Models:
MAX3ELD - with Logging, Network and Display
MAX3ELN - with Logging & Network
MAX3NLD - with Logging & Display
MAX3NLN - with Logging

MAXIM III Controller

Overview

The Innotech MAXIM III Controller is a state of the art digital processing system that has the capability of controlling various types of commercial systems. The MAXIM III Controller can operate as a standalone device, using its own universal inputs and analogue and digital outputs to receive information and control external equipment, or as part of a network of Innotech devices that support Global Net Comms.

The MAXIM III Controller's configuration program is developed on a computer using Windows® based software. This allows the user to configure the internal processes of the MAXIM III Controller by using a graphical programming tool. The user places various process blocks and interconnecting lines to design the required control algorithm for the system.

The configuration program can be downloaded to the MAXIM III Controller with an RS485 serial link, using the connector on the right side of the case to link to the computer via a 485/232 converter, or with an optional Ethernet link, using the RJ45 connector on the bottom right side of the case. These links may also be used to upload logged data or the program back out of the controller for modification or debugging purposes.

Features

- 500 millisecond cycle/scan time
- 20 configurable universal inputs
- 12 digital relay outputs
- 8 analogue outputs
- Optional Human Machine Interface (HMI) on a 4 line, 20 character backlit LCD
- Optional Ethernet connection for Net Comms
- Status of I/O points displayed on the LCD
- 80 user defined watches (up to eight pages of up to 10 watches)
- Data logging capacity of 2MB, up to 300,000 readings
- 1 x RS485 serial communications port for Net Comms
- 1 x RS485 serial communications port for Global Comms
- User Selectable Baud Rates:
  a. Net 9600 Globals 4800
  b. Net 57600 Globals 38400
- 57600 Baud Rate
- All wire connections by 2.5mm screw terminals
- Program resides in non-volatile flash RAM
- Real Time Clock, battery backed for approximately 5 years

Backlit LCD is only available on units manufactured after 2 July 2010

Applications

Innotech MAXIM III Controllers are designed for mounting inside a control cubicle and offer a variety of inputs and outputs enabling it to monitor and control all types of external plants and equipment. Although the MAXIM III Controller is flexible, it is primarily designed for the air conditioning and building automation industry.

Within the MAXIM Series Digital Controllers family, the MAXIM III Controller provides the highest number of I/O points and the highest memory resources.

The creation of control strategies is made simple by the use of the MAXIM Configuration Utility called MAXCon. With it's powerful Graphical User Interface, MAXCon allows the user to create an entire control strategy in block-diagram form.

Typical applications include:

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

Approvals

The Innotech MAXIM III Controller conforms to:

- EN 61326:2013 for CE Marking and RCM Labelling
- Title 47 CFR, Part 15 Class A for FCC Marking
- UL listed to UL916, File Number E242628

Specifications

Power Supply

- 24VAC ± 10% @ 50/60 Hz
- 24VDC ± 10%

Transformer nominal rating of 10VA.

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** that has the energy and voltage limiting characteristics as described in the National Electrical Code, ANSI/NFPA70. It must also be sized and fused in compliance with local safety regulations.

Temperature Ratings

- Storage: 0 to 50°C non-condensing
- Operating: 0 to 40°C non-condensing

Inputs

20 Universal Inputs, configurable via software to either:

- Dry Digital Inputs
- Voltage Digital Inputs
- 10K Thermistor Inputs
- 0-10VDC
- LUX sensor input (Light sensor ORP12 LDR)
- Dry Duty Cycle Inputs
- Voltage Duty Cycle Inputs
- Dry Pulse Counter Inputs
- Voltage Pulse Counter Inputs

- Input combinations may be limited by the device and need to be set in pairs
- Input accuracy is ±0.1 volts
- Error is less than 0.2% with 15Hz square wave input
- LUX Sensor Input mode is useful for switching based on ambient light levels, but is not suitable for any operation which requires the accurate measurement or recording of light levels

Specifications

Input / Output Range

Input Type	Input Range	Output Range
Analog	0 to 10VDC	0 to 10VDC
Dry Digital	Open or Closed	Off or On
Voltage Digital	0 to 10VDC	Off or On
High Thermistor	100k to 680Ω	-20°C to 100°C
LUX Sensor	1MΩ to 0Ω	3 to 2500 Lux
Low Thermistor	662k to 12kΩ	-50°C to 20°C
Dry Duty Cycle	Open or Closed 1 to 13hz	0 to 100% ±10% accuracy
Voltage Duty Cycle	0 to 10V Square Wave 1 to 13hz	0 to 100% ±10% accuracy
Dry Pulse Counter	Open or Closed 20ms Min. On Time 20ms Min. Off Time	0 to 25 pulse/sec ±1 pulse accuracy
Voltage Pulse Counter	0 to 10V Square Wave 20ms Min. On Time 20ms Min. Off Time	0 to 25 pulse/sec ±1 pulse accuracy

Outputs

12 Digital Outputs:

- 12 x normally open relays (2 amp @24VAC supplied by a Class 2 Transformer)
- Recommended use of pilot relays when switching high voltage/inductive loads

8 Analogue Outputs:

- Can be configured individually as either linear 0-10VDC or PWM outputs
- Output Load >2k Ohms

Up to 3 solid state relays can be connected in series, to the analogue outputs when configured as PWM.

Battery

Contains a Lithium Type Battery, Dispose of Properly.
(In accordance with local regulations)

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

Caution: Risk of explosion if battery is replaced by an incorrect type.

Enclosure/Mounting

The MAXIM III is housed in rectangular case suitable for DIN Rail mounting. The housing is moulded from flame retardant plastics recognized by UL as UL 94-V0.

Colour: Grey
Dimensions (max): 224 mm(w) x 115 mm(h) x 74 mm(d)

Communications

- RS485: 5-way plug in connector for local/remote computer access for the purpose of uploading, downloading and monitoring configuration programs, and the extraction of logged data via a 485/232 converter.
- Ethernet: An optional RJ45 Ethernet port for PC and internet access to the MAXIM III Controller and other devices connected to it in an Innotech Net Comms network. This has the same functionality as an external RS485 to Ethernet Converter.

Maxim III

Model Number Designations

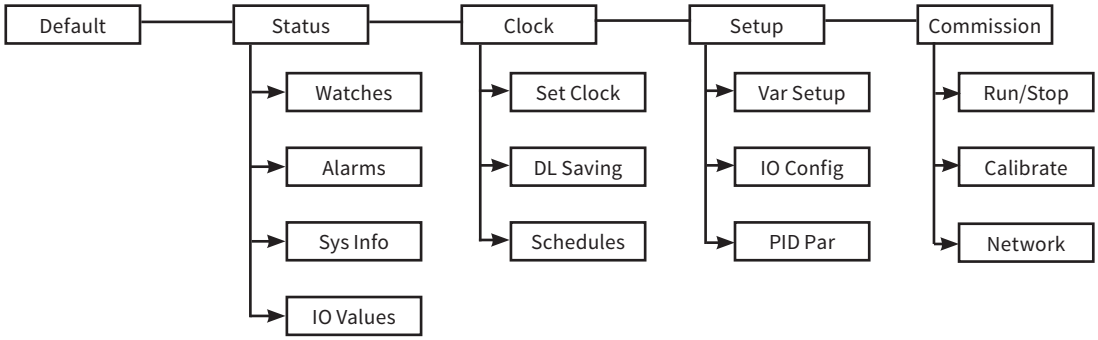
Model	RJ45	Logging	Display
MAX3ELD	✓	✓	✓
MAX3ELN	✓	✓	×
MAX3NLD	×	✓	✓
MAX3NLN	×	✓	×

Data Logging

The MAXIM III Controller comes with a powerful Data Logging facility. Data Logging can be assigned to hardware and software points. Up to 300,000 time stamped readings can be stored on the MAXIM III Controller. All data is stored in a 2MB non-volatile flash RAM. When the memory becomes full, new readings replace the oldest readings. All logged data points can be extracted through the use of the MAXTract Software tool.

User Interface

For ease of use the MAXIM III Controller is provided with a 4 line, 20 character backlit Liquid Crystal Display and keypad. The keypad consists of six navigational push buttons to provide input into the system. These buttons are “Up”, “Down”, “Left”, “Right”, “Enter”, and “Escape”. By using these buttons, the user can gain access to the menu structure as shown below.



The display has up to 8 programmable watch pages, each with it's own user defined description. Each page displays 10 points of information and allows access to the status of all I/O values and system information. The user can set clock/schedules variables and calibrate inputs. All information is displayed in English with standard engineering units.

Initial Ethernet Port Setup

The Ethernet port requires some initial setup according to the network configuration on site. EtherMate is capable of configuring the Ethernet via several options using the Ethernet RS485 interface.

An Innotech RS485 Converter will be required to configure the device if using the RS485 interface and connecting direct to a computer.

1. The Ethernet Port will require an IP address. The factory settings will enable the device to acquire an IP address from a DHCP server. If there is no DHCP server on the network the device will need a static IP address assigned. EtherMate can configure the IP address using the Ethernet interface or the RS485 interface. See EtherMate online help for more information on IP address assignment.
2. The Serial Port will need to be configured to match the RS485 network settings. The default is 57600bps, No Parity, 8 data bits and 1 stop bit.
3. The Port number used for the Ethernet connection will need to be configured to match the setting used in iComm. The default is 20000.

See EtherMate online help for more information.

FCC Class A Notice

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

- This device may not cause harmful interference.
- 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.

Associated Software

MAXCon - Innotech MAXIM Controller Configuration Utility. It allows the user to internally configure a MAXIM III by a simple point-and-click approach on a PC running Windows.

MAXMon - The Innotech MAXIM Monitor is a monitoring and debugging utility designed to help with commissioning and troubleshooting a MAXIM III Controller. It displays the configuration from the MAXIM III Controller and allows the user to inspect, trend or modify the value at any of the points in the configuration while the controller is running.

MAXIM III Simulator - The Innotech MAXIM III Simulator utility is Windows based software which simulates a MAXIM III Controller. The virtual MAXIM III Controller can be powered on, configured and interrogated in the same way as a physical MAXIM III Controller. Configurations can be downloaded and checked without requiring any hardware installation.

iComm - A communications server used by application software to communicate with Innotech digital controllers. It supports multiple concurrent applications communicating to multiple device networks and serves as the communications hub of any HMI integrated device network.

MAXTract - The data log extraction utility for a range of Innotech digital controllers. It allows extraction of all or part of the history log data residing on the MAXIM III Controller into a specified data format.

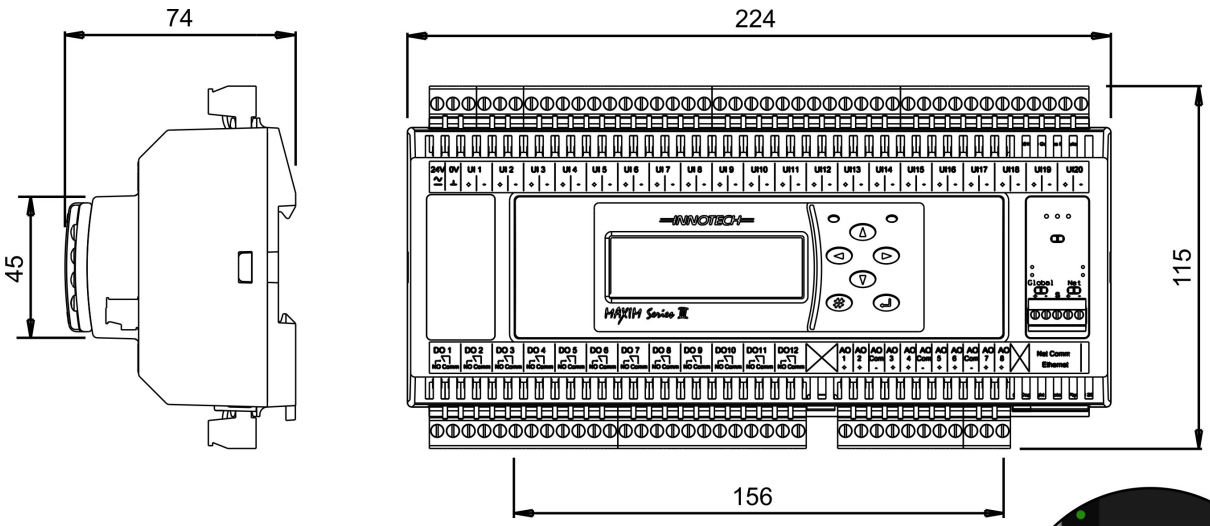
InnoGraph - Innotech's data log graphing and analysis tool. While it has been designed to specifically cater for the data log graphing capabilities of the Innotech range, it has the flexibility to display data log graphing information from other sources. InnoGraph allows multiple graphs to be displayed in multiple windows simultaneously. Complete with a host of configurable display options, statistical analysis of data points, analogue and digital value support, active cursors, colour printing capability and comprehensive zooming and panning features, InnoGraph is your complete graphing package.

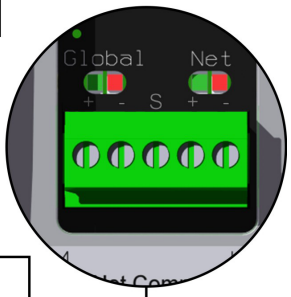
Supervisor - A specialised dynamic monitoring utility for the GENESIS II and MAXIM Series Digital Controllers. It provides all the functionality that is available from the GENESIS II and MAXIM Series Digital Controller display panels with greater ease of use and flexibility. It is aimed at those users who require some feedback or control of the GENESIS II and MAXIM systems, but have no desire to be immersed in the technical details of a GENESIS II and MAXIM configurations.

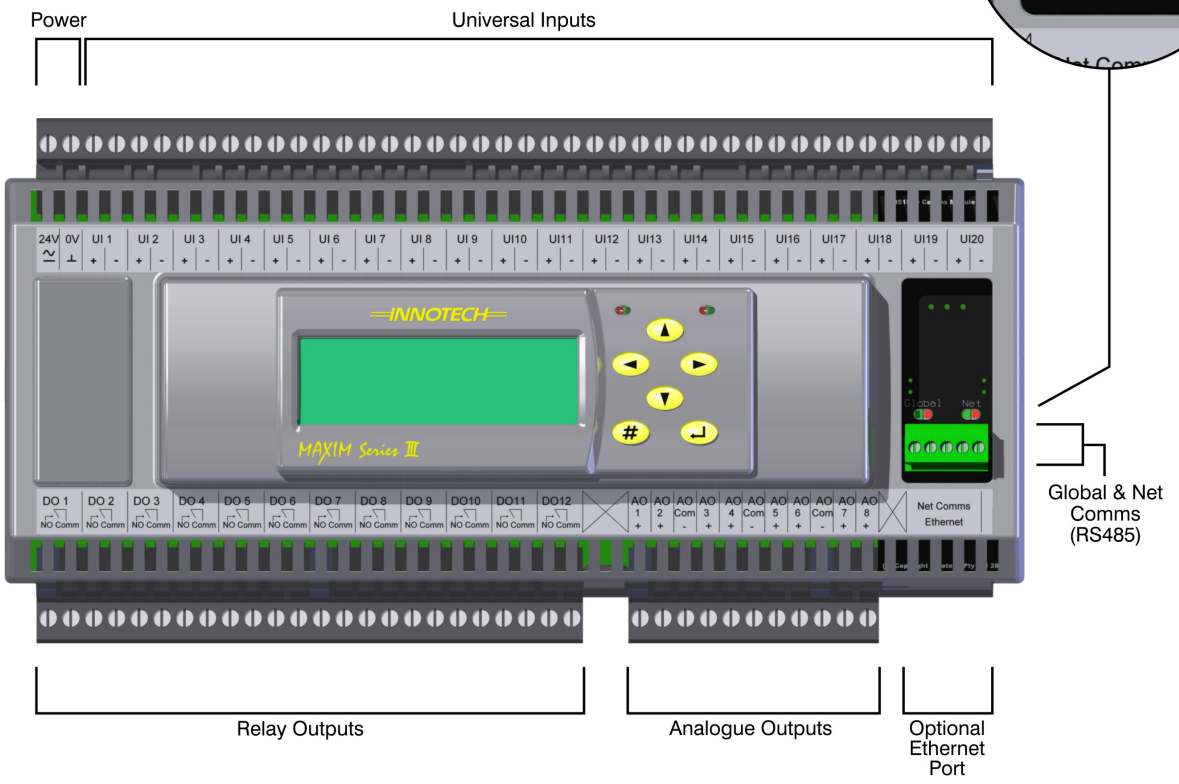
EtherMate - A specialised configuration tool for Ethernet enabled Innotech devices. It provides the functionality to set the RS485 baud rate, serial format and TCP/IP settings. Although the device is setup using the Ethernet interface it is possible to configure using the serial port from Terminal function.

Magellan - An event-driven, object oriented real-time Supervisory Control and Data Acquisition package. It provides a simple, intuitive mechanism to effortlessly design either trivial or sophisticated supervisory or control programs using a drag-and-drop approach.

MAXIM III Controller Connection & Dimensions







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INNOTECH®

Australian Owned, Designed & Manufactured
by Mass Electronics Brisbane

Phone: +61 7 3421 9100 **Fax:** +61 7 3421 9101
Email: sales@innotech.com.au www.innotech.com.au

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