MAXIM III

MAXIM III Controller

Overview

The *MAXIM III* Controller is a state of the art digital processing system that has the capability of controlling various types of industrial, commercial and domestic systems. The *MAXIM III* 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 devices that support Global NetComms.

The *MAXIM III's* configuration program is developed on a computer using a Windows based program. This allows the user to configure the internal processes of the *MAXIM III* 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* 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 user interface on a 4 line, 20 character LCD display
- Optional Ethernet connection for Net Comms
- Status of I/O points displayed on LCD
- 80 user defined watches (up to eight pages of up to 10 watches)
- Data logging of 2MBytes, up to 300,000 readings
- 1 RS485 serial communications port for Net Comms
- 1 RS485 serial communications port for Global Comms
- User Selectable Baud Rates:
  (a) Net 9600 Global 4800 OR
  (b) Net 57600 Global 38400
- All wire connections by 2.5mm plug-in screw terminals
- Program resides in non-volatile Flash Ram
- Real Time Clock, battery backed for approximately 5 years

Approvals

The *MAXIM III* Controller conforms to

- EN 61326:1998 for CE Marking and C-Tick Labelling
- Title 47 CFR, Part 15 Class A for FCC Marking
- UL listed to UL916, File Number E242628

Applications

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

The *MAXIM III* provides all the features of MAXIM II with an extended Input/Output count, increased memory resources and optional RJ45 port for Ethernet Communications.

The creation of control strategies is made simple by the use of the MAXIM Config configuration utility. This utility with its powerful Graphical User Interface 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

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Specifications

Power Supply

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

Transformer nominal rating of 10VA.

The operating voltage must meet the requirements of Safe 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.

Battery

Contains a Lithium Battery, dispose of properly
Type CR-2032 Lithium Battery
Nominal voltage 3 Volts
Shelf life - 5 Years dependant on ambient temperature

CAUTION - Risk of explosion if battery is replaced by an incorrect type

Inputs

- 20 Universal Inputs
  Configurable via software to either:
  - Dry Digital Inputs
  - Voltage Digital Inputs
  - 10K Thermistor Inputs
  - 0-10V DC
  - LUX sensor input (Light sensor OR P12 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, to be set in pairs.
- Input accuracy is ±0.1 volts.

Input Type	Input Range	Output Range
0-10 Volts DC	0 to 10 V DC	0 to 10 V DC
Dry Digital	Open or Closed	OFF or ON
Votage Digital	0 to 10 V DC	OFF or ON
High Thermistor	100k to 680 ohms	-20°C to 100°C
LUX Sensor	1Meg ohm to 200 ohms	3 to 2500 LUX
Low Thermistor	662k to 12k ohms	-50°C to 20°C
Dry Duty Cycle	Open or Closed 1 to 13Hz	0 to 100% ±10% accuracy
Voltage Duty Cycle	0-10V 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 per second ±1 pulse accuracy *
Voltage Pulse Counter	0-10V Square Wave 20ms Min. ON Time 20ms Min. OFF Time	0 to 25 pulse per second ±1 pulse accuracy *

* Error is less than 0.2% with 15Hz Square Wave input.

Outputs

- 12 Digital Outputs
  12 x normally open relays (2 amp @ 24VAC) supplied by a Class 2 Transformer
  Recomended use of pilot relays when switching high voltage/inductive loads
- 8 Analogue Outputs
  That can be configured individually as either linear 0-10VDC or PWM outputs
  Output Load >2kOhms
- Note that up to 3 solid state relays can be connected in series, to the analogue outputs when configured as PWM.

Temperature Ratings

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

Enclosure

The *MAXIM III* is housed in rectangular case made from flame retardant ABS plastic in accordance with IEC695-2-1 (HD444-2-1) as of EN6335-1, A2 and IEC707 (AS/NZS2420) listed under UL94.

Colour: Grey

DIN Rail mounted.

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*. All data is stored in a 2Mbyte non volatile flash ram. When the memory becomes full, new readings replace the oldest readings. All logged data points can be extracted by using the MAXtract Software tool.

Communications

- RS485:
  5way plug in connector for local/remote computer access for purposes 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* 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:

	RJ45	Logging	Display
MAX3	E	L	D
MAX3	E	L	N
MAX3	N	L	D
MAX3	N	L	N

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User Interface

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

The Display has up to 8 programmable watch pages with user defined watch page descriptions, each page displaying 10 points of information, and allows access to the status of all IO values and system information. The user can set clock/ schedules variables and calibrate inputs. All information displayed on the display is in English and standard engineering units.

Initial Ethernet Port Setup

The Ethernet Port requires some initial setup according to the network configuration it is being installed onto. *Ethermate* is capable of configuring the Ethernet via several options using the Ethernet RS485 interface. Note that an *CONVERTER-NT* will be required to configure the device if using the RS485 interface and then a PC serial port.

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 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* on-line 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 9600bps, 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* on-line help for more information.

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Associated Software

MAXCon - *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 MAXIM Monitor is a monitoring and debugging utility designed to help with commissioning and trouble-shooting a *MAXIM III* Controller. It displays the configuration which resides on a *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.

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

iComm is a communications server used by application software to communicate with 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 digital controllers. It allows extraction of all or part of the history log data residing on the *MAXIM III* into a specified data format.

Innograph - is data log graphing and analysis tool. While it has been designed to specifically cater for the data log graphing capabilities of the 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, analogueue and digital value support, active cursors, colour printing capability and comprehensive zooming and panning features, ***InnoGraph*** is your complete graphing package.

Supervisor is 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 is a specialised configuration tool for Ethernet enabled 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 is 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.

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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.

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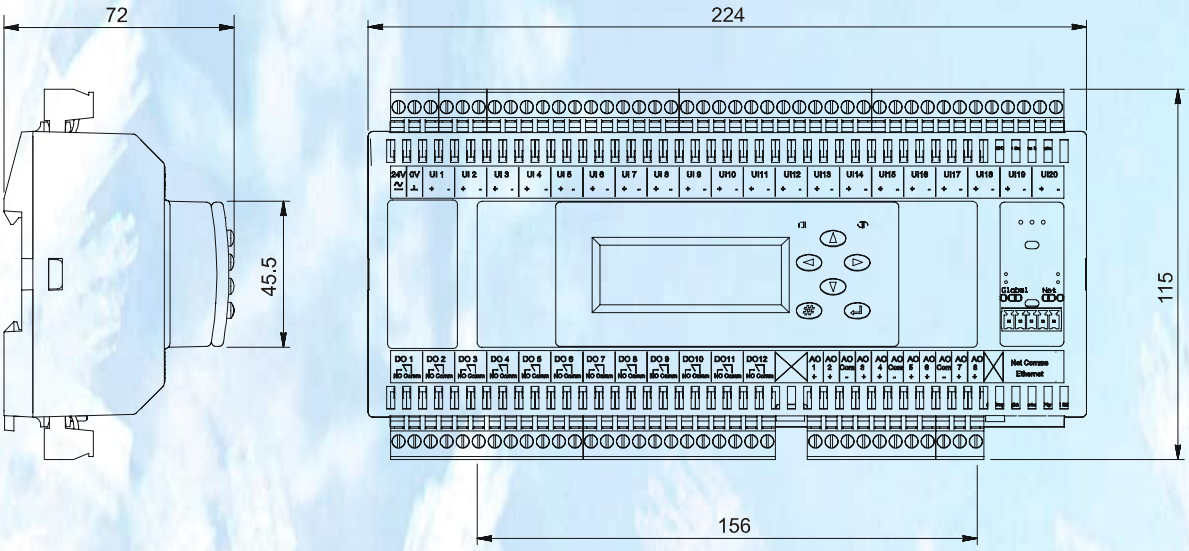
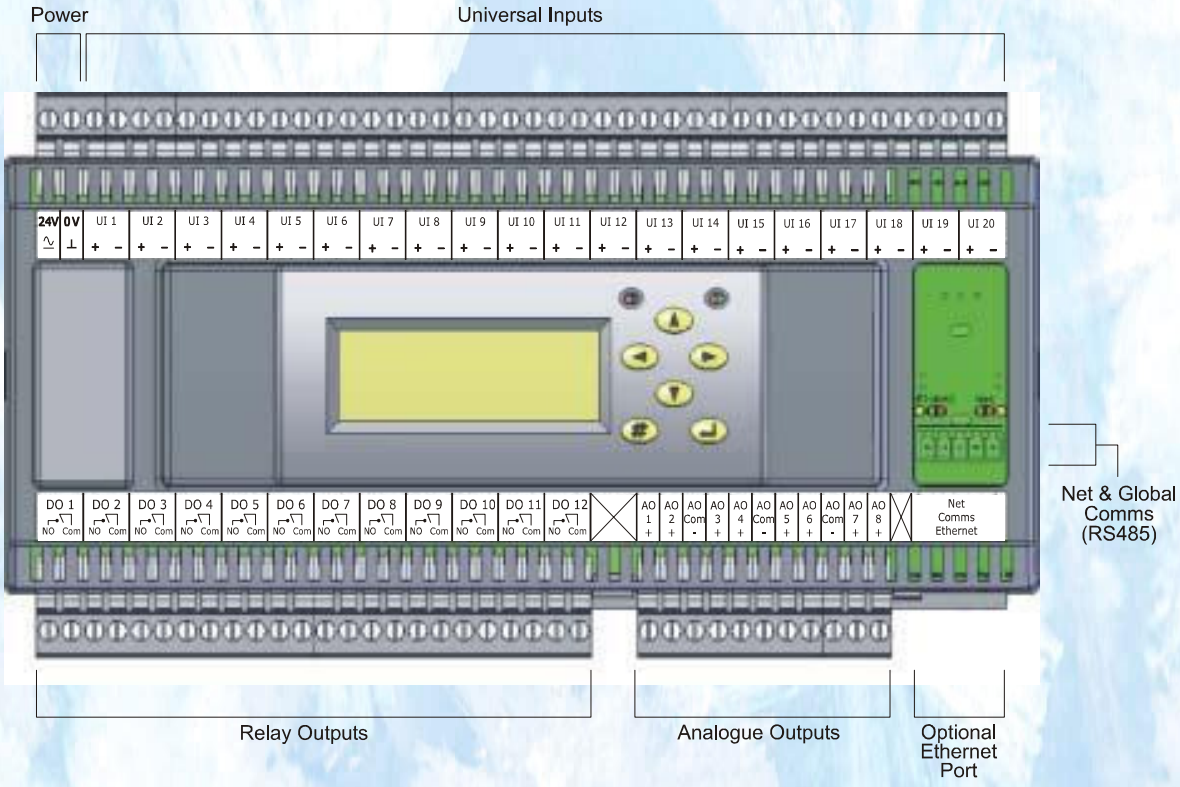
Maxim III: Dimensions



Maxim III: Connection Diagram



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