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.

4 Port AO Module Voltage (0-10V): -

The IO modules are mounted on DIN rail mountable Closed enclosure. There is LED indication for Power, Modbus TX/RX

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	2 Pin 5.08 mm pitch pluggable screw terminals.
Dimensions	70 mm x 110 mm x 50 mm
Power	Input Power – 24 V AC/DC
Operating Temperature	0 – 60° C (32 ~ 140°F)
Storage Temperature	-20 - 70° C (-4 ~ 158°F)
Storage Humidity	5 ~ 95 % RH, non – Condensing
Certifications	RoHS, CE APPROVED

AO Outputs –

Channels	4
Inputs Resolution	10 Bit (12 Bit Optional)
Signal Range	0 – 10V
Accuracy	± 2 % of Full scale
Linearity Error	0.1 %
Conversion Time	20 msec

Additional Features: -

Communication port isolated
Input power reverse polarity safety
ESD Safety IEC 61000-4-2, ± 30KV contact, ± 30KV 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 Kbps (DIP SW selectable)
Data Bits	8
Parity	None
Stop bit	1
CRC	Yes
Slave ID	1 – 15 (DIP SW selectable)
Function code AO	0x10 Write Multiple registers
AO Register Address	8,9,10,11.

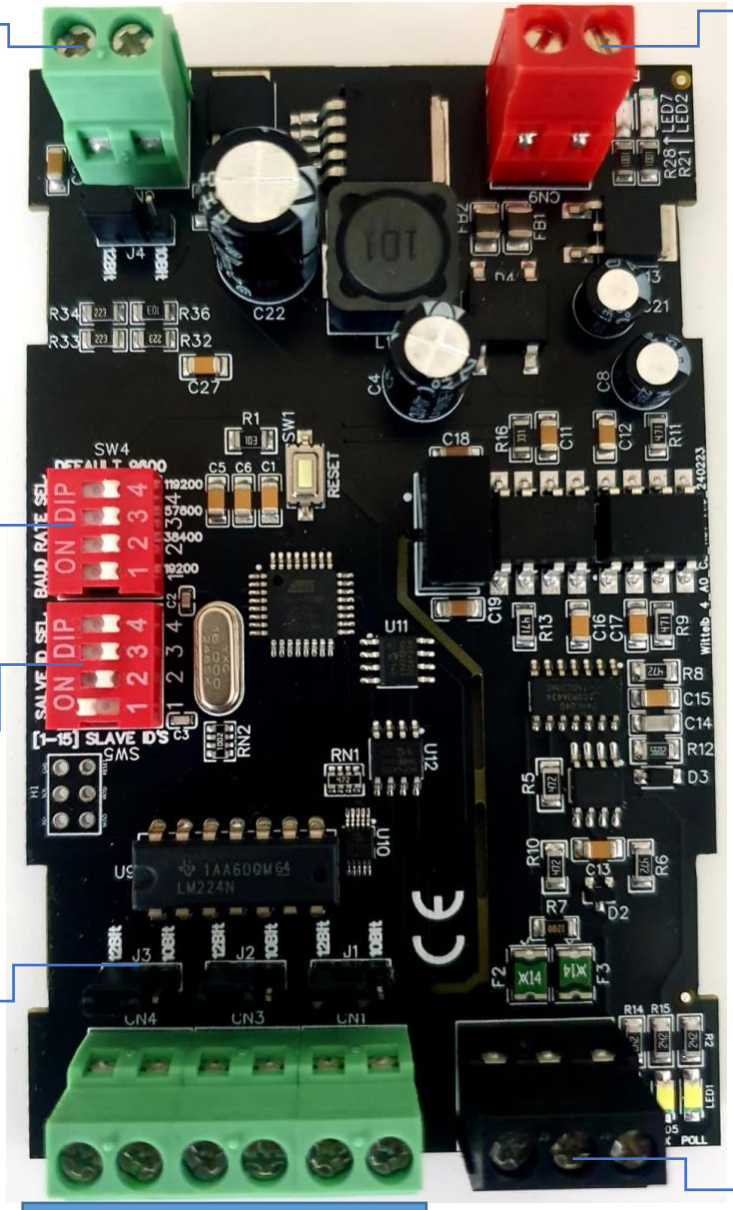
Note: -

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

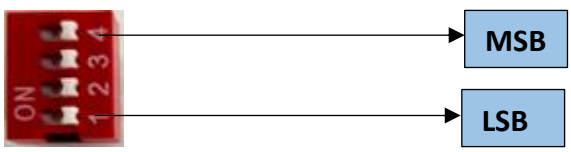
Recommended Cable Electrical Characteristics: -

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

Board Details



SLAVE ID DESCRIPTION



For Slave ID Selection SW is used to Set The SLAVE ID .

For Slave ID DIP Switch LSB is "1" follow through "4" is MSB.

Slave ID Confirmed through below Device ID table .

IF Eg. Slave ID 1 is Needed to be selected Switch number 1 should pulled up other three should be selected down side. So"1 0 0 0" will be selected as Slave ID 1.

Slave ID	DIP SWITCH				OUTPUT (Binary)	OUTPUT (Decimal)
	1	2	3	4		
0	OFF(0)	OFF(0)	OFF(0)	OFF(0)	0 0 0 1	1
1	ON(1)	OFF(0)	OFF(0)	OFF(0)	0 0 0 1	1
2	OFF(0)	ON(1)	OFF(0)	OFF(0)	0 0 1 0	2
3	ON(1)	ON(1)	OFF(0)	OFF(0)	0 0 1 1	3
4	OFF(0)	OFF(0)	ON(1)	OFF(0)	0 1 0 0	4
5	ON(1)	OFF(0)	ON(1)	OFF(0)	0 1 0 1	5
6	OFF(0)	ON(1)	ON(1)	OFF(0)	0 1 1 0	6
7	ON(1)	ON(1)	ON(1)	OFF(0)	0 1 1 1	7
8	OFF(0)	OFF(0)	OFF(0)	ON(1)	1 0 0 0	8
9	ON(1)	OFF(0)	OFF(0)	ON(1)	1 0 0 1	9
10	OFF(0)	ON(1)	OFF(0)	ON(1)	1 0 1 0	10
11	ON(1)	ON(1)	OFF(0)	ON(1)	1 0 1 1	11
12	OFF(0)	OFF(0)	ON(1)	ON(1)	1 1 0 0	12
13	ON(1)	OFF(0)	ON(1)	ON(1)	1 1 0 1	13
14	OFF(0)	ON(1)	ON(1)	ON(1)	1 1 1 0	14
15	ON(1)	ON(1)	ON(1)	ON(1)	1 1 1 1	15

Contact us: -

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