

MM-IM

Large works automation
And data gateway.



The MM-IM is a Remote Telemetry Unit (RTU) that provides a wide range of interfaces and protocols to allow integration with any typical site equipment to facilitate a single point for site supervisory control and data acquisition..

Key Functionality

- Full telemetry support including alarm handling and reporting, current values and trending.
- Support for a range of open standard communications protocols. (Modbus, DF1 Master & Slave, Ethernet IP, Flex/Point IO and LSI)
- Support for IEC61131 programs using Straton workbench.
- Linux based.
- Support for over 4,000 IO points.
- Four serial ports, two USB ports and two Ethernet ports allow for multiple IO and communication options.
- Configurable using either Straton or MicroMC.
- Remote configuration via Straton or Data Gatherer.

HARDWARE FEATURES

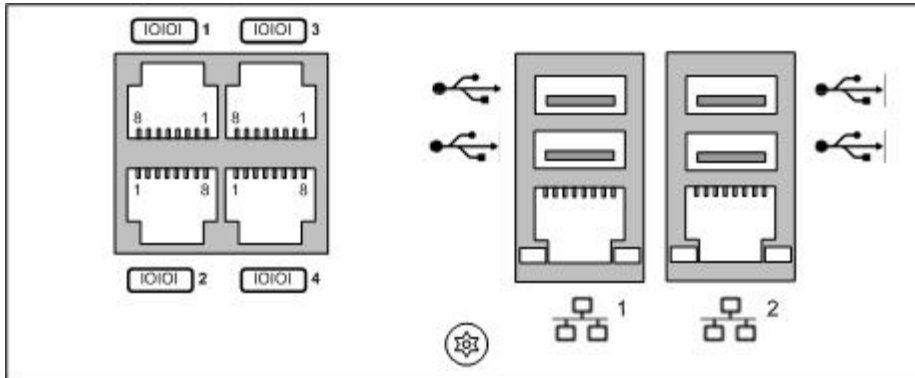
- **IO points** – support for 1024 digital inputs, 256 analogue inputs and 256 counter inputs. Counter inputs can be configured to detect digital pulses or can record register information from intelligent sensors. The MM-IM has support for 1024 digital outputs and 256 analogue outputs.
- **Serial ports** – the MM-IM has 4 proprietary RJ45 serial ports for which a number of custom cables are available. By default all are RS232 ports; one (COM4) may be configured as an RS422/RS485 port.
- **USB ports** – the MM-IM has 4 USB ports that may be used to manually mount flash devices.
- **Ethernet ports** – Two onboard Ethernet ports enable communications to either a master station or onsite distributed IO.
- **Memory** – The MM-IM has 512 Mbytes of solid-state memory for local storage of trend and alert data, equivalent to approx. 10 million samples (for example, approx. 1 year's storage at a sampling rate of 30 analogue values per minute).

FIRMWARE FEATURES

- **Input Processing** – Independent configurable processing of all input sources, including calibration and filtering of analogue sensors, inversion and debounce of digital sensors.
- **Output Processing** - Independent configurable processing of all outputs, including scaling, inversion, and programmable pulse widths.
- **Trending and alerts** – Independently configurable periodic and event based recording of any data source in any combination. Independently configurable alarm and event detection, timestamping and recording on any input source with extensive alarm reduction functionality, including time and level deadbands. Dialback over IP or PSTN can be configured on alarm.
- **IEC61131-3 programming** – support for all five standard languages through the use of the Straton runtime engine.
- **Configuration** – Download and non-volatile storage of static configuration data, including communications settings, modem controls, dialback phone numbers, alarm and event thresholds and time deadbands.

SERIAL PORTS AND SUPPORTED PROTOCOLS

The MM-IM has four serial ports provided by RJ45 sockets. It also has two RJ45 Ethernet ports and four USB ports



The MM-IM supports a number of protocols using its 4 serial ports, using both RS232 and RS485;

- Modbus – The MM-IM can act as a Modbus master or slave over TCP and serial (RTU).
- DF1 – The MM-IM acts as a DF1 master mapping IO values to Medina points to report to the DG.
- Ethernet IP – the MM-IM supports; scanner, adapter, Rockwell tag client, Rockwell Point/Flex IO scanner)
- Medina – the MM-IM supports the full Medina slave functionality for reporting to the DG, as well as support for communicating with IO using LSI and DSM.

The Ethernet ports can be used to connect the MM-IM directly to an existing network.

STATUS INDICATORS

There are four green LED status indicators on the front of the unit:

LED	STATUS	Meaning
Power	On	Unit powered on
System	On	Unit booting
	Flashing quickly	Firmware upgrade in progress
	Flashing slowly	Normal operation
LAN1	ON	First Ethernet port active
	Flashing	Data transfer in progress
LAN 2	ON	Second Ethernet port active
	Flashing	Data transfer in progress

Power
●

LAN1
●

System
●

LAN2
●

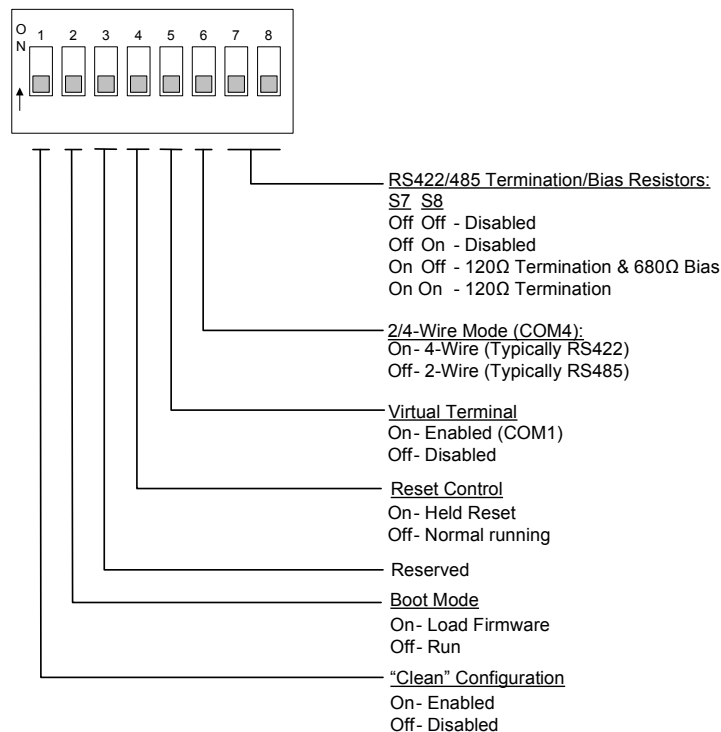
8 red LEDs indicate the status of the respective serial ports, showing data received and transmitted:

Serial

<u>COM1</u>	<u>COM2</u>	<u>COM3</u>	<u>COM4</u>
Rx ●	Rx ●	Rx ●	Rx ●
Tx ●	Tx ●	Tx ●	Tx ●

DIL SWITCHES

The MM-IM has eight DIL switches mounted on the front of the enclosure. These switches determine any special start-up actions it must perform (e.g. default configuration) and its final operating mode. Switches 6-8 configure settings for COM4. Refer to the MM-IM Remote Telemetry Unit User Guide for a detailed description of the operation of these switches.



WEB PAGE

The MM-IM has a built-in Web Server that is capable of serving up a page with read-only access to the current configuration files. This provides an easy way to view the configuration on the MM-IM, although it will require some familiarisation with the configuration files. To access the page, simply browse to the MM-IM's IP address in a Web browser. Refer to the MM-IM Remote Telemetry Unit User Guide for further details.

ACCESSORIES

The following accessories are available for the MM-IM

- MM-IM Mk4 Modbus RS485 cable
- MM-IM Mk4 to Modem RS232 cable
- MM-IM MK4 to Mitsubishi QN D Type cable
- MM-IM MK4 to Alan Bradley DF1 Type cable
- MM-IM MK4 to PC cable
- MM-IM MK3 RS485 to Modbus RJ45 converter cable
- MM-IM MK3 RS232 to RJ45 converter cable
- MM-IM Backplane (backwards compatible)
- Various GSM/GPRS and PSTN Modems

Contact info@Metasphere.co.uk for further information

SPECIFICATIONS

Power supply	8-30VDC Typical Current consumption: 0.29A @ 12V, 0.16A @ 24V. Inrush Current: 1.0A @ 12V, 2.2A @ 24V.
Serial Communications Interface	3 x RS232 serial ports configurable up to 115200 bps 1 x RS485 serial port configurable up to 115200 bps All support RTS and CTS modem control lines. COM1 additionally supports DCD, DTR, DSR and RI.
USB ports	Four USB 2.0 Master ports
Ethernet ports	2 x IEEE 802.3 10BASE-T and 100BASE-TX interfaces
Processor	ICOP Vortex86SX SoC CPU-300MHz.
Memory	Onboard 128MB DDR2 SDRAM 512 Mbytes solid state disk module
LEDs	Four pairs of red (Rx) and green (Tx), one pair per serial port. Plus four green status LED's as follows: Power, indicates power is present System, used to indicate overall system status LAN1, used to indicate Ethernet activity LAN2, used to indicate Ethernet activity
Real Time Clock	Real time clock with Lithium Battery Backup.
Enclosure	BS EN 60529 IP20 ingress protection
Mounting	Supplied with 2 DIN rail clips on rear of enclosure as standard
Build options	Available with standard and inverted overlay options.
Unit size	175 x 120 x 50 mm (excluding connectors)
Unit weight	0.45 Kg (approx)

APPROVALS

The product is designed to hold a CE declaration of conformity in accordance with Council Directive 2004/108/EC Electromagnetic compatibility and 2001/95/EC General Product Safety. The product complies with the following standards:

EMC:

- EN61010-1:2001 Safety requirement for electrical equipment for measurement and control
- EN55022:2006 +A1:2007 Class A Information technology equipment. Radio disturbance characteristics. Limits and methods of measurement
- EN55024:1998+A2:2003 CISPR 24:1997 Information technology equipment. Immunity characteristics. Limits and methods of measurement

Safety:

- EN-61010-1 Safety requirement for electrical equipment for measurement and control

Environmental

- Operating temp.: -10 to +55°C
- Humidity: 5% to 95% non-condensing

Ingress protection:

- BS EN 60529 IP20

Metasphere provides robust asset monitoring of time critical remote operations for operators to gain competitive advantage and meet regulatory compliance.

