

## SAMPLE ONLY iC8000 CONTROLLER WIRING PACKAGE

Passivent Issue No: ?      Compiled by: ??      Date: ??/??/????

Customer:                    ABC  
Project Name:                ABC Building  
Project Number:              123  
Total Number of Zones      8  
Drawing No. & Revision:    PC?????-WD01

The Controls Strategy table attached lists the room names (if known) and the Panel Module assigned to each room. It highlights the product being controlled in each room, the sensors to be used and if night cooling is enabled. The table also shows which wiring diagram sheet number should be referenced for each room during electrical installation.

The Wiring Diagrams attached are to be used on site during electrical installation, along with the Controls strategy table.

Please Report all errors.

**To allow us to commence manufacture and ensure we have interpreted your controller requirements for this project correctly please sign the below. This is to confirm that the zone names, sensor types and the items shown being controlled are correct on all sheets of the following controls strategy table, schedule and wiring diagrams. It is also to confirm that you are happy with the layout of the rooms connected to each Panel Module.**

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_

# Controls Strategy Table

## Hybrid Plus2 Aircoool Panels (iC8000 controller)

Panel Module No.	Zone No.	Room	Sensors	Control via Analogue output			Wiring Diagram SHEET No.
				Louvre Damper	Mixing Chamber	Fan	
1 (Master)	1	Example Space 1	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1
	2	Example Space 2	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1
	3	Example Space 3	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1
	4	Example Space 4	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1
2	1	Example Space 5	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1
	2	Example Space 6	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1
	3	Example Space 7	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1
	4	Example Space 8	Avg Temp & CO <sub>2</sub>	Yes	Yes	Yes	1

Notes:  
 Local Room Override type selected is Surface mounted for all rooms.  
 Night cooling enabled for products.

**WIRING NOTES**

These notes are to be read in conjunction with the wiring diagram for the associated site.

- 1) All field wiring to be in twisted pair screened cable (see Cable Types below). Refer wiring diagram details for earthing the screen. These cables are low voltage signal cables and must be segregated from mains or high voltage cables and electrical apparatus.  
The cable should not be run adjacent to or within close proximity to ballast lighting or any main electrical apparatus that emits electrical RF noise. Max cable length up to 100m, which must be confirmed by Electrical Consultant.
- 2) All cables to be continuous in length with no joints / connections.
- 3) The local MS/TP BACnet network is connected via the RS485 sockets within the panels. This network must be only a daisy-chained configuration, consisting of a single cable routed between RS485 sockets. Star and Ring network topologies are not supported.  
Do not loop back the last slave to the master panel module on the BACnet network cable.
- 4) Connections to BMS systems require a MSTP/IP Router (for Native BACnet), supplied by others.
- 5) A 240V 5 amp switch spur to be supplied and fitted (by others) adjacent to all Panel Modules requiring a power supply.
- 6) It is recommended that a section of 50mm x 50mm trunking is used along the top of the controller enclosure to harness all the field cables.
- 7) The maximum Panel Module terminal connection size is 2.5mm<sup>2</sup>.
- 8) The Heating override Interlock switch or relay is supplied by others.
- 9) The Fire Interlock switch is supplied by others.
- 10) The zonal field wiring to the louvre actuators is looped in at each location to the next damper. Please ensure polarity of supplies is maintained at all locations.
- 11) The location of the sensors and override units is to be agreed for each installation. Sensors should be mounted at approximately 1.5/1.7m above the finished floor level. Away from heat sources i.e. radiators, PC's and out of direct sunlight/ventilation draughts etc.
- 12) Average temperature sensors should be distributed and located on opposite walls (where possible) within the Zone, to provide a good average reading.
- 13) It is the installer's responsibility to ensure all wiring meets the prevailing electrical regulations.
- 14) The temperature thermistor can be located in the temp sensor, combined temp and CO2 sensor or the local room override, so links maybe required in the panel. These links are supplied and fitted by the Passivent Commissioning Engineer, when required.

**CABLE TYPES**

- From control panels to field items
- Room Sensors and Local Room Override(s)  
6-core (3 twisted pair) screened cable. Typical size 0.33mm<sup>2</sup>, Belden 8777. Suggested pairs are as follows, Pair 1) Red core is 24V and Black core is 0V, Pair 2) White core is control and Black core is not used, Pair 3) Both Green and Black cores are for Thermistor).
  - Hybrid Plus2 Aircool(s)  
12-core (6 twisted pairs) screened cable. Typical size 0.33mm<sup>2</sup>, Belden 8778. Suggested pairs are as follows, Pair 1) Red core is 24V and Black core is 0V, Pair 2) White core is facade damper and Black core is not used, Pair 3) Yellow core is mixing damper and Black core is not used, Pair 4) Green core is Motor speed control and Black core 0V.
  - Rain sensor (if applicable) -  
4-core (2 twisted pair) screened cable, Typical size 0.33mm<sup>2</sup>, Belden 8723.
  - External temperature sensor / Heating Interlock / Fire alarm Interlock -  
2-core (Single twisted pair) screened cable, Typical size 0.33mm<sup>2</sup>, Belden 8761.
  - Weather Station (if applicable) -  
Recommend Belden 9841 cable (Single twisted pair + drain) for RS485 communications DIN mounted socket connection and a 2 core (1 twisted pair) screened cable for the power supply, Typical size 0.33mm<sup>2</sup>, Belden 8761.

- Communications
- BACnet Network / BMS communications -  
Recommend Belden 9841 cable (Single twisted pair + drain) or direct equivalent.  
A RS485 communications DIN mounted socket is located within the panel module for connection.

DO NOT USE Bell wire, Cat 5, Cat 6, Single cables, T&E, MICC (Pyro) or SWA for sensors or actuators.

The above cables pairs have been recommended for standardisation. In some applications the pairs maybe reduced. Refer component wiring diagrams for details.



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SAMPLE WIRING DIAGRAM BEFORE ORDER STAGE  
NOT TO BE USED FOR WIRING ON SITE

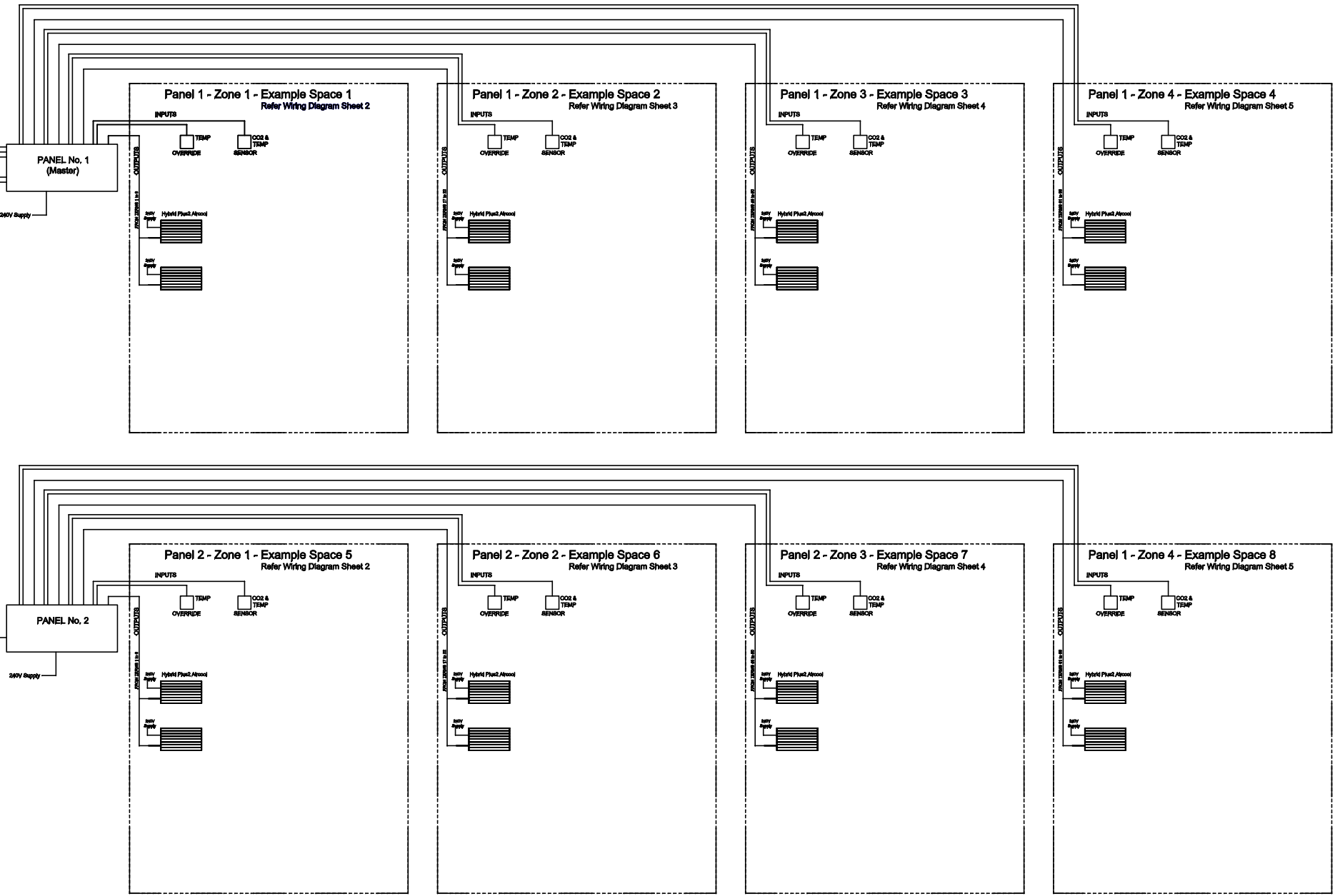
PROJECT SAMPLE HYBRID PLUS2 AIRCOOL WIRING DIAGRAM			
DRAWING iC8000 HP2A CONTROL PANEL WIRING NOTES			
SCALE	NTS	DRAWN	JH
DATE	07.03.19	MOD.	-
DRAWING No.		PCXXXXX/WD01	SHEET 0

COMMONS + NETWORK

Refer 'Common' Wiring Sheet for detailed connections

Fire alarm Inetool:  
Heating Inetool:  
Fidatral Temp-Sensor

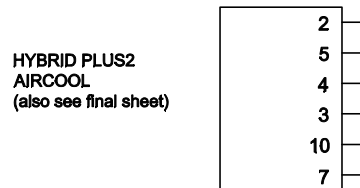
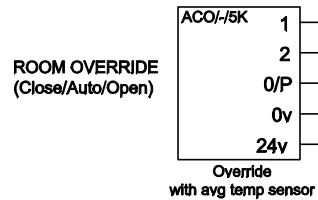
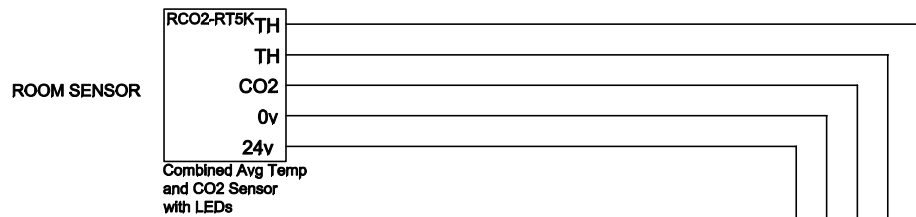
To BMS via BACnet  
OPTIONAL  
(MSTP) Router (req'd by others)



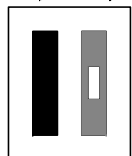
Local BACnet/MSTP Network - Data - Control - Alcool  
 BMS-CONTROL-TEMPERATURE-TEMPERATURE

SAMPLE WIRING DIAGRAM BEFORE ORDER STAGE  
 NOT TO BE USED FOR WIRING ON SITE

AVG TEMP & CO2

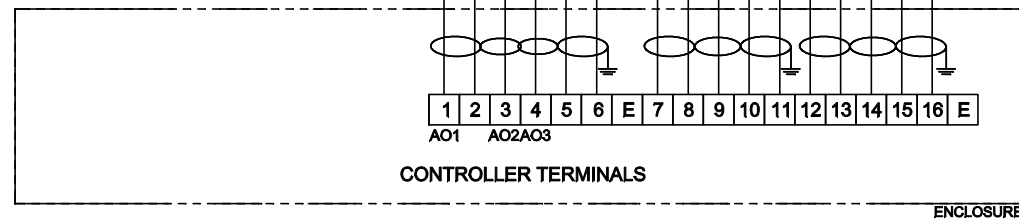


Local Switched Spur 5amp



L N E

MAINS SUPPLY  
240V AC 5amp



ZONE 1

NOTES:

All Field wiring twisted pair screened cable. Screen to be earthed at controller end only.

Panel Module Terminal colour guide  
Grey = Signal wiring  
White = 24VAC supply wiring  
Blue = 0V Common supply wiring

Links inserted between 10/11 and/or 15/16 if employing non-averaging temperature. This will be completed by the Passivent commissioning engineer.

Continued →



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SAMPLE WIRING DIAGRAM BEFORE ORDER STAGE  
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PROJECT  
SAMPLE HYBRID PLUS2 AIRCOOL WIRING DIAGRAM

DRAWING  
iC8000 HP2A CONTROL PANEL

SCALE	NTS	DRAWN	JH
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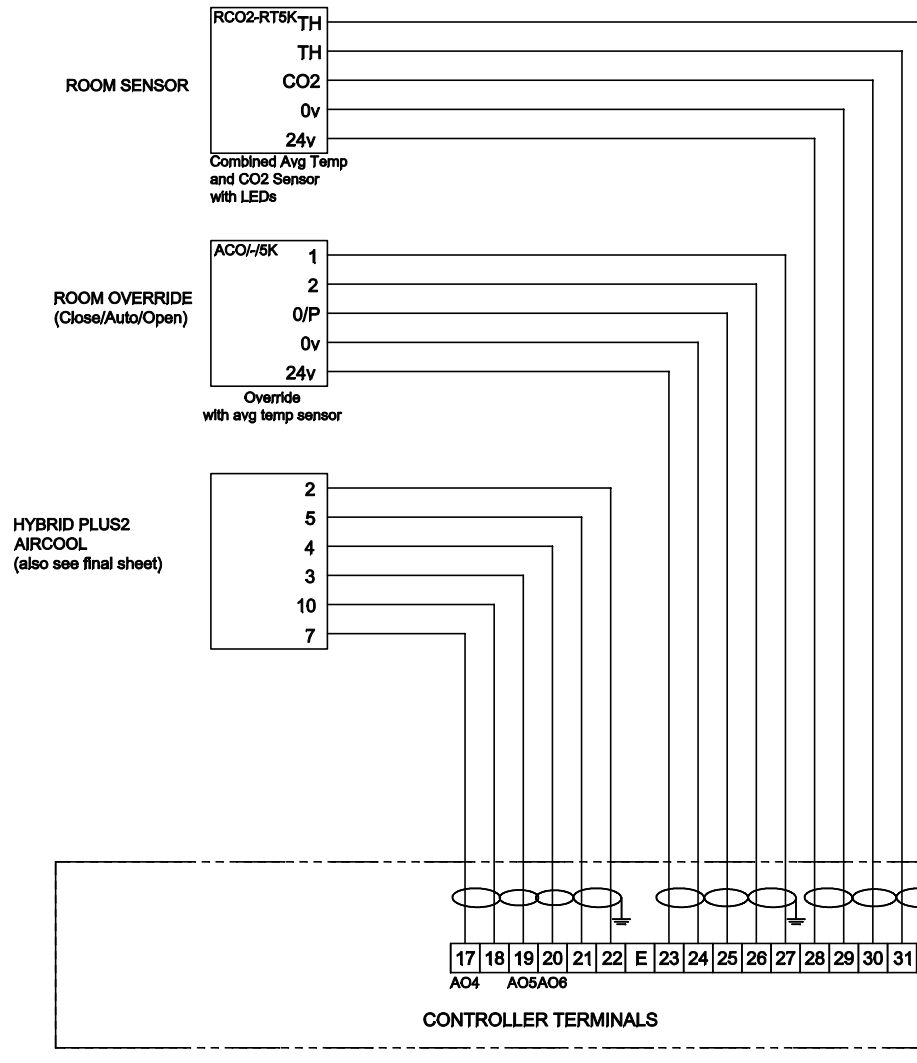
DRAWING No.	PCXXXXXX/WD01	SHEET	2
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**AVG TEMP & CO2**



**ZONE 2**

**NOTES:**

All Field wiring twisted pair screened cable. Screen to be earthed at controller end only.

Panel Module Terminal colour guide  
 Grey = Signal wiring  
 White = 24VAC supply wiring  
 Blue = 0V Common supply wiring

Links inserted between 26/27 and/or 31/32 if employing non-averaging temperature. This will be completed by the Passivent commissioning engineer.

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SAMPLE WIRING DIAGRAM BEFORE ORDER STAGE  
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PROJECT  
 SAMPLE HYBRID PLUS2 AIRCOOL WIRING DIAGRAM

DRAWING  
 iC8000 HP2A CONTROL PANEL

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DATE	07.03.19	MOD.	-
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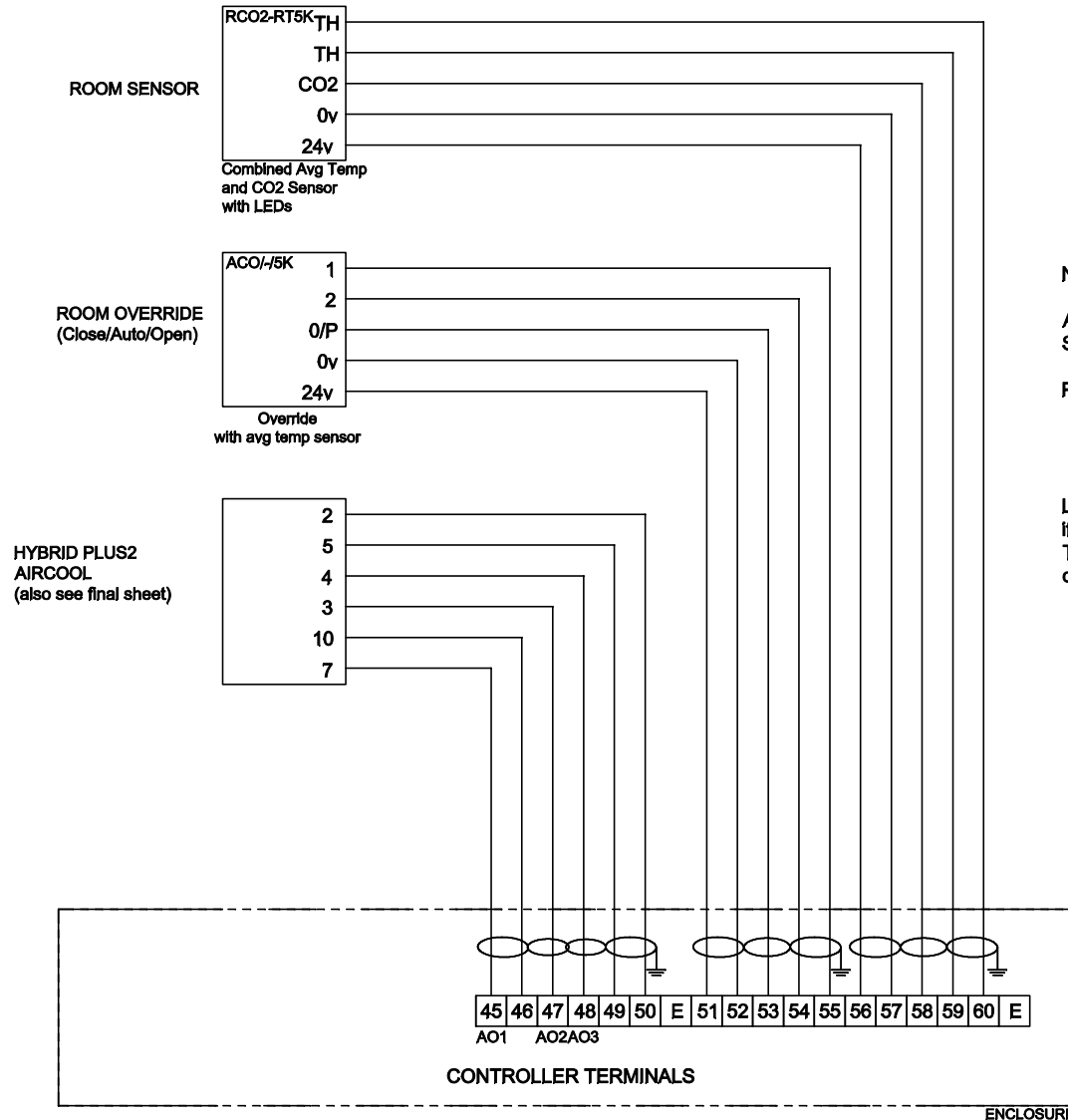
DRAWING No.	PCXXXXX/WD01	SHEET	3
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AVG TEMP & CO2



ZONE 3

NOTES:

- All Field wiring twisted pair screened cable. Screen to be earthed at controller end only.
- Panel Module Terminal colour guide
  - Grey = Signal wiring
  - White = 24VAC supply wiring
  - Blue = 0V Common supply wiring
- Links inserted between 54/55 and/or 59/60 if employing non-averaging temperature. This will be completed by the Passivent commissioning engineer.

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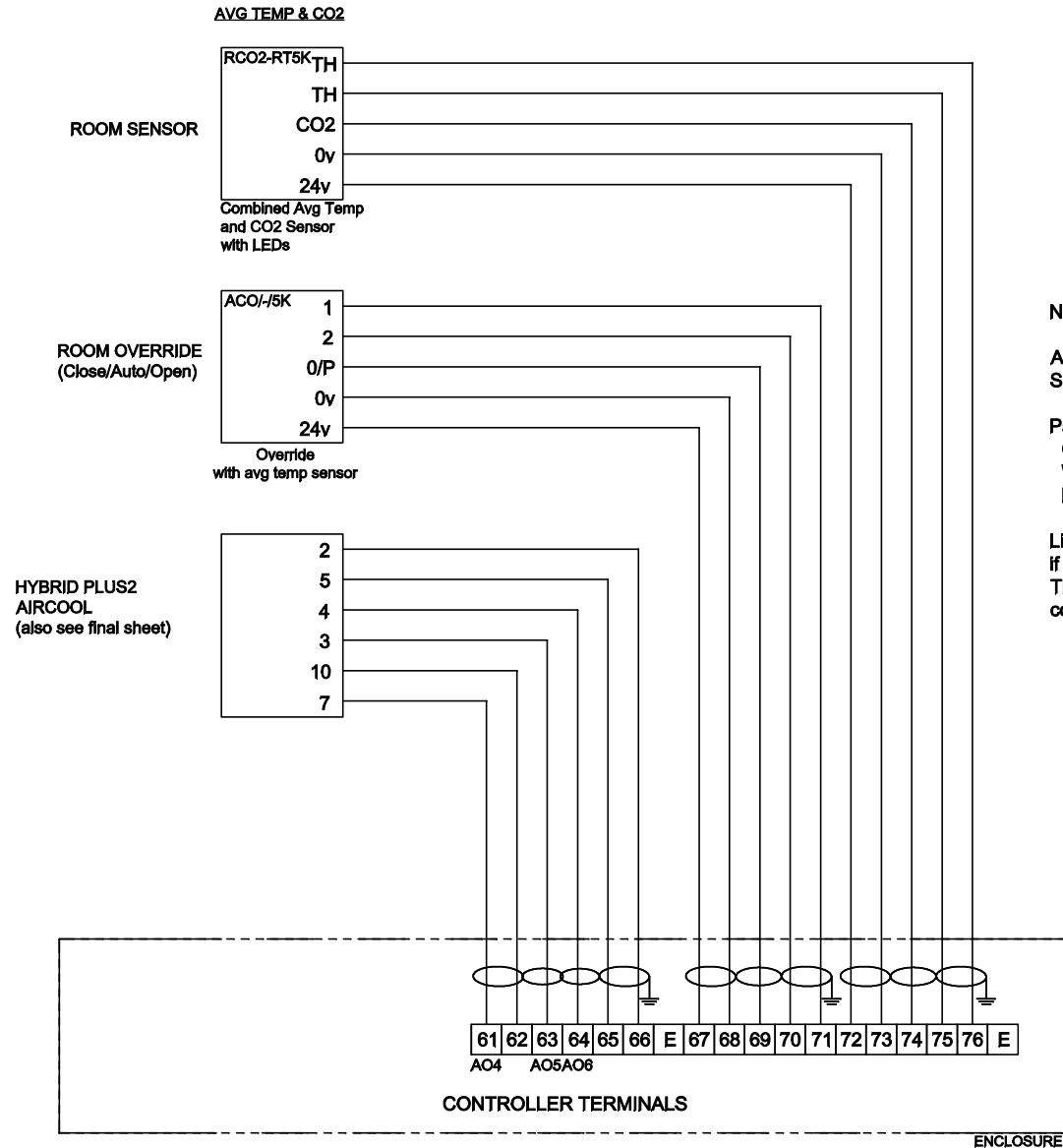
PROJECT SAMPLE HYBRID PLUS2 AIRCOOL WIRING DIAGRAM			
DRAWING iC8000 HP2A CONTROL PANEL			
SCALE	NTS	DRAWN	JH
DATE	07.03.19	MOD.	-
DRAWING No. PCXXXXXX/WD01		SHEET 4	

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# ZONE 4



**NOTES:**

All Field wiring twisted pair screened cable. Screen to be earthed at controller end only.

Panel Module Terminal colour guide  
 Grey = Signal wiring  
 White = 24VAC supply wiring  
 Blue = 0V Common supply wiring

Links inserted between 70/71 and/or 75/76 if employing non-averaging temperature. This will be completed by the Passivent commissioning engineer.



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PROJECT  
 SAMPLE HYBRID PLUS2 AIRCOOL WIRING DIAGRAM

DRAWING  
 iC8000 HP2A CONTROL PANEL

SCALE	NTS	DRAWN	JH
DATE	07.03.19	MOD.	-
DRAWING No. PCXXXXXX/WD01		SHEET 5	

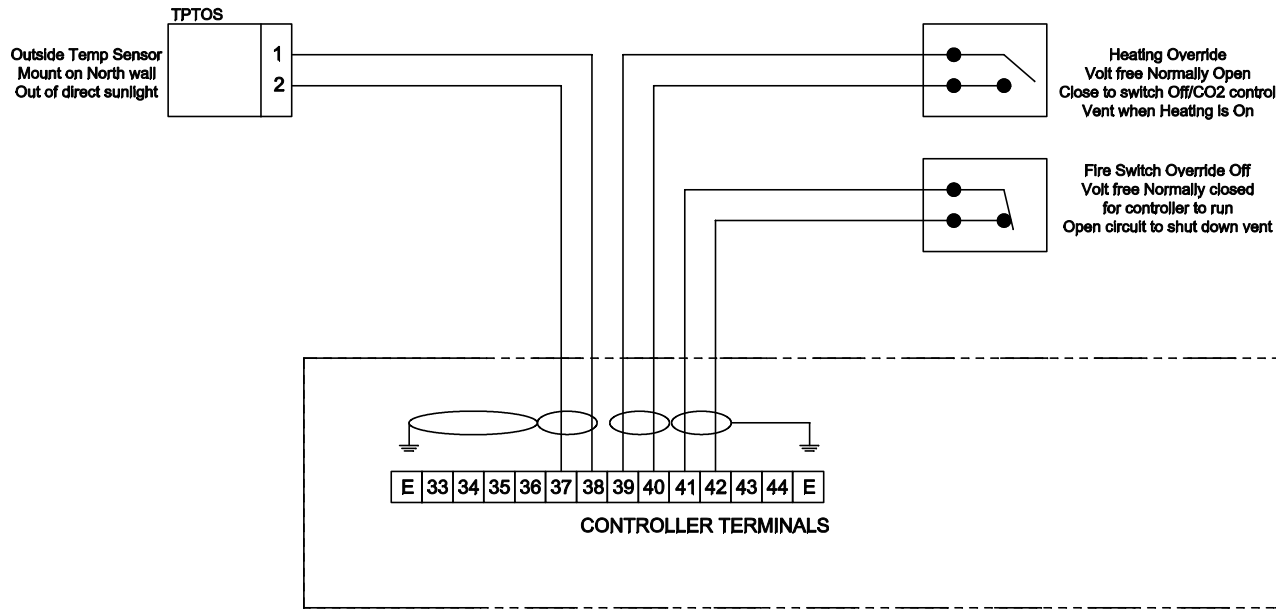
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# COMMON INPUTS AND INTERLOCKS ON MASTER CONTROLLER 1 ONLY

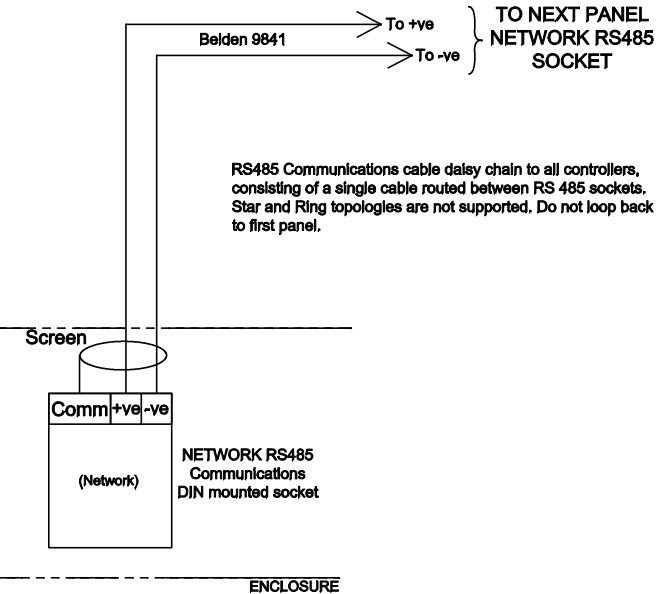


## NOTES:

The Network RS485 DIN sockets are connected together between panels using Belden 9841 cable (2 core + drain wire).  
The Drain wire is connected to the Comm RS485 terminal for screening.

Panel Module Terminal colour guide  
Grey = Signal wiring  
White = 24VAC supply wiring  
Blue = 0V Common supply wiring

# NETWORK CONNECTION TO ALL PANEL MODULES



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PROJECT  
SAMPLE HYBRID PLUS2 AIRCOOL WIRING DIAGRAM

DRAWING  
iC8000 HP2A CONTROL PANEL  
COMMONS

SCALE	NTS	DRAWN	JH
DATE	07.03.19	MOD.	-

DRAWING No. PCXXXXXX/WD01

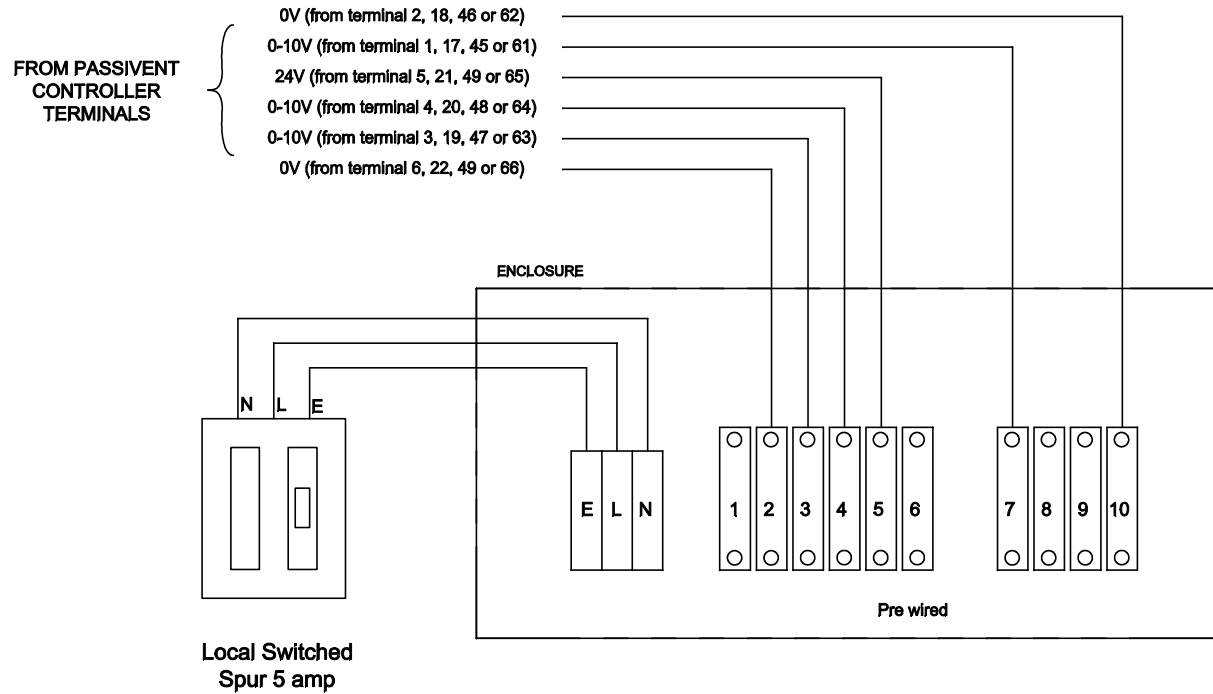
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# HYBRID PLUS2 AIRCOOL

(2 per zone - Max 2 Fan total)  
Wiring connections under access panel



**NOTES:**

5A fused spur required within 2m of the Hybrid Plus2 Aircool.  
If there are two units in a zone, a marshalling / junction box (by others) should be used.  
(There is only enough space for one cable to enter the each Hybrid Plus2 Aircool).

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PROJECT  
SAMPLE HYBRID PLUS2 AIRCOOL WIRING DIAGRAM

DRAWING  
iC8000 HP2A CONTROL PANEL  
HYBRID PLUS2 AIRCOOL

SCALE	NTS	DRAWN	JH
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DATE	07.03.19	MOD.	-
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DRAWING No. PCXXXXXX/WD01

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