

## Models:

MAX1LN - with Logging Memory  
MAX1LD - with Logging Memory & Display

## MAXIM I Controller


### Overview

The Innotech MAXIM I Controller is a state of the art digital processing system that has the capability of controlling various types of commercial systems. The MAXIM I operates as a standalone device, using its own universal inputs and analogue and digital outputs to receive information and control external equipment according to a predefined configuration program.

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


An RJ45 connector on the bottom right side of the case provides a serial link to the computer for downloading the configuration program. This link may also be used to upload logged data or the program back out of the controller for modification or debugging purposes.

### Features

- 100 millisecond cycle/scan time
- 6 configurable universal inputs
- 6 digital relay outputs
- 4 analogue outputs
- Optional Human Machine Interface (HMI) on a 4 line, 20 character backlit LCD 
- 25 user defined watches
- Data logging capacity of 512 kilobytes, approximately 50,000 readings
- Status of I/O points displayed on the LCD
- 1 x RS232 serial communications port
- 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

### Approvals

The Innotech MAXIM I Controller conforms to:  
Electromagnetic and immunity requirements according to standards EN61326:2013 for CE Marking and RCM Labelling.

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



### Applications

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

The small size of the MAXIM also gives it the advantage of being fitted in small places without taking up valuable switchboard real-estate.

The creation of control strategies is made simple by the use of the MAXIM Configuration Utility called MAXCon. With its 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
- Cold/Freezer Rooms

## Specifications

### Power Supply

- 24VAC  $\pm$  10% @ 50/60 Hz
- 24VDC  $\pm$  10%

Transformer nominal rating of 5VA.

The operating voltage must meet the requirements of Safety Extra Low Voltage (SELV) to EN60730. The transformer used must be a 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.

### Temperature Ratings

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

### Inputs

6 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

- Exact Input combinations may be limited by the device
- Input accuracy is  $\pm 0.1$  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
0 to 10VDC	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 680 $\Omega$	-20°C to 100°C
LUX Sensor	1M $\Omega$ to 0 $\Omega$	3 to 2500 Lux
Low Thermistor	662k to 12k $\Omega$	-50°C to 20°C
Dry Duty Cycle	Open or Closed 1 to 13hz	0 to 100% $\pm 10\%$ accuracy
Voltage Duty Cycle	0 to 10V Square Wave 1 to 13hz	0 to 100% $\pm 10\%$ accuracy
Dry Pulse Counter	Open or Closed 20ms Min. On Time 20ms Min. Off Time	0 to 25 pulse/sec $\pm 1$ pulse accuracy
Voltage Pulse Counter	0 to 10V Square Wave 20ms Min. On Time 20ms Min. Off Time	0 to 25 pulse/sec $\pm 1$ pulse accuracy

### Outputs

6 Digital Outputs:

- 6 x normally open relays (2 amp @ 24VAC)
- Recommended use of pilot relays when switching high voltage/ inductive loads

4 Analogue Outputs:

- Analogue Outputs 1 and 2 can be configured individually as either linear 0-10VDC or PWM outputs
- Analogue Outputs 3 and 4 are dedicated linear 0-10VDC 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 I 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): 107 mm(w) x 89 mm(h) x 69 mm(d)

### Data Logging

The MAXIM I Controller comes with a powerful Data Logging facility which can be assigned to both hardware and software points. Approximately 50,000 time stamped readings can be stored in the MAXIM I. All data is stored in 512 kilobytes of non-volatile flash RAM. When the memory becomes full, the new readings will replace the oldest readings. All logged data points can be extracted by using the MAXTract software tool.

### Communications

- RS232: An RJ45 connection allowing local computer access for the purpose of uploading, downloading and monitoring configuration programs, and the extraction of logged data

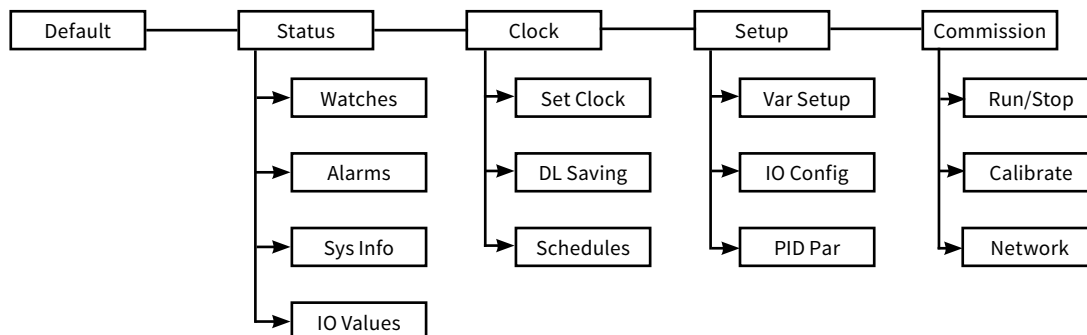
- Maximum cable length is 5 metres.

### Maxim I

Model Number Designations		
Model	Logging Memory	Display
MAX1LN	✓	✗
MAX1LD	✓	✓

## User Interface

For ease of use the MAXIM I 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 5 programmable watch pages, each with its own user defined description. Each page displays 5 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.

## Associated Software

**MAXCon** - Innotech MAXIM I Controller Configuration utility. It allows the user to internally configure a MAXIM 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 I Controller. It displays the configuration from the MAXIM I 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.

**MAXSim** - The Innotech MAXIM Simulator utility is Windows based software which simulates a MAXIM I Controller. The virtual MAXIM I can be powered on, configured, and interrogated in the same way as a physical MAXIM I 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.

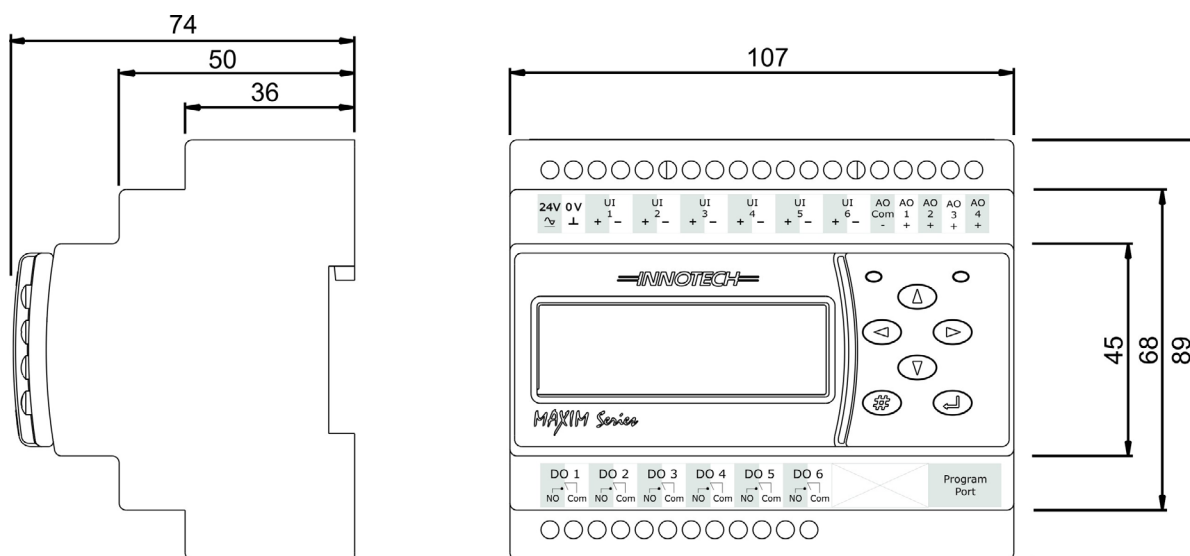
**MAXTract** - The data log extraction utility for a range of Innotech digital controllers. It allows extraction of all or part of the history log data residing on the MAXIM into a specified data format.

**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 system, but have no desire to be immersed in the technical details of a GENESIS II and MAXIM configurations.

**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.

## Innotech MAXIM I Controller



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