

Omni

Compact Controller



Models:

OMC8: 4 x UIO, 4 x TRIAC

OMC10: 6 x UIO, 4 x TRIAC

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Overview

The Innotech Omni generation of Native BACnet Compact Controllers are designed for controlling various types of industrial and commercial systems.

High speed data processing technology, combined with a fully user configurable input/output interface, which allows for out-of-the-box flexibility.

The Omni Compact Controller features Programmable Points (UI/O) and four TRIAC Outputs to receive information and control external equipment.

The OMCx controller's UI/Os can be independently configured via software to have input or output functionality.

Each controller supports BACnet and Innotech Primary network comms protocols.

They are fully programmable via the Innotech Focus graphical programming interface.

Features

- 4 or 6 Point (UI/O) models with the ability to use any point as an input or output, allowing greater flexibility
- OMC10 supports Omni UIO REM expansion via feature licence
- 4 x 24VAC TRIAC terminals
- 1 x RS-485 terminal (OMC8)
- 2 x RS-485 terminals (OMC10)
- 1 x RJ45 Ethernet
- Dedicated Innotech Smart Sensor (ISS) communications
- Colour coded pluggable terminals for easy identification
- Communication LEDs for all interfaces
- Individual UI/O LEDs for status indication and fault diagnostics
- Easily programmed with Innotech Focus software
- Battery backed Real Time Clock
- On-board storage with large capacity for log data and documentation
- UI/O update rates up to 500Hz (2ms)



Applications

The OMCx Compact Controller is designed for mounting inside an environment free from moisture and dust. It offers programmable points, enabling it to monitor and control all types of external plant and equipment.

Omni BEMS Controllers are ideal for HVAC, Building and Energy Management, automation as well as process control. The small size of the Controller also gives it the advantage of being able to be installed in small places.

The creation of control strategies is made simple with the Focus engineering software. With its powerful graphical programming interface, Focus allows the user to create a project-wide control strategy.

Typical applications include:

- Air conditioning and heating systems
- Lighting control
- Monitoring device
- Distributed I/O points controller
- Cold/Freezer Rooms

Installation

The controller 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 controller should be mounted on DIN rail in cabinets approved for switchgear or industrial control equipment.

Wiring should be implemented in accordance with Innotech connection diagrams, Installation Instructions and local bylaws or refer to your local distributor.

Connect the 24VAC supply to the correct terminals on the controller. Maximum terminal cable entry is 1.5mm². Wire the EARTH terminal of all controllers 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.

Model Specification

Controller Name	Omni C8	Omni C10
Processor Speed	800MHz	800MHz
Programmable Points (UI/O)	4	6
UI/O Point Processing Limit	2ms	2ms
TRIAC Outputs	4	4
Non Volatile Memory (NVRAM)	8kB	32kB
Real-time Clock	Battery Backed	Battery Backed
RS-485 Ports	1	2
Ethernet - 100Base-T	1	1
On-board Controller Storage	Yes	Yes
USB-Mini B (PC Link)	Yes	Yes
Innotech Smart Sensor Support	1	1
Protocol Routing	Feature Licence	Yes
BBMD / Foreign Device	Feature Licence	Yes
Max. Power per UI/O	0.5W	0.5W
Max. Current per TRIAC	500mA	500mA
Max. IO System Power	5W	5W

i The on-board controller storage contains PDF documents. For the latest documents, visit www.innotech.com.

General Specifications

PROCESSOR	
CPU	ARM Cortex A8
POWER SUPPLY REQUIREMENTS	
Power Input	24VAC ±20%
Recommended Transformer Ratings	20VA min. (plus I/O load)
Power Consumption	7W (plus I/O load)
i The controller's earth terminal 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.	
ENVIRONMENTAL	
Operating Temperature	-10° to 50°C non-condensing 14° to 122°F non-condensing
Storage Temperature	-20° to 60°C non-condensing -4° to 140°F non-condensing
INSTALLATION ORIENTATION	
Horizontally mounted DIN rail on a vertical surface. Allow a minimum 20mm (40mm recommended) gap between the end of the 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	
Omni C8 & Omni C10	W 124.6mm x H 113.4mm x D 52.8mm (4.90" x 4.46" x 2.07")

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 Numbers PAZX.E242628, PAZX7.E242628
IP Rating (IP3x)
RoHS2
Listed by BTL

BATTERY

- Type: CR-2032 Lithium
- Nominal voltage: 3 Volts
- Shelf life: 5 Years, dependent on ambient temperature

! Caution: Risk of explosion if battery is replaced by an incorrect type.
The real-time clock battery is not user replaceable and must be replaced by qualified Innotech service technicians.

COMMUNICATIONS

Ethernet	100Base-T
RS-485 Comms	Up to 115kbps (with EOL)
ISS Comms	Innotech Smart Sensor Comms

DEFAULT SETTINGS FOR COMMS CHANNELS

Comm1	RS-485	BACnet MS/TP
Comm2	RS-485	No Default Set
Ethernet	IP Address	192.168.2.100

DEFAULT ADDRESSES

Innotech	1
BACnet	2100

CONFIGURING / MONITORING / COMMUNICATIONS

USB Device (Mini-B Type) or OTG with adaptor cable	High Speed 480Mbps → Computer Connection Virtual IP Address: 169.254.2.100
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Data Logging

On-board Controller Storage

TRIAC OUTPUTS

4 TRIAC outputs switch 24VAC Power Supply through to the outputs

Current Rating

TRIACS are internally fused in pairs T1 & T2 T3 & T4
500mA is the maximum continuous triac channel current @ 25° C ambient.
410mA is the maximum continuous triac channel current @ 40° C ambient.
350mA is the maximum continuous triac channel current @ 50° C ambient.
700mA is the total maximum current per **triac pair** @ 50° C ambient.

Modes **i** Modulated PWM or Digital ON/OFF

Pilot relays recommended when switching high voltage/inductive loads.

i Always Zero-Crossing Pulse Packet or Digital On/Off Switching

PROTOCOLS	OMC8	OMC10
• BACnet MS/TP & BACnet/IP	Yes	Yes
• Innotech Global	Yes	Yes
• Innotech TCP	Yes	Yes
• Innotech Smart Sensor (ISS)	Yes	Yes
• Omni REM	No	Yes
• Modbus TCP	No	Yes
• Modbus RTU	No	Yes

i Modbus protocols activated with feature licence purchase and only available as Master device.

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LED INDICATORS	
Comms LEDs for RS-485	Red - Tx Green - Rx
ISS Traffic LED	Green
TRIAC LED	Orange
UI/O - Digital Output	Orange
UI/O - Fault	Orange Flash
Heartbeat LED	
Status OK	Green Flash
Fault	Red Flash
Request	Orange Flash
Power Fail	Slow Orange Flash

i Request LED shown when upgrading, config transfer, initialising etc.

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)	
• 333mVAC 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 COMPACT CONTROLLER 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

i 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	

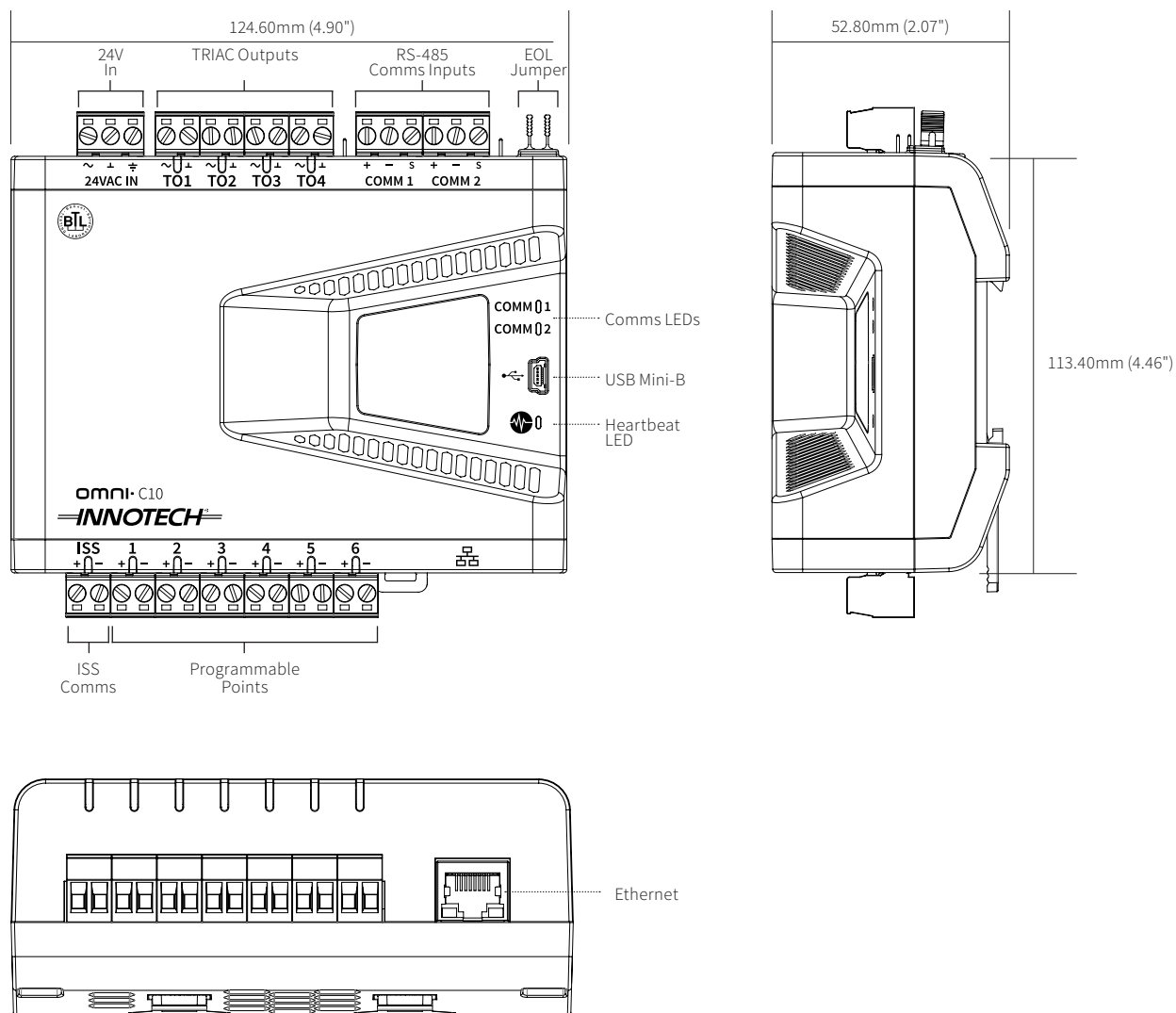
i For High Side and Toggle Switching modes, maximum available power is limited (45mA).

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

Omni C8 & Omni C10 Compact Controller Dimensions & Parts Identification



i Omni C10 model shown

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.

INNOTECH®

Australian Owned, Designed & Manufactured
by Mass Electronics Brisbane

+61 7 3421 9100
@ sales@innotech.com

+61 7 3421 9101
🌐 www.innotech.com

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