCONNECTION INSTALLED	YES			
MANUFACTURERS SPECIFICATIONS IMPLEMENTED	YES			
EMC STANDARDS REQUIRED (SCREENING)	YES	MANUFACTURERS EMC REQUIREMENTS IMPLEMENTED		
STANDARD LABELS TO BE FITTED	YES	HAZARDS/WARNING SIGNS AND VOLTAGE LABELS		
CONDUCTORS AND TERMINATIONS	SPECIFICATION	COMMENTS: -	CABLE COLOURS	SPECIFICATION
MINIMUM SIZE OF POWER WIRING	2.5mm <sup>2</sup>		AC 400VAC POWER WIRING	BLACK
MINIMUM SIZE OF CONTROLS & I/O WIRING 24VDC	1.0mm <sup>2</sup> (I/O 0.5mm <sup>2</sup> )		AC 230VAC POWER WIRING	BLACK
MINIMUM SIZE OF POWER TERMINALS	4.0mm TERMINATION		PROTECTIVE CONDUCTOR	GREEN/YELLOW
MINIMUM SIZE OF CONTROL TERMINALS	2.5mm TERMINATION		AC CONTROL CIRCUITS +	RED
MAIN POWER BUSBAR SIZE	15x5mm COPPER BAR		AC CONTROL CIRCUITS -	WHITE/RED
MAIN EARTH BUSBAR SIZE	30x15mm COPPER BAR		DC CONTROL CIRCUITS +	DARK BLUE
EARTH BUSBAR POSITIONS	BOTTOM OF PANEL/S		DC CONTROL CIRCUITS -	WHITE/BLUE
METHOD OF TERMINATING OUTGOING PROTECTIVE CONDUCTORS	BUSBAR AND/OR PE TERMINALS		NEUTRAL CIRCUITS	LIGHT BLUE
EXTERNAL CABLES, ENTRY POSITION	BOTTOM/TOP ENTRY		LIVE SIDE OF ISOLATOR CIRCUITS	ORANGE
METHOD OF FIXING/SUPPORTING OUTGOING CABLES	CABLE TRUNKING/TRAY		EXTERNALLY FED INTERLOCKS CIRCUITS (AC)	ORANGE
SCHEMATIC SYMBOLS & CONTACT REFERENCE NUMBERS Etc	SYMBOLS BS EN 60617	EQUIPMENT PAGE-PATH NUMBERING.	EXTERNALLY FED INTERLOCKS CIRCUITS (DC)	ORANGE
GENERAL COMMENTS: -				

# EN SAFETY RELATED CATEGORIES

<u>EN954-1 SAFETY RELATED CIRCUIT CATEGORIES.</u>		<u>MACHINERY AND EQUIPMENTS.</u>	<u>BSEN 60204-1 SAFETY RELATED STOPPING CATEGORIES.</u>
<u>CATEGORY "B"</u>	PLC INPUT CONTROLLED. PLC OUTPUT CONTROLLED. PLC OUTPUTS FOR RUN ENABLE RELAY. PLC OUTPUTS FOR INVERTER POWER CONTACTORS.	MOTOR CONTACTORS INVERTER DRIVE UNITS CONTROL PANEL EMERGENCY STOP DRIVE BOX EMERGENCY STOP OP STATION EMERGENCY STOP	<u>CATEGORY "2"</u> IMMEDIATE STOP (PLC CONTROLLED) CONTACTORS.
<u>CATEGORY "1-2"</u>	DUAL CHANNEL INPUT TO SAFETY RELAY. SINGLE CHANNEL OUTPUT FROM SAFETY RELAY TO HARDWIRED CONTACTOR.	MOTOR CONTACTORS INVERTER DRIVE UNITS CONTROL PANEL EMERGENCY STOP	<u>CATEGORY "0"</u> IMMEDIATE STOP (SAFETY CONTACTS) DUAL CHANNEL HARDWIRED CONTROLLED TO CONTACTOR WITH DIVERSITY CIRCUITS.
<u>GENERAL DUTY TENANCE NOTE:</u> ISOLATE ALL MACHINERY AND/OR EQUIPMENT AT ISOLATION POINTS BEFORE UNDERTAKING ANY DUTY TENANCE WORK.			

52HMI1

CAREL HMI



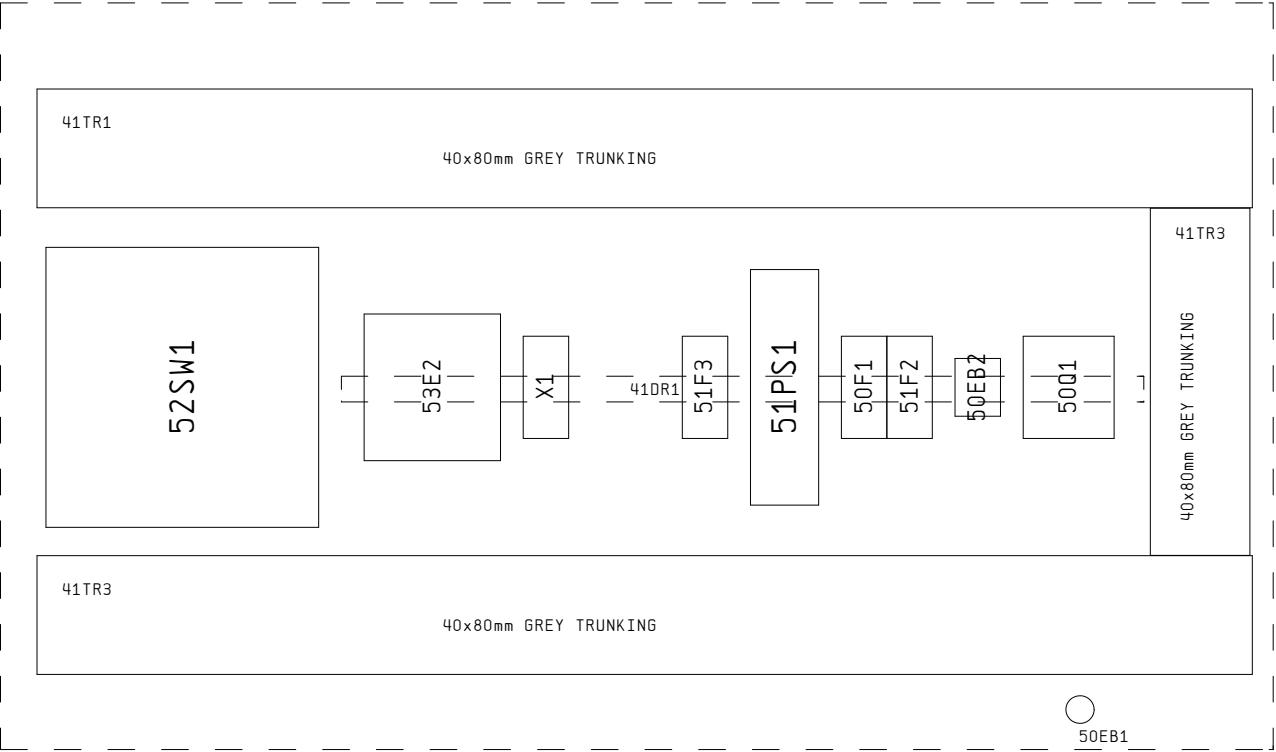
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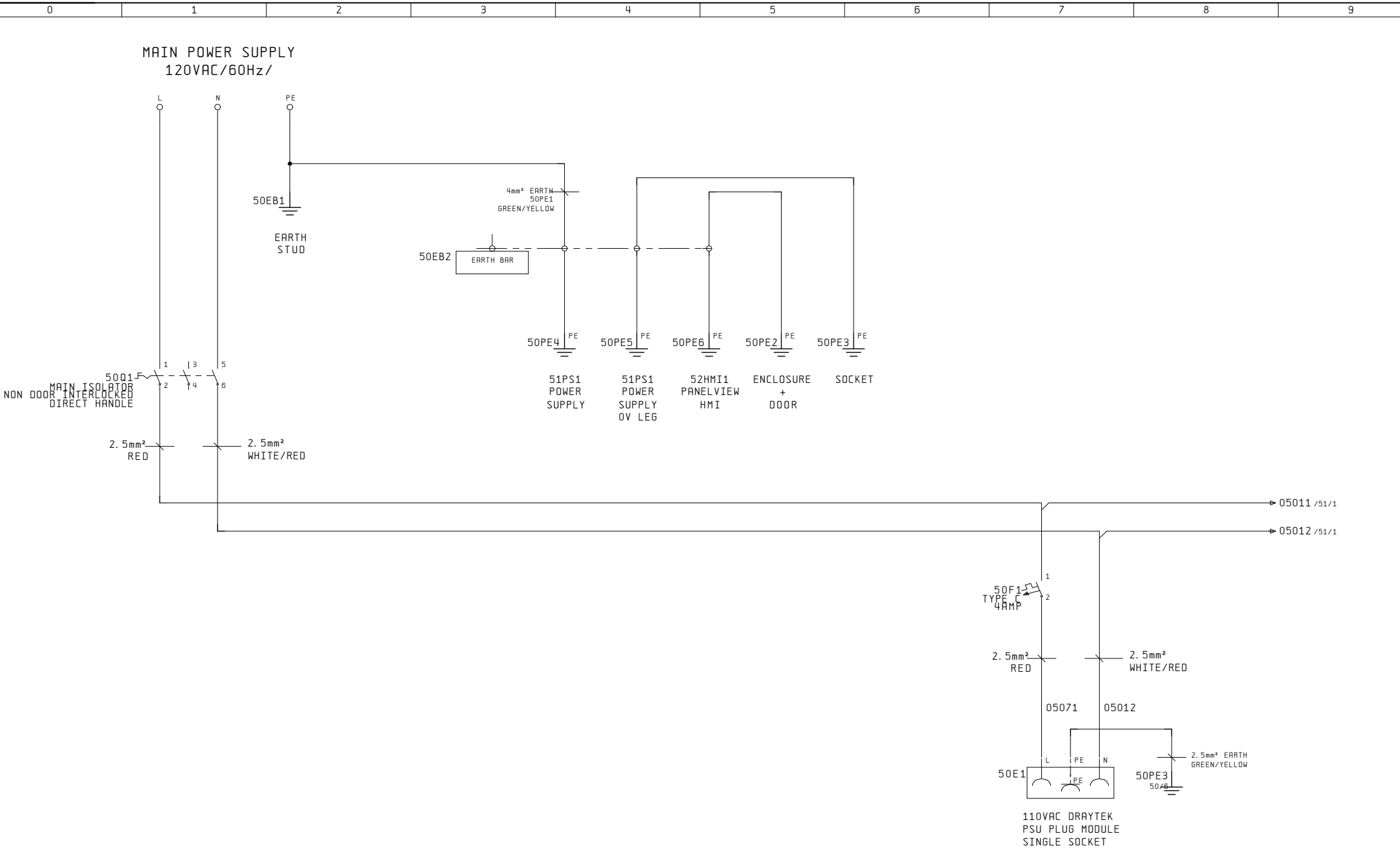
MANUFACTURING NOTE: -  
ALL DIMENSIONS AND POSITIONS  
ARE APPROXIMATE SCALE 1:2  
(A3 PRINT SIZE)

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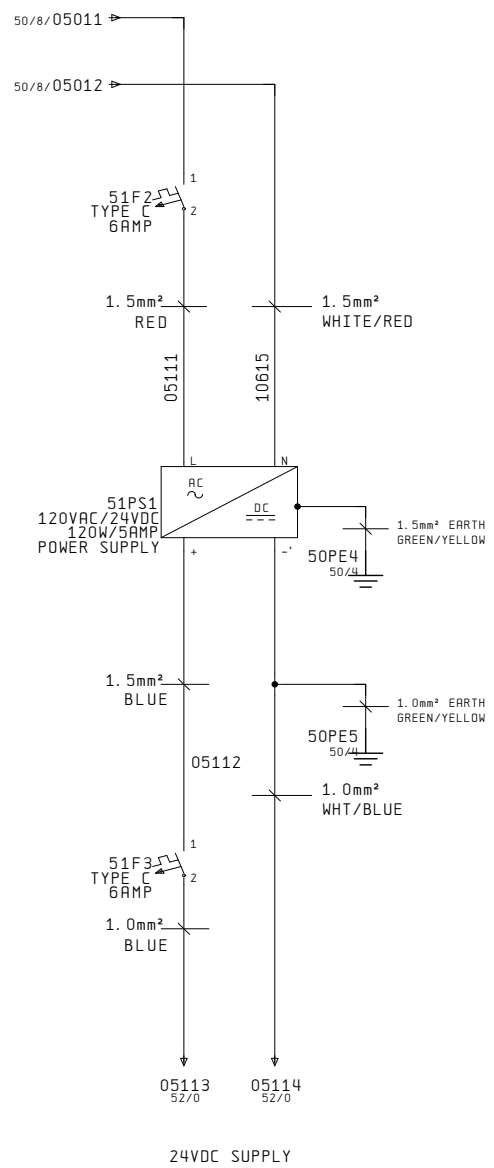
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			Date	03. Nov. 2015	HMI		AQUA COOLING SOLUTIONS	Control Panel General Arrangement	P15033/HMI		=			
			Editor	M. CARMODY									+	
			Tested	04. Nov. 2015							REV. B	ISSUED FOR MANUFACTURE	P. 40	
Changes	Date	Name	Norm		Original	Sub. f.	Sub. b.		04/11/2015			61 P.		



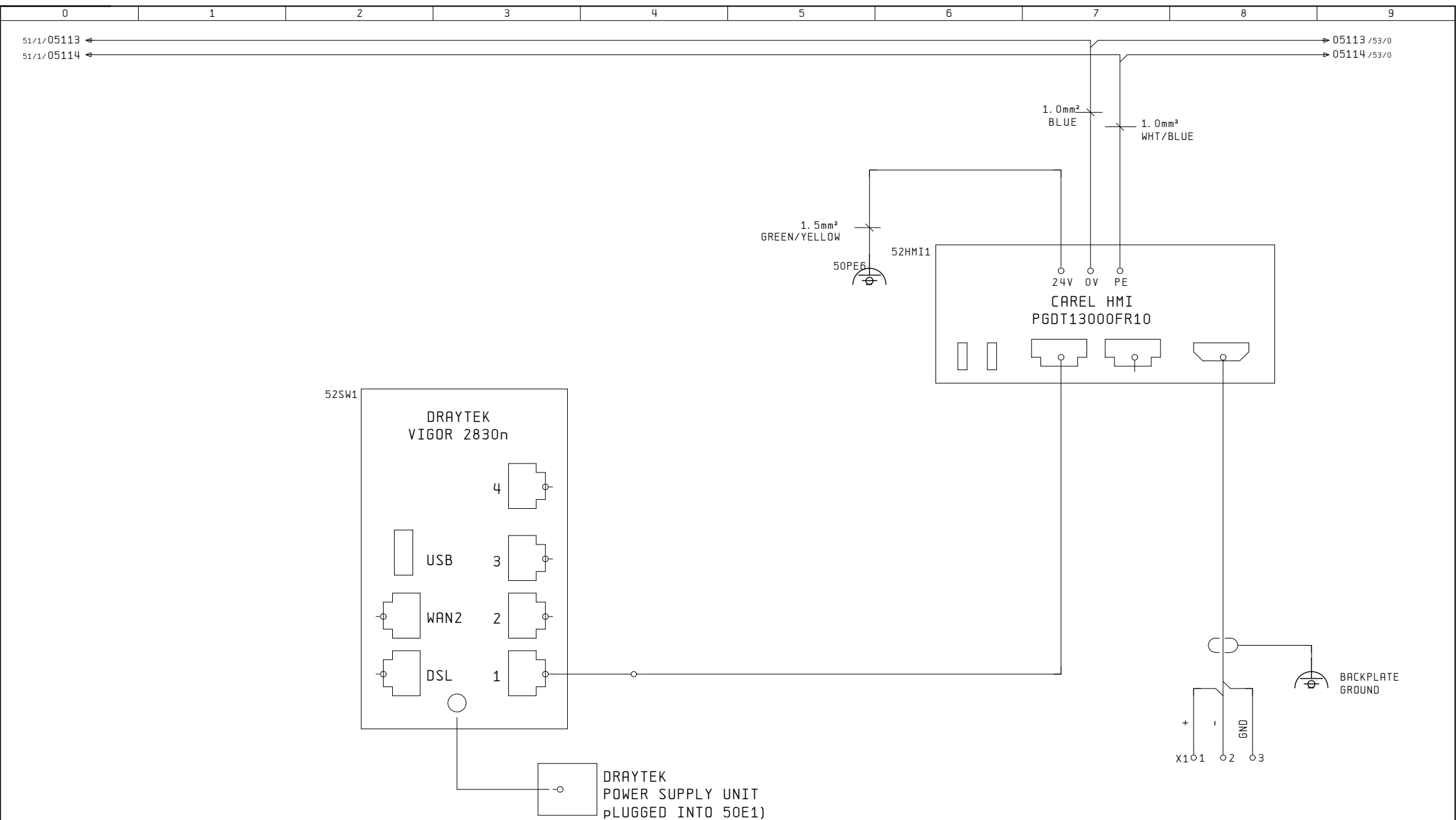


			Date	03. Nov. 2015	HMI	AQUA COOLING SOLUTIONS		110VAC Power Supply Distribution		P15033/HMI		=
			Editor	M. CARMODY								+
			Tested	04. Nov. 2015								
Changes	Date	Name	Norm		Original	Sub. f.	Sub. b.			REV. B	ISSUED FOR MANUFACTURE 04/11/2015	P. 50 61 P.



			Date	03. Nov. 2015	HMI	AQUA COOLING SOLUTIONS	24VDC Power Supply Distribution	P15033/HMI		
			Editor	M. CARMODY				REV. B	ISSUED FOR MANUFACTURE	P. 51
			Tested	04. Nov. 2015						
Changes	Date	Name	Norm		Original	Sub. f.	Sub. b.		04/11/2015	61 P.

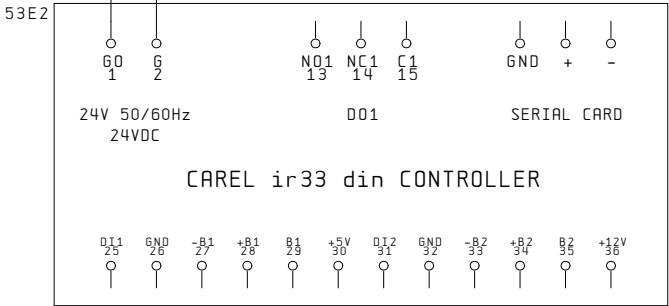




			Date		HMI	AQUA COOLING SOLUTIONS	Draytek Router Carel HMI	P15033/HMI			
			Editor	MDC							
			Tested	04. Nov. 2015							
Changes	Date	Name	Norm		Original	Sub. f.	Sub. b.	REV. B	ISSUED FOR MANUFACTURE		P. 52
									04/11/2015		61 P.

52/9/05113 ←

52/9/05114 ←



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DEVICE DESIGNATION	DESCRIPTION	MODEL TYPE/PART №	MANUFACTURER	UNIT QUANTITY	SCHMATIC PAGE. PATH	LINE CODE	ITEM №		
40ENC1	600x380x210mm AE ENCLOSURE	AE 1039.500	Rittal Ltd	1	40. 0		1		
41TR1	40X80mm NARROW TRUNKING	E154	Lovato Electric	1	41. 2		2		
41TR3	40X80mm NARROW TRUNKING	E154	Lovato Electric	1	41. 2		3		
41DR1	35mm X 7.5mm TOP HAT SLOTTED RAIL NORMAL DUTY	TS35S	Lovato Electric	1	41. 5		4		
41TR3	40X80mm NARROW TRUNKING	E154	Lovato Electric	1	41. 7		5		
50Q1	3 POLE 25A SIRCO M LOADBREAK SWITCH	2200 3002	SOCOMEK	1	50. 1		6		
50Q1	DIRECT HANDLE - BLUE 16...80	2299 5012	SOCOMEK	1	50. 1		7		
50Q1	TERMINAL SHROUD 3 POLE 16-40A	2294 3005	SOCOMEK	1	50. 1		8		
50EB1	M8x40mm BRASS HEX BOLT	M8X40	Merlin	1	50. 2		9		
50EB1	M8 CUT WASHER	M8S	Merlin	1	50. 2		10		
50EB1	M8 BRASS WASHER	M8W	Merlin	2	50. 2		11		
50EB1	M8 BRASS NUT	M8N	Merlin	2	50. 2		12		
50EB2	4mm PE Terminal	57.504.9055.0	WIELAND ELECTRIC	3	50. 3		13		
50F1	4A 1 POLE AC C CURVE MCB	AB1489-M1C040	ALLEN BRADLEY	1	50. 7		14		
50E1	SWITCHED SINGLE SOCKET	811 27	LEGRAND	1	50. 7		15		
51F2	6A 1 POLE AC C CURVE MCB	AB1489-M1C060	ALLEN BRADLEY	1	51. 1		16		
51PS1	85...264VAC 24VDC POWER SUPPLY 5A	AB1606XLE120E	ALLEN BRADLEY	1	51. 1		17		
51F3	6A 1 POLE DC C CURVE MCB	AB1492-D1C060	ALLEN BRADLEY	1	51. 1		18		
52SW1	ROUTER	VIGOR 2830N	Draytek	1	52. 2		19		
RJ2	RJ45 TO RJ45 PATCHCORD	AB1585JM4TBJM2	ALLEN BRADLEY	1	52. 4		20		

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			Date	04. Nov. 2015	HMI		AQUA COOLING SOLUTIONS	Bill of Materials	P15033/HMI		=	
			Editor	TMC							+	
			Tested	04. Nov. 2015							REV. B	
Changes	Date	Name	Norm		Original	Sub. f.	Sub. b.			04/11/2015	61 P.	