

SL428 OmniSLIM

MODEL



i n v e n t a s
Eurotherm

Thermocouple Converter Isolated Specification Sheet

- Converts process measurements from Thermocouples (J & K temperature sensors) to voltage or current outputs
- Multiple pre-calibrated temperature ranges are selectable via DIP-switches
- Excellent accuracy, better than 0.5°C or 0.05% of selected range
- Selectable < 30 ms / 300 ms response time
- Excellent 50/60 Hz noise suppression
- Slimline 6 mm housing

Applications

- The SL428 temperature converter measures standard Thermocouples (J & K temperature sensors) 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 SL428 can be mounted in the safe area or in Zone 2 / Division 2 areas.

Technical characteristics

- Flexibly powered by 24 VDC ($\pm 30\%$) 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 0.5°C or 0.05% of selected range.
- Meeting the NAMUR NE21 recommendations, the SL428 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.


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:	16.8...31.2 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

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, 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:	0...20 and 4...20 mA
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
Load (max.):	21 mA / 600 Ω / 12.6 V
Load stability:	≤ 0.01% of span / 100 Ω
Voltage output:	
Programmable ranges:	0...5, 1...5, 0...10, 2...10 V
Range limits, out of range:	0 / ± 2.5% of selected range
Load:	> 10 kΩ

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.

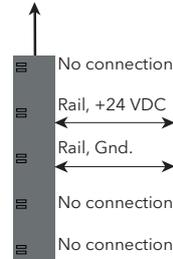
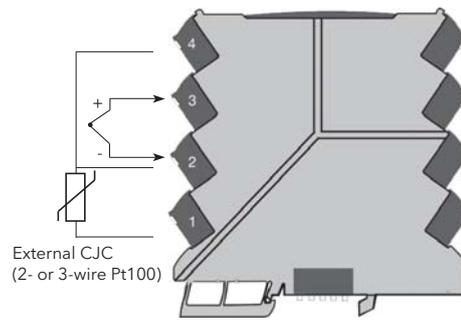
ATEX 94/9/EC:	DEKRA 13ATEX 0137X
c FM us:	3049859-2

DIP-switch configuration

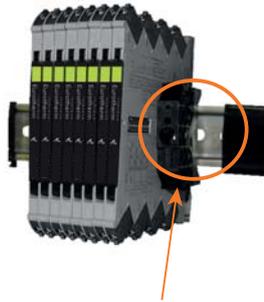
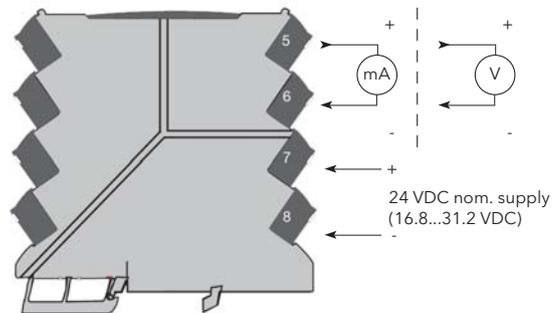
(Power must be cycled after DIP switch positions are changed).

Sensor S11 2 3			Sensor Error Detection S17		DIP S2 ● = ON											
TC J (int. cjc)	●	●	None													
TC K (int. cjc)	●	●	Enable	●												
TC J (ext. cjc)	●	●														
TC K (ext. cjc)	●	●														
Output S14 5 8			Output Error Level S18		Temperature Range °C											
0...20 mA	●	●	Downscale													
4...20 mA	●	●	Upscale	●												
0...10 V	●	●														
2...10 V	●	●														
0...5 V	●	●														
1...5 V	●	●														
● = ON																
Noise Supp. S19		Resp. T. S110														
50 Hz	●	< 30 ms	●													
60 Hz	●	300 ms	●													
				Sens. Temp. type : range °C :												
				TC J -100 - +1200°C												
				TC K -180 - +1372°C												

Connections

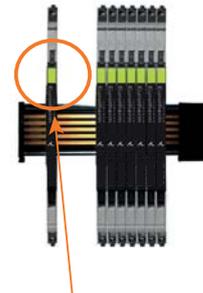


Safe Area or
Zone 2 & Cl. 1, Div. 2, gr. A-D



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	3 Accessories & Spares
OMNISLIMT OmniSLIM Temperature Conditioner	PSR-750X Power rail 750mm (35x7.5mm DIN Rail)
2 OmnisLIMT	PSR-500X Power rail 500mm (35x7.5mm DIN Rail)
SL428 Single Channel Isolated Thermocouple (J, K) Converter	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)

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