



MINT Intelligent I/Os & Communication Processor

DI-16 16-Channel Digital Input Module
DO-16 16-Channel Digital Output Module
AI-08 8-Channel Analog Input Module
AO-08 8-Channel Analog Output Module
MINT CP - Communication Processor
MINT IO Pair



Masibus' MINT I/O series is the most cost effective field interface module for smart systems whether it is DAS, SCADA, PLC or DCS. The MINT I/Os are available in universal 8 channel analog Input, 8 channel analog output, 16 channel digital input and 16 channel digital output.

Using MINT I/Os supervisory system one can read remote process values and events as well as communicate for process control. These I/Os consist of powerful processors suited for high-speed communication and enhanced hardware features.

The MINT I/O family has Modbus RTU & Ethernet-Modnet port that integrates with same type of existing network in plant.

MINT DI module has unique filter time selection feature for input noise cancellation and debounce time feature to prevent extra events from a single contact closure. MINT DI can also store counter input of frequency up to 1KHz.

MINT CP is a communication processor which connects MINT I/Os and any make of serial Modbus-RTU devices to a Modnet Ethernet network.

mINT PLUS configuration software configures all communicating parameters in MINT series.

The MINT series is best suited for processes that require reliable and efficient control with high speed connectivity for system monitoring and information exchange up to the corporate network.

Features

MINT I/O

- 2 Modbus serial ports RS-485
- 1 RS-485 + 1 Modbus over TCP/IP port - Modnet (Optional)
- 2 masters can be connected at a time in MINT with 2 RS-485 port option
- Compact DIN-Rail enclosure
- High-speed communication
- Supports up to 15 clients on TCP/IP
- LEDs for fault, communication and power

MINT CP

- No. of Modbus serial slave devices supports on RS-485 - 15 max.
- Modbus over Ethernet (Modnet) - 10/100Mbps- auto-detecting
- Serial RS-485 (Protocol supported: Modbus RTU master)

Free **mINT PLUS** Configuration Software

- Configuration and diagnostics
- Online excel sheet logging

Applications

- Pulse totalizing - Utility accounting
- Cost effective field interface to PLC/DCS
- Remote I/Os for monitoring and control
- SCADA
- Security systems
- Solar string monitoring
- Building automation
- Gas detection systems
- Pipeline monitoring
- Environmental monitoring
- Infrastructure monitoring
- Asset management

TECHNICAL SPECIFICATIONS: MINT I/O RS485 - ETHERNET

AI-08 Module				DO-16 Module	
Input Specifications				Output Specifications	
No. of Channels		8		Output Type	Open collector (External 24V DC required) (Source or sink - factory set)
Input Types	Thermocouple	E	-200 °C to 1000 °C	Default/Pre-defined Value	ON/ OFF
		J	-200 °C to 1200 °C	Pulse Width	10msec.
		K	-200 °C to 1350 °C	Maximum Current	100mA per output (Total current for output No.1 to 8 <500mA) (Total current for output No.9 to 16 <500mA)
		T	-200 °C to 400 °C		
		B	450 °C to 1800 °C		
		R	0 °C to 1750 °C		
		S	0 °C to 1750 °C	Vce ON	1.1V max.
		N	-200 °C to 1300 °C	Status Indication	
	RTD	Pt100 (3 wire)	-200 °C to 850 °C	LEDs	Power, module status, communication, channel status
		Cu-53	-210 °C to 210 °C	Configuration Software	
	Resistor Input	NI-120	-80 °C to 210 °C	mINT PLUS Software	Configuration and diagnostics
		Upto 2kΩ	0-2000		Online excel sheet logging
	Current	0/4 -20mA (Ext. 50Ω resistor)			Logging time selectable : 1 to 65535 msec.
		-2000 to +20000		Communication	
		0 to +10V		RS-485 Serial Port	
		0 to +100mV		Protocol	
-10mV to +50mV		Modbus-RTU slave			
Voltage	0 to +250mV		No. of Port	2	
	0 to +5V		Communication Speed (Baud Rate)	9600, 19200, 38400, 57600,115200 bps	
	-2000 to +20000		Parity	ODD, EVEN ,NONE	
	-2000 to +20000		Data Bits	8	
Accuracy		0.1% of FS		Stop Bit	1, 2
Scan Rate		T/C & voltage/current: 50mSec./channel RTD: 100mSec./channel		Default Settings	9600, 8 data bits, 1 stop bit, no parity
ADC Resolution		16 bit		Connector	Plug-in screw terminals, 1.5mm² cable size
NMRR		>60dB		Recommended Cable	Shielded, twisted pair, size: 0.14mm²
CMRR		>120dB		Ethernet Port (Optional)	
Temp-Co		100 ppm/°C		Protocol	Modbus TCP/IP (Modnet)
CJC Error		±2°C (0 to 55°C)		No. of Port	1
Input Impedance		V, mV, TC >1 MΩ		Speed	10/100 Mbps (auto-detecting)
Sensor Burnout Current		0.5µA		Maximum No. of Read Registers	1024
RTD Excitation Current		250µA		Maximum No. of Write Registers	1024
Max Voltage		20V DC		Connector	RJ45 (auto-crossover)
Range Scaling		Current/voltage inputs only		No. of Clients Supported	Up to 15
DI-16 Module				Power Supply	
Input Specifications				Power Supply	18 - 32VDC ±10%
No of Channels		16		Power Consumption	For I/O with only RS-485 < 3W For I/O with ethernet < 5W
Counter Frequency		1 KHz max.		Isolation	
Counter Resolution		32 bit		Supply to field: 1500VAC RMS	
Counter Mode		Up/Down		Supply to RS-485: 1500VAC RMS	
Pulse Width		500µSec.		Supply to ethernet: 1000VAC RMS	
Filter Time (ms)		0 to 65535 msec.		Physical	
De-bounce Time (ms)		0 to 65535 msec.		Dimensions (in mm)	
Chatter Filter Time		0 to 65535 msec.		101(H) x 22.5(W) x 120(D) for I/O with only RS-485	
Chatter Filter Counts		1 to 250 events		101(H) x 48.5(W) x 120(D) for I/O with Ethernet	
Input Impedance		2200 Ω		Mounting	DIN-Rail (35 mm)
AO-08 Module				Weight	160 gms approx. – For I/O with only RS-485 250 gms approx. – For I/O with Ethernet
Output Specifications				Enclosure Material	Molded ABS
No. of Channels		8		Color	Black
Output Types	Current	0-20mA/ 4-20mA @ 750 Ω max. (external 24V DC required)		Environmental	
	Voltage	0.05 -10/ 2-10 VDC @ 2KΩ min. (external 24V DC required)		Operating Temperature	0 to 55 °C
DAC Resolution		16 bit		Storage Temperature	-10 to 70 °C
Accuracy		0.05% of FS		Humidity	30 to 95 %RH non-condensing
Temp-Co		100 ppm/°C			

MINT CP MODULE

Performance		Ethernet Port	
Processor	32-bit CPU ARM core	Protocol	Modbus TCP/IP (Modnet)
Maximum No. of Read Registers	1024	No. of Port	1
Maximum No. of Write Registers	1024	Speed	10/100 Mbps (auto-detecting)
Maximum No. of Modbus Commands Supported	100	Connector	RJ45 (auto-crossover)
No. of Slave Devices Supported per Serial Port	No. of Modbus devices supports on serial port - 15	Power Supply	
No. of Clients Supported on TCP/IP	Up to 15	Logic Supply Voltage	18 - 32V DC
		Logic Supply Current	100mA max. @ 24VDC
		Power Consumption	< 2.5W
		Isolation	Supply to RS-485: 1500V AC RMS Supply to Ethernet: 1000V AC RMS
Configuration Software		Physical	
mINT PLUS Software	Configuration and diagnostics	Enclosure Material	ABS plastic
		Mounting	DIN-Rail (35 mm)
		Dimension (H x W x D)	101 mm x 22.5 mm x 120 mm
		Color	Black
		Weight	160 g
Communication		Environmental	
RS-485 Serial Port		Operating Temperature	0 °C to 55 °C
Protocol	Modbus-RTU slave	Storage Temperature	-10 °C to 70 °C
No. of Port	2	Humidity	30 to 95% RH non-condensing
Communication Speed (Baud Rate)	9600, 19200, 38400, 57600,115200 bps		
Parity	ODD, EVEN, NONE		
Data Bits	8		
Stop Bit	1, 2		
Default Settings	9600, 8 data bits, 1 stop bit, no. parity		
Connector	Plug-in screw terminals, 1.5mm ² cable size		
Recommended Cable	Shielded, twisted pair. size: 0.14mm ²		

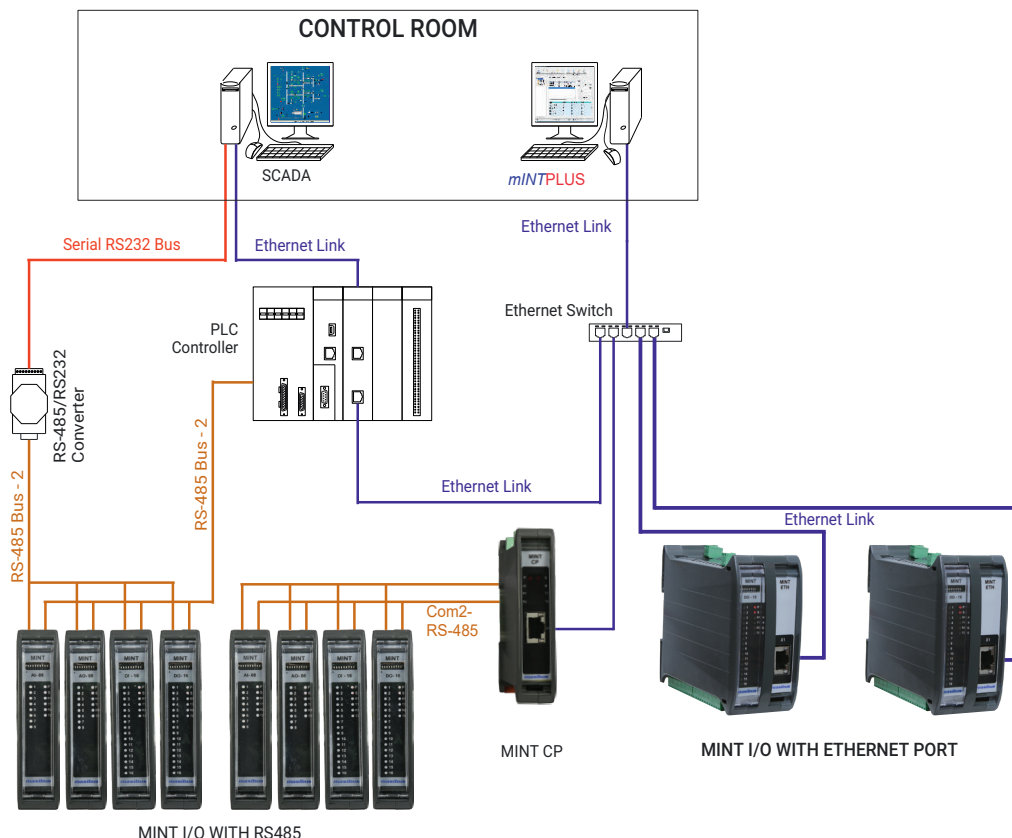
Ordering Code

Model	I/O Type		AI Channel Type		MINT I/O		AO Type		Communication		
					DO Type						
MINT	XX		X		X		X			Port 1	Port 2
	AI	8 channel analog input	N	None	N	None	N	None	SS	RS-485	RS-485
	DI	16 channel digital input	0	8 Channel universal	0	Sink type	I	Current O/P	SE	RS-485	Ethernet
	AO	8 channel analog output			1	Source type	V	Voltage O/P			
	DO	16 channel digital output	1	4 Channel Fix*							
			2	8 Channel Fix*							

Note: *Fix - Current & Voltage

Model
MINT CP

Application



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All specifications are subject to change without notice
due to continuous improvements.
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