

# PD 643 3-Channel Temperature / 0-100 mV input module

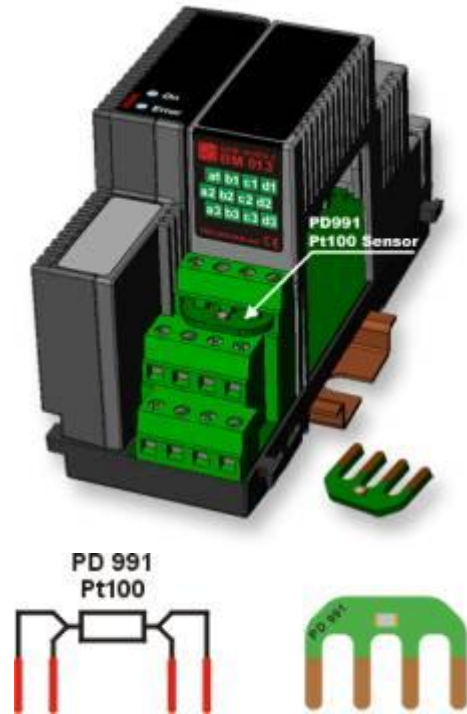
## Specific Features

The PD 643 is an analogue input module with one Pt-100/Pt-1000/thermocouple/ 0-100 mV input channel and two thermocouple/0-100 mV input channels. All inputs can be configured for thermocouple/0-100 mV sensor input. A Pt-100 / Pt-1000 temperature sensor can be connected to channel 1 and may be used as a reference temperature for the thermocouple sensors connected to channel 2 and 3.

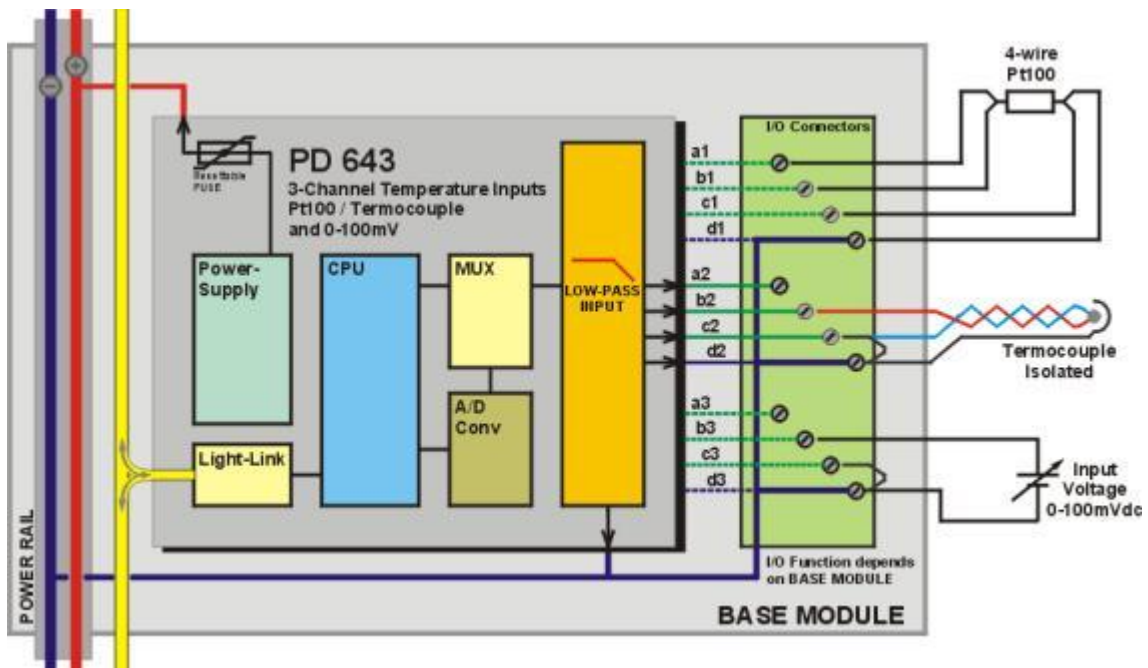
The thermocouple inputs are floating.

The PD 643 provides linearization for the following types of thermocouple transducers: Type R, S, B, J, T, E, K and N.

A PD 991 Pt-100 sensor can be very useful if channel 1 is to be used as a temperature reference for thermocouple sensors connected to the channels 2 and 3.



## PD 643 Block Schematic



## Channel Structure

The PD 643 consists of 4 channels as shown in the table.

Channel No.	Channel Name	Channel Description
0	Service	Device Ident., Address and Config.
1	Analog_1	Analogue Input
2	Analog_2	Analogue Input
3	Analog_3	Analogue Input

## Electrical Specifications

### Power supply

Power supply DC:	nom.	24.0 V
	min.	18.0 V
	max.	32.0 V
Ripple voltage:	max.	5 %

### Power consumption @ 24V DC

Operation:	max.	25 mA
Current at power up:	max.	60 mA

### Analogue input (Ch. 1- 3)

Signal type:	Thermocouple	
Input impedance:	> 5 M $\Omega$	
Calibration error: @ Tamb. 20 °C	max. +/- 0.1 % of fullscale	
Ambient temperature coefficient Tc:	max.	+/- 100 ppm / °C
Ambient temperature influence ( $\Delta V$ ):	Tc x (Tambient – 20) x input	
Resolution:	typ.	20 $\mu$ V
Update time:	fixed	0.8 s

### Voltage to temperature conversion for thermocouples

Supported IEC 584-1 thermocouple types: R, S, B, J, T, E, K, N

### Filter for analogue input signal

Type:	4th order low pass	
Time constant:	configurable	3.0 s – 50.0 s
Gain error:	max.	+/- 0.1 %

### Analogue input (Ch. 1 - 3)

Signal type:	Pt-100 / Pt-1000	
Connection:	4-wire / 2-wire	
Update time:	Fixed	2.4 s
Input temperature range:	Pt-100	-100 °C → +600 °C
	Pt-1000	-100 °C → +200 °C
Ambient temperature coefficient Tc:	max.	$\pm$ 15 ppm / °C
Ambient temperature influence ( $\Delta T$ ):	Tc x (Tambient – 20) x (Tsensor + 273)	

### Pt-100 Data (excluding sensor)

Calibration error: @ T amb. 20 °C	max.	$\pm$ 0.1 °C
Resolution:	typ.	0.05 °C
Measuring current:	max.	500 $\mu$ A

### Pt-1000 Data (excluding sensor)

Calibration error: @ T amb. 20 °C	max.	$\pm$ 0.2 °C
Resolution:	typ.	0.2 °C
Measuring current:	max.	50 $\mu$ A

### Ambient temperature range

Operating temperature:	-25 °C – 70 °C
Storage temperature:	-40 °C – 85 °C

### Humidity

Relative humidity:	max.	95 %
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### EMC

Immunity:	EN 61000-6-2
Emission:	EN 61000-6-3

### Vibration

Test method:	IEC 60068-2-6
Frequency / amplitude:	2-10 Hz: +/- 5.0 mm
	10-100 Hz: +/- 2g
Sweep rate:	max. 1 octave/min
Number of axes:	3 mutually perpendicular