SPECIFICATIONS

temperzone

Model	**OPA 820RLTB2FPQD** Econex Pro
Configuration	Horizontal Supply Air
Item No. (Standard / Opposite Hand)	876-082-701 / 876-082-710
Configuration	Downward Supply Air
Item No. (Standard / Opposite Hand)	876-082-723 / 876-082-732
Configuration	Upward Supply Air
Item No. (Standard / Opposite Hand)	876-082-745 / 876-082-754
Cooling capacity (net) [1]	80.2 kW
Cooling capacity range (gross)	11.2 ~ 88.3 kW
Heating capacity [1]	81.4 kW
Heating capacity range	10.0 ~ 97.0 kW
Electrical input - cooling	25.4 kW
Electrical input - heating	25.1 kW
EER / AEER (cooling) [1]	3.15 / 3.14
COP / ACOP (heating) [1]	3.24 / 3.22
Operating Range (outdoor ambient) - cooling	–10°C ~ 50°C
Operating Range (outdoor ambient) - heating	–10°C ~ 25°C
Controller	UC8 (x2)
Refrigerant	R32
Refrigerant Charge	8.0 kg/sys.
Minimum floor area (@2.4m below ceiling diffuser)	34 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.	19.5 A/ph.(x2)
Compressor + VSD circuit breaker	32 A (x2)
Indoor fan motor size	EC Plug 500 dia. 3.65kW (x2)
Nominal air flow at rating conditions	4 300 l/s
Indoor fan motor (3ph.) - full load	4.5 A/ph. (x2)
Outdoor fan motor (3ph.) - full load	5 A/ph. (x2)
Outdoor fan - max. external static available@ 11 600 l/s	125 Pa
Control circuit breaker (internal)	2 A
Single phase socket circuit breaker	10 A
Running amps (total system) [1]	37 / 39 / 45 A
Max. running amps (total system)	55 / 60 / 66 A
RCD type recommended	type B, 30mA, 3 pole
Net weight	1270 kg
Shipping weight	1296 kg

Accessories:

Remote wired Service Interface Display (*pGD1*)	201-000-867
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.

24004

econex
nex gen R32 inverter

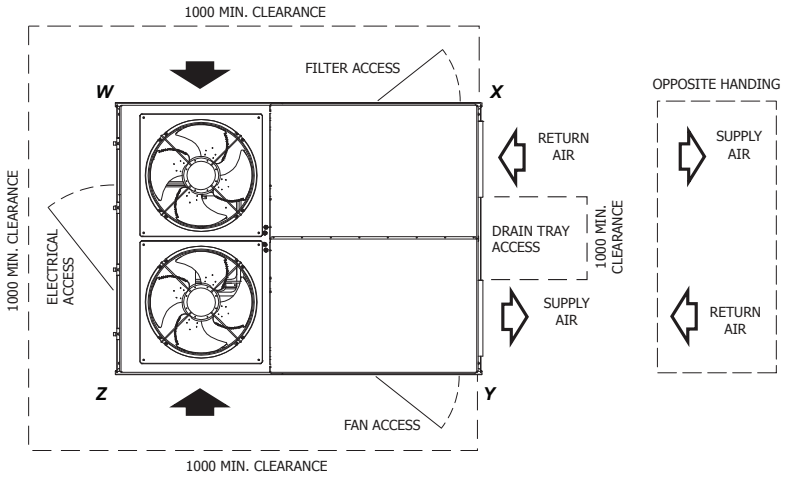
DIMENSIONS (mm)

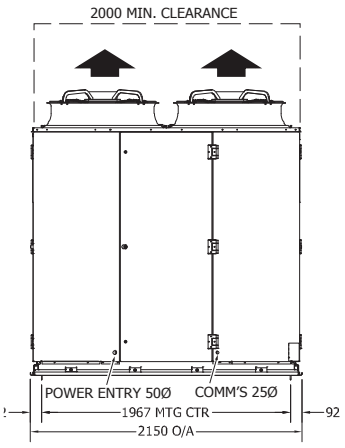
PROJECTION

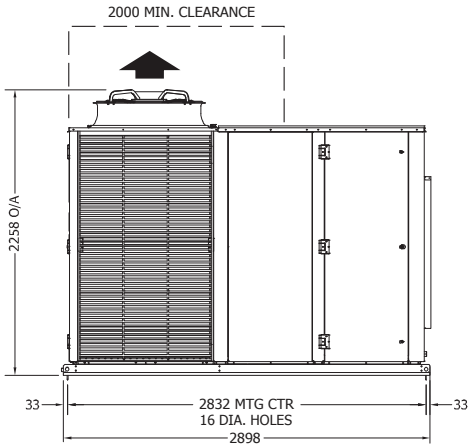
Not to Scale

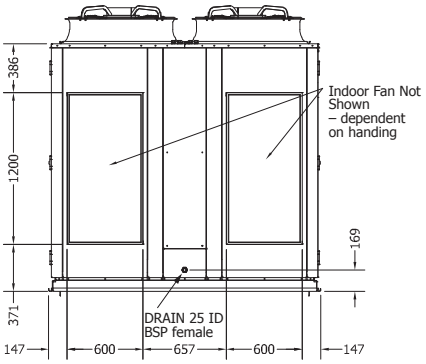
OPA 820RLTBFPQD01 Standard Hand, Horizontal Supply

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



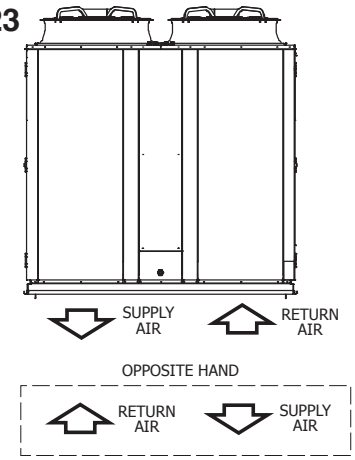


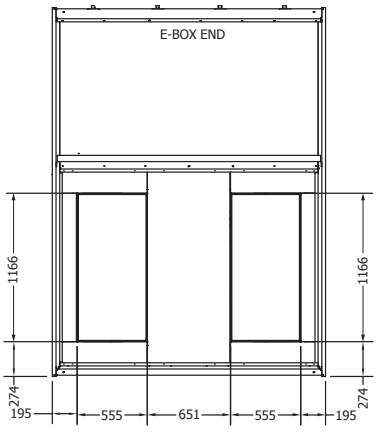




OPA 820RLTBFPQD23
Standard Hand,
Downward Supply

Clearances as above

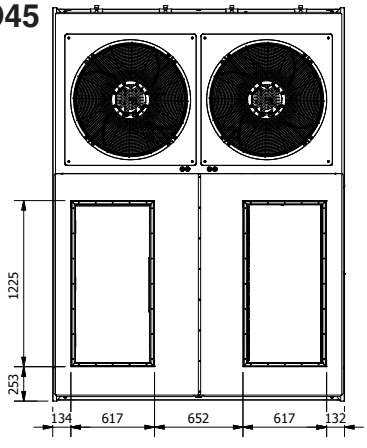




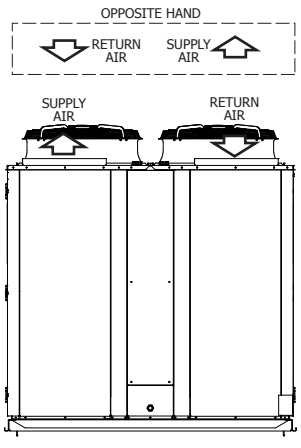
BOTTOM VIEW

OPA 820RLTBFPQD45
Standard Hand,
Upward Supply

Clearances as above



TOP VIEW



FRONT VIEW

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

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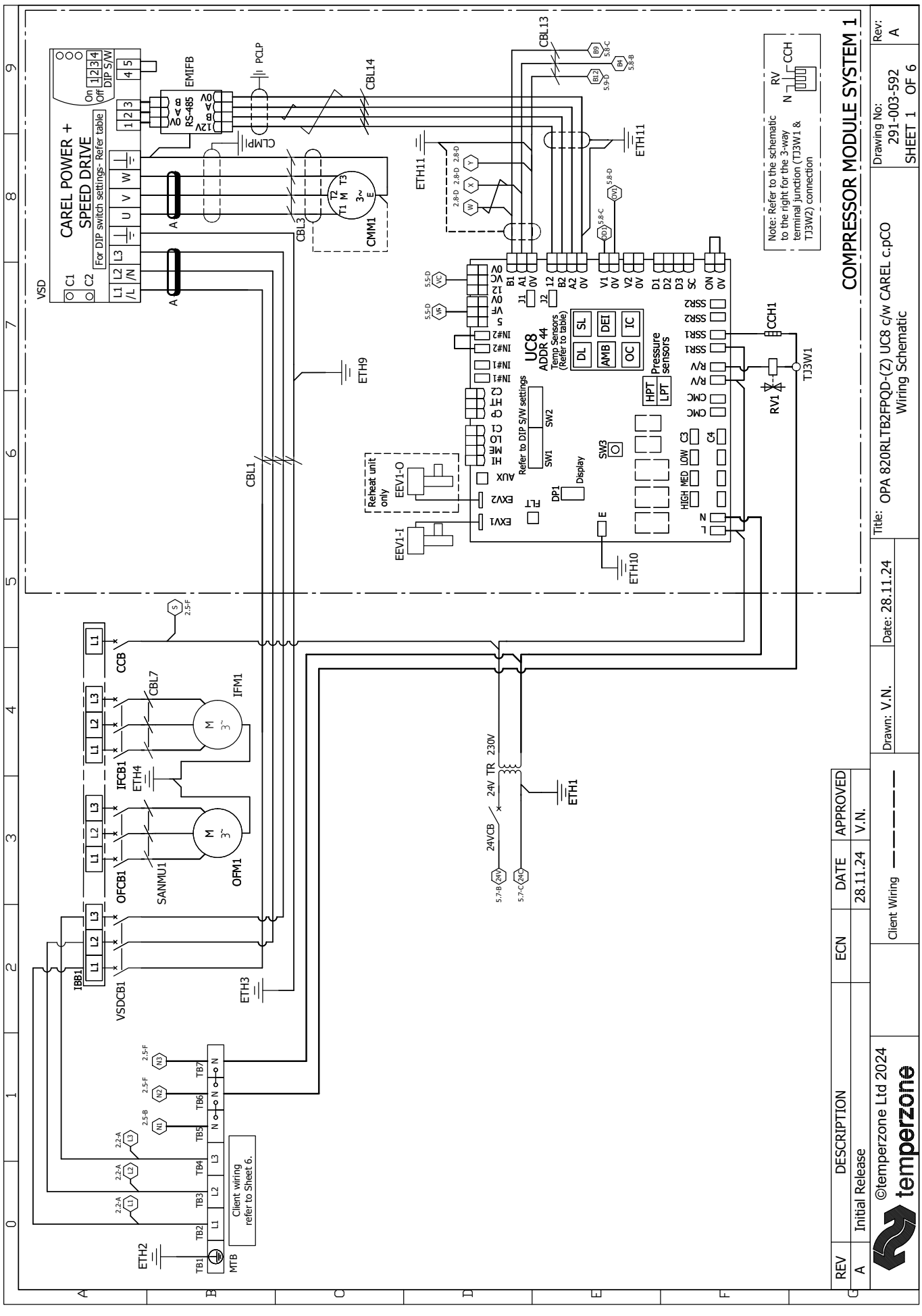
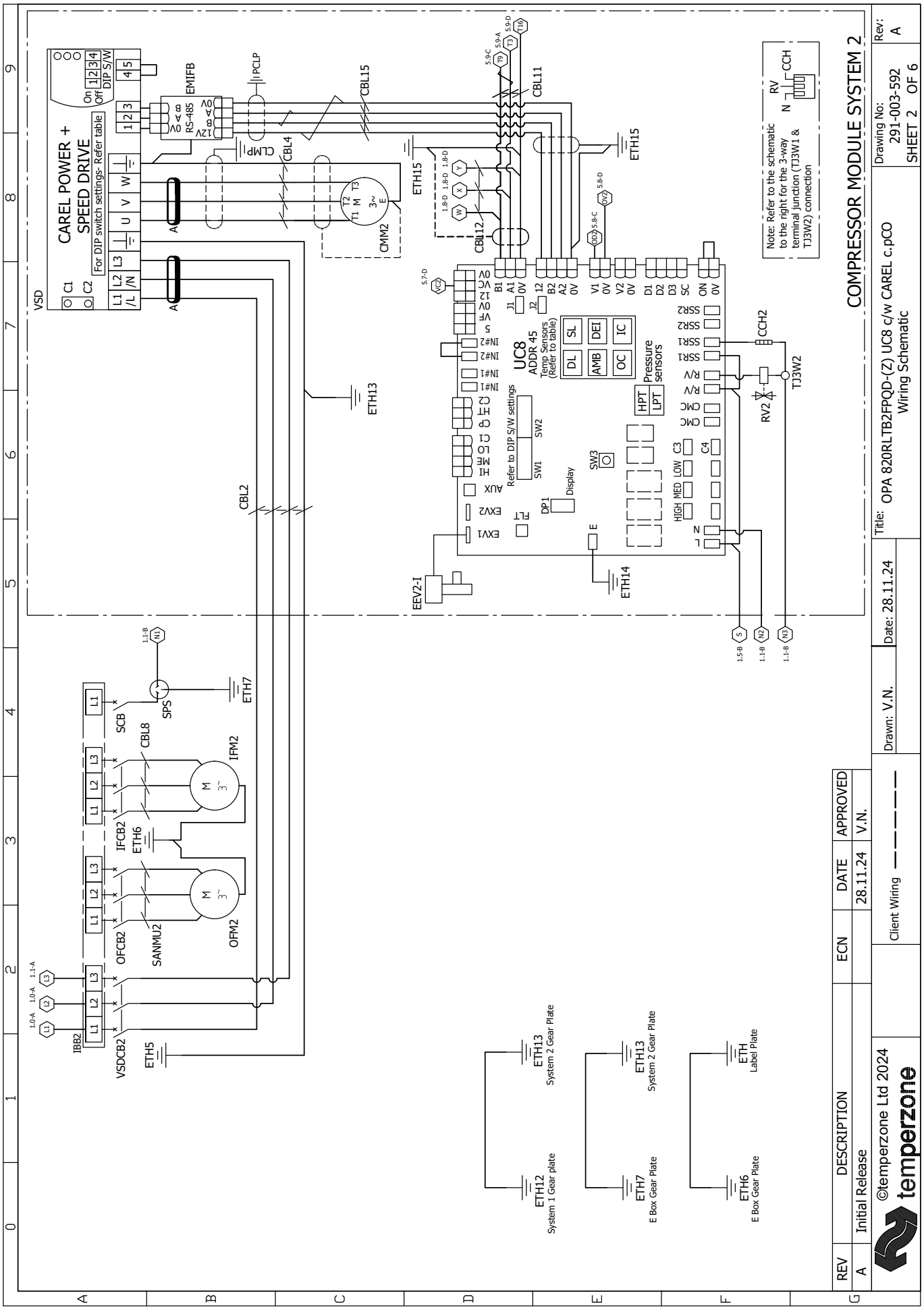
WIRING (1)

Refer Sheet 4 for client wiring & descriptors




COMPRESSOR MODULE SYSTEM 2
OPA 820RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO
Wiring Schematic
Drawing No: 291-003-592
SHEET 2 OF 6
Rev: A
Drawn: V.N.
Date: 28.11.24
Client Wiring
REV DESCRIPTION ECN DATE APPROVED
A Initial Release 28.11.24 V.N.
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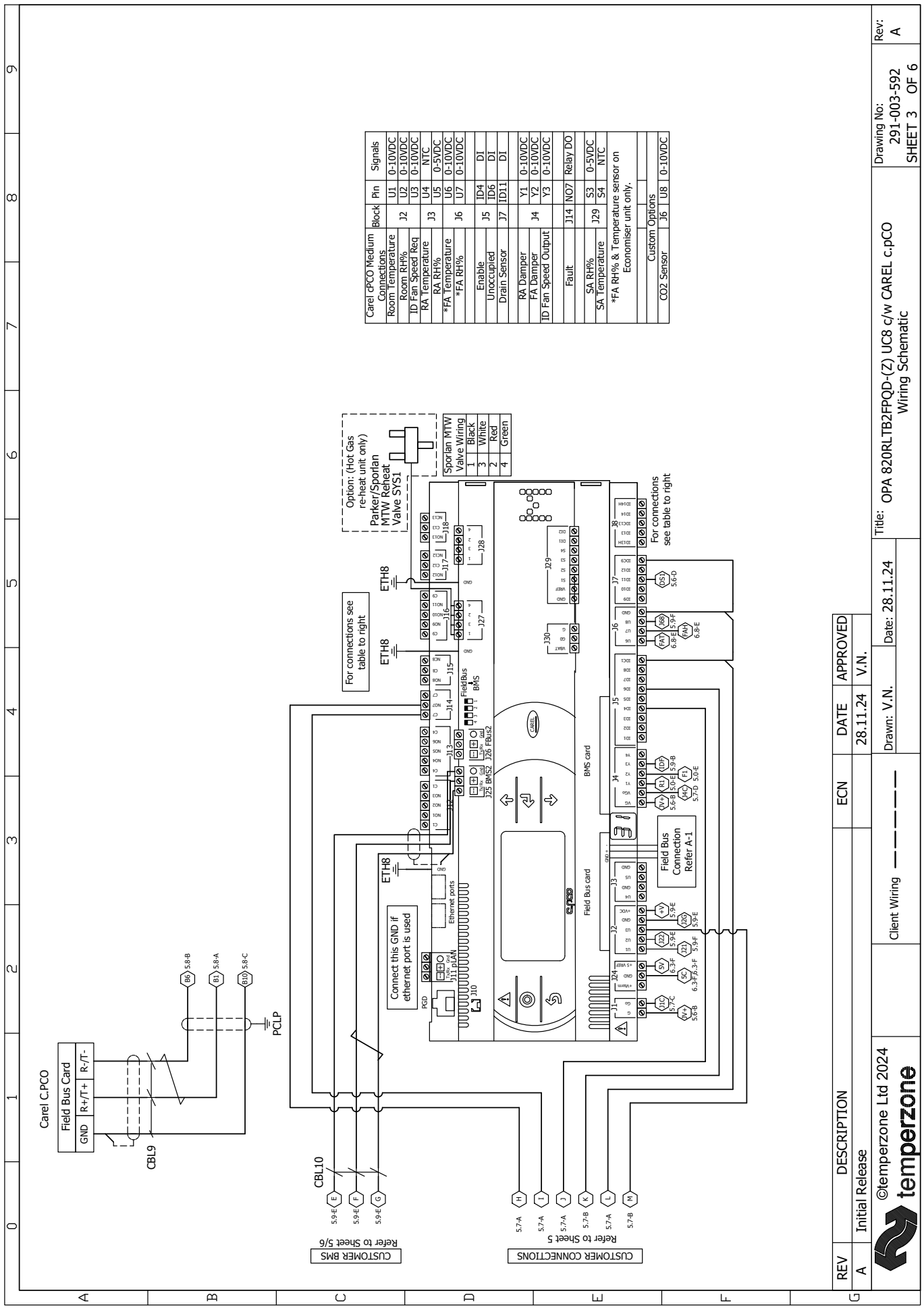
temperzone
CAREL POWER + SPEED DRIVE
For DIP switch settings- Refer table
VSD
EMIFB
RS-485
CLMP
PCLP
CBL4
CBL15
CBL11
CBL12
CMM2
ETH15
UC8
ADDR 45
Temp Sensors (Refer to table)
Pressure sensors
Refer to DIP S/W settings
SW1
SW2
SW3
Display
DP1
CCH2
RV2
TJ3W2
Note: Refer to the schematic to the right for the 3-way terminal junction (TJ3W1 & TJ3W2) connection
CBL2
ETH13
EEV2-I
ETH14
IBB2
VSDCB2
ETH5
OFCB2
SANMU2
OFM2
IFCB2
ETH6
IFM2
CBL8
SCB
SPS
ETH7
ETH12
System 1 Gear plate
E Box Gear Plate
System 2 Gear Plate
Label Plate


Carel cPCO Medium Connections | Block | Pin | Signals
Room Temperature | J2 | U1 | 0-10VDC
Room RH% | | U2 | 0-10VDC
ID Fan Speed Req | J3 | U3 | 0-10VDC
RA Temperature | | U4 | NTC
RA RH% | | U5 | 0-5VDC
*FA Temperature | J6 | U6 | 0-10VDC
*FA RH% | | U7 | 0-10VDC
Enable | J5 | ID4 | DI
Unoccupied | | ID6 | DI
Drain Sensor | J7 | ID11 | DI
RA Damper | J4 | Y1 | 0-10VDC
FA Damper | | Y2 | 0-10VDC
ID Fan Speed Output | | Y3 | 0-10VDC
Fault | J14 | NO7 | Relay DO
SA RH% | J29 | S3 | 0-5VDC
SA Temperature | | S4 | NTC
*FA RH% & Temperature sensor on Economiser unit only.
Custom Options
CO2 Sensor | J6 | U8 | 0-10VDC
Sporlan MTW Valve Wiring
1 Black
3 White
2 Red
4 Green
Option: (Hot Gas re-heat unit only)
Parker/Sporlan MTW Reheat Valve SYS1
For connections see table to right
For connections see table to right
Carel C.PCO
Field Bus Card
GND R+/T+ R-/T-
CBL9
CBL10
PCLP
Connect this GND if ethernet port is used
Ethernet ports
Field Bus card
BMS card
Field Bus Connection Refer A-1
CUSTOMER BMS
Refer to Sheet 5/6
CUSTOMER CONNECTIONS
Refer to Sheet 5
REV | DESCRIPTION | ECN | DATE | APPROVED
A | Initial Release | | 28.11.24 | V.N.
Drawn: V.N. | Date: 28.11.24
Client Wiring
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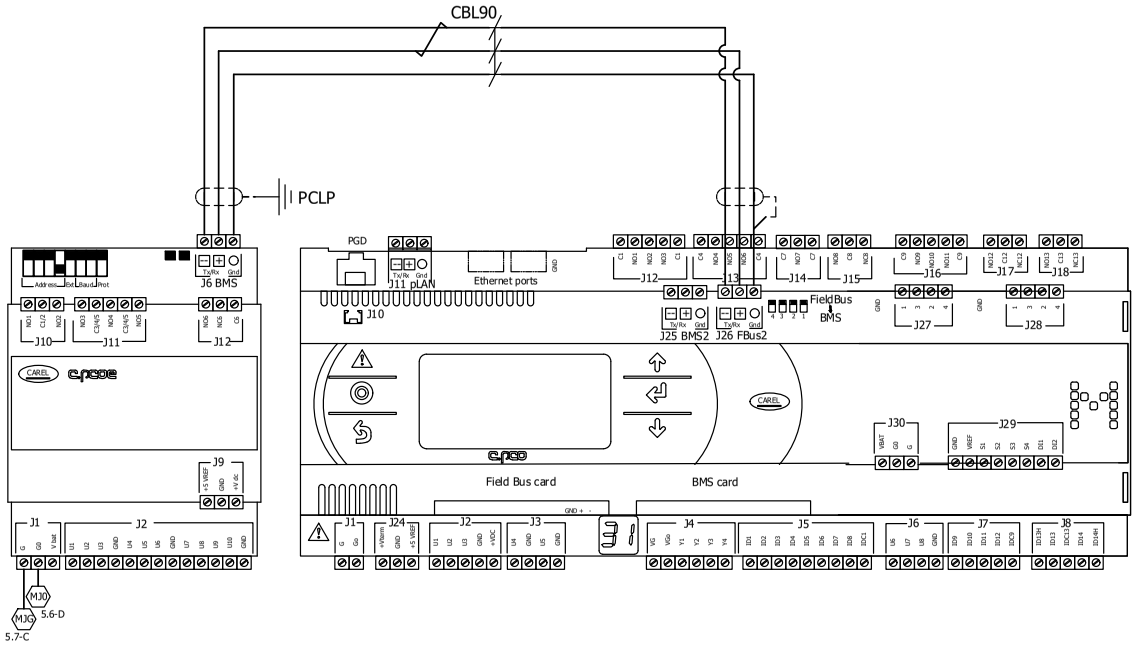
temperzone
Title: OPA 820RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO
Wiring Schematic
Drawing No: 291-003-592
SHEET 3 OF 6
Rev: A



Ebox	Expansion Module
240-002-849	x
240-002-854	✓

REV	DESCRIPTION	ECN	DATE	APPROVED
A	Initial Release		28.11.24	V.N.

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Client Wiring

Drawn: V.N.

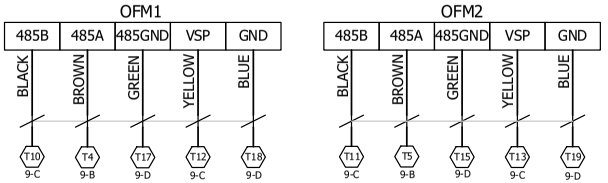
Date: 28.11.24

Title: OPA 820RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO Wiring Schematic

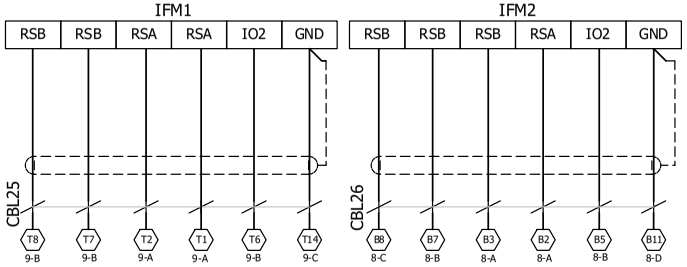
Drawing No: 291-003-592 SHEET 4 OF 6

Rev: A

SANMU OUTDOOR FAN CONNECTIONS

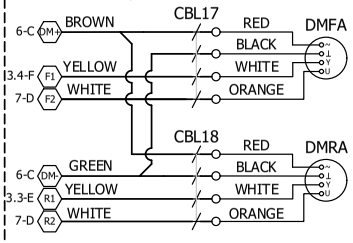


EBM INDOOR FANS CONNECTIONS



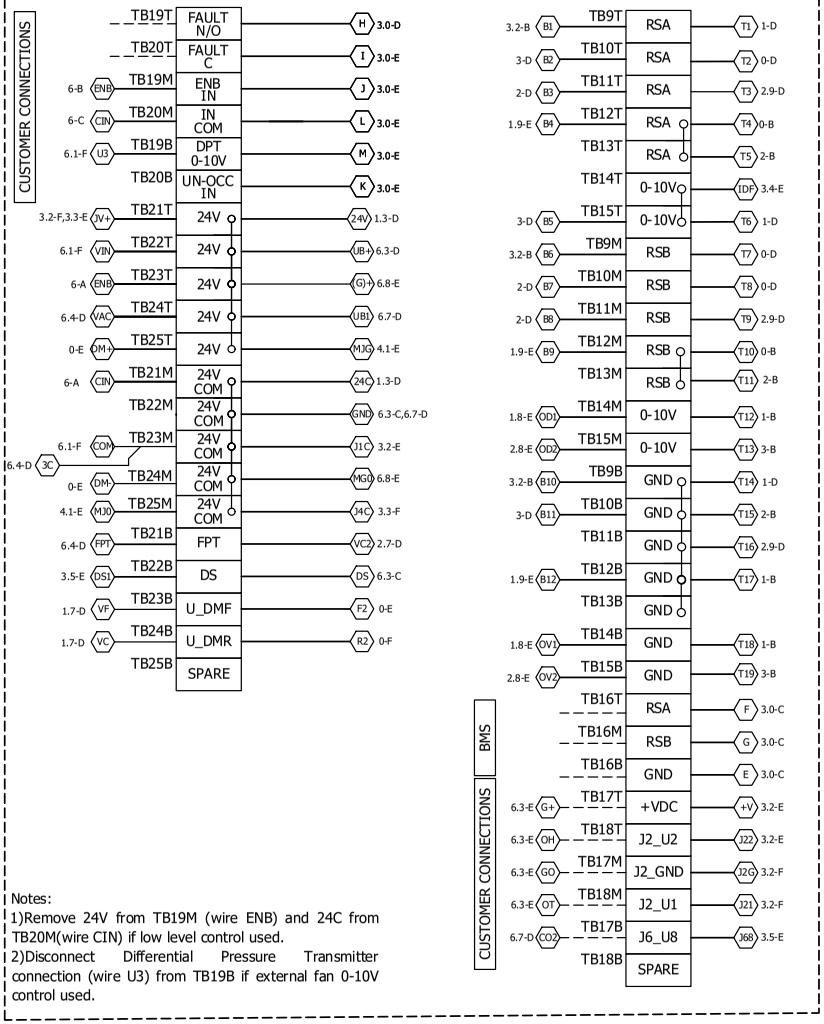
OPTIONAL: DAMPERS

Note: If economiser is supplied, ensure FA RH% and temperature sensor is connected.



ACTUATOR TERMINALS	
~	24VAC
⊥	0V
Y	Position Command 0-10VDC
U	Position Feedback 0-10VDC

TERMINAL BLOCKS



Notes:
1)Remove 24V from TB19M (wire ENB) and 24C from TB20M(wire CIN) if low level control used.
2)Disconnect Differential Pressure Transmitter connection (wire U3) from TB19B if external fan 0-10V control used.

REV	DESCRIPTION	ECN	DATE	APPROVED
A	Initial Release		28.11.24	V.N.

temperzone

Client Wiring

Drawn: V.N. Date: 28.11.24

Title: OPA 820RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO Wiring Schematic

Drawing No: 291-003-592 SHEET 5 OF 6

Rev: A

24VCB	24 Volt Circuit Breaker
CBL	Cable Marker
CCB	Control Circuit Breaker
CCH	Crankcase Heater
CMM	Compressor Motor
DMF	Damper Motor Fresh Air
DMR	Damper Motor Return Air
EEV	Electronic Expansion Valve
EMIFB	Electromagnetic Interference Filter Board
ETH	Earth
IBB	Insulated Bus Bar
IFCB	Indoor Fan Circuit Breaker
IFM	Indoor Fan Motor
MTB	Main Terminal Block
OFCB	Outdoor Fan Circuit Breaker
OFM	Outdoor Fan Motor
PCLP	P Clip
RV	Reversing Valve
SCB	Socket Circuit Breaker
SPS	Single Phase Socket
TB	Terminal Block
TJ3W	Terminal Junction 3 Way
TR	Transformer
UC8	Unit Controller 8
VSD	Variable Speed Drive
VSDCB	Variable Speed Drive Circuit Breaker

Sensor(S) / Transducers (T) to UC8			
	Name	Type	Colour
DL	Discharge	S	Grey
SL	Suction	S	White
AMB	Ambient	S	Black
DEI	Deice	S	Blue
LPT	Suction Pressure	T	Grey
HPT	High Pressure	T	Grey

Sensor to Carel c.PCO		
	Name	Type
*Room	Room Air	RH% & Temp
RA	Return Air	RH% & Temp
SA	Supply Air	RH% & Temp
**FA	Fresh Air	RH% & Temp

*Room sensor supplied loose.
**FA sensor on Economiser unit only.

Unit with No Reheat		
* 1 x EEV per system		
* Carel c.pCO Medium version with built-in EVD		
* 1 x Carel Field Bus Card		
	Compressor	UC8 DIP SWITCHES
		ON
ALL SYSTEMS	INVERTER	1, 4, 6, 7, 10, 14

Important Notes:

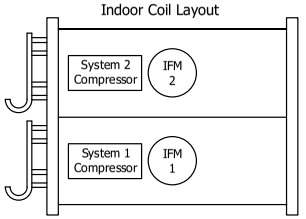
24 Hour power required (on L1) for control circuit and crankcase heaters

Portable RCD shall be used with single phase socket.

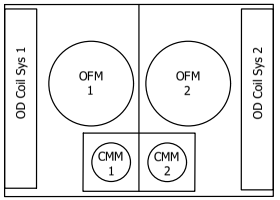
Modbus Devices Address	
UC8	44, 45
VSD	10
IFM	21, 22
OFM	31, 32

VSD DIP switch settings	
DIP switch	↑ On/Off ↓
1,4	On
2,3	Off

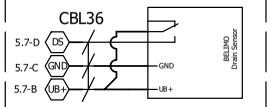
Indoor Coil Layout



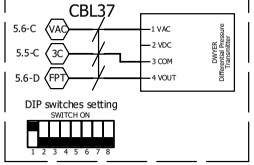
Overall System Layout



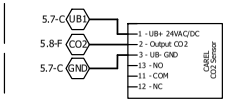
Belimo Drain Sensor EXT-TN-1071375
Wiring NO output



Dwyer Filter Differential Pressure Transmitter MSX-W12-PA
Wiring 0-10VDC output



OPTIONAL:
Carel CO2 Sensor DPWQ402000
Wiring 0-10VDC output
Refer to Sheet 3&5 for connections to Carel controller.



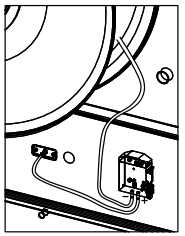
DIP switches setting - Factory Default

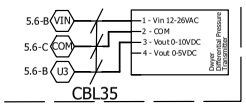
Ferrites			
	Part Number	Frequency Type	Number of Turns
A	012-001-074	High	1

Dwyer Differential Pressure Transmitter 616KD-13-V-TC Wiring and Tubes
Connections (0-10VDC output)

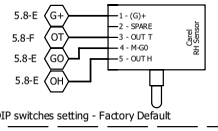
Inlet ring pressure tap location:
*EBM fan - RHS of fan as shown in diagram on the right

Tubes Connections:
Connect static pressure tip to "+".
Connect inlet ring nipple to "-".



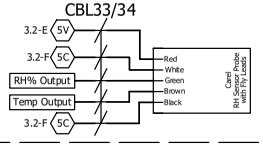


Room Sensor - Carel RH/Temp Sensor
DPPC112000 (Supplied Loose)
Refer to Sheet 5 for connections.



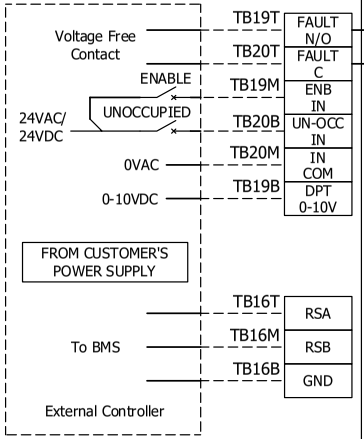
DIP switches setting - Factory Default

RA & SA Sensors - Carel RH/Temp Sensor
DPRC13A000 Wiring (0-5VDC & NTC output)
Refer to Sheet 3 for connections to Carel controller.

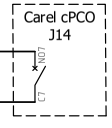


Client Wiring

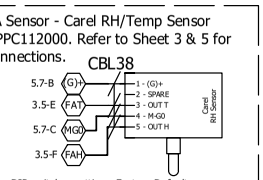
Notes:
1)Remove 24V from TB19M and 24C from TB20M if low level control used.
2)Disconnect Differential Pressure Transmitter connection (wire U3) from TB19B if external fan 0-10V control used.



Carel cPCO J14

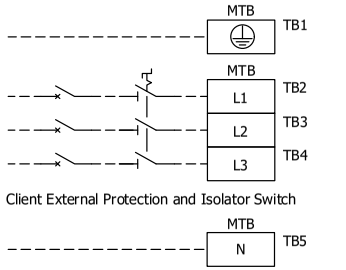


FA Sensor - Carel RH/Temp Sensor
DPPC112000. Refer to Sheet 3 & 5 for connections.



DIP switches setting - Factory Default

Client Wiring



REV	DESCRIPTION	ECN	DATE	APPROVED
A	Initial Release		28.11.24	V.N.

temperzone

Client Wiring

Drawn: V.N. | Date: 28.11.24

Title: OPA 820RLTB2FPQD-(Z) UC8 c/w CAREL c.pCO Wiring Schematic

Drawing No: 291-003-592 SHEET 6 OF 6

Rev: A