

Data Acquisition Modules Distributed IO Modules



Features

- Portable
- Modbus connectivity
- Simple setup and easy handling
- Upto 128 Modules on RS485 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 and Real-time analysis on PC
- IO modules used with the third party softwares 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 RS485 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 / 8 DIGITAL 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	6 RTD INPUT MODULE - PT100, Ni120, PT1000, Ni1000, Ni1000LG & Ohms
IO-8AI	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 / ±20mA FULLY ISOLATED
IO-8AIVS	8 ANALOG INPUT 0 - 1V / 0 - 10V / ±1V / ±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 (WxHxD)	23 x 109 x 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		

IO Studio

It is standard PC software used to configure the communication settings for IO modules on the Modbus network. Once a module is detected, it is possible to view real-time data of the module directly on PC and it can be used for diagnostic purpose as well. All IO modules support RS485 communication. A RS232 to RS485 converter should be used between module and PC for configuration purpose. The address of each module is set up by using dip switches available on the module itself.

Data Acquisition Studio

It is optional PC software used to connect with IO Modules via RS485/RS232 converter for data acquisition purpose. Maximum 1024 tags are supported. All the data from the IO Modules can be collected and stored in PC as pre-configured sample rates. Real-Time Viewer is available to display real-time data in digital values, bar graphs, trends etc. Historical Viewer is available too. DDE feature can make real-time data used for the third party applications like Excel. Alarm management is allowed the user can configure it in maximum four different events from six possible types as high, low, high high, low low, rate of increase, rate of decrease. Alarming email can be received via Internet. 200 pages of displays are available, and each page displays maximum 6 tags.



Digital Modules

IO-16DI



IO-16DO



IO-4RO



IO-8DIO



Specifications

Digital Inputs	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	0-6.5 V DC
Digital input 1 level	12 to 24 V DC
Input Impedance	2200 ohms
Input filter	Max 6553 msec.
Power supply	12 V to 24 V DC

Digital Outputs	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

Watch dog timer	Available
Watch dog time	1-255 sec, adjustable
Power supply	12 V to 24 V DC

Analog Modules

RTD and Thermocouple Inputs

IO-6RTD



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 & Gyr 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 Deg.C	0.1 Deg.C	0.1 Deg.C
Sample rate	0.52 samples/sec	0.71 samples/sec	0.63 samples/sec
Drift	100 PPM/Deg.C	100 PPM/Deg.C	100 PPM/Deg.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-8AI



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/deg.C	50 ppm/deg.C	100 ppm/deg.C	100 ppm/deg.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-8OV



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/deg.C	100 ppm/deg.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

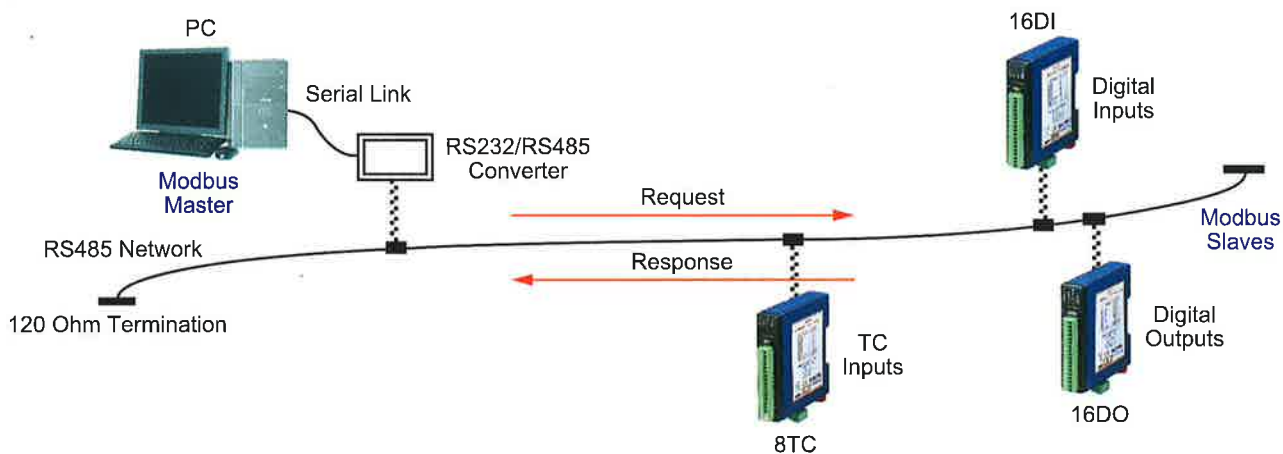


Specifications

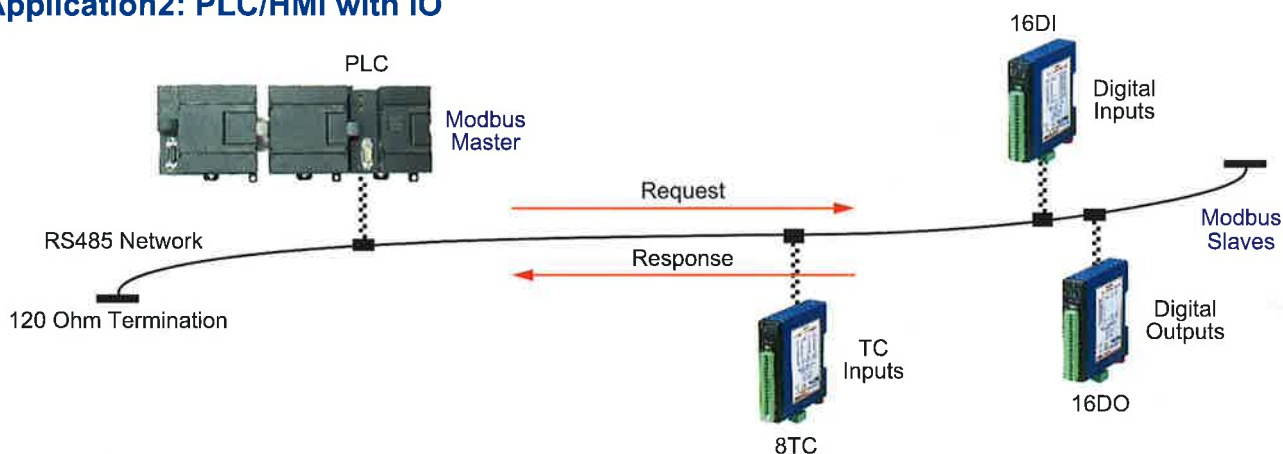
Analog Inputs	2	0-20 mA/0-10 V DC, Resolution: 12 bit, I/P Impedance: 250 Ohms for current I/P, 190 K Ohms for Voltage I/P
Analog Outputs	1	0(4)-20 mA/0(2)-10 V DC, Resolution: 12 bit, Drift: 100 PPM/Deg.C Accuracy: 0.05 % of span, Load: 1000 ohms @ 24 V for Current, 2000 Ohms for voltage output.
Digital 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 deg.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

- Model Number** - 0. With standard software IO Studio
 1. Standard plus software Data Acquisition Studio

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