Omni

Remote Expansion Module

Models:

OMU10: Universal Point Remote Expansion Module for Omni Controllers

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Overview

The Innotech Omni U10 Remote Expansion Module (REM) provides an additional 10 Programmable Points (UI/O) for the connected Omni controller.

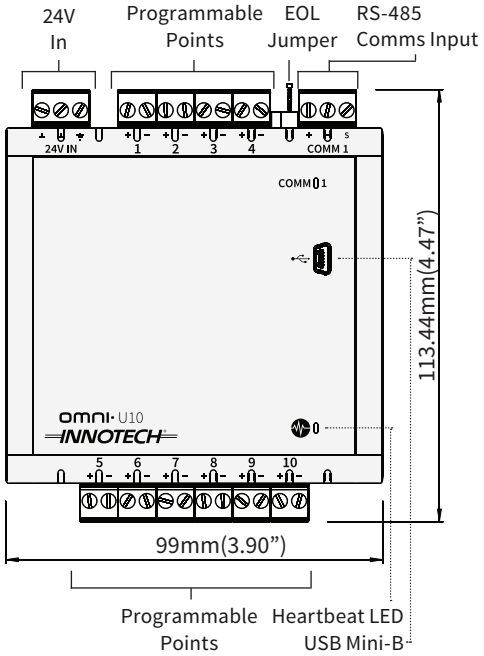
The Omni U10 REM is housed in a DIN rail mounted Omni-style enclosure.

The Omni U10 REM is fully programmable via the Innotech Focus graphical configuration utility.

The Omni U10 REM may be located locally or remotely to the connected Omni controller. A dedicated communications bus connects all Omni U10 REMs.

Features

- Provides 10 Universal Input/Outputs (UI/O) for Omni controllers
- The ability to use any point as an input or output, allowing greater flexibility
- UI/O update rates up to 500Hz (2ms)
- Reporting of UI/O self-diagnostics
- Individual UI/O LEDs for status indication and fault diagnostics
- Elevated terminals for pain-free installation and service
- Colour coded pluggable terminals for easy identification
- Communication LEDs for all interfaces
- Polarity independent AC or DC Power Supply
- RS485 connection between REMs and Omni controllers
- USB Mini-B for device configuration



Applications

The Omni U10 REM provides additional Programmable Points (Universal Inputs/Outputs) for Omni Controllers.

Omni's flexible UI/O enables any point to be used for any purpose.

Installation

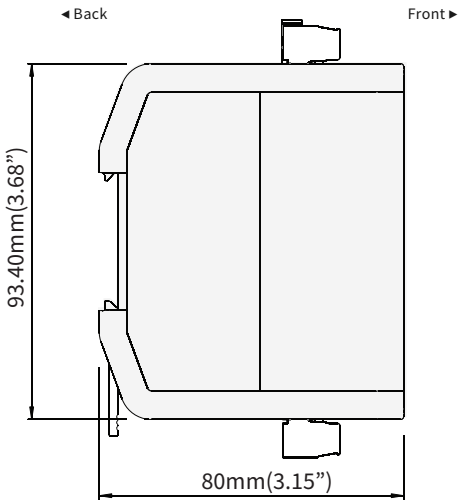
The Omni U10 REM should be installed in an environment that does not exceed the maximum operating parameters of the device. It should be mounted in a clean and dry environment free of vibration, and properly ventilated.

The Omni U10 REM should be mounted on DIN rail in cabinets approved for switchgear or industrial control equipment. Maximum terminal cable entry is 1.5mm^2.

Wiring should be done in accordance with Innotech connection diagrams and local bylaws or refer to your local distributor.

Connect the 24VAC/DC supply to the correct terminals on the REM. Wire the EARTH terminal of all REMs to a DIN rail earth terminal on the same rail, or the nearest earth stud.

All cable screens should connect to the same earth point unless otherwise stated in the Innotech Device Network Cabling Manual.



Specifications

POWER SUPPLY REQUIREMENTS	
Power Input	24VAC ±20% or 24VDC (18VDC – 35VDC)
Recommended Transformer Rating	15VA
Power Consumption	8Wmax. (load dependent)

ⓘ Polarity independent supply wiring.
Supply is full wave rectified to reduce transformer stress.
REM Earth must be connected at all times.

The operating voltage must meet the requirements of Safety Extra Low Voltage (SELV) to EN60730. The transformer used must be a class 2 safety transformer in compliance with EN60742 and be designed for 100% duty. It must also be sized and fused in compliance with local safety regulations.

OMNI U10 POWER SUPPLY LIMITS	
Shutdown Threshold	**Warning Threshold**
High UI/O Supply Current: >380mA	High UI/O Load: 12V Supply Current >300mA

ⓘ If Warning conditions are not rectified within a factory determined time, shutdown will occur.

OMNI U10 SELF-DIAGNOSTIC LIMITS	
Shutdown Threshold	**Warning Threshold**
PSU Over-Temp: >80°C	PSU Temp: >75°C
UI/O Over-Temp: >70°C	UI/O Temp: >65°C
Low UI/O Supply: <11V	
Low 5V Supply: <4V	
High 12V Supply: >13V	

ⓘ If Warning conditions are not rectified within a factory determined time, shutdown will occur.

ENVIRONMENTAL	
Operating Temperature	-10° to 50°C (14° to 122°F)
Storage Temperature	-20° to 60°C (-4° to 140°F)

INSTALLATION ORIENTATION

Horizontally mounted DIN rail on a vertical surface.
Allow minimum 20mm gap between end of terminal plug and cable ducts.

ENCLOSURE

Housed in a rectangular case suitable for DIN rail mounting. Housing moulded from flame retardant plastics recognised by UL as UL94-V0.

Colour	Blue/Black
Dimensions	W 99mm x H 90mm x D 80mm (3.90" x 3.54" x 3.15")
Maximum Dimensions with Connectors	W 99mm x H 113.44mm x D 80mm (3.90" x 4.47" x 3.15")

APPROVALS AND LISTINGS

EN61326:2013 Class A for CE & RCM Labelling

Title 47 CFR, Part 15 Class A for FCC Marking

UL Listed to UL916, File Number 242628

PROCESSING	
CPU	ARM Cortex M3

COMMUNICATION ⓘ[1]	
RS-485 (max. length 200m/650ft)	115kbps (with EOL) - Factory Set
REM Communication to Controller	Via Dedicated Expansion Network

CONFIGURING / MONITORING COMMUNICATIONS	
USB (Mini-B Type)	12Mbps → Allows direct connection for configuration of the device address

REMOTE EXPANSION MODULE SUPPORT			
Omni U10 REM Support ⓘ[2] (Total Modules)	OMC40	OMC20	OMC10
	5	5	5

OPTICAL INDICATORS	
Comms LEDs	Red - Tx Green - Rx
UI/O - Digital Output	Orange
UI/O - Fault	Orange Flash
Heartbeat LED ⓘ[3]	
Status OK	Green Flash
Fault	Red Flash
Request	Orange Flash
Power Fail	Slow Orange Flash
Upgrading	Green/Red Flash

ⓘ[1] **Factory Default Settings:**
Device Address - 1
Baud Rate - 115200 (Factory Set)
The device address is adjustable via Innotech Focus software.

ⓘ[2] • The Omni OMC10 Compact Controller supports up to five U10 REMs with the purchase of a feature licence.

ⓘ[3] When the REM's Mini-USB port is powered, the Heartbeat LED provides a notification of the REM's Device Address. If the device has a REM Address of 1, it will flash once and then pause before flashing once again. If the address is two, the LED will flash twice and then pause before flashing twice again and so on for addresses 3, 4 and 5.

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note – *This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.*
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Modifications to this device, may void the authority granted to the user by the FCC to operate this equipment.

PROGRAMMABLE POINT (UI/O) SPECIFICATIONS

Current Loop Input

Range	0mA to 20mA
Resolution	12bit @ 4096 steps
Accuracy	±1.5% of reading @ 20°C (68°F)
Drift	±150ppm/°C

Current/Voltage Input

Current/Voltage Input (CVT)

- 330mVAC RMS type with internal burden resistor ONLY

CONNECTION OF STANDARD CURRENT TRANSFORMERS INSTEAD OF CVTs TO ANY UIO TERMINAL WILL CAUSE IRREPAIRABLE DAMAGE TO THE OMNI U10 REM AND PRESENT RISK OF ELECTROCUTION.

Digital Input And Pulse Counter

Max Pulse Count Frequency @ 2V Amplitude	100kHz
Max Digital Input Response Rate	½ block cycle rate
Max Digital Input Voltage	12VDC

Contact pulse counting mode is suitable for electronic switches only, unless adequately de-bounced.

Sensor Input

Supports	Thermistor NTC, Thermistor PTC
Ranges	Selectable
Resolution	12bit @ 4096 steps
Accuracy	±1.5% of reading @ 20°C (68°F)
Drift	±150ppm/°C

Voltage Input

Ranges - 0 to 10VDC	Selectable
Resolution	12bit @ 4096 steps
Limits	-0.5V to 12.5VDC
Accuracy	±1.5% of reading @ 20°C (68°F)
Drift	±150ppm/°C

Current Loop Output

Range	0mA to 20mA
Resolution	12bit @ 4096 steps
Maximum Output Voltage	9VDC @ 20mA
Accuracy	±1.5% of reading @ 20°C (68°F)
Drift	±150ppm/°C

Digital Duty Cycle Output

Frequency Range	60mHz to 976Hz
Duty Cycle Resolution	14bit (16383 steps)
Duty Cycle Range	0 to 100%
Switch Modes	As per Digital Output specifications

Digital Pulse Output

Pulse Width Range	10µs to 268s
Pulse Resolution	16bit (65535 steps)
Switch Modes	As per Digital Output specifications

Digital Output

Switch Modes

Toggle Switching (Auto)	On = 12VDC	Off = 0V
High Side Switching	On = 12VDC	Off = Open
Low Side Switching	On = 0V	Off = Open
Switch Current	Refer to note	

Protection

Inrush and short circuit protected	Response time: 64µs

For High Side and Toggle Switching modes, maximum available power is limited (45mA).

For Low Side Switching, each channel can switch 200mA.

Caution must be used when using Low Side Switching. For more information, contact your Innotech representative.

Voltage Output

Range	0V to 10VDC
Resolution	12bit @ 4096 steps
Impedance	~80Ω
Maximum Current	10mA
Accuracy	±1.5% of reading @ 20°C (68°F) & R_{load} >10kΩ
Drift	±150ppm/°C

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- are provided together in this product's built-in web interface (Device Info / Legal Information Page)
- can be downloaded at www.innotech.com.au

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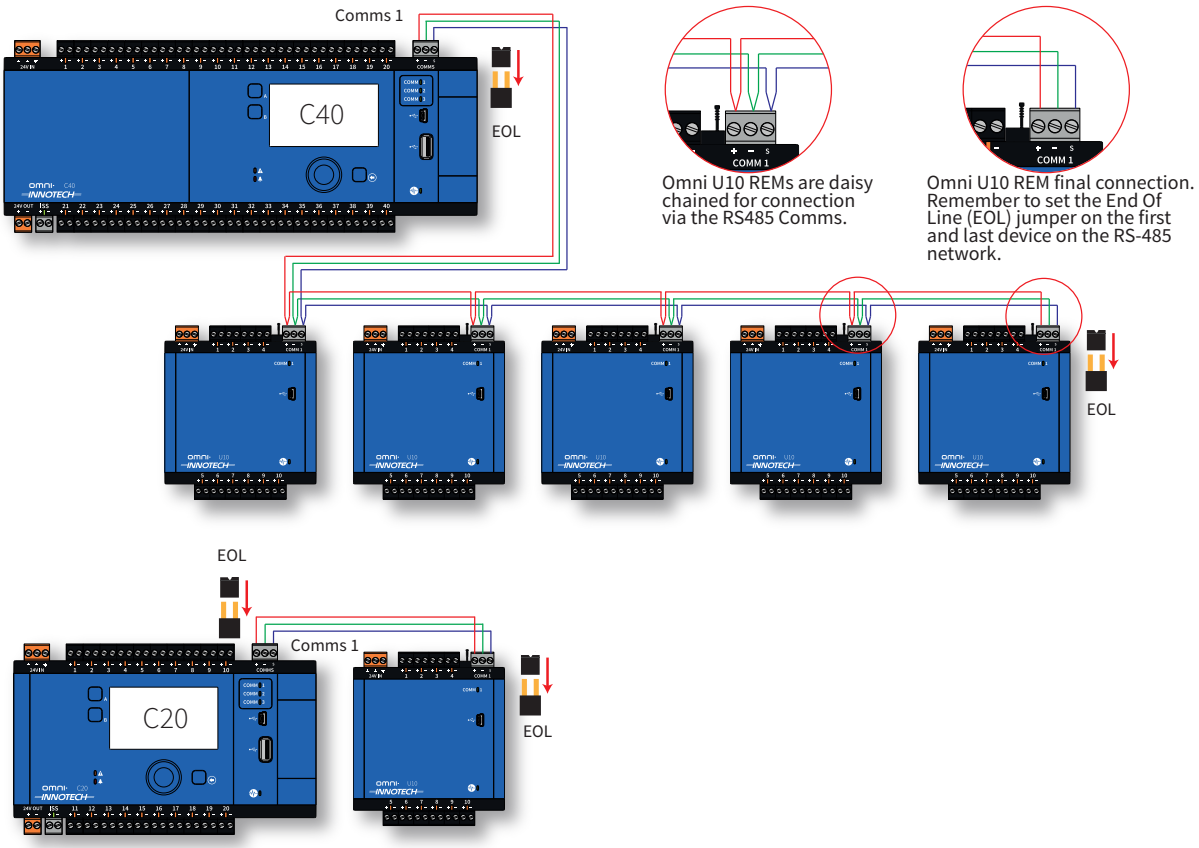
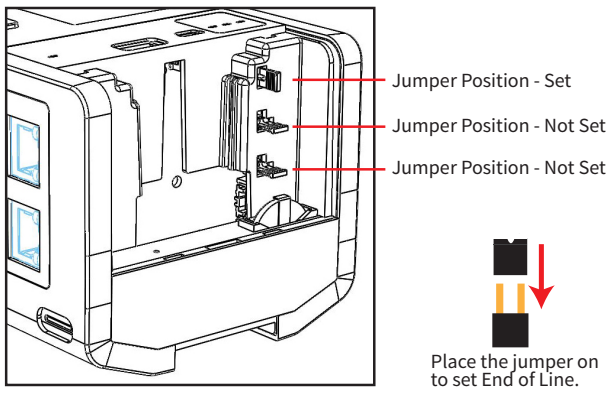
Omni U10 REM Connection Diagram



EOL Jumper Setting

Expansion Bay EOL Jumpers



EOL Note:
In this example, the Omni C20 & Omni C40 and the last REM require EOL jumpers to be set.

Refer to the Omni Installation Instructions for networking and connection details.