

## Data Sheet

Transducer for measuring  
Tap position Resistance



*RISH CON TPT*

## Application

The purpose of the Tap position transducer is to convert tap position of transformers to equivalent analogue output. Outputs can be given as input to either RTU or indicator or recording instrument.

Input variable and measuring range are programmed with the aid of a PC and the configuration software.

The device has one input channel and two independent out puts.

## Features / Benefits

1. Input measuring range can be programmed using PC / Simplifies project planning and engineering (the final range can be determined during commissioning).
2. Electrically isolated Dual out puts.
3. Tap number is programmable from 1 to 100 using software.
4. Tap position is displayed on front LED display.
5. Analogue output signal also programmed using the PC (impressed current or superimposed voltage for all ranges between – 20 and + 20 mA DC resp. – 12 and + 15 V DC)
6. Galvanic and optical isolation between Power supply, Input and outputs
7. 3,4 wire measurement to compensate lead resistance automatically.
8. 2 wire measurement with lead resistance compensation through software.

## Function

Tap position transducers receives resistance input, which corresponds to tap position of transformer. Out put is proportional to tap position.

## Electric Isolation

- Electrically isolated analog outputs prevent interference voltage and current. Solves grounding problem in meshed signal networks.
- High electric isolation between input and output – 2.3 kV, and power supply versus all other circuits – 3.7 kV.

## Standards

Electromagnetic compatibility	Acc. to IEC 61326-1 IEC 61000-4-3, Level 3 IEC 61000-4-4, Level 3
Protection (acc. to IEC 60529 resp EN 60 529)	For Housing : Ip40 For terminals: IP20 as per IEC60529.
Electrical standards	Acc. to IEC 1010 resp. EN 61010
Over voltage category	Acc. to IEC 664: III for power supply. II for measuring input and measuring output.
Double Insulation	- Power supply versus all other circuit. - Measuring input versus measuring output.
Test Voltage	Power supply versus: -All 3.7 kV, 50 Hz 1 min Measuring inputs versus : -Measuring output 2.3 KV ,50 Hz 1min Measuring output1 versus -Measuring output2 500 V,50 Hz 1min

## Technical Data

### Measuring Input

Measured Variable	Measuring ranges		
	Limits	Min. span	Max. span
Low Resistance Range	0...3700 Ω	100 Ω	3700 Ω
High Resistance Range	0...25000 Ω	500 Ω	25000 Ω

Measuring current : = 0.081 mA for measuring range 0...3700Ω.  
or  
= 0.012 mA for measuring range 0...25000Ω.

### Output Signals: Output1 and Output 2

DC current:	Standard ranges: 0-20 mA or 4 – 20 mA
Non-standard ranges:	-20 to +20 mA Min. Span 5 mA Max Span 40 mA
Burden voltage:	Negative –13.2...–18 V Positive 16.5...21 V
External Resistance	Rext max. [kΩ] = 15V/IAN (mA) OR -12V / IAN (mA) IAN (mA) = Full scale current
DC Voltages	Standard ranges: 0-5V, 1-5V, 0-10 V, 2–10 V
External Resistance	Rext min. [kΩ] = UA (V)/20 mA UA (V) = 15V or -12V
Residual ripple in Output current	< 0.5% p.p.
Response time	< 2 s
Power supply	85 – 300 VAC/VDC ±10% (45...65 Hz) OR 24-60 V VAC/VDC ±10% (45...65 Hz)
Power consumption:	<3W or <4.7 VA
Mounting:	DIN Rail mounting or wall mounting.
Mounting Position:	Any

### Accuracy Data

Basic Accuracy:	± 0.2% of range
Reference Conditions	Ambient temperature: 23 °C ± 2K
Power Supply:	85V – 230 V AC DC ±10%
Output burden:	0.5 * Rext max.
Influence factors:	
Temperature:	± 0.15% per 10 K
Burden influence:	< ±0.1 % for current output < ±0.2 % for voltage output
Switch-on drift:	< ± 0.5%
Longtime drift :	< ± 0.3% / 12 months

## Regulations

Electromagnetic Compatibility	Acc. to IEC 61326-1 IEC 61000-4-3, Level 3 IEC 61000-4-4, Level 3
Shock Resistance	IEC 60068-2-27, Min. Severity 50 G
Vibration Strength	IEC 60068-2-6, 5-155-5 Hz, 0.15mm,2G
Electrical standards	Acc. to IEC 1010 resp. EN 61 010
Operating voltages	<300 V between all Insulated circuits
Ambient Temperature	
Climatic rating	Climate case 3Z acc. to VDI / VDE 3540
Operating temperature:	-20 °C to 65 °C
Annual mean relative humidity	< 75% standard Climatic rating.

## Connection Diagram

Fig A shows Input and output connections. Where as Fig B shows Auxiliary power supply to beConnections.

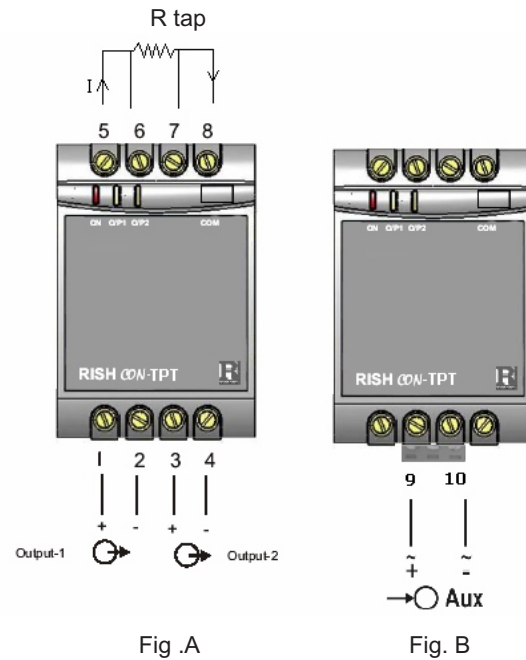


Table: Alternative connection types

Measurement	Measuring range limits	Measuring span	No.	Wiring diagram
two-wire connection	0... 3700 Ω / 0...25000 Ω	100... 3700Ω / 500...25000Ω	1	
Resistance Measurement three-wire connection	0... 3700 Ω / 0...25000 Ω	100...3700Ω / 500...25000Ω	2	
Resistance Measurement four-wire connection	0... 3700 Ω / 0...25000 Ω	100...3700Ω / 500...25000Ω	3	
Resistance Transmitter WF	0... 3700 Ω / 0...25000 Ω	100...3700Ω / 500...25000Ω	4	
Resistance Transmitter WF DIN	0... 3700 Ω / 0...25000 Ω	100...3700Ω / 500...25000Ω	5	

## Ordering Information

PRODUCT NAME- INPUT RANGE CODE-DISPLAY-OUTPUT1 RANGE CODE- OUTPUT2 RANGE CODE AUXILLARY SUPPLY

1) Product Name :- TPT

2) Standard input range codes:-

Input resistance (K $\Omega$ )	Ordering Code
0.....25	1
0....20	2
0.....18	3
0.....17	4

3) Tap Position Indicator Display

Display Ordering	Code
With Display	1
Without Display	2

4) Standard output1 range codes:-

Current (mA)	Ordering Code	Voltage (V)	Ordering Code
0.....20	1	0.....10	3
4.....20	2	2.....10	4

5) Standard output2 range codes :-

Current (mA)	Ordering Code	Voltage (V)	Ordering Code
0.....20	1	0.....10	3
4.....20	2	2.....10	4

6) Auxiliary supply voltage

Auxiliary supply	Ordering Code
85 ...230V AC/DC	H
24...60V AC/DC	L

Example:-

To order model of 0 to 25 K $\Omega$  input , with Tap Position indicator Display, output1 0 to 10V , output2 4 to 20 mA and auxiliary supply 24 to 60 V AC DC, ordering information will be as follow :-

TPT-1-1 -3-2-L



RISHABH  
INSTRUMENTS

Measure, Control & Record with a Difference

RISHABH  
INSTRUMENTS

RISHABH INSTRUMENTS PVT.LTD.  
F-31, MIDC, Satpur, Nashik-422 007,India.  
Tel.: +91 253 2202160, 2202202 Fax : +91 253 2351064  
E-mail : India :- marketing@rishabh.co.in  
International :- exp.marketing@rishabh.co.in  
Web-site : www.rishabh.co.in