



Eurotherm

Pt100 Converter - Isolated

Specification Sheet

- Converts process measurements from Pt100 temperature sensors to voltage or current outputs
- Multiple pre-calibrated temperature ranges are selectable via DIP-switches
- Excellent accuracy, better than 0.1°C or 0.05% of selected range
- Selectable < 30 ms / 300 ms response time
- Excellent 50/60 Hz noise suppresion
- Slimline 6 mm housing

Applications

- The SL418 temperature converter measures a standard 2-, 3- or 4-wire Pt100 temperature sensor, and provides an isolated analog voltage or current output.
- The narrow 6 mm housing and very low power consumption allows up to 165 units to be mounted per metre of DIN rail, without any air gap between units.
- High 3 port isolation provides surge suppression and protects the control system from transients and noise.
- The SL418 can be mounted in the safe area or in Zone 2 / Division 2 areas.

Technical characteristics

- Flexibly powered by 24 VDC (±30%) via power rail or connectors.
- Selectable < 30 ms / 300 ms response time provides either fast response or signal dampening as needed.
- Excellent conversion accuracy in all available ranges, better than 0.1°C or 0.05% of selected range.
- Meeting the NAMUR NE21 recommendations, the SL418 provides top measurement performance in harsh EMC environments.
- The device meets the NAMUR NE43 standard defining out of range and sensor error output values.
- A visible green LED indicates operational status of the unit and the input sensor.
- All terminals are protected against overvoltage and polarity error.
- High galvanic isolation of 2.5 kVAC.
- Excellent signal/noise ratio of > 60 dB.

Mounting / installation / programming

- Easy configuration of more than 1000 factory calibrated measurement ranges via DIP-switches.
- A very low power consumption allows DIN rail mounting without the need for any air gap.
- Wide ambient temperature range of -25...+70°C.













Specification

Environmental conditions

-25°C to +70°C -40°C to +85°C Specifications range: Storage temperature: 20...28°C Calibration temperature:

Relative humidity: < 95% RH (non-cond.) IP20 / EN60529 Protection degree:

pollution degree 2 and overvoltage Installation:

category II.

Mechanical specifications

113 x 6.1 x 115 mm Dimensions (HxWxD):

70 g Weight approx:

DIN EN 60715 - 35 mm DIN rail type: Wire size: $0.13...2.5 \; mm^2 \, /$ AWG 26...12 stranded wire

Screw terminal torque: 0.5 Nm

Common electrical specifications

Supply voltage, DC: 16.8...31.2 VDC Power consumption, max:

Internal consumption, max: 0.65 W

Isolation voltage, test: 2.5 kVAC (reinforced) Working isolation voltage: 300 VAC / 250 VAC (Ex)

Signal / noise ratio: > 60 dB

Response time (0...90%, 100...10%): < 30 ms / 300 ms (selectable)

Accuracy - the greater of the basic and general value is valid

Pt100 input	Accuracy	Temperature coefficient
Basic	≤ 0.1°C	≤ ± 0.02°C/°C
General	\leq ± 0.05% of span	≤ ± 0.01% of span/°C

of span = of the selected input range

EMC immunity influence: Extended EMC immunity: $< \pm 0.5\%$ of span NAMUR NE 21, A criterion, burst: $< \pm 1\%$ of span

Input specifications, Pt100 acc. to IEC 60751: .

Temperature range,

DIP sw programmable: -200...+850°C < 0.2 mA Sensor current: Cable resistance per wire, max: 50 Ω

Effect of sensor cable resistance,

< 0.002 Ω / Ω 3- / 4-wire: Sensor error detection: Yes - selectable by DIP sw

Shorted sensor detection: < 18 Ω Broken sensor detection: > 800 Ω

Output specifications

Current output:

0...20 and 4...20 mA Programmable ranges:

Range limits, NAMUR NE43

out of range: 0 / 3.8 and 20.5 mA Sensor error indication, DIP sw selectable according to NAMUR NE43 0 / 3.5, 23 mA or none

21 mA / 600 Ω / 12.6 V Load (max.): \leq 0.01% of span / 100 Ω Load stability:

Voltage output:

0...5, 1...5, 0...10, 2...10 V Programmable ranges: $0 / \pm 2.5\%$ of selected range Range limits, out of range:

 $> 10 \text{ k}\Omega$

Approvals

EMC 2004/108/EC: EN 61326-1 LVD 2006/95/EC: EN 61010-1 UL, Standard for Safety: UL 61010-1 Safe Isolation: EN 61140

Ex / I.S.

ATEX 94/9/EC: DEKRA 13ATEX 0137X

c FM us: 3049859-2

DIP-switch configuration

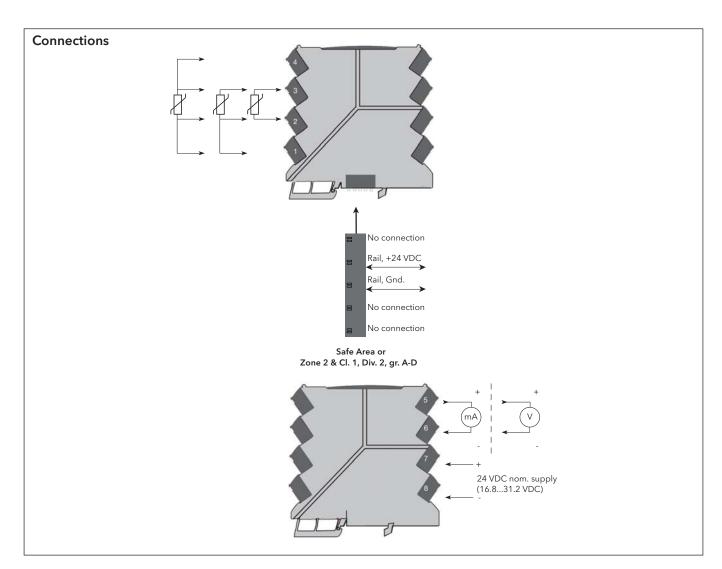
(Power must be cycled after DIP switch positions are changed).

Sensor S1	1	2	3	Sensor Error Detection S1								
Pt100, 2w	•		П	None	Г							
Pt100, 3w		•	П	Enable								
Pt100, 4w	•	•	П	Output Error Level S1	8							
Output S1	4	5	6	Downscale								
020 mA	Г	Г	П	Upscale	•							
420 mA	•	Г	П	Company and a second	_							
010 V	Г	Г	•	Noise Supp.S1 9 Resp.T. S1	10							
210 V	•	Т	•	50 Hz < 30 ms								
05 V	Ť	•	•	60 Hz ● 300 ms	•							
15 V	•	•	•									

• = ON

None										
Enable										
Output Error Le	ve	l S	1 8							
Downscale			Т							
Upscale			•							
Noise Supp.S1	9	Resp.T. S1	10							
50 Hz	П	< 30 ms								
60 Hz	•	300 ms								

	DIP S2 ●= ON									Τ	Temperature Range °C													
Start Temp.		2	3 4		End Temp.	5	6 7	7 8	9	10		End Temp.	5	6	7	В	9	10	End Temp.	5	6	7	8	9 10
-200	Т	П		1	0	П	T	Т	Т	П	1	105	П	•	7	Ð		•	375	•		•		•
-180	Т		•	1	5	П	Т	Τ	Г	•	1	110	П	•		0			400	•		•		
-150	Т	П	•	1	10	П	Т	Т	•		1	115	П	•	-	0	0	•	450	•		•	•	
-100	Т		•	1	15	П	T	Т	•	•	ı	120		•	•	T			500	•		•	•	•
-50	Т	•	П	1	20	П	Т	•	1		1	125	П	•	•	T		•	550	•		•	•	0
-25	Т	•	•	1	25	П	T	•	•	•	1	130	П	•	•	1	0		600	•		•	•	0
-10		•	•	1	30	П	T	•	•		ı	135		•	•	1	0	•	650	•	•			
-5	Т	•	•		35	П	Т	•		•	1	140	П	•	•	0			700	•	•		П	•
0	0		П	1	40	П	1	•	Г	П	1	145	П	•	•	Ð		•	750	•	•	П		•
-10 -5 0 5	0		•	1	45	П	1	•	Г	•	1	150	П	•	•	0	0		800	•	•	П		
10	0		•]	50	П	•	•	•		1	160		•	•	0	0	•	850	•	•		•	
20	0		• •	1	55	П	1	•	•	•	1	170	•	П	Т	I								
25	0	•		1	60	П	1	•	•		1	180	•	T	Т	I		•						
50	0	•	•		65	П	•	•	•	•	ı	190	•		I	1	0							
100	0	•	•]	70	П	1	•	•		1	200	•	П	П	1	0	•						
200	0	•	• •	1	75	П	1	•		•	1	225	•	Т	7	•								
					80	П	•	Ι	Γ		ı	250	•	I	_	Ð		•						
Sens.			emp		85	П	•	Ι	Γ	•	ı	275	•	I	1	0	0							
type:		ra	nge	°C:	90	П	•	Τ	•		ı	300	•		1	0	0	•						
Pt100	-20	0 -	+8	50°C	95	П	•	Т	•	•	ı	325	•	-	•	1								
					100	П	•	•	•		ı	350	•	_	•	I		•						

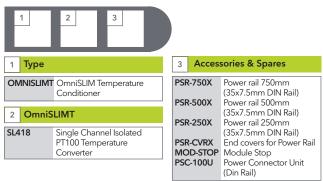




Installation on a 35mm DIN rail

The OmniSLIM devices must be supported by module stops - part number MOD-STOP.

Order codes





Marking

The front cover of the OmniSLIM units has been designed with an area for affixation of a click-on marker. The area assigned to the marker measures 5×7.5 mm.

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