

SL558-T

OmniSLIM

MODEL



i n v e n t e r s
Eurotherm

Temperature Converter Loop Powered - Isolated

Specification Sheet

- Converts process measurements from Pt100 and Thermocouples J & K temperature sensors to an isolated passive 4...20 mA current output
- Multiple pre-calibrated temperature ranges are selectable via DIP-switches
- Excellent accuracy, better than 0.05% of selected range
- Selectable < 30 ms / 300 ms response time
- Excellent 50/60 Hz noise suppression
- Slimline 6 mm housing

Applications

- The SL558-T temperature converter measures a standard Pt100 or Thermocouples (J & K type) and provides an isolated passive analog current output signal.
- 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 2 port isolation provides surge suppression and protects the control system from transients and noise.
- A competitive choice in terms of both price and technology for galvanic isolation of current and voltage signals to SCADA systems or PLC equipment.
- The SL558-T can be mounted in the safe area or in Zone 2 / Division 2 areas.

Technical characteristics

- Flexibly loop powered by 8...35 VDC via 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% (Pt100) and better than 0.5°C or 0.05% (TC J & K) of selected range input.
- Meeting the NAMUR NE21 recommendations, the SL558-T provides top measurement performance in harsh EMC environments.
- The device meets the NAMUR NE43 standard defining out of range and sensor error output values.
- 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.


ACTION INSTRUMENTS



Specification

Environmental conditions

Specifications range:	-25°C to +70°C
Storage temperature:	-40°C to +85°C
Calibration temperature:	20...28°C
Relative humidity:	< 95% RH (non-cond.)
Protection degree:	IP20 / EN60529
Installation:	pollution degree 2 and overvoltage category II.

Mechanical specifications

Dimensions (HxWxD):	113 x 6.1 x 115 mm
Weight approx:	70 g
DIN rail type:	DIN EN 60715 - 35 mm
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:	8...35 VDC
Voltage drop:	8 VDC
Power consumption, max:	1 W
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	≤ ± 0.05% of span	≤ ± 0.01% of span/°C

TC J & K input	Accuracy	Temperature coefficient
Basic	≤ 0.5°C	≤ ± 0.1°C/°C
General	≤ ± 0.05% of span	≤ ± 0.01% of span/°C

of span = of the selected input range

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

Input specifications, Pt100 acc. to IEC 60751:

Temperature range,	
DIP sw programmable:	-200...+850°C
Sensor current:	< 0.2 mA
Cable resistance per wire, max:	50 Ω
Effect of sensor cable resistance, 3- / 4-wire:	< 0.002 Ω / Ω
Sensor error detection:	Yes - selectable by DIP sw
Shorted sensor detection:	< 18 Ω
Broken sensor detection:	> 800 Ω

Input specifications, TC J & K acc. to IEC 60584-1:

Temperature range,	
DIP sw programmable:	TC J -100...+1200°C TC K -180...+1372°C
Sensor and cable resistance, max:	10 kΩ
Cold junction compensation (CJC) accuracy:	
via external CJC (Pt100):	< 0.3°C + accuracy of the used Pt100 sensor
via internal CJC sensor:	< ±(2.0°C + 0.2°C * Δt)
	Δt = internal temperature - ambient temperature
Sensor error detection:	Yes - selectable by DIP sw

Output specifications

Current output:	
Programmable ranges:	4...20 and 20...4 mA
Range limits, NAMUR NE43 out of range:	3.8 and 20.5 mA
Sensor error indication, DIP sw selectable according to NAMUR NE43:	3.5, 23 mA or none
Load resistance:	≤ (V _{supply} - 8) / 0.023 [Ω]
Load stability:	≤ 0.01% of span / 100 Ω

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

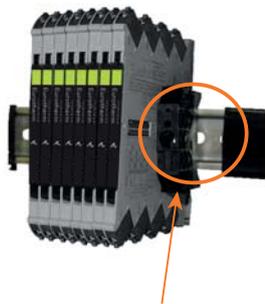
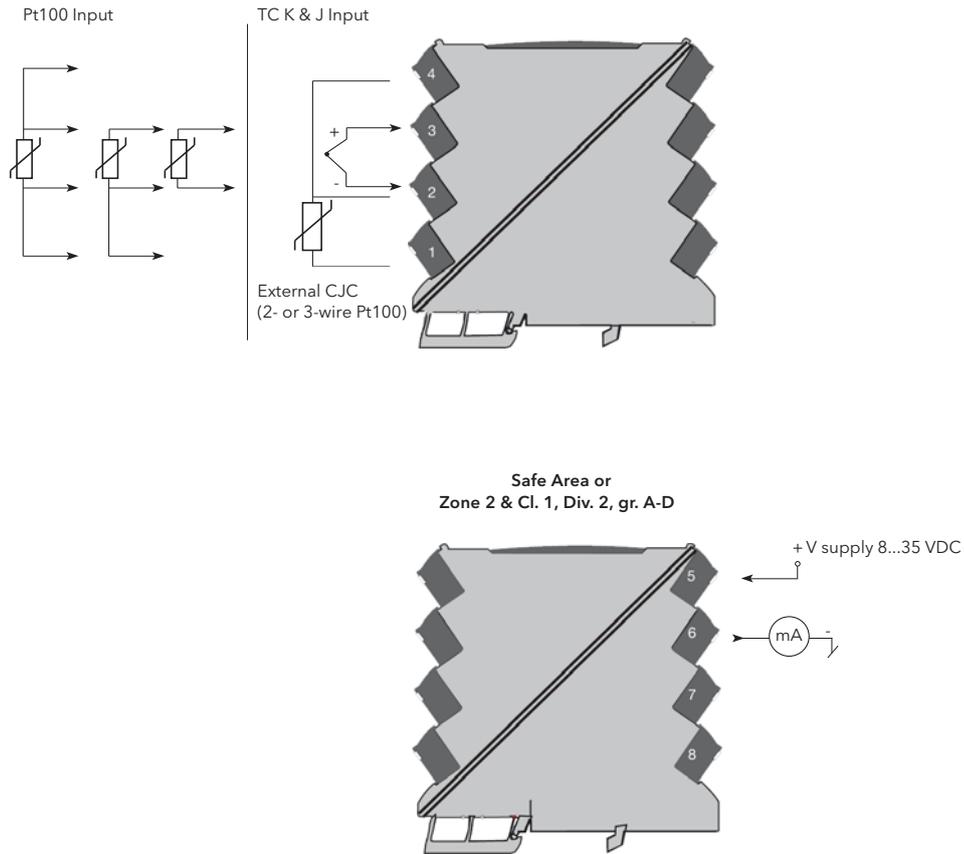
(Power must be cycled after DIP switch positions are changed).

Sensor S1	1	2	3	Sensor Error Detection S1	7
Pt100, 2w	●			None	
Pt100, 3w		●		Enable	●
Pt100, 4w	●	●			
TC J (Int. CJC)	●	●		Output Error Level S1	8
TC K (Int. CJC)	●	●		Downscale	
TC J (Ext. CJC)	●	●		Upscale	●
TC K (Ext. CJC)	●	●			
Output S1	4	5	6	Noise Supp. S1	9
4...20 mA	●			50 Hz	
20...4 mA	●	●		60 Hz	●
				Resp. T. S1	10
				< 30 ms	
				300 ms	●

● = ON

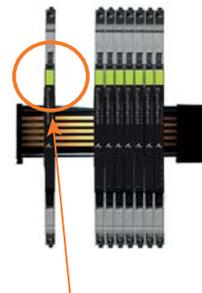
		DIP S2 ● = ON										Temperature Range °C													
Start Temp.	1	2	3	4	End Temp.	5	6	7	8	9	10	End Temp.	5	6	7	8	9	10	End Temp.	5	6	7	8	9	10
-200					0							105	●	●	●	●	●	●	375	●	●	●	●	●	●
-180					5							110	●	●	●	●	●	●	400	●	●	●	●	●	●
-150					10							115	●	●	●	●	●	●	450	●	●	●	●	●	●
-100					15							120	●	●	●	●	●	●	500	●	●	●	●	●	●
-50					20							125	●	●	●	●	●	●	550	●	●	●	●	●	●
-25					25							130	●	●	●	●	●	●	600	●	●	●	●	●	●
-10					30							135	●	●	●	●	●	●	650	●	●	●	●	●	●
-5					35							140	●	●	●	●	●	●	700	●	●	●	●	●	●
0					40							145	●	●	●	●	●	●	750	●	●	●	●	●	●
5					45							150	●	●	●	●	●	●	800	●	●	●	●	●	●
10					50							160	●	●	●	●	●	●	850	●	●	●	●	●	●
20					55							170	●	●	●	●	●	●	900	●	●	●	●	●	●
25					60							180	●	●	●	●	●	●	950	●	●	●	●	●	●
50					65							190	●	●	●	●	●	●	1000	●	●	●	●	●	●
100					70							200	●	●	●	●	●	●	1050	●	●	●	●	●	●
200					75							225	●	●	●	●	●	●	1100	●	●	●	●	●	●
					80							250	●	●	●	●	●	●	1150	●	●	●	●	●	●
					85							275	●	●	●	●	●	●	1200	●	●	●	●	●	●
					90							300	●	●	●	●	●	●	1250	●	●	●	●	●	●
					95							325	●	●	●	●	●	●	1300	●	●	●	●	●	●
					100							350	●	●	●	●	●	●	1350	●	●	●	●	●	●
																			1372	●	●	●	●	●	●

Connections



Installation on a 35mm DIN rail

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



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 x 7.5 mm.

Order codes



1	Type
OMNISLIMT	OmniSLIM Temperature Conditioner

2	OmniSLIMT
SL558-T	Single Channel Isolated (J, K & PT100) Temperature Converter

3	Accessories & Spares
PSR-750X	Power rail 750mm (35x7.5mm DIN Rail)
PSR-500X	Power rail 500mm (35x7.5mm DIN Rail)
PSR-250X	Power rail 250mm (35x7.5mm DIN Rail)
PSR-CVRX	End covers for Power Rail
MOD-STOP	Module Stop
PSC-100U	Power Connector Unit (Din Rail)

Contact Information

Eurotherm Head Office

Faraday Close, Durrington,
Worthing, West Sussex,
BN13 3PL

Sales Enquiries

T +44 (01903) 695888
F 0845 130 9936

General Enquiries

T +44 (01903) 268500
F +44 (01903) 265982

Worldwide Offices

www.eurotherm.com/global



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