Models:
MAX10ELD - with Logging, Network and Display
MAX10ELN - with Logging & Network
MAX10NLD - with Logging & Display
MAX10NLN - with Logging

MAXIM 1010 Controller

Overview

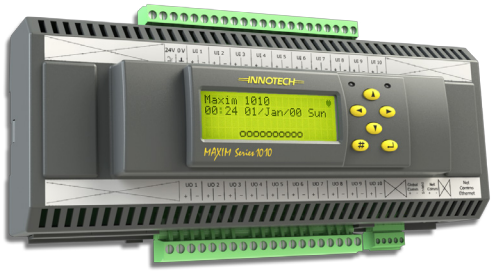
The Innotech MAXIM 1010 Controller is a state of the art digital processing system that has the capability of controlling various types of industrial and commercial systems. The MAXIM 1010 Controller can operate as a standalone device, using its own universal inputs, and analogue and digital outputs to receive information and control external equipment, or as part of a network of Innotech devices that support Net and Global Comms.

The MAXIM 1010 Controller can be configured using the Windows® based MAXCon software. This graphical configuration utility allows the user to configure the I/Os of the MAXIM 1010 Controller by placing various process blocks and interconnecting lines to design the required control algorithm for the controller.

This software can be downloaded to the MAXIM 1010 Controller with an RS485 serial link using a RS485/RS232 converter, or with an optional Ethernet link using the RJ45 connector. This method is also used to retrieve the logged data, and/or the configuration file from the controller for modification or debugging purposes.

Features

- 500 millisecond cycle/scan time
- 10 configurable universal inputs
- 10 universal 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
- All wire connections by 2.5mm screw terminals
- Program resides in non-volatile flash RAM
- Real Time Clock, battery backed for approximately 5 years



Applications

Innotech MAXIM 1010 Controllers are designed for mounting inside a control panel and offer a variety of inputs and outputs to monitor and control all types of external plants and equipment.
The MAXIM 1010 controller is ideal for air conditioning and building automation, but yet flexible and powerful enough to suit a wide range of other applications.

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 1010 Controller conforms to:

- EN61326:2013 for CE Marking and RCM Labelling
- Title 47 CFR, Part 15 Class A for FCC Marking
- UL & C-UL listed to UL916, File Number E242628

Specifications

Power Supply

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

Transformer nominal rating of 16VA.

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

10 Universal Inputs, configurable via software as:

- 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 (voltage inputs only)
- 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

Specifications

Output Type/Range

Output Type	Range
Analog Output	0 to 10VDC @5mA
Heat Valve / PWM Output	0 to 12VDC @45mA
High Current Digital Output	0 to 12VDC @ approx. 45mA

Outputs

10 Universal Outputs:

- 0-10V Analog DC
- 13Hz PWM (0V/12V)
- 0V/12VDC high current Digital

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 1010 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 uploading, downloading and monitoring configuration programs, and extracting logged data using a RS485/RS232 converter
- Ethernet: An optional RJ45 Ethernet port for computer and internet access to the MAXIM 1010 Controller and other devices on an Innotech Net Comms network. This has the same functionality as an external RS485 to Ethernet converter

Maxim 1010

Model Number Designations

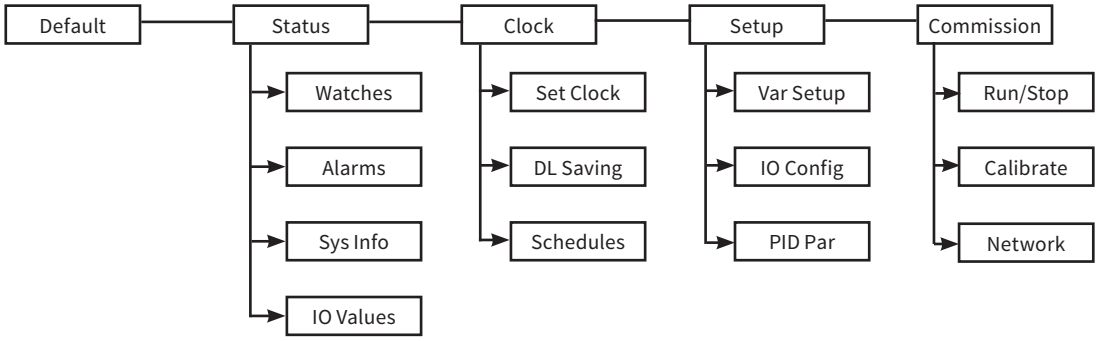
Model	RJ45	Logging	Display
MAX10ELD	✓	✓	✓
MAX10ELN	✓	✓	✗
MAX10NLD	✗	✓	✓
MAX10NLN	✗	✓	✗

Data Logging

The MAXIM 1010 Controller is equipped with a powerful data Logging facility. Data logging can be assigned to hardware and software points, with the ability to store up to 300,000 time stamped readings in 2MB non-volatile flash RAM. When the memory becomes full, new readings replace the oldest readings. All logged data points can be extracted using the MAXTract software.

User Interface

For ease of use the MAXIM 1010 Controller is equipped with an optional 4-line, 20 character backlit LCD. The integrated keypad provides easy navigation through the menu structure of the MAXIM 1010 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/schedule variables and calibrate inputs. All information is displayed in English with standard engineering units.

Initial Ethernet Port Setup

The Ethernet port on MAXIM 1010 controllers is configured at the factory to automatically acquire an IP address from a DHCP server. Therefore a static IP address must be configured during the commissioning process. This can be accomplished by using EtherMate and 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 enable the device to acquire an IP address automatically from a DHCP server. If there is no DHCP server on the network, the controller must be assigned a static IP address using EtherMate. Please read the EtherMate online help instructions 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 57,600bps, 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 iComm settings. 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 is the configuration utility for the MAXIM family of controllers. It allows the user to internally configure a MAXIM 1010 controller by using a simple point-and-click approach on a Windows® based computer.

MAXMon is a monitoring and debugging utility designed to help with commissioning and troubleshooting a MAXIM 1010 controller. It displays the configuration from the MAXIM 1010 Controller and allows the user to inspect, trend, or modify any points in the configuration while the controller is running.

MAXIM 1010 Simulator is Windows based software that simulates a MAXIM 1010 Controller. This virtual MAXIM 1010 controller can be utilized the same way as a physical MAXIM 1010 controller. Configurations can be downloaded and verified without the need for any hardware installation.

iComm is the 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 is the data log extraction utility for a range of Innotech digital controllers. It allows extraction of all or part of the historical log data residing on the MAXIM 1010 controller into a specified data format.

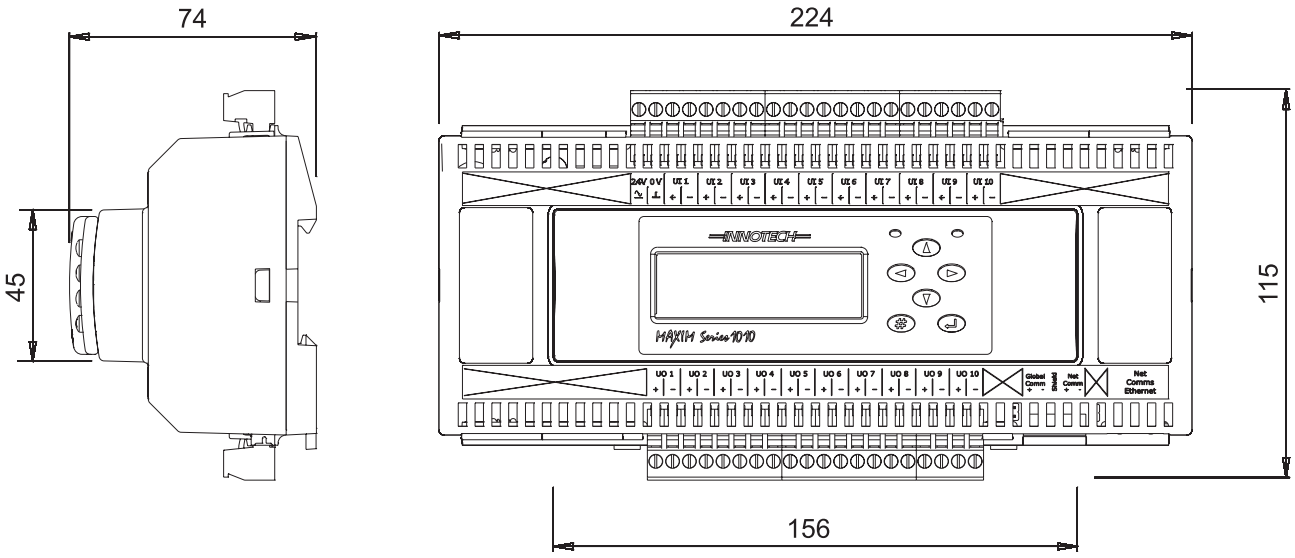
InnoGraph is Innotech's data log graphing and analysis tool, and has been designed to work seemlessly with the Innotech family of controllers. InnoGraph allows multiple graphs to be displayed in multiple windows simultaneously. Complete with a host of configurable display options, statistical analysis of data points, analogue and digital value support, active cursors, colour printing capability and comprehensive zooming and panning features, InnoGraph is the complete graphing package.

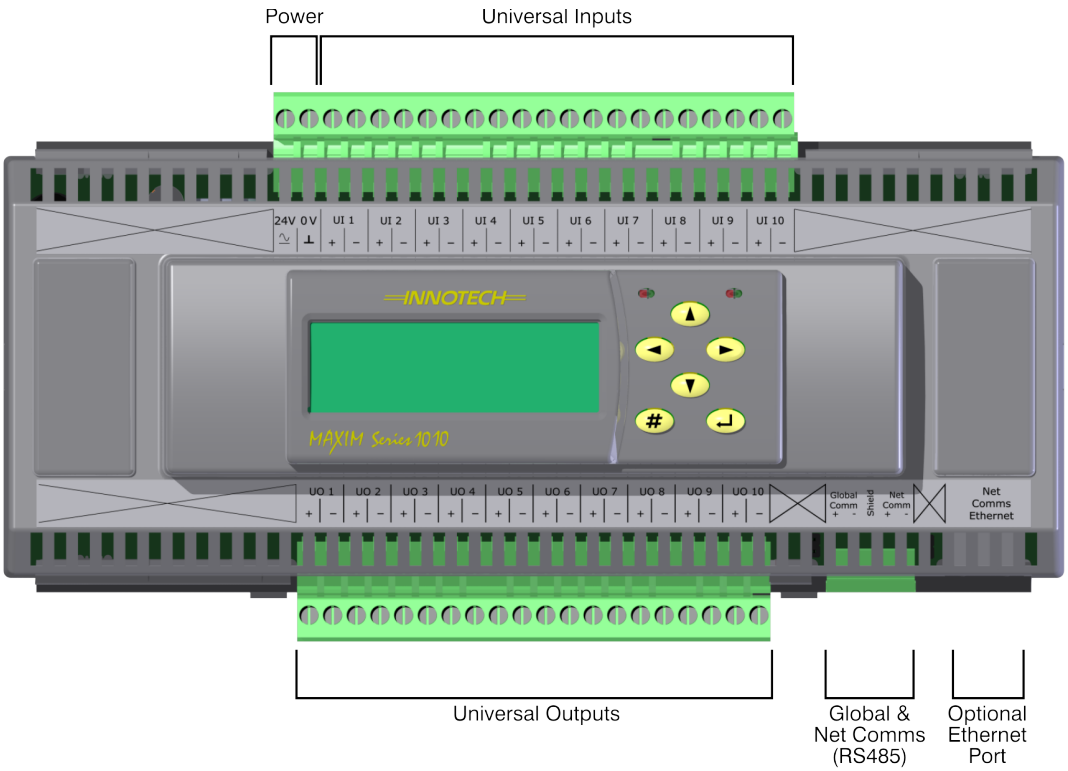
Supervisor is a specialised dynamic monitoring utility for the GENESIS II and MAXIM Series controllers. It provides all the functionality that is available from the GENESIS II and MAXIM Series controller HMIs with greater ease of use and flexibility. It is aimed at users who require some feedback or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

EtherMate is a specialised configuration utility for Innotech devices equipped with an Ethernet port. It provides the functionality to set the RS485 baud rate, serial format and TCP/IP settings. The MAXIM 1010 controller can be configured using the Ethernet interface with EtherMate software.

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

MAXIM 1010 Controller Connection & Dimensions





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