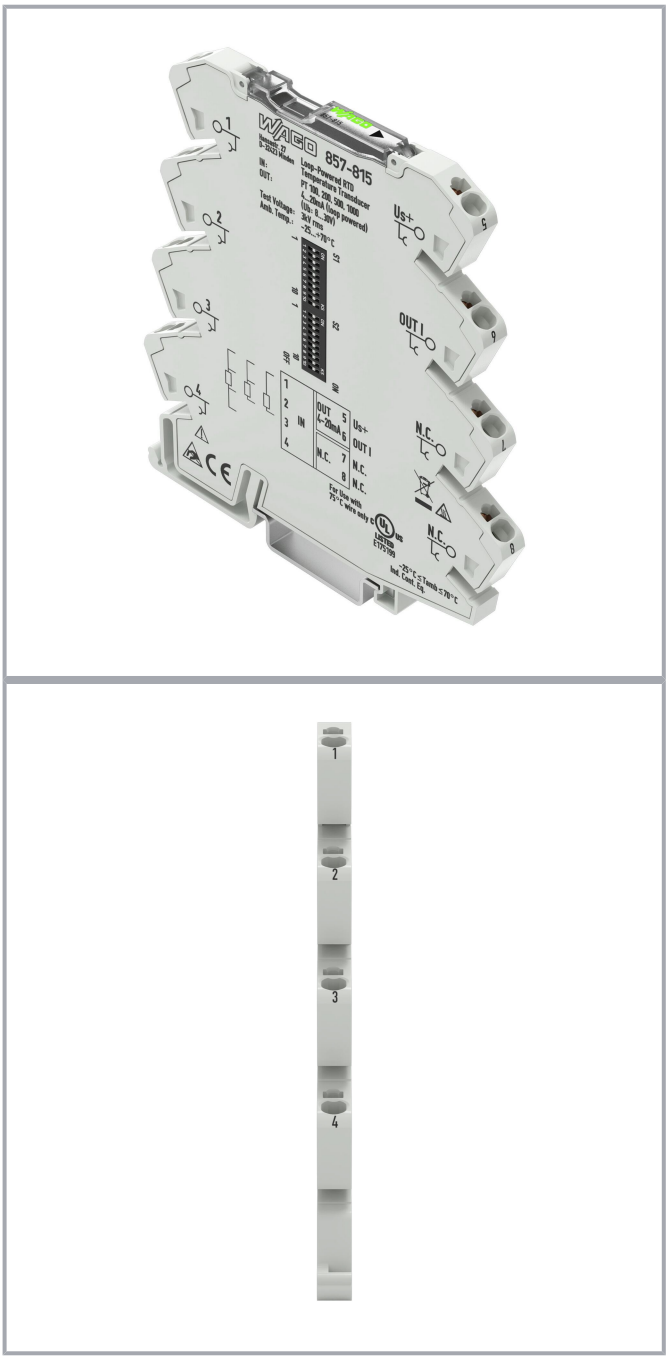
Data sheet | Item number: 857-815

Temperature signal conditioner for RTD sensors; Current output signal; Power via output; 6 mm module width

www.wago.com/857-815



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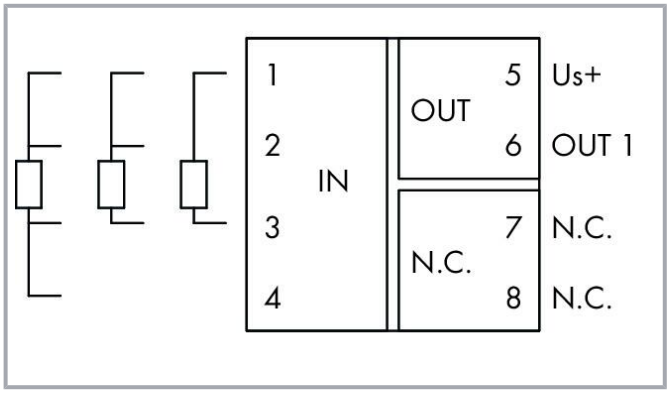

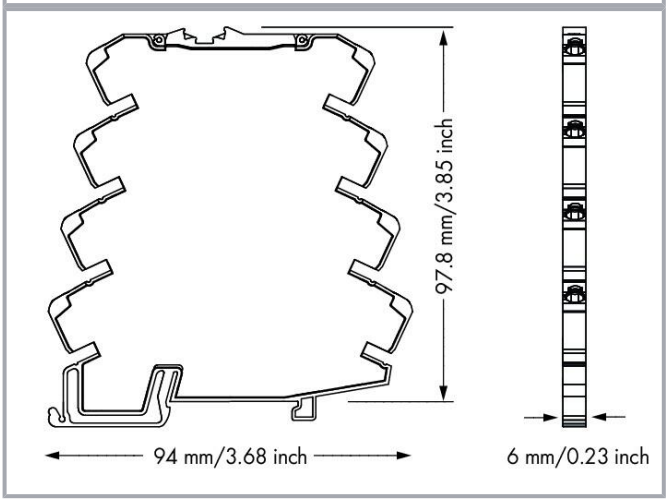

857-815

DIP Switch Adjustability

● = ON Default

DIP Switch S1

Sensor Connection 1	2	Sensor Type 3	4	5	Output Signal 6	N.C. 7	8	9	10	Measurement Range Underflow	Measurement Range Overflow	Wire Break	Short Circuit
		2-wire			Pt100	4 … 20 mA				Lower limit of output range - 5 %*	Upper limit of output range + 2.5 %*	Upper limit of output range + 5 %*	Lower limit of output range - 12.5 %*
●		3-wire	●		Pt200	● 20 … 4 mA							
	●	4-wire		●	Pt500				●	Lower limit of output range	Upper limit of output range + 2.5 %	Upper limit of output range + 5 %	Lower limit of output range
●	●	2-wire	●	●	Pt1000								
				●	1 kΩ				●	Lower limit of output range	Upper limit of output range	Upper limit of output range + 5 %	Upper limit of output range + 5 %
			●		4,5 kΩ								
									● ●	Lower limit of output range	Upper limit of output range	Lower limit of output range	Lower limit of output range

* acc. to NAMUR NE 43

DIP Switch S2

Output Signal Start Temperature 1	2	3	4	°C	°F	Output Signal End Temperature 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							100	212				●			75	167				●			210	410
●				-200	-328	●						0	32	●			●			80	176	●			●			220	428
	●			-175	-283		●					5	41		●		●			85	185		●		●			230	446
●	●			-150	-238	●	●					10	50	●	●		●			90	194	●	●		●			240	464
		●		-125	-193			●				15	59			●	●			95	203			●	●			250	482
●		●		-100	-148	●		●				20	68	●		●	●			100	212	●		●	●			260	500
	●	●		-90	-130		●	●				25	77		●	●	●			110	230		●	●	●			270	518
●	●	●		-80	-112	●	●	●				30	86	●	●	●	●			120	248	●	●	●	●			280	536
			●	-70	-94				●			35	95				●	●		130	266				●	●		290	554
●			●	-60	-76	●			●			40	104	●			●	●		140	284	●			●	●		300	572
	●		●	-50	-58		●		●			45	113		●		●	●		150	302		●		●	●		325	617
●	●		●	-40	-40	●	●		●			50	122	●	●		●	●		160	320	●	●		●	●		350	662
		●	●	-30	-22			●	●			55	131			●	●	●		170	338			●	●	●		375	707
●		●	●	-20	-4	●		●	●			60	140	●		●	●	●		180	356	●		●	●	●		400	752
	●	●	●	-10	14		●	●	●			65	149		●	●	●	●		190	374		●	●	●	●		425	797
●	●	●	●	0	32	●	●	●	●			70	158	●	●	●	●	●		200	392	●	●	●	●	●		450	842

Output Signal 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
				100	212						●	75	167						●	210	410						●	475	887
				0	32	●					●	80	176	●					●	220	428	●					●	500	932
				5	41		●				●	85	185		●				●	230	446		●				●	525	997
				10	50	●	●				●	90	194	●	●				●	240	464	●	●				●	550	1022
				15	59			●			●	95	203			●			●	250	482			●			●	575	1067
				20	68	●		●			●	100	212	●		●			●	260	500	●		●			●	600	1112
				25	77		●	●			●	110	230		●	●			●	270	518		●	●			●	625	1157
				30	86	●	●	●			●	120	248	●	●	●			●	280	536	●	●	●			●	650	1202
				35	95				●	●	●	130	266				●		●	290	554				●	●	●	675	1247
				40	104	●			●	●	●	140	284	●			●		●	300	572	●			●	●	●	700	1292
				45	113		●		●	●	●	150	302		●		●		●	325	617		●		●	●	●	725	1337
				50	122	●	●		●	●	●	160	320	●	●		●		●	350	662	●	●		●	●	●	750	1382
				55	131			●	●	●	●	170	338			●	●	●	●	375	707			●	●	●	●	775	1427
				60	140	●		●	●	●	●	180	356	●		●	●	●	●	400	752	●		●	●	●	●	800	1472
				65	149		●	●	●	●	●	190	374		●	●	●	●	●	425	797		●	●	●	●	●	825	1517
				70	158	●	●	●	●	●	●	200	392	●	●	●	●	●	●	450	842	●	●	●	●	●	●	850	1562

The measurement span must have the following min. magnitude:
• in the Celsius scale (°C): 50 K
• in the Fahrenheit scale (°F): 90 K

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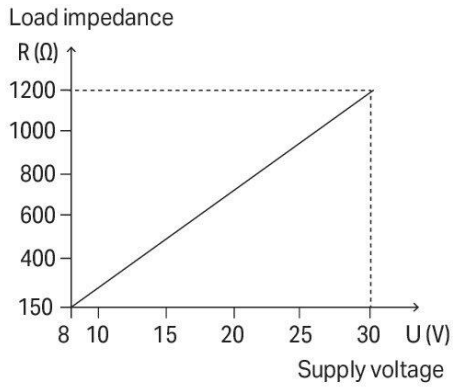

Derating

Item description

Short description:

WAGO's loop-powered RTD temperature signal conditioner records sensors (Pt100, Pt200, Pt500, Pt1000) and resistors up to 4.5 kΩ, converting the temperature signal into a standard analog signal at the output.

The loop-powered RTD temperature signal conditioner provides safe isolation between input and output with 3 kV test voltage per EN 61010-1.

Features:

- No additional supply voltage required
- For Pt100, Pt200, Pt500 and Pt1000 sensors, as well as resistors up to 4.5 kOhm
- 2-, 3- and 4-wire connection technology
- Calibrated measurement range switching
- Detects a sensor wire break/short circuit

Data

Notes

Note	**Use shielded signal lines!** Only use shielded signal lines for analog input and output signals. Only then can you ensure that the accuracy and interference immunity specified for the device can be achieved, even in the presence of interference acting on the signal cable.

Technical data

Subject to changes. Please also observe the further product documentation!

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Configuration

Configuration options	DIP switch

Input

Input signal type	Resistance Pt sensors Resistor

Input (RTD sensors)

Sensor types (RTD)	Pt100 Pt200 Pt500 Pt1000
Sensor power supply (RTD) max.	≤ 0.5 mA
Temperature measurement range (RTD)	-200 … 850°C
Measurement span (RTD) min.	50 K

Input (resistors)

Input range (resistor)	0 … 1 kΩ; 0 … 4.5 kΩ

Output (analog)

Output signal type	Current
Output signal (current)	4 … 20 mA; 20 … 4 mA
Load impedance (current output)	See derating graphic

Signal Processing

Step response (typ.)	1000 ms

Measurement Error

Transmission error (typ.)	≤ 0.1 % at full measurement span
Transmission error for the set measurement range	≤ ((40 K/set measurement range [K]) + 0.1) %
Transmission error (under interference)	≤ 5 %
Temperature coefficient	≤ 0.02 %/K

Supply

Power supply type	Loop-powered (via output)

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Supply voltage	DC 8 … 30 V (Power is derived from the output circuit.)
Power loss (max.) $P_{l\,(max.)}$	0.7 W

Safety and protection

Rated voltage	300 V; 150 V (UL)
Measurement category per EN/UL 61010-2-030	CAT II (input)
Protection type	IP20

Test voltage

Test voltage (input/analog output)	3 kVAC; 50 … 60 Hz; 1 min

Insulation parameters(UL)

Overvoltage category	II
Pollution degree	2
Insulation type (input/analog output)	Reinforced insulation (safe isolation)

Insulation parameters

Overvoltage category	II
Pollution degree	2
Insulation type (input IN 2.1/relay output)	Reinforced insulation (safe isolation)

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

Subject to changes. Please also observe the further product documentation!

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Material Data

Fire load	0.013 MJ
Weight	38.9 g

Environmental requirements

Ambient temperature (operation)	-25 … +70 °C
Ambient temperature (storage)	-40 … +85 °C
Temperature range of connection cable	≥ ($T_{ambient}$ + 10 K)
Temperature range of connection cable (UL)	75 °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; EN 61326-1; EN 50121-3-2
EMC emission of interference	EN 61000-6-3; EN 61326-1; EN 50121-3-2
Standards/specifications	EN 50121-3-2 EN 61010-1 EN 61373

Commercial data

eCl@ss 10.0	27-21-01-29
eCl@ss 9.0	27-21-01-29
ETIM 8.0	EC002919
ETIM 7.0	EC002919
PU (SPU)	1 pcs
Packaging type	bag
Country of origin	DE
GTIN	4055143475648
Customs tariff number	85437090300

Environmental Product Compliance

CAS-No.	7439-92-1 79-94-7
REACH Candidate List Substance	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol Lead
RoHS Compliance Status	Compliant,With Exemption

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RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II
SCIP notification number (Austria)	830a7e26-28ea-4705-ab6e-226f9c633520
SCIP notification number (Belgium)	63788937-7a1f-4563-936a-f01960202294
SCIP notification number (Bulgaria)	7573483d-d923-4363-9064-ce0784b75504
SCIP notification number (Czech Republic)	17fdd5aa-0c9d-4035-8fac-fb4e34ddac7f
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SCIP notification number (Romania)	5914960a-62a8-45a9-95fc-a9ee80aab951
SCIP notification number (Sweden)	d4592a7f-9ffa-4c4d-9de5-be795739849b

Approvals / Certificates

General approvals

Logo	Approval	Additional Approval Text	Certificate name
	EAC Brjansker Zertifizierungsstelle	TP TC 020/2011	EAC_Certificate_RU_C-DE.AM02.B.00115_19
	EAC Brjansker Zertifizierungsstelle	TP TC 004/2011	EAC RU C-DE.AM02.B.00122/19
	UL Underwriters Laboratories Inc. (ORDINARY LOCATIONS)	UL 61010-2-201	E175199

Declarations of conformity and manufacturer's declarations

Logo	Approval	Additional Approval Text	Certificate name
	EU-Declaration of Conformity WAGO GmbH & Co. KG	-	-

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Optional accessories

Marking accessories

Marking strip

	Item no.: 2009-110 Marking strips; for Smart Printer; on reel; not stretchable; plain; snap-on type; white	www.wago.com/2009-110

Marker

	Item no.: 2009-115 WMB-Inline; for Smart Printer; 1500 pieces on roll; stretchable 5 - 5.2 mm; plain; snap-on type; white	www.wago.com/2009-115
	Item no.: 793-501 WMB marking card; as card; not stretchable; plain; snap-on type; white	www.wago.com/793-501
	Item no.: 793-502 WMB marking card; as card; MARKED; 1 ... 10 (10x); not stretchable; Horizontal marking; snap-on type; white	www.wago.com/793-502
	Item no.: 793-503 WMB marking card; as card; MARKED; 11 ... 20 (10x); not stretchable; Horizontal marking; snap-on type; white	www.wago.com/793-503
	Item no.: 793-504 WMB marking card; as card; MARKED; 21 ... 30 (10x); not stretchable; Horizontal marking; snap-on type; white	www.wago.com/793-504
	Item no.: 793-505 WMB marking card; as card; MARKED; 31 ... 40 (10x); not stretchable; Horizontal marking; snap-on type; white	www.wago.com/793-505
	Item no.: 793-506 WMB marking card; as card; MARKED; 41 ... 50 (10x); not stretchable; Horizontal marking; snap-on type; white	www.wago.com/793-506
	Item no.: 793-566 WMB marking card; as card; MARKED; 1 ... 50 (2x); not stretchable; Horizontal marking; snap-on type; white	www.wago.com/793-566
	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	www.wago.com/793-5501

Power supplies

Power supply unit

	Item no.: 787-2852 Switched-mode power supply; 1-phase; 24 VDC output voltage; 1 A output current	www.wago.com/787-2852

Tool

Subject to changes. Please also observe the further product documentation!

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Operating tool

Item no.: 210-720
Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured
www.wago.com/210-720

Mounting

Mounting accessories

Item no.: 249-116
Screwless end stop; 6 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray
www.wago.com/249-116

Item no.: 249-117
Screwless end stop; 10 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray
www.wago.com/249-117

Item no.: 249-197
Screwless end stop; 14 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray
www.wago.com/249-197

Terminal blocks

Supply module

Item no.: 857-979
Supply and through module
www.wago.com/857-979

Interface module

Interface adapters

Item no.: 857-980
Interface adapter; 16-pole; analog
www.wago.com/857-980

Jumpers

Jumper

Item no.: 859-408
Jumper; for jumper slot; 8-way; insulated; light gray
www.wago.com/859-408

Item no.: 281-482
Jumper; 2-way; insulated; gray
www.wago.com/281-482

Item no.: 859-404/000-005
Jumper; for jumper slot; 4-way; insulated; red
www.wago.com/859-404/000-005

Item no.: 859-404/000-006
Jumper; for jumper slot; 4-way; insulated; blue
www.wago.com/859-404/000-006

Item no.: 859-405/000-005
Jumper; for jumper slot; 5-way; insulated; red
www.wago.com/859-405/000-005

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

www.wago.com/859-405/000-029

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

www.wago.com/859-405

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

www.wago.com/859-404/000-029

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

www.wago.com/859-406

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

www.wago.com/859-405/000-006

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

www.wago.com/859-406/000-005

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

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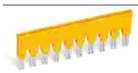
Item no.: 859-410/000-005
Jumper; for jumper slot; 10-way; insulated; red

www.wago.com/859-410/000-005

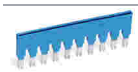


Item no.: 859-410/000-029
Jumper; for jumper slot; 10-way; insulated; yellow

www.wago.com/859-410/000-029

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

www.wago.com/859-410



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

www.wago.com/859-410/000-006

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

www.wago.com/859-403/000-005

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

www.wago.com/859-402/000-029

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	Item no.: 859-403/000-029 Jumper; for jumper slot; 3-way; insulated; yellow	www.wago.com/859-403/000-029
	Item no.: 859-403/000-006 Jumper; for jumper slot; 3-way; insulated; blue	www.wago.com/859-403/000-006
	Item no.: 859-408/000-005 Jumper; for jumper slot; 8-way; insulated; red	www.wago.com/859-408/000-005
	Item no.: 859-408/000-029 Jumper; for jumper slot; 8-way; insulated; yellow	www.wago.com/859-408/000-029
	Item no.: 859-409 Jumper; for jumper slot; 9-way; insulated; light gray	www.wago.com/859-409
	Item no.: 859-408/000-006 Jumper; for jumper slot; 8-way; insulated; blue	www.wago.com/859-408/000-006
	Item no.: 859-403 Jumper; for jumper slot; 3-way; insulated; light gray	www.wago.com/859-403
	Item no.: 859-409/000-005 Jumper; for jumper slot; 9-way; insulated; red	www.wago.com/859-409/000-005
	Item no.: 859-404 Jumper; for jumper slot; 4-way; insulated; light gray	www.wago.com/859-404
	Item no.: 859-409/000-006 Jumper; for jumper slot; 9-way; insulated; blue	www.wago.com/859-409/000-006
	Item no.: 859-402/000-006 Jumper; for jumper slot; 2-way; insulated; blue	www.wago.com/859-402/000-006
	Item no.: 859-402 Jumper; for jumper slot; 2-way; insulated; light gray	www.wago.com/859-402
	Item no.: 859-402/000-005 Jumper; for jumper slot; 2-way; insulated; red	www.wago.com/859-402/000-005
	Item no.: 859-406/000-006 Jumper; for jumper slot; 6-way; insulated; blue	www.wago.com/859-406/000-006

Subject to changes. Please also observe the further product documentation!

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	Item no.: 859-406/000-029 Jumper; for jumper slot; 6-way; insulated; signal yellow	www.wago.com/859-406/000-029
	Item no.: 859-407/000-006 Jumper; for jumper slot; 7-way; insulated; blue	www.wago.com/859-407/000-006
	Item no.: 859-407/000-005 Jumper; for jumper slot; 7-way; insulated; red	www.wago.com/859-407/000-005
	Item no.: 859-407/000-029 Jumper; for jumper slot; 7-way; insulated; yellow	www.wago.com/859-407/000-029
	Item no.: 859-407 Jumper; for jumper slot; 7-way; insulated; light gray	www.wago.com/859-407

Downloads

Documentation

Bid Text

857-815 docx - Datei	2019 Feb 20	docx 18.4 kB	Download
857-815 X81 - Datei	2019 Feb 19	xml 5.7 kB	Download

Instruction Leaflet

Temperature signal conditioner for RTD sensors; Current output signal; Power via output	V 2.0.0 2020 Sep 29	pdf 2.3 MB	Download

Additional Information

Disposal and Recycling Electrical and electronic equipment, Batteries, Packaging	V 1.1.0 2022 Aug 18	pdf 2.2 MB	Download

CAD/CAE-Data

CAD data

2D/3D Models 857-815	URL	Download

CAE data

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EPLAN Data Portal 857-815	URL	Download
WSCAD Universe 857-815	URL	Download
ZUKEN Portal 857-815	URL	Download

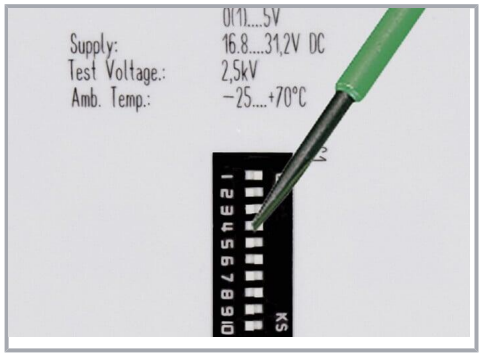
Environmental Product Compliance

Compliance Search

Environmental Product Compliance 857-815 Temperature signal conditioner for RTD sensors; Current output signal; Power via output; 6 mm module width	URL	Download

Installation Notes

Configuring



Configuration via DIP switch

Commoning

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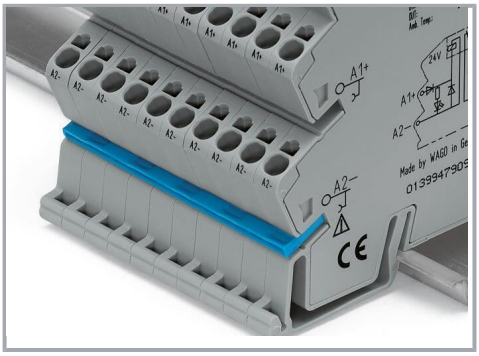

Commoning, not discrete wiring – Same outline allows use of a single in-line, push-in jumper.

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