



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



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
- 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 mINTPLUS 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	Vce ON	1.1V max.
		S	0 °C to 1750 °C	Status Indication	
		N	-200 °C to 1300 °C	LEDs	Power, module status, communication, channel status
	RTD	Pt100 (3 wire)	-200 °C to 850 °C		
		Cu-53	-210 °C to 210 °C	Configuration Software	
		NI-120	-80 °C to 210 °C	mINT PLUS Software	Configuration and diagnostics
	Resistor Input	Upto 2k Ω 0-2000			Online excel sheet logging
					Logging time selectable : 1 to 65535 msec.
	Current	0/4 -20mA (Ext. 50Ω resistor)		Communication	
				RS-485 Serial Port	
				Protocol	Modbus-RTU slave
		No. of Port	2		
		Communication Speed (Baud Rate)	9600, 19200, 38400, 57600,115200 bps		
		Parity	ODD, EVEN ,NONE		
		Data Bits	8		
Voltage	0 to +10V		Stop Bit	1, 2	
	0 to +100mV		Default Settings	9600, 8 data bits, 1 stop bit, no parity	
	-10mV to +50mV		Connector	Plug-in screw terminals, 1.5mm ² cable size	
	0 to +250mV		Recommended Cable	Shielded, twisted pair, size: 0.14mm ²	
	0 to +5V		Ethernet Port (Optional)		
Accuracy	0.1% of FS		Protocol	Modbus TCP/IP (Modnet)	
Scan Rate	T/C & voltage/current: 50mSec./channel RTD: 100mSec./channel		No. of Port	1	
ADC Resolution	16 bit		Speed	10/100 Mbps (auto-detecting)	
NMRR	>60dB		Maximum No. of Read Registers	1024	
CMRR	>120dB		Maximum No. of Write Registers	1024	
Temp-Co	100 ppm/°C		Connector	RJ45 (auto-crossover)	
CJC Error	±2°C (0 to 55°C)		No. of Clients Supported	Up to 15	
Input Impedance	V, mV, TC >1 MΩ		Power Supply		
Sensor Burnout Current	0.5µA		Power Supply	18 - 32VDC ±10%	
RTD Excitation Current	250µA		Power Consumption	For I/O with only RS-485 < 3W For I/O with ethernet < 5W	
Max Voltage	20V DC		Isolation		
Range Scaling	Current/voltage inputs only		Supply to field: 1500VAC RMS Supply to RS-485: 1500VAC RMS Supply to ethernet: 1000VAC RMS		
DI-16 Module				Physical	
Input Specifications				Dimensions (in mm)	
No of Channels		16		101(H) x 22.5(W) x 120(D) for I/O with only RS-485	
Counter Frequency		1 KHz max.		101(H) x 48.5(W) x 120(D) for I/O with Ethernet	
Counter Resolution		32 bit		Mounting	DIN-Rail (35 mm)
Counter Mode		Up/Down		Weight	160 gms approx. – For I/O with only RS-485 250 gms approx. – For I/O with Ethernet
Pulse Width		500µSec.		Enclosure Material	Molded ABS
Filter Time (ms)		0 to 65535 msec.		Color	Black
De-bounce Time (ms)		0 to 65535 msec.		Environmental	
Chatter Filter Time		0 to 65535 msec.		Operating Temperature	0 to 55 °C
Chatter Filter Counts		1 to 250 events		Storage Temperature	-10 to 70 °C
Input Impedance		2200 Ω		Humidity	30 to 95 %RH non-condensing
AO-08 Module					
Output Specifications					
No. of Channels		8			
Output Types	Current	0-20mA/ 4-20mA @ 750 Ω max. (external 24V DC required)			
	Voltage	0.05 -10/ 2-10 VDC @ 2KΩ min. (external 24V DC required)			
DAC Resolution		16 bit			
Accuracy		0.05% of FS			
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
Configuration Software		Logic Supply Current	100mA max. @ 24VDC
		Power Consumption	< 2.5W
Communication		Isolation	Supply to RS-485: 1500V AC RMS Supply to Ethernet: 1000V AC RMS
		Physical	
mINT PLUS Software		Enclosure Material	ABS plastic
RS-485 Serial Port		Mounting	DIN-Rail (35 mm)
		Dimension (H x W x D)	101 mm x 22.5 mm x 120 mm
Protocol	Modbus-RTU slave	Color	Black
No. of Port	2	Weight	160 g
Communication Speed (Baud Rate)	9600, 19200, 38400, 57600, 115200 bps	Environmental	
Parity	ODD, EVEN, NONE	Operating Temperature	0 °C to 55 °C
Data Bits	8	Storage Temperature	-10 °C to 70 °C
Stop Bit	1, 2	Humidity	30 to 95% RH non-condensing
Default Settings	9600, 8 data bits, 1 stop bit, no. parity	Ordering Code	
Connector	Plug-in screw terminals, 1.5mm ² cable size		
Recommended Cable	Shielded, twisted pair, size: 0.14mm ²		

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

Model
MINT CP

Application

