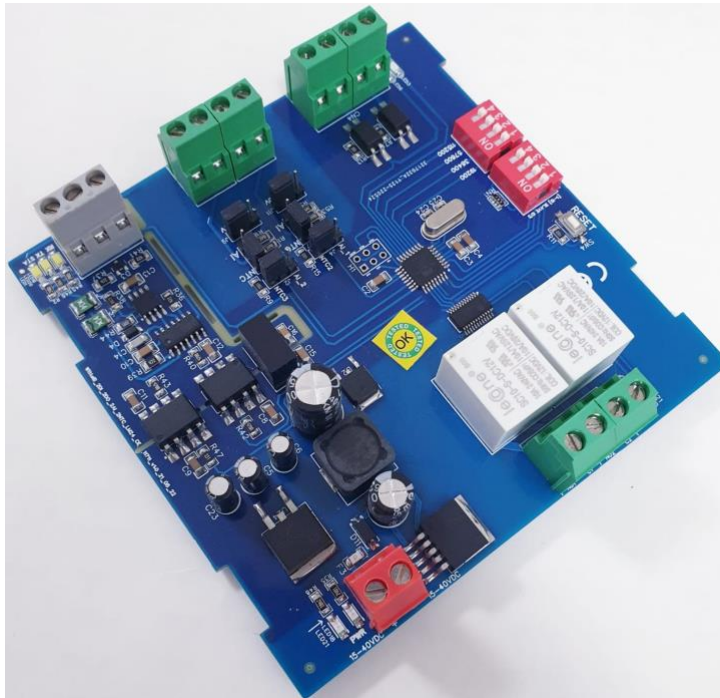


Technical Datasheet Input / Output Modules with Modbus RTU Protocol with RS485 Interface

The IO modules communicate via RS485. The port can drive distances up to max 700 meters without the use of any repeater (*this feature however also depends on the signal strength of the Modbus Master Device*).

The RS485 Digital IO module is sturdy, low power usage and easy to use.

2 Port DO + 2 DI + 2 AI Module: -



The IO modules are mounted on DIN rail mountable casing and with exposed connectors and LED indicators. The DIP switch for Slave ID and Baud rate are placed inside the enclosure.

The design of the modules incorporates '**resettable Fuses**' to safeguard against reverse polarity connection both for **Power** and **Communication** port.

Specifications

General –

I/O Connectors	12 Pin 5.08 mm pitch pluggable screw Terminal Block, 2 Pin 5.08 mm pitch pluggable screw terminals.
Dimensions	110mm L x 110mm B x 50mm H
Power	Input Power – 12 – 24 VDC or 24 V AC/DC Typical – 12V DC @ 80mA
Operating Temperature	0 – 60° C (32 ~ 140°F)

Storage Temperature -20 - 70° C (-4 ~ 158°F)
Storage Humidity 5 ~ 95 % RH, non – Condensing

Certifications**DO with Relay Output –**

Channels 2
Contact Form 1A, 1C
Contact Material Ag Alloy
Contact Capacity 10A @ 240VAC, 10A @ 28VDC
Coil Voltage 5 – 48 VDC
Coil Power 0.36 W
Insulation Resistance 250MΩ
Electrical Life 1 x 10⁵
Mechanical Life 1 x 10⁷
Operating Time 7 msec, Max 15 msec
Release Time 2 msec, Max 6 msec

DI Inputs –

Channels 2
Sense Voltage 3.3 – 30 VDC
Sense Logic Logic '0' = <1 VDC, Logic '1' = >3.3 VDC
Isolation Optically isolated
Response Time 2 msec, Max 6 msec

AI Inputs –

Channels 2
Input Signal 4 – 20 mA / 0 – 20 mA / 0 – 10 VDC (Jumper selectable)
Accuracy ± 2% Full scale
Input Resolution 10 bits (12 Bit Optional)
Isolation Optically Isolated
External Loop Voltage + 12 VDC min
AI input impedance 120Ω

Additional Features: -

Communication port isolated
Input power reverse polarity safety
ESD Safety IEC 61000-4-2, $\pm 30\text{KV}$ contact, $\pm 30\text{KV}$ air
EFT IEC 61000-4-4, 50A (5/50ms)
750V isolation.
CRC Error check.
No configuration needed on the IO board

Configuration Settings: -

Communication Speed	9600 – 115200 Kbps (DIP SW selectable)
Data Bits	8
Parity	None
Stop bit	1
CRC	Yes
Slave ID	1 - 15 (DIP SW selectable)
Function code DO	0x05 and 0x0F (5 Single coil & 15 multiple coil)
DO Register Address	16,17,18,19.
Function code DI	0x02 Read discrete Input
DI Register Address	0,1,2,3.
Function Code AI	0x03 Read Holding Registers
AI Register Address	2,3,4,5.

Note: -

For MODBUS communications, a **shielded and twisted pair cable** is used. One example of such cable is Belden 3105A.

Recommended Cable Electrical Characteristics: -

22 AWG Cable	Shielded and twisted pair should be used.
Tinned Copper	Recommended
Nominal Conductor DCR	14.7 ohm / 1000 ft
Nominal Capacitance	11 pf / feet (conductor to conductor)
High Frequency Non-Insertion Loss	0.5db / 100ft

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