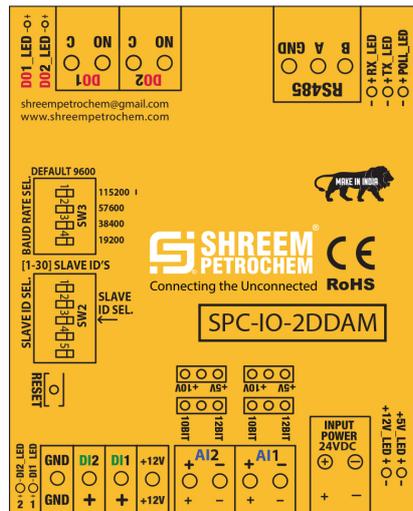


## Technical Datasheet Input / Output Modules with Modbus RTU Protocol with RS485 Interface

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 –

<b>I/O Connectors</b>	12 Pin 5.08 mm pitch pluggable screw Terminal Block, 2 Pin 5.08 mm pitch pluggable screw terminals.
<b>Dimensions</b>	110mm L x 70mm B x 50mm H
<b>Power</b>	Input Power – 12 – 24 VDC or 24 V AC/DC Typical – 12V DC @ 80mA
<b>Operating Temperature</b>	0 – 60° C (32 ~ 140°F)
<b>Storage Temperature</b>	-20 - 70° C (-4 ~ 158°F)
<b>Storage Humidity</b>	5 ~ 95 % RH, non – Condensing



**Certifications**

**DO with Relay Output –**

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

**DI Inputs –**

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

**AI Inputs –**

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