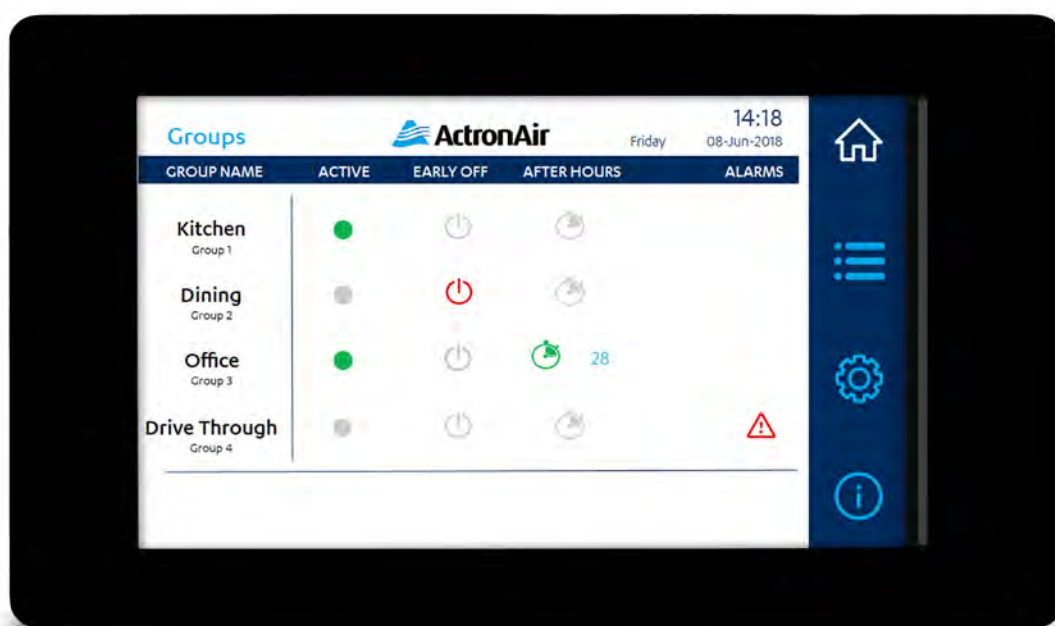


GROUP CONTROL

Installation and Commissioning Guide



CGT1000K

The single brand solution making group control simple and easy

IMPORTANT NOTE:

Please read this manual carefully before installing the module on to the air conditioning unit.



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01. Introduction

CONGRATULATIONS on your purchase of an ActronAir Group Control kit. This kit has been designed and engineered to give you a complete solution to control up to 15 A/C units from a single controller and user interface via touch screen and web access. The CGT100 provides central control and monitoring of your air conditioning system for optimum comfort, efficient operation and energy savings.

The procedures outlined in this manual are provided to correctly and safely install the ActronAir Group Control kit to control appropriate ActronAir A/C units.

Failure to follow these procedures may result in personal injury, damage to the control kit or incorrect operation of the A/C unit. Such failure could render your warranty null and void.

01.01. Items to Consider

Carefully unpack the ActronAir Group Control kit from its packaging and ensure that all parts are included.

Fully check the contents of your kit against the content list upon receiving your shipment. Inspect the components and accessories for any sign of shipping damage. If there is any damage to the contents, contact ActronAir Customer Care Department immediately on: **1300 522 722**.

Take time to thoroughly read the installation and commissioning instructions before proceeding with the installation.

01.02. Safety Instructions

Safety instructions and warnings provided in this installation manual are non-exhaustive and given as a guide only. Prevailing WH&S regulations should be observed and will take precedence to the safety instructions contained in this manual. Safe work practices and environment should be of paramount importance in the performance of all service procedures.

- Read all instructions in this manual before operating the system. Failure to do so may result in damage to the unit and controllers that may void your warranty.
- Turn-Off power from mains supply by removing the fuse or switching the circuit breaker to the OFF position before performing the installation procedures.
- Follow sound LOCK-OUT/TAG-OUT (LOTO) procedures to ensure that power supply is not re-energized accidentally.
- Ensure that all safety work procedures and instructions are adhered to at all times in order to prevent personal injury or damage to the equipment.
- Only licensed technicians are allowed to perform the procedures described in this guide.
- The ActronAir Group Control kit is NOT FOR OUTDOOR USE. Install the kit away from excessive dust, heat and moisture.
- The air conditioning electrical panel and the ActronAir Group Control kit contain static sensitive electronic components. Careful handling and correct anti-static procedures should be followed to prevent damage of the equipment. Failure to protect the electronic components from static electricity may cause unreparable damage, that is NOT COVERED for replacement under Warranty.
- The instructions herein refer to work involving a Computer CPU Chip and Electronic CPU Board. Please ensure all instructions are followed accurately so as to prevent damage to these fragile and delicate components.

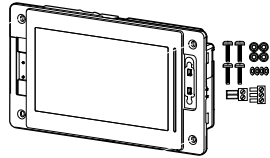

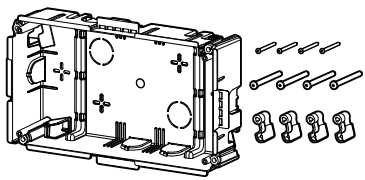
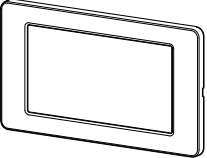

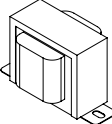
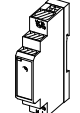
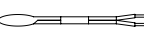

01.03. Codes, Regulations and Standards

The installer and/or contractor assumes responsibility to ensure that ActronAir Group Control kit installation and commissioning comply with the relevant council, state / federal codes, regulations and building code standards. All electrical wiring should be in accordance with current electrical authority regulations and all wiring connections to be as per electrical diagram provided with the unit.

01.04. Waste Electrical and Electronic Equipment Disposal Guidelines

- Do not dispose of the waste electrical and electronic equipment with local council waste. These should be disposed through the appropriate council designated waste disposal facilities.
- The equipment may contain hazardous substances. Improper or incorrect disposal may have a negative effect on human health and on the environment.



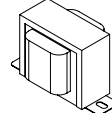
02. Parts Included In the Group Control kit (CGT1000K)

Part Number	Items	Images	Quantity
CGT100	Touch Screen Wall Control (Mounting brackets and Connectors are included)		1
CG100	Main Controller		1
26145-1	Recess Mount		1
26145-1	Black Frame		1
2020-164	Main Controller Connector		1
2045-184	Transformer 240VAC/24VAC 20VA (with two spare 250VAC 2A fuses)		1
20245-1	Switched-Mode Power Supply (SMPS) (240VAC/24VDC 15W)		1
2060-036	Ambient Temperature Sensors		1
2020-143	Resistor 1/2 Watt 120Ω		2

Note:

Expansion Module kit (CG10K) needs to be purchased separately. One CG10K is required for every unit.

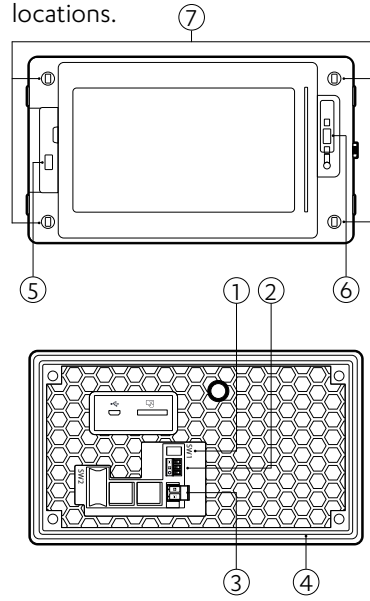
CG10K Parts List

Part Number	Items	Images	Quantity
CG10	Expansion Module		1
2020-166	Expansion Module Connectors		1
2045-184	Transformer 240VAC/24VAC 20VA (with two spare 250VAC 2A fuses)		1

03. Touch Screen Wall Control (CGT100)

03.01. Structure

The terminal's front panel houses the display, notification bar, temperature and humidity probe and front Micro USB Port. During normal operation, users can manage and supervise the various processes, browse screens and enter values by touching the keys on the screen keypad that is displayed for this purpose. On top and bottom are the mounting slots. The gasket is around the perimeter of the back of the screen. The product identification label can be found on the bottom and on the rear are the RS485 port and power supply connector. See drawing for locations.



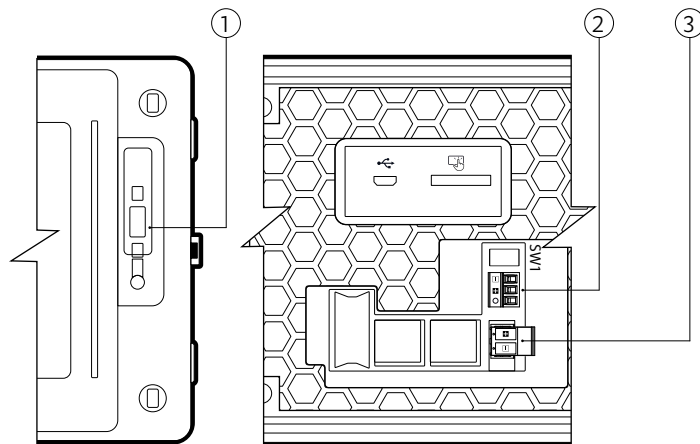
Items	Description
1	SW1 (Switch -manufacturer use only)
2	RS485 port COM1
3	Power supply connector
4	Gasket
5	Temperature and humidity probe
6	Micro USB Port
7	Mounting slots x 4

04. Communication and Power Ports (CGT100)

The Touch Screen terminal features the following:

- RS485 serial port with 3-pin plug-in connector
- Micro USB port
- Power Supply port

The hardware features of the serial ports are shown below:

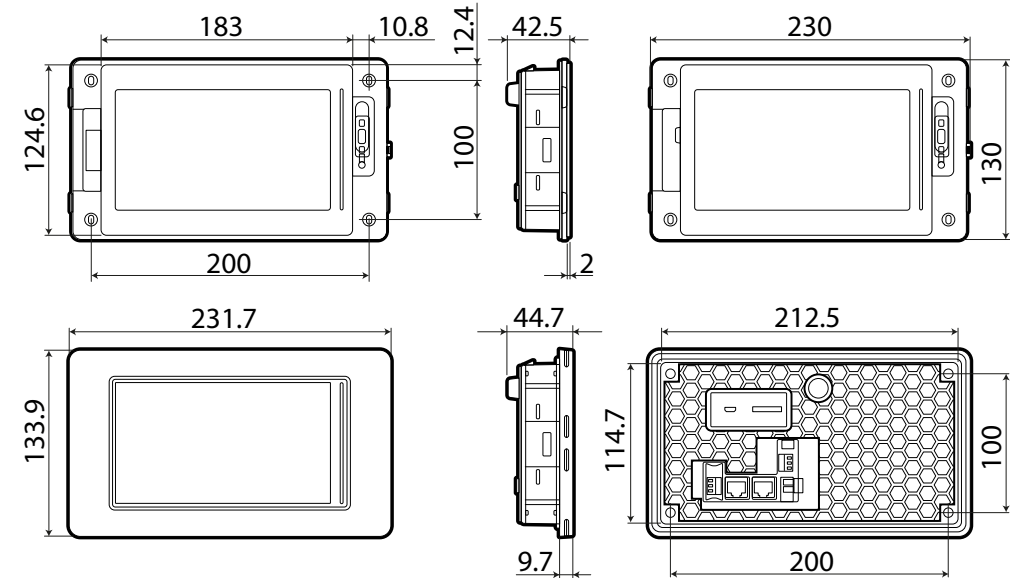


Items	Ports	Description
1	Micro USB Port	Micro USB female (Manufacturer Use Only)
2	RS485 port COM1	Driver HW: RS485 slave Optically-isolated Connector: 3-pin plug-in screw terminal, pitch 5.08 mm Bit rate: max 115 Kb/s
3	Power supply	24VDC

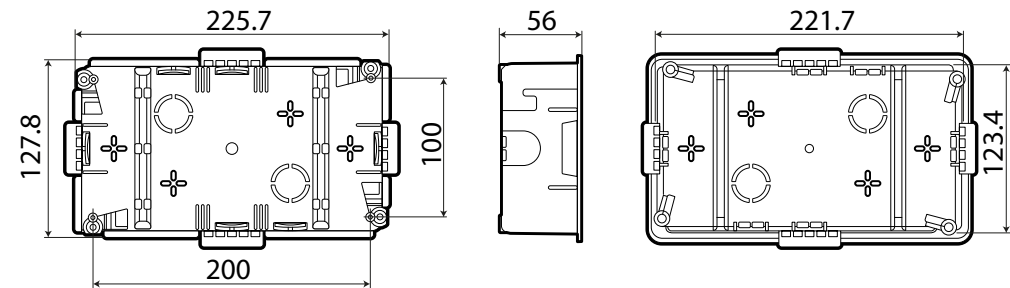
05. Installation (CGT100)

05.01. Dimensions (mm)

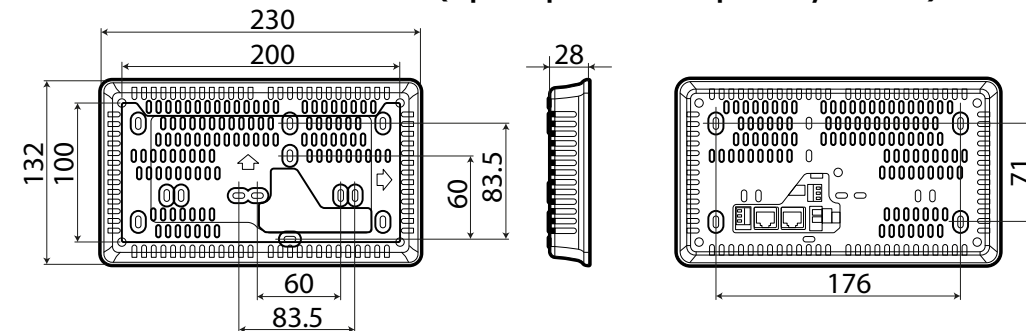
05.01.01. Display



05.01.02. Recess Mount



05.01.03. Wall Surface Installation (Option purchased separately: 26139-1)



05.02. Installation Environment

The CGT100 is not designed to be continuously exposed to direct light. This may accelerate the ageing process of the front protection film.

The device should not be installed near corrosive chemicals. Make sure the front protection film can withstand a specific compound before installation. Do not use tools (e.g. screwdrivers) to operate the touchscreen terminal.

Environmental Conditions

Avoid assembling the controller and terminal in rooms with the following characteristics:

- Exposure to direct sunlight or the elements in general.
- Temperature and humidity that do not conform to rated operating data. The temperature range for operation is -20°C to 60°C, 5 to 85% RH (non-condensing).

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

- Large and rapid fluctuations in the room temperature.
- Strong magnetic and/or radio frequency interference (avoid installation near transmitting antenna).
- Strong vibrations or knocks.
- Environments where explosives or mixes of flammable gases are present.
- Exposure to aggressive and polluting atmospheres (e.g.: sulphur and ammonia fumes, saline mist, smoke) that cause corrosion and/or oxidation.
- Exposure to dust (tracking of corrosive patina with possible oxidation and reduction of insulation).
- Exposure to water.

05.03. Preparing for Assembly

05.03.01. Positioning

Do not install the controlling devices in a particularly hot environment as extreme temperatures may damage the electronic equipment.

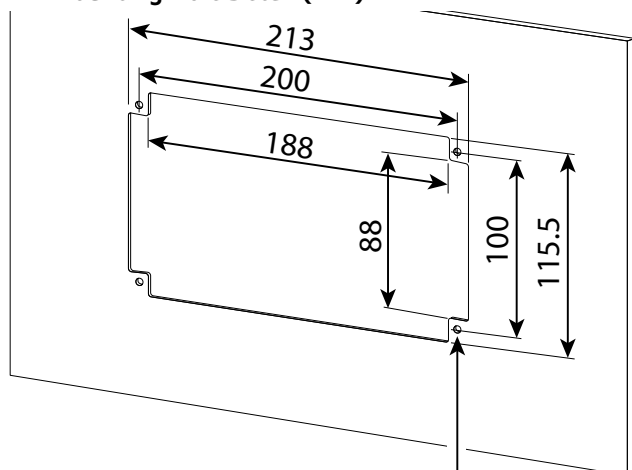
! Important: Ensure there is sufficient airflow around CGT100 to avoid damage from excessive heat. Otherwise, the terminal may be damaged and the warranty will be void.

05.04. Installation Detail

The Control can be installed either using the frontal screws or with a recess mount box. The drilling template used for assembly should have the dimensions shown in the diagram below:

05.04.01. Frontal Installation

Mounting Hole Detail (mm)



NOTE

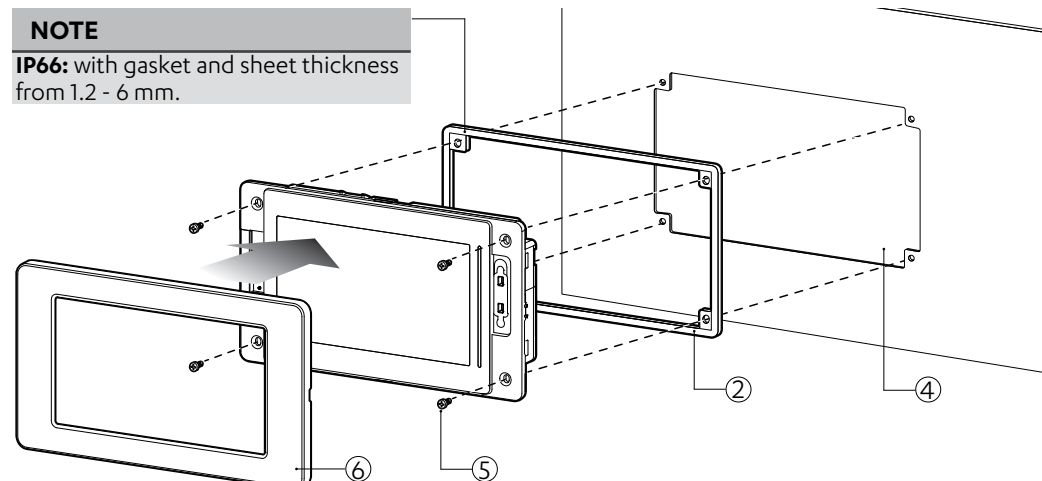
- Leave minimum of 40 mm clearance at the back of the terminal to allow;
- Adequate ventilation.
 - Adequate space for wiring and wiring terminals.

M3 self-blocking inserts
or Ø 4.2 for screw
+ counter-screw

Assembly

NOTE

IP66: with gasket and sheet thickness from 1.2 - 6 mm.



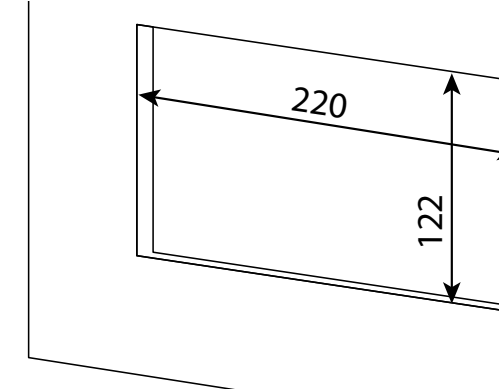
GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

Procedure:

- Step 1. Connect the provided terminals : black to the data and orange to the power supply cables.
- Step 2. Ensure gasket is inserted.
- Step 3. Connect the data and power supply cables to the control (see section Communication Ports for the location).
- Step 4. Place the control in the opening.
- Step 5. Tighten the M3 screws (x4 provided) with washer and nut to secure the control in the wall
- Step 6. Press and close the black frame to the front of the control.

05.04.02. Flush-mounted Wall Installation - Plasterboards

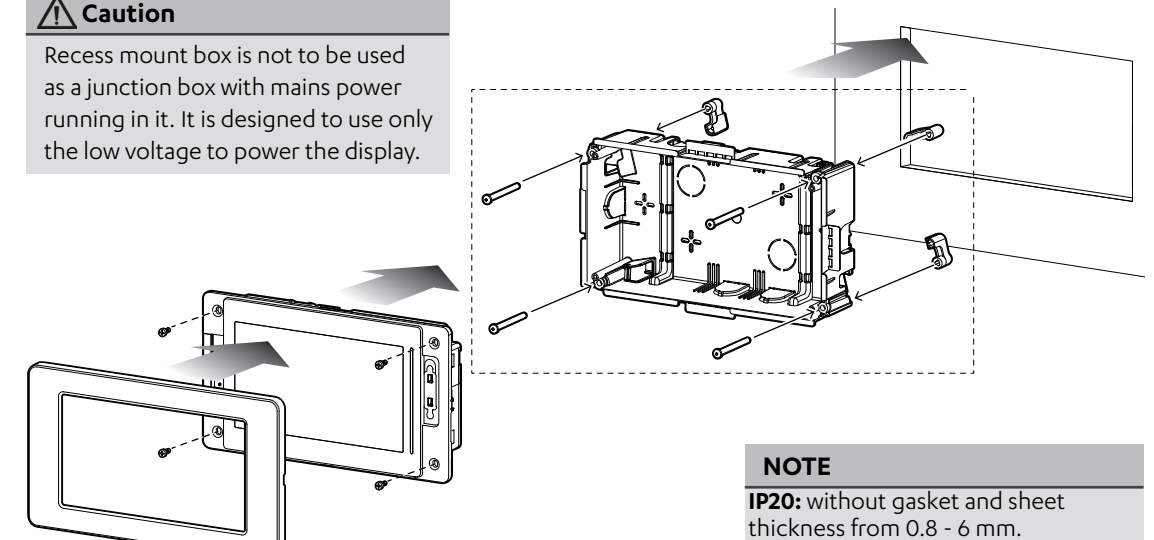
Mounting Hole Detail (mm)



Assembly

! Caution

Recess mount box is not to be used as a junction box with mains power running in it. It is designed to use only the low voltage to power the display.

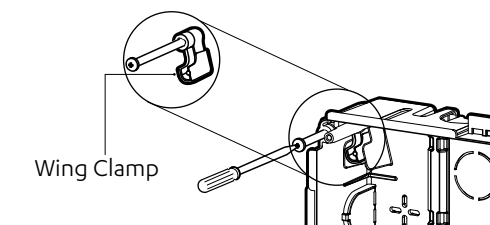


NOTE

IP20: without gasket and sheet thickness from 0.8 - 6 mm.

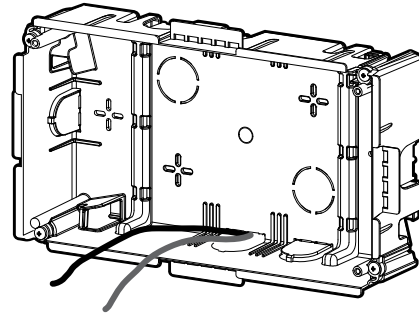
Procedure:

- Step 1. Connect the screws and the wing clamps (x4 each provided) through the required screw holes. It should be loose enough to open and close the wing clamps.
- Step 2. Close the wing clamps towards the recess mount box to fit the recess mount box through the wall cut-out.

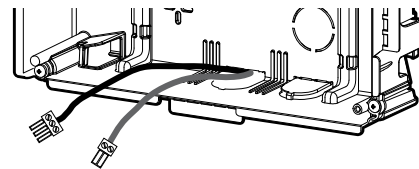


GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

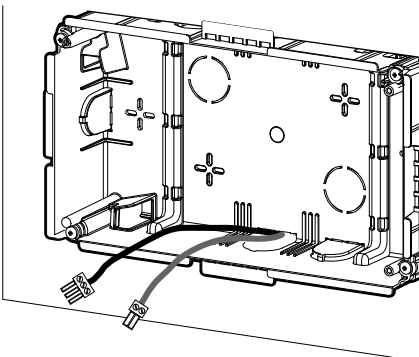
Step 3. Bring the data and power supply cable through any of the knockouts of the recess mount box.



Step 4. Connect the provided terminals : black to the data and orange to the power supply cables.

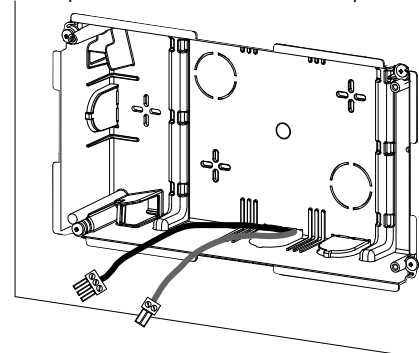


Step 5. Once the box is inside the cut-out, the snap-off plastic tabs will hold the box in place.



Step 6. Hold on to the box and use a screwdriver to push open the wing clamps towards the outside.

Step 7. Tighten the four screws, the snap-off tab will bend and snap off and the box will fit flush to the wall.

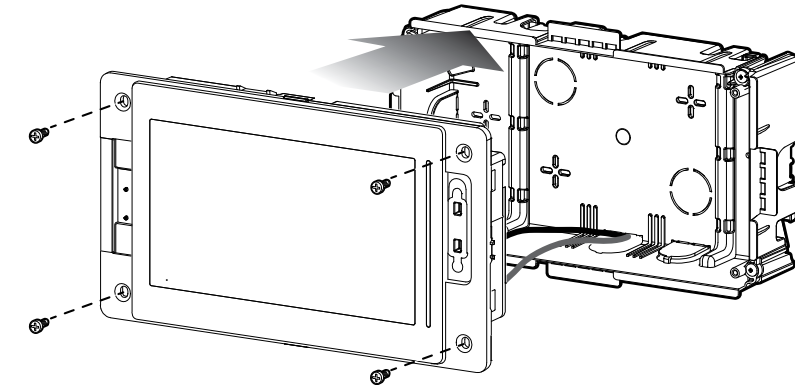


Step 8. Remove the rubber gasket behind the controller.

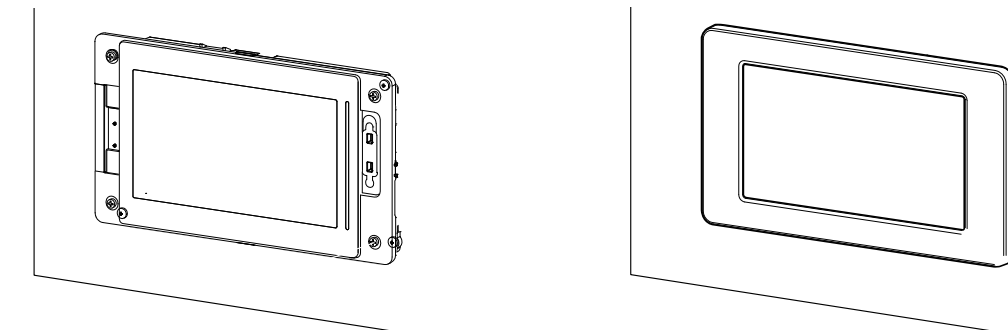
Step 9. Connect the data and power supply cables to the control (see section Communication Ports for the location).

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

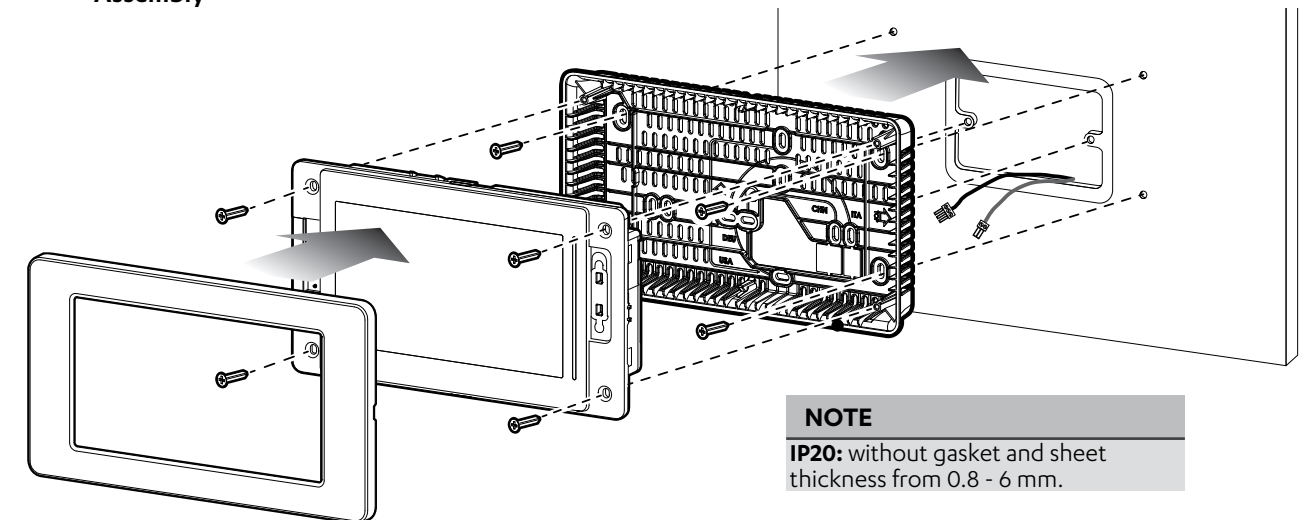
Step 10. Fit the control to the recess mount box using the screws (x4) provided.



Step 11. Press and close the black frame to the front of the control.



05.04.03. Wall Surface Installation Assembly



NOTE
IP20: without gasket and sheet
thickness from 0.8 - 6 mm.

Procedure:

Step 1. Remove the black honey comb back grill and the rubber gasket from the control.

Step 2. Take out the data and power supply cable through the cutout of the wall box and connect the provided terminals : black to the data and orange to the power supply cables.

Step 3. Fix wall box securely using screws (x4) provided.

Step 4. Connect the data and power supply cables to the control (see section Communication Ports for the location)

Step 5. Press the control to the wall box until it clicks and secure it by the screws (x4) provided.

Step 6. Press and close the black frame to the front of the control.

05.05. Electrical and Network Connections

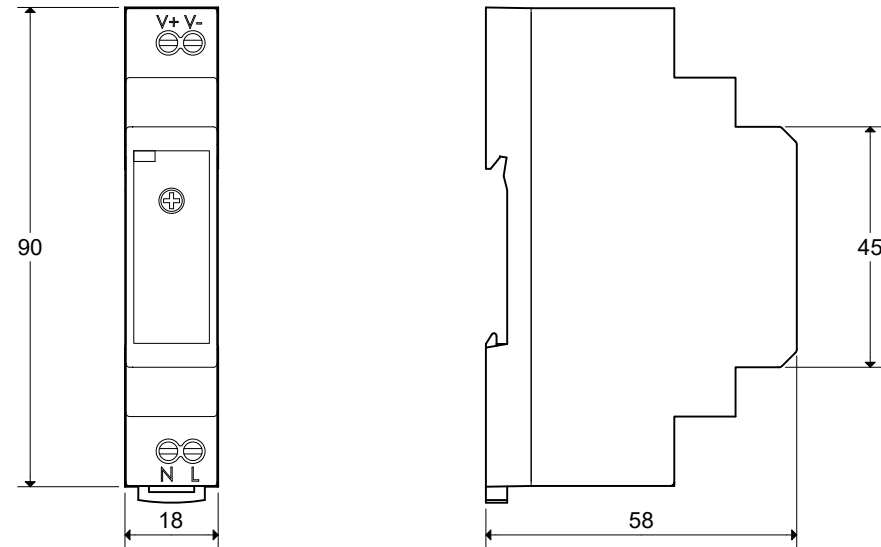
Use the power supply provided in the kit , 24VDC SMPS 240VAC/24VDC 15W (20245-1).

05.05.01. Mounting the SMPS (20245-1)

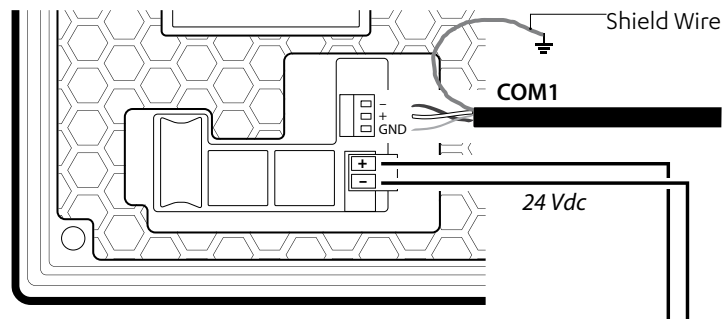
Dimensions: DIN rail modules, 90 x 18 x 58 mm (in accordance with DIN 43880 CEI EN 50022).

Mounting: fitted on DIN rail. Place the controller on the DIN rail and press it down gently. The tabs at the back will snap into place and lock the controller.

Removing: lift the tabs using a screwdriver applied to their release slots. The tabs are kept in place by springs.



05.05.02. Earth Connection

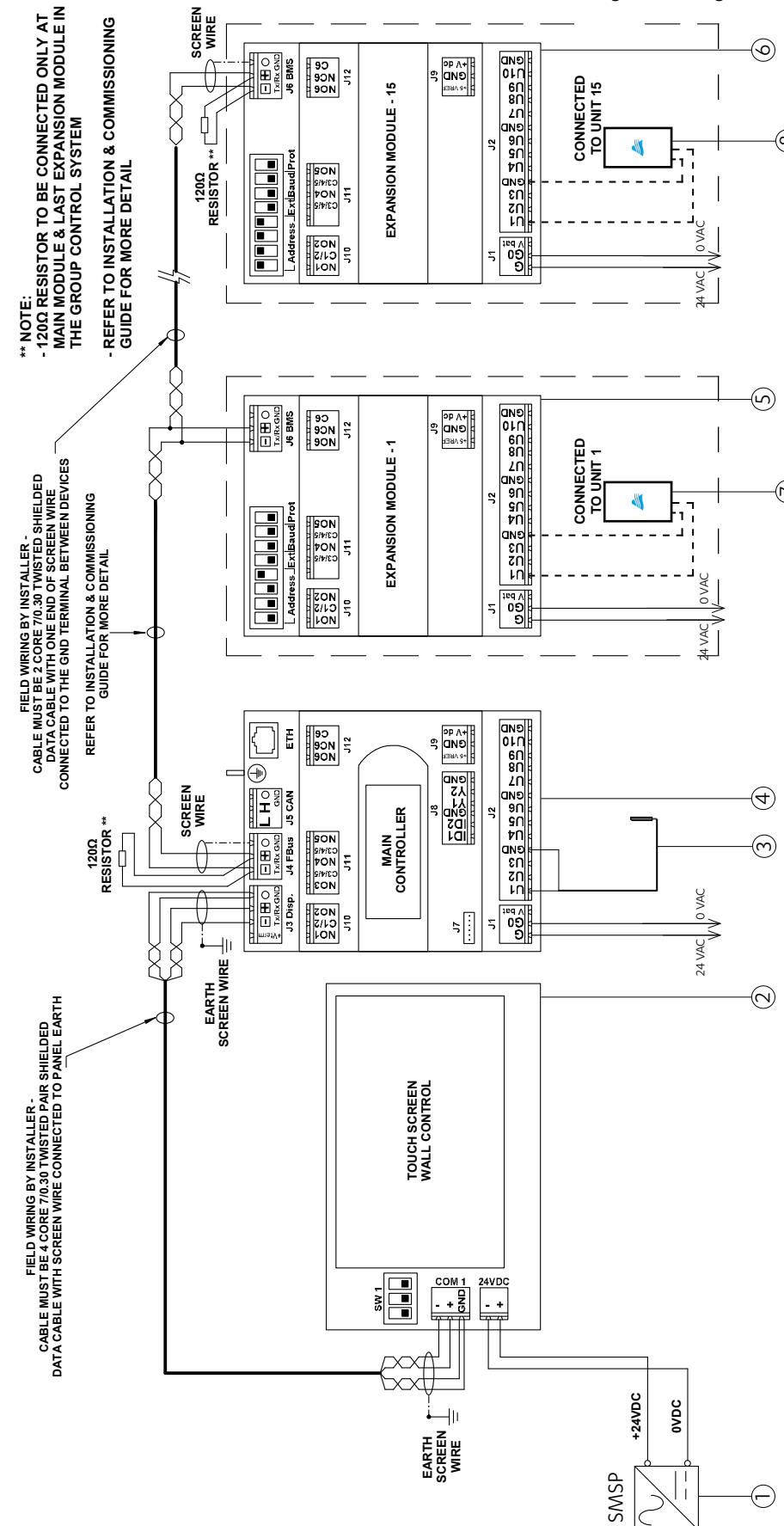


The shield wire of the COM1 data cable should be earthed. This helps limit the effects of control system disturbance due to electromagnetic interference. The earth connection should be made to an earthing point located near the controller. Ensure the shield wire is kept as short as possible.

! Do not connect the earth to the power terminal. Ensure that the polarity is correct when connecting the power supply. Refer to WD1002 wiring diagram for connection.

05.05.03. Wiring the Network

! Do not exceed maximum recommended length in wiring the components.



**** NOTE:**
- 120Ω RESISTOR TO BE CONNECTED ONLY AT MAIN MODULE & LAST EXPANSION MODULE IN THE GROUP CONTROL SYSTEM
- REFER TO INSTALLATION & COMMISSIONING GUIDE FOR MORE DETAIL

FIELD WIRING BY INSTALLER - CABLE MUST BE 2 CORE 7/0.30 TWISTED SHIELDED DATA CABLE WITH ONE END OF SCREEN WIRE CONNECTED TO THE GND TERMINAL BETWEEN DEVICES
REFER TO INSTALLATION & COMMISSIONING GUIDE FOR MORE DETAIL

FIELD WIRING BY INSTALLER - CABLE MUST BE 2 CORE 7/0.30 TWISTED SHIELDED DATA CABLE WITH SCREEN WIRE CONNECTED TO PANEL EARTH
REFER TO INSTALLATION & COMMISSIONING GUIDE FOR MORE DETAIL

MAXIMUM CABLE LENGTH BETWEEN DEVICES

Connection	Cable Type	Maximum Length
1 to 2	Power Cable	12m for 1.5mm ² / 8m for 1.0mm ²
2 to 4	Data Cable	500m
3 to 4	Signal Cable	50m for 0.5mm ²
4 to 5 to 6 (Maximum 15 x CG10)	Data Cable	500m total cumulative length
5 to 7 / 6 to 8	Signal Cable	50m for 0.5mm ²

Device	
1	20245-1
2	CGT100
3	2060-036
4	CG100
5	CG10
6	CG10
7	LM-RS (optional)
8	LM-RS (optional)

06. Main Controller (CG100)

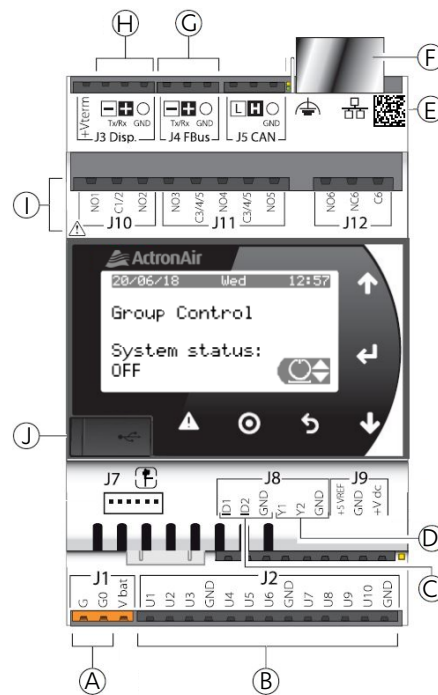
The Main Controller (CG100) is a microprocessor-based, programmable electronic controller, featuring a multitasking operating system, which includes programmable controllers, user terminals, gateways, communication devices and remote management devices.

These devices represent a powerful control system that can be easily interfaced with the Touch Screen Wall Control (CGT100) and Expansion Module (CG10).

06.01. Structure/Terminal Connections

The front panel contains a display and a keypad with 6 backlit buttons that, when pressed individually or in combination, allow the following operations:

- Uploading an application program.
- Turn ON/OFF the whole group control system.
- Set the TCP/IP network parameter.



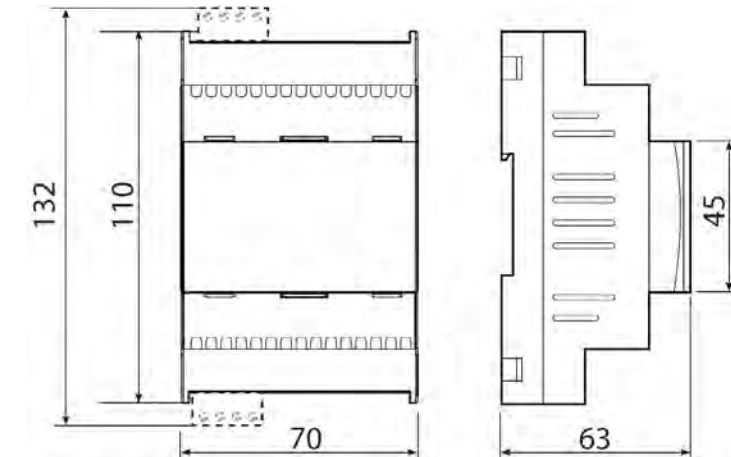
Items	Label	Description	Items	Label	Description
A	J1	Power connector [G(+), G0(-)]	F		Ethernet port
B	J2	Universal inputs/outputs	G	J4 FBus	Expansion Modules network
C	J8	Digital inputs (Reserved)	H	J3 Disp	Display port CGT100
D	J8	Analogue outputs (Reserved)	I	J10	Relay digital outputs
E		MAC address label	J		Micro USB (Manufacturer Use Only)

06.02. Mounting and Dimensions

Dimensions: DIN rail modules, 70 x 110 x 60 mm (in accordance with DIN 43880 CEI EN 50022).

Mounting: fitted on DIN rail. Place the controller on the DIN rail and press it down gently. The tabs at the back will snap into place and lock the controller.

Removing: lift the tabs using a screwdriver applied to their release slots. The tabs are kept in place by springs.



06.03. Electrical Installation

! Important: before servicing the equipment, isolate the controller from mains power.

Ensure the system is installed with a power disconnect conforming to regulations. Use cable lugs that are suitable for the terminals used. Loosen each screw and insert the cable lugs, then tighten the screws. When tightening the terminal screws apply a tightening torque no greater than 0.6 N·m. The maximum allowable length of the connections to the analogue/digital inputs and to the analogue outputs is 100 m other than temperature sensor; temperature sensor maximum length is only 50 m. After making the connection, gently pull on the cables to ensure they are sufficiently tight.

Note:

- Secure the cables connected to the controller with clamps placed at 3 cm from the connectors.
- Earth the OVAC of the power transformer secondary winding. Ensure the earth conductor is bonded to the conductor that is connected to the terminal G0 of CG100.

! Important:

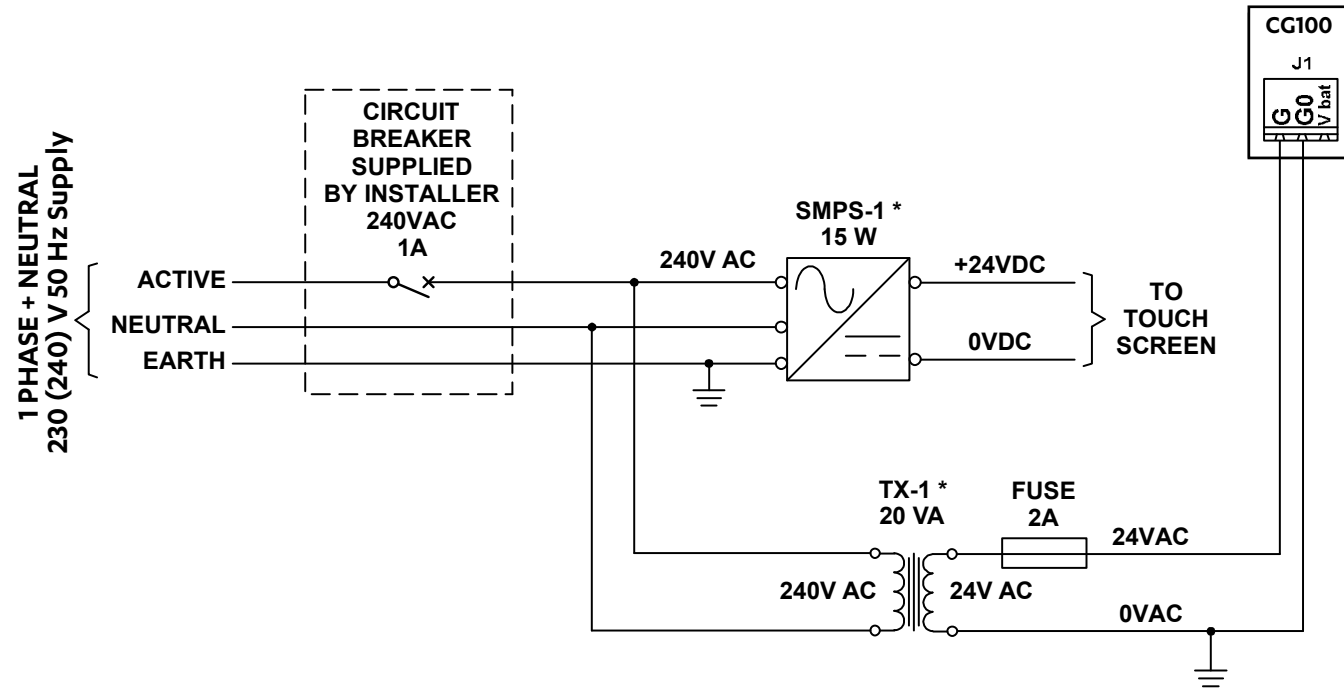
- To avoid damage to CG100, terminate wires to all connectors prior to plugging connectors to controller.
- Using a supply voltage other than specified can seriously damage the system and void the warranty.
- The controller should only be installed, serviced and inspected by qualified personnel and in compliance with national and local regulations.
- All the extra low voltage connections should have reinforced or double insulation from the power mains.
- Avoid touching the electronic components mounted on the boards to avoid electrostatic discharges from the operator to the components, which may cause considerable damage.
- Do not press the screwdriver on the connectors with excessive force, to avoid damaging the controller.
- Using the device in any way other than specified by the manufacturer can compromise its protection.
- Only connectors supplied with the kit shall be used.

Refer to WD0991 in Section **Group Control System Server Controller** for wiring of CG100.

06.04. Power Supply

Only use the transformer that is supplied with the kit. See the Wiring Diagram for details.

The figure below shows the power supply connection diagram.



***Note:**
SMPS-1 240VAC/24VDC 15W Switch Mode Power Supply will power 1 x CGT100 only.
TX-1 240VAC/24VAC 20VAC 20VA Transformer will power 1 x CG100 only.

- ! Important:**
- Power CG100 with the transformer provided in the kit with the 0VAC of the secondary winding earthed.
 - Using a supply voltage other than specified can seriously damage the controller.
 - Make sure that the earth conductor is connected to terminal G0. This applies to all the devices connected to the CG100 through a serial network.
 - The power supply to CG100 should be kept separate from the power supply to the other electrical devices (contactors and other electromechanical components) inside the electrical panel.

Note: When the controller is powered, the yellow LED lights up.

06.05. Operating Conditions

Storage: -30 To 70 °C, 90% RH non-condensing

Operation: -20 To 60 °C, 90% RH non-condensing

06.06. Network Communications

06.06.01. Ethernet Network Connections and Connectors

It is recommended to use Cat5e UTP or above Ethernet Cable (IEC11801 and EIA/TIA 568 Compliant).

The maximum length of an Ethernet connection is 100 m between consecutive devices.

06.06.02. RS-485 Network

To improve the controller immunity against electromagnetic interference, the serial connection cable should be a shielded twisted pair cable, 2 core twisted pair shielded or 4 core two twisted pair shielded depending on the isolation of the serial connection. The following rule applies:

The serial port (J3 Disp) is isolated (functionally) from the power supply. A third wire is required in the serial cable to act as a common reference for the controllers. The serial port (J4 FBus) is not optically isolated and the common reference is already present, no third wire is required.

For the RS-485 network, use a shielded twisted pair cable. The maximum allowable total cumulative data cable length between all devices is 500 m.

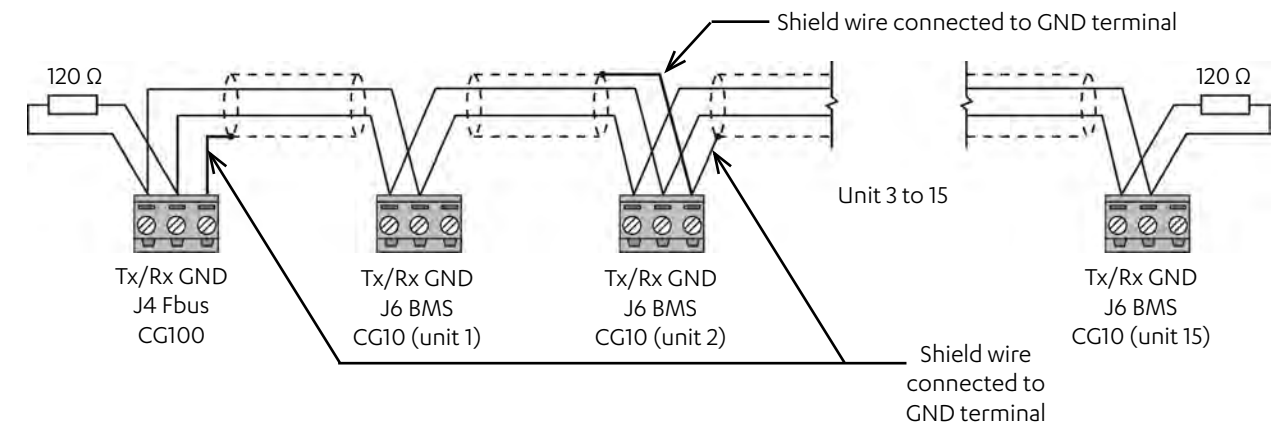
Note: Apply 120Ω, 1/2W terminating resistors to the first and last devices in the network. Use the 120Ω resistor as provided in the kit.

! Important: Any Earth connections made to any controllers shall be from a common main earth point.

06.06.03. Procedure for Earthing the Shield

The shield of the serial cable is earthed according to the figure shown below where: J4 FBus terminal on the Main Controller (CG100) and J6 terminal on the Expansion module.

Earth only one end of the serial cable shield (shield connected to every second device).



06.07. Digital and Analogue Input/Output Connection

Recommended cable sizes to be used for the remote connection of the Digital and Analogue Inputs/Output is 1.0 mm.

- ! Important:**
- Connections should be less than 10 m long if the controller is installed in an industrial environment with potentially high EMC interference; do not exceed this length to avoid measurement errors.
 - To avoid electromagnetic interference, keep the probe and digital input cables separate from the power cables as much as possible (at least 3 cm). Never run power cables and probe signal cables in the same conduits (including the ones in the electrical panels).

06.07.01. Input/Output Table

The table below describes the Input/Output terminals and functions:

Terminal Designator	Pin	Used for	Function of Terminal	Specification
J2	U1	Ambient Temperature sensor	Ambient Temperature sensor; range of -50.0°C to 99.9°C	10k NTC
	U2	Group1 After Hours button	N/O push button for group 1 time scheduler (2 sec hold time)	Voltage free contacts (pullup 2 kOhm)
	U3	Group2 After Hours button	N/O push button for group 2 time scheduler (2 sec hold time)	
	U4	Group3 After Hours button	N/O push button for group 3 time scheduler (2 sec hold time)	
	U5	Group4 After Hours button	N/O push button for group 4 time scheduler (2 sec hold time)	
	U6	Reserved/Not used		
	U7	Reserved/Not used		
	U8	Reserved/Not used		
	U9	Reserved/Not used		
	U10	Reserved/Not used		
J10 ²	NO1	Output 1-6 configurable for the following functions: Filter Dirty Notification, Alarm, Used for Range Hood, Internal Lighting, Outside Lighting, Signal, Function, Schedule based, Manual operation	N/O programmable relay output 1	NO EN 60730-1 Maximum Switchable Load: 250VAC/2A resistive
	NO2 ¹		N/O programmable relay output 2	
J11 ²	NO3		N/O programmable relay output 3	
	NO4		N/O programmable relay output 4	
	NO5 ¹		N/O programmable relay output 5	
J12 ³	NO6		N/O programmable relay output 6	

1. NO2 and NO5 with Solid State Relay assembly can be used to switch 15VA 110/230VAC or 15VA 24VAC.
2. Between J10 and J11 terminals there is basic insulation.
3. J12 has reinforced insulation from the two other terminals (J10 and 11). Consequently a different power supply can be used.

06.07.02. Universal Inputs

Universal inputs are distinguished by the letter U. They are configured to accept the following:

- NTC temperature sensor
- Voltage-free contact digital inputs and fast digital inputs.

! Important:

- The universal inputs/outputs should be pre-configured to handle their respective signals from the application program.
- The universal inputs/outputs cannot be used as digital outputs.

06.07.03. Digital Outputs

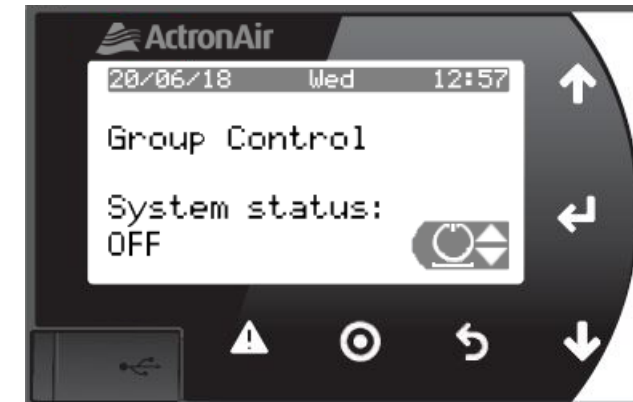
Digital Outputs are distinguished by the letter NO/NC and NO. Available signals that can be assigned to each output signal. Each output source may be configured as:

- Alarm
- Manual
- Filter Notification
- Scheduled Output (Group 1-4 see Operation Manual for application)

06.08. Functions

06.08.01. Turn ON and OFF

Step 1. Press the Up(↑) or Down(↓) arrows until power button (⏻) appears as below:



Step 2. Press the Enter button(↵) until the screen below appears:

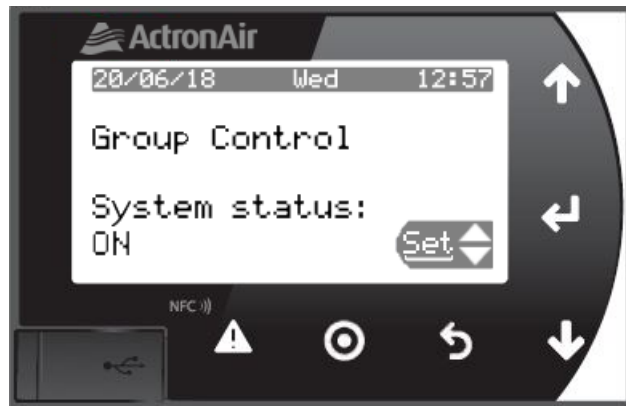


Step 3. Use the Up(↑) or Down(↓) arrows to set the system to ON, as shown below:

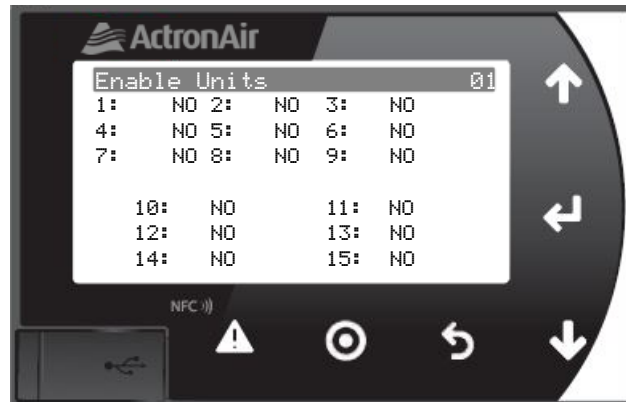


06.08.02. Activating the Alarm in the CG100

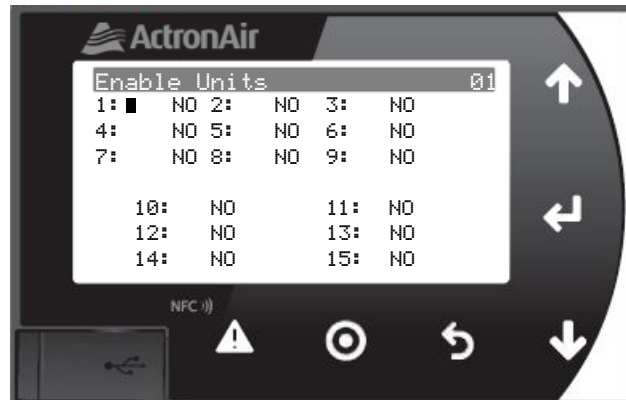
Step 1. Press the Up(↑) or Down(↓) arrow until set button (Set) appears as shown below:



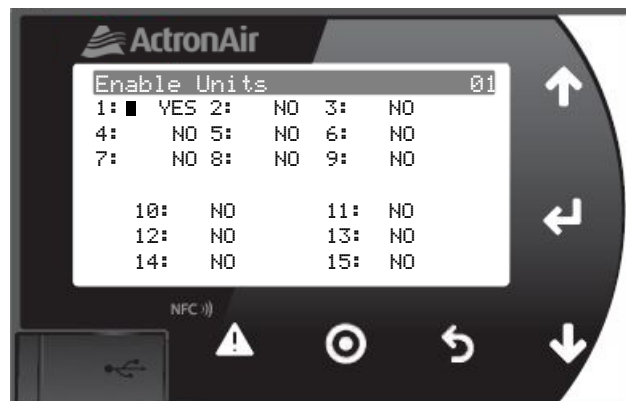
Step 2. Press the Enter button(↵), the following screen will appear on the display screen: By default, all units are set to NO.



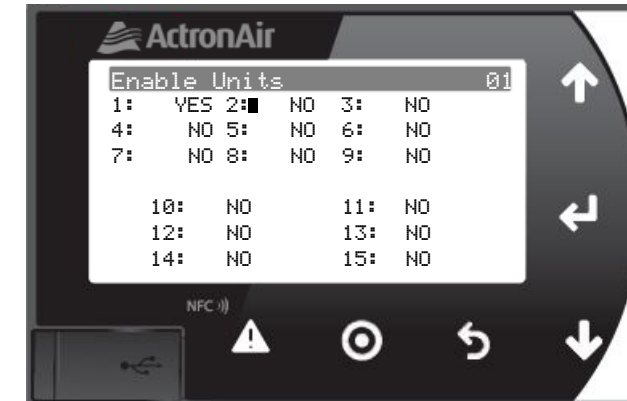
Step 3. Press Enter button(↵) to select the first Unit. Unit 1 will be blinking.



Step 4. Press the Up(↑) or Down(↓) arrow to change the setting to YES on Unit 1



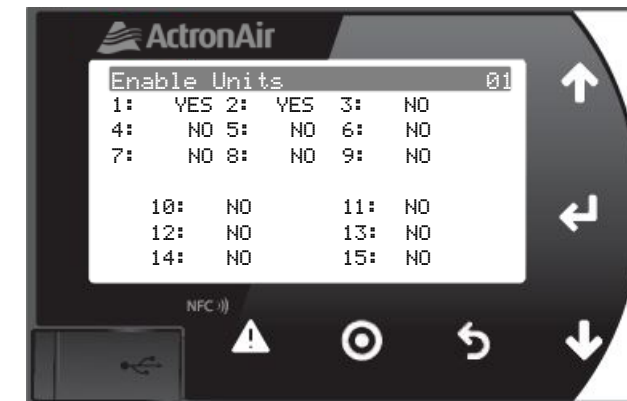
Step 5. Press Enter button (↵) to select next unit. Repeat the step 4 until all the unit required are changed to YES.



Step 6. Press Esc (⏏) to go main menu screen.



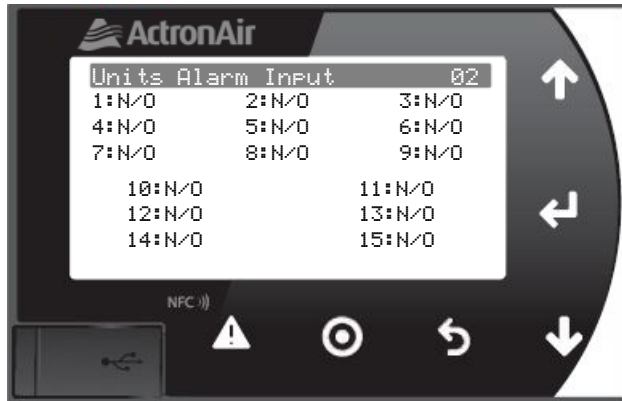
Step 7. With Up (↑) or Down(↓) arrow Set menu is selected, press enter (↵). The following screen will appear on the display screen.



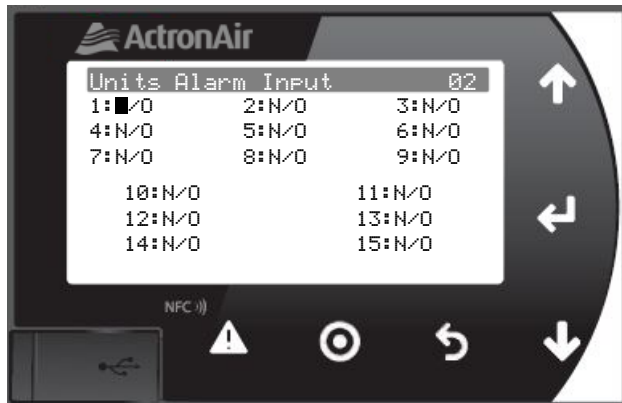
NOTE

IP20: Check the wiring connection of the Fault Signal Output on the Outdoor Board. If it is connected to N/O, skip Step 8 to 11, proceed to Step 12.

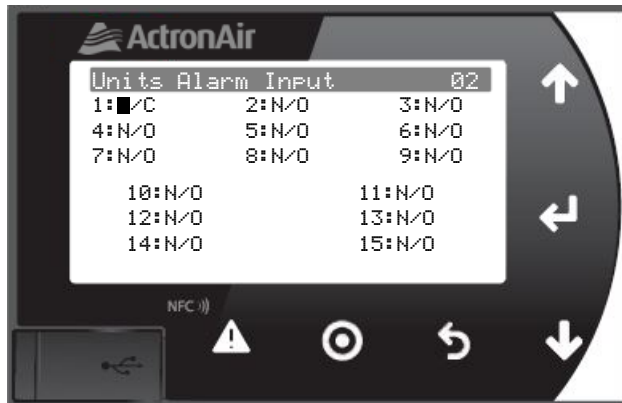
Step 8. Press the Up(↑) or Down(↓) arrow to go to Menu 2 Units Alarm input. By default all units are set to N/O



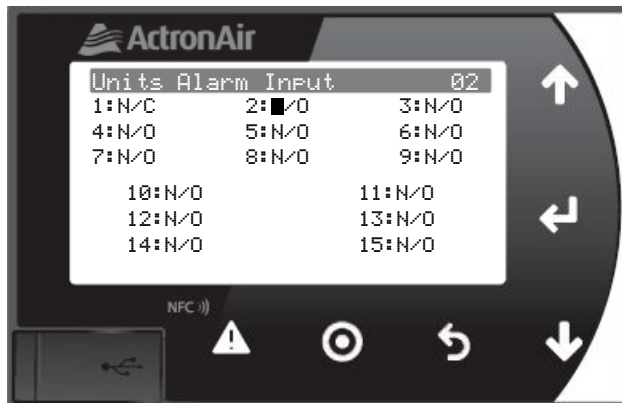
Step 9. Press Enter button(↵) to select the first Unit. Unit 1 will be blinking.



Step 10. Press the Up(↑) or Down(↓) arrow to change the setting to N/C on Unit 1.



Step 11. Press Enter button(↵) to select next unit. Repeat the step 10 until all the unit required are changed to N/C.



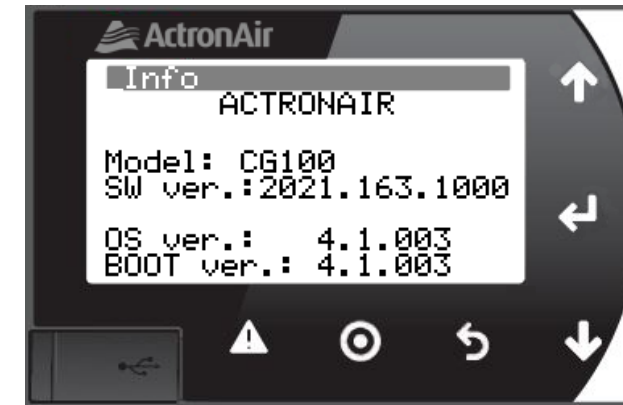
Step 12. Press Esc (⏏) to go back to main screen.

06.08.03. View Software Version Installed in the CG100

Step 1. Press the Up(↑) or Down(↓) arrow until information button (i) appears as shown below:



Step 2. Press the Enter button(↵), the following screen will appear on the display screen:

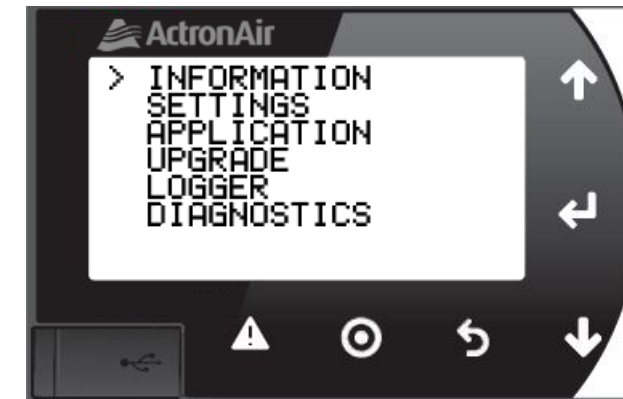


Step 3. Press Esc (⏏) to go back to main screen.

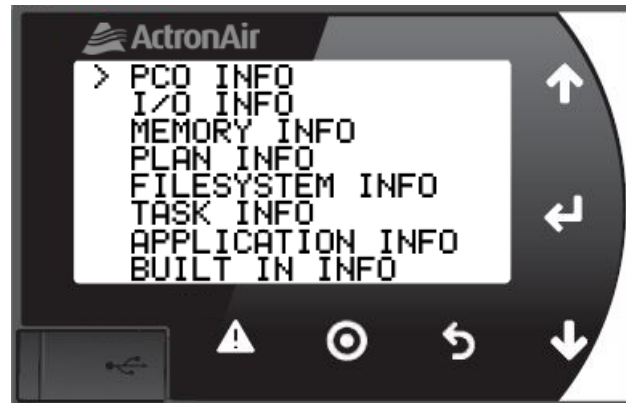
06.08.04. Set-up WebServer TCP/IP Address

(Optional, this will require information from network administrator)

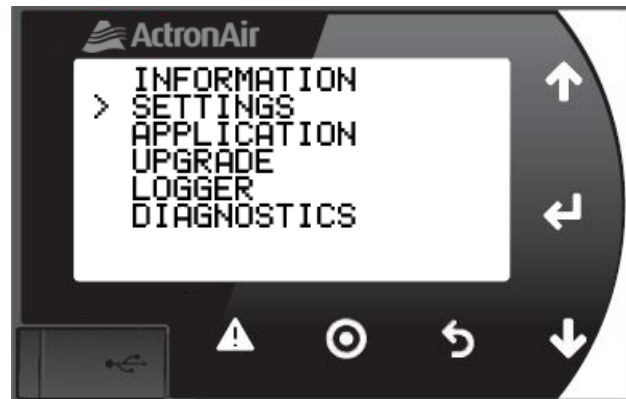
Step 1. Press and hold the Enter button(↵) and Alarm button (⚠) until the screen shown below appears:



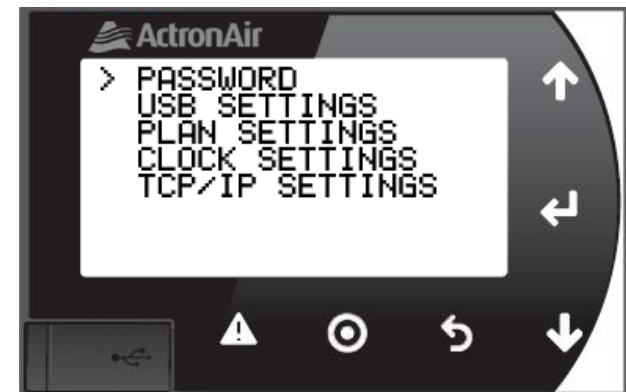
Note: If screen changed twice and show as below, press the Esc (↶) button to go to previous screen.



Step 2. Press the Down (↓) arrow to select **SETTINGS**.



Step 3. Press the Enter button (↵) to enter Settings:



Step 4. Press Down (↓) until **TCP/IP SETTINGS** is selected.



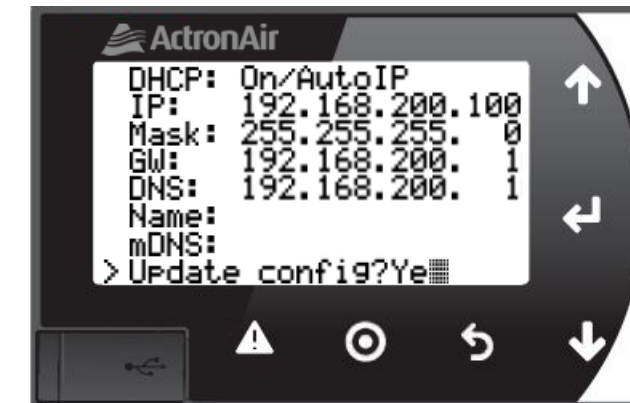
Step 5. Press the Enter button (↵):



Note:
Data in Screen is only sample (not actual setting)

Note: DHCP should be Off to set the static IP address.

Step 6. Press the Up (↑) or Down (↓) buttons to adjust the value of the field. Press the Enter button (↵) to save setting and go the next field or next line. Repeat first two steps until the last line **Update config** appears on the display screen. Press the Up (↑) or Down (↓) to Change **No** to **Yes**. Press the Enter button (↵) to accept setting and then press Esc (↶) until it shows on the main screen.



Note:
Data in Screen is only sample (not actual setting)

07. Expansion Module Kit (CG10K)

07.01. General Description

The Expansion Module Kit (CG10K) comes with the I/O Expansion Module, connector set and Transformer 240VAC/24VAC 20VA. Each Unit connected to the CG100 will require one CG10K.

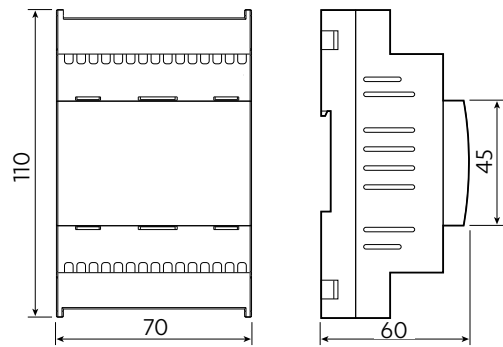
The Expansion module (CG10) is an Input/Output expansion board used to interface CG100 with the unit, configurable inputs (NTC, 0 to 10V and ON/OFF) and output (0-10VAC). It features a total of 16 I/Os, 10 of which universal inputs on I/O chip, 6 of which output relays.

Universal inputs/outputs are distinguished by the letter U. They can be configured in the application program on the CG100 for many different uses, such as the following:

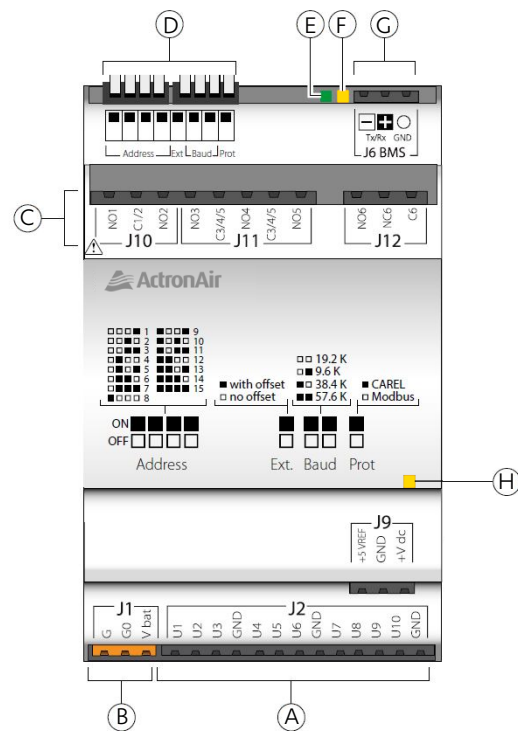
- Controlling the expansion,
- To connect active and passive probes,
- Digital inputs, and
- Analogue outputs

This allows additional input/output configurations, increasing the flexibility of the corresponding controller in different applications. See Section 05.06.03 for recommended maximum cable length connection.

07.02. Dimensions (CG10)



07.03. Connector's Description



Items	Description
A	Universal input/outputs
B	Power supply connectors [G, G0]
C	Relay digital outputs
D	Configuration Dip-switch
E	Configuration LED
F	Communication LED
G	J6 BMS connector
H	Power LED

07.04. Controller Electrical and Physical Specification

Power Supply

Power supply to the product between G and G0 (J1)	24 VAC +10%/-15% 50/60 Hz
Basic model maximum power consumption	15 VA
Insulation	Reinforced insulation between main power supply and controller guaranteed by the safety power transformer (IEC61558-2-6)
Protection against short-circuits	Fuse (250VAC 2A)
Maximum connector voltage (NO1...C6)	250 VAC
Minimum size of digital output wires	1.5 mm ²
Minimum size of all other connector wires	0.5 mm ²

Removable Connectors Kit

Connector kit code	2020-166
Tightening torque	0.2 N·m for 3.81 mm connectors
Tightening torque	0.4 N·m for 5.08 mm connectors
Important: Power supply to the product should only be connected between G and G0.	

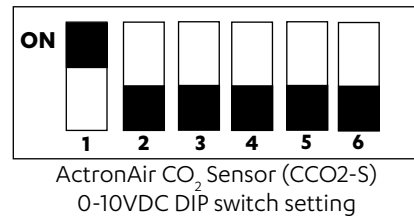
07.05. I/O Specification

Terminal Designator	Pin	Used for	Function of Terminal	Specification	
J2	U1	Room Temperature sensor	Room Temperature sensor; range of -50.0°C to 99.9°C	10k NTC	
	U2	Supply fan speed demand	0-10VDC output	0-10VDC (max 2 mA)	
	U3	Compressor variable capacity	0-10VDC output	0-10VDC (max 2 mA)	
	U4	Fault from unit	N/C digital input	Voltage free contacts digital input (pullup 2 kOhm)	
	U5	Supply air filter pressure switch or transducer See Operation Manual Section 08.03 (Filter Type)	N/O pressure switch ⁴	Voltage free contacts digital input (pullup 2 kOhm)	
			0-10VDC pressure sensor ⁴	0-10VDC input	
	U6	Outside Air Economy damper	0-10VDC output	0-10VDC (max 2 mA)	
	U7	Outside CO ₂ sensor ⁵	0-10VDC input ⁴	0-10VDC input (CO ₂ range:0-2000PPM)	
	U8	Reserved/Not used			
	U9				
U10					
J10 ²	NO1	Unit ON/OFF	N/O digital output	NO EN 60730-1 Maximum Switchable Load: 250VAC/2A resistive	
	NO2 ¹	Compressor Stage 2	N/O digital output		
J11 ²	NO3	Heat/Cool (Reversing Valve)	N/O digital output		
	NO4	Compressor Stage 1	N/O digital output		
	NO5 ¹	Supply fan ON/OFF	N/O digital output		
J12 ³	NO6	Reserved/Not used			NO EN 60730-1 Maximum Switchable Load: 250VAC/1A resistive

1. NO2 and NO5 with Solid State Relay assembly can be used to switch 15VA 110/230VAC or 15VA 24VAC.
2. Between J10 and J11 terminals there is basic insulation.

- J12 has reinforced insulation from the two other terminals (J10 and 11). Consequently a different power supply can be used.
- CO₂, Pressure switch and Pressure sensor are the responsibility of the installer and are not provided with the CGT1000K nor CG10K kit.
- If ActronAir CO₂ Sensor (P. N. CCO2-S) is to be used, then set the DIP switch to 0-10VDC instead of the usual 4-20mA.

DIP switch setting for 0-10VDC is shown below.



07.06. Communication Lines Available

1 RS485 Slave line, not opto-isolated for BMS port. Support Modbus protocol.

07.07. Operating Conditions

Storage: -40 To 70 °C, 90% RH non-condensing
Operation: -40 To 70 °C, 90% RH non-condensing

07.08. Physical Specifications

Dimensions: 4 DIN rail modules, 70 x 110 x 60 mm.
Mounting: fitted on DIN rail in accordance with DIN 43880 CEI EN 50022.

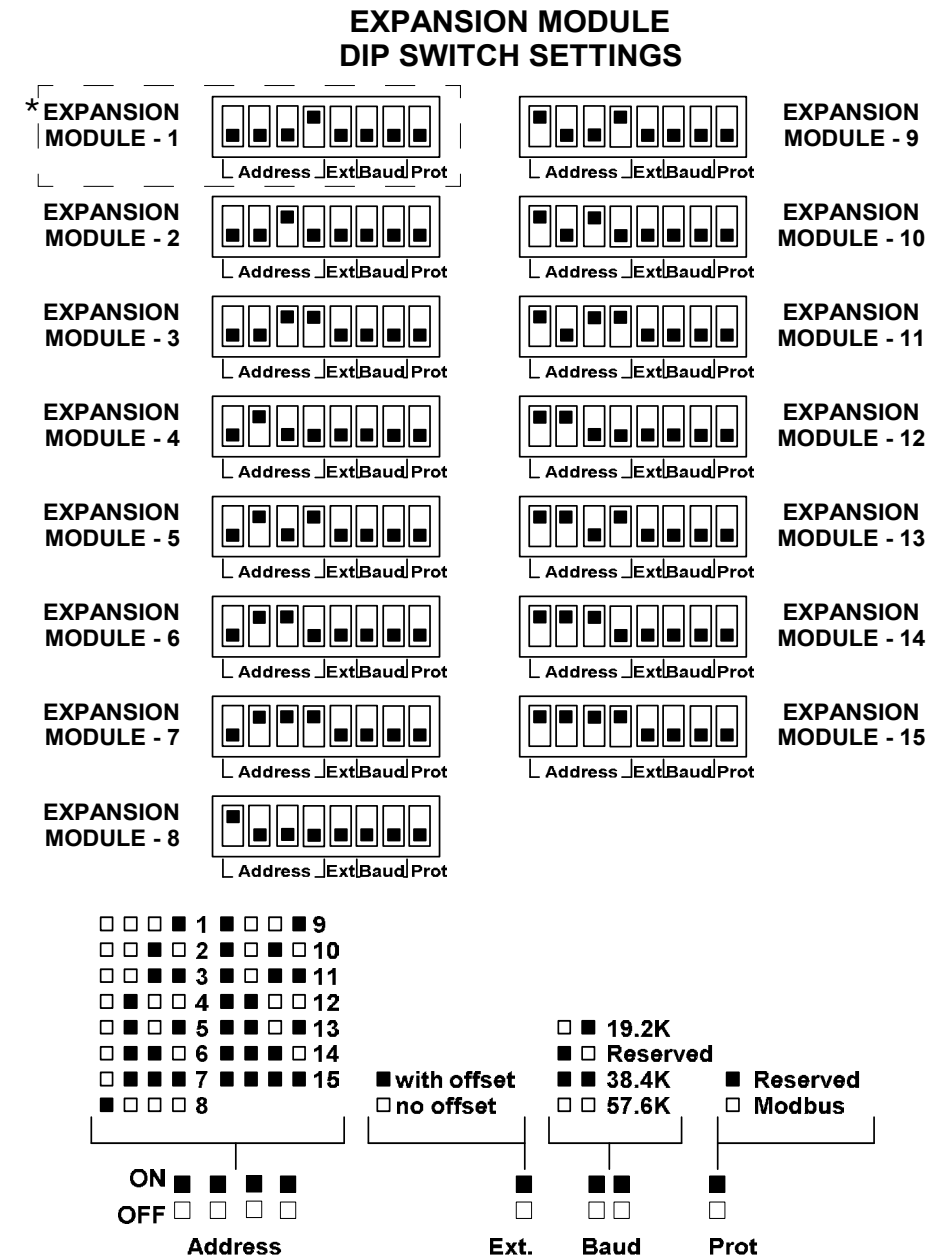
07.09. Other Specifications

Environmental pollution	Level 3
Type of output selectable from application program	0 to 10 V analogue output
Ingress protection	IP40 front panel, IP10 remaining parts
Class of protection against electric shock	To be integrated into Class I and/or II appliances
Material	Technopolymer
Flammability	V2 (UL94) and 850 °C (in accordance with IEC 60695-2-11)
PTI of the PCB insulating materials	PTI 250
Insulating material	PTI 175
Colour	White RAL 9016
Ball pressure test temperature	125 °C
Period of stress across the insulating parts	Long
Type of action digital output	1C
Type of disconnection or microswitching	Microswitching
Heat and fire resistance category	Category D (UL94 - V2)
Overvoltage category	Category III
Software class and structure	Class A
Do not touch or tamper with the device when powered.	

07.10. Assigning Address for System Configuration

The modules are used to connect the individual A/C unit (system) into the Group Control System. End user has the option to assign particular unit into one of the 15 systems shown on the touch screen. For this purpose, the DIP switches on the individual module should be set according to the unit (system) number during site commissioning and installation. Image below depicts the DIP switches for the module indicates the DIP switch is ON. The CGT100 will automatically recognise the address set in this module.

The DIP switch setting in this Expansion Modules will determine which System the unit should be assigned. DIP switch address setting 1 for System 1 at CGT100 (Configuration). ActronAir recommends Start-up and Commissioning Table on Section 12 be filled out while setting the DIP switch.



*When Scheduling is expected NOT to be used, Address 1/System 1 should be skipped and the first system should be set to Address 2 / System 2.



08. Wiring Diagram

The complete **Installation and Commissioning Guide** can be accessed by visiting <https://docs.actronair.com.au/>

08.01. Wiring Diagram Reference Table

Control Profile	On/Off Only ¹	
	WD0995	Basic On/Off
SERENE Wall Hung Split	WRC-026AS / WRE-026AS	✓
	WRC-035AS / WRE-035AS	✓
	WRC-050AS / WRE-050AS	✓
	WRC-071AS / WRE-071AS	✓
	WRC-080AS / WRE-080AS	✓
SERENE 2 Wall Hung Split	WRC-026CS / WRE-026CS	✓
	WRC-035CS / WRE-035CS	✓
	WRC-050CS / WRE-050CS	✓
	WRC-072CS / WRE-072CS	✓
	WRC-085CS / WRE-085CS	✓
CASCADE Cassette	URC-053AS / CRE-053AS	✓
	URC-071AS / CRE-071AS	✓
	URC-100AS / CRE-100AS	✓
	URC-125AS / CRE-125AS	✓
	URC-140AS / CRE-140AS	✓
CASCADE 2 Cassette	URC-100CS / CRE-100CS	✓
	URC-125CS / CRE-125CS	✓
	URC-125CS / CRE-140CS	✓
ULTRASLIM Low Profile	URC-071AS / LRE-071AS	✓
	URC-100AS / LRE-100AS	✓
	URC-125AS / LRE-130AS	✓
	URC-140AS / LRE-130AS	✓
	URC-170AS / LRE-170AS	✓
ULTRASLIM 2	LRC-071CS / LRE-071CS	✓
	LRC-100CS / LRE-100CS	✓
	URC-125CS / LRE-125CS	✓
	URC-140CS / LRE-140CS	✓
	LRC-170CS / LRE-170CS	✓
MULTIELITE Mutil-Split	MRC-052AS-2	✓
	MRC-071AS-3	✓
	MRC-100AS-4	✓
	MRC-110AS-5	✓
	MRC-135AS-5	✓
MULTIELITE 2 Mutil-Split	MRE-035CS	✓
	MRE-053CS	✓
	MRC-075CS-3	✓
	MRC-100CS-4	✓
	MRC-120CS-5	✓

Note:

On/Off Only - The Group Control System ONLY provides On/Off Schedule operation. Set Temperature and Mode of Operation changes are required to be performed separately from the unit's individual Wall Control or Remote Control (as applicable).

System Setting (CGT100)	Control Profile	Temperature Regulation ¹															On/Off Only ²		
		WD0986	WD0987	WD0989	WD0992	WD0993	WD0994	WD0996	WD0997	WD0998	WD0985	WD1020	WD1021	WD1021-TV	WD1022	WD1051		WD2010	
Compatible Mode	Auto	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓	Basic On/Off	
	Cool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Heat	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Fan	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Classic Series 1 ⁶	SRE091C / SRG091E																	✓	
	SRA101C / SRG101E																	✓	
	SRA131C / SRG131E																	✓	
	SRA151C / SRG151E																	✓	
	SRA171C / SRG171E																	✓	
	SRA133C / SRG131E																	✓	
	SRA153C / SRG151E																	✓	
	SRA173C / SRG171E																	✓	
	SRA203C / SRG201E																	✓	
	SRA233C / SRG231E																	✓	
	SRE091C / SRG091E-B				✓ ³														
	SRA101C / SRG101E-B				✓ ³														
	SRA131C / SRG131E-B				✓ ³														
	SRA151C / SRG151E-B				✓ ³														
	SRA171C / SRG171E-B				✓ ³														
	SRA133C / SRG131E-B				✓ ³														
	SRA153C / SRG151E-B				✓ ³														
	SRA173C / SRG171E-B				✓ ³														
	SRA203C / SRG201E-B				✓ ³														
	SRA233C / SRG231E-B				✓														
SRA260C / SRA260E-B										✓ ^{4,5}								✓ ⁵	

Notes:

- The temperature setpoint, Mode of Operation and Schedule Operation Time can be changed at the CGT100. The units DO NOT have individual Wall Controls or Remote Controls.
- On/Off Only - The Group Control System ONLY provides On/Off Schedule operation. Set Temperature and Mode of Operation changes are required to be performed separately from the unit's individual Wall Control or Remote Control (as applicable).
- Requires the order of the -B option to be compatible with the Group Control System Temperature Regulation. (Requires unit's 3rd Party Control inputs)
- Requires the order of the -B option in order to allow for Group Control System Schedule Operation. (Requires unit's Remote On/Off function)
- No Fault Output Available on unit.
- Wiring Diagram is also applicable for Split Fan Coil version.

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

System Setting (CGT100)		Temperature Regulation ¹															On/Off Only ²
		WD0986	WD0987	WD0989	WD0992	WD0993	WD0994	WD0996	WD0997	WD0998	WD0985	WD1020	WD1021	WD1021-TV	WD1022	WD1051	
Compatible Mode	Control Profile	Profile-1	Profile-1	Profile-1	Profile-1	Profile-2	Profile-3	Profile-1	Profile-3	Profile-1	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Basic On/Off
	Auto	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	n/a
	Cool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Heat	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	
	Fan	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	
Classic Series 2 ³	CRA100S / EVA100S	✓															
	CRA130S / EVA130S	✓															
	CRA150S / EVA150S	✓															
	CRA170S / EVA170S	✓															
	CRA130T / EVA130S	✓															
	CRA150T / EVA150S	✓															
	CRA170T / EVA170S	✓															
	CRA200T / EVA200S	✓															
	CRA230T / EVA230S	✓															
	Aires	CRS10AS / EVA10AS													✓		
CRS13AS / EVA13AS														✓			
CRS15AS / EVA15AS														✓			
CRS17AS / EVA17AS														✓			
Advance (R-410A)	CRV140S / EVV140S													✓			
	CRV160S / EVV160S													✓			
	CRV180S / EVV180S													✓			
	CRV160T / EVV160S													✓			
	CRV180T / EVV180S													✓			
	CRV210T / EVV210S													✓			
Advance (R-32)	CRV240T / EVV240S													✓			
	CRV13AS / EVV13AS													✓			
	CRV15AS / EVV15AS													✓			
	CRV17AS / EVV17AS													✓			
	CRV13AT / EVV13AS													✓			
	CRV15AT / EVV15AS													✓			
CRV17AT / EVV17AS													✓				

Notes:

- The temperature setpoint, Mode of Operation and Schedule Operation Time can be changed at the CGT100. The units DO NOT have individual Wall Controls or Remote Controls.
- On/Off Only - The Group Control System ONLY provides On/Off Schedule operation. Set Temperature and Mode of Operation changes are required to be performed separately from the unit's individual Wall Control or Remote Control (as applicable).
- Wiring Diagram is also applicable for Split Fan Coil version.

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

System Setting (CGT100)		Temperature Regulation ¹															On/Off Only ²	
		WD0986	WD0987	WD0989	WD0992	WD0993	WD0994	WD0996	WD0997	WD0998	WD0985	WD1020	WD1021	WD1021-TV	WD1022	WD1051		WD2010
Compatible Mode	Control Profile	Profile-1	Profile-1	Profile-1	Profile-1	Profile-2	Profile-3	Profile-1	Profile-3	Profile-1	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Basic On/Off	
	Auto	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	n/a	
	Cool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	Heat	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓		
	Fan	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓		
Add On Air Conditioning	SRC131C / SRA131A																✓	
	SRC151C / SRA151A																✓	
	SRC171C / SRA171A																✓	
	SRC133C / SRA131A																✓	
	SRC153C / SRA151A																✓	
	SRC173C / SRA171A																✓	
	SRC203C / SRA201A																✓	
	SRC233C / SRA231A																✓	
	Add On Air Conditioning	CCA130S / EAA130S		✓														
		CCA150S / EAA150S		✓														
CCA170S / EAA170S			✓															
CCA170T / EAA170S			✓															
CCA200T / EAA200S			✓															
CCA230T / EAA230S			✓															
ESP Plus ³	SRD131C / SRV131E																✓	
	SRD151C / SRV151E																✓	
	SRD191C / SRV191E																✓	
	SRD173C / SRV171E																✓	
	SRD203C / SRV201E																✓	
	SRD233C / SRV231E																✓	
	SRD151C / SRM151E																✓	
ESP Ultima	SRD191C / SRM191E																✓	
	SRD173C / SRM171E																✓	
	SRD203C / SRM201E																✓	
	SRD233C / SRM231E																✓	
	SRD151C / SRM151E																✓	

Notes:

- The temperature setpoint, Mode of Operation and Schedule Operation Time can be changed at the CGT100. The units DO NOT have individual Wall Controls or Remote Controls.
- On/Off Only - The Group Control System ONLY provides On/Off Schedule operation. Set Temperature and Mode of Operation changes are required to be performed separately from the unit's individual Wall Control or Remote Control (as applicable).
- No Fault Output Available on unit.

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

System Setting (CGT100)	Control Profile	Temperature Regulation ¹														On/Off Only ²		
		Profile-1	Profile-1	Profile-1	Profile-1	Profile-2	Profile-3	Profile-1	Profile-3	Profile-1	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3		Profile-3	Basic On/Off
		WD0986	WD0987	WD0989	WD0992	WD0993	WD0994	WD0996	WD0997	WD0998	WD0985	WD1020	WD1021	WD1021-TV	WD1022		WD1051	WD2010
Compatible Mode	Auto	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	n/a		
	Cool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a		
	Heat	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	n/a		
	Fan	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	n/a		
Platinum ESP Plus ³	CRV2-14AS/ERV2-14AS															✓		
	CRV3-17AS/ERV3-17AS															✓		
	CRV4-19AS/ERV4-19AS															✓		
Platinum ESP Ultima	CRV2-14AS/ERM2-14AS															✓		
	CRV3-17AS/ERM3-17AS															✓		
	CRV4-19AS/ERM4-19AS															✓		
Platinum ESP QUE	CRQ2-14AS															✓		
	CRQ3-17AS															✓		
	CRQ4-19AS															✓		
	CRQ2-16AT								✓									
	CRQ3-18AT								✓									
	CRQ5-21AT								✓									
	CRQ5-24AT								✓									
Standard Commercial Ducted Split	SCA260C / SCG260E			✓ ³														
	SCA290C / SCG290E			✓ ³												✓ ³		
	SCA300C / SCA300E				✓ ³											✓ ³		
	SCA330C / SCA330E			✓ ³												✓ ³		
	SCA330C / SCG330E			✓ ³												✓ ³		
	SCA340C / SCA340E				✓ ³											✓ ³		
	SCA340C / SCG340E				✓ ³											✓ ³		
	SCA400C / SCG400E				✓ ³											✓ ³		

Notes:

- The temperature setpoint, Mode of Operation and Schedule Operation Time can be changed at the CGT100. The units DO NOT have individual Wall Controls or Remote Controls.
- On/Off Only - The Group Control System ONLY provides On/Off Schedule operation. Set Temperature and Mode of Operation changes are required to be performed separately from the unit's individual Wall Control or Remote Control (as applicable).
- No Fault Output Available on unit.

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

System Setting (CGT100)	Control Profile	Temperature Regulation ¹														On/Off Only ²	
		Profile-1	Profile-1	Profile-1	Profile-1	Profile-2	Profile-3	Profile-1	Profile-3	Profile-1	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3		Basic On/Off
		WD0986	WD0987	WD0989	WD0992	WD0993	WD0994	WD0996	WD0997	WD0998	WD0985	WD1020	WD1021	WD1021-TV	WD1022		WD1051
Compatible Mode	Auto	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	n/a	
	Cool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	n/a	
	Heat	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	n/a	
	Fan	✓	n/a	✓	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	n/a	
Standard Commercial Package	PCG153U/V				✓											✓	
	PCG173U/V				✓											✓	
	PCG203U/V				✓											✓	
	PCG233U/V				✓											✓	
	PCA260U/V				✓ ³											✓ ³	
	PCG260U/V				✓ ³												
	PCG290U/V				✓ ³											✓ ³	
	PCG290L/R				✓ ³											✓ ³	
	PCA300U/V					✓ ³										✓ ³	
	PCG300L/R					✓ ³										✓ ³	
	PCA330U/V				✓ ³											✓ ³	
	PCG330U/V				✓ ³											✓ ³	
	PCG330L/R				✓ ³											✓ ³	
	PCA340U/V					✓ ³										✓ ³	
	PCG340U/V					✓ ³										✓ ³	
	PCG340L/R					✓ ³										✓ ³	
PCG400U/V					✓ ³										✓ ³		
PCG400L/R					✓ ³										✓ ³		

Notes:

- The temperature setpoint, Mode of Operation and Schedule Operation Time can be changed at the CGT100. The units DO NOT have individual Wall Controls or Remote Controls.
- On/Off Only - The Group Control System ONLY provides On/Off Schedule operation. Set Temperature and Mode of Operation changes are required to be performed separately from the unit's individual Wall Control or Remote Control (as applicable).
- No Fault Output Available on unit.

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

System Setting (CGT100)		Temperature Regulation ¹															On/Off Only ²			
		WD0986	WD0987	WD0989	WD0992	WD0993	WD0994	WD0996	WD0997	WD0998	WD0985	WD1020	WD1021	WD1021-TV	WD1022	WD1051		WD2010		
System Setting (CGT100)	Control Profile	Profile-1	Profile-1	Profile-1	Profile-1	Profile-2	Profile-3	Profile-1	Profile-3	Profile-1	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Basic On/Off	n/a		
	Compatible Mode	Auto	✓	n/a	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	n/a			
		Cool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
		Heat	✓	n/a	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓				
		Fan	✓	n/a	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓				
Variable Commercial	Split	CRV290T / EVA290T			✓															
		CRV330T / EVA330T			✓															
		CRV720T / EVA720T										✓	✓							
		CRV850T / EVA850T										✓	✓							
		CRV960T / EVA960T										✓	✓							
	Package	PKV160T			✓															
		PKV180T			✓															
		PKV210T			✓															
		PKV240T			✓															
		PKV290T			✓															
		PKV330T			✓															
		PKV290T-L/R			✓															
		PKV330T-L/R			✓															
		PRV15AT																✓		
		PRV17AT																✓		
		PKV720T														✓				
		PKV850T														✓				
		PKV960T														✓				
		Tri-Capacity 47-96kW	Split	CAY470T / EVY470T					✓											
				CAY500T / EVY500T					✓											
CAY540T / EVY540T							✓													
CAY620T / EVY620T							✓													
CAY700T / EVY700T							✓													
CAY470T / ELY470T							✓													
CAY500T / ELY500T							✓													
CAY540T / ELY540T							✓													
CAY620T / ELY620T							✓													
CAY700T / ELY700T							✓													

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

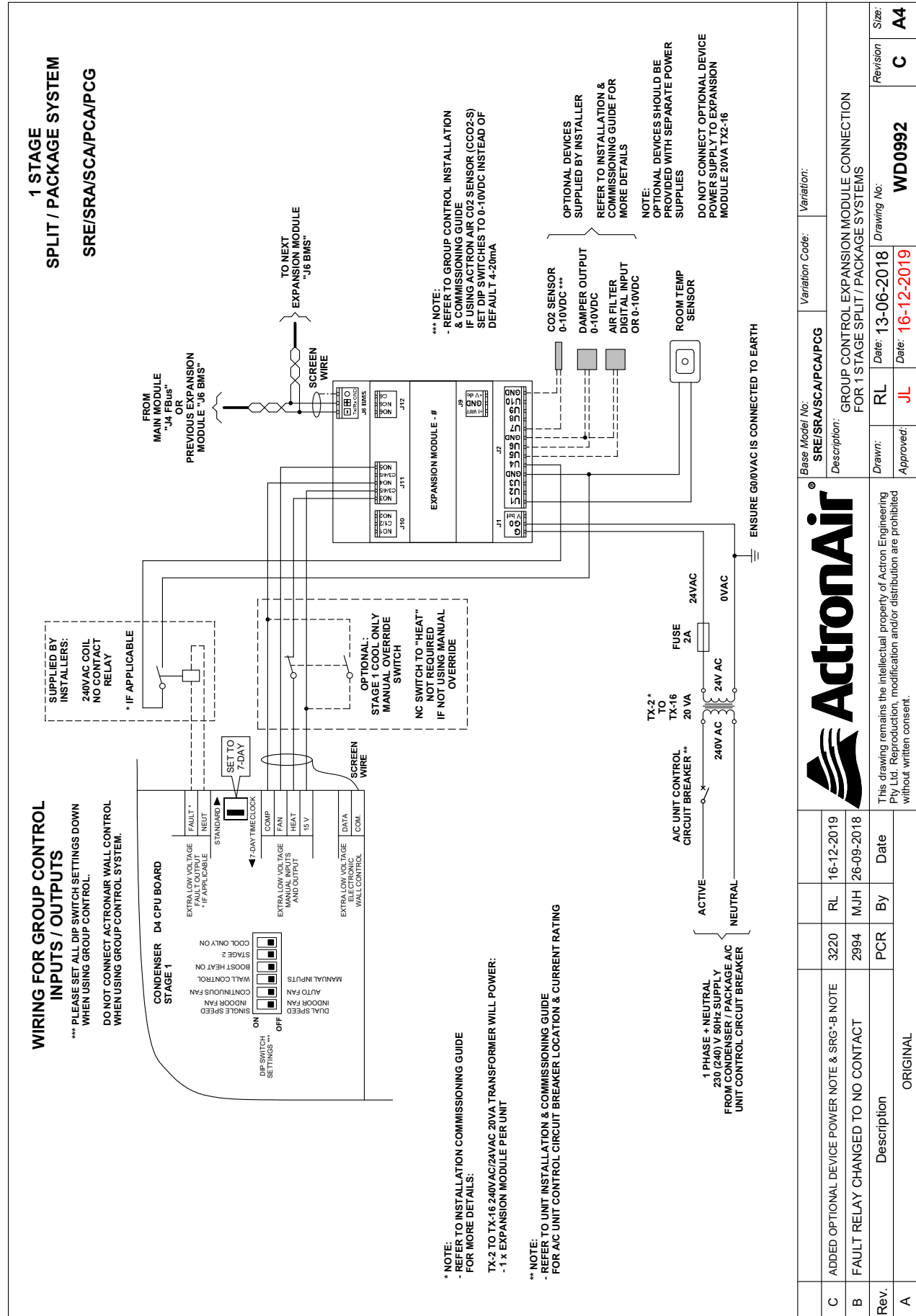
System Setting (CGT100)		Temperature Regulation ¹															On/Off Only ²		
		WD0986	WD0987	WD0989	WD0992	WD0993	WD0994	WD0996	WD0997	WD0998	WD0985	WD1020	WD1021	WD1021-TV	WD1022	WD1051		WD2010	
System Setting (CGT100)	Control Profile	Profile-1	Profile-1	Profile-1	Profile-1	Profile-2	Profile-3	Profile-1	Profile-3	Profile-1	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Profile-3	Basic On/Off	n/a	
	Compatible Mode	Auto	✓	n/a	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓	n/a		
		Cool	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
		Heat	✓	n/a	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓			
		Fan	✓	n/a	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	✓			
Tri-Capacity 47-96kW	Package	PKY470T					✓												
		PKY500T					✓												
		PKY540T					✓												
		PKY620T					✓												
		PKY700T					✓												
		PKY820T					✓												
		PKY960T					✓												
		Hercules 140-196kW	PKV1400							✓									
			PKV1700							✓									
			PKV2000							✓									

Notes:

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- On/Off Only - The Group Control System ONLY provides On/Off Schedule operation. Set Temperature and Mode of Operation changes are required to be performed separately from the unit's individual Wall Control or Remote Control (as applicable).

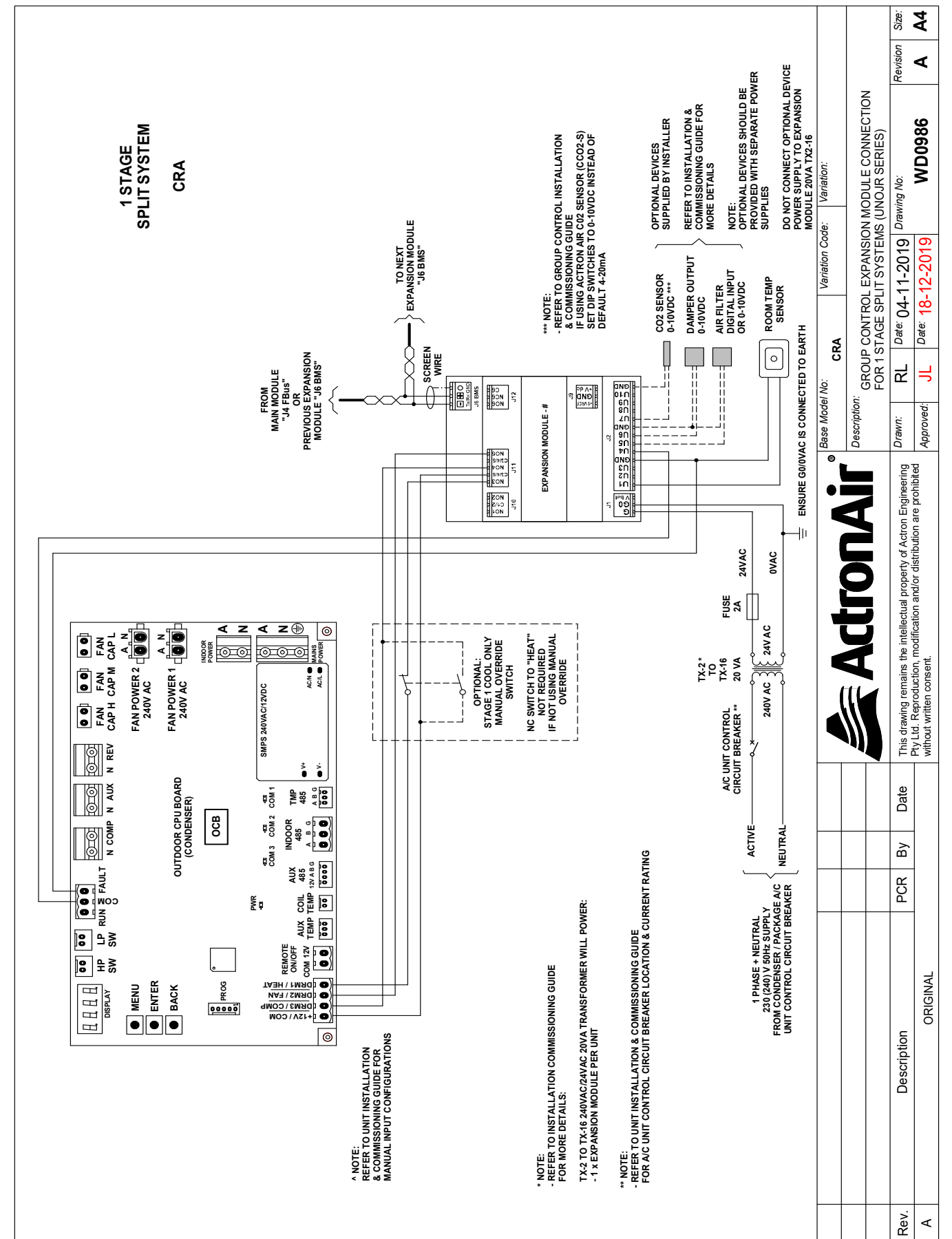
GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

08.02. Classic Series 1 (SRE/SRA/SCA) / Package System (PCA/PCG)

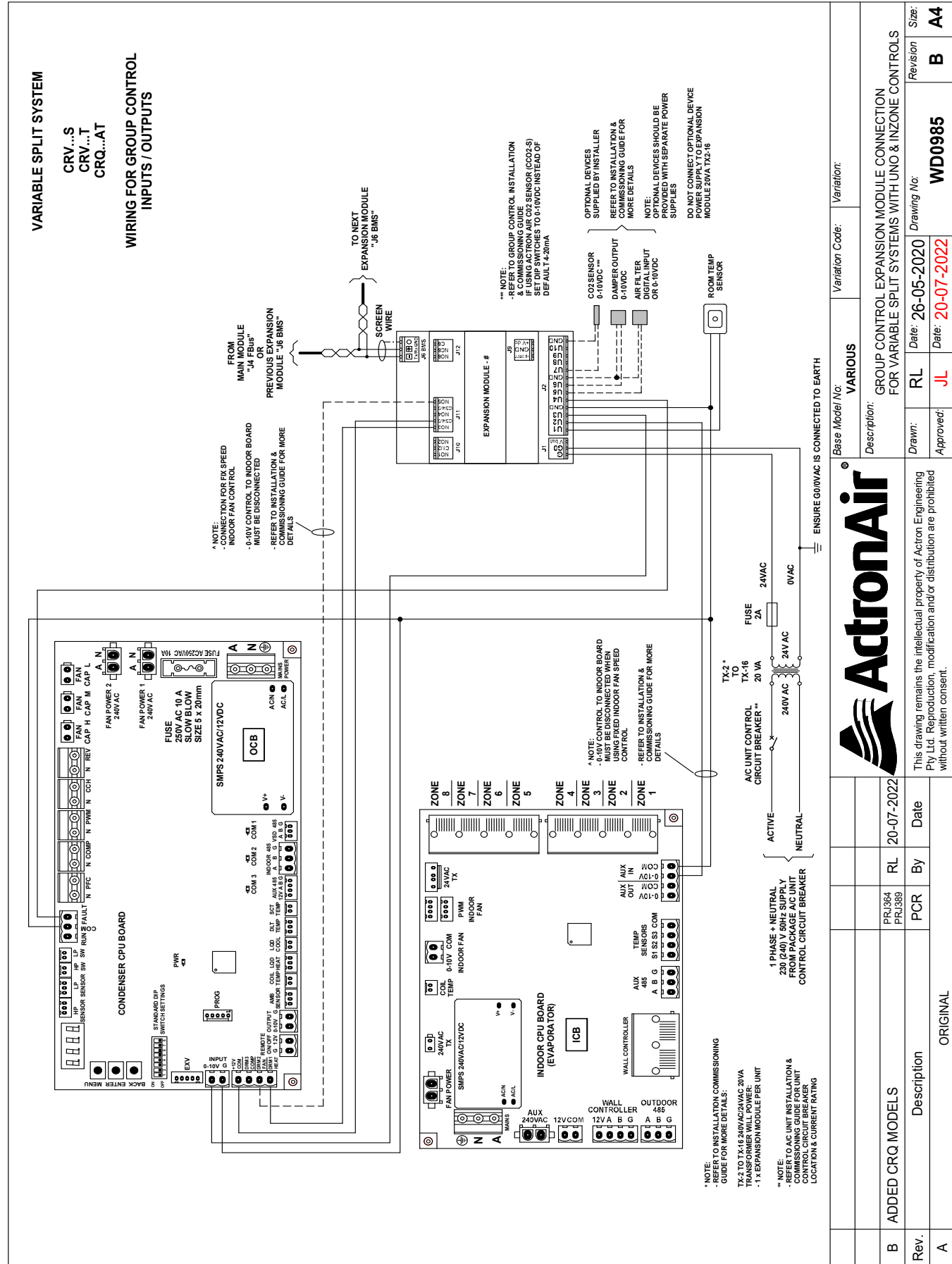


GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

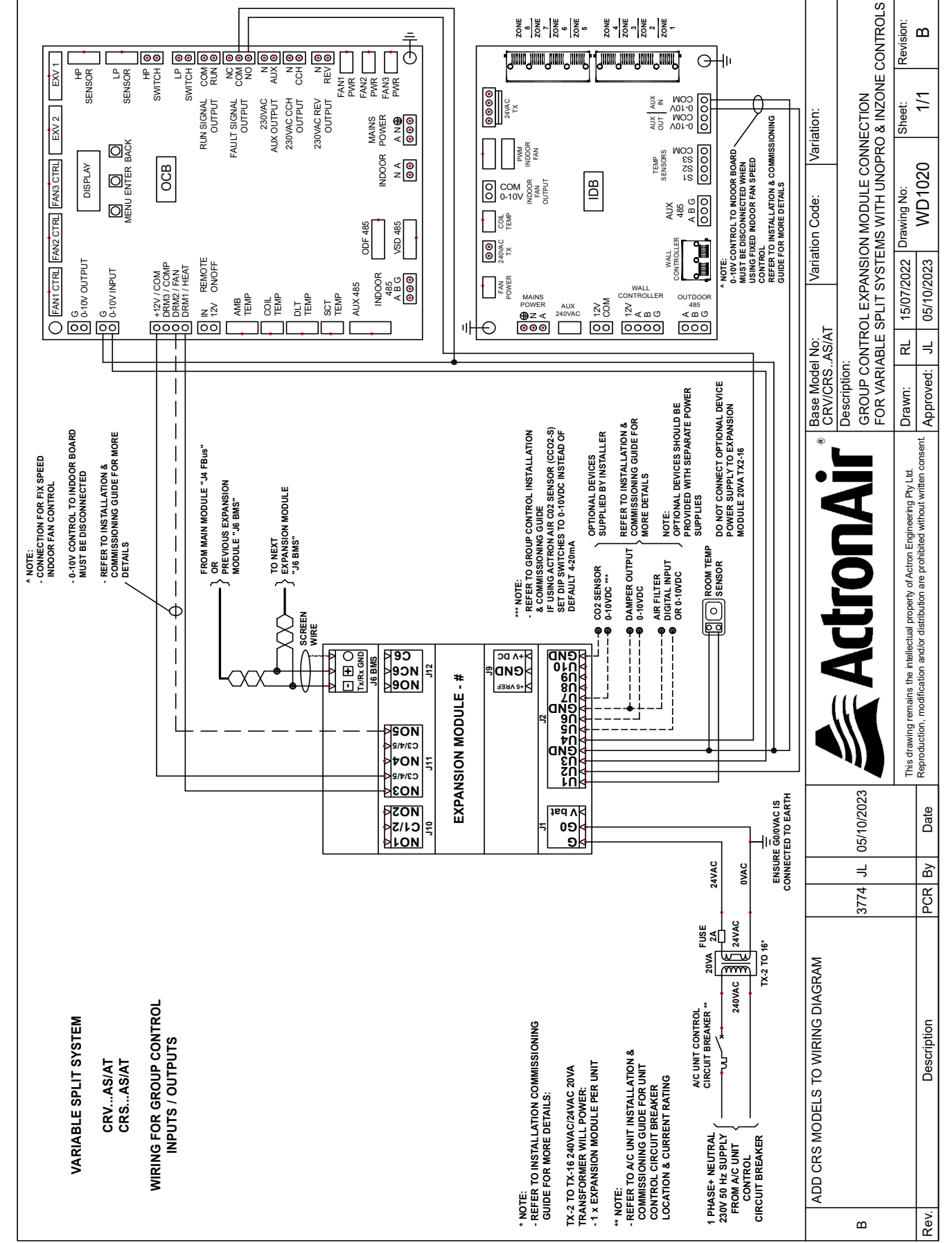
08.03. Classic Series 2 (CRA)



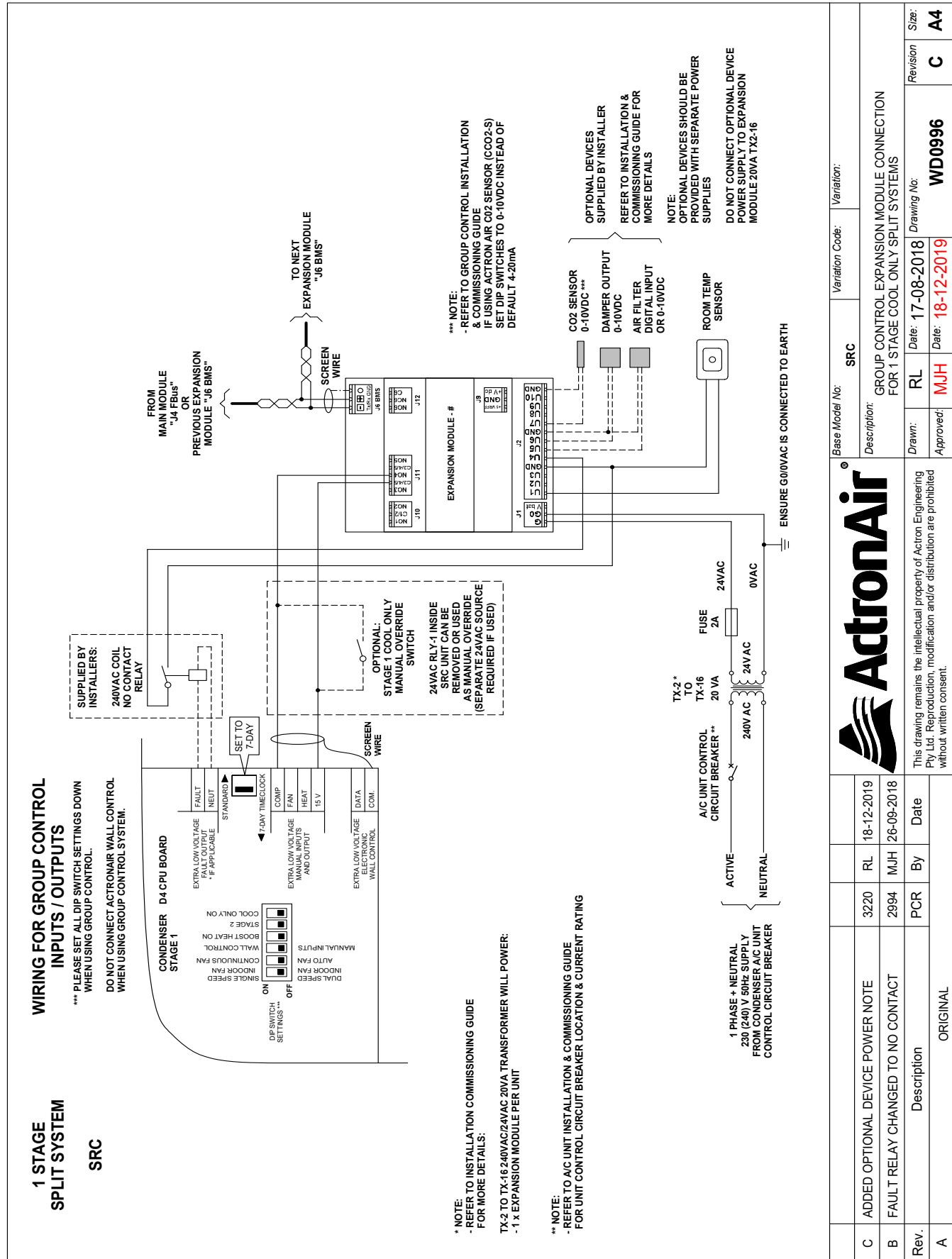
08.04. Advance (R-410A) and Split System QUE (CRQ)



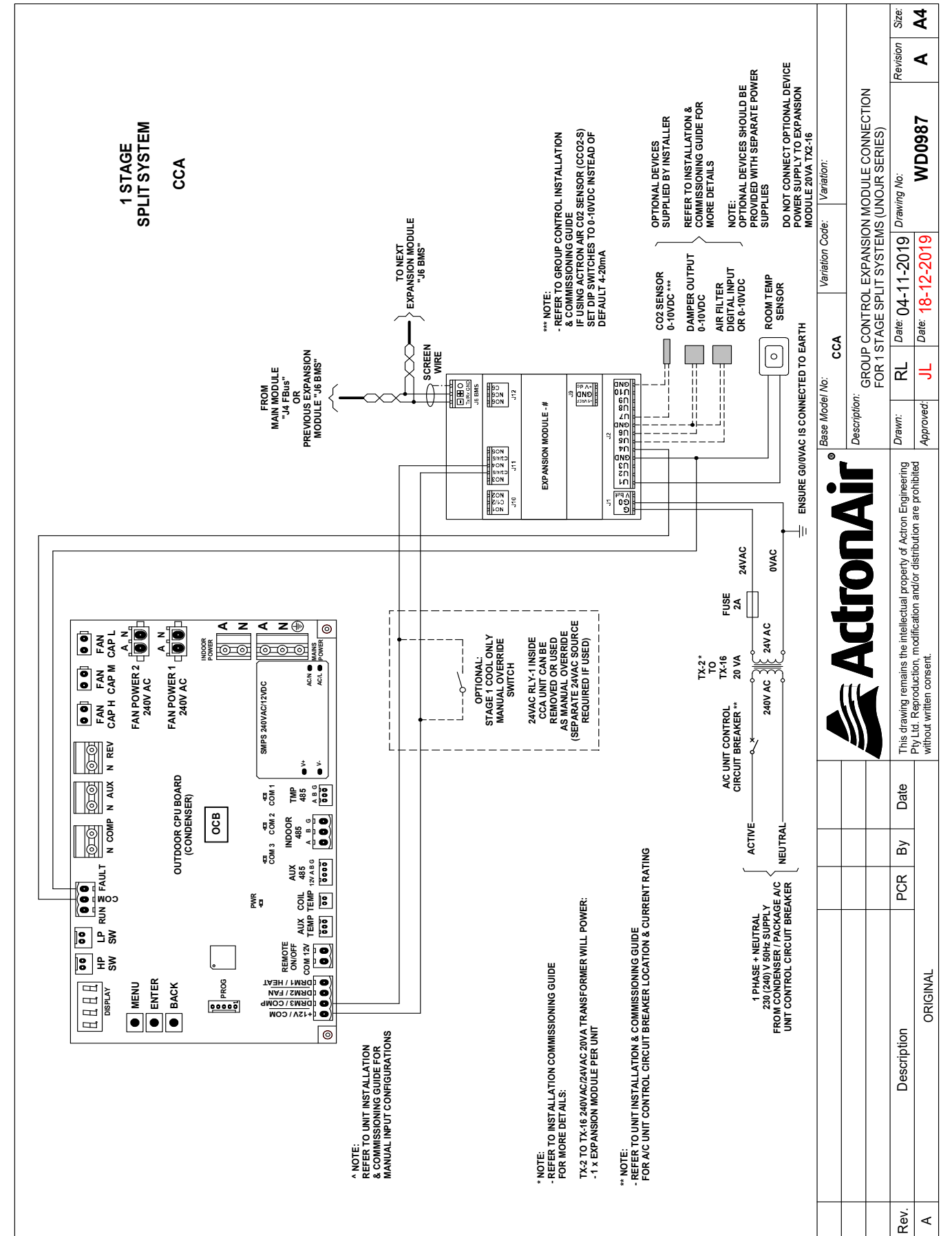
08.05. Aires / Advance (R-32)



08.06. Add on Air Conditioning (SRC)

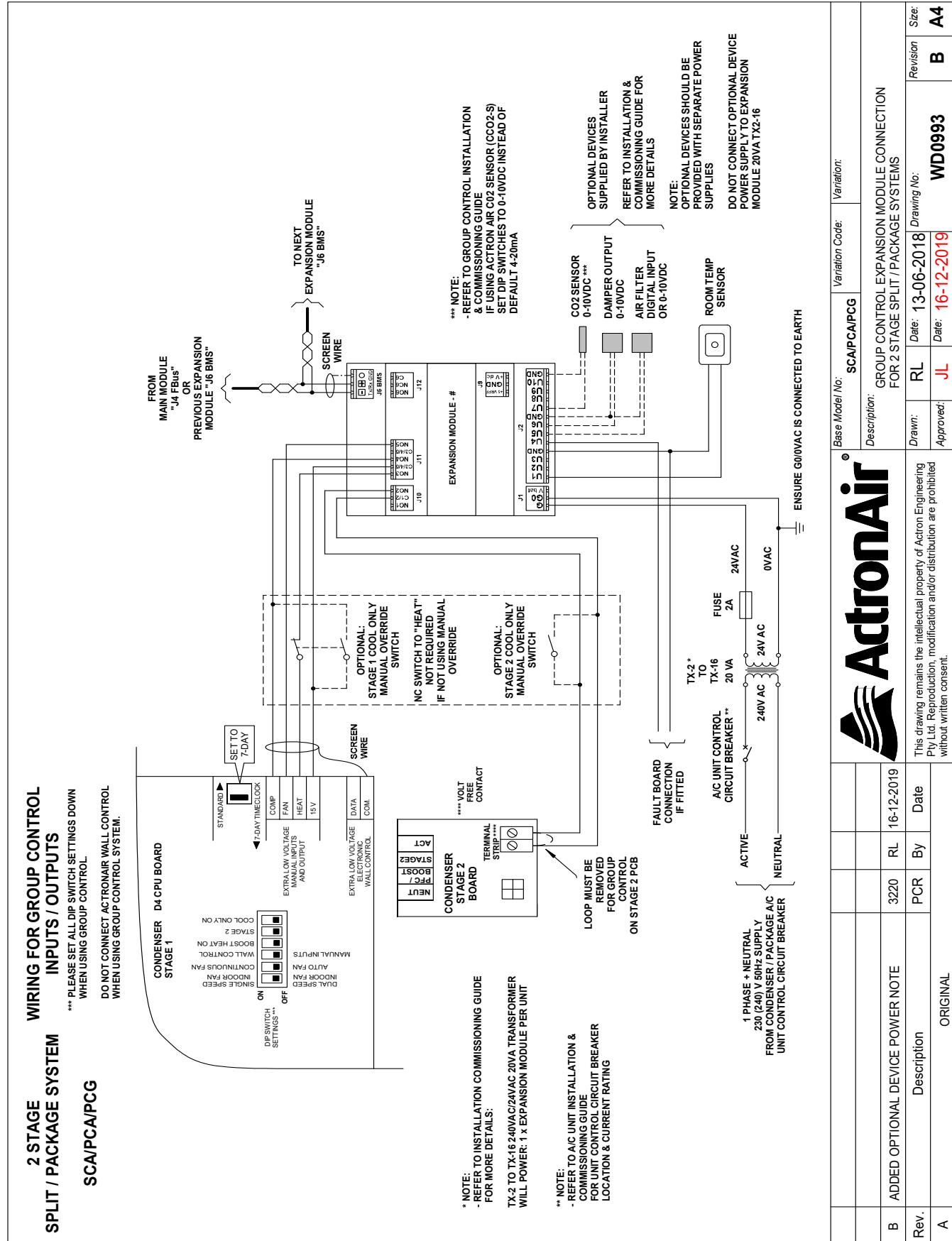


08.07. Add on Air Conditioning (CCA)



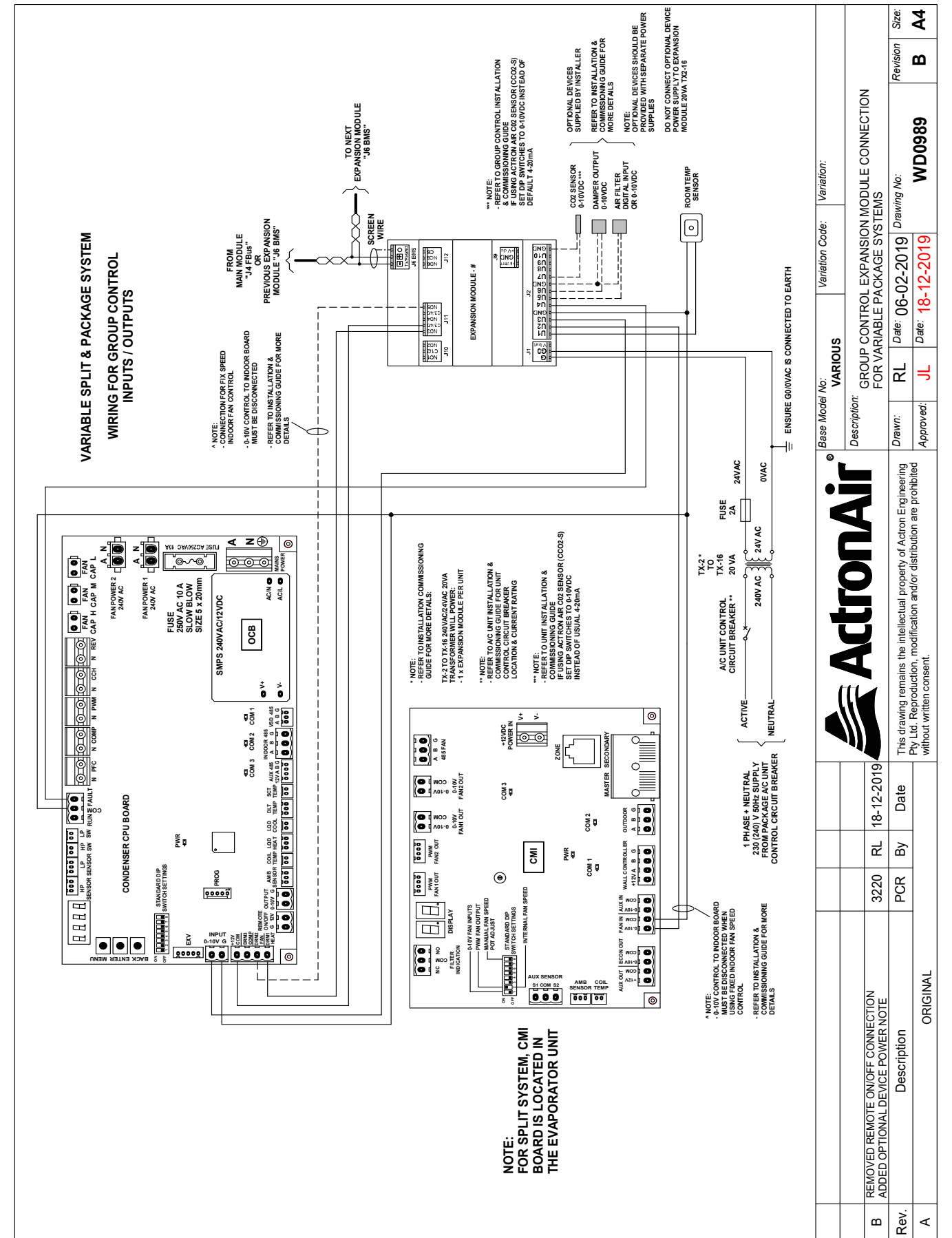
GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

08.10. Standard Split (SCA)/Package System (PCA/PCG)

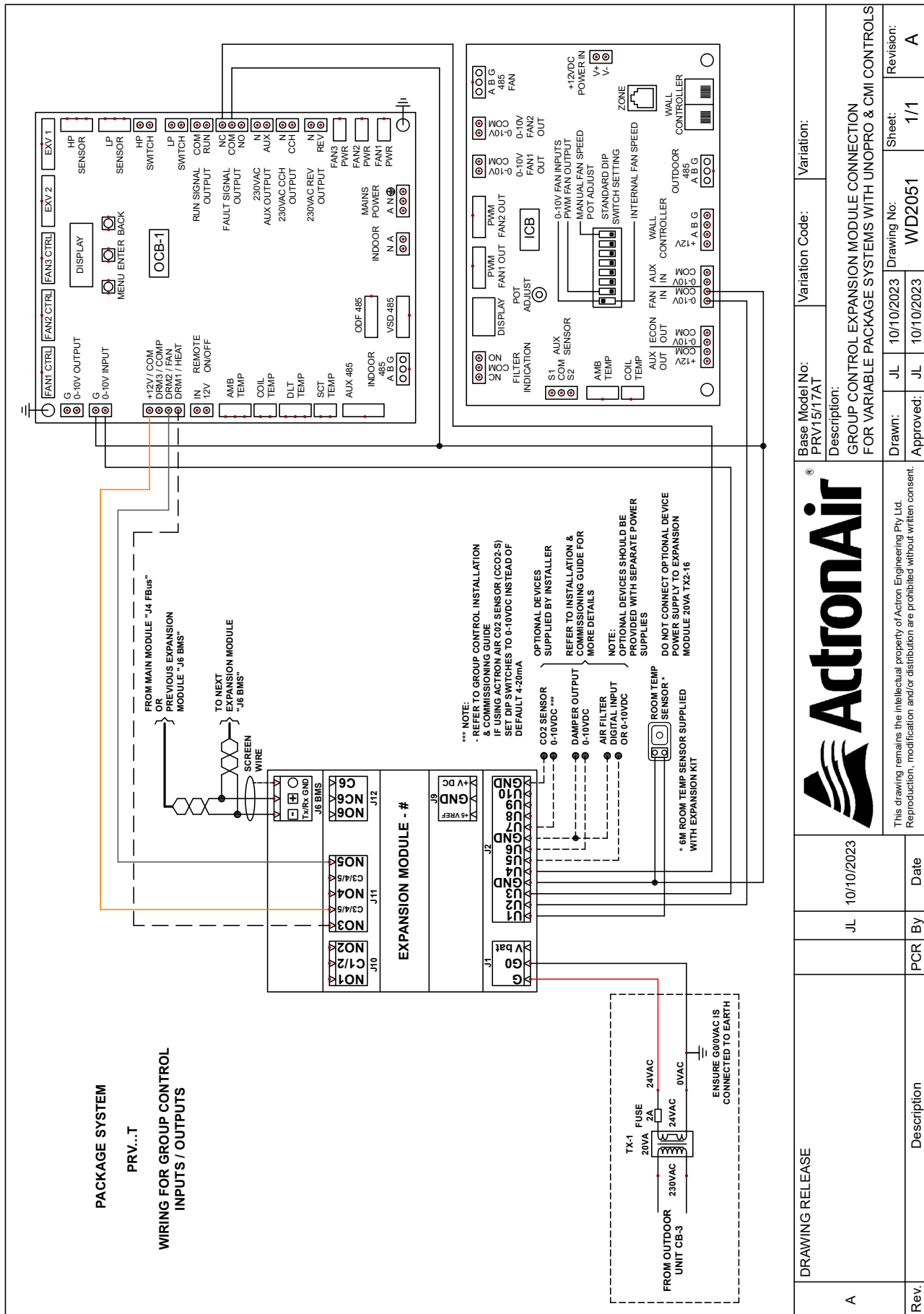


GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

08.11. Variable Capacity Split (CRV) and Package System (PKV) - R410 A



08.12. VCC (R-32 Series) Inverter Package Ducted Units (PRV)

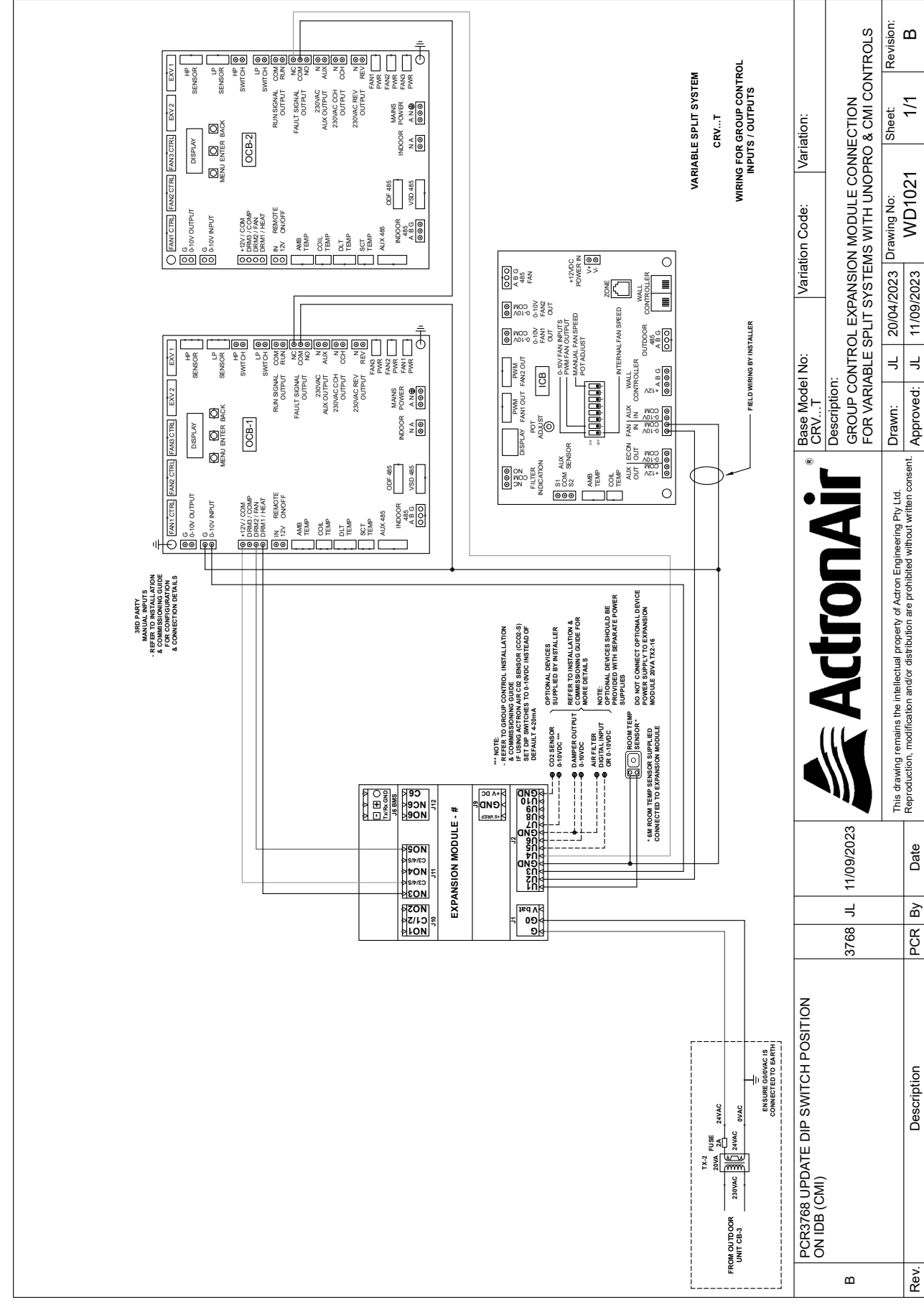


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Base Model No:	PRV15/17AT	Variation Code:	Variation:
Description:	GROUP CONTROL EXPANSION MODULE CONNECTION FOR VARIABLE PACKAGE SYSTEMS WITH UNOPRO & CMI CONTROLS		
Drawn:	JL	10/10/2023	Sheet: 1/1
Approved:	JL	10/10/2023	Revision: A

Rev.	Description	By	Date
A		PCR	10/10/2023

08.13. Variable Capacity Split (CRV720-960)

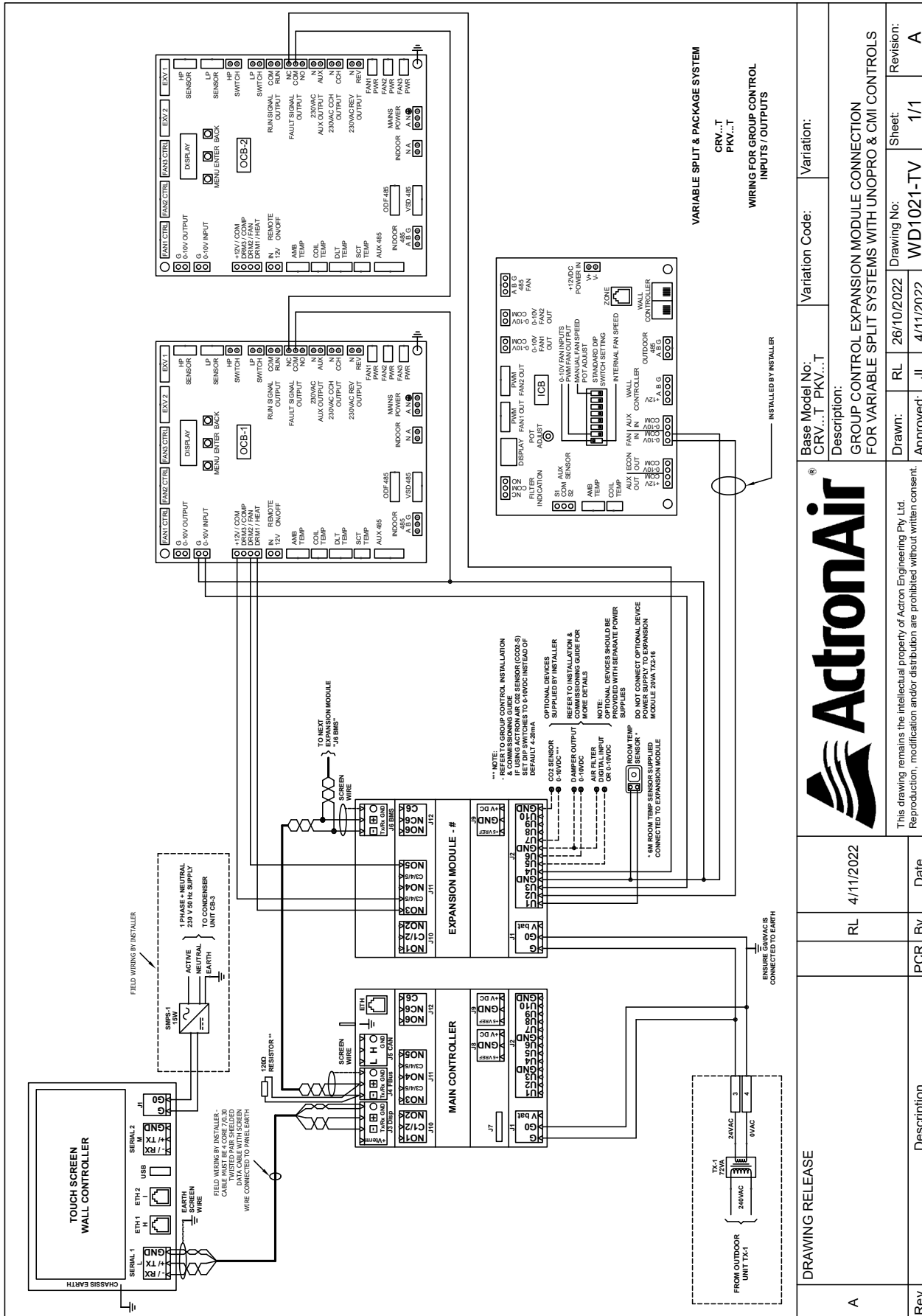


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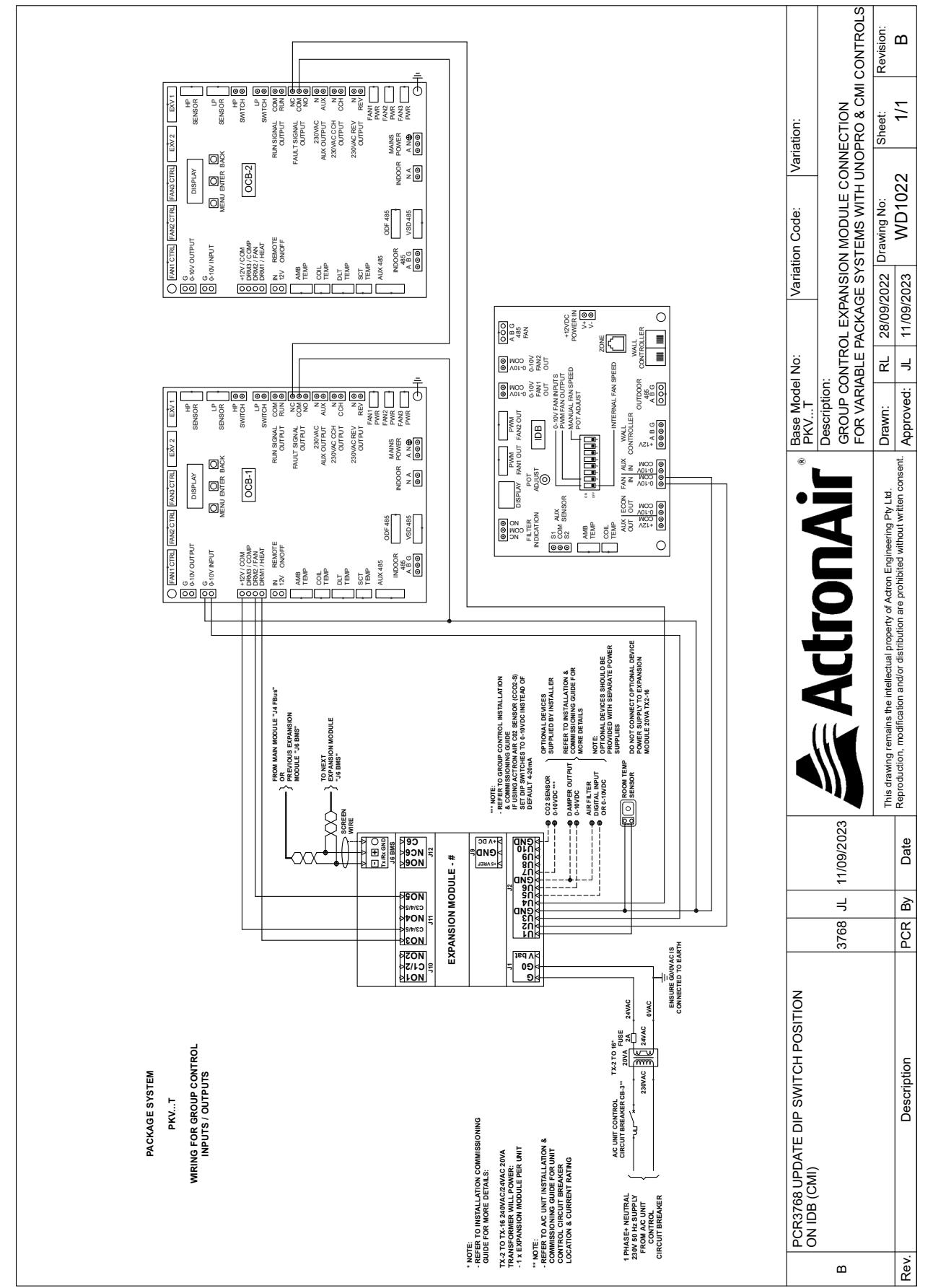
Base Model No:	CRV...T	Variation Code:	Variation:
Description:	GROUP CONTROL EXPANSION MODULE CONNECTION FOR VARIABLE SPLIT SYSTEMS WITH UNOPRO & CMI CONTROLS		
Drawn:	JL	20/04/2023	Sheet: 1/1
Approved:	JL	11/09/2023	Revision: B

Rev.	Description	By	Date
B	PCR3768 UPDATE DIP SWITCH POSITION ON IDB (CMI)	PCR	11/09/2023

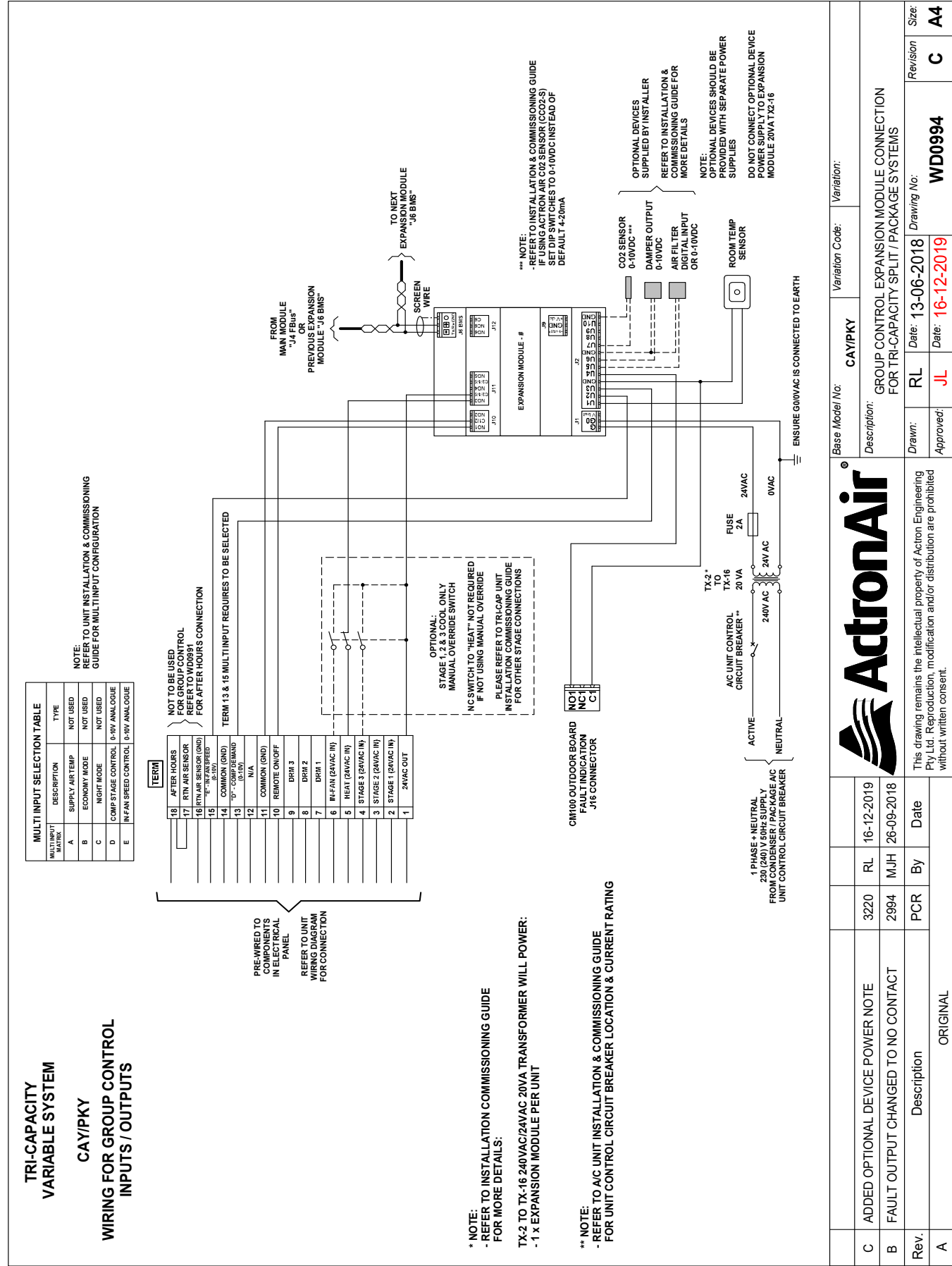
08.14. Variable Capacity Split (CRV/PKV720-960) One Unit Connected to One GC



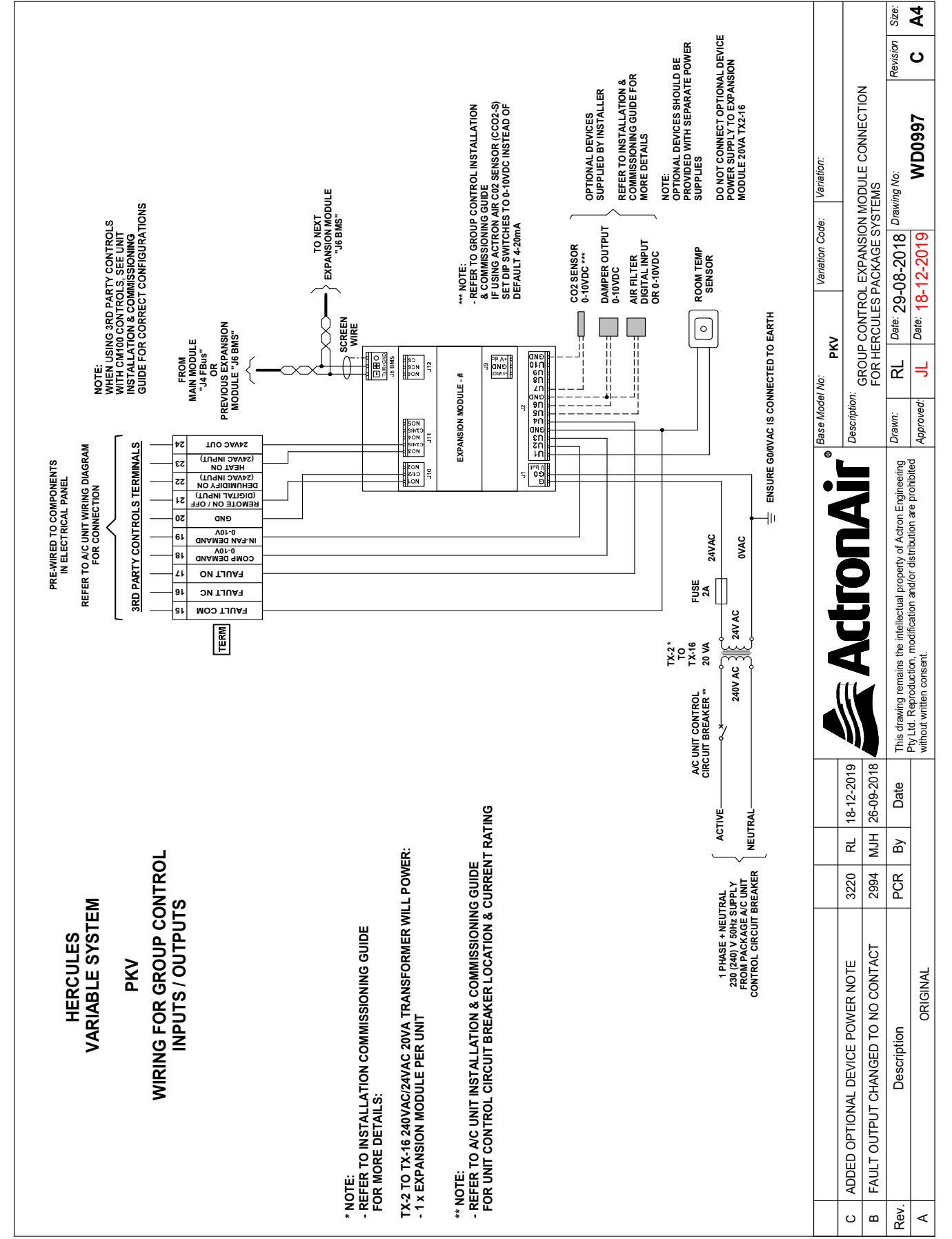
08.15. Package System (PKV720-960)



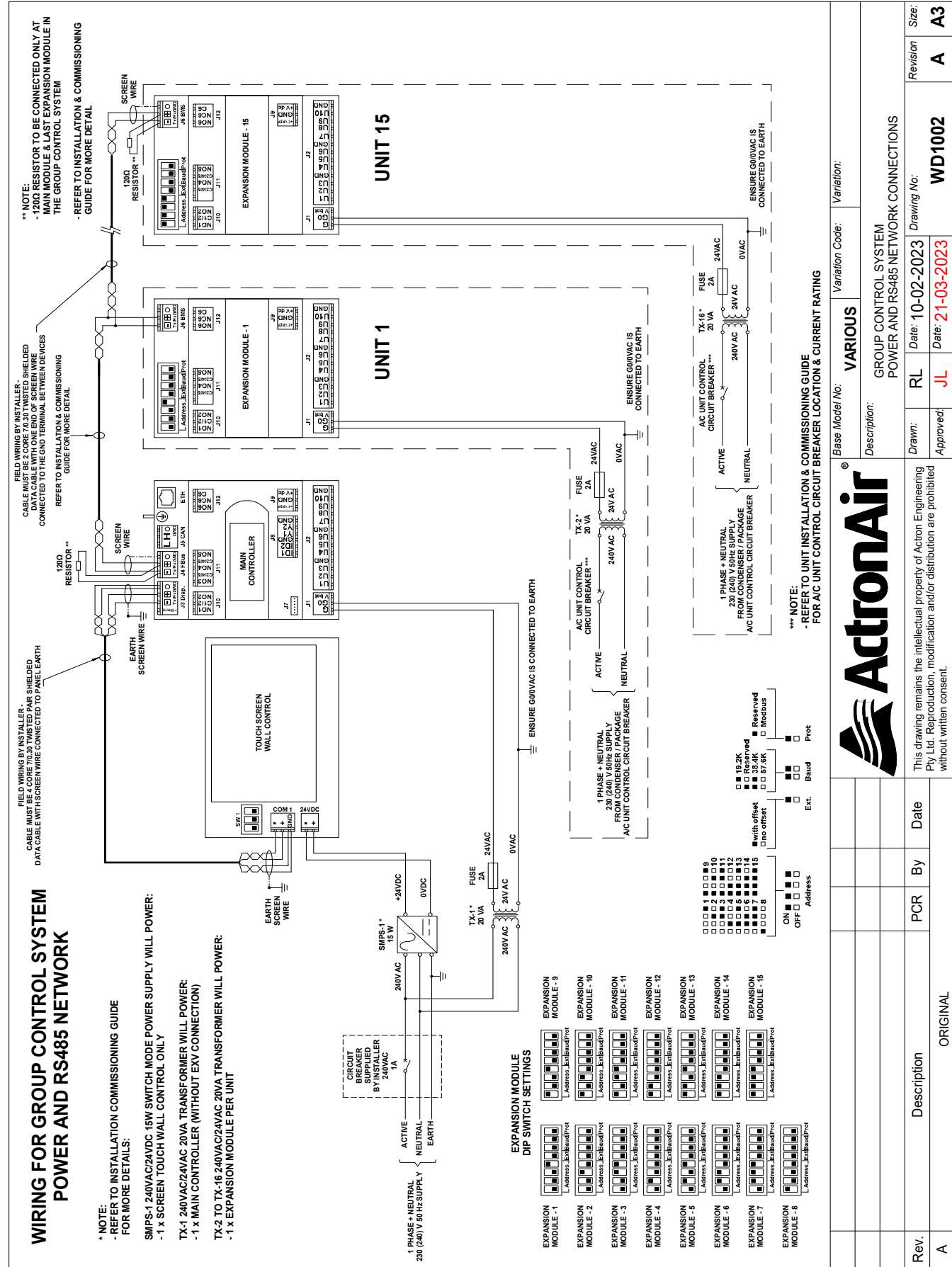
08.16. Tri-Cap System (CAY/PKY)



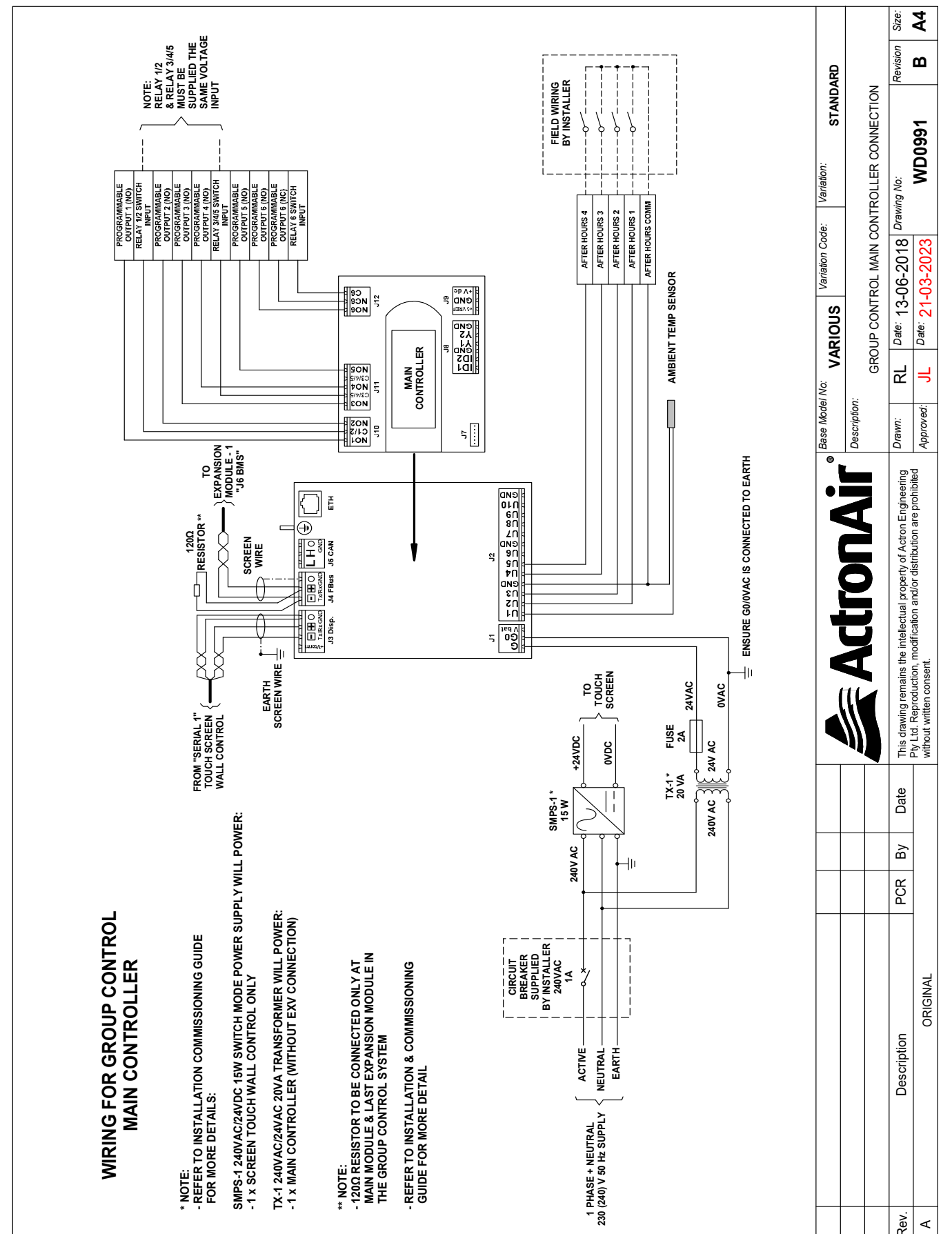
08.17. Hercules System (PKV)



08.18. Group Control System Power and RS485 COM



08.19. Group Control System Server Controller

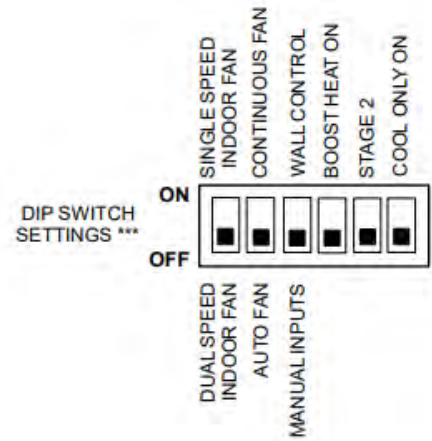


09. Configuration Unit Setup for CGT1000

Systems that are controlled other than remote on/off will require setup in the unit to allow control via Group Control. See below setup process depending on product:

09.01. Split/Package System (SRE/SRA/SCA/PCA/PCG)

DIP switch on the unit must be set as below to allow control via Group Control:



09.02. UNO Jnr/UNO Connection (CCA/CRA/CRQ/CRV/PKY)

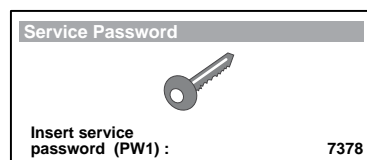
- Step 1. Press MENU button to scroll to Set Menu and press the ENTER button.
- Step 2. Press the MENU button to scroll through to CtrS and press the ENTER button.
- Step 3. Press the MENU button to scroll through to number 0 to allow control via Group Control. Press the ENTER button to select.
- Step 4. Press BACK button twice to exit.

09.03. Tri-Capacity (PKY/CAY)

Tri-Cap systems require configuration in the CP05 to allow for group control. Service Settings is password protected, the password is 7378.

Menu > G. Service > Gf. Service Settings

Press Enter button(↵) and enter the password as below:



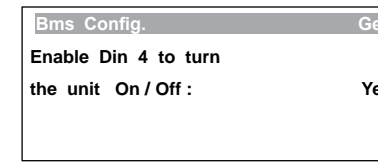
WARNING

Unauthorized access to Service Menu and inadvertent changes to the settings can cause damage to the air conditioning system which will render ActonAir warranty null and void.

Enable remote on/off via DIN 4

Menu > G. Service > Ge. Communicate Config.

Scroll down to screen Ge3 and setup as below:

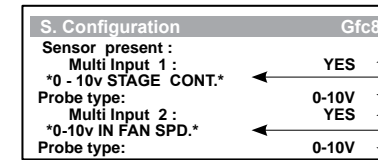


Set to **Yes** to enable Remote ON/OFF digital input control

On screen Gfc8, set a multi input 1 & 2 to YES, *0-10v IN FAN SPD. * and 0-10V.

Menu > G. Service > Gf. Service Settings > Gfc. Thermoregulation

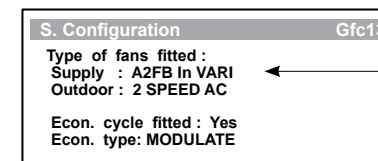
Scroll down to screen Gfc8 and setup as below:



Change to **YES** → **0-10v STAGE CONT.**
Change Probe type to **0-10V**
Change to **YES** → **0-10v IN FAN SPD.**
Change Probe type to **0-10V**

On screen Gfc13, set the **Type of fans fitted Supply:** to **A2FB in VARI** for CAY or **Vari Speed** for PKY

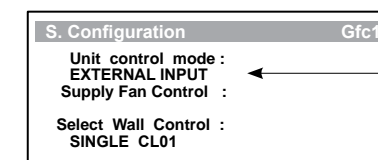
G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc13. S. Configuration



PKY: Vari Speed
CAY: A2FB In Vari

Unit control mode is set to **EXTERNAL INPUT** via screen Gfc11

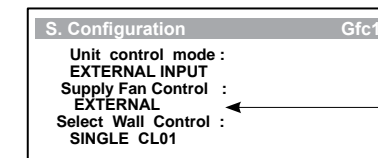
G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc11. S. Configuration



EXTERNAL INPUT

Set Supply Fan Control to **EXTERNAL** via screen Gfc11

G. Service → Gf. Service settings → Gfc. Thermoregulation → Gfc11. S. Configuration



EXTERNAL

GROUP CONTROL INSTALLATION AND COMMISSIONING GUIDE

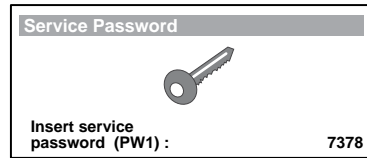
09.04. Hercules (PKV)

Hercules systems require configuration through the CPI0 to allow control via the Group Control.

Service Settings is password protected, the password is 7378.

Menu > G. Service > Gf. Service Settings

Press Enter button(↵) and enter the password as below:

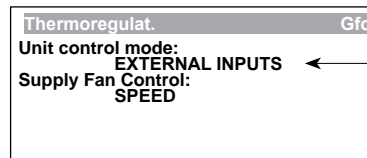


WARNING
Unauthorized access to Service Menu and inadvertent changes to the settings can cause damage to the air conditioning system which will render ActonAir warranty null and void.

Go to the menu below to set Unit Control Mode to External Input

Menu > G. Service > Gf. Service Settings > Gfc. Thermoregulation

Scroll down to screen Gfc3 and setup as below:

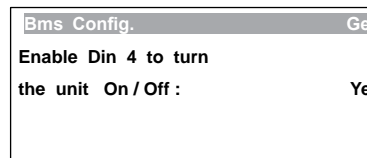


Change to **External Inputs**

You also will need to enable remote on/off via DIN 4

Menu > G. Service > Ge. Communicate Config.

Scroll down to screen Ge3 and setup as below:



Set to **Yes** to enable Remote ON/OFF digital input control

09.05. Economy Damper Option for Tri-Cap/Hercules

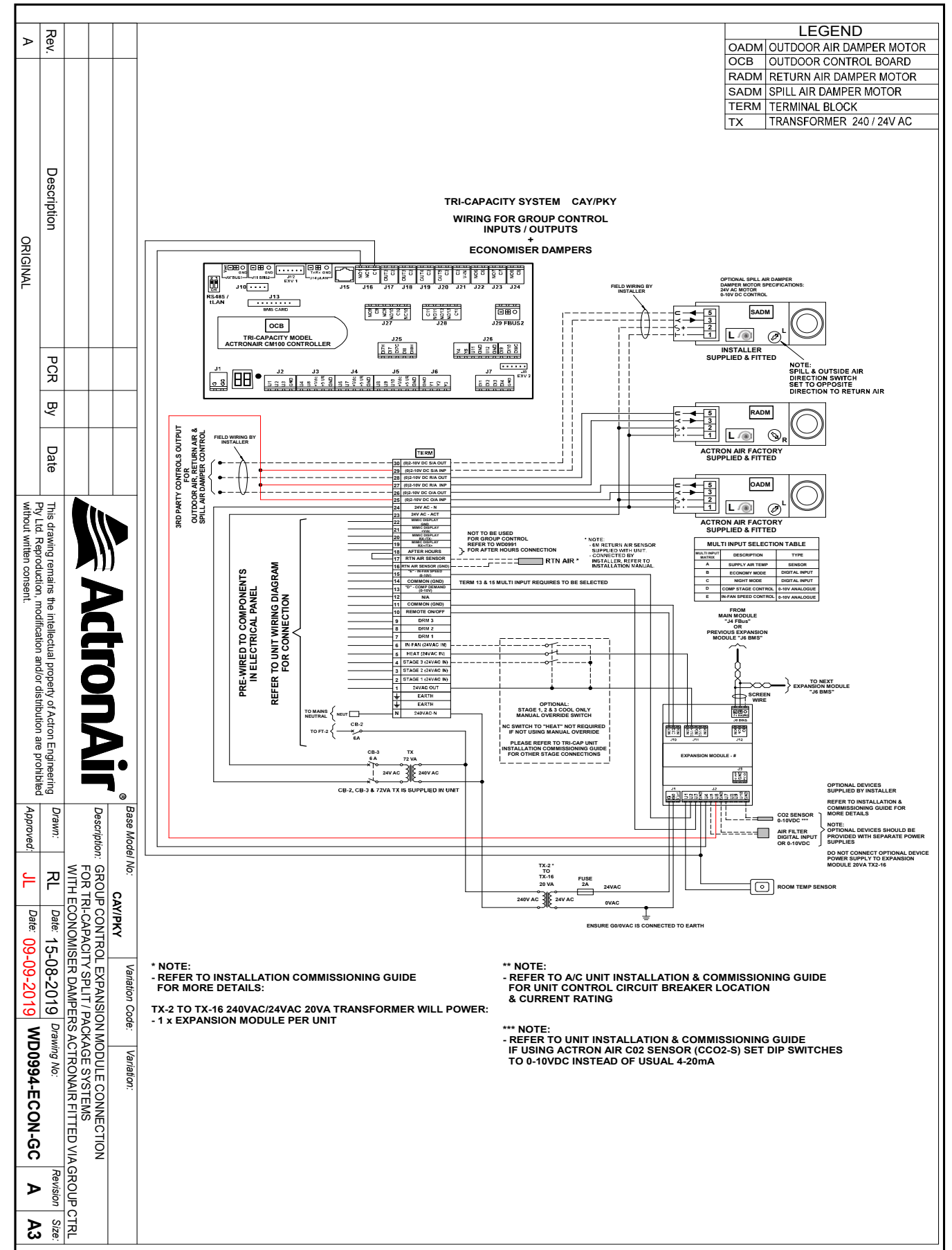
Control of the economy damper varies depending on whether this is controlled via the Group Control or via the Unit Control (CM100). The below table shows the abilities of both options:

	Group Control	CM100
Temp Difference To Enable Cycle	Yes	Yes
Economy Cycle Offset co-efficient	No	Yes
Econ. Prop. Band	No	Yes
Min Outside Temp	No	Yes
Min Outside Position	Yes	Yes

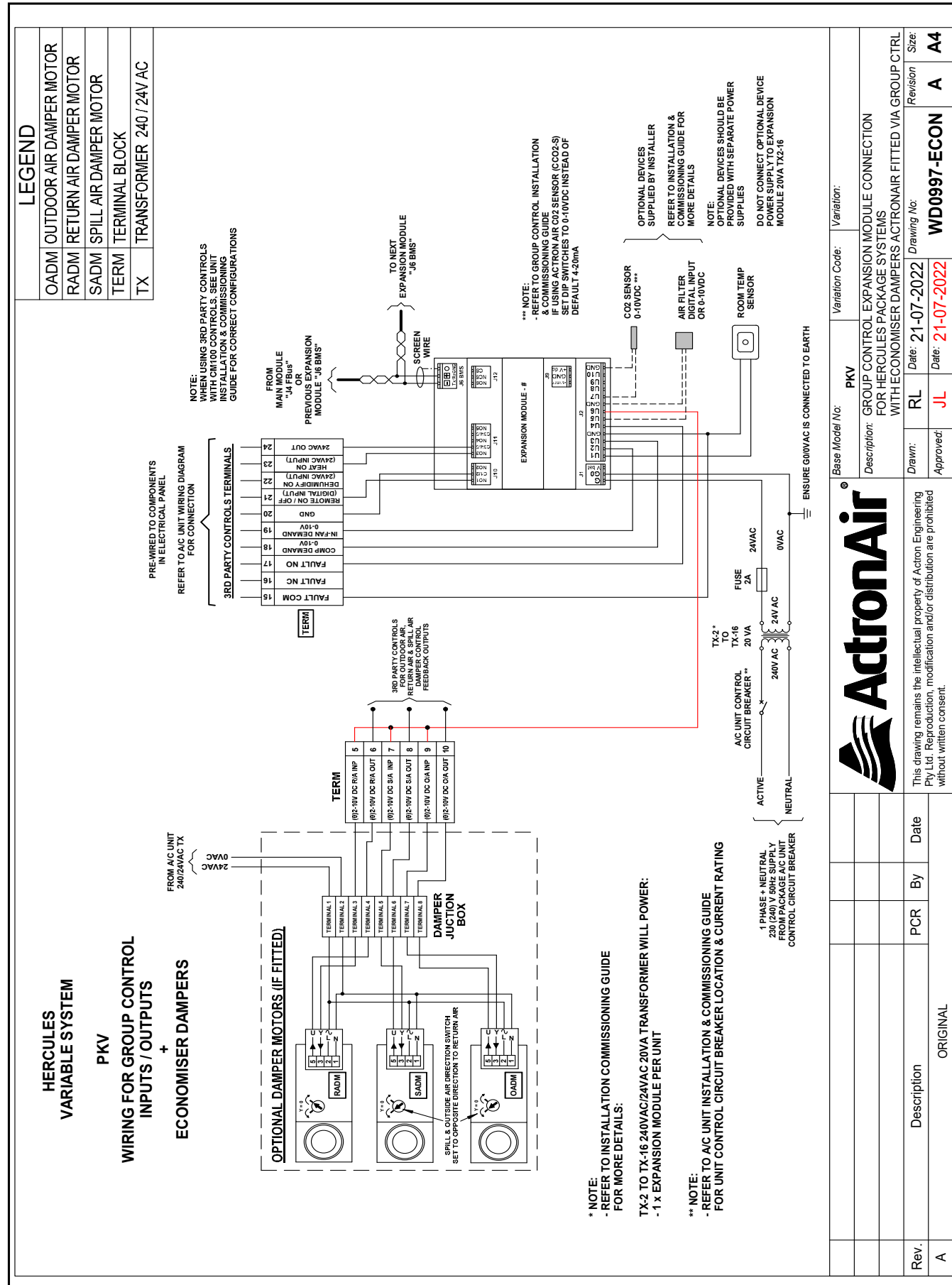
If an economiser variation is ordered but you would like to control the unit via the Group Control, take wire from Y4 on CM100 and connect to U6 on the CG10. See Wiring Diagram on the following page. **Wiring Diagram for Economy**

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Wiring Diagram Economy Damper Option for Tri-Cap



Wiring Diagram Economy Damper Option for Hercules



10. Configuration and Setup of Touch Screen Wall Control

After the Group Control System wiring is completed and checked, the system can now be powered up. Refer to the filled out Start-up and Commissioning Table (SCT) in Section 12. The SCT will be useful in configuring the Group Control System.

Note
For configuring a Group Control system to control a room damper to modulate the air volume in space, see Annex A

Step	Actions	Section in Operation Manual (9590-3015)
1	Ensure that no Input/Output components are connected to the CG100 and CG10. Ensure that only the power and the RS485 network cables are connected as per the wiring diagrams and SCT	
2	Power ON the Group Control System	
3	Tap the screen to ensure the Touch Screen Wall Control is powered. Check that the Signal LED is green (not flashing).	06. General Information
4	Log in as Administrator	07.03. Configuration Page
5	Change Administrator password by tapping the User Config. button	08.03. Configuration Page/ 08.03.04. User button
6	Assign Group Names	08.01.01 Home Page
7	Set up Group Schedule/s	08.01 Home Page/ 08.01.06 Schedule Button/ 08.01.07 Group Schedule Screen/ 08.01.08 Setting Seven Day Schedule
8	Set up Special Days Schedule/s	08.01 Home Page/ 08.01.10 Special Days Button/ 08.01.11 Special Days Screen
9	Check and adjust Time and Day Setting/Time Zone as needed	08.03. Configuration Page / 08.03.01 24 Hour Time and Date/ 08.03.02 Timezone
10	Assign After Hour duration	08.03. Configuration Page 08.03.03 After Hours
11	Configure the System The filled out copy of Start-up and Commissioning Table from Section 12. is required for configuring the System	08.03. Configuration Page/ 08.03.06 System Button/ 08.03.07 Service Page
	- Assign Unit Name Ensure that the Expansion Module number matches the System number on the SCT	08.03.09 Unit Name
	- Assign the Unit Name/Location of SCT to Group	08.03.10 Group
	- Select Air conditioning Model on SCT to Unit Type	08.03.12 Unit Type
	- Set the CGT100 Configuration on SCT to Control Profile	08.03.13 Control Profile
	- Configure the other parameters using the Wiring Diagram and the Wiring Diagram Reference Table (Section 08) is needed to determine the correct setting.	
12	Configure each Output Source as required.	08.04. Information Page/ 08.04.03 Name/ 08.04.04 Source
13	After configuring the CGT100, Power OFF the network and connect the I/O components	

11. Troubleshooting

Issue no.	Symptoms	Troubleshoot
0	Screen blank	Step 1. Touch the screen to activate. Step 2. Check the Signal LED (on the upper left hand corner of the screen) is ON.
1	Screen blank and No power on Signal LED	Step 1. Using a multimeter, check the 24VDC power supplied to the screen power port. If there is no power, proceed to step 2. Step 2. Check the 240VAC/24VDC power supply and wiring for any short to ground, circuit breaker trip, replace power transformer if faulty. Step 3. Power cycle to check if the screen will restart.
2	Screen On and Signal LED is flashing Green.	Step 1. Check CG100 LCD display is ON (press Esc button to illuminate) or that the CG100 Power LED (yellow) is ON. Step 2. Check the 24VAC power supplied to the CG100 power port J1. If no power; then check the 240/24VAC power transformer, check the 24VAC fuse on the transformer output, any open or short circuit wire, 240VAC circuit breaker is not tripped. Step 3. Check the network cables between the CGT100 and the CG100 for correct termination, wiring continuity, polarity and correct com ports are used (CG100 J3 Disp port connected to Serial 1 port on CGT100). Step 4. If the checks performed in Steps 1-3 the fault is with either the CGT100 or CG100. Replace the CG100 then the CGT100.
3	Configuration LED on CG10 is ON (not flashing)	Step 1. Check the CG10 has power (yellow power LED). Step 2. Using a multimeter, check the 24VAC power supplied to the CG10 port J1. If no power; then check the 240/24VAC power transformer, check the 24VAC fuse on the transformer output, any open or short circuit wire, 240VAC circuit breaker is not tripped. Step 3. Check the CG10 DIP switch settings are correct (DIP switch setting matches the System assignment). Step 4. Check the network cables for correct termination, wiring continuity, polarity and correct com ports are used (CG100 J4 FBUS port connected to CG10 J6 BMS Ports). Step 5. Check that there is a 120Ω termination resistor fitted on the CG100 J6 BMS terminal and also the last CG10 module J4 Fbus terminal.

Issue no.	Symptoms	Troubleshoot
4	Temperature sensor out of range	Step 1. Check the sensor wiring (open circuit, short to ground). Step 2. Check and/or replace the sensor. Step 3. Replace CG100 or CG10 module. Ensure correct DIP switch settings.
5	CO2 sensor fault (Alarm icon displayed)	Step 1. Check the 24VAC power supplied to the CO2 sensor electronics is OK. Step 2. Check the sensor wiring for any short or open circuit. Step 3. Check the reading using a multimeter (0-10VDC). Step 4. Replace the sensor if faulty.
6	After Hour (N/O) is not responding	Step 1. Check the wiring continuity between the After Hours button and the digital input. Step 2. Troubleshoot the Main Controller and replace if faulty.
7	Remote ON/OFF is not responding	Step 1. Check the wiring continuity between the digital output and the related unit or auxiliary connected to, inspect if there are any short to ground, loose wire. Step 2. Troubleshoot the Main Controller or I/O expansion board and replace if faulty.
8	Status Indicator displays OFFLINE on the Operation Page	Step 1. Check wiring, power, CG10 address and ensure System is enabled on the controller
9	Status Indicator displays COMM ERROR on the Operation Page	Step 1. Check wiring, ensure termination resistors are installed and cable run lengths are within specifications. Step 2. Ensure all CG10s have unique addresses and that no other devices are connected to the network. Step 3. Investigate external sources for electromagnetic interference.
10	Fan not running	Step 1. Check for any alarms displayed Step 2. Check configuration of the unit on Service Screen (System setting). Step 3. Check the unit is not disabled. Step 4. Check the unit is included in a Schedule. Step 5. Check the Schedule On/Off. Step 6. Check the CG10 module I/O wiring.
11	Unit not cooling or heating	Step 1. Check for any alarms displayed Step 2. Check configuration of the unit. Step 3. Check the unit is not disabled. Step 4. Check the Room Temperature sensor is enabled. Step 5. Check the Mode of Operation. Step 6. Check the Temperature setpoint. Step 7. Check the CG10 module I/O wiring.
12	Economy Cycle Not Functioning	Step 1. Check the Economy Configuration. Step 2. Check the Ambient Sensor is enabled. Step 3. Check the Room Temperature is enabled. Step 4. Check the unit is running in cooling.

12. Start-up and Commissioning Table (SCT)

Expansion Module #	Confirm DIP Switch Setting (See Section 07.10.)	Unit Name / Location	Air Conditioning Serial Number	Air Conditioning Model	Wiring Diagram (See Section 08.)	Control Profile	Filter Setting
Example	✓	Basement	523914	PCG203U-K	WD0992	Profile-1	Timer
1	<input type="checkbox"/>						
2	<input type="checkbox"/>						
3	<input type="checkbox"/>						
4	<input type="checkbox"/>						
5	<input type="checkbox"/>						
6	<input type="checkbox"/>						
7	<input type="checkbox"/>						
8	<input type="checkbox"/>						
9	<input type="checkbox"/>						
10	<input type="checkbox"/>						
11	<input type="checkbox"/>						
12	<input type="checkbox"/>						
13	<input type="checkbox"/>						
14	<input type="checkbox"/>						
15	<input type="checkbox"/>						

ActronAir recommends this page to be photocopied and handed over for setting up CGT100 and commissioning.

Annex A

Configuring a Group Control System to control a room damper

The following sections details the steps to use the control profile Variable-1 (renamed Profile-3 from UI S/W ver. 2091-28-1003) to control a damper opening, ignore Air flow switch, and wiring the system.

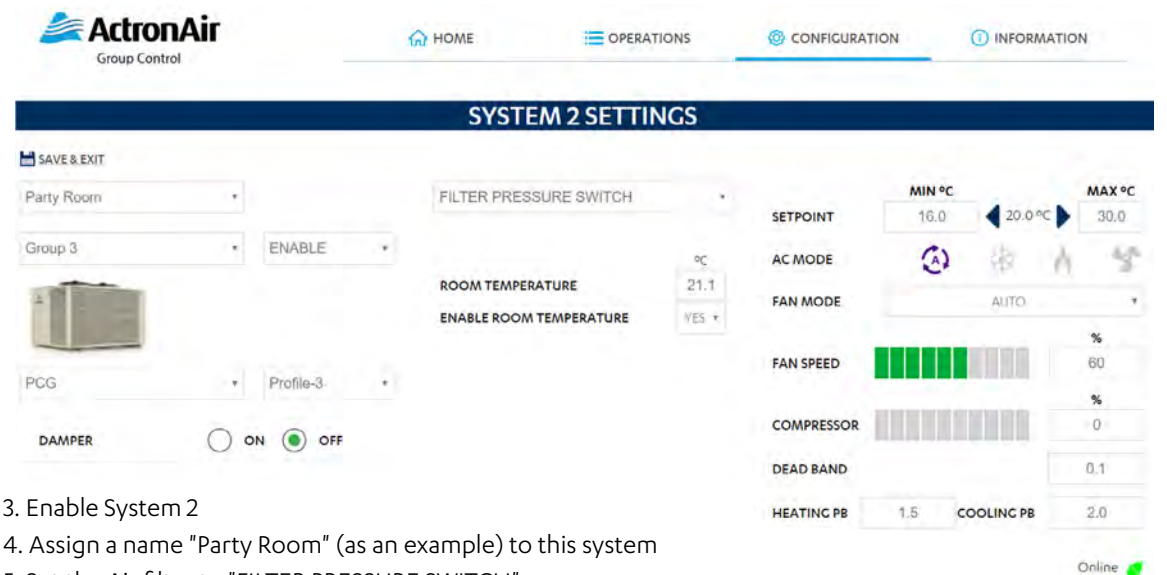
Wiring

Wiring Diagram for "Group Control Expansion Module Connection for Tri-Cap system with Economiser Damper Fitted Via CG10" is on the last section of this Annex A. On the system Expansion module 2

1. Connect the damper control (01-10VDC) cable to U3 (Universal Input 3) and GND.
2. Add Jumper Wire between U5 and GND, if the function is not used in order to avoid a false alarm.

Setting

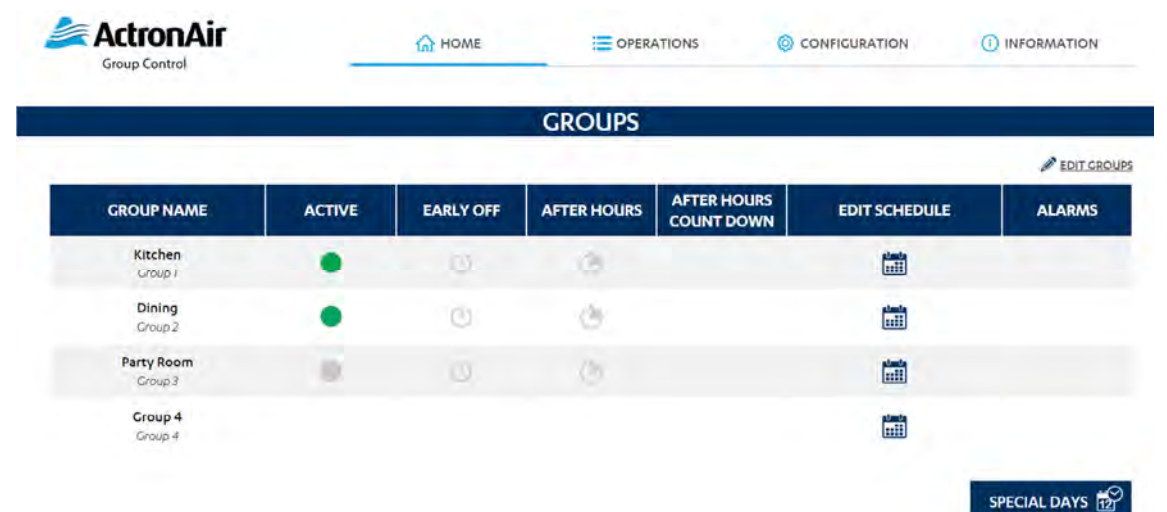
Go to CONFIGURATION Page, set a system (system 2 as an example) control profile to Variable-1 (Profile-3) and then configure other parameters as shown below.



3. Enable System 2
4. Assign a name "Party Room" (as an example) to this system
5. Set the Air filter to "FILTER PRESSURE SWITCH".
6. Assign the system to a group (Group 3 as an example).
7. Set the system AC MODE Auto
8. Set the DEAD BAND to minimum (0.1) so that the (0-10VDC) output on U3 output has full scale of ~ 0 -10VDC.
9. Set the COOLING PB to a value (0.5 <->10) to fine tune proportional changes between room temp and setpoint.

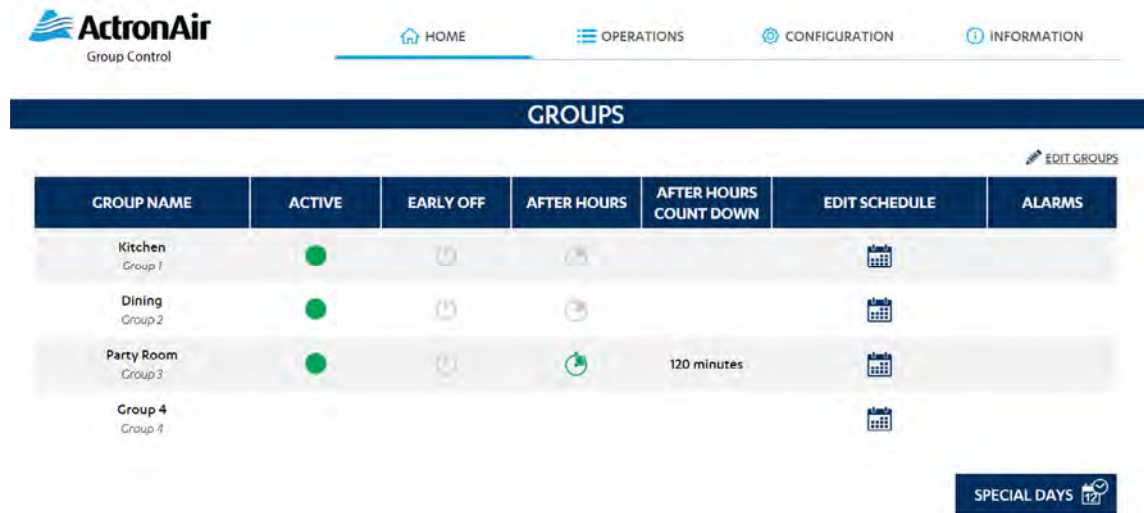
System ON/OFF

1. On HOME Page, the Party Room (which is assigned to Group 3) will be shown in OFF status



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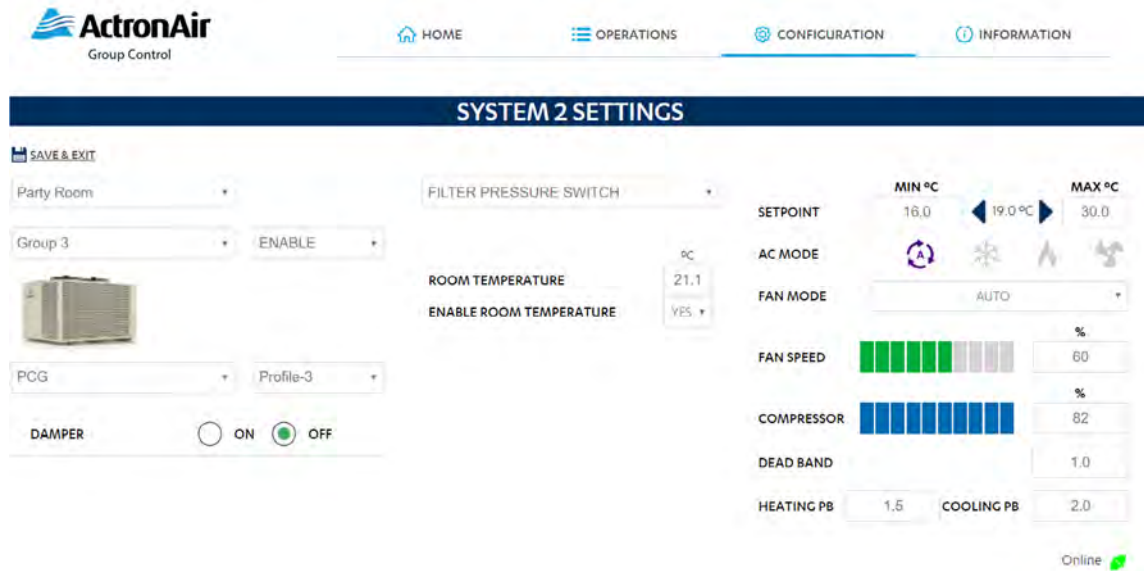
2. On HOME Page, test Group 3 operation by switching "AFTER HOURS" Button to ON (default is 120 minutes)



Note

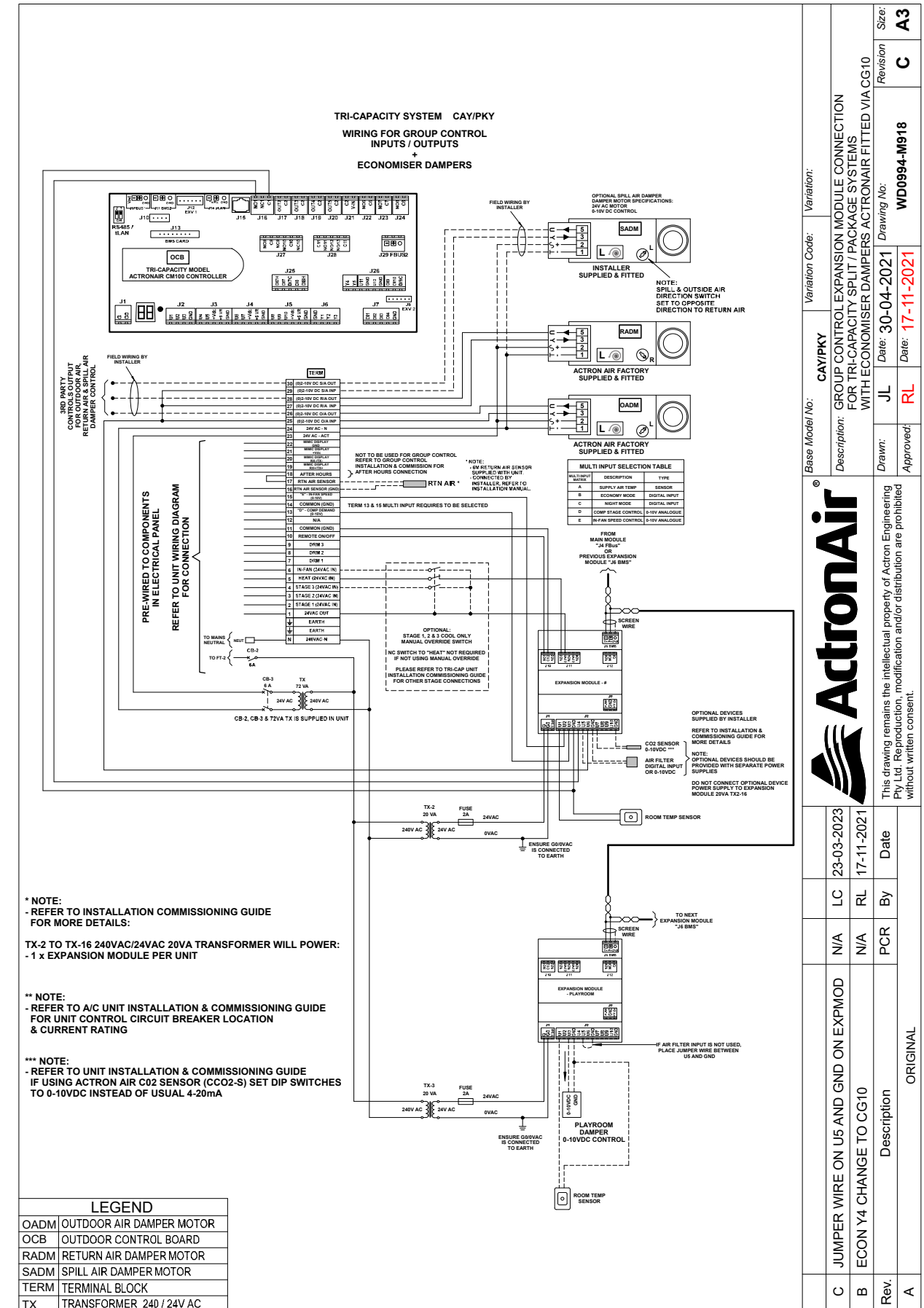
The AFTER HOURS default value can be adjusted via CONFIGURATION Page

3. On CONFIGURATION Page, Verify that System 2 is ON, and monitor COMPRESSOR status bar (0-10VDC) output (used for damper control) is changing with reference to the ROOM TEMPERATURE value and SETPOINT.



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Wiring Diagram for Tri-Cap System (CAY/PKY) with Economiser Damper controlled by CG10





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