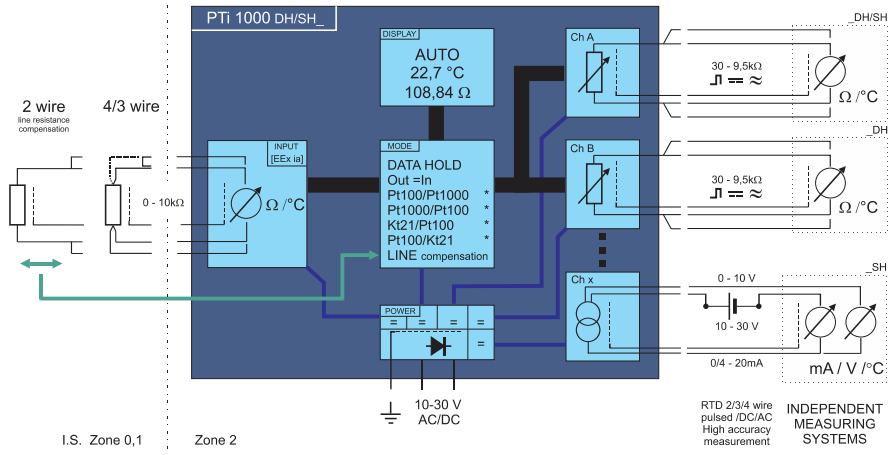
Real Resistance RTD Splitter/ Isolator **PTi 1000 _DH/SH/XD/XS**

High accuracy real resistance replicator & isolator PTi 1000_ is used for galvanic isolation of resistance - based sensors and multiplying measuring systems on a single sensor - i.e. RTD resistance splitter. Special, patented design delivers high accuracy resistance output even when read on pulsed or multiplex measuring systems.

Basic operation principle is resistance measurement, calculation and resistance generation on two or more independent outputs. Mini OLED display provides basic information on working mode, input resistance and temperature correspondence for designated sensor. DIN rail mounted housing is fitted for industry cabinet use.

For various applications a number of types are available: Full-Auto-range, several Narrow-range types, RTD + Current & Voltage output, chained _DHf modules for multiple RTD outputs and Current/Voltage to RTD converter. All with intrinsic safe galvanic separation on every port -see table below.



* _DH/SH OLED type only

Type codes: i.e. PTi 1000 DH x0 OLED eX

	Function		Range & accuracy	Display / [EEx ia]	
DH	Resistance 0 -10 kΩ IN # digital IN ;	/	30-9,5k Ω / -50....300°C ; ±0,05°C@PT100	_OLED	OLED display
DHf #	2x resistance (RTD) OUT		Multi-sensor / conversion / auto-ranging	/	no display
SH	Resistance 0 -10 kΩ IN ;	x0	96-120 Ω / -10....50°C; ±0,1°C @PT100		
	1x resistance (RTD) OUT	x1	92-158 Ω / -20....150°C; ±0,2°C @PT100	/	standard
	1x 0/4-20mA, 0-10V OUT	x2	92-213 Ω / -20....300°C; ±0,4°C @PT100	_eX	[EEx ia]
	0/4 - 20mA, 0 -10V IN ;	x3	960-1200 Ω / -10....50°C; ±0,1°C @PT1000		
XS	1x resistance (RTD) OUT	x4	920-1580 Ω / -20....150°C; ±0,2°C @PT1000		
XD	2x resistance (RTD) OUT				
	//RTD simulation ; RTD from current loop extraction//	X5	920-2130 Ω / -20....300°C; ±0,4°C @PT1000		

* Custom ranges available

FEATURES

- RTD / Resistance 2, 3, 4w input
- 2 wire in-line-loop compensation
- 2 channel RTD (DH, DHf) or RTD + Current/Voltage output (SH) with superb linearity
- Resistance out. 30Ω – 9,5 kΩ
- High accuracy /typically 0,02% (Temp eff: 0,05°C /60°range @PT100)
- Pulsed / multiplex measurement compatible
- No out-excitation current & pulse duration limit (within max. load)
- PT100/1000, KTxx conversion
- Selectable Current / Voltage output range (_SH _OLED)
- Voltage/Current to RTD resistance conversion (_XD,_XS)
- Galvanic isolation on every port
- Excellent EMC performance
- With or without OLED display
- 10...30V AC or DC power supply

APPLICATIONS

- PT100/1000/RTD splitter - clone
- Sharing Temperature / Force / Position sensors
- Sensor isolation & intrinsic safety separation (_Ex ia)
- Ground-loop cancelation
- Intermediate temperature control and monitor (OLED)
- RTD sensor conversion
- RTD resistance extraction from Voltage / Current loop (_XD,_XS)

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TECHNICAL SPECIFICATIONS

OVERALL	DH/SH/XS/XD types	_eX option	DHf modules
Power supply	10 - 30 V AC or DC		
Polarity reverse protection	yes		
Power consumption: average / peak	< 1,2 W (OLED) / 2,5 W		
Galvanic isolation - any port; capacitance	> 500 VAC; < 300 pF	2500 VAC ; < 300 pF	
Temperature range	-30 ... +50° C		
Protection degree	IP20		
Dimensions (W x H x D); weight; rail mounting	22 x 92 x 69 mm; 135 g; EN 60715	/ 22 x 92 x 93 mm;	250g; EN 60715
Compliance	CE, EN61010-1, EN61000-3/2,-6/1,3	Ex II3 [EEx ia]	
RESISTANCE INPUT			**DIGITAL INPUT**
Temperature sensor compatibility	PT100/500/1000, Ni100, KT_xx		
Connection	2/3/4 wire		D-side bus
Loop resistance - 2w compensation	< 50 Ω		
Sensor excitation current	< 0,65mA		
Resolution; RTD_{eff}@ PT100; PT500/1000,KT_	16 bit; 0,03 °C; 0,01 °C		
RESISTANCE OUTPUT			
Connection	2/3/4 wire		
Excitation current, max. load	< 10 mA , 100 mW		
Input to Output delay	< 0,5 s		
Pulsed/multiplex read compatible	yes		
Number of outputs	2 or 4		
CURRENT / VOLTAGE OUTPUT(_SH) & INPUT(_XD, _XS)			
Current IN & OUT; max. voltage IN	0 /4 - 20 mA selectable; max. 35 V		
Voltage IN & OUT; max. load OUT	0 – 10V; max. 5 mA		
DISPLAY			
Type	OLED 64x48 , blue		
WORKING MODE			
Auto	OUT = IN		i.e. PT100 IN / 2X PT100 OUT
x10 *	OUT=10 x IN		i.e. PT100 IN / 2X PT1000 OUT
/10 *	OUT=IN / 10		i.e. PT1000 IN / 2X PT100 OUT
F-FIX *	OUT = IN		i.e. Fast response draft output
PT/KT **	PT100 / KT		i.e. PT100 IN / 2X KT21 OUT
2w Comp	/		Input sensor -2 wire loop impedance compensation

* _DH/SH OLED only

ERROR LIMITS

Resistance range	DISPLAY res. ; accuracy (Ω)	DISPLAY Temp. res. ; accuracy (°C)	Repetition INPUT to OUTPUT res. ; accuracy (Ω)	Repetition INPUT to OUTPUT Temp. res. ; accuracy (°C)
0 Ω - 30 Ω	10 mΩ ; < ±0,1% ±1dig	*not applied	/	*not applied
30 Ω - 80 Ω	10 mΩ ; < ±0,05% ±1dig	*not applied	50 mΩ ; < ±0,5% ±1dig	*not applied
80 Ω - 212 Ω	10 mΩ ; < ±0,02% ±1dig	0,1°C ; < ±0,1°C ±1dig (PT100 @ -50..300°C)	10 mΩ ; < ±0,02% ±1dig	0,01°C ; < ±0,1°C ±1dig (PT100 @ -50..300°C)
212 Ω - 650 Ω	10 mΩ ; < ±0,03% ±1dig	*not applied	10 mΩ ; < ±0,05% ±1dig	*not applied
650 Ω - 1kΩ	100 mΩ ; < ±0,03% ±1dig	0,1°C ; < ±0,1°C ±1dig (PT1000 @ -30..0°C)	20 mΩ ; < ±0,03% ±1dig	0,05°C ; < ±0,2°C ±1dig (PT1000 @ -30..0°C)
1 kΩ - 2,2 kΩ	100 mΩ ; < ±0,02% ±1dig	0,1°C ; < ±0,1°C ±1dig (PT1000 @ 0..300°C)	20 mΩ ; < ±0,02% ±1dig	0,05°C ; < ±0,2°C ±1dig (PT1000 @ 0..300°C)
2,2 kΩ - 9,5 kΩ	1 Ω ; < ±0,05% ±1dig	*not applied	50 mΩ ; < ±0,2% ±1dig	*not applied

PTi 1000 DH OLED data; % for r.v.; * applicable, accuracy not specified