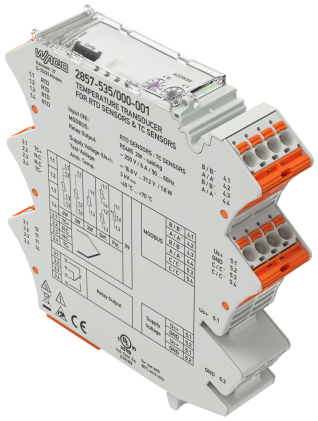
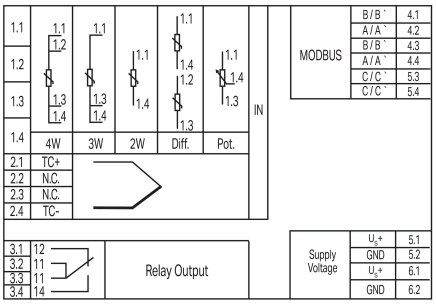
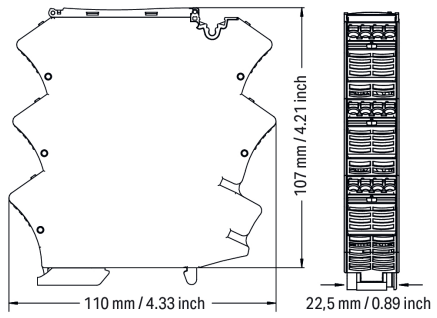
Data Sheet | Item Number: 2857-535/000-001

Temperature signal conditioner; Configuration via software; Supply voltage: 24 VDC

https://www.wago.com/2857-535/000-001







Short description:

WAGO's RTD TC temperature signal conditioner for RTD sensors, potentiometers, resistors and thermocouples monitors and reports signals for up to two switching thresholds. The sensor and status information that is collected is also made available to a higher-order device (e.g., a PLC) via a bus connection.

Features:

- A relay with changeover contact reacts to configured measurement range limits (on/off switching delay and threshold value switch function can be configured with up to two threshold values).
- Configurable Pt factor
- Adjustable software filter
- Input of customer-specific sensors via the interface configuration software
- Safe 3-way isolation with 3 kV test voltage per EN 61010-1
- Output-end RS-485 interface with Modbus protocol
- Terminating resistor can be adjusted at the output
- Adjustable transfer characteristic

Notes

Note	This product is powered by 24 VDC, which can be bridged using lateral push-in type jumper bars: (6.1) U_S+ (BR) and (6.2) GND 2 (BR). With this variant, it is important to ensure that the maximum permissible total current of 1 A is not exceeded.

Technical data

Configuration

Configuration options	WAGO Interface Configuration Software Rotary encoder switch

Input

Input signal type	RTD sensors Potentiometer Resistance TC sensors

Input (RTD sensors)

Sensor types (RTD)	Pt10 … Pt2000 (expandable)
Sensor connection	2-wire; 3-wire; 4-wire; differential; potentiometer
Sensor power supply (RTD) max.	≤ 0.5 mA
Temperature measurement range (RTD)	-200 … +850 °C
Measurement span (RTD) min.	50 K

Input (TC sensors)

Sensor types (TC)	Type J Type K Type E Type R Type N Type S Type T Type B Type C
Temperature measurement range (TC)	-210 … 1200 °C (Type J) -200 … 1372 °C (Type K) -200 … 1000 °C (Type E) 250 … 1768 °C (Type R) -200 … 1300 °C (Type N) -50 … 1664 °C (Type S) -200 … 400 °C (Type T) 250 … 1820 °C (Type B) 0 … 2320 °C (Type C)
Measurement span (TC) min.	100 K
Cold junction compensation	ON/OFF (Default: ON)
Cold junction error	3 K (typ. 2 K)

Input (resistors)

Input range (resistor)	0 … 10 kΩ
Input range (potentiometer)	0 … 10 kΩ
Measurement span (min.)	50 Ω

Output (Modbus)

Number of devices (max.)	64
Addressing	Via rotary encoder switch: 1 … 99 via service interface: 1 … 247 (rotary encoder switch set to “0”)
Parity	Even; others can be configured
Connector	6 x *picoMAX*® for daisy chain configuration
Bus length (max.)	1000 m
Terminating resistor	Can be activated; 150 Ω; 120 Ω + 1 nF
Parameter	Read input registers (0x04): ▪ Measured value: Address (0x0000); Data type (Float); Access (Read) ▪ Relay state: Address (0x0002); Data type (Word); Access (Read)

Output (relay)

Number of changeover/switchover contacts	1
Switching Voltage, Max.	250 VAC
Dielectric strength (open contact) (AC, 1 min)	1 kVrms
Number of switching thresholds (relay)	1 or 2 (adjustable)
Configurable rise/fall delay time (relay)	0 … 60 s (via software)

Communication

Communications	Modbus RTU
Interface	RS-485 (2-wire)
Number of devices (max.)	64
Bus length (max.)	≤ 1000 m
Transmission rate	9.6 … 19.2 kBd
Terminating resistor	Can be activated; 150 Ω; 120 Ω + 1 nF
Addressing	Via rotary encoder switch: 1 … 99 via service interface: 1 … 247 (rotary encoder switch set to “0”)

Continued on next page

Signal Processing

Software filter (adjustable)	Moving average value (filter level: 30)
Step response (typ.)	130 ms (2-wire) 700 ms (3-wire) 700 ms (4-wire) 600 ms (difference) 500 ms (potentiometer) 150 ms (cold junction compensation off) 400 ms (cold junction compensation on)

Measurement Error

Transmission error (typ.)	≤ 0.1 % at full measurement span
Transmission error for the set measurement range	≤ (100 K/set measurement range [K]) %
Temperature coefficient	≤ 0.01 %/K

Power Supply

Power supply type	24 VDC
Nominal supply voltage U_S	24 VDC
Supply voltage range	-60 … +30 %
Current consumption at nominal supply voltage	≤ 50 mA

Safety and protection

Rated Voltage	300 V
Rated voltage of the measurement circuit connections per EN 61010-2-030	300 VAC
Measurement category per EN/UL 61010-2-030	CAT II (input)
Note on insulation parameters	The service interface operates at the communication interface potential. The DIN-rail contact (functional ground) is capacitively coupled to the communication interface.
Protection type	IP20

Test voltage

Test voltage (input/output/supply)	3 kVAC; 50 Hz; 1 min
Test voltage (input/communication interface/relay output/supply)	3 kVAC; 50 … 60 Hz; 1 min
Test voltage (input/DIN-rail contact/relay output/supply)	3 kVAC; 50 … 60 Hz; 1 min

Insulation coordination (UL)

Overvoltage category	II
Pollution degree	2
Insulation type (input/DIN-rail contact/relay output/supply)	Reinforced insulation (safe isolation)
Insulation type (input/communication interface/relay output/supply)	Reinforced insulation (safe isolation)

Connection Data

Connection technology	Push-in CAGE CLAMP®
WAGO connector	*picoMAX*® 5.0
Solid conductor	0.2 … 2.5 mm² / 24 … 12 AWG
Fine-stranded conductor	0.2 … 2.5 mm² / 24 … 12 AWG
Strip length	9 … 10 mm / 0.35 … 0.39 inches
Connector	6 x *picoMAX*® for daisy chain configuration

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Physical data

Width	22.5 mm / 0.886 inches
Height	110 mm / 4.331 inches
Depth from upper-edge of DIN-rail	107 mm / 4.213 inches

Mechanical data

Mounting type	DIN-35 rail

Material data

Fire load	1.523 MJ
Weight	127.7 g

Environmental requirements

Ambient temperature (operation)	-40 … +70 °C
Ambient temperature (storage)	-40 … +85 °C
Temperature range of connection cable	≥ ($T_{ambient}$ + 10 K)
Temperature range of the connection cable (UL)	85 °C
Relative humidity	5 … 95 % (non-condensing)
Operating altitude (max.)	2000 m

Standards and Specifications

Conformity marking	CE
EMC immunity to interference	EN 61000-6-2; EN 61326-2-3
EMC emission of interference	EN 61000-6-3; EN 61326-2-3
Standards/specifications	EN 61010-1 EN 61373

Commercial data

PU (SPU)	1 pcs
Packaging type	Box
Country of origin	DE
GTIN	4055143655514
Customs tariff number	85437090300

Product Classification

UNSPSC	41112209
eCl@ss 10.0	27-21-01-29
eCl@ss 9.0	27-21-01-29
ETIM 9.0	EC002919
ETIM 10.0	EC002919
ECCN	NO US CLASSIFICATION

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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)	13b179ab-80bc-479d-a2e6-c76276757256
SCIP notification number (Belgium)	946a6bcc-1b55-4643-9bb3-5f1633d08cae
SCIP notification number (Bulgaria)	30f0d40b-4f67-4956-bf4f-5f0fce6e4989
SCIP notification number (Czech Republic)	c32ed7eb-2882-4bdd-a62b-fa0ce9428bd4
SCIP notification number (Denmark)	c387bfcb-16bd-418f-a57b-a32a586748be
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SCIP notification number (Poland)	f5c5f2f9-6587-4af9-a879-75f176b366d5
SCIP notification number (Romania)	86f232d3-e5d8-4c17-9df4-048bfcdb6db8
SCIP notification number (Sweden)	d2fa2e5d-be55-4fe0-8823-179f44ba5ea0

Approvals / Certificates

General approvals

Approval	Standard	Certificate Name
EAC GZO Almaty Standart	TP TC 020/2011	EAC CoC 03083
EAC GZO Almaty Standart	TP TC 004/2011	EAC CoC 03084
UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	UL 61010-2-201	E175199

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Downloads

Environmental Product Compliance

Compliance Search

Environmental Product Compliance 2857-535/000-001

Documentation

Manual

WAGO Threshold Value Switches

Bid Text

2857-535/000-001	19.02.2019	xml 7.69 KB
2857-535/000-001	20.02.2019	docx 19.74 KB

Instruction Leaflet

Signal Conditioner; RTD TC Temperature Signal Conditioner; Serial	V 2.0.0 30.09.2020	pdf 2610.59 KB

CAD/CAE-Data

CAD data

2D/3D Models 2857-535/000-001

CAE data

EPLAN Data Portal 2857-535/000-001

ZUKEN Portal 2857-535/000-001

1 Compatible Products

1.1 Optional Accessories

1.1.1 Communication

1.1.1.1 Communication cable



Item No.: 750-923
Configuration cable; USB connector; Length: 2.5 m



Item No.: 750-923/000-001
Configuration cable; USB connector; Length: 5 m

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1.1.2 Installation

1.1.2.1 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

1.1.3 Jumper

1.1.3.1 Jumper



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



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

1.1.4 Marking

1.1.4.1 Marker



Item No.: 2009-141
Micro-WSB-Inline; 2000 pieces on roll; plain; snap-on type; white

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 Relay module

1.1.6.1 Relay module



Item No.: 857-304
Relay module; Nominal input voltage: 24 VDC; 1 changeover contact; Limiting continuous current: 6 A; Yellow status indicator; Module width: 6 mm; gray

1.1.7 Terminal blocks

1.1.7.1 Supply and through module



Item No.: 857-979
Supply and through module

1.1.8 Test and measurement

1.1.8.1 Testing accessories



Item No.: 735-500
WAGO Test pin; 1 mm Ø; 30 V AC / 60 V DC; CAT0; 1 A; 6 mm uninsulated; Test lead for soldering up to 0,5mm²

1.1.9 Tool

1.1.9.1 Operating tool



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

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Installation Notes

Configuring

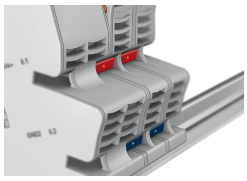


Configuration via WAGO Interface Configuration Software

Conductor termination

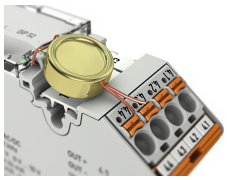


Pluggable connection technology



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

Security



Lock-out seal option