TRANCEL

4-CH RTD to Modbus Transmitter

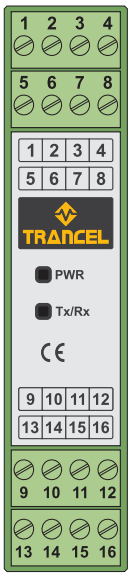
Model TMT2140

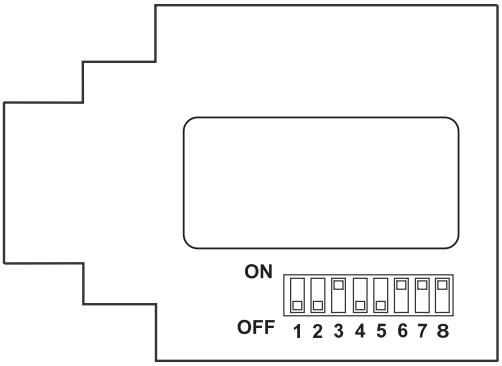
Specifications

Operating Voltage	21.6~26.4vDC
Power Consumption	< 1W
Operating Temperature	-10°C ~ 50°C
Input	4-ch PT100
A/D Sampling speed	1 times/sec
Resolution	0.1° C
Measuring range	-200° C ~ 750° C
Excitation current	10MΩ
Baud Rates	9600 ~ 115200 bps
Isolated RS-485 port	Max 2500 VRMS
Size (mm)	115 x 100 x 23

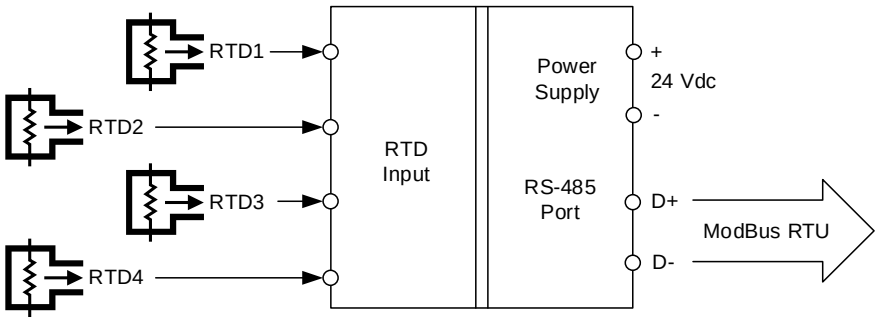
Pin Configuration

1- D+ (RS-485)
2- D- (RS-485)
3- Supply –24vDC
4- Supply +24vDC
5- RTD CH4- B'
6- RTD CH3- B'
7- RTD CH3-B
8- RTD CH3-A
9- RTD CH2-A
10- RTD CH2-B
11- RTD CH2-B'
12- RTD CH4-B
13- RTD CH1-A
14- RTD CH1-B
15- RTD CH1-B'
16- RTD CH4-A





Dipswitches figure



No.	Register	Address	PLC Address	R/W	SIZE	Default
1	Serial Number	1	40002	R	D-Int	-
2	Ch-1 Output x10	10	40011	R	Int	-
3	Ch-2 Output x10	11	40011	R	Int	-
4	Ch-3 Output x10	12	40013	R	Int	-
5	Ch-4 Output x10	13	40014	R	Int	-

1) Reading address [1], the serial number of the device which is an 8 digit (32 bits) is received. The first four digits of this number is 3100 and writing on this address is impossible. Address format for the 32 bit registers is adjustable (section 8).

2) In addresses [10] to [13] the calculated amount for the temperature of 4 channels RTD (PT100) can be read in order. The read value is an Integer number and in 0.1 Centigrade. For example, if read value is 257, the temperature will be $25.7^{0}C$.

Note: Reading consequent addresses with only one request message is not possible in this device. So, a 16 bit word request needs to be sent in order to receive the temperature of each channel.

3) This device is equipped with the NO CONNECTION diagnosing system. That is, each port is checked as the device is energizing and in case one of the ports is not connected to the RTD, related value will be zero. So before powering the device on be ensure, all the sensors are well connected.

4) The total update time for all the four channels is one second. When one of the channels is not connected, the updating time of the related one is eliminated. For example, if just two channels are used, the updating time for them will be 500ms.

5) Adjusting the device address in the Modbus network (S1 to S5): To modify the device address in the Modbus network, switches S1 to S5 can be used and up to 32 devices can be addressed according to the table below.

St-No	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
S1	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On
S2	Off	Off	On	On	Off	Off	On	On	Off	Off	On	On	Off	Off	On	On
S3	Off	Off	Off	Off	On	On	On	On	Off	Off	Off	Off	On	On	On	On
S4	Off	Off	Off	Off	Off	Off	Off	Off	On	On	On	On	On	On	On	On
S5	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off	Off
St-No	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**
S1	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On
S2	Off	Off	On	On	Off	Off	On	On	Off	Off	On	On	Off	Off	On	On
S3	Off	Off	Off	Off	On	On	On	On	Off	Off	Off	Off	On	On	On	On
S4	Off	Off	Off	Off	Off	Off	Off	Off	On	On	On	On	On	On	On	On
S5	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On

6) Serial port settings (S6 & S7): Other RS485 port settings are fixed and they are as follows.

Baud Rate	9600	19200	38400	115200
S6	Off	On	Off	On
S7	Off	Off	On	On

7) Fixed serial port parameters:

Data Bits	Parity	Stop Bits
8	None	1

8) Double integer registers format (S8):

Modbus RTU High-Low: In two word registers, the data is stored to the registers in big-endian format. Least significant word is stored to the highest register address; and most significant word is stored to the lowest register address.

Modbus RTU Low-High: In two word registers, the data is stored to the registers in little-endian format. Least significant word is stored to the lowest register address; and most significant word is stored to the highest register address.

S8	ON (High-Low)	OFF (Low-High)
PLC or HMI	PLC SIEMENS S7-200	PLC FATEC
	PLC Co-Trust	PLC DELTA
	HMI Panel Master (PM)	

Important notice: All changes to the DIP switches mode will affect when the device's turn-on.