

# DATA ACQUISITION MODULES DISTRIBUTED IO MODULES



## ANKOM INTERNATIONAL

An ISO 9001: 2015 Certified Company

Your Instrument Super Store

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ISO 9001:2015 CERTIFIED

## Features

- Portable
- Modbus connectivity
- Simple setup and easy handling
- Upto 128 Modules on RS 485 network
- Isolated modules available for special applications
- Low-cost IO modules addition to existing PLC system
- Standard software for module configuration and trouble shooting
- Data acquisition software for data storage & Real-time analysis on PC
- IO modules used with the third party software's via Modbus RTU Protocol
- Interface with field devices to provide real - time data for SCADA/PLC/HMI
- LEDs on every module for digital IO status, communication and power supply
- Different types of IO Modules AI, AO, DI, DO, RTD, Thermocouples all available
- Direct reading of temperature without scaling by using RTD and Thermocouple Modules

## IO Modules

A new line of Modbus based IO modules for data acquisition and other applications are available now. These IO modules offer good reliability, low-cost solution for distributed IO applications. They are portable, easy integrated with existing Modbus network, and simple to use for end users. Various types of IO modules are available for different kinds of requirements. All IO modules have LED indications for visualization of IO status (Digital) and fault diagnostic analysis. Some models with high isolation among inputs are also available for special applications. IO Studio software is used to setup communication of IO modules and checks the IO status in PC for diagnosis purpose. With Modbus RTU protocol, these IO modules configured as slaves will be easy to communicate with Modbus master such as SCADA/PLC/HMI. All IO modules have 2 wire RS 485 interface with Modbus RTU Protocol.

### IO Modules

Model Number	Description
IO-16DI	16 DIGITAL INPUT MODULE INCLUDING COUNTERS
IO-16DO	16 DIGITAL OUTPUT MODULE
IO-4RO	4 RELAY OUTPUT MODULE
IO-8DIO	8 DIGITAL INPUT/ 8DIGITAL OUTPUT MODULE
IO-8TC	8 THERMOCOUPLE INPUT MODULE INCL. 0 - 50MV & ±100MV I/P
IO-8TCS	8 TC INPUT MODULE INCL. 0 - 50MV & ±100MV I/P FULLY ISOLATED
IO-6RTD	6RTD INPUT MODULE - PT100, Ni120, PT1000, Ni1000, Ni1000LG & Ohms
IO-8AII	8 ANALOG INPUT 0-20mA /4-20mA
IO-8AIV	8 ANALOG INPUT 0 - 5V / 1 - 5V / 0 - 10V / 2 - 10V
IO-8AIIS	8 ANALOG INPUT 0-20MA / 4-20MA / ±20 mA FULLY ISOLATED
IO-8AIVS	8 ANALOG INPUT 0 - 1V / 0 - 10V / ±10V FULLY ISOLATED
IO-8AOI	8 ANALOG OUTPUT MODULE 0(4) - 20mA
IO-8AOV	8 ANALOG OUTPUT MODULE 0(2) - 10V
IO-DAIO	2 RTD I/P, 2 ANALOG INPUT 0(4)-20MA / 0(2) - 10V, 1 ANALOG OUTPUT 0(4) - 20mA / 0(2) - 10V 4 DIGITAL INPUTS, 2 DIGITAL OUTPUTS

### Environmental & Physical

### Communication

### Approval Standards

Operating Temperature	-10°C to +50°C	Interface	2 wire, RS485	Safety	IEC 950
Storage Temperature	-40°C to +85°C	Modbus address setting	By Dip Switch	EMC	IEC 61000-4-2-A1 Level 2
Dimension (W×H×D)	23 × 109 × 98mm	Modbus Max. address	127 only		IEC 61000-4-3-A1 Level 2
Weight	105 grams	Baud rate	2400, 4800, 9600, 19200,		IEC 61000-4-4 Level 3
Mounting	DIN Rail		38400, 57600, 115200		CISPR 11:1997-A1 /
		Parity	None, Even, Odd		EN 55011:1998
		Stop bits	1, 2		Group 1 Class A
		Data Bits	8		

## Digital Modules

**IO-16DI**



**IO-16DO**



**IO-4RO**



**IO-8DIO**



### Specifications

<b>Digital Inputs</b>	16	N.A	N.A	8
No. of Counters	16	N.A	N.A	8
Isolation (Field & Logic)	1500 V RMS	N.A	N.A	1500 V RMS
Status Indication	LED for each channel	N.A	N.A	LED for each channel

### Common Specifications

Counter Resolution	32 Bit
Counter Frequency	1 KHz
Pulse Width	Min 500 Micro sec
Counter Mode	UP/Down
Digital Input 0 Level	0-6.6V DC
Digital Input 1 Level	12 to 24V DC
Input Impedance	2200 ohms
Input Filter	Max 6553 msec.
Power Supply	12V to 24V DC

<b>Digital Outputs</b>	0	16	4	8
Type of Digital output	N.A	Open collector	Relay, Form C	Open collector
Maximum load current	N.A	100 mA/channel	0.5A / 1 A each ch.	100 mA/channel
Maximum load Voltage	N.A	36 V DC	220 V AC / 28 V DC	36 V DC
Isolation (Field & Logic)	N.A	1500 V RMS	1000 V RMS	1500 V RMS
Status Indication	N.A	LED for each channel	LED for each channel	LED for each channel

### Common Specifications

<b>Watch dog timer</b>	Available
<b>Watch dog time</b>	1-255 sec, adjustable
<b>Power Supply</b>	12 V to 24 V DC

# Digital Modules

## RTD and Thermocouple Inputs

**IO-16RTD**



**IO-8TC**



**IO-8TCS**



### Specifications

Input	6, RTD Inputs	8, Thermocouple Inputs	8, Isolated Thermocouple Inputs
Type	PT100, Ni 120, PT1000, Ni1000-DIN, NI1000 Landys & Gyt 10-400 Ohms, 100-4000 Ohms	J,K,E,T,N,B,S,R,mV,C,D and G	J,K,E,T,N,B,S,R,mV,C,D and G
Connection	2/3 wire	2 wire	2 wire
Resolution	0.1°C	0.1 °C	0.1 °C
Sample rate	0.52 Samples/sec	0.71 samples/sec	0.63 samples/sec
Drift	100 PPM / °C	100 PPM / °C	100 PPM / °C
Isolation (Field & Logic)	1500 V RMS	1500 V RMS	1500 V RMS 350 V (P-P) between channels
Power Supply	12 V to 24 V DC	12 V to 24 V DC	12 V to 24 V DC

## Current & Voltage Inputs

**IO-8AII**



**IO-8AIV**



**IO-8AIIS**



**IO-8AIVS**



### Specifications

Analog Inputs	8	8	8	8
Type	Single-Ended	Single-Ended	Differential	Differential
Voltage	N.A	0 - 10 V DC/0 - 5V DC	N.A	0(2) - 10 V / 0(1) - 5V DC
Current	0-20 mA	N.A	0-20 mA	N.A
Offset by switch	4 mA	2 V DC (0-10)/1 V DC(0-5)	4 mA	2 V DC (0-10)/ 1 V DC(0-5)
Resolution	12 bit (0-4095)	12 bit (0-4095)	12 bit (0-4095)	12 bit (0-4095)
Sample rate	12.5 samples/sec	12.5 samples/sec	12.5 samples/sec	12.5 samples/sec
I/P Impedance	250 Ohms	20 K Ohms	250 Ohms	110 Kohms
Isolation(Ch-Ch)	N.A	N.A	350 V (P-P)	350 V (P-P)
Drift	50 ppm / °C	50 ppm / °C	100 ppm / °C	100 ppm / °C
Accuracy	0.2% of span	0.2% of span	0.2% of span	0.2% of span
Isolation (Field & Logic)	1500 V RMS	1500 V RMS	1000 V RMS	1500 V RMS
Power Supply	12 V to 24 V DC	12 V to 24 V DC	12 V to 24 V DC	12 V to 24 V DC

# Analog Outputs

## IO-8AOI



## IO-8AOV



### Specifications

Analog Outputs	8	8
Voltage	N.A	0-10V DC
Current	0-20 mA	N.A
Offset	4 mA	2 V DC
Resolution	12 bits (0-4095)	12 bits (0-4095)
Drift	100 ppm / °C	100 ppm / °C
Accuracy	0.05 % of span	0.05 % of span
Load	1000 Ohms @ 24 V DC	2000 Ohms
Isolation (Field & Logic)	1500 V RMS	1500 V RMS
Power Supply	12 V to 24 V DC	12 V to 24 V DC

## Combination Module

### IO-DAIO

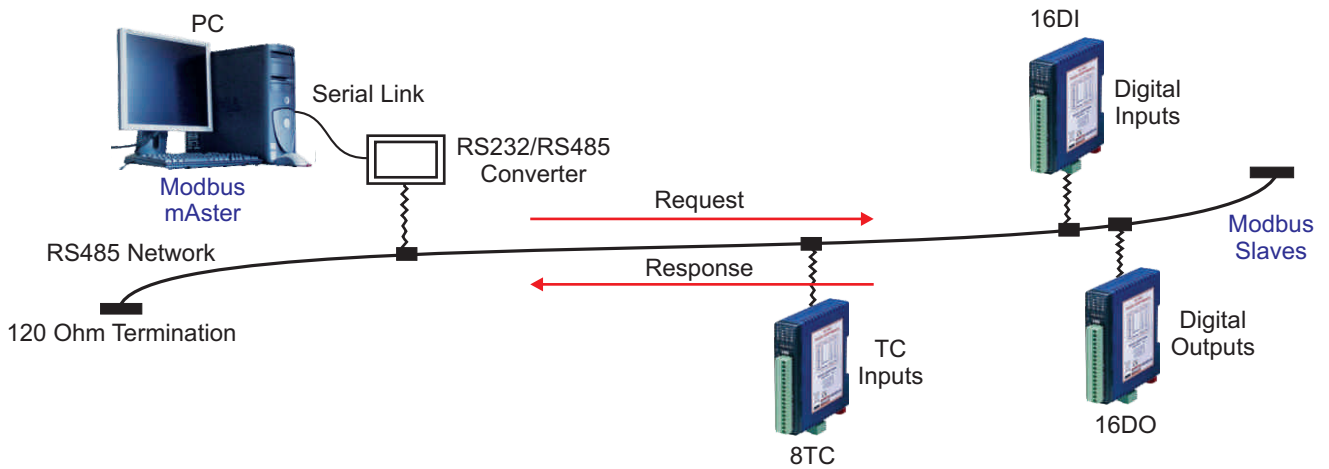


### Specifications

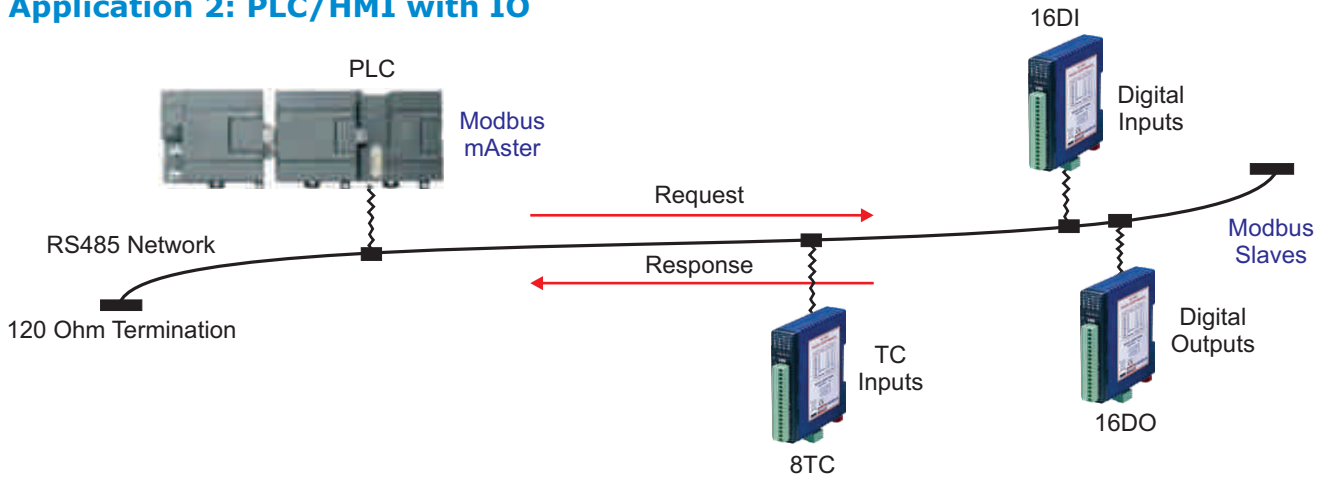
Analog Outputs	2	0-20 mA/0-10 V DC, Resolution: 12 bit, I/P Impedance: 250 Ohms for current IP, 190 K Ohms for Voltage I/P
Analog Outputs	1	0(4)-20 mA/0(2)-10 V DC, Resolution: 12 bit, Drift: 100 PPM / °C Accuracy: 0.05 % of span, Load: 1000 ohms @ 24 V for Current, 2000 Ohms for voltage output.
Digital Inputs	4	Counter, 32 bit, Frequency: 50 Hz, Pulse width: 20 ms, Voltage: 10-26 V DC
Digital Outputs	2	Open collector, 36 V DC (Max), 100 mA / Output
RTD Inputs	2	Connection: 2/3 wire, Types: PT100/Ni120/PT1000, Resolution: 0.1 °C Isolation : 1500 V RMS
Power Supply		12 V to 24 V DC

# APPLICATIONS

## Application 1: Data acquisition to PC



## Application 2: PLC/HMI with IO



## ORDERING CODE

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IO-8AIIS	8 ANALOG INPUT 0-20mA / 4-20mA / ±20mA FULLY ISOLATED
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IO-DAIO	2 RTD I/P, 2 ANALOG INPUT 0(4) - 20mA / 0(2)-10V 1 ANALOG OUTPUT 0(4) - 20mA / 0(2) - 10V 4 DIGITAL INPUTS, 2 DIGITAL OUTPUTS