

SPECIFICATIONS



Model	OPA 970RLTB2FPQD-S2 Econex Pro
Configuration	Horizontal Supply Air
Item No. (Standard / Opposite Hand)	876-097-701 / 876-097-710
Configuration	Downward Supply Air
Item No. (Standard / Opposite Hand)	876-097-723 / 876-097-732
Cooling capacity (net) ¹	91 kW
Cooling capacity range (gross)	16 ~ 102 kW
Heating capacity ¹	95.8 kW
Heating capacity range	13 ~ 110 kW
Electrical input - cooling	29.9 kW
Electrical input - heating	28.7 kW
EER / AEER (cooling) ¹	3.04 / 3.03
COP / ACOP (heating) ¹	3.34 / 3.33
Operating Range (outdoor ambient) - cooling	-10°C ~ 50°C
Operating Range (outdoor ambient) - heating	-10°C ~ 25°C
Master Controller	<i>c.pCO</i>
Slave Controllers	UC8 (x2)
Refrigerant	R32
Refrigerant Charge	10 kg/sys.
Minimum floor area (@2.4m below ceiling diffuser)	53 m ²
Compressor oil type	POE-46 (NXG5020 or equivalent)
Compressor type	inverter scroll (x2)
Power supply ²	3 ph. 400 V ac 50 Hz + N + E
Compressor (3ph.) run amps at rating cond.	19 A/ph. (x2)
Compressor + VSD circuit breaker	40 A (x2)
Indoor fan motor size	EC Plug 500 dia. 3.65kW (x2)
Nominal air flow at rating conditions	4 700 l/s
Indoor fan motor (3ph.) - full load	4.5 A/ph. (x2)
Outdoor fan motor (3ph.) - full load	5.5 A/ph. (x2)
Outdoor fan max. static pressure@ 10 560 l/s	125 Pa
Control circuit breaker (internal)	2 A
Single phase socket circuit breaker	10 A
Running amps (total system) ¹	46 / 41 / 47 A.
Max. running amps (total system)	74 / 74 / 77 A
RCD type recommended	type B, 30mA, 3 pole
Net weight	1270 kg
Shipping weight	1296 kg

Accessories:

Remote wired Service Interface Device (<i>pGD1</i>)	201-000-379
Filters - rated EU4/G4 disposable	019-400-004 500x500x50 (x9) ³
Filters - rated EU4/G4 washable (NZ Only)	019-000-033 500x500x50 (x9) ³
Drain tundish (2 per set; 2 sets required)	060-000-653

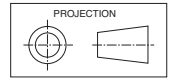
Refer to temperzone for other options.

¹ Tested in accordance with AS/NZS 3823

² Voltage range: 376-440V

³ Filter sizes are nominal; refer to Temperzone for actual measurements.

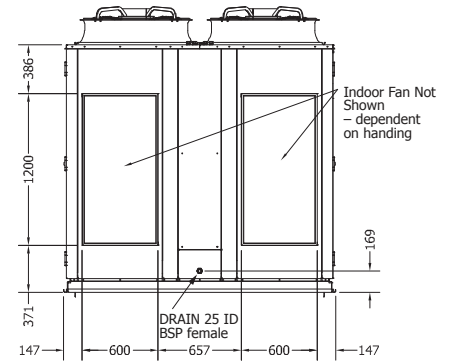
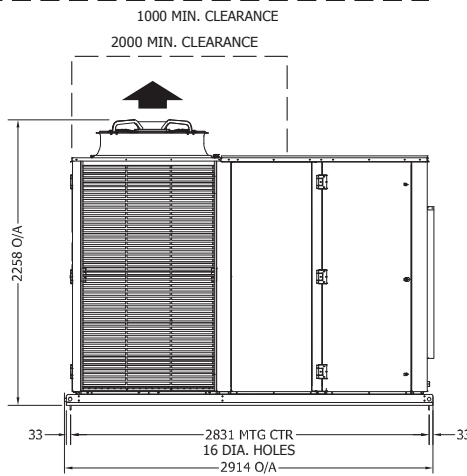
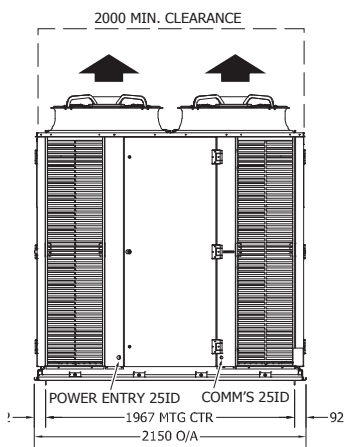
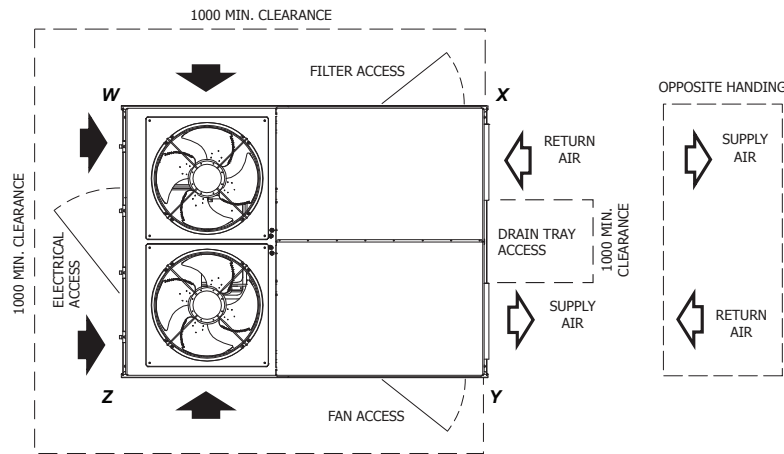
DIMENSIONS (mm)



OPA 970RLTBFPQD01-S2 Standard Hand, Horizontal Supply

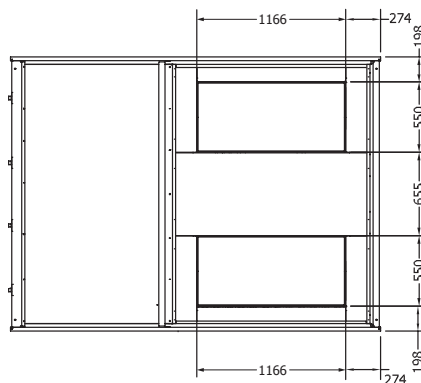
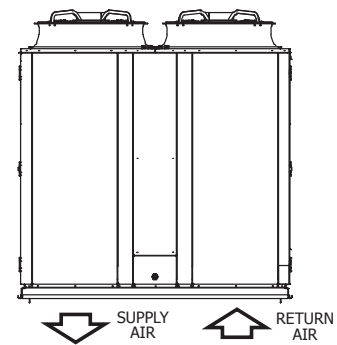
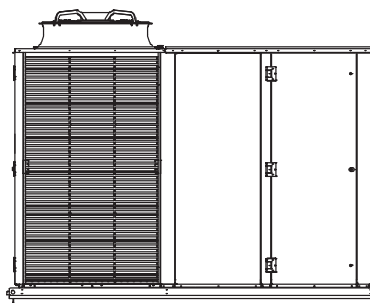
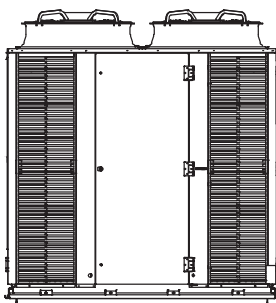
Not to Scale

POINT LOADS (kg)			
W	X	Y	Z
341	266	280	383



OPA 970RLTBFPQD23-S2 Standard Hand, Downward Supply

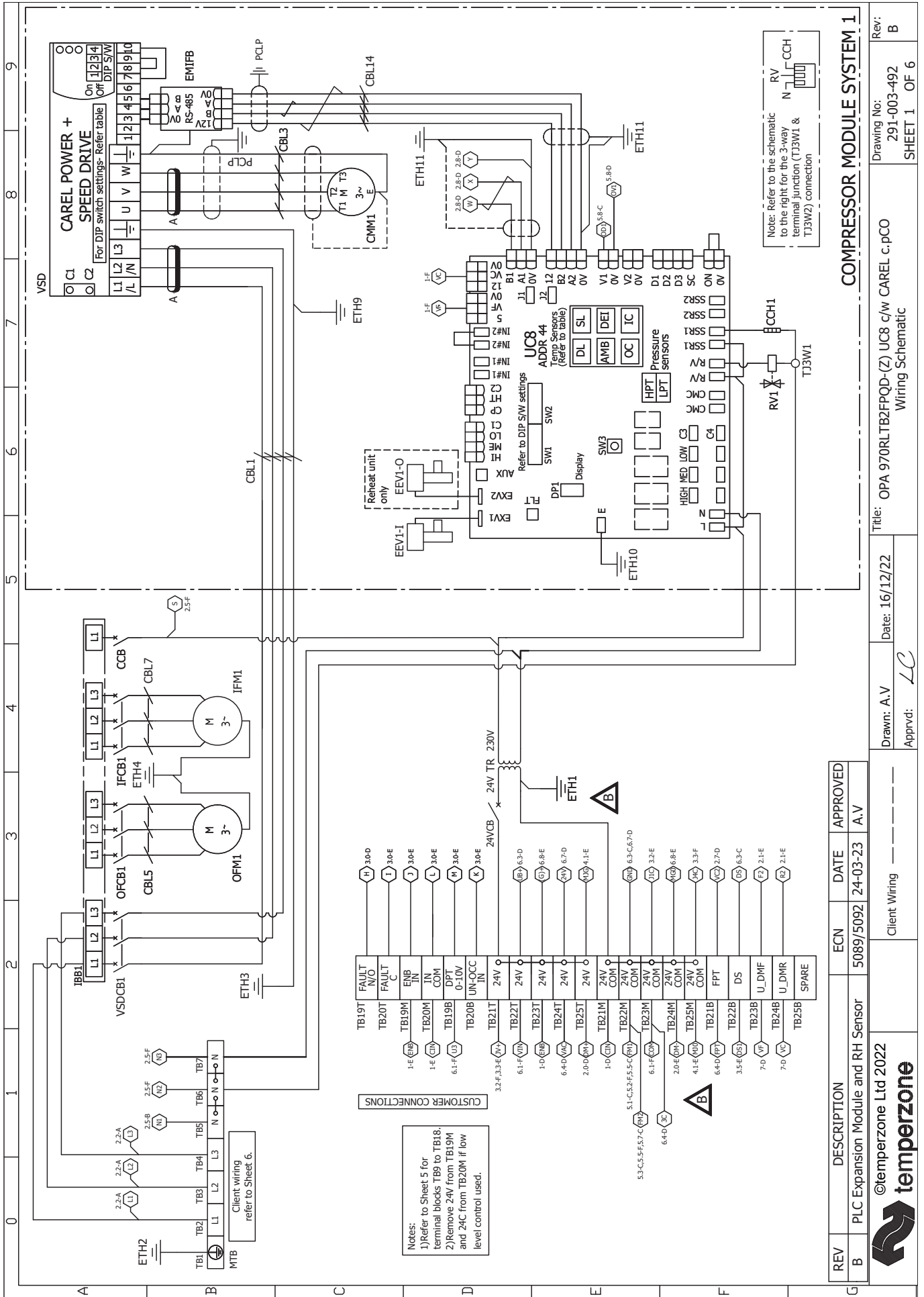
Clearances as above



NOTE

Specifications are subject to change without notice due to the manufacturer's ongoing research and development programme.

BOTTOM VIEW



REV	DESCRIPTION	ECN	DATE	APPROVED
B	PLC Expansion Module and RH Sensor	5089/5092	24-03-23	A.V



©temperzone Ltd 2022

Client Wiring

Drawn: A.V
 Apprvd: LC

Date: 16/12/22

Title: OPA 970RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO
 Wiring Schematic

Drawing No: 291-003-492
 SHEET 1 OF 6
 Rev: B

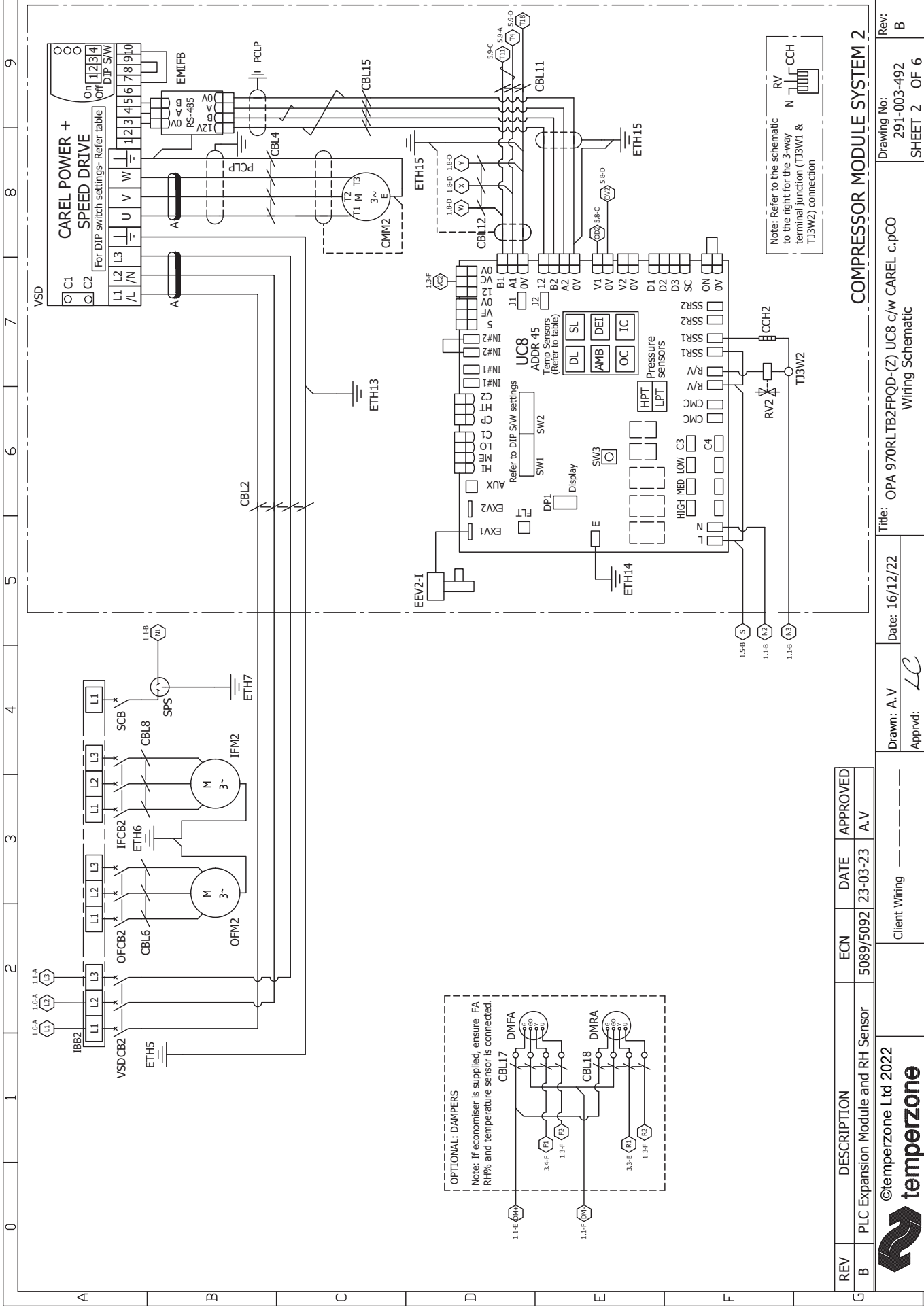
COMPRESSOR MODULE SYSTEM 1

Notes:
 1) Refer to Sheet 5 for terminal blocks TB9 to TB18.
 2) Remove 24V from TB19M and 24C from TB20M if low level control used.

CUSTOMER CONNECTIONS

Note: Refer to the schematic to the right for the 3-way terminal junction (TJ3W1 & TJ3W2) connection

WIRING (2)



COMPRESSOR MODULE SYSTEM 2

Rev: B
 Drawing No: 291-003-492
 SHEET 2 OF 6

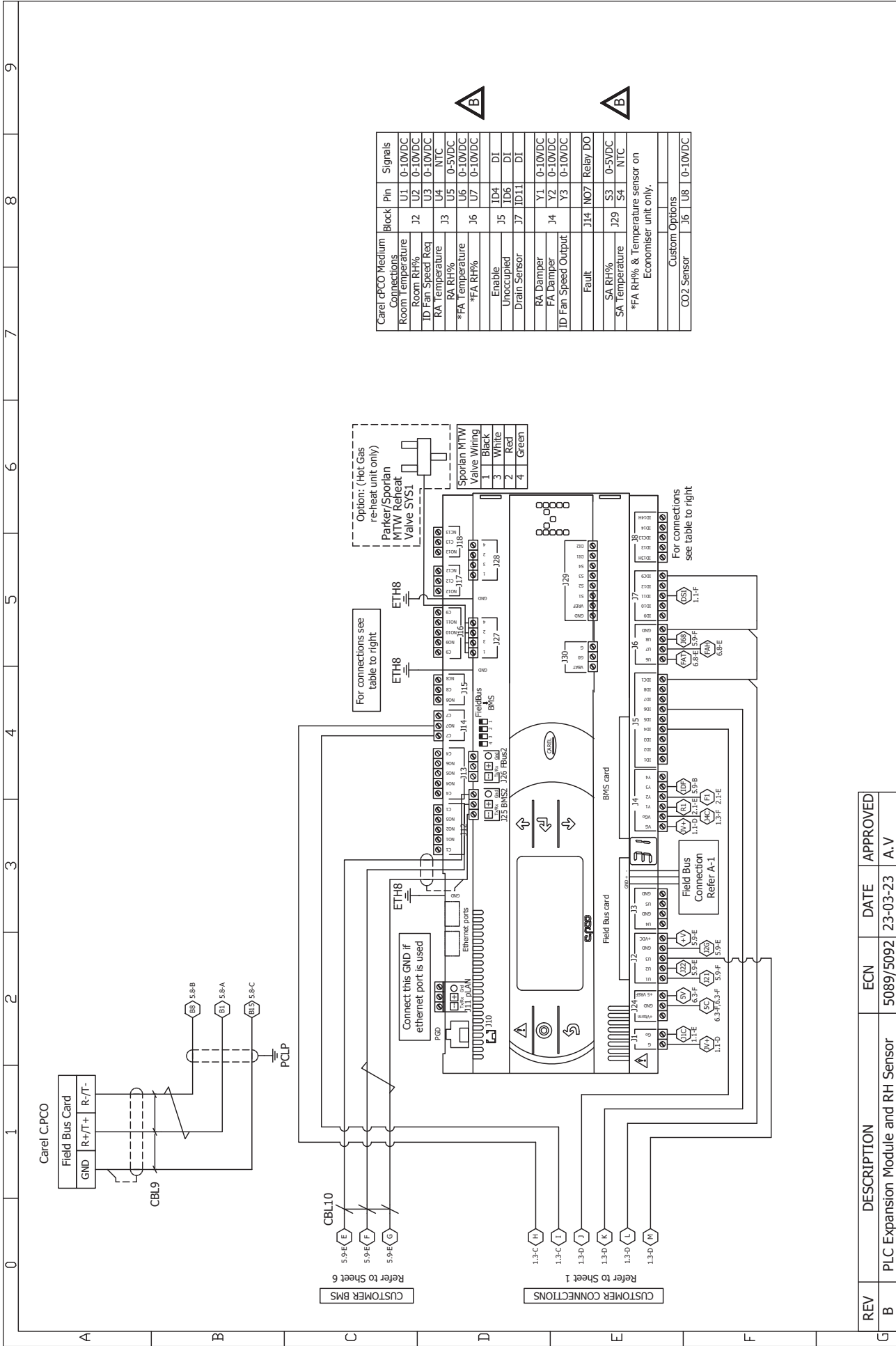
Title: OPA 970RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO
 Wiring Schematic

Date: 16/12/22
 Drawn: A.V
 Appr'd: LC

REV	DESCRIPTION	ECN	DATE	APPROVED
B	PLC Expansion Module and RH Sensor	5089/5092	23-03-23	A.V



@temperzone Ltd 2022



REV	DESCRIPTION	ECN	DATE	APPROVED
B	PLC Expansion Module and RH Sensor	5089/5092	23-03-23	A.V

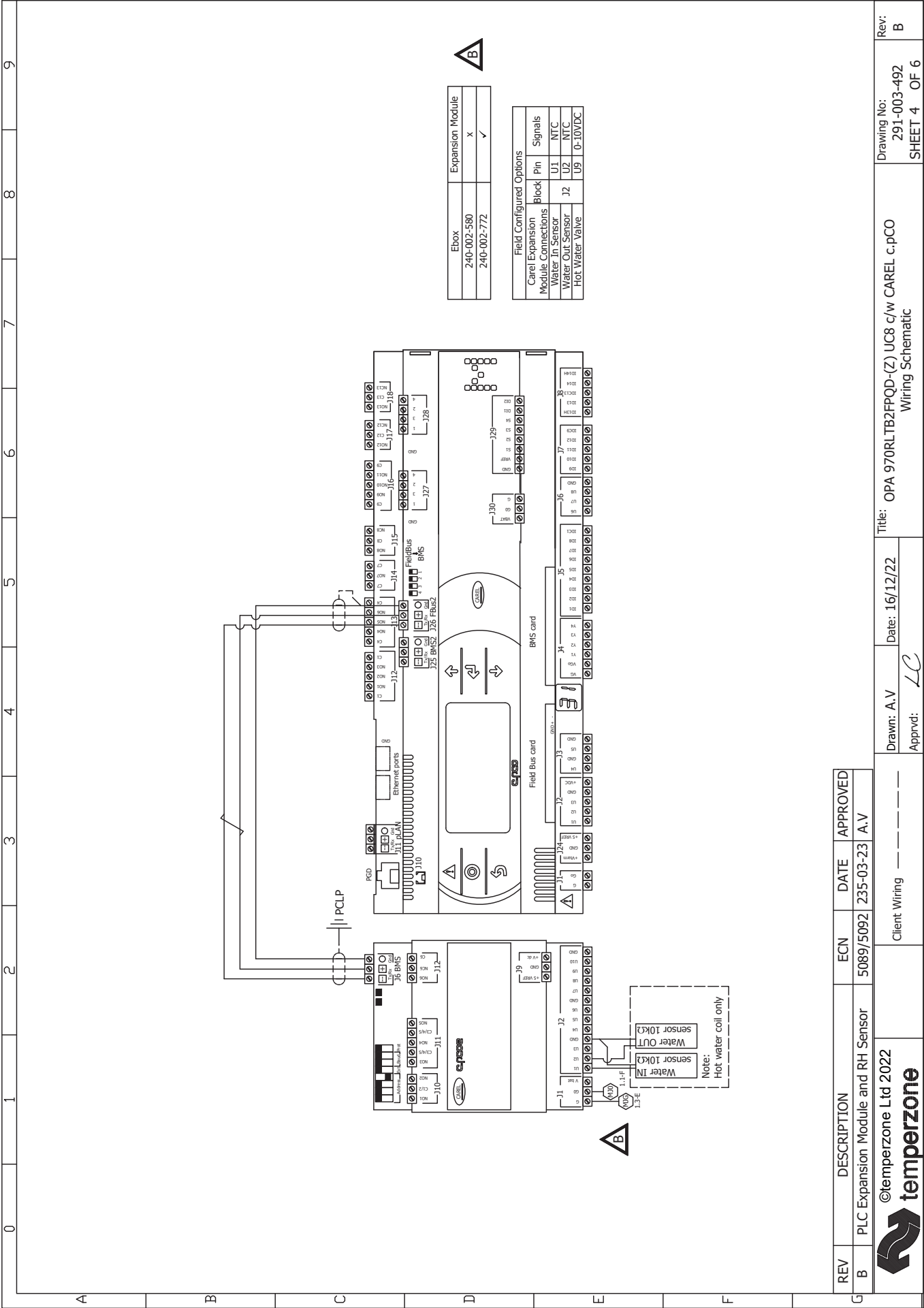
Drawn: A.V	Date: 16/12/22	Title: OPA 970RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO Wiring Schematic
Apprvd: LC		

Rev: B	Drawing No: 291-003-492	SHEET 3 OF 6
--------	-------------------------	--------------



©temperzone Ltd 2022

Client Wiring



Expansion Module	Expansion Module
240-002-580	X
240-002-772	✓

Field Configured Options	
Carel Expansion Module Connections	Block
Water In Sensor	U1
Water Out Sensor	U2
Hot Water Valve	U9

REV	DESCRIPTION	ECN	DATE	APPROVED
B	PLC Expansion Module and RH Sensor	5089/5092	235-03-23	A.V



@temperzone Ltd 2022

Client Wiring

Drawn: A.V

Apprvd: LC

Date: 16/12/22

Title: OPA 970RL TB2FPQD-(Z) UC8 c/w CAREL c.pCO Wiring Schematic

Drawing No: 291-003-492

SHEET 4 OF 6

Rev: B

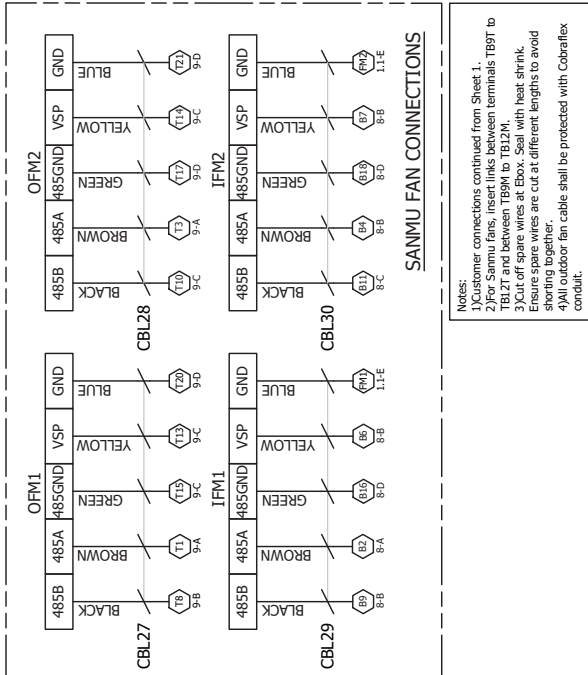
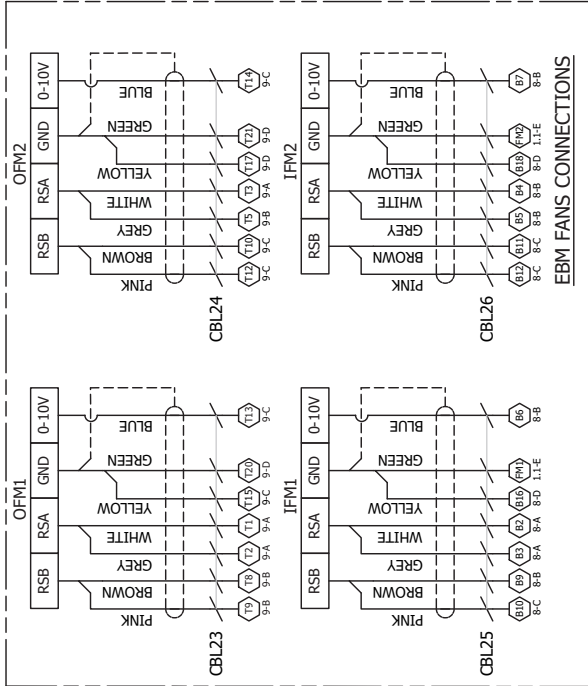
0 1 2 3 4 5 6 7 8 9

A B C D E F

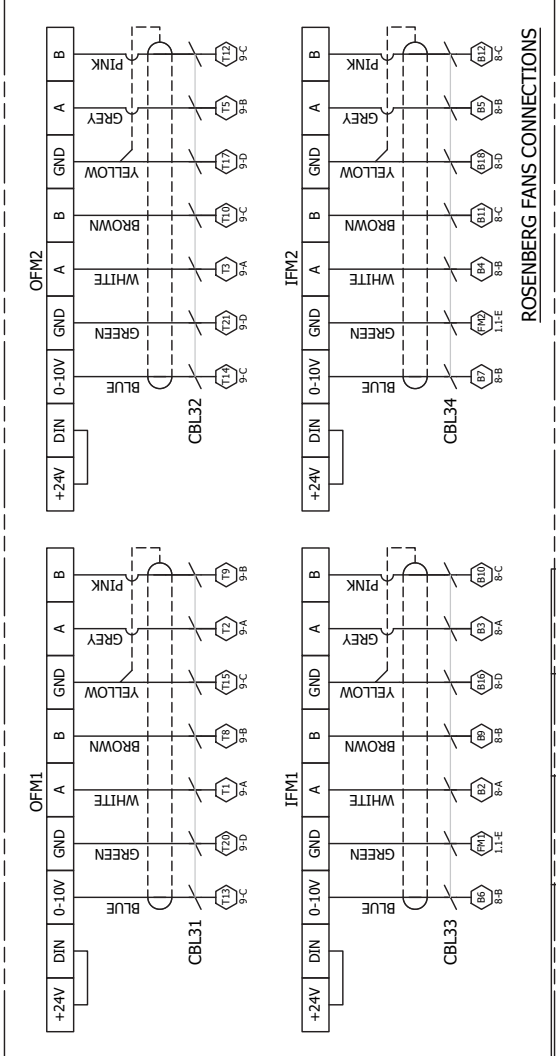
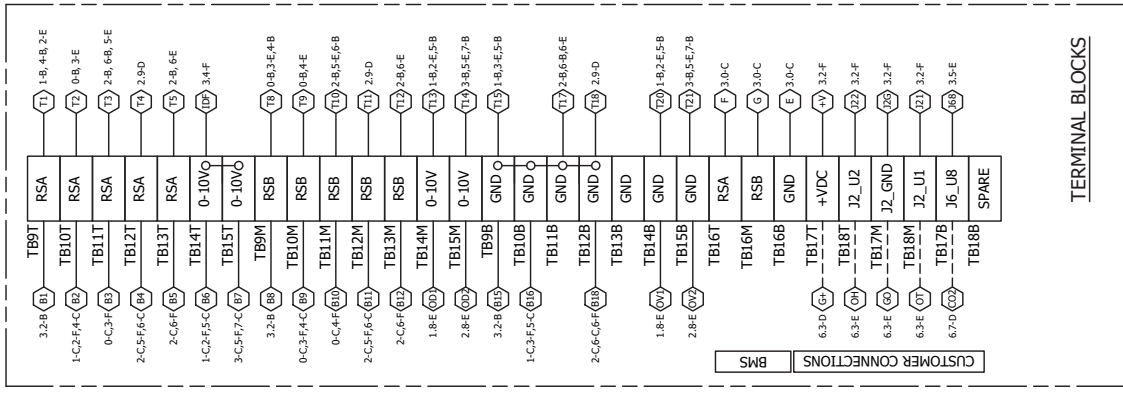
G

0 1 2 3 4 5 6 7 8 9

NOTE: THE FOLLOWING FANS CONNECTIONS APPLY, DEPENDING ON THE MAKE OF FANS INSTALLED IN THE UNIT.



- Notes:
- 1) Customer connections continued from Sheet 1.
 - 2) For Sanmu fans, insert links between terminals TB9T to TB12T and between TB9M to TB12M.
 - 3) Cut off spare wires at cut at different lengths to avoid shorting together.
 - 4) All outdoor fan cable shall be protected with Cobraflex conduit.



REV	DESCRIPTION	ECN	DATE	APPROVED
B	PLC Expansion Module and RH Sensor	5089/5092	235-03-23	A.V



Client Wiring

Drawn: A.V
Date: 16/12/22
Appr'd: LC

Title: OPA 970RL TB2FPQD-(Z) UC8 c/w CAREL c.pCO
Wiring Schematic

Drawing No: 291-003-492
SHEET 5 OF 6
Rev: B

0	1	2	3	4	5	6	7	8	9																																																																																		
<p>24VCB 24 Volt Circuit Breaker</p> <table border="1"> <tr><th>Name</th><th>Type</th><th>Colour</th></tr> <tr><td>CBL</td><td>Discharge</td><td>S</td></tr> <tr><td>CCB</td><td>Suction</td><td>S</td></tr> <tr><td>CCH</td><td>Ambient</td><td>S</td></tr> <tr><td>CMM</td><td>Defec</td><td>S</td></tr> <tr><td>DPT</td><td>Suction Pressure</td><td>T</td></tr> <tr><td>LPT</td><td>High Pressure</td><td>T</td></tr> <tr><td>HPT</td><td></td><td>Grey</td></tr> </table>	Name	Type	Colour	CBL	Discharge	S	CCB	Suction	S	CCH	Ambient	S	CMM	Defec	S	DPT	Suction Pressure	T	LPT	High Pressure	T	HPT		Grey	<p>Sensor(S) / Transducers (T) to UC8</p> <table border="1"> <tr><th>Name</th><th>Type</th></tr> <tr><td>DL</td><td>Discharge</td></tr> <tr><td>SL</td><td>Suction</td></tr> <tr><td>AMB</td><td>Ambient</td></tr> <tr><td>DEF</td><td>Defec</td></tr> <tr><td>LPT</td><td>Suction Pressure</td></tr> <tr><td>HPT</td><td>High Pressure</td></tr> </table>	Name	Type	DL	Discharge	SL	Suction	AMB	Ambient	DEF	Defec	LPT	Suction Pressure	HPT	High Pressure	<p>Sensor to Carel cPCO</p> <table border="1"> <tr><th>Name</th><th>Type</th></tr> <tr><td>*Room</td><td>Room Air</td></tr> <tr><td>RA</td><td>Return Air</td></tr> <tr><td>SA</td><td>Supply Air</td></tr> <tr><td>**FA</td><td>Fresh Air</td></tr> </table> <p>*Room sensor supplied loose. **FA sensor on Economiser unit only.</p>	Name	Type	*Room	Room Air	RA	Return Air	SA	Supply Air	**FA	Fresh Air	<p>Unit with Reheat</p> <p>* 2 x EEV on System 1 * 1 x EEV on System 2 * 1 x reheat coil * 1 x Sporlan / Parker modulating valves * Carel cPCO Medium version with built-in EVD * 1 x Carel Field Bus Card</p> <p>UCB DIP SWITCHES</p> <table border="1"> <tr><td>Compressor</td><td>ON</td></tr> <tr><td>INVERTER</td><td>1, 4, 6, 7, 10, 14</td></tr> </table>	Compressor	ON	INVERTER	1, 4, 6, 7, 10, 14	<p>Unit with No Reheat</p> <p>* 1 x EEV per system * Carel cPCO Medium version with built-in EVD * 1 x Carel Field Bus Card</p> <p>UCB DIP SWITCHES</p> <table border="1"> <tr><td>Compressor</td><td>ON</td></tr> <tr><td>INVERTER</td><td>1, 4, 6, 7, 10, 14</td></tr> </table>	Compressor	ON	INVERTER	1, 4, 6, 7, 10, 14	<p>Important Notes:</p> <p>24 Hour power required (on L1) for control circuit and crankcase heaters</p> <p>Portable RCD shall be used with single phase socket.</p> <p>Modbus Devices Address</p> <table border="1"> <tr><td>UCB</td><td>44, 45</td></tr> <tr><td>VSD</td><td>10</td></tr> <tr><td>IFM</td><td>21, 22</td></tr> <tr><td>OFM</td><td>31, 32</td></tr> </table> <p>VSD DIP switch settings</p> <table border="1"> <tr><td>DIP switch</td><td>On/Off</td></tr> <tr><td>1,4</td><td>On</td></tr> <tr><td>2,3</td><td>Off</td></tr> </table>	UCB	44, 45	VSD	10	IFM	21, 22	OFM	31, 32	DIP switch	On/Off	1,4	On	2,3	Off	<p>Indoor Coil Layout</p> <p>Reheat Coil Layout</p> <p>Overall System Layout</p>	<p>Dwyer Filter Differential Pressure Transmitter MSX-W12-PA Wiring 0-10VDC output</p> <p>CBL37 DIP switches setting</p>	<p>Belimo Drain Sensor EXT-TN-1071375 Wiring NO output</p> <p>CBL36 Clean Sensor</p>	<p>Room Sensor - Carel RH/Temp Sensor DPPC12000 (Supplied Loose) Refer to Sheet 4 for connections.</p> <p>RA Sensor - Carel RH/Temp Sensor DPPRC13A000 Wiring (0-5VDC & NTC output) Refer to Sheet 3 for connections to Carel controller.</p>	<p>Client Wiring</p>	<p>Client Wiring</p>	<p>Ferrites</p> <table border="1"> <tr><th>Part Number</th><th>Frequency Type</th><th>Number of Turns</th></tr> <tr><td>A 012-001-074</td><td>High</td><td>1</td></tr> </table> <p>Dwyer Differential Pressure Transmitter 616KD-13-V-TC Wiring and Tubes</p> <p>Inlet ring pressure tap location: *EBM fan - RHS of fan as shown in diagram on the right *Rosenberg fan - Bottom of fan *Sanmu fan - LHS of fan</p> <p>Tubes Connections: Connect static pressure tap to "A". Connect inlet ring nipple to "u".</p>	Part Number	Frequency Type	Number of Turns	A 012-001-074	High	1	<p>FA Sensor - Carel RH/Temp Sensor DPPC12000. Refer to Sheet 3 for connections.</p> <p>FA Sensor - Carel RH/Temp Sensor DPPRC13A000. Wiring (0-5VDC & NTC output) Refer to Sheet 3 for connections to Carel controller.</p>	<p>Client Wiring</p>	<p>Client Wiring</p>
Name	Type	Colour																																																																																									
CBL	Discharge	S																																																																																									
CCB	Suction	S																																																																																									
CCH	Ambient	S																																																																																									
CMM	Defec	S																																																																																									
DPT	Suction Pressure	T																																																																																									
LPT	High Pressure	T																																																																																									
HPT		Grey																																																																																									
Name	Type																																																																																										
DL	Discharge																																																																																										
SL	Suction																																																																																										
AMB	Ambient																																																																																										
DEF	Defec																																																																																										
LPT	Suction Pressure																																																																																										
HPT	High Pressure																																																																																										
Name	Type																																																																																										
*Room	Room Air																																																																																										
RA	Return Air																																																																																										
SA	Supply Air																																																																																										
**FA	Fresh Air																																																																																										
Compressor	ON																																																																																										
INVERTER	1, 4, 6, 7, 10, 14																																																																																										
Compressor	ON																																																																																										
INVERTER	1, 4, 6, 7, 10, 14																																																																																										
UCB	44, 45																																																																																										
VSD	10																																																																																										
IFM	21, 22																																																																																										
OFM	31, 32																																																																																										
DIP switch	On/Off																																																																																										
1,4	On																																																																																										
2,3	Off																																																																																										
Part Number	Frequency Type	Number of Turns																																																																																									
A 012-001-074	High	1																																																																																									
A	B	C	D	E	F	G																																																																																					
<table border="1"> <tr><th>REV</th><th>DESCRIPTION</th><th>ECN</th><th>DATE</th><th>APPROVED</th></tr> <tr><td>B</td><td>PLC Expansion Module and RH Sensor</td><td>5089/5092</td><td>23-03-23</td><td>A.V</td></tr> </table>							REV	DESCRIPTION	ECN	DATE	APPROVED	B	PLC Expansion Module and RH Sensor	5089/5092	23-03-23	A.V	<p>Drawn: A.V Date: 16/12/22 Title: OPA 970RLTB2FFQD-(Z) UC8 c/w CAREL cPCO Wiring Schematic</p> <p>Appvd: LC</p>		<p>Drawing No: 291-003-492 SHEET 6 OF 6</p>		<p>Rev: B</p>																																																																						
REV	DESCRIPTION	ECN	DATE	APPROVED																																																																																							
B	PLC Expansion Module and RH Sensor	5089/5092	23-03-23	A.V																																																																																							