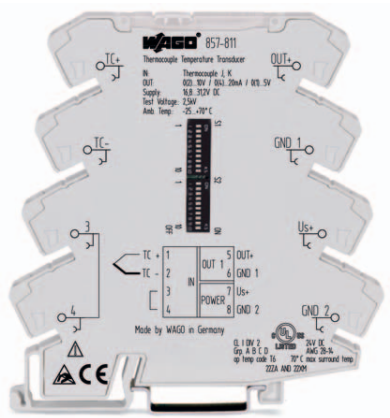
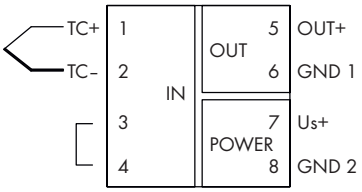
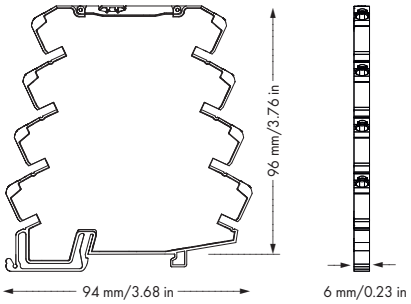
857-811

JUMPFLEX® Transducers

Temperature transducer for thermocouples of types J and K *







Short description:
The 857-811 Thermocouple Temperature Transducer is suitable for the connection of type J and K thermocouples. On the output side, the thermocouple temperature transducer converts the temperature signal into an analog standard signal. The following signals are available: 0 - 20mA, 4 - 20mA, 0 - 10V, 2 - 10V, 0 - 5V, 1 - 5V, 0 - 10mA and 2 - 10mA. The device has a 3-way isolation with a 2.5kV test voltage. It can be configured both via DIP switches that are accessible from the side of the housing and using a FDT/DTM software. The software offers additional setting options such as additional types of sensors at the input or inversion of the analog output.
The device is supplied with 24VDC, which can be commoned using lateral push-in type jumper bars in a quick and cost effective way.

A green LED on the front panel indicates normal operation. The temperature transducer meets the requirements for safe isolation of input, output and supply circuits with 2.5kV test voltage according to EN 61140.

Description	Item No.	Pack. Unit
Temperature transducer for thermocouples of types J and K *	**857-811**	1

Accessories

Configuration software	- 759-370 FDT Frame Application
	- DTM (Device Tool Manager)
	Download: see www.wago.com
WAGO USB Service Cable	750-923
General accessories	see pages 222 - 223

Approvals

Shipbuilding	GL (pending)
cULus ANSI/ISA 12.12.01	Class I, Div. 2, Grp. ABCD, T4
Conformity marking	CE

General Specifications

Dimensions (mm) W x H x L	6 x 96 x 94
	Height from upper-edge of DIN 35 rail
Wire connection	CAGE CLAMP®S
Cross sections	solid: 0.08 mm² ... 2.5 mm² /
	AWG 28 ... 12
	fine-stranded: 0.34 mm² ... 2.5 mm² /
	AWG 22 ... 12
Stripped lengths	9 ... 10 mm / 0.37 in

Technical Data

Configuration	DIP switch or via software
Input signal	Thermocouples
Output signal	0 ... 20 mA, 4 ... 20 mA,
	0 ... 10 V, 2 ... 10 V,
	0... 5 V, 1 ... 5 V,
	0 ... 10 mA, 2 ... 10 mA
Load impedance	≤ 600 Ω (Out = mA)
	≥ 2 kΩ (Out = V)
Step response	60 ms / 120 ms with cold junction
	compensation
Voltage supply V_N	24 V DC
Supply voltage range	16.8 V ... 31.2 V
Current input at 24 V DC	< 40 mA
Sensor types	Thermocouples of types J and K *
Temperature range	Type J: -150 °C ... +1200 °C
	Type K: -150 °C ... +1350 °C
Cold junction compensation	on / off (default: on)
Cold junction error	3 K (typ. 2 K)
Transmission error	≤ 0.1 % at max. measuring span (Typ J, K)
Transmission error of set measuring span	(150 K / set measuring span [K]) %
Temperature coefficient	0.04 % /K
Min. measuring span	100 K (configurable)
Test voltage	
(input/output/supply)	2.5 kV AC, 50 Hz, 1 min
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C

(* Setting of other types of sensors as well as output signal inversion using the configuration software)

DIP Switch Adjustability

● = ON

857-811

DIP Switch S1

Cold junction compensation		Sensor type			Output signal						Measuring range underflow	Measuring range overflow	Wire break
1		2	3		4	5	6		7	8			
	on			J				0 ... 20 mA			Lower limit of output range -5 %	Upper limit of output range +2.5 %	Upper limit of output range 5 %
●	off	●		K	●			4 ... 20 mA					
						●		0 ... 10 mA	●		Lower limit of output range	Upper limit of output range +2.5 %	Upper limit of output range 5 %
					●	●		2 ... 10 mA					
							●	0 ... 10 V		●	Lower limit of output range	Upper limit of output range	Upper limit of output range 5 %
					●		●	2 ... 10 V					
						●	●	0 ... 5 V	●	●	Lower limit of output range	Upper limit of output range	Lower limit of output range
					●	●	●	1 ... 5 V					

According to Namur NE 43

DIP Switch S2

Start temperature						End temperature																							
1	2	3	4	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F	5	6	7	8	9	10	°C	°F
																		●		225	437						●	625	1157
●				-200	-328	●						0	32	●				●		250	482	●					●	650	1202
	●			-175	-283		●					10	50		●			●		275	527		●				●	675	1247
●	●			-150	-283	●	●					20	68	●	●			●		300	572	●	●				●	700	1292
		●		-125	-193			●				30	86			●		●		325	617			●			●	725	1337
●		●		-100	-148	●		●				40	104	●		●		●		350	662	●		●			●	750	1382
	●	●		-90	-130		●	●				50	122		●	●		●		375	707		●	●			●	775	1427
●	●	●		-80	-112	●	●	●				60	140	●	●	●		●		400	752	●	●	●			●	800	1472
			●	-70	-94				●			70	158				●	●		425	797				●		●	825	1517
●			●	-60	-76	●			●			80	176	●			●	●		450	842	●			●		●	850	1562
	●		●	-50	-58		●		●			90	194		●		●	●		475	887		●		●		●	875	1607
●	●		●	-40	-40	●	●		●			100	212	●	●		●	●		500	932	●	●		●		●	900	1652
		●	●	-30	-22			●	●			125	257			●	●	●		525	977			●	●		●	925	1697
●		●	●	-20	-4	●		●	●			150	302	●		●	●	●		550	1022	●		●	●		●	950	1742
	●	●	●	-10	14		●	●	●			175	347		●	●	●	●		575	1067		●	●	●		●	975	1787
●	●	●	●	0	32	●	●	●	●			200	392	●	●	●	●	●		600	1112	●	●	●	●		●	1000	1832

5	6	7	8	9	10	°C	°F
				●	●	1025	1877
●				●	●	1050	1922
	●			●	●	1075	1967
●	●			●	●	1100	2012
		●		●	●	1125	2057
●		●		●	●	1150	2102
	●	●		●	●	1175	2147
●	●	●		●	●	1200	2192
			●	●	●	1225	2237
●			●	●	●	1250	2282
	●		●	●	●	1275	2327
●	●		●	●	●	1300	2372
		●	●	●	●	1325	2417
●		●	●	●	●	1350	2462
	●	●	●	●	●	1375	2507
●	●	●	●	●	●	1400	2552

The minimum distance from the start temperature to the end temperature may not fall short of 100K degrees on the Celsius (C) scale or 212K degrees on the Fahrenheit (F) scale.

Default settings

In delivery status all DIP switches are in the position "OFF".

- Cold junction compensation "On"
- Termocouple of type J
- Start temperature 0 °C
- End temperature 1000 °C
- 0 ... 20 mA
- Measuring range underflow 0 mA
- Measuring range overflow 20.5 mA
- Wire break 21 mA