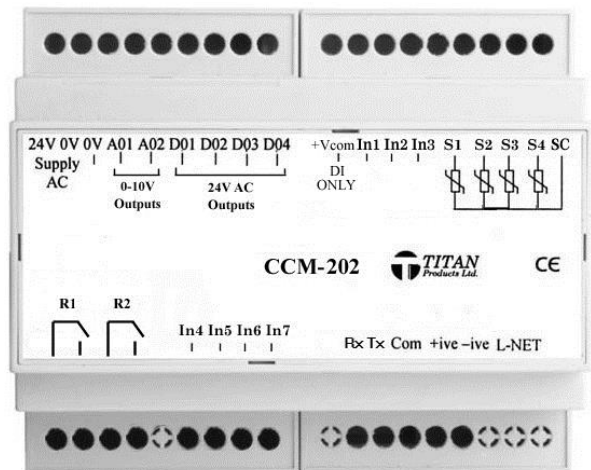
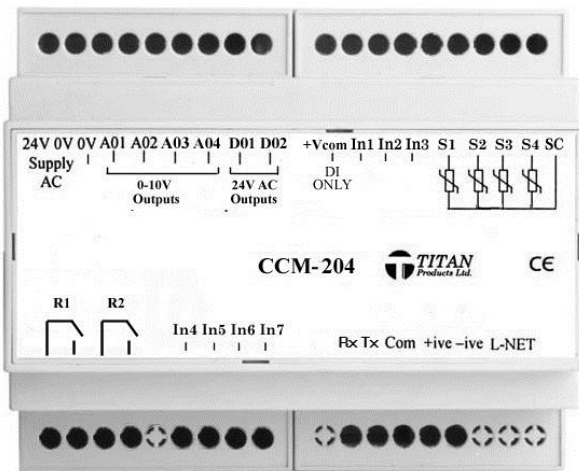


CCM-202 and 204 MULTI-ZONE TEMPERATURE CONTROLLERS



BACnet Enabled

DESCRIPTION

The CCM-204 controller is designed for multi-zone comfort control applications such as heating, cooling, CAV, VAV and Chilled Beam systems. The application specific multi-zone controller caters for flexibility to match a variety of temperature control options with upto four zones.

The controller can be used stand-alone, in a Master/Slave group or part of a BMS system via the standard inbuilt Native BACnet MS/TP communications.

FEATURES

- 24V AC supply
- Native BACnet communications
- Master/Slave grouping (shared information)
- 4 x 0-10V outputs dependant on configuration
- 2 x 24V AC Triac outputs dependant on configuration
- TPC/PWM or ON/off control on Triac Outputs
- 7 x 0-10V Analogue inputs or Digital Inputs
- 4 x 10K3 temperature sensor inputs
- 2 x VF relays
- On/Off, ECO, or Frost protection options
- Flexible Applications Selection
- Din Rail Mounting

SPECIFICATION

Supply	24VAC/DC
Power consumption	5 VA max
Triac outputs	350mA max
0-10V outputs	5mA max
Temperature Sensors	10K3A1
Analogue Inputs	0-10V
Digital Inputs	Voltfree
Relay output	240V 5 amp max.
Communications	Native BACnet
Network	MS/TP -RS485
Indication	Tx/Rx comm.'s
Enclosure	Din Mounting (IP20)
Enclosure Rating	L94-VO
Size	106 mm wide
	92 mm high
	62 mm deep

The CCM-204 multi-zone controller is an advanced applications specific controller that is supplied pre-configured to customer applications which saves expensive site commissioning and set up time. The controller is part of the TITAN Products BACnet controller family and is fully compatible with the other controllers using Native BACnet communications. Through the use of the BACnet Master/Slave configuration the control inputs and outputs can be expanded to cover all types of control requirements.

PART CODES

CCM-202MZ Multi Zone Temperature Controller with 2 x 0-10V outputs and 4 x 24V Triac Outputs

CCM-204MZ Multi Zone Temperature Controller with 4 x 0-10V outputs and 2 x 24V Triac Outputs

Temperature sensors TPTRS room temperature sensor
 TPTVAV flying lead temperature sensor
 TPTDS/S Duct mounted temperature sensor.

Set Point Adjusters RSA10V (0-10V setting unit with scale adjustment range or +/- values to suit project)
 The RSA10V can be supplied with integrated temperature sensor.

User Display RDU-4 Digital Room Display unit

Control Settings

The settings listed describe the range of the standard settings, options and operational features that are available from the controls applications library. Once configured all settings can be accessed and modified with the RDU or FPT-601 field programming tool or over the BACnet communications interface.

Controller Settings & Options

	Description
Network	Native BACnet or Stand-alone
Unit address	Sets the controller unit MAC address on MS/TP bus. Range 1 to 127 for a master
Baud Rate	Set communication baud rate Range Options: - 9,600 19,200 38,400 or 76,800
Dev Object ID	Allows the setting of the device object ID. Range 0 to 4194302
Group Control	Allows individual controllers to be set-up as a Group Master or Group Slave . This sets groups of controllers to take control information and instructions such as temperature, fan speed, ON/Off etc from a common Master (125 Slaves max). Any number of Groups can be set within the limit of 126 controllers on the MS/TP network
Temp Units	Set deg C or deg F
Offset Value	Allows a positive or negative offset to be applied to the measured temperature of each zone. Range -10 to +10°C in 0.1 deg C steps default 0°C
Dead Band setting	If dual heating and cooling is configured for any zone then this sets a common dead band between heating and cooling control cycle. Range 0 to 4°C in 0.1°C steps default 1°C
Prop Band setting	Sets the common proportional band for the all the zone heating and cooling control outputs. Range 1 to 5°C in 0.1°C steps default 2°C
Integ. Time	Sets the common I time for the P+I control function. Range 0 to 20Mins in 30sec steps default 20 sec
Default Setpoint	This defines the value of the individual zone control setpoint on power up or switch On Range 0 to 30°C in 0.5°C steps default 21°C
Remote setpoint adjustment	If Remote Setpoint Adjusters are used then these can influence the zone control SP by upto 10°C. +/- Range : 0 to 10°C
Occupancy Timed Override	This option provides a timed override “On” to the controller. If the controller is Off from the BMS then an occupancy override (if programmed and in service) can be started using the RDU function Range 0 to 480 minutes in 30 min steps Default 0 min

The CCM-204 is an advanced applications specific controller that is pre-configured within its configuration limitations to the customer’s application thereby providing ease of installation with the minimum on site commissioning time. The control functions defined in the next two sections describe the selections that can be made at the time of program configuration in order to maximise the use of the available I/O on the various hardware build options. Re-configuration at site level is done through the use of field programming tools.

Control Outputs Type (0-10V)	Options available for analogue control of the heating or cooling outputs 1, 2, 3 or 4 zones. Or for two zones of heat and cool when using the CCM204 controller. Number of 0-10V outputs is dependant on the controller type and available IO.
Control Outputs (Triac 24V)	These outputs can be configured to provide control from the temperature sensor inputs with options for ON/OFF, PWM or TPC (floating time proportional control). Note: The maximum number of control zones is 4 and these can be allocated to triac or analogue outputs. If TPC is configured then this will take 2 x Triac outputs as 1 of the 4 zones. The number of Triacs is dependant on the controller type and available IO. The Type of control action selected must be the same for all zone control outputs.
Unoccupied Conditions	This setting defines the action to be taken when the controller is switched Off to an unoccupied mode via an allocated DI or from the BMS. Off: - Heat/Cool outputs off (analogue outputs drive to 0V)

Low Temperature: - This function sets a common minimum low temperature condition (frost protection) that will be used for all zones in the Off unoccupied state. The set value is allocated to all zones configured and uses the individual control temperature sensor to monitor the respective zone condition. If any zone temperature falls to the low frost level then the respective zone will switch “On” until the measured temperature rises above the frost level by 2°C.

Range 5 to 30°C. Operates as Frost setting stated above.

ECO (1 to 10°C) This ECO night set back setting introduces a wide dead band setting between any dual heat and cool zone. The effect is to move the heat control point down and the cool control point up. **ECO setting. Range 1 to 10°C.**

Physical IO

4 x 0-10V Analogue Outputs

The 0-10V outputs can be configured to provide the following temperature control options:
Individual zone control heat or cool with 1 to 4 zones
Heating and Cooling (dual output control 1 or 2 zones max)

2 x Triac 24Vac Outputs

The 2 x 24VAC digital outputs can be configured to provide On/Off control, PWM or TPC floating control. If TPC is set both triacs are required for a single control loop.

4 x Temperature Sensor inputs

S1 to S4 Temperature sensor inputs are 10K3A1 Thermister and can be used for the individual control reference for the 4 zone.

7 x Analogue or Digital Inputs

In1 is used as a Digital input and is automatically allocated for the controller On/Off function (occupied/Unoccupied) and in this On/Off function is common to all 4 zones. If On/Off occupancy control of the individual zones is required then a TITAN IO/DIM4 module can be used and when connected to In1 allows upto 4 independent O/Off switches to be connected.

In2 & In3 are not allocated and can be used for monitoring purposes only.

In4 to In7 are configured for 0-10V inputs and these are used for the remote temperature setpoint adjustment of the 4 zones. The inputs cater for a +/- setting from the internal default control setpoint.

Analogue Inputs

If In2 & In3 are used for 0-10V analogue inputs then each input can be configured for monitoring any of the following units that can be scaled to the value of the measured input:

Temp °C
Humidity %RH
Pressure Pa
Power Amps/Volts/KW
PPM for CO2

Digital Inputs

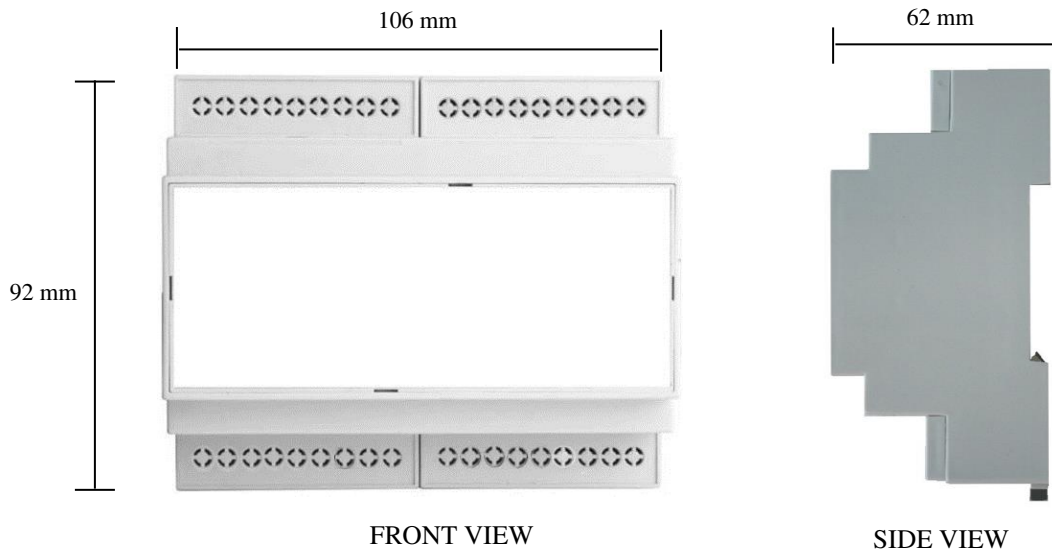
If In2 & In3 are used for digital inputs then the voltfree switched contacts can operate on open or closed contacts and used for Status Monitoring.

Relay Options

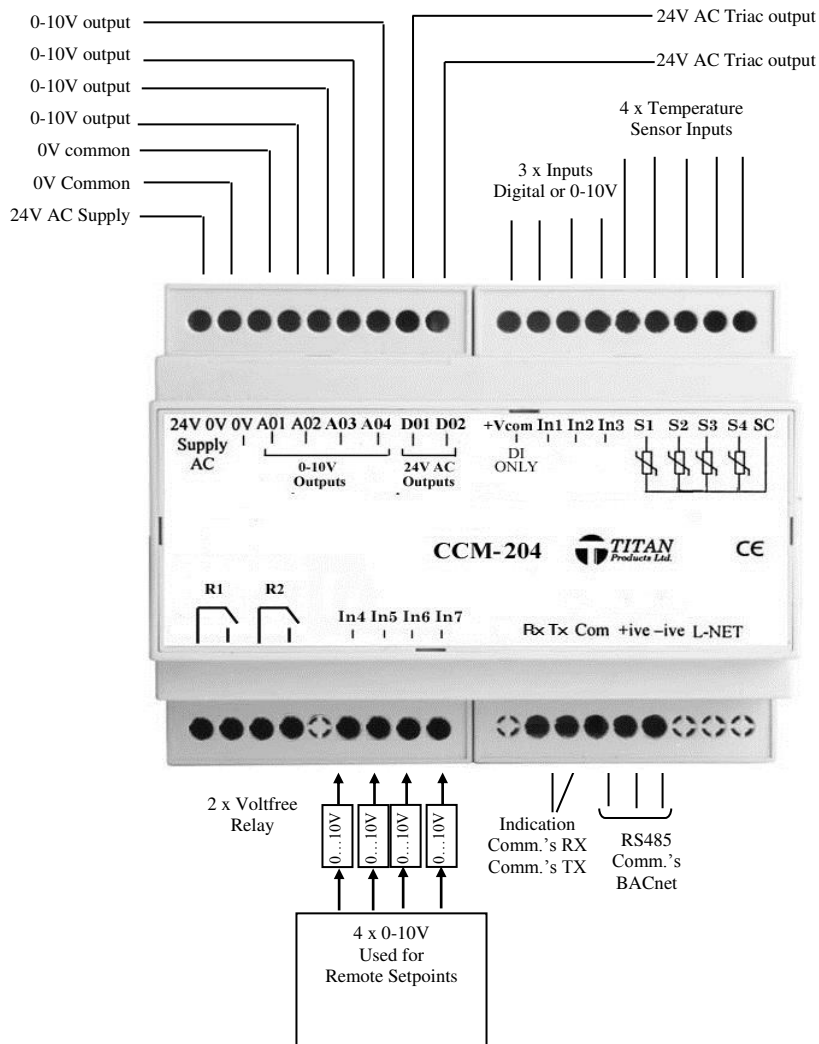
Relay 1 with Voltfree contacts is activated when ever any of the zones is switch On (Occupied Mode).

R2 is not allocated in this control configuration.

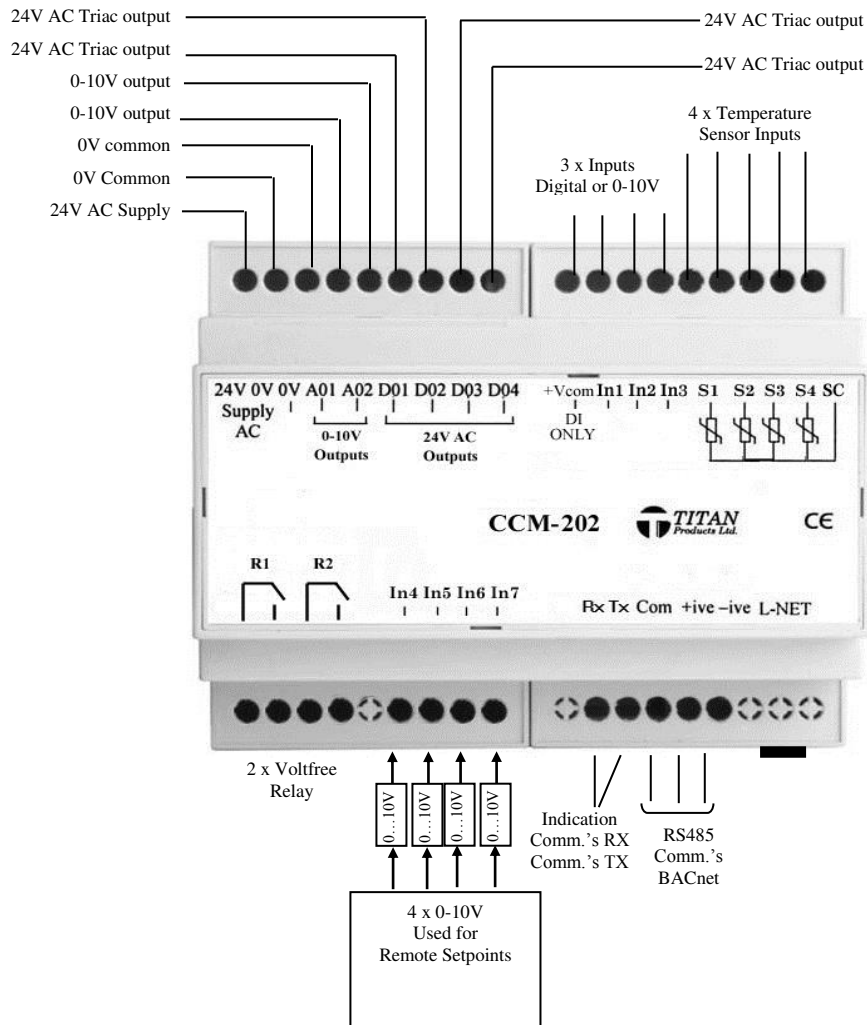
DIN Rail enclosure dimensions



CONNECTION DIAGRAM CCM-204 (4 x 0-10V outputs & 2 x 24V AC triac outputs)



CONNECTION DIAGRAM CCM-202 (2 x 0-10V outputs & 4 x 24V AC triac outputs)



RDU Room Display Unit

Description.

The RDU is a stylish flush mounting interface that provides user information and engineers setting via the use of the graphics display and touch sensitive keys. The RDU can be supplied with a variety of decorative finishes and can be applied as a standard controller interface.



RDU/STD/BSSP
Standard room unit in
brushed stainless flush plate