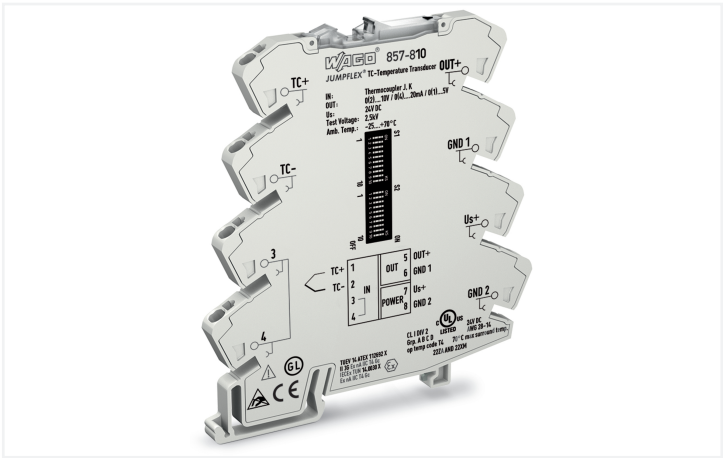


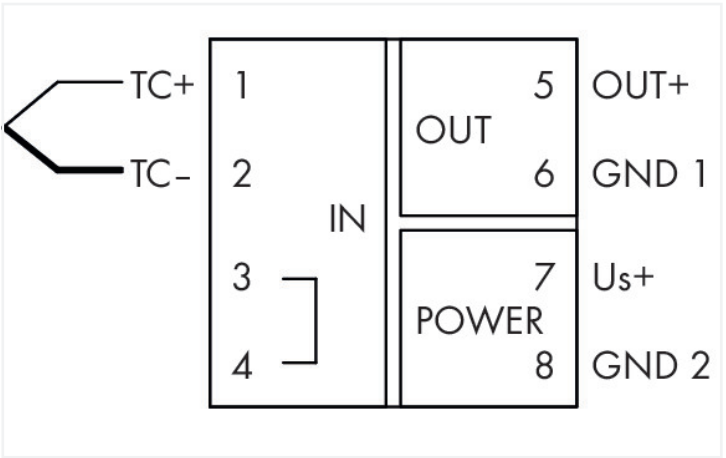
Data Sheet | Item Number: 857-810

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



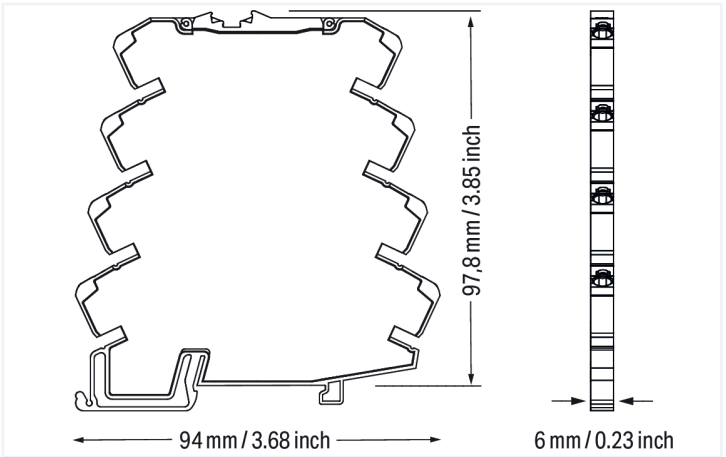
857-810  
DIP Switch Adjustability

DIP Switch S1

| Cold Junction Compensation | Sensor type | Output signal | Measurement Range Underflow       | Measurement Range Overflow          | Wire Break                        |
|----------------------------|-------------|---------------|-----------------------------------|-------------------------------------|-----------------------------------|
| 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     | Lower limit of output range       | Upper limit of output range + 2.5 % | Upper limit of output range + 5 % |
|                            |             | 0...10 V      | Lower limit of output range       | Upper limit of output range         | Upper limit of output range + 5 % |
|                            |             | 2...10 V      | Lower limit of output range       | Upper limit of output range         | Upper limit of output range + 5 % |
|                            |             | 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.  
DIP Switch S2

| Start Temperature |     |     |     |     |     |     |     |     |     | End Temperature |     |     |     |     |     |     |     |     |     |
|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1                 | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 1               | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  |
| 0                 | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500             | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 |
| ...               | ... | ... | ... | ... | ... | ... | ... | ... | ... | ...             | ... | ... | ... | ... | ... | ... | ... | ... | ... |



Short description:

WAGO's 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 for analog signal limitation to output end values
- 3-way electrical isolation with 2.5 kV test voltage

| Technical data        |                   |
|-----------------------|-------------------|
| Configuration         | Input             |
| Configuration options | DIP switch        |
|                       | Input signal type |
|                       | TC sensors        |



| Input (TC sensors)                 |                                                        |
|------------------------------------|--------------------------------------------------------|
| Sensor types (TC)                  | Type J<br>Type K                                       |
| Temperature measurement range (TC) | -200 ... 1200 °C (Type J)<br>-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<br>Voltage                                       |
| Output signal (voltage)         | 0 ... 5 V<br>1 ... 5 V<br>0 ... 10 V<br>2 ... 10 V       |
| Output signal (current)         | 0 ... 10 mA<br>2 ... 10 mA<br>0 ... 20 mA<br>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)<br>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 <sub>s</sub>         | 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 |

| 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                          | 0.365 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 8.0                           | EC002919                                                                                                                                            |  |
| ECCN                               | NO US CLASSIFICATION                                                                                                                                |  |
|                                    |                                                                                                                                                     |  |
| Environmental Product Compliance   |                                                                                                                                                     |  |
| CAS-No.                            | 1303-86-2<br>1317-36-8<br>7439-92-1<br>75980-60-8<br>79-94-7                                                                                        |  |
| REACH Candidate List Substance     | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol<br>Diboron trioxide<br>Lead<br>Lead monoxide<br>Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)- |  |
| RoHS Compliance Status             | Compliant,With Exemption                                                                                                                            |  |
| RoHS Exemption                     | 6(c)<br>7(a)<br>7(c)-I<br>7(c)-II                                                                                                                   |  |
| SCIP notification number (Austria) | 694a8dfe-c43e-47d6-ad52-996c633f9655                                                                                                                |  |



| Environmental Product Compliance          |                                      |
|-------------------------------------------|--------------------------------------|
| 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)         | Odd42d60-44a1-435a-b52e-47b29f5d6be4 |
| SCIP notification number (Romania)        | 64b5849a-efc7-4fa8-9d9c-d6e400e9cc32 |
| SCIP notification number (Sweden)         | be28f513-6c89-4361-b6f3-1dba6122eca2 |

Approvals / Certificates

General approvals

Declarations of conformity and manufacturer's declarations



| Approval                                                  | Standard       | Certificate Name |
|-----------------------------------------------------------|----------------|------------------|
| EAC<br>GZO Almaty Standart                                | TP TC 020/2011 | EAC CoC 03081    |
| UL<br>Underwriters Laboratories Inc. (ORDINARY LOCATIONS) | UL 508         | E175199 Sec.4    |

| Approval                                           | Standard | Certificate Name |
|----------------------------------------------------|----------|------------------|
| EU-Declaration of Conformity<br>WAGO GmbH & Co. KG | -        | -                |

Approvals for marine applications



| Approval                  | Standard                        | Certificate Name |
|---------------------------|---------------------------------|------------------|
| BV<br>Bureau Veritas S.A. | Rules for class. of Steel Ships | 40179_B0         |
| DNV<br>DNV Germany GmbH   | DNV-CG-0339,Aug.2021            | TAA00001D1       |

Approvals for hazardous areas



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



Downloads

Environmental Product Compliance

|                                          |
|------------------------------------------|
| Compliance Search                        |
| Environmental Product Compliance 857-810 |



Documentation

|          |            |                  |  |
|----------|------------|------------------|--|
| Bid Text |            |                  |  |
| 857-810  | 19.02.2019 | xml<br>5.73 KB   |  |
| 857-810  | 20.02.2019 | docx<br>17.11 KB |  |

|                                  |            |                   |  |
|----------------------------------|------------|-------------------|--|
| Instruction Leaflet              |            |                   |  |
| CCC Ex (Additional information)  | 26.04.2023 | pdf<br>140.99 KB  |  |
| Messumformer und Trennverstärker |            | pdf<br>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

|                                                                                                                                                                              |                                                                                                                                                                            |                                                                                                                                                                           |                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Item No.: 281-482</b><br>Jumper; 2-way; insulated; gray                              | <br><b>Item No.: 859-410/000-006</b><br>Jumper; for jumper slot; 10-way; insulated; blue  | <br><b>Item No.: 859-410</b><br>Jumper; for jumper slot; 10-way; insulated; light gray  | <br><b>Item No.: 859-410/000-005</b><br>Jumper; for jumper slot; 10-way; insulated; red  |
| <br><b>Item No.: 859-410/000-029</b><br>Jumper; for jumper slot; 10-way; insulated; yellow  | <br><b>Item No.: 859-402/000-006</b><br>Jumper; for jumper slot; 2-way; insulated; blue   | <br><b>Item No.: 859-402</b><br>Jumper; for jumper slot; 2-way; insulated; light gray    | <br><b>Item No.: 859-402/000-005</b><br>Jumper; for jumper slot; 2-way; insulated; red   |
| <br><b>Item No.: 859-402/000-029</b><br>Jumper; for jumper slot; 2-way; insulated; yellow   | <br><b>Item No.: 859-403/000-006</b><br>Jumper; for jumper slot; 3-way; insulated; blue   | <br><b>Item No.: 859-403</b><br>Jumper; for jumper slot; 3-way; insulated; light gray    | <br><b>Item No.: 859-403/000-005</b><br>Jumper; for jumper slot; 3-way; insulated; red   |
| <br><b>Item No.: 859-403/000-029</b><br>Jumper; for jumper slot; 3-way; insulated; yellow   | <br><b>Item No.: 859-404/000-006</b><br>Jumper; for jumper slot; 4-way; insulated; blue   | <br><b>Item No.: 859-404</b><br>Jumper; for jumper slot; 4-way; insulated; light gray   | <br><b>Item No.: 859-404/000-005</b><br>Jumper; for jumper slot; 4-way; insulated; red   |
| <br><b>Item No.: 859-404/000-029</b><br>Jumper; for jumper slot; 4-way; insulated; yellow   | <br><b>Item No.: 859-405/000-006</b><br>Jumper; for jumper slot; 5-way; insulated; blue   | <br><b>Item No.: 859-405</b><br>Jumper; for jumper slot; 5-way; insulated; light gray   | <br><b>Item No.: 859-405/000-005</b><br>Jumper; for jumper slot; 5-way; insulated; red   |
| <br><b>Item No.: 859-405/000-029</b><br>Jumper; for jumper slot; 5-way; insulated; yellow | <br><b>Item No.: 859-406/000-006</b><br>Jumper; for jumper slot; 6-way; insulated; blue | <br><b>Item No.: 859-406</b><br>Jumper; for jumper slot; 6-way; insulated; light gray | <br><b>Item No.: 859-406/000-005</b><br>Jumper; for jumper slot; 6-way; insulated; red |
| <br><b>Item No.: 859-406/000-029</b><br>Jumper; for jumper slot; 6-way; insulated; yellow | <br><b>Item No.: 859-407/000-006</b><br>Jumper; for jumper slot; 7-way; insulated; blue | <br><b>Item No.: 859-407</b><br>Jumper; for jumper slot; 7-way; insulated; light gray | <br><b>Item No.: 859-407/000-005</b><br>Jumper; for jumper slot; 7-way; insulated; red |
| <br><b>Item No.: 859-407/000-029</b><br>Jumper; for jumper slot; 7-way; insulated; yellow | <br><b>Item No.: 859-408/000-006</b><br>Jumper; for jumper slot; 8-way; insulated; blue | <br><b>Item No.: 859-408</b><br>Jumper; for jumper slot; 8-way; insulated; light gray  | <br><b>Item No.: 859-408/000-005</b><br>Jumper; for jumper slot; 8-way; insulated; red |
| <br><b>Item No.: 859-408/000-029</b><br>Jumper; for jumper slot; 8-way; insulated; yellow | <br><b>Item No.: 859-409/000-006</b><br>Jumper; for jumper slot; 9-way; insulated; blue | <br><b>Item No.: 859-409</b><br>Jumper; for jumper slot; 9-way; insulated; light gray  | <br><b>Item No.: 859-409/000-005</b><br>Jumper; for jumper slot; 9-way; insulated; red |
| <br><b>Item No.: 859-409/000-029</b><br>Jumper; for jumper slot; 9-way; insulated; yellow |                                                                                                                                                                            |                                                                                                                                                                           |                                                                                                                                                                             |



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 module



**Item No.: 857-979**  
Supply and through module

1.1.6.2 Through terminal block



**Item No.: 857-979**  
Supply and through module

1.1.7 Tool

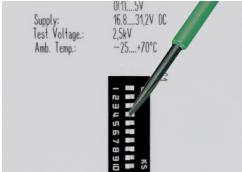
1.1.7.1 Operating tool



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

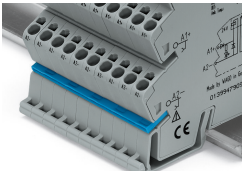
Installation Notes

Configuring



Configuration via DIP switch

Commoning



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