

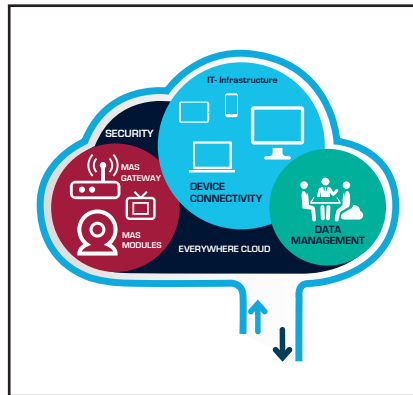
MODUL MAS FAMILY



MAS
SMART
POWER BOX



MAS SMART
GATEWAY
CONTROLLER



MAS
SMART I/O
CONTROLLER



MAS SMART
SENSOR
CONTROLLER



APPLICATION AREAS

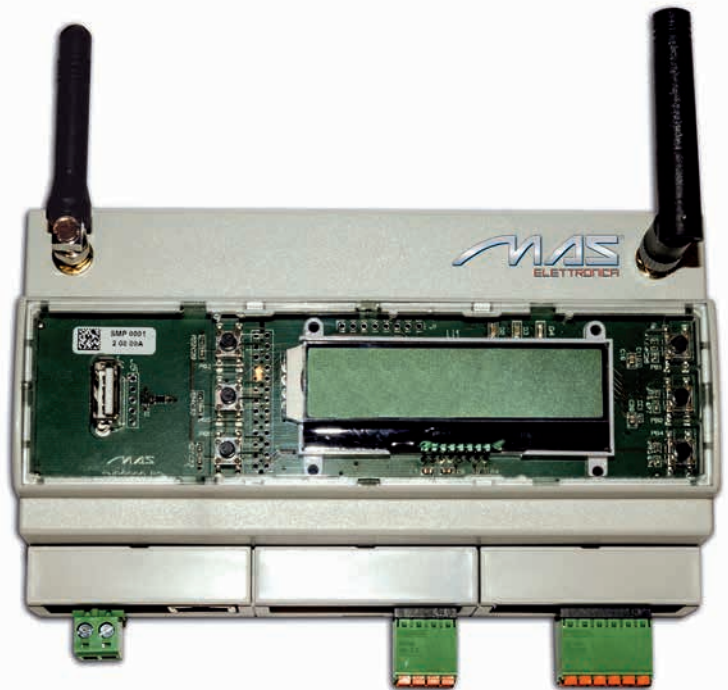
MODUL MAS FAMILY

MODUL MAS is a new family of products oriented to IOT and Smart Energy applications dedicated to the industrial and automation market. This family uses the CPU modules Ghita (i.mx28x), Fiamma (Sitara AM335x) and Leila (i.MX6) designed by Mas elettronica.



MAS SMART GATEWAY CONTROLLER

CPU Supported	
FIAMMA AM335x	Supports All Fiamma MAS CPU
GHITA i.MX28X	Supports All Ghita MAS CPU
DISPLAY AND TOUCH PANEL	
Display interface	LVDS (optional)
Touch Panel	4 wires resistive (optional)
Smart pannel	Mas smart pannel interface (optional)
SERIAL INTERFACES	
CAN	x 1 Isolated Can 2.0 Bus
Protocol	Can 2.0
Speed	Up to 1Mbit/s (depending on cable length)
Number of nodes	Up 256 Nodes
Isolation	2500 Vrms
RS485	x 1 Isolated RS485
Protocol	Modbus
Speed	1.2bps - 115.2 kbps
Number of nodes	32
Isolation	5kV rms
RS232	x 1 RS232 not isolated
USB	x 1 USB Host Connector
I2C	x 1 I2C interface
LAN	
Ethernet	
Protocol	Modbus TCP; MQTT, TCP-IP;
Speed	10/100Mb/s
Connector type	RJ45
Isolation	1500 Vrms
SOFTWARE SUPPORTED	
Kernel Linux	For Fiamma Version: Kernel 3.14; For Ghita versione kernel 3.17
AUDIO Interface	
Audio output	Stereo audio Out 1,5W @ 80hm Comming from the CPU or the 3G module
Audio in	Microphone input that is routed to CPU or 3G module
RTC	
RTC	Real time clock with Backup battery on board
EXTERNAL ACCESSORIES	
Expantion connector	Connector for direct interface to Mas Modul products
Smart Pannel connector	Connector for smart pannel (Character display and user Buttons for user interface)
ELECTRICAL CHARACTERISTICS	
Power supply	9-48 VDC
Temperature	-40 + 85°C
MECHANICAL	
Dimentionis	156mm x 87mm (9 Din rail format)



I/O	
Isolated Input	2
Type	Inverted digital logic
Thresholds	0-2,4V High; 2,5 - 24V Low
Isolation	3,75KV rms
Protection	68 V DC
Isolated output	2
Type	Transistor Open Collector (without pullup)
Isolation	3,75KV rms
Protection	68 V DC
Not Isolated GPIO	5
Type	Digital configurable Input and Output
Type of logic	3,3V TTL
Protection	ESD diode protected
WIRELESS INTERFACE	
3G to LTE	
Type	Directly soldered Huawei module supported (MU709S, MU909, MU609) Voice and Data
Devices supported	MU709S-2 MU709S-6 MU909S-120 MU909S-321 MU609
WiFi/BT	WiFi and Blue tooth 4.0 present on CPU board. IEEE 802.11 b,g,n Full support for BT4.0 BLE and ANT Bluetooth 2.1+EDR, Power Class 1.5

