



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.

mINTPLUS 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 RS485
- 1 RS485 + 1 Modbus over TCP/IP Port - Modnet (optional)
- 2 Masters can be connected at a time in MINT with 2 RS485 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 RS485 - 15 Max.
- Modbus over ethernet (Modnet) - 10/100Mbps- auto-detecting
- Serial RS485 (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	Vce ON	1.1V max	
		B	450 °C to 1800 °C	Status Indication		
		R	0 °C to 1750 °C	LEDs	Power, Module Status, Communication, Channel Status	
		S	0 °C to 1750 °C	Configuration Software		
	RTD	Pt100 (3 wire)	-200 °C to 850 °C	mINT PLUS software	Configuration and Diagnostics Online Excel Sheet logging Logging Time selectable : 1 to 65535 mSec	
		Cu-53	-210 °C to 210 °C	Communication		
	Resistor Input	NI-120	-80 °C to 210 °C	RS485 Serial Port		
		Upto 2kΩ 0-2000		Protocol	Modbus-RTU Slave	
		Current	0/4 -20mA (Ext. 50Ω resistor)		No of port	2 (1 optional)
			0 to +10V		Communication Speed (Baud Rate)	9600, 19200, 38400, 57600,115200 bps
	0 to +100mV		Parity	ODD, EVEN ,NONE		
-10mV to +50mV			Data bits	8		
Voltage	0 to +250mV		Stop bit	1, 2		
	0 to +1V		Default Settings	9600, 8 Data bits, 1 Stop bit, No Parity		
	-2000 to +20000		Connector	Plug-in screw terminals, 1.5mm ² Cable Size		
	-2000 to +20000		Recommended Cable	Shielded, Twisted Pair, Size: 0.14mm ²		
Accuracy		0.1% of FS		Ethernet Port (Optional)		
Scan Rate		T/C & Voltage/Current: 50mSec/Channel RTD: 100mSec/Channel		Protocol	Modbus TCP/IP(Modnet)	
ADC Resolution		16 bit		No of port	1	
NMRR		>60dB		Speed	10/100 Mbps (auto-detecting)	
CMRR		>120dB		Maximum No. of Read Registers	1024	
Temp-Co		100 ppm/°C		Maximum No. of Write Registers	1024	
CJC Error		±2°C (0 to 55°C)		Connector	RJ45 (auto-crosscover)	
Input Impedance		V, mV, TC >1 MΩ		No. of Clients supported	Up to 15	
Sensor Burnout Current		0.5µA		Power Supply		
RTD Excitation Current		250µA		Power Supply	18 - 32VDC ±10%	
Max Voltage		20V DC		Power Consumption	For I/O with only RS485 < 3W For I/O with Ethernet < 5W	
DI-16 Module				Isolation		
Input Specifications		No of Channels		Supply to Field: 1500VAC RMS		
Counter Frequency		1 KHz max		Supply to RS485: 1500VAC RMS		
Counter Resolution		32 bit		Supply to Ethernet: 1000VAC RMS		
Counter Mode		Up/Down		Physical		
Pulse width		500µSec		Dimensions (in mm)		
Filter time (ms)		0 to 65535 mSec		101(H) x 22.5(W) x 120(D) for I/O with only RS485		
De-bounce Time (ms)		0 to 65535 mSec		101(H) x 48.5(W) x 120(D) for I/O with Ethernet		
Chatter Filter Time		0 to 65535 mSec		Mounting	DIN Rail (35 mm)	
Chatter Filter Counts		1 to 250 events		Weight	160 gms approx. - For I/O with only RS485 250 gms approx. - For I/O with Ethernet	
Input Impedance		2200 Ω		Enclosure Material	Molded ABS	
AO-08 Module				Color	Black	
Output Specifications		No of Channels		Environmental		
No of Channels		8		Operating Temperature		
Output Types	Current	0-20mA/ 4-20mA @ 750Ω max. (external 24V DC required)		Storage Temperature		
	Voltage	0-10/ 2-10 VDC @ 2KΩ min. (external 24V DC required)		Humidity		
DAC Resolution		16 bit		0 to 55 °C		
Accuracy		0.05% of FS		-10 to 70 °C		
Temp-Co		100 ppm/°C		30 to 95 %RH non-condensing		

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
mINT PLUS software	Configuration and Diagnostics	Power Consumption	< 2.5W
Communication		Isolation	Supply to RS485: 1500V AC RMS Supply to Ethernet: 1000V AC RMS
RS485 Serial Port		Physical	
Protocol	Modbus-RTU Slave	Enclosure Material	ABS Plastic
No of port	2	Mounting	DIN Rail (35 mm)
Communication Speed (Baud Rate)	9600, 19200, 38400, 57600, 115200 bps	Dimension (H x W x D)	101 mm x 22.5 mm x 120 mm
Parity	ODD ,EVEN, NONE	Color	Black
Data bits	8	Weight	160 g
Stop bit	1, 2	Environmental	
Default Settings	9600, 8 Data bits, 1 Stop bit, No Parity	Operating Temperature	0 °C to 55 °C
Connector	Plug-in screw terminals, 1.5mm ² Cable Size	Storage Temperature	-10 °C to 70 °C
Recommended Cable	Shielded, Twisted Pair, Size: 0.14mm ²	Humidity	30 to 95% RH Non-condensing

Ordering code

Model	I/O Type		AI Channel Type		MINT I/O DO Type		AO Type		Communication		
	XX		X		X		X		Port 1	Port 2	
MINT	AI	8 channel Analog Input	N	None	N	None	N	None	SS	RS485	RS485
	DI	16 channel Digital Input	O	Non Isolated	0	Sink Type	I	Current o/p	SE	RS485	Ethernet
	AO	8 channel Analog Output			1	Source Type	V	Voltage o/p			
	DO	16 channel Digital Output									

Model
MINT CP

APPLICATION

