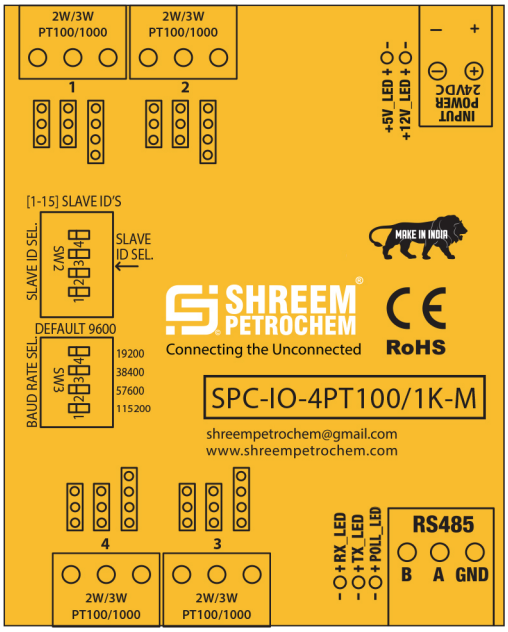
Technical Datasheet Sensor Modules with Modbus RTU Protocol with RS485 Interface

The Sensor 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 Sensor module is sturdy, low power usage and easy to use.

PT100/1000 Module: -

The Sensor 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.
Handles 100Ω to 1kΩ (at 0°C) Platinum RTDs (PT100 & PT1000), Compatible with 2-, and 3-Wire Sensor Connections.



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

Specifications

General –

Connectors	2 Pin 5.08 mm pitch pluggable screw terminals.
Dimensions	70 mm L x 110 mm B x 50 mm 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	RoHS, CE APPROVED

AI Inputs –

Channels	4
Input Signal	4 – PT100 / PT1000 – 10 V (jumper selectable)-Two wire/Three wire
Accuracy	Total Accuracy over All Operating Conditions: 0.5NC (0.05% of Full Scale) max.
Input Resolution	15-Bit ADC Resolution.
Isolation	Optically Isolated.

Additional Features: -

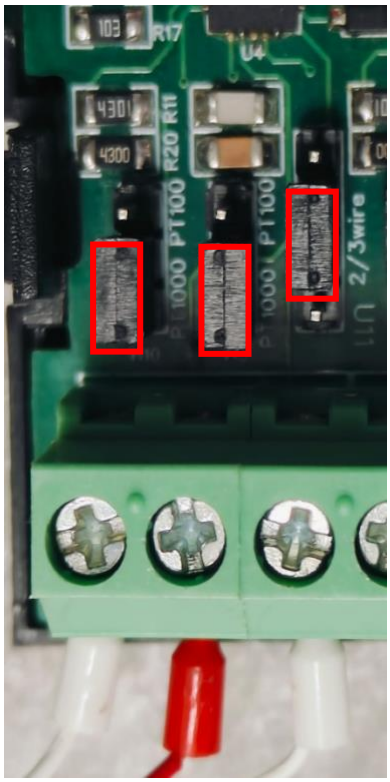
Communication port isolated
Input power reverse polarity safety
ESD Safety IEC 61000-4-2, ± 30KV contact, ± 30KV air
EFT IEC 61000-4-4, 50A (5/50ms)
750V isolation.
CRC Error check.
No configuration needed on the IO board

Configuration Settings: -

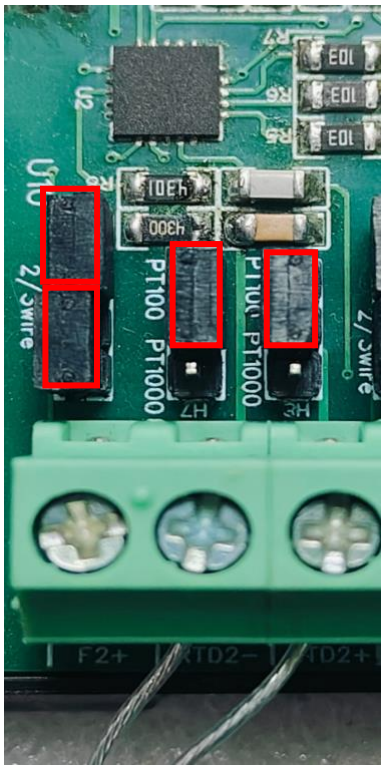
Communication Speed	9600 – 19200 Kbps (DIP SW Selectable)
Data Bits	8
Parity	None
Stop bit	1
CRC	Yes
Slave ID	1-15 (DIP SW Selectable)
Function Code	0x03 Read Holding Registers
AI Register Address	0,1,2,3.

ID	Function Description	Register Description	Modbus Function Code	Protocol	Data Type
0	**RTD1**	40002	0X03	RS485	16 Bit Unsigned int
1	**RTD2**	40003	0X03	RS485	16 Bit Unsigned int
2	**RTD3**	40004	0X03	RS485	16 Bit Unsigned int
3	**RTD4**	40005	0X03	RS485	16 Bit Unsigned int

2&3 wire Connections : -



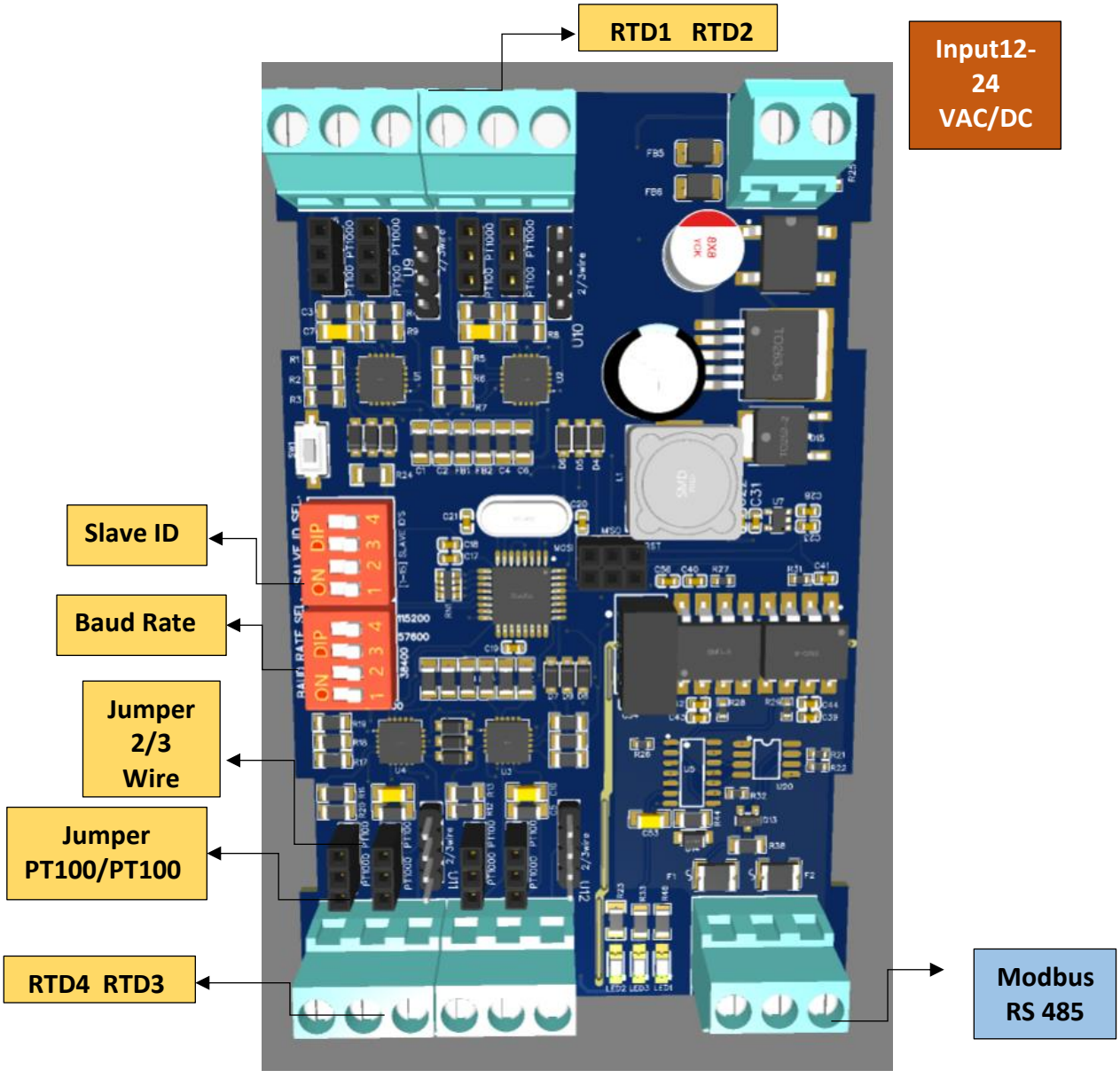
3 wire connection



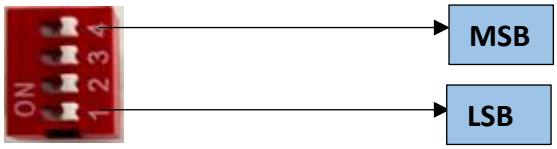
2 Wire connection

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



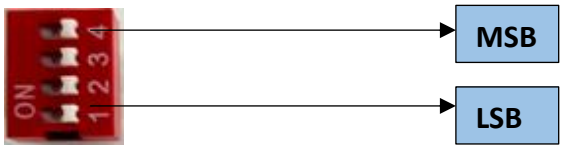
BAUD RATE DESCRIPTION



- For Baud rate Selection, DIP SW is used as per the diagram.
- Pulling up the switch will make Baud rate active.
- If no selection is made 9600 will be default Baud rate.
- When u change the Baud rate in the Module power 'ON' condition, pls press the reset button to get Change to affect.

Baud Rate	DIP SWITCH			
	1	2	3	4
9600	OFF	OFF	OFF	OFF
19200	ON	OFF	OFF	OFF
38400	OFF	ON	OFF	OFF
57600	OFF	OFF	ON	OFF
115200	OFF	OFF	OFF	ON

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

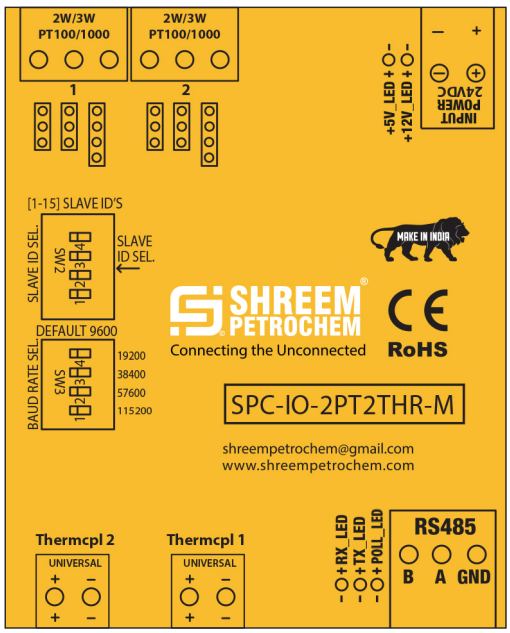
SEE NEXT PAGE FOR OUR OTHER IO CARDS

Contact us: -

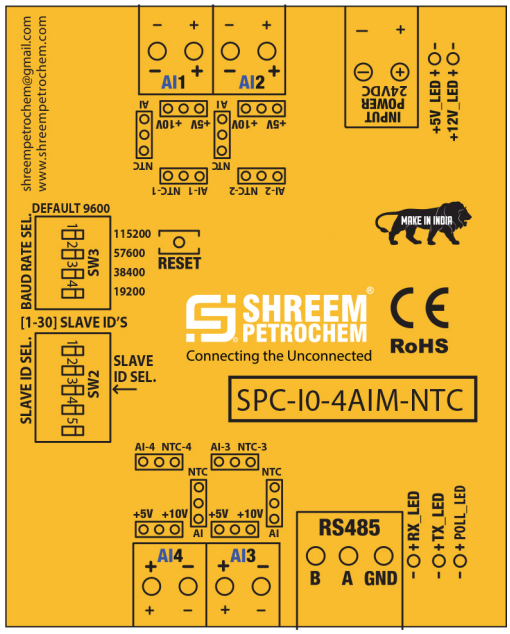
A 807, SAFAL PEGASUS,
PRAHLADNAGAR
AHMEDABAD - 380015
MOB: 8332022161
shreempetrochem@gmail.com

MORE IO CARDS

2 INPUTS OF RTD OF PT 100 TYPE , 3 WIRE
RS 485 , 2 WIRE, MODBUS SERIAL OUTPUT
ADJ - SLAVE ID & BAUD RATE BY DIP SW
2 , THERMOCOUPLE INPUTS
24vdc - POWER SUPPLY



4 , ANALOG INPUTS, 4-20mA or 0-5 VDC or
2-10 VDC
RS 485, 2 WIRE , SERIAL MODBUS OUTPUT
Adj - Slave ID and Baud rate
24 vdc POWER SUPPLY
10 0R 12 BIT (0- 4093 COUNTS- UNSIGNED)



8 DIGITAL INPUTS & 4 ANALOG INPUTS
RS 485 2 WIRE SERIAL MODBUS OUTPUTS,
ADJ - SLAVE ID AND BAUD RATE
24 vdc SPOWER UPPLY
DIGITAL INPUT - SINKING TYPE , NPN