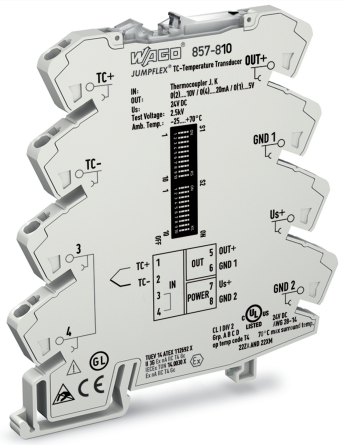
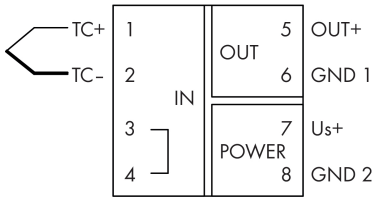
Data Sheet | Item Number: 857-810

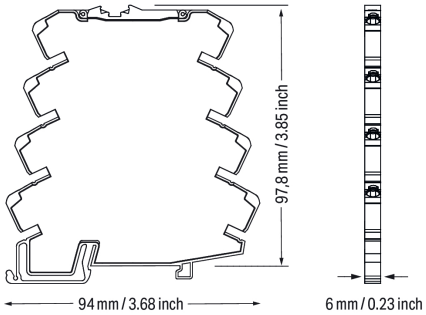
Temperature signal conditioner for thermocouples; Current and voltage output signal; Configuration via DIP switch; Supply voltage: 24 VDC; 6 mm module width; light gray

https://www.wago.com/857-810





Color: light gray



857-810

DIP Switch Adjustability

● = ON Default

DIP Switch S1

Cold Junction Compensation	Sensor type			Output signal					Measurement Range Underflow	Measurement 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			

DIP 9 and 10 n.c.

* acc. 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	5	6	7	8	9	10	°C	°F
				0	32							1000	1832						●	225	437						●	625	1157						●	●	1025	1877
●				-200	-328	●						0	32	●					●	250	482	●					●	650	1202	●					●	●	1050	1922
	●			-175	-283		●					10	50		●				●	275	527		●				●	675	1247		●				●	●	1075	1967
●	●			-150	-283	●	●					20	68	●	●				●	300	572	●	●				●	700	1292	●	●				●	●	1100	2012
		●		-125	-193			●				30	86			●			●	325	617			●			●	725	1337			●			●	●	1125	2057
●		●		-100	-148	●		●				40	104	●		●			●	350	662	●		●			●	750	1382	●		●			●	●	1150	2102
	●	●		-90	-130		●	●				50	122		●	●			●	375	707		●	●			●	775	1427		●	●			●	●	1175	2147
●	●	●		-80	-112	●	●	●				60	140	●	●	●			●	400	752	●	●	●			●	800	1472	●	●	●			●	●	1200	2192
			●	-70	-94				●			70	158				●		●	425	797				●		●	825	1517				●		●	●	1225	2237
			●	-60	-76	●			●			80	176	●			●		●	450	842	●			●		●	850	1562	●			●		●	●	1250	2282
			●	-50	-58		●		●			90	194		●		●		●	475	887		●		●		●	875	1607		●		●		●	●	1275	2327
			●	-40	-40	●	●		●			100	212	●	●		●		●	500	932	●	●		●		●	900	1652	●	●		●		●	●	1300	2372
		●	●	-30	-22			●	●			125	257			●	●		●	525	977			●	●		●	925	1697			●	●		●	●	1325	2417
		●	●	-20	-4	●		●	●			150	302	●		●	●		●	550	1022	●		●	●		●	950	1742	●		●	●		●	●	1350	2462
	●	●	●	-10	14		●	●	●			175	347		●	●	●		●	575	1067		●	●	●		●	975	1787		●	●	●		●	●	1375	2507
●	●	●	●	0	32	●	●	●	●			200	392	●	●	●	●		●	600	1112	●	●	●	●		●	1000	1832	●	●	●	●		●	●	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.

Short description:

This temperature signal conditioner records signals from thermocouples (type J, K) and converts the temperature signal into a standard analog signal at the output.

Features:

- For type J and K thermocouples
- Cold junction compensation (On/Off)
- Calibrated measurement range switching
- Detects a sensor wire break
- Detects measurement range underflow/overflow
- Clipping capability: Limitation of the standard analog signal to the upper-range values
- 3-way electrical isolation with 2.5 kV test voltage

Technical data

Configuration

Configuration options	DIP switch

Input

Input signal type	TC sensors

Input (TC sensors)

Sensor types (TC)	Type J Type K
Temperature measurement range (TC)	-200 … 1200 °C (Type J) -200 … 1350 °C (Type K)
Measurement span (TC) min.	100 K
Cold junction compensation	ON/OFF (default: ON)
Cold junction error	3 K (typ. 2 K)

Output (analog)

Output signal type	Current Voltage
Output signal (voltage)	0 … 5 V 1 … 5 V 0 … 10 V 2 … 10 V
Output signal (current)	0 … 10 mA 2 … 10 mA 0 … 20 mA 4 … 20 mA
Load impedance (voltage output)	≥ 2 kΩ
Load impedance (current output)	≤ 600 Ω

Signal Processing

Step response (typ.)	60 ms (cold junction compensation off) 120 ms (cold junction compensation on)

Measurement Error

Transmission error (typ.)	≤ 0.1% at max. measurement span (type J, K)
Transmission error for the set measurement range	≤ (150 K/set measurement range [K]) %
Temperature coefficient	≤ 0.04 %/K

Power Supply

Power supply type	24 VDC
Nominal supply voltage U_S	24 VDC
Supply voltage range	±30 %
Current consumption at nominal supply voltage	≤ 40 mA

Safety and protection

Protection type	IP20

Test voltage

Test voltage (input/output/supply)	2.5 kVAC; 50 Hz; 1 min

Connection Data

Connection technology	Push-in CAGE CLAMP®
Solid conductor	0.08 … 2.5 mm² / 28 … 14 AWG
Fine-stranded conductor	0.34 … 2.5 mm² / 22 … 14 AWG
Strip length	9 … 10 mm / 0.35 … 0.39 inches

Continued on next page

Physical data

Width	6 mm / 0.236 inches
Height	94 mm / 3.701 inches
Depth from upper-edge of DIN-rail	97.8 mm / 3.85 inches

Mechanical data

Mounting type	DIN-35 rail

Material data

Color	light gray
Insulation material (main housing)	Polyamide (PA66)
Flammability class per UL94	V0
Fire load	0.488 MJ
Weight	35.5 g

Environmental requirements

Ambient temperature (operation)	-25 … +70 °C
Ambient temperature (storage)	-40 … +85 °C
Relative humidity	5 … 95 % (no condensation permissible)
Operating altitude (max.)	2000 m

Standards and Specifications

Conformity marking	CE
EMC immunity to interference	EN 61000-6-2
EMC emission of interference	EN 61000-6-4
Standards/specifications	DNV

Commercial data

Product Group	6 (INTERFACE ELECTRONIC)
PU (SPU)	1 pcs
Packaging type	Bag
Country of origin	DE
GTIN	4045454470135
Customs tariff number	85437090300

Product Classification

UNSPSC	41111970
eCl@ss 10.0	27-21-01-29
eCl@ss 9.0	27-20-02-06
ETIM 9.0	EC002919
ETIM 10.0	EC002919
ECCN	NO US CLASSIFICATION

Continued on next page

Environmental Product Compliance

CAS-No.	1303-86-2 1317-36-8 7439-92-1 75980-60-8 79-94-7
REACH Candidate List Substance	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol Diboron trioxide Lead Lead monoxide Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)-
RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Austria)	694a8dfe-c43e-47d6-ad52-996c633f9655
SCIP notification number (Belgium)	296545de-031d-4d5e-a5a5-dfddc192cdf7
SCIP notification number (Bulgaria)	c1b7b523-92f8-47da-850c-8c4c882c490d
SCIP notification number (Czech Republic)	e269576b-40b6-4b8e-a730-b20f6c4642ba
SCIP notification number (Denmark)	adf6ed2d-abff-4125-bf6c-c121e8fca395
SCIP notification number (Finland)	5021c540-639b-4fdb-88aa-4c5ba154c53e
SCIP notification number (France)	ca2c2545-875b-4634-b7a2-589c69c41520
SCIP notification number (Germany)	ba87344e-9f0c-4f92-8d9b-a3c90deeb4cc
SCIP notification number (Hungary)	62c2d5b3-a430-476c-810d-c2bfb1e4d555
SCIP notification number (Italy)	7dccf9c7-af48-427e-8cf4-62ec1cfc9737
SCIP notification number (Netherlands)	9d300dab-2d6b-4501-8a24-bc26ad68f589
SCIP notification number (Poland)	0dd42d60-44a1-435a-b52e-47b29f5d6be4
SCIP notification number (Romania)	64b5849a-efc7-4fa8-9d9c-d6e400e9cc32
SCIP notification number (Sweden)	be28f513-6c89-4361-b6f3-1dba6122eca2

Approvals / Certificates

General approvals

Approval	Standard	Certificate Name
EAC GZO Almaty Standart	TP TC 020/2011	EAC CoC 03081

Declarations of conformity and manufacturer's declarations

Approval	Standard	Certificate Name
EU-Declaration of Conformity WAGO GmbH & Co. KG	-	-

Approvals for marine applications

Approval	Standard	Certificate Name
BV Bureau Veritas S.A.	Rules for class. of Steel Ships	40179_C0
DNV DNV Germany GmbH	DNV-CG-0339,Aug.2021	TAA00001D1

Approvals for hazardous areas

Approval	Standard	Certificate Name
CCC CNEX	CNCA-C23-01	2020312310000210 (Ex ec IIC T4 Gc)
IECEx TUEV Nord Cert GmbH	-	IECEX TUN14.0030X
UKEx WAGO GmbH & Co. KG	EN 60079-0	WAGO22UKEX004X
UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	ANSI/ISA 12.12.01	E198726

Continued on next page

Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance 857-810

Documentation

Bid Text

857-810	19.02.2019	xml 5.73 KB
857-810	20.02.2019	docx 17.11 KB

Instruction Leaflet

CCC Ex (Additional information)	26.04.2023	pdf 140.99 KB
Messumformer und Trennverstärker		pdf 2348.53 KB

CAD/CAE-Data

CAD data

2D/3D Models 857-810

CAE data

EPLAN Data Portal 857-810

WSCAD Universe 857-810

ZUKEN Portal 857-810

1 Compatible Products

1.1 Optional Accessories

1.1.1 Installation

1.1.1.1 Mounting accessories



Item No.: 249-117
Screwless end stop; 10 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray



Item No.: 249-197
Screwless end stop; 14 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray



Item No.: 249-116
Screwless end stop; 6 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray

1.1.2 Interface module

1.1.2.1 Interface adapters



Item No.: 857-980
Interface adapter; 16-pole; analog

1.1.3 Jumper

1.1.3.1 Jumper



Item No.: 281-482
Jumper; 2-way; insulated; gray



Item No.: 859-410/000-006
Jumper; for jumper slot; 10-way; insulated; blue



Item No.: 859-410
Jumper; for jumper slot; 10-way; insulated; light gray



Item No.: 859-410/000-005
Jumper; for jumper slot; 10-way; insulated; red



Item No.: 859-410/000-029
Jumper; for jumper slot; 10-way; insulated; yellow

Item No.: 859-402/000-006
Jumper; for jumper slot; 2-way; insulated; blue



Item No.: 859-402
Jumper; for jumper slot; 2-way; insulated; light gray



Item No.: 859-402/000-005
Jumper; for jumper slot; 2-way; insulated; red



Item No.: 859-402/000-029
Jumper; for jumper slot; 2-way; insulated; yellow

Item No.: 859-403/000-006
Jumper; for jumper slot; 3-way; insulated; blue

Item No.: 859-403
Jumper; for jumper slot; 3-way; insulated; light gray

Item No.: 859-403/000-005
Jumper; for jumper slot; 3-way; insulated; red

Item No.: 859-403/000-029
Jumper; for jumper slot; 3-way; insulated; yellow



Item No.: 859-404/000-006
Jumper; for jumper slot; 4-way; insulated; blue



Item No.: 859-404
Jumper; for jumper slot; 4-way; insulated; light gray



Item No.: 859-404/000-005
Jumper; for jumper slot; 4-way; insulated; red



Item No.: 859-404/000-029
Jumper; for jumper slot; 4-way; insulated; yellow



Item No.: 859-405/000-006
Jumper; for jumper slot; 5-way; insulated; blue



Item No.: 859-405
Jumper; for jumper slot; 5-way; insulated; light gray



Item No.: 859-405/000-005
Jumper; for jumper slot; 5-way; insulated; red



Item No.: 859-405/000-029
Jumper; for jumper slot; 5-way; insulated; yellow



Item No.: 859-406/000-006
Jumper; for jumper slot; 6-way; insulated; blue



Item No.: 859-406
Jumper; for jumper slot; 6-way; insulated; light gray



Item No.: 859-406/000-005
Jumper; for jumper slot; 6-way; insulated; red



Item No.: 859-406/000-029
Jumper; for jumper slot; 6-way; insulated; yellow



Item No.: 859-407/000-006
Jumper; for jumper slot; 7-way; insulated; blue



Item No.: 859-407
Jumper; for jumper slot; 7-way; insulated; light gray



Item No.: 859-407/000-005
Jumper; for jumper slot; 7-way; insulated; red



Item No.: 859-407/000-029
Jumper; for jumper slot; 7-way; insulated; yellow

Item No.: 859-408/000-006
Jumper; for jumper slot; 8-way; insulated; blue

Item No.: 859-408
Jumper; for jumper slot; 8-way; insulated; light gray

Item No.: 859-408/000-005
Jumper; for jumper slot; 8-way; insulated; red

Item No.: 859-408/000-029
Jumper; for jumper slot; 8-way; insulated; yellow

Item No.: 859-409/000-006
Jumper; for jumper slot; 9-way; insulated; blue

Item No.: 859-409
Jumper; for jumper slot; 9-way; insulated; light gray

Item No.: 859-409/000-005
Jumper; for jumper slot; 9-way; insulated; red

Item No.: 859-409/000-029
Jumper; for jumper slot; 9-way; insulated; yellow

Continued on next page

1.1.4 Marking

1.1.4.1 Marker

Item No.: 793-5501
WMB marking card; as card; for terminal block width 5 - 17.5 mm; stretchable 5 - 5.2 mm; plain; snap-on type; white



Item No.: 793-502
WMB marking card; as card; MARKED; 1 ... 10 (10x); not stretchable; Horizontal marking; snap-on type; white



Item No.: 793-566
WMB marking card; as card; MARKED; 1 ... 50 (2x); not stretchable; Horizontal marking; snap-on type; white

Item No.: 793-503
WMB marking card; as card; MARKED; 11 ... 20 (10x); not stretchable; Horizontal marking; snap-on type; white

Item No.: 793-504
WMB marking card; as card; MARKED; 21 ... 30 (10x); not stretchable; Horizontal marking; snap-on type; white

Item No.: 793-505
WMB marking card; as card; MARKED; 31 ... 40 (10x); not stretchable; Horizontal marking; snap-on type; white

Item No.: 793-506
WMB marking card; as card; MARKED; 41 ... 50 (10x); not stretchable; Horizontal marking; snap-on type; white

Item No.: 793-501
WMB marking card; as card; not stretchable; plain; snap-on type; white



Item No.: 2009-115
WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white

1.1.4.2 Marking strip



Item No.: 2009-110
Marking strips; for Smart Printer; on reel; not stretchable; plain; snap-on type; white

1.1.5 Power supply

1.1.5.1 Power Supply



Item No.: 787-2852
Switched-mode power supply; 1-phase; 24 VDC output voltage; 1 A output current

1.1.6 Terminal blocks

1.1.6.1 Supply and through module



Item No.: 857-979
Supply and through module

1.1.7 Tool

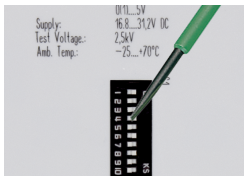
1.1.7.1 Operating tool



Item No.: 210-720
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured

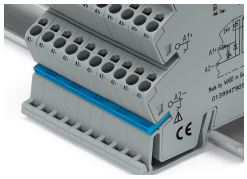
Installation Notes

Configuring



Configuration via DIP switch

Commoning



Commoning, not discrete wiring – Same outline allows use of a single in-line, push-in jumper.