SPECIFICATIONS

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Model	**OPA 970RLTB1FPQ-Z** Econex
Configuration	Horizontal Supply Air
Item No. (Standard / Opposite Hand)	867-097-701 / 867-097-710
Configuration	Downward Supply Air
Item No. (Standard / Opposite Hand)	867-097-723 / 867-097-732
Cooling capacity (net) [1]	88.9 kW
Cooling capacity range (gross)	15.4 ~ 99.2 kW
Heating capacity [1]	88.2 kW
Heating capacity range	14.3 ~ 96.1 kW
Electrical input - cooling	30.0 kW
Electrical input - heating	26.3 kW
EER / AEER (cooling) [1]	2.97 / 2.96
COP / ACOP (heating) [1]	3.35 / 3.34
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	10.5 kg/sys.
Minimum floor area (@2.4m below ceiling diffuser)	59 m^2
Compressor oil type	POE-46 (NXG5020 or equivalent)
Compressor type	inverter + fixed scroll
Power supply [2]	3 ph. 400 V ac 50 Hz + N + E
Compressor (3ph.) run amps at rating cond.(inv./fixed)	19 A/ph.(x1) / 15.5 A/ph.(x1)
Compressor + VSD circuit breaker	32 A (x2)
Indoor fan motor size	EC Plug 500 dia. 3.65kW (x2)
Nominal air flow at rating conditions	4 800 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. external static available@ 11 500 l/s	125 Pa
Control circuit breaker (internal)	2 A
Single phase socket circuit breaker	10 A
Running amps (total system) [1]	46 / 43 / 46 A
Max. running amps (total system)	64 / 63 / 64 A
RCD type recommended	type B, 30mA, 3 pole
Net weight (excl. cowl)	1294 kg
Shipping weight (excl. cowl)	1320 kg
Net Weight c/w Economiser	1346 kg

Accessories:

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: 380–440V
[3] Filter sizes are nominal; refer to Temperzone for actual measurements.

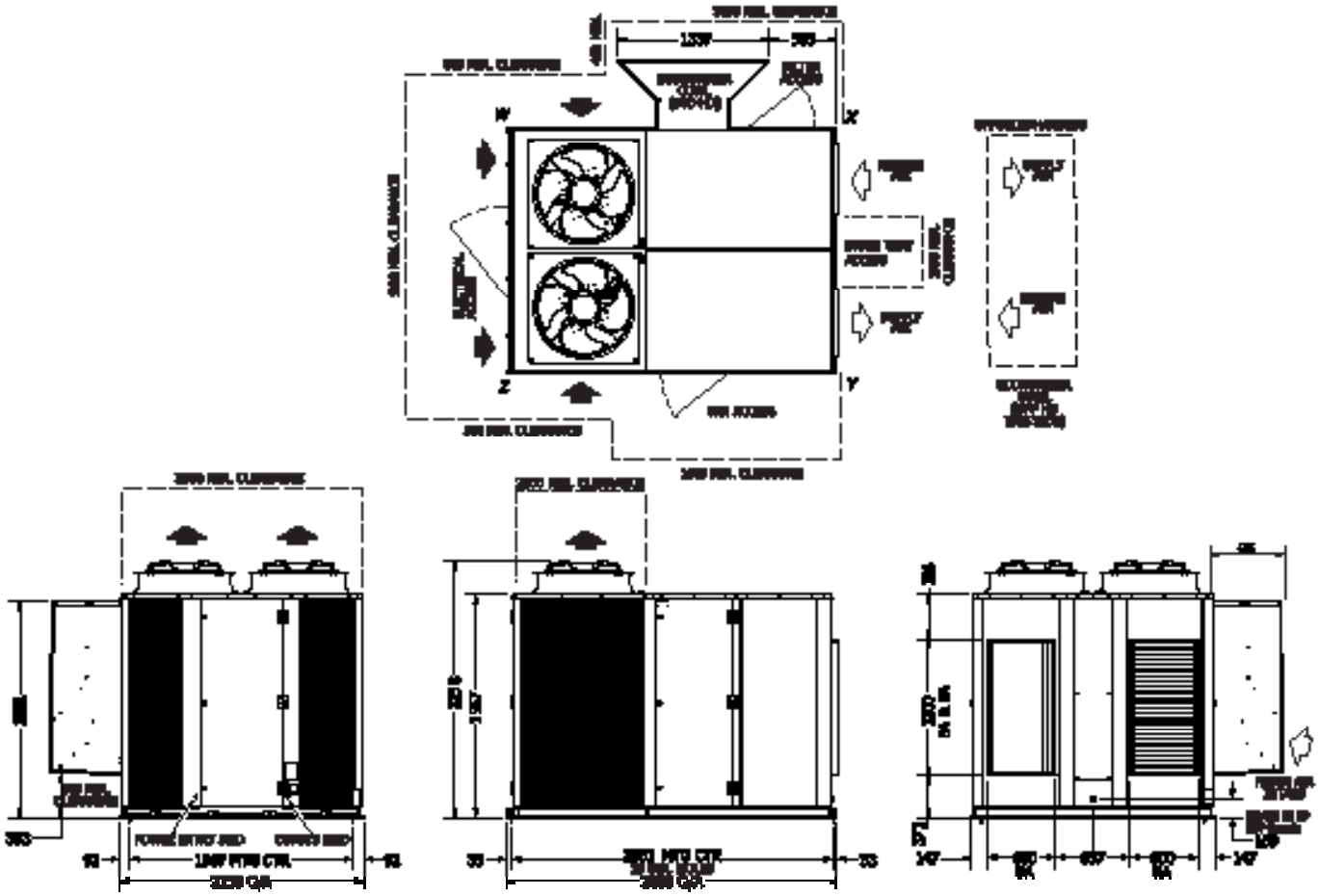
econex
nex gen R32 inverter

DIMENSIONS (mm)

PROJECTION

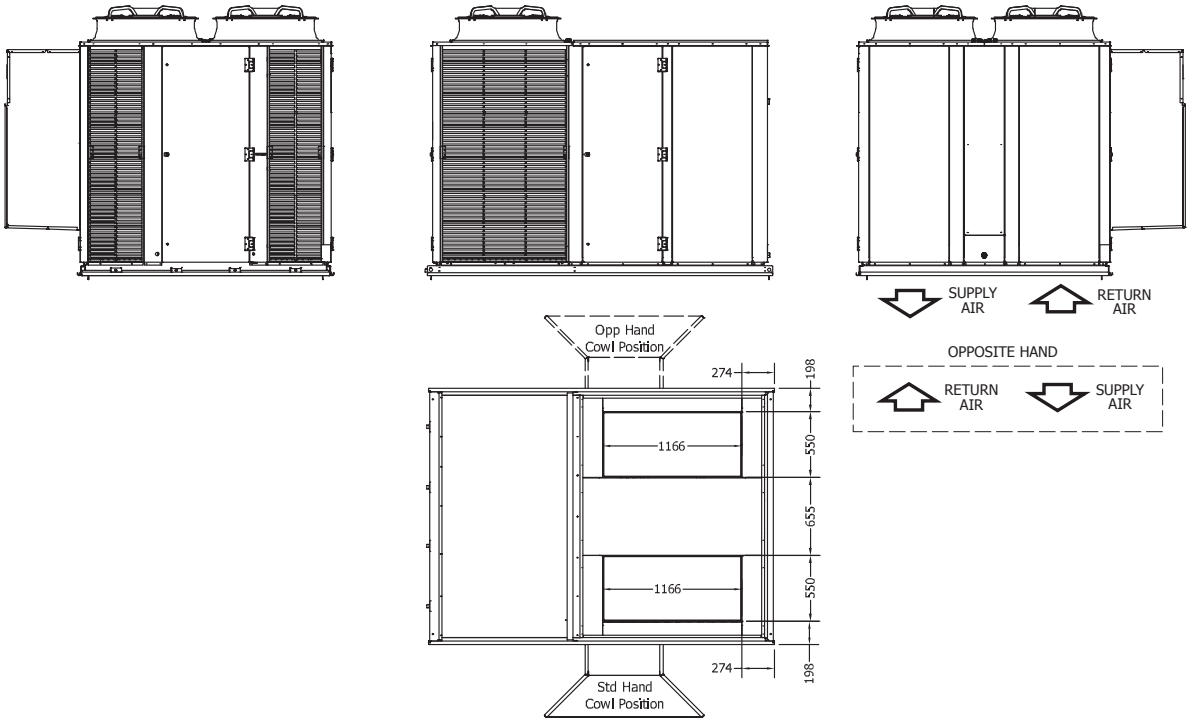
Not to Scale

OPA 970RLTBFPQ01-Z Standard Hand, Horizontal Supply



OPA 970RLTBFPQ23-Z 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.

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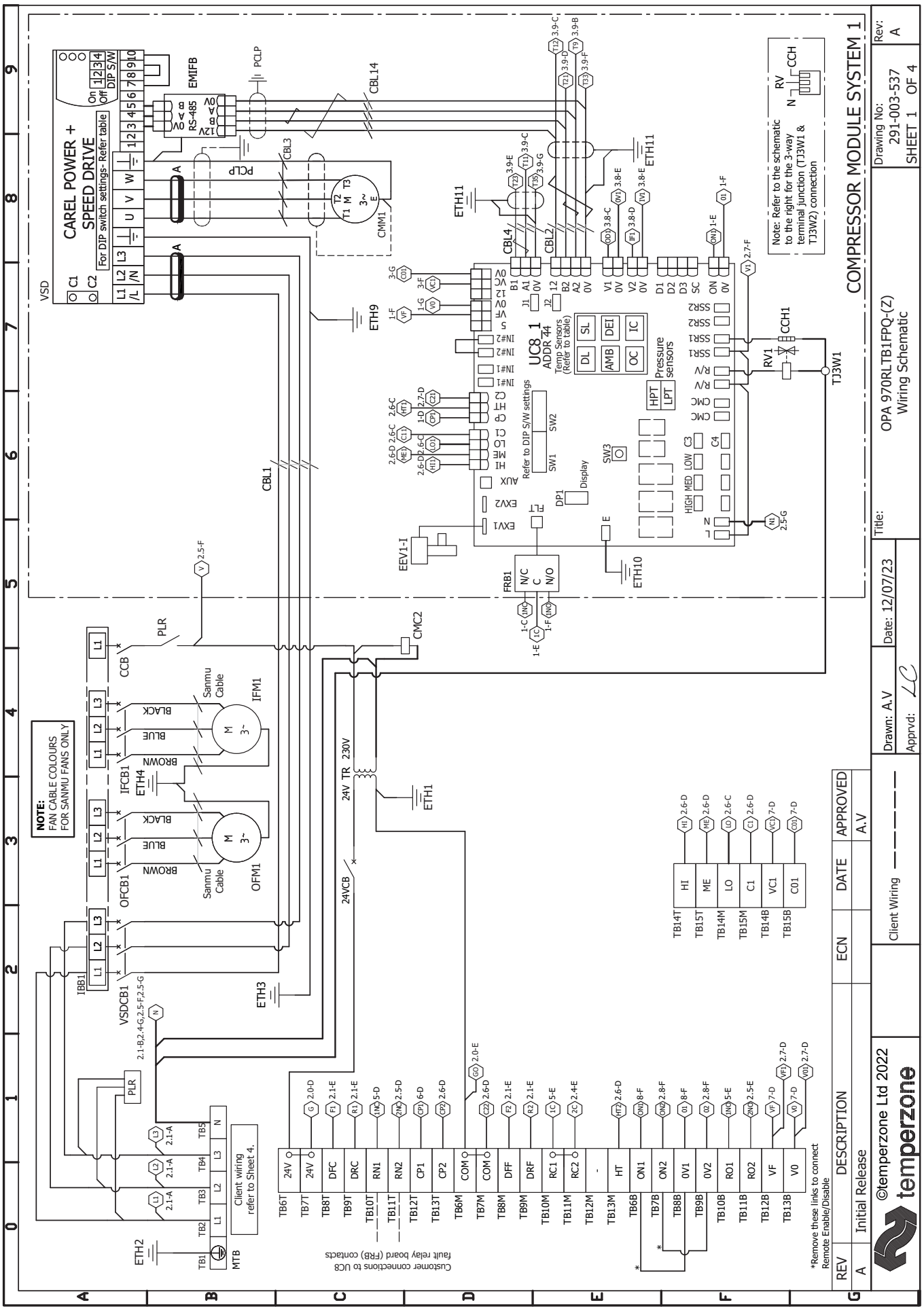
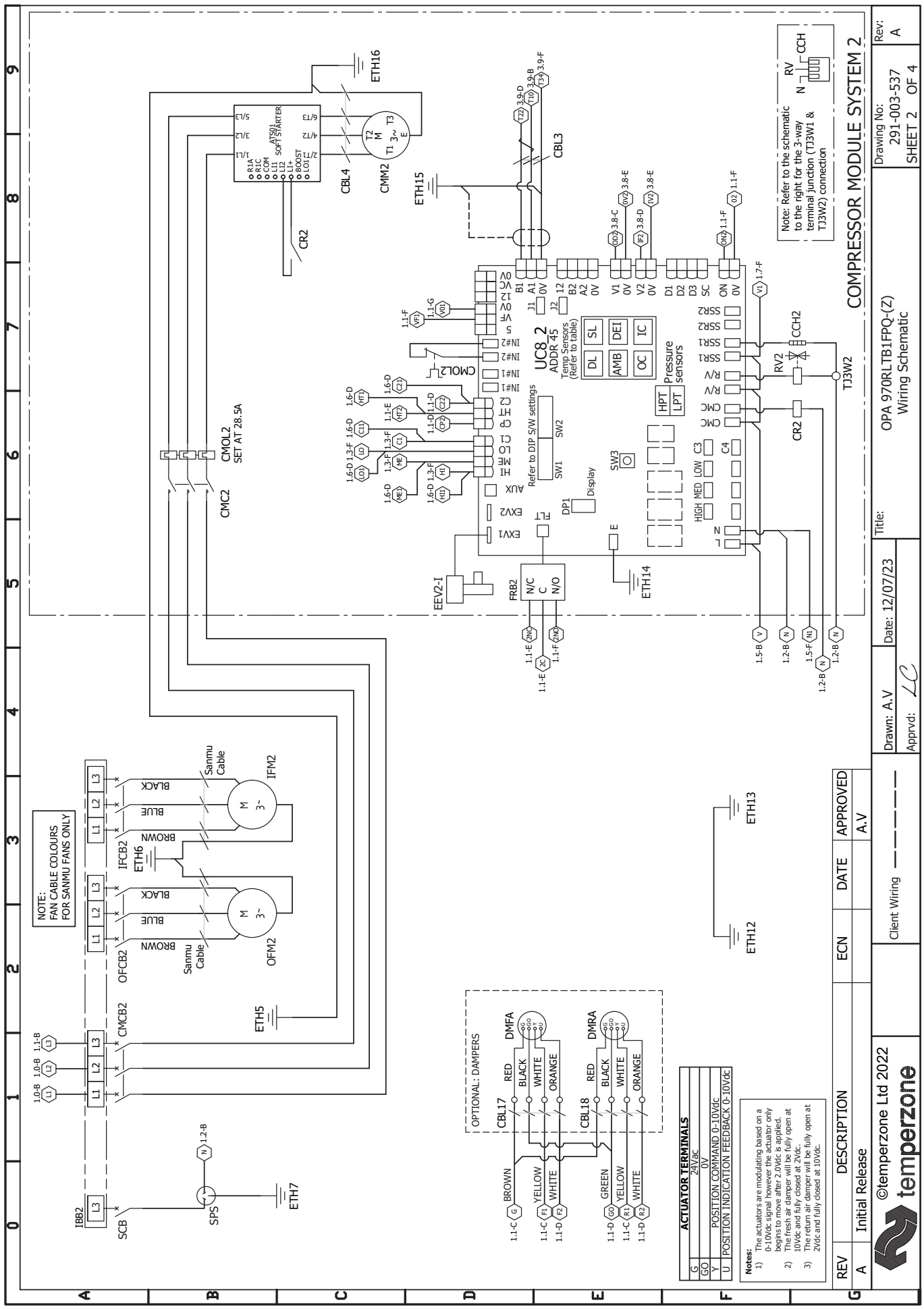
WIRING (1)

Refer Sheet 4 for client wiring & descriptors




COMPRESSOR MODULE SYSTEM 2
OPA 970RLTB1FPQ-(Z)
Wiring Schematic
Drawing No: 291-003-537
SHEET 2 OF 4
Rev: A
Drawn: A.V
Date: 12/07/23
Apprvd: LC
Client Wiring
DESCRIPTION
Initial Release
ECN
DATE
APPROVED
A.V
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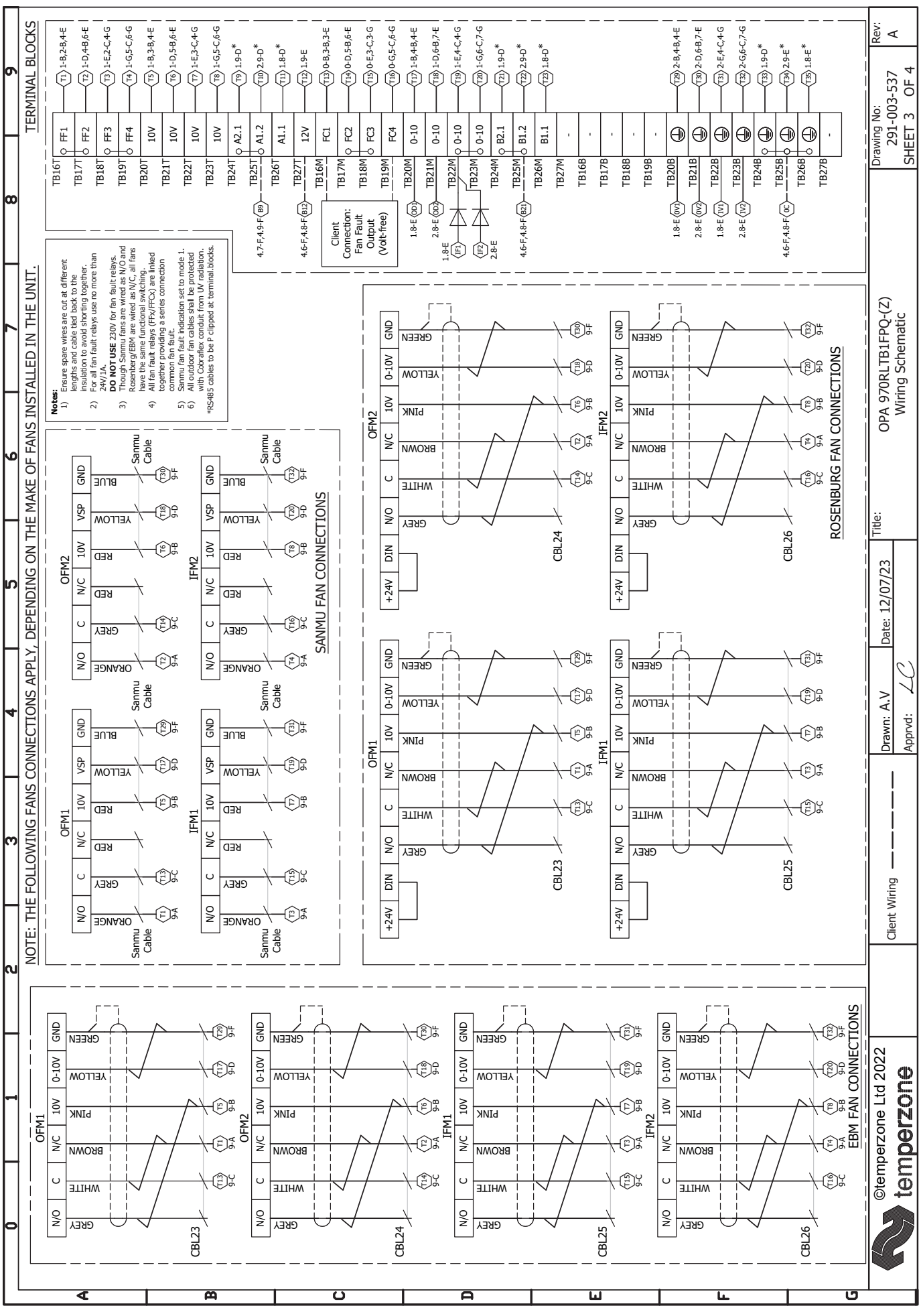
UC8_2
ADDR 45
Temp Sensors (Refer to table)
Pressure sensors
Refer to DIP S/W settings
CMOL2
SET AT 28.5A
CMC2
CR2
CBL4
CMM2
CBL3
ETH16
ETH15
ETH14
ETH13
ETH12
ETH5
ETH6
ETH7
EEV2-I
FRB2
TJ3W2
RV2
CCH2
IFM2
OFM2
IFCB2
OFCB2
CMCB2
IBB2
SCB
SPS
Sanmu Cable
NOTE: FAN CABLE COLOURS FOR SANMU FANS ONLY
OPTIONAL: DAMPERS
CBL17
CBL18
DMFA
DMRA
ACTUATOR TERMINALS
24Vac
0V
POSITION COMMAND 0-10Vdc
POSITION INDICATION FEEDBACK 0-10Vdc
Notes:
1) The actuators are modulating based on a 0-10Vdc signal however the actuator only begins to move after 2.0Vdc is applied.
2) The fresh air damper will be fully open at 10Vdc and fully closed at 2Vdc.
3) The return air damper will be fully open at 2Vdc and fully closed at 10Vdc.
Note: Refer to the schematic to the right for the 3-way terminal junction (TJ3W1 & TJ3W2) connection


TERMINAL BLOCKS
NOTE: THE FOLLOWING FANS CONNECTIONS APPLY, DEPENDING ON THE MAKE OF FANS INSTALLED IN THE UNIT.
SANMU FAN CONNECTIONS
ROSENBURG FAN CONNECTIONS
EBM FAN CONNECTIONS
Notes:
1) Ensure spare wires are cut at different lengths and cable tied back to the insulation to avoid shorting together.
2) For all fan fault relays use no more than 24V/1A.
DO NOT USE 230V for fan fault relays.
3) Though Sanmu fans are wired as N/O and Rosenberg/EBM are wired as N/C, all fans have the same functional switching.
4) All fan fault relays (FFx/FFCx) are linked together providing a series connection common fan fault.
5) Sanmu fan fault indication set to mode 1.
6) All outdoor fan cables shall be protected with Cobraflex conduit from UV radiation.
*RS485 cables to be P clipped at terminal blocks.
Client Connection: Fan Fault Output (Volt-free)
OPA 970RLTB1FPQ-(Z)
Wiring Schematic
Drawing No: 291-003-537
SHEET 3 OF 4
Rev: A
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Client Wiring
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24VCB	24 Volt Circuit Breaker
CBL	Cable Marker
CCB	Control Circuit Breaker
CCH	Crankcase Heater
CMC	Compressor Motor Contactor
CMCB	Compressor Motor Circuit Breaker
CMM	Compressor Motor
CMOL	Compressor Motor Overload
CR	Control Relay
DMF	Damper Motor Fresh Air
DMR	Damper Motor Return Air
EEV	Electronic Expansion Valve
EMIFB	Electromagnetic Interference Filter Board
ETH	Earth
FRB	Fault Relay Board
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
PLR	Phase Loss Relay
RV	Reversing Valve
SCB	Socket Circuit Breaker
SPS	Single Phase Socket
TBXT	Terminal Block (number) Top
TBXM	Terminal Block (number) Middle
TBXB	Terminal Block (number) Bottom
TJ3W	Terminal Junction 3 Way
TR	Transformer
UC8	Unit Controller 8
VSD	Variable Speed Drive
VSDCB	Variable Speed Drive Circuit Breaker

0V	UC8 Enable link Common
0-10	Indoor / Outdoor Fan 0-10VDC analogue speed Control
10V	Indoor / Outdoor Fan 10VDC Supply Output
12V	RS485 12V Supply Output
24V	24VAC Internal Supply
Ax.x	RS485 A (+) Communication Signal
Bx.x	RS485 B (-) Communication Signal
C01	Compressor Analogue Speed Control Common
C1	Indoor Fan Fixed Three speed Control Common
COM	24VAC internal Supply Common
CP	Compressor ON / OFF Signal
DFC	Damper Motor Fresh Air 0-10Vdc Command
DFF	Damper Motor Fresh Air 0-10Vdc Feedback
DRC	Damper Motor Return Air 0-10Vdc Command
DRF	Damper Motor Return Air 0-10Vdc Feedback
FC	Fan Fault Relay Output Common
FF	Fan Fault Relay Output Contact Signal
HI	Indoor Fan Fixed High speed Control Signal
HT	Cooling / Heating Mode Selection Signal
LO	Indoor Fan Fixed Low speed Control Signal
ME	Indoor Fan Fixed Medium speed Control Signal
ON	UC8 Enable link Contact
RC	UC8 Fault Relay Output Common Contact
RN	UC8 Fault Relay Output Normally Closed Contact
RO	UC8 Fault Relay Output Normally Open Contact
VC	Compressor 0-10VDC Analogue Speed Control Signal
VF	Indoor Fan 0-10vdc Analogue Speed Control Signal
V0	Indoor Fan Analogue Speed Control Common

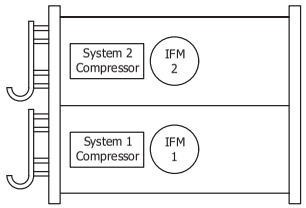
Phase Loss Relay
- PWR (Green) Indicator lit when power is being supplied .
- RY (Yellow) Indicator lit when relay is operating.

Important Notes:

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

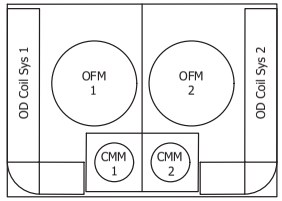
Portable Residual Current Device (PRCD) shall be used with single phase socket.

Indoor Coil Layout



Modbus Devices Address	
UC8	44, 45
VSD	10

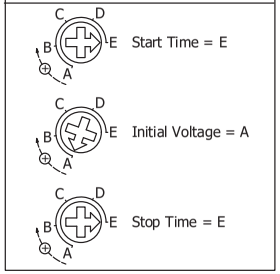
Overall System Layout



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

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

Temperzone Soft Starter Default Settings



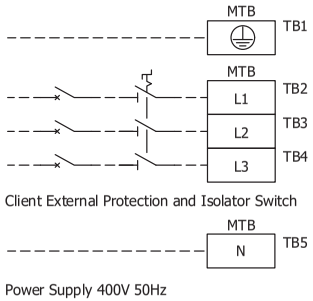
Ferrites			
	Part Number	Frequency Type	Number of Turns
A	012-001-074	High	1

UC8 Configuration

* 1 x EEV per system

	Compressor	UC8 DIP SWITCHES
		ON
SYSTEM 1	INVERTER	1, 4, 6, 7, 10, 14
SYSTEM 2	FIXED SPEED	1, 4, 6, 7, 10, 11, 14

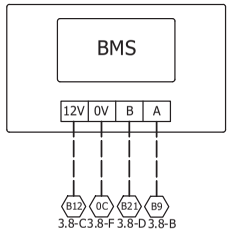
Client Wiring



Instructions To Convert To Master-Master Control

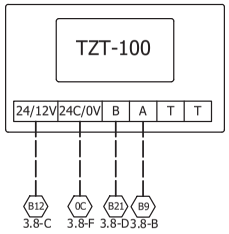
1) Turn off power to entire system.
2) Turn off dip switch 11 for system 2 fixed speed UC8 control.
3) Move the jumper between terminal blocks TB24T and TB25T to between TB25T and TB26T (refer to sheet 3).
4) Move the jumper between terminal blocks TB24M and TB25M to between TB25M and TB26M (refer to sheet 3).
5) Turn power back on.
6) Check UC8_2 (SYSTEM 2) address is set as 45. If it's address is 44, it needs to be changed to 45 using the pushbutton.

Client Wiring



Refer to Sheet 3 for Terminal Blocks
1) Connect B12 to TB27T (12V)
2) Connect B9 to TB25T (A1.2)
3) Connect B21 to TB25M (B1.2)
4) Connect 0V to TB25B (⏚)

Client Wiring



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4) Connect 0V to TB25B (⏚)

REV	DESCRIPTION	ECN	DATE	APPROVED
A	Initial Release			A.V

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Client Wiring

Drawn: A.V Date: 12/07/23
Apprvd: LC

Title: OPA 970RLTB1FPQ-(Z) Wiring Schematic

Drawing No: 291-003-537 SHEET 4 OF 4

Rev: A