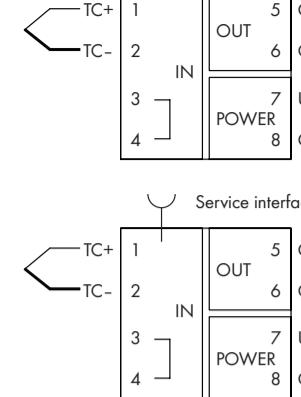


JUMPFLEX® - 857 Series

Temperature Signal Conditioner for Thermocouples

857-810, 857-811**1 Safety Information****DANGER**

Do not work when devices are energized!

High voltage can cause electric shock or burns.
Switch off all power to the device prior to performing any installation, repair or maintenance work.**DANGER**

Live parts are likely to be touched!

The party setting up the device is responsible for providing appropriate touch guards. The installation regulations must be observed for each individual application.

**Note**Follow the instructions!
Incorrect installation may compromise safety in the event of a failure. Before installation and operation, please read these instructions thoroughly and carefully.

Please especially observe the following:

- The device described in these instructions shall only be installed by a qualified electrician according to both DIN EN 50110-1/-2 and IEC 60364.
- Before startup, check the device for any damage that may have occurred during shipping. The device shall not be put into operation in the event of mechanical damage.
- Observe the applicable laws, standards and regulations.
- Observe the current, accepted technology standards and practices at the time of installation.
- Only install this device in closed electrical service locations in accordance with DIN EN 50178.
- Only install this device in dry indoor rooms.
- Do not install the devices on or in the vicinity of easily flammable materials.

Improper use and failure to follow these instructions for use will render the warranty or guarantee null and void.

2 Short Description

The thermocouple temperature signal conditioner 857-810/-811 provide connectivity for thermocouple types J and K. The devices convert the temperature signal into a standard analog signal at the output end. The devices have a 3-way electrical isolation with a 2.5 kV test voltage.

The 857-810 device is configurable via DIP switches, which are accessible from the side of the housing.

The 857-811 device is configurable via DIP switches, which are accessible from the side of the housing, or via the interface configuration software or interface configuration app.

Switching the measurement ranges is done in a calibrated way. The device is supplied with 24 VDC, which can be efficiently commuted using lateral push-in type jumper bars.

The temperature signal conditioners meet the requirements for safe isolation of input, output and supply circuits with 2.5 kV test voltage according to EN 61140.

3 Technical Data

Table 1: Device

Dimensions (mm) W x H x L	6 x 96 x 94 (height from upper-edge of DIN 35 rail)
Weight	857-810: 44.7 g
	857-811: 49.2 g

Degree of protection

IP20

Table 2: Electrical Data

Input	Thermocouples
Input signal	857-810: Thermocouple type J, K 857-811: Thermocouple type J, K Thermocouple type E, N, R, S, T, B, C, L *
Sensor types	-150 °C ... +1200 °C
Temperature range for type J	-150 °C ... +1350 °C
Temperature range for type K	-150 °C ... +1200 °C
Output	
Output signal	0 mA ... 10 mA, 2 mA ... 10 mA, 0 mA ... 20 mA, 4 mA ... 20 mA 0 V ... 5 V, 1 V ... 5 V, 0 V ... 10 V, 2 V ... 10 V *
Load impedance I output	≤ 600 Ω
Load impedance U output	≥ 2 kΩ
Step response	120 ms with cold junction compensation 60 ms without cold junction compensation
Cold junction compensation	ON/OFF (default: ON) *
Cold junction error	3 K (typ. 2 K)
General	
Nominal supply voltage U _s	24 VDC (-25 % ... +30 %)
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 VDC	≤ 40 mA
Minimum measuring span	100 K
Transmission error	≤ 0.1 % at max. measuring span (type J, K) (150 K / set measuring span [K]) %
Transmission error of the preset measuring span	≤ 0.04 %/K

Table 2: Electrical Data			
Test voltage (input/output/supply)			2.5 kVAC, 50 Hz, 1 min.
Safe isolation (input/output/supply)			DIN EN 61010-1
acc. to DIN EN 61140 1 by increased isolation			
The service interface is excluded from this.			
Rated voltage			300 V AC/DC
Overvoltage category			II
Rated impulse voltage			2.5 kV
Pollution degree			2
Electrical isolation (input/output/supply)			DIN EN 61010-1
Rated voltage			600 V AC/DC
Overvoltage category			II
Rated impulse voltage			4.0 kV
Pollution degree			2

* 857-811 only: Other setting options via the interface configuration software or the interface configuration app.

Table 3: Different Electrical Data According to ATEX/IECEx Certificate			
Input			Thermocouples
Output			
Output signal current			0 mA ... 10 mA, 2 mA ... 10 mA, 0 mA ... 20 mA, 4 mA ... 20 mA 0 V ... 5 V, 1 V ... 5 V, 0 V ... 10 V, 2 V ... 10 V
General			
Nominal supply voltage U _s			24 VDC (-10 % ... +10 %)
Power loss P _v			1.0 W
Ambient operating temperature			-25 °C ... +70 °C

Table 4: Wiring	
Connection technology	Push-in CAGE CLAMP®
Solid "s"	0.08 mm² ... 2.5 mm² (AWG 28 ... 14)
Fine-stranded "f-st"	0.34 mm² ... 2.5 mm² (AWG 22 ... 14)
Strip length	9 mm ... 10 mm / 0.37 in

Table 5: Environmental Requirements	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
Operating altitude above sea level	Max. 2000 m

4 Standards and Approvals**4.1 Overview**

Table 6: Standards and Approvals	
EMC	EN 61000-6-2, EN 61000-6-4, DIN EN 61326-1
UL 508	File No. E175199
ANSI/ISA 12.12.01	Class I Div2 ABCD T6 File No. E198726
ATEX	According to EN 60079-0 and EN 60079-15 TÜV 14 ATEX 112692X Ex II 3 G Ex nA IIC T4 Gc
IECEx	According to IEC 60079-0 and IEC 60079-15 IECEx TUN 14.0030X Ex nA IIC T4 Gc
Shipbuilding, GL (Germanischer Lloyd)	Certificate No. 44627-07 HH
Shipbuilding, DNV (Det Norske Veritas)	Certificate No. A-13346
Shipbuilding, PRS (Polski Rejestr Statków)	Certificate No. TE/1989/880590/13
Shipbuilding, NKK (Nippon Kaiji Kyokai)	Certificate No. TA12716M

4.2 Installation Instructions for ANSI/ISA 12.12.01

WARNING	
Risk of explosion!	This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D or non-hazardous locations only.
	Substitution of any component may impair suitability for Class I, Division 2.
	Do not disconnect the device unless the power is switched off, or only when the area is a non-hazardous area.

4.3 Special Conditions for Safe Use	
1	The devices of the JUMPFLEX® series have to be erected in such a way, that corresponding to IEC/EN 60079-15 a degree of protection of at least IP54 according to IEC/EN 60529 is achieved.
2	Measures have to be taken, external to the modules, to provide a transient protection that ensures that the rated voltage, connected to the power supply terminals, is not exceeded by more than 40 %.
3	The connecting and disconnecting of the non-intrinsically safe circuits is only permitted if no explosive atmosphere exists.
4	The module 857-811 must be mounted with a spacing to all adjacent modules of not less than 1 cm.

4.4 Installation Instructions for Shipbuilding	
Note	Use only shielded cables!

Use only shielded cables for the device output.

5 Pin Assignment

Table 7: Pin Assignment (Sample: 857-810)

Pos.	Assignment	Pos.	Assignment

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