

# Modems

## Intelligent Telemetry Solutions

### Remote Control and Monitoring

Simple and flexible



**IMPROVED COMMUNICATION**

Send alarm messages by SMS text, fax or email to inform service staff of errors

**REMOTE CONTROL**

Switch PLC outputs remotely and set relays via SMS and email

**WWW**

Data logger and embedded web server function with data base and machine file

**MORE FLEXIBILITY**

Large, non-volatile 2 MB alarm memory (partially extendable to 2 GB)

# Intelligent, effective and reliable



With their comprehensive functions Mitsubishi modems have many uses, such as monitoring temperatures, pressures and levels and activating pumps, valves and gates.



Can be connected directly to a controller

Demand for inexpensive systems that can perform simple remote control and alarm reporting tasks is growing fast in the industrial automation and building services sectors. Mitsubishi Electric caters to these needs with intelligent telemetry solutions using industrial modems and tailored software.

Mitsubishi modems are fully-automated telecommunications devices that can handle remote maintenance and Internet communications functions for systems and devices of any type. Unlike standard modems they have powerful processors and large memories that enable them to execute complex communications protocols transparently for the user.

The modems can be connected directly to any small or large Mitsubishi controller, making it easy to configure an inexpensive remote maintenance solution for small businesses, building services or industrial applications.

There are two basic types of Mitsubishi modems:

- Intelligent alarm modems with data logger and web server function
- Standard industrial modems

Both types are available in a range of versions for remote maintenance via landlines or GSM.

## Intelligent alarm modems

Mitsubishi alarm modems are automated modems with large data memory capacity, appropriate XML data base architecture and Internet technology. They can handle all telemetry tasks autonomously without needing support from the connected controller. They are really intelligent communications computers with a powerful 32-bit CPU and 2 MB of non-volatile data memory (Flash). This memory can be expanded with an SD card up to 2 GB, providing long-term capacity for large amounts of data.

The alarm modems can communicate directly with Mitsubishi controllers using their own PLC protocol. Modbus-RTU and Modbus-ASCII are also supported.

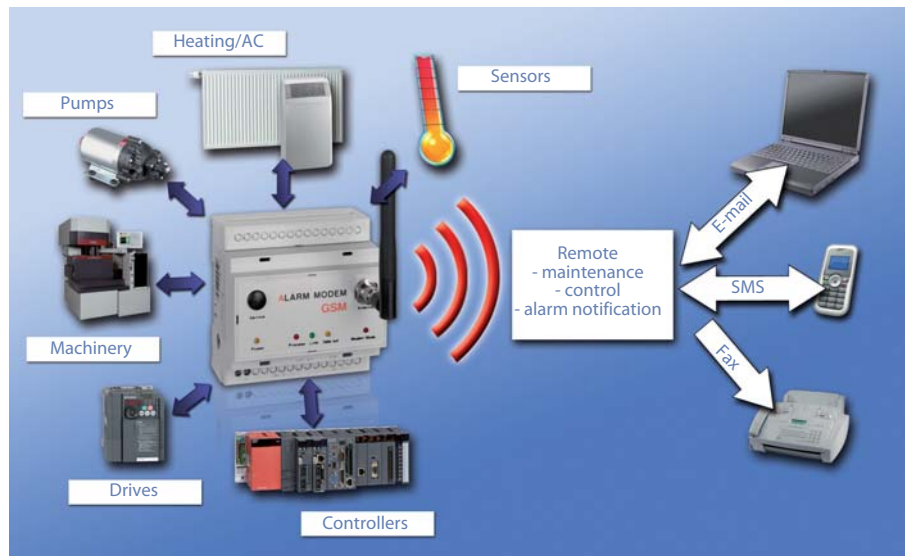
## Standard industrial modems

Mitsubishi's standard modems are designed for simple data communications tasks – SMS text messages, emails and fax messages via analog landlines or GSM mobile networks. They are ready for installation in switchgear cabinets with DIN top-hat rails.

## Integrated PLC protocols

Integrating Mitsubishi alarm modems in existing systems couldn't be easier. In most cases you don't even need to change your PLC programs. The intelligent alarm modems can perform a wide range of tasks autonomously:

- Send alarm and status messages by SMS, email or fax
- Receive switching commands by SMS or email and send them to a PLC for execution
- Transmit data from a connected controller or system
- Exchange data between controllers
- Provide remote access to controllers or systems via the PLC's programming software



Mitsubishi alarm modems combine an alarm signalling system and a remote control module in a single inexpensive device.

## Alarms

Alarm modems can automatically send error messages to any specified recipient by SMS, fax or email. Messages are triggered by changing PLC variables. The message texts can include a wide range of current values from the PLC. Fax and email messages have no size limit.

- Messages for the destination addresses are stored in an address book
- Message texts can include up to 100 current PLC values
- Up to 100 alarms and actions (e.g. switching commands) can be defined
- Notification of several recipients possible

## Data logging

The data logging function of the alarm modem can store any selected PLC and system data in non-volatile Flash memory and also on an SD card. The logged data can be transmitted automatically by email, either cyclically or event-triggered, as an XML text message, a compressed binary file or a data record with a user-defined format.

## Remote switching

You can make the Mitsubishi alarm modems switch the outputs of a connected PLC by sending a brief instruction by SMS or express email. Other PLC variables can also be changed in the same way.

Confirmation of execution of the instruction is also possible. You can define up to 100 SMS switching instructions with up to 4 parameters each. You can also quickly check PLC variables by SMS, without a PC.

## Remote maintenance

With a Mitsubishi alarm modem you can maintain multiple controllers via a telephone line or an Internet connection. For example, you can read and write all variables and I/Os of the PLC online with the MX Mitsubishi Alarm Editor (MX-MAE). After logging in to the modem remotely you can then configure the modem and access the data.

## Web server

Experienced users will appreciate the alarm modems' integrated web server, which includes a database with machine records. This makes it possible to log in from any Internet-connected computer worldwide and display and edit the data stored by the data logger.

## User-friendly configuration

Configuring the alarm modems is quick and easy with the user-friendly MX-MAE Alarm Editor software package – both locally and via remote login.



The Mitsubishi Alarm Editor (MX-MAE)

MX-MAE is a Windows software package with which you can download logged data from the modems and configure functions like alarms and message transmission and reception.

You can also use the software to log into and configure the alarm modem from a remote location. MX-MAE can access a remote modem in exactly the same way as a local device.

# Specifications ///

Specifications	MAM-GM106	MAM-GM420	MAM-GM424	MIM-G10	MAM-AM6	MAM-AM20	MAM-AM24	MIM-A01
Phone network	GSM				Landline			
Network access	GSM/GPRS/EDGE, quad band, 900/1800 MHz				Analog telephone connection (a/b interface), RJ11 connector			
Data transfer	GSM: CSD max. 14.4 kbps max. up/downlink speed: GPRS: 40 kbps/13 kbps EDGE: 220 kbps/100 kbps				0.3–56 kbps			
Fax	Fax Group 3 / Class 1 and 2; 2.4–14.4 kbps				Fax Group 3 / Class 1; 2.4–14.4 kbps			
GSM features	Call forwarding, call barring, multiparty, call waiting, call hold, calling line identity, advice of charge, USSD, closed user group				—			
GPRS features	GPRS multi-slot Class 10, GPRS mobile station Class B, coding schemes CS1, 2, 3, 4, compliant with SMG31bis				—			
Error correction	MNP, V.42bis				MNP 2-4 / V.42, MNP 5 / V.42bis			
Ports	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232	RS-232
Antenna connection	FME connector, coaxial, impedance 50 Ω				—			
CPU	32-bit RISC processor				32-bit RISC processor			
Operating system	Commercial RTOS				Commercial RTOS			
Program /data memory	8 MB Flash memory (non-volatile)				2 MB Flash memory (non-volatile)			
Memory expansion	Up to 64 MB Flash memory				Up to 64 MB Flash memory			
Slot for SD memory cards	—	2 GB	2 GB	—	—	—	—	—
LED indicators	Power, Process, Line (connection), Data Out, Modem Mode (MIM-G10 Power GSM Status only)							
Chassis type	DIN rail housing for vertical or horizontal installation on 35 mm EN50022 top-hat rail							
Ambient conditions	0–+50 °C, 5–95 % relative humidity (non-condensing)							
Ingress protection rating	IP20							
Power supply	10–30 V DC, max. 0.25 A			10–30 V DC, max. 0,15 A	10–30 V DC, max. 0,2 A			10–30 V DC, max. 0,15 A
Dimensions (W x H x D)	mm 88 x 58 x 91							
Weight	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.18
Accessories	Available accessories include matching communications adapters, cables and suitable GSM antennas.							

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