

# novar® rcc.1044 Mounting & Wiring Instructions

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## Introduction

The rcc.1044 is a Stepper Valve Controller providing comprehensive EEV and EEPR valve control for multi-evaporator display cases, multi-valve sub-cooler applications and centralized EEPR Suction Pressure Regulation applications.



**rcc.1044 Stepper Valve Controller**

**Functional  
Description**

The rcc.1044 manages all valve control functions in a variety of refrigeration system configurations. When used in multi-circuit EEPR applications, the rcc.1044 provides four (4) individual channels of stepper EEPR valve positioning assuring your cases will always be operating the optimal temperatures and suction pressure.

When used in multi-evaporator case control applications, the rcc.1044 manages up to three (3) Electronic Expansion Valves (EEV) optimizing superheat assuring maximum coil energy efficiency is achieved. Additionally, a local EEPR output can be enabled to allow distributed suction pressure regulation at the case lineup. Three (3) relay outputs are provided for case fans, lights and defrost.

When used in Subcooler Applications, the rcc.1044 can control the EEV, the suction side EEPR and the liquid outlet pressure control EOPR valve. Relay outputs are used to control the subcooler LLSV and EOPR bypass valves.

And because the rcc.1044 is capable of handling all these advanced control functions entirely on its own, reliance on a centralized controller is not necessary for fail-safe system operation.

**Available Models**

The rcc.1044 is available in two different models optimized for application, price, and performance.

1. RCC-1044-EEPR is for simple suction pressure regulation applications. This model only supports application modes #1 and #2.
2. RCC-1044-EEV is a fully featured model supporting all available application modes.

A brief description of the 4 modes is as follows:

**Mode #1 – Remote Control.** All sensor readings and output commands are managed by algorithms that reside in Novar's XCM master controller. This mode requires proper BACnet communication to maintain full control.

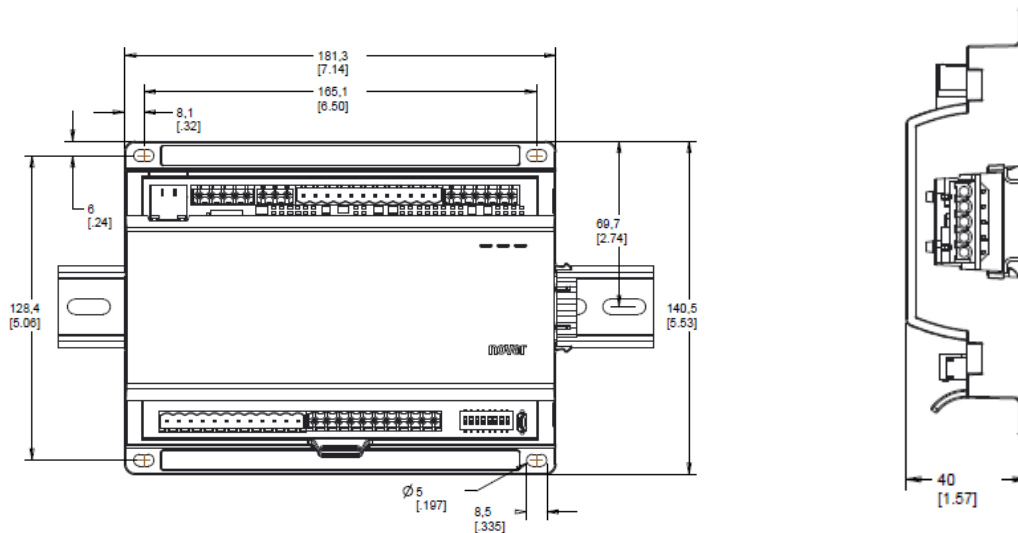
**Mode #2 – Multi-EEPR.** All 4 stepper outputs can be used for the control of EEPR valves.

**Mode #3 – Multi-EEV.** This is for a case with multiple evaporator coils. One stepper output is for control of a circuit EEPR valve, and up to 3 stepper outputs are for EEV superheat control.

**Mode #4 – Subcooler Control.** This mode is for the control of a subcooler that has an EEPR, EEV, and EOPR valves. The fourth stepper output can be remotely controlled by the XCM.

**NOTE:**

In Mode #3, the RCC-1044-EEV can communicate with up to 3 digital temperature display devices (the RCC-RUI) to display the air temperature and coil temperature for each individual section of a multi-evaporator case. When more than one display is used, a display hub (RCC-RUI-HUB) must be added.

**Specifications**

**Figure 1. rcc.1044 Dimensions**

**Physical Dimensions**

Height:	5.53 inches (141mm)
Width:	7.14 inches (181mm)
Depth:	1.57 inches (40mm)
Weight:	1.15 lb

**Operating Environment**

Temperature:	32°F to 140°F (0°C to 60°C)
Humidity:	5% to 95% RH, non-condensing
Voltage Range:	22Vac - 28Vac, 50/60HZ

**Regulatory Compliance**

UL 60730-1 Listed  
 FCC, Part 15, Class A  
 Industry Canada ICES-003, Class A

**Power Supply**

Power and universal inputs are classified as NEC Article 725 Class 2 (power limited.) Total power consumption of the controller and all connected sensors and valves must be less than 100VA. Refer to Table 4 for typical VA consumption.

**LEDs**

Indicate power, BACnet connectivity and module health status

**Safety and Precautions**

Observe all national and local electrical codes during installation

**Key Features**

- Ten (10) inputs configurable to support variety of Temperature and Pressure sensors
- Three (3) Form C relay NO/NC outputs
  - 5.0 A Resistive @ 240Vac
  - 2.5 FLA 15LRA @ 240Vac
  - 1.0A Pilot Duty @ 240Vac
- One (1) Solid State Output (10-14Vdc at 30mA) with PWM capability
- Four (4) 12Vdc bipolar and/or unipolar stepper valve outputs for EEV and/or EEPR control

***Input/Output Configurations:*****Mode #1: User Defined Remote Control*****Available Inputs***

Input 1: Universal

Input 2: Universal

Input 3: Universal

Input 4: Universal or 0-10 VDC Analog Output

Input 5: Universal

Input 6: Universal

Input 7: Universal

Input 8: Thermistor

Input 9: Thermistor

Input 10: Thermistor

***Available Relay Outputs***

Output 1: Remote Control

Output 2: Remote Control

Output 3: Remote Control

Output 4: [Solid State] Remote Control

***Available Stepper Outputs***

Stepper Output A: Remote Control

Stepper Output B: Remote Control

Stepper Output C: Remote Control  
Stepper Output D: Remote Control

**Mode #2 Multi-EEPR Control:**

*Available Inputs*

Input 1: Universal  
Input 2: Air Temp #4 or Universal  
Input 3: Universal  
Input 4: Universal or 0-10 VDC Analog Output  
Input 5: Universal  
Input 6: Universal  
Input 7: Universal  
Input 8: Air Temp #1 or Thermistor  
Input 9: Air Temp #2 or Thermistor  
Input 10: Air Temp #3 or Thermistor

*Available Relay Outputs*

Output 1: Remote Control  
Output 2: Remote Control  
Output 3: Remote Control  
Output 4 [Solid State] Remote Control

*Available Stepper Outputs*

Stepper Output A: EEPR #1  
Stepper Output B: EEPR #2  
Stepper Output C: EEPR #3  
Stepper Output D: EEPR #4

**Mode #3 Multi-EEV Control (RCC-1044-EEV only):**

*Available Inputs*

Input 1: Suction Pressure  
Input 2: EEV 2 Suction Temp or Universal  
Input 3: EEV 2 Air Temp or Universal  
Input 4: EEV 2 Def Term Temp or Universal  
Input 5: EEV 3 Suction Temp or Universal  
Input 6: EEV 3 Air Temp or Universal  
Input 7: EEV 3 Def Term Temp or Universal  
Input 8: EEV 1 Suction Temp or Thermistor  
Input 9: EEV 1 Air Temp or Thermistor  
Input 10: EEV 1 Def Term Temp or Thermistor

*Available Relay Outputs*

Output 1: Lights  
Output 2: Evap Fans  
Output 3: Defrost  
Output 4: [Solid State] LLSV Pilot or Anti-Sweat Heaters

*Available Stepper Outputs*

Stepper Output A: EEV #1  
Stepper Output B: EEV #2  
Stepper Output C: EEV #3  
Stepper Output D: EEPR

**Mode 4 Sub-Cooler (RCC-1044-EEV only):***Available Inputs*

- Input 1: Suction Pressure
- Input 2: Liquid Line Pressure
- Input 3: Subcooler Enable
- Input 4: Universal or 0-10 VDC Analog Output
- Input 5: Universal
- Input 6: Universal
- Input 7: Universal
- Input 8: Suction Temp or Thermistor
- Input 9: Liquid Outlet Temp or Thermistor
- Input 10: Liquid Inlet Temp or Thermistor

*Available Relay Outputs*

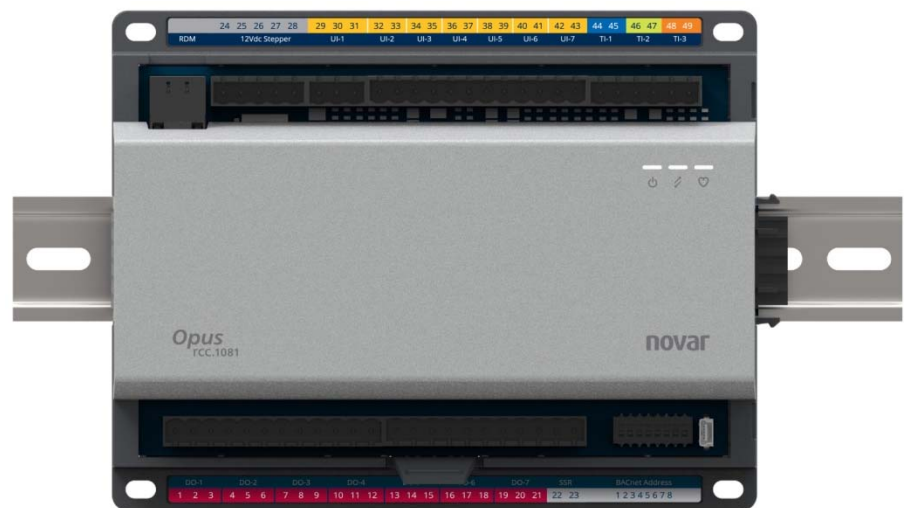
- Output 1: LLSV
- Output 2: EOPR Bypass
- Output 3: Remote Control
- Output 4: [Solid State] Remote Control

*Available Stepper Outputs*

- Stepper Output A: EEPR
- Stepper Output B: EEV
- Stepper Output C: EOPR
- Stepper Output D: Remote Control

**Mounting**

The controller may be mounted in any orientation on a panel or a DIN rail but must be in a position that allows clearance for wiring or servicing.



**Figure 2. rcc.1044 on DIN Rail**

**WARNING!**

**Electrical Shock Hazard! Can cause severe injury, death or property damage.** Disconnect power supply and load power sources before beginning wiring or making wiring connections to prevent electrical shock or equipment damage.

**Din Rail Mounting Procedure****Table 1. Din Rail Mounting Procedure**

Step	Procedure
1	Holding the controller with its top tilted in towards the DIN rail, hook the top ridge of the DIN rail channel on the back of the controller onto the top of the DIN rail.
2	Gently press down on the bottom half of the <b>rcc.1044</b> to allow the DIN latch to engage under the DIN rail bottom edge.

**Figure 3. rcc.1044 DIN Latch Release****Din Rail Un-Mounting Procedure****Table 2. DIN Rail Un-Mounting Procedure**

Step	Procedure
1	Remove all wiring connectors from the controller to expose DIN latch release
2	Pull down DIN latch release with one hand to release the fastener from the DIN rail.
3	Lift the bottom of the controller away from the DIN rail with your other hand.
4	Unhook the top ridge of the DIN rail channel on the back of the controller from the top of the DIN rail.

**NOTE!**

Please use caution when pulling the DIN latch release! Over extending the DIN latch release can damage the resistance spring of the mechanism.

### Panel Mounting Procedure

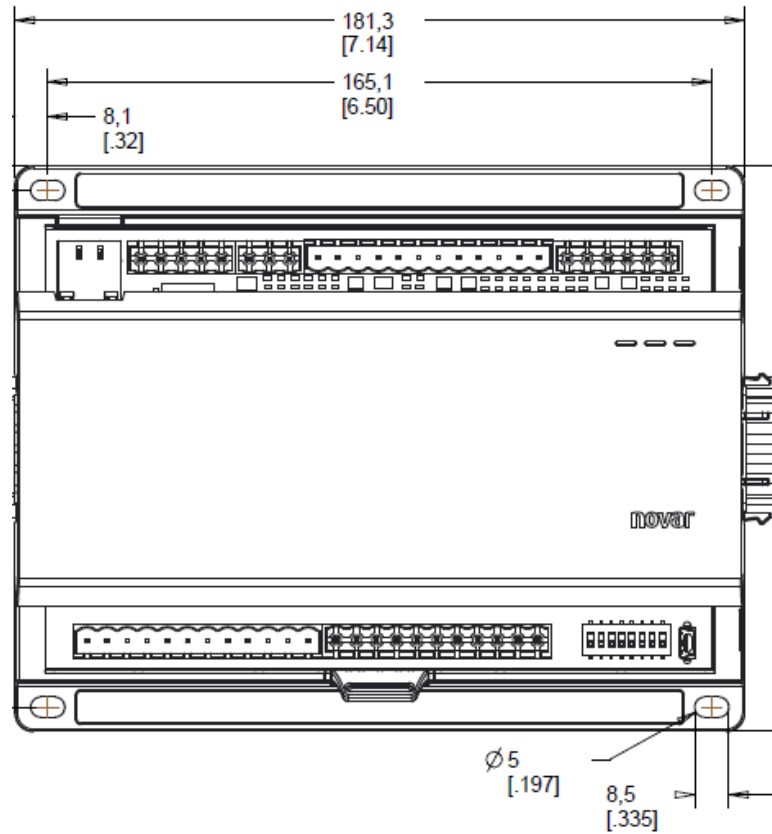


Figure 4. rcc.1044 Mounting Hole Dimensions

Table 3. Panel Mounting Procedure

Step	Procedure
1	Position the base of the product level against the panel wall and mark the wall to show the location of the corner holes.
2	The controller mounts using four screws inserted through the corners of the base. Fasten securely with four No. 6 or No. 8 machine or sheet metal screws.



## Power & I/O Wiring

Removable terminal blocks are used to make all wiring connections to the rcc.1044. Attach all wiring to the appropriate terminal blocks. All wiring must comply with applicable electrical codes and ordinances, or as specified in installation wiring diagrams.

### WARNING!



**Electrical Shock Hazard! Can cause severe injury, death or property damage.** Disconnect power supply and load power sources before beginning wiring or making wiring connections to prevent electrical shock or equipment damage.

## Power Consumption

The controller requires a 24Vac power supply. The total power draw for the controller, sensors and valves cannot exceed 100 VA when powered by the same transformer. Table 4 below shows the typical power consumption for a controller and common 12Vdc Stepper valves. Consumption depends on the type of valve and how many are connected. The module draws 10 VA.

**Table 4. Power Consumption Table**

Product	RCC-1044 w/RCC-RUI	Sporlan CDS-8	CDS-9, 17 and 17	SEI/EEV
Typical VA Draw	< 10VA/ea	10VA/ea	5VA/ea	10VA/ea

### NOTE!



For multiple controllers operating from a single transformer, the same side of the transformer secondary must be connected to the same power input terminal on each controller.

rcc.1044 controllers utilize half-wave voltage rectification and may not be mixed with full-wave rectified devices such as the older rcc.521 Case Controller. Do not attempt to power both types of controllers from the same transformer.

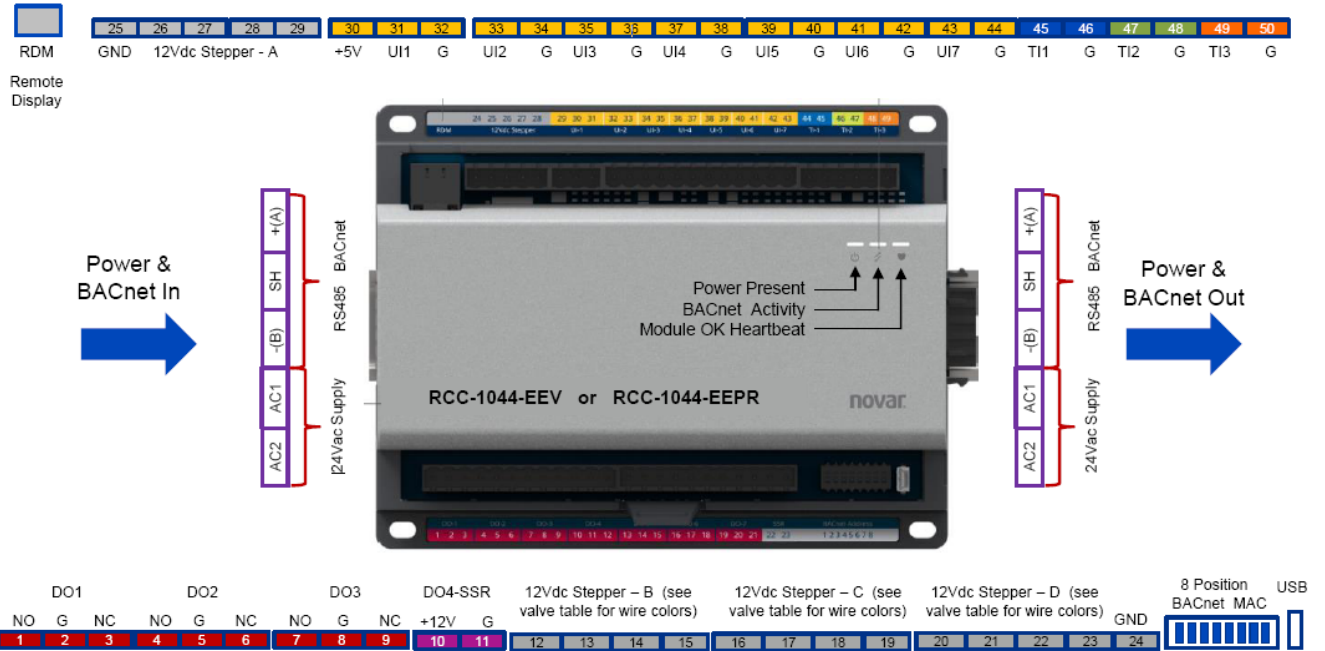


Figure 5. rcc.1044 EEV and EEPR wiring terminals

**Wiring  
Stepper Valve  
Wiring**

RCC-1044 Terminal #				4-Wire BiPolar EEV & EEPR Valves				
Stepper A	Stepper B	Stepper C	Stepper D	Sporlan SER, SEI, SEH, CDS	Alco Ex*	Danfoss ETS	Carel E2V	KE2 THERM HSV
29	12	16	20	Black	Brown	White	Yellow	Black
28	13	17	21	White	Blue	Black	White	White
27	14	18	22	Green	White	Green	Green	Green
26	15	19	23	Red	Black	Red	Brown	Red

RCC-1044 Terminal #				5-Wire UniPolar EEV Valves*	
Stepper A	Stepper B	Stepper C	Stepper D	Sporlan ESX	KE2 THERM RSV
29	12	16	20	Black	Black
28	13	17	21	Red	Red
27	14	18	22	Yellow	Yellow
26	15	19	23	Orange	Orange
25(G)	24(G)	24(G)	24(G)	Gray	Blue

\*Note: UniPolar valves B, C and D all share a common ground terminal #24.

Figure 6. Output terminals

### RCC-1044 I/O Point by Mode Summary

The tables below describe the I/O point designations for each of the available RCC-1044-EEPR and RCC-1044-EEV Fixed Function Application Modes.

**Note: RCC-1044-EEPR modules only support Modes #1 and #2. RCC-1044-EEV modules support all 4 Modes**

**\* Note: Unused points below are listed as Available for remote control from Opus**

Mode #1: Remote I/O Control										
Input Point #	1	2	3	4	5	6	7	8	9	10
Function	Universal Input #1	Universal Input #2	Universal Input #3	Universal Input #4 or 0-10V Analog	Universal Input #5	Universal Input #6	Universal Input #7	Thermister Input #1	Thermister Input #2	Thermister Input #3
Terminal #	30 - 31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 41	43 - 44	45 - 46	47 - 48	49 - 50
Signal Name	+5V - UI1 - G	UI2 - G	UI3 - G	UI4 - G	UI5 - G	UI6 - G	UI7 - G	TI1 - G	TI2 - G	TI3 - G
Output Point #	1	2	3	4						
Function	Form C Relay Output #1	Form C Relay Output #2	Form C Relay Output #3	+12V Solid State Output						
Terminal #	1 - 2 - 3	4 - 5 - 6	7 - 8 - 9	10 - 11						
Signal Name	NO - G - NC	NO - G - NC	NO - G - NC	+12V - G						
Stepper #	A	B	C	D						
Function	Valve #1 Remote Control	Valve #2 Remote Control	Valve #3 Remote Control	Valve #4 Remote Control						
Terminal #	25 - 26 - 27 - 28 - 29	12 - 13 - 14 - 15	16 - 17 - 18 - 19	20 - 21 - 22 - 23 - 24						
Signal Name	GND - A - B - C - D	A - B - C - D	A - B - C - D	A - B - C - D - GND						

Mode #2: Multi-EEPR Control										
Input Point #	1	2	3	4	5	6	7	8	9	10
Function	Available	Air Temp #4	Available	Available	Available	Available	Available	Air Temp #1	Air Temp #2	Air Temp #3
Terminal #	30 - 31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 41	43 - 44	45 - 46	47 - 48	49 - 50
Signal Name	+5V - UI1 - G	UI2 - G	UI3 - G	UI4 - G	UI5 - G	UI6 - G	UI7 - G	TI1 - G	TI2 - G	TI3 - G
Output Point #	1	2	3	4						
Function	Available	Available	Available	Available						
Terminal #	1 - 2 - 3	4 - 5 - 6	7 - 8 - 9	10 - 11						
Signal Name	NO - G - NC	NO - G - NC	NO - G - NC	+12V - G						
Stepper #	A	B	C	D						
Function	EEPR Valve #1	EEPR Valve #2	EEPR Valve #3	EEPR Valve #4						
Terminal #	25 - 26 - 27 - 28 - 29	12 - 13 - 14 - 15	16 - 17 - 18 - 19	20 - 21 - 22 - 23 - 24						
Signal Name	GND - A - B - C - D	A - B - C - D	A - B - C - D	A - B - C - D - GND						

Figure 7. RCC-1044-EEPR and RCC-1044-EEV Mode #1 and Mode #2 Functions

### RCC-1044 I/O Point by Mode Summary

The tables below describe the I/O point designations for each of the available RCC-1044-EEPR and RCC-1044-EEV Fixed Function Application Modes.

**Note: RCC-1044-EEPR modules only support Modes #1 and #2. RCC-1044-EEV modules support all 4 Modes**

**\* Note: Unused points below are listed as Available for remote control from Opus**

Mode #3: Multi-EEV Case Control with Optional EEPR										
Input Point #	1	2	3	4	5	6	7	8	9	10
Function	Case Suction Pressure	Coil #2 Suction Temp	Coil #2 Air Temp	Coil #2 Def Term Temp	Coil #3 Suction Temp	Coil #3 Air Temp	Coil #3 Def Term	Coil #1 Suction	Coil #1 Air Temp	Coil #1 Def Term
Terminal #	30 - 31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 41	43 - 44	45 - 46	47 - 48	49 - 50
Signal Name	+5V - UI1 - G	UI2 - G	UI3 - G	UI4 - G	UI5 - G	UI6 - G	UI7 - G	TI1 - G	TI2 - G	TI3 - G
Output Point #	1	2	3	4						
Function	Case Lights	Case Fans	Case Defrost	LLSV Pilot Relay						
Terminal #	1 - 2 - 3	4 - 5 - 6	7 - 8 - 9	10 - 11						
Signal Name	NO - G - NC	NO - G - NC	NO - G - NC	+12V - G						
Stepper #	A	B	C	D						
Function	Coil #1 EEV	Coil #2 EEV	Coil #3 EEV	Circuit EEPR (optional)						
Terminal #	25 - 26 - 27 - 28 - 29	12 - 13 - 14 - 15	16 - 17 - 18 - 19	20 - 21 - 22 - 23 - 24						
Signal Name	GND - A - B - C - D	A - B - C - D	A - B - C - D	A - B - C - D - GND						

Mode #4: Subcooler Control										
Input Point #	1	2	3	4	5	6	7	8	9	10
Function	Suction Pressure	Liquid Line Pressure	Subcooler Enable	Available	Available	Available	Available	Suction Temp	Liquid Outlet Temp	Liquid Inlet Temp
Terminal #	30 - 31 - 32	33 - 34	35 - 36	37 - 38	39 - 40	41 - 41	43 - 44	45 - 46	47 - 48	49 - 50
Signal Name	+5V - UI1 - G	UI2 - G	UI3 - G	UI4 - G	UI5 - G	UI6 - G	UI7 - G	TI1 - G	TI2 - G	TI3 - G
Output Point #	1	2	3	4						
Function	LLSV	EOPR Bypass	Available	Available						
Terminal #	1 - 2 - 3	4 - 5 - 6	7 - 8 - 9	10 - 11						
Signal Name	NO - G - NC	NO - G - NC	NO - G - NC	+12V - G						
Stepper #	A	B	C	D						
Function	EEPR Valve	EEV Valve	EOPR Valve	Available						
Terminal #	25 - 26 - 27 - 28 - 29	12 - 13 - 14 - 15	16 - 17 - 18 - 19	20 - 21 - 22 - 23 - 24						
Signal Name	GND - A - B - C - D	A - B - C - D	A - B - C - D	A - B - C - D - GND						

Figure 8. RCC-1044-EEV Mode #3 and Mode #4 Function

## Input Wiring

### Input Sensors:

1. Universal Inputs (UI1-7): Some of the rcc.1044 control modes dictate that some of the universal inputs are pre-defined as a specific type. However, when a universal input is not pre-defined, it can be defined as any of the following types:
  - Digital or Pulse
  - Analog
  - 2K Thermistor
  - 10K Thermistor Type 2
  - Current (4-20mA)
  - Voltage (nominal 1-5 VDC)
  - Resistance (100 ohm to 100K ohm)
2. Thermistor Inputs (TI1-3): Some of the control modes dictate that some of the thermistor inputs are pre-defined. However, when not pre-defined, they can be defined as either a 2K or a 10K type 2 thermistor.

### Input Sensor Wiring Notes:

1. Terminal #30 (in the UI1 section) supplies +5VDC (regulated). It can be used as a power source for voltage inputs that require a 5 volt excitation voltage.
2. Terminal #10 supplies +12VDC (non-regulated). It can be used as a power source for voltage inputs that require a 12 volt excitation voltage if less than 30mA.
3. All other Universal Inputs are 2-wire. The terminal on the left is the (+) input and the terminal on the right is Ground (G).
4. 4-20 mA sensors: The sensor signal (+) wire goes to the UI left side terminal (+) and the sensor (-) is connected to the UI right hand terminal (G).
5. Digital and Pulse inputs – one wire on (+) and one wire on G.
6. Thermistor Sensors – one wire on (+) and one wire on G.

## Wiring Method

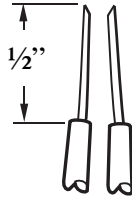

Each terminal block can accommodate the following gauges of wire:

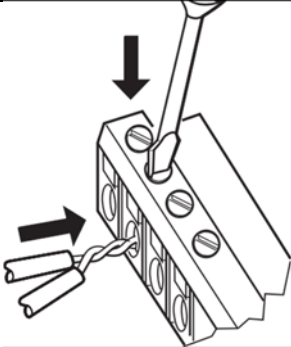
- Single wire: from 22 AWG to 14 AWG solid or stranded
- Multiple wires: up to two 18 AWG stranded

**NOTE!**

When attaching two or more wires to the same terminal, other than 14 AWG (2.0 sq mm), be sure to twist them together. Deviation from this rule can result in improper electrical contact.

**Table 5. Preparing wiring for terminal blocks**

Step	Procedure
1	Strip 1/2 in. (13 mm) from wires to be attached at one terminal. <div style="text-align: center;">  </div>
2	Cut a single wire to 3/16 in. (5 mm). Insert the wire in the required terminal location and tighten the screw.
3	If two or more wires are being inserted into one terminal location, twist the wires together a minimum of three turns before inserting them. <div style="text-align: center;">  </div>
4	Cut the twisted end of the wires to 3/16 in. (5 mm) before inserting them into the terminal and tightening the screw.

	
5	Pull on each wire in all terminals to check for good mechanical connection.

## BACnet Network Wiring

A two-conductor shielded cable should be used to make the BACnet MS/TP Network Communications connections from the Opus Executive Controller to the terminals on the left side of the controller.

The BACnet network should originate from the main Opus Executive Controller and connect to the rcc.1044 with the supplied 5- position terminal block. Multiple devices can be connected via daisy chain wiring or a pass-through connection between devices. Stubs or branches off the BACnet network are not allowed.

In order to guarantee the network performance of each BACnet segment, the BACnet network segments from the Opus Executive Controller should contain only rcc.1044 modules or other Novar approved BACnet MS/TP devices.

### NOTE!



Network termination and/or biasing resistors should NOT be applied to any Opus BACnet installation.

### NOTE!



The default baud rate for the **rcc.1044** is 38400 baud.

**NOTE!**

Do not exceed the maximum recommended length (1200 M / 4000 ft.) for any BACnet segment.

## Setting BACnet MAC Address

Every **rcc.1044** comes from the factory set to a BACnet address of 255. Each controller must be assigned an **unique** BACnet MAC address (ranging from 4 through 254) in order for the Opus xcm Executive Controller to be able to identify and communicate with it.

**NOTE!**

When assigning a MAC address – addresses 0, 1, 2, & 3 should be avoided as they are commonly used for the router, diagnostic tools etc, and addresses 255 is never used because it is reserved as a broadcast address.

Users have the option to set the **unique** BACnet MAC address using the rcc.RUI Remote display (reference the User Manual for instructions) or it can be entered into the controller using the eight (8) DIP switches on the front of the controller.

To set the BACnet address of an rcc.1044 using the DIP switches on the controller:

1. Find an unused address on the MS/TP network to which the controller connects.
2. Locate the DIP switch bank on the front of the Controller for addressing. This is labeled MAC Address
3. With the controller powered down, set the DIP switches for the BACnet address you want. Add the binary value of DIP switches set to OFF (down) position to determine the MAC address (see Table 6). Example: if only DIP switches 1, 3, 5, and 7 are in the OFF (down) position the BACnet address would be 85 ( $1 + 4 + 16 + 64 = 85$ ).

**Table 6. DIP Switch Values for MS/TP MAC Address**

DIP Switch #	1	2	3	4	5	6	7	8
VALUE (when in OFF position)	1	2	4	8	16	32	64	128



## Setting the BACnet Device ID

When communicating with an Opus XCM a BACnet device ID is required for every module. The device ID is composed of a fixed base number plus the module's MAC address. For rcc.1044 modules the device ID is formed as follows:

Part No.	Device ID
<b>RCC-1044-EEPR</b>	41000 + MAC Address
<b>RCC-1044-EEV</b>	42000 + MAC Address

**Model & Part  
Numbers**

<b>Part No.</b>	<b>Product Description</b>
<b>RCC-RUI-HUB</b>	Refrigeration Case Controller Display Wiring Hub
<b>RCC-1081</b>	Refrigeration Case Controller
<b>RCC-1044-EEPR</b>	Multi-Channel EEPR Valve Controller
<b>RCC-1044-EEV</b>	Multi-Channel EEV Valve Controller (All Modes)
<b>RCC-RUI</b>	Remote User Interface
<b>RCC-CBL-2</b>	Remote Display Cable, RJ45, 2.0M
<b>RCC-CBL-5</b>	Remote Display Cable, RJ45, 5.0M
<b>730090000</b>	24-VAC Transformer (40 VA)
<b>33201001</b>	BACnet wire

## Regulatory Compliance

This device has been tested and found to be in compliance with the requirements set forth in UL 873, Temperature-Indicating and Regulating Equipment, and is recognized by Underwriters Laboratories, Inc., for installations in the United States. The product meets AS/NZS CISPR 11– Mark for Australian and New Zealand Standard. Label shall show the C-Tick symbol and a valid C-Tick agent number.

The product meets EN 61326 EMC requirements for CE Certification. The product meets all immunity requirements for immunity product specific standard EN 61326-1-2006, or later version, per normative references for EFT, ESD, surge, conducted and radiated RF, voltage dips and interruptions.

This device has been tested and found to be in compliance with the requirements set forth in C22.2, No. 24-93, Temperature-Indicating and Regulating Equipment, and is recognized by Underwriters Laboratories, Inc., for installations in Canada.

## Federal Communications Commission (FCC)

This device complies with Part 15 of the FCC Rules. The product meets emissions requirements for product specific standards EN 55011/FCC/IC/C-Tick, Class A. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

### NOTE!



This device has been tested and found to comply with the limits established for Class A digital devices. It is intended to be used in a commercial environment. Operation of this equipment in residential environments may cause harmful interference, in which case the user may be required to correct the interference at his own expense.

### CAUTION!



Any changes or modifications not expressly approved by Novar could void your authority to operate this equipment.

## Canadian Dept. of Comm.(DOC)

### NOTE!



This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled Digital Apparatus, ICES-003, of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe A prescrites dans la norme sur le matériel brouiller: *Appareils Numériques*, NMB-003, édictée par l'Industrie Canada.

## Waste Electrical & Electronic Equipment

### NOTE!



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