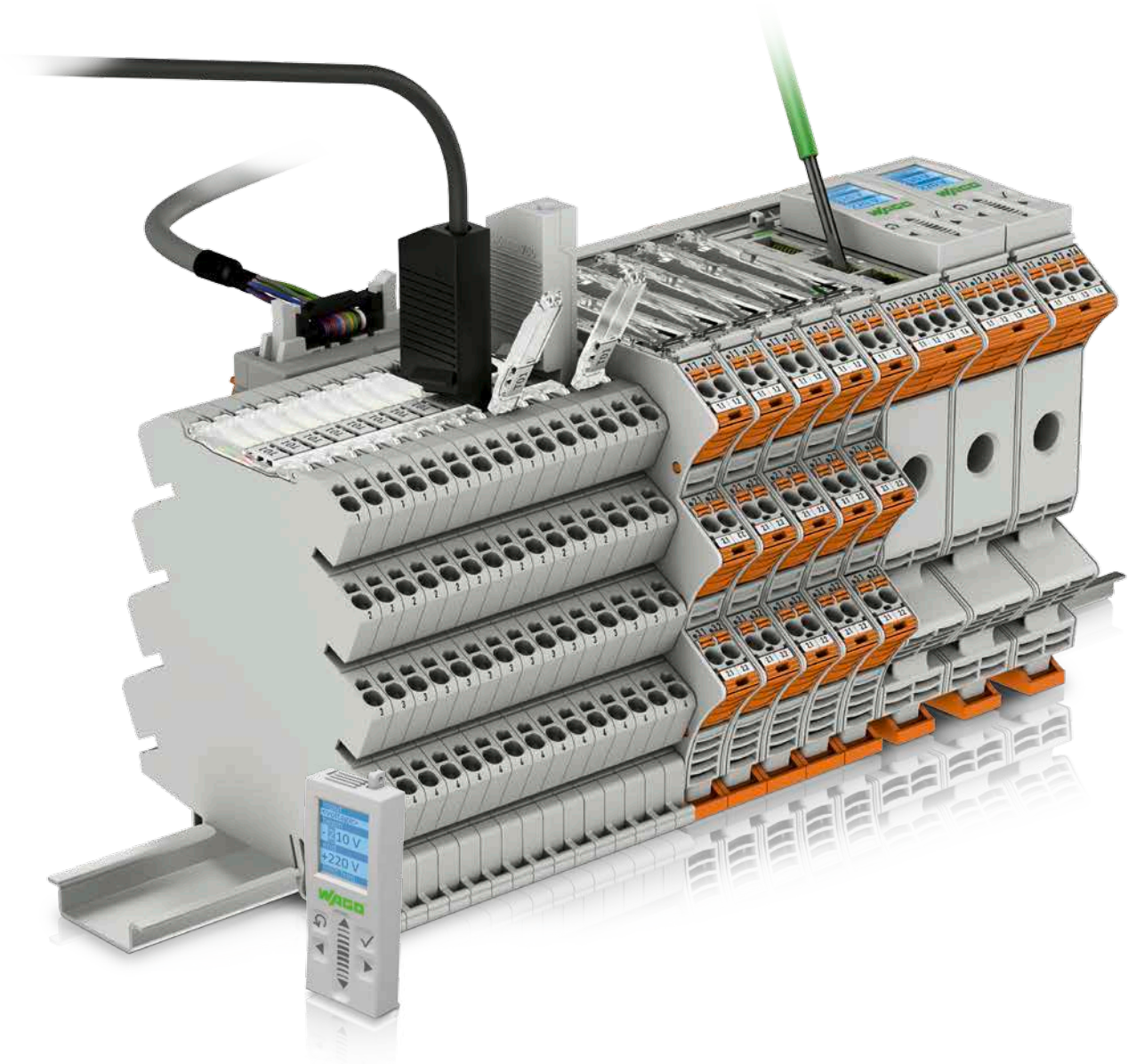


JUMPFLEX®

The Standard for Signal Conditioners



**WE
INNOVATE!**

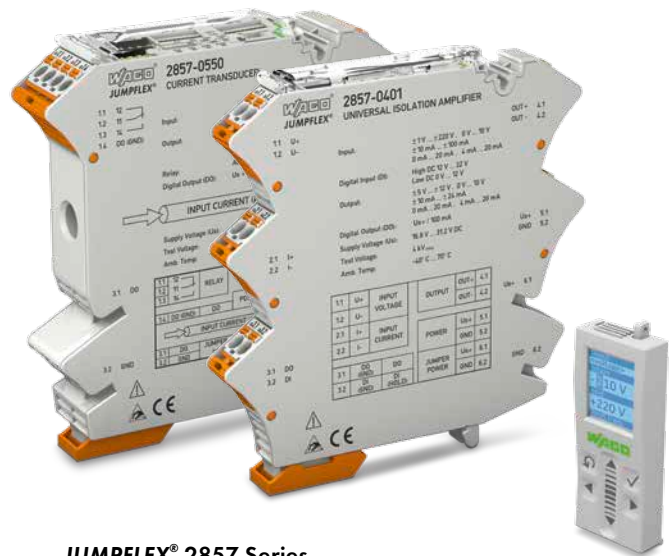


WAGO®

JUMPFLEX® Signal Conditioners and Isolation Amplifiers



JUMPFLEX® 857 Series



JUMPFLEX® 2857 Series

WAGO Termination Technology

Directly connect – save time!

Simple, push-in termination of solid and ferruled conductors – no operating tool needed

CAGE CLAMP® S

Vibration-proof – fast – maintenance-free

CAGE CLAMP® S termination for all conductor types



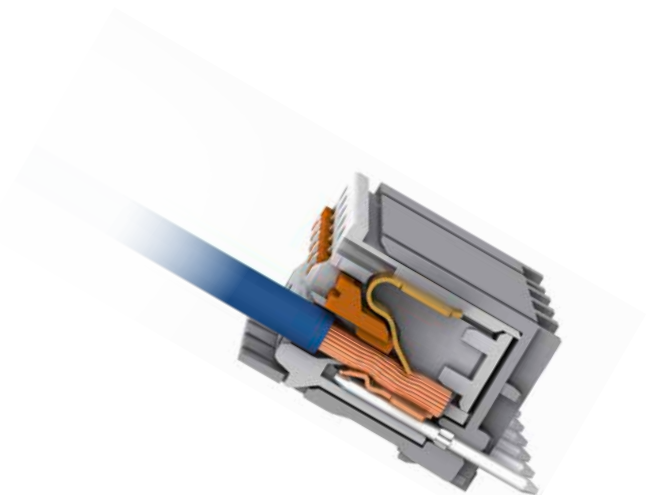
solid



fine-stranded



ferruled



picoMAX® Pluggable Connector

← 857 Series →

← 2857 Series →

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JUMPFLEX®

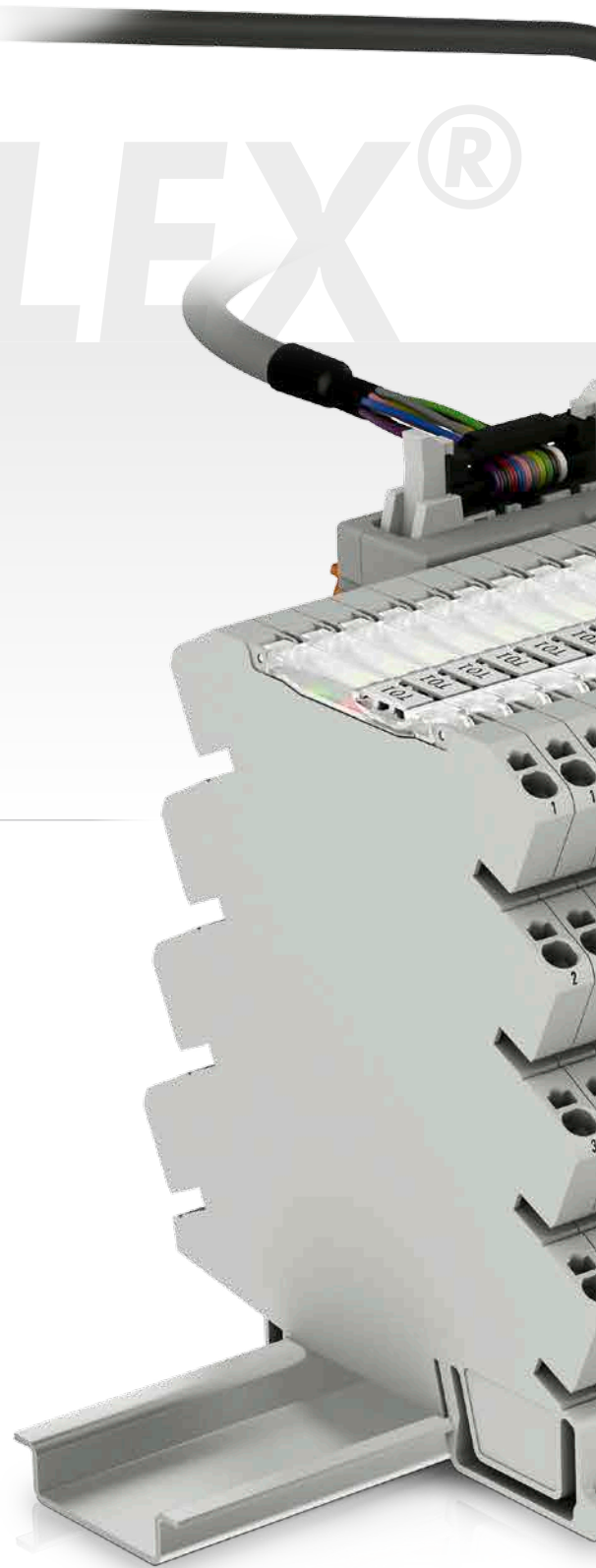
857 and 2857 Series

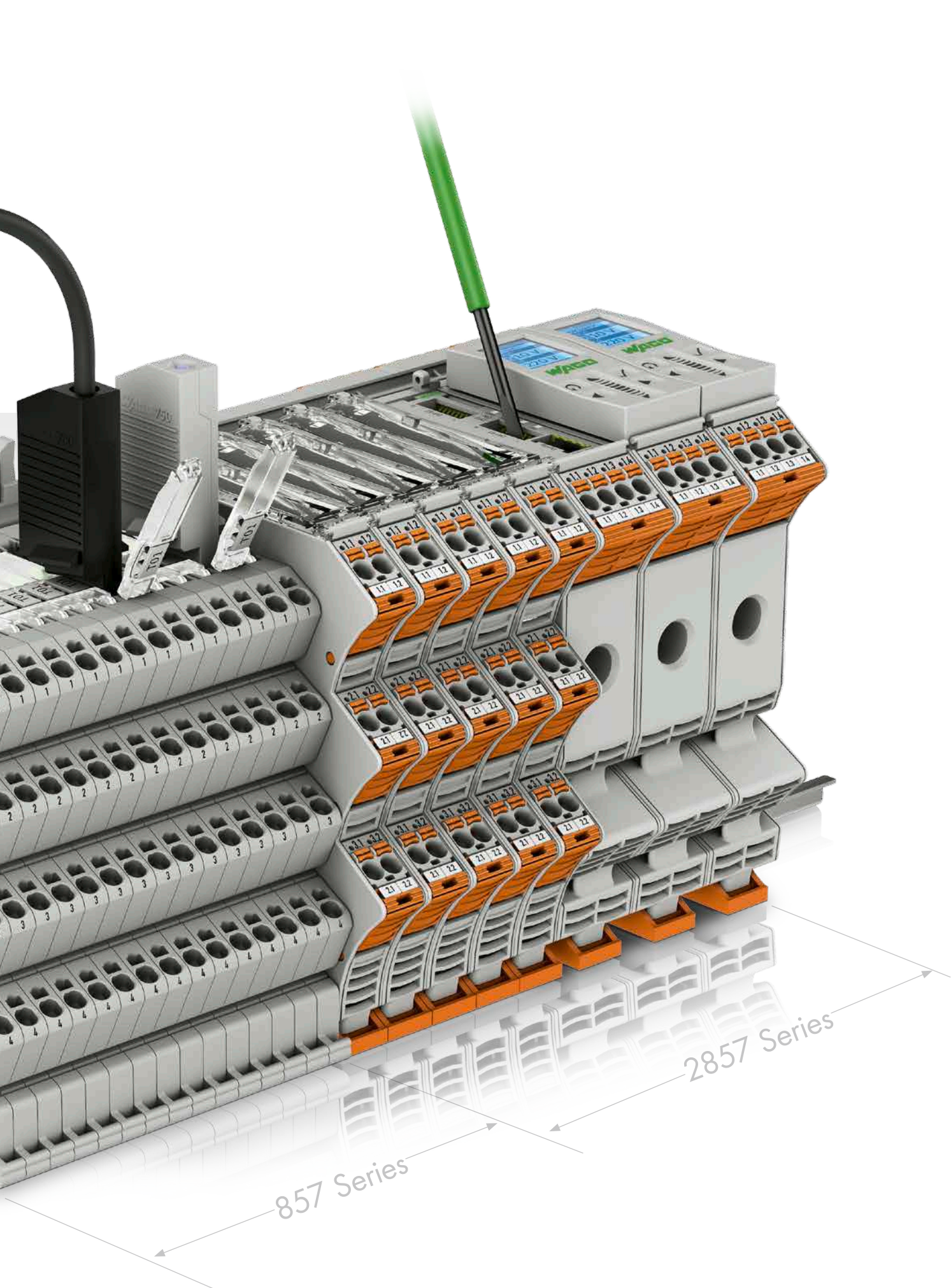
JUMPFLEX®

New Features for a Variety of Combinations

The 2857 Series was driven by customers' needs for greater flexibility during system planning while maintaining a consistent appearance. To achieve this, the 2857 Series' housing was designed with the same shape as the popular 857 Series while spanning all widths.

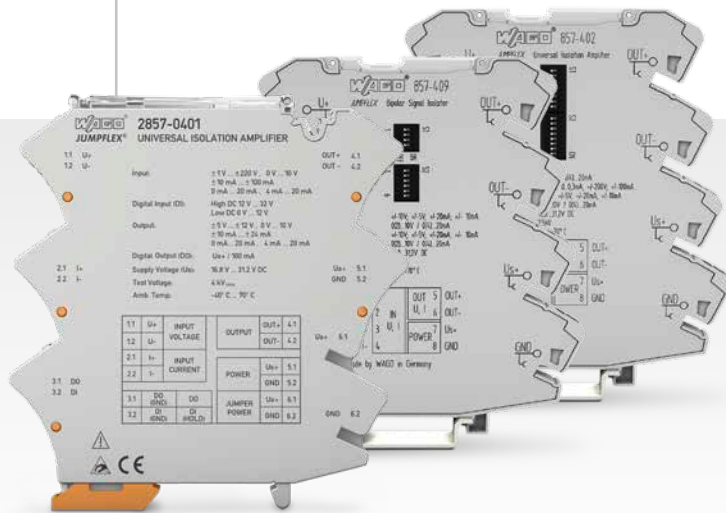
The advantage rests in the palm of your hand: There is no need to wire each individual component thanks to push-in jumpers, which saves time and effort. Tightly integrating these desirable mechanical and electrical characteristics has led to a series of unique features that continues to set the standard for signal conditioners.



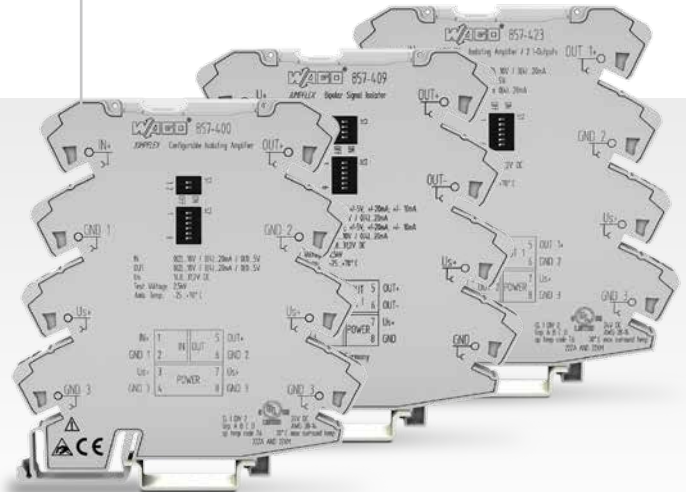


JUMPFLEX® – KEY FEATURES

EFFECTIVELY PROTECTED



ALWAYS ACCURATE



The input circuit is effectively protected against overcurrent.

- 857-409 Bipolar Isolation Amplifier
- 857-402 and 2857-401 Universal Isolation Amplifiers

No recalibration is necessary after switching between measurement ranges.

- All 857-4xx Isolation Amplifiers
- All 857-xxx Signal Conditioners are configurable via DIP switch



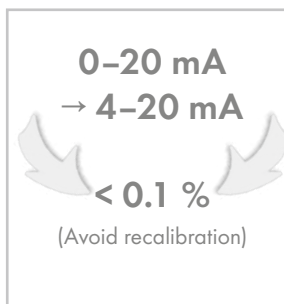
Requirement:

Input circuit protection against overcurrent.



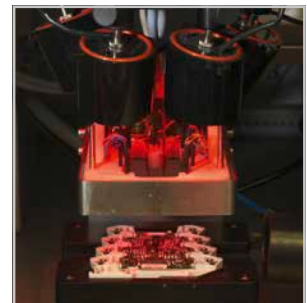
Solution:

Use auto-reset fuse that resets once overcurrent is removed.



Requirement:

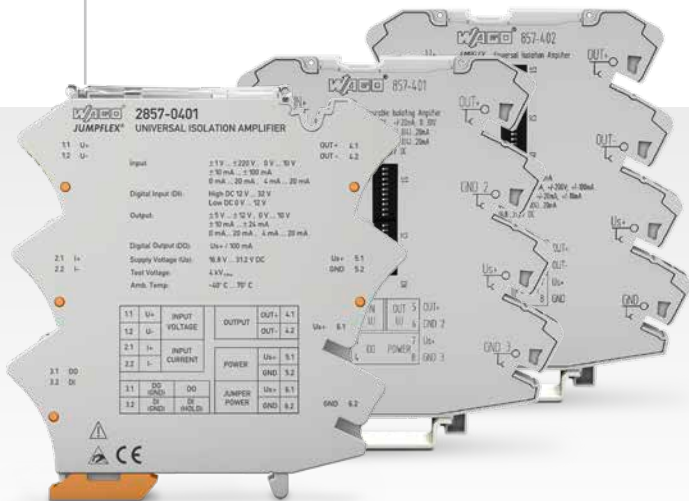
Always precise and constant signal values – even after signal range change.



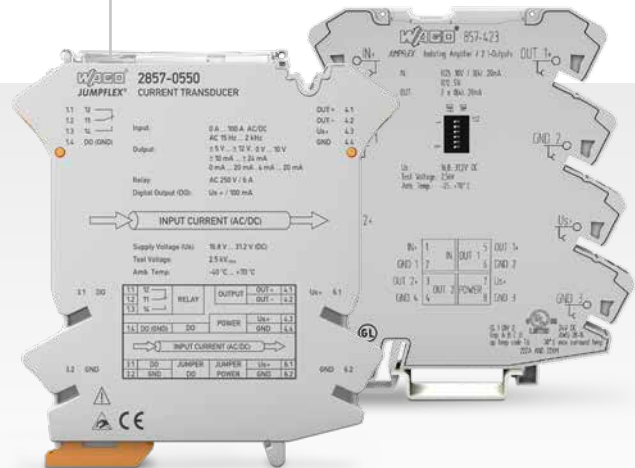
Solution:

Use laser-trimming process on resistors for each DIP switch setting to avoid recalibration.

PERFECTLY ADJUSTED



HIGHEST SAFETY



The perfect solution for any application.

- 857-401 Software-Configurable Isolation Amplifier (with configurable DO)
- 857-402 Universal Isolation Amplifier, all 2857 Series devices and all 857-8xx Signal Conditioners

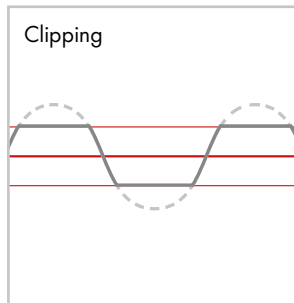
All devices provide “safe isolation” with 2.5 kV test voltage per EN 61140 (857 Series) with 4 kV test voltage per EN 61140 (2857 Series).

- JUMPFLEX® – The entire 857 and 2857 Series lines (all signal conditioners and isolation amplifiers)



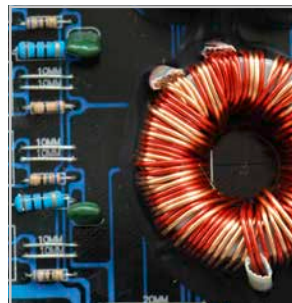
Requirement:

Reaching definable end values for standard analog signals.



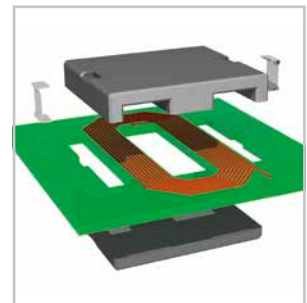
Solution:

Integrate a clipping function to ensure accurate analog standard signal conversion by limiting upper range values.



Requirement:

Provide safe electrical isolation of all circuits (input, output, and power supply) without additional costs.

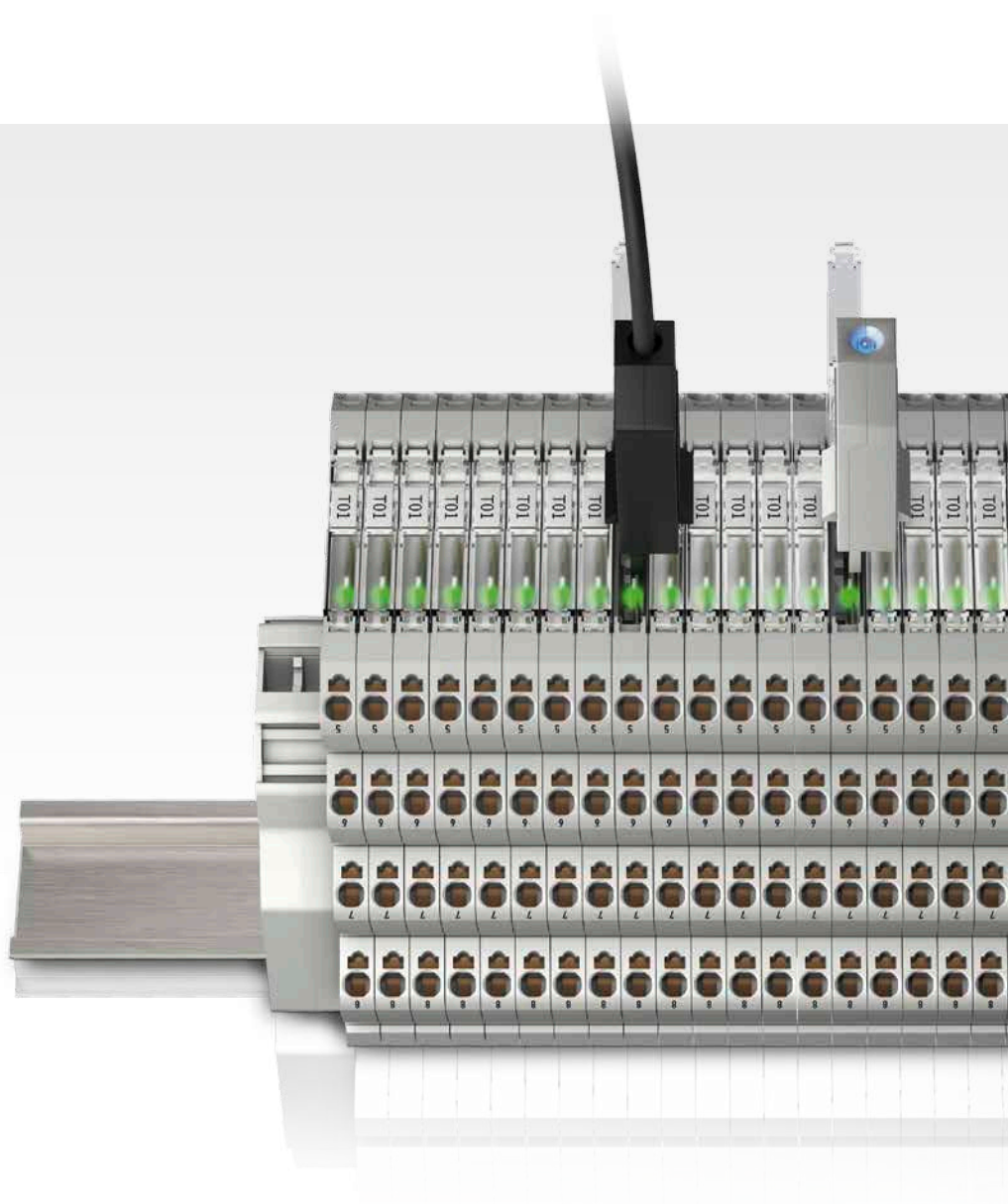


Solution:

Utilize multi-layer PCB windings with a ferrite core.

JUMPFLEX® SIGNAL CONDITIONERS

857 Series



The right signal is crucial!

Housed in a 6 mm-wide package, the 857 Series JUMPFLEX® Signal Conditioners offer eight CAGE CLAMP® S connections with a jumper slot at every connection point and a common profile. This economical design allows the same flexible, push-in jumpers to be cost-effectively used across the entire JUMPFLEX® product line, enabling every feature to play a key role in forming the basis of a successful, comprehensive solution. Additional benefits include: "safe isolation," extended operating temperature range and calibrated, configurable signals. Combined with excellent technical specifications, these features lead to a line of advanced signal conditioning solutions that maximize panel space while reducing signal wiring and downtime.

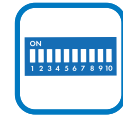
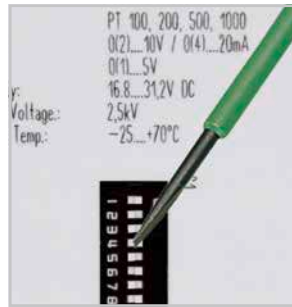
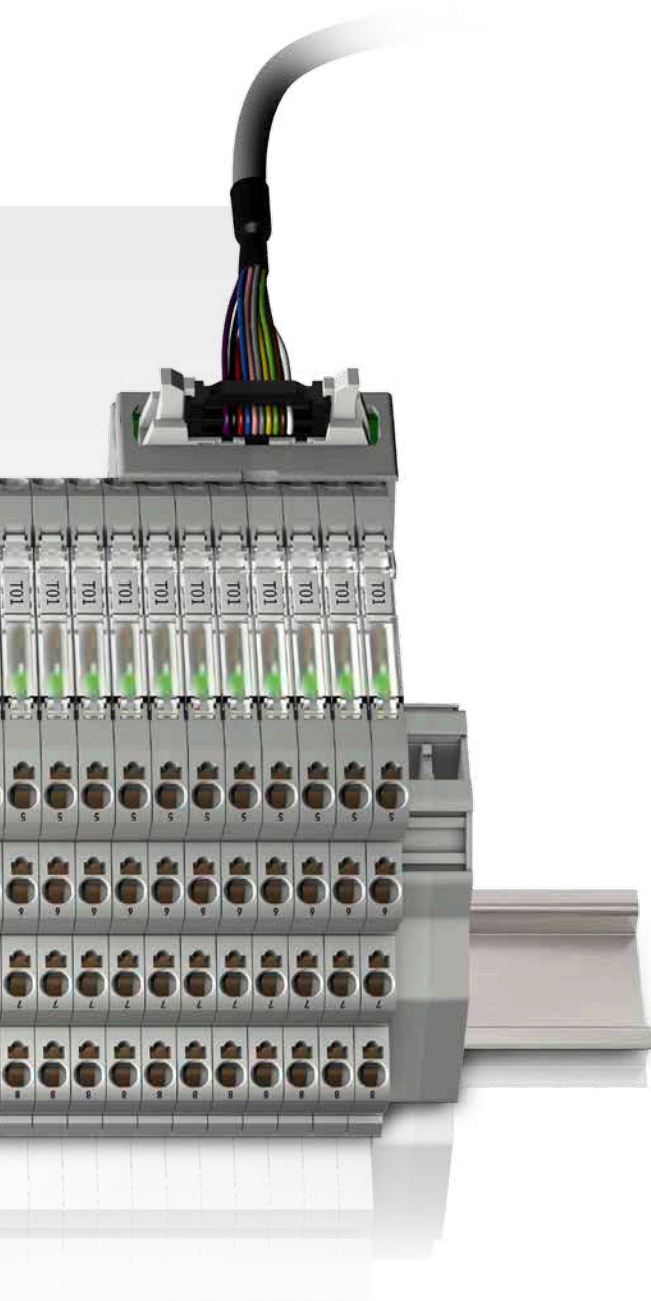
Directly connect — save time!

Simple, push-in termination of solid and ferruled conductors — no operating tool needed.

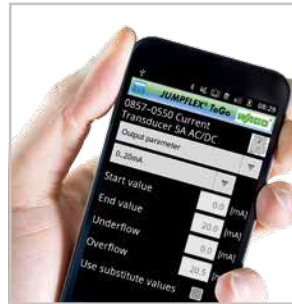
CAGE CLAMP® S

Vibration-proof — fast — maintenance-free

CAGE CLAMP® S termination for all conductor types.



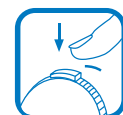
**Configuration
via DIP switches**



**Configuration
via JUMPFLEX®-ToGo
Smartphone App**



**Configuration
via PC software**



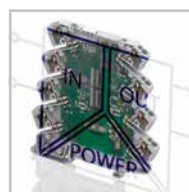
**Configuration
via push/slide switch**



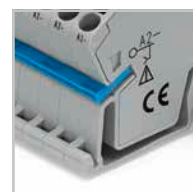
Industry's most compact
"True" 6.0 mm (0.23 in.) width
maximizes panel space.



For extreme temperatures
Extended temperature range
of -25 °C to +70 °C to support
more applications.



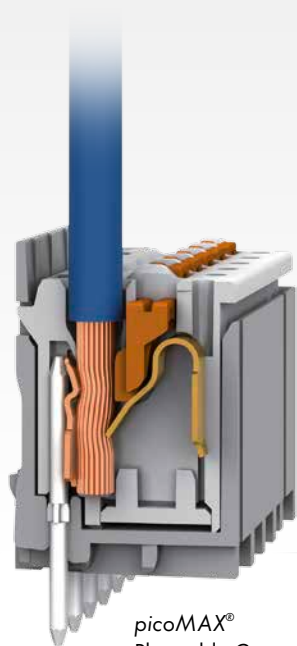
Maximum safety
All devices provide "safe
isolation" with 2.5 kV test
voltage per EN 61140.



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

JUMPFLEX® SIGNAL CONDITIONERS

2857 Series



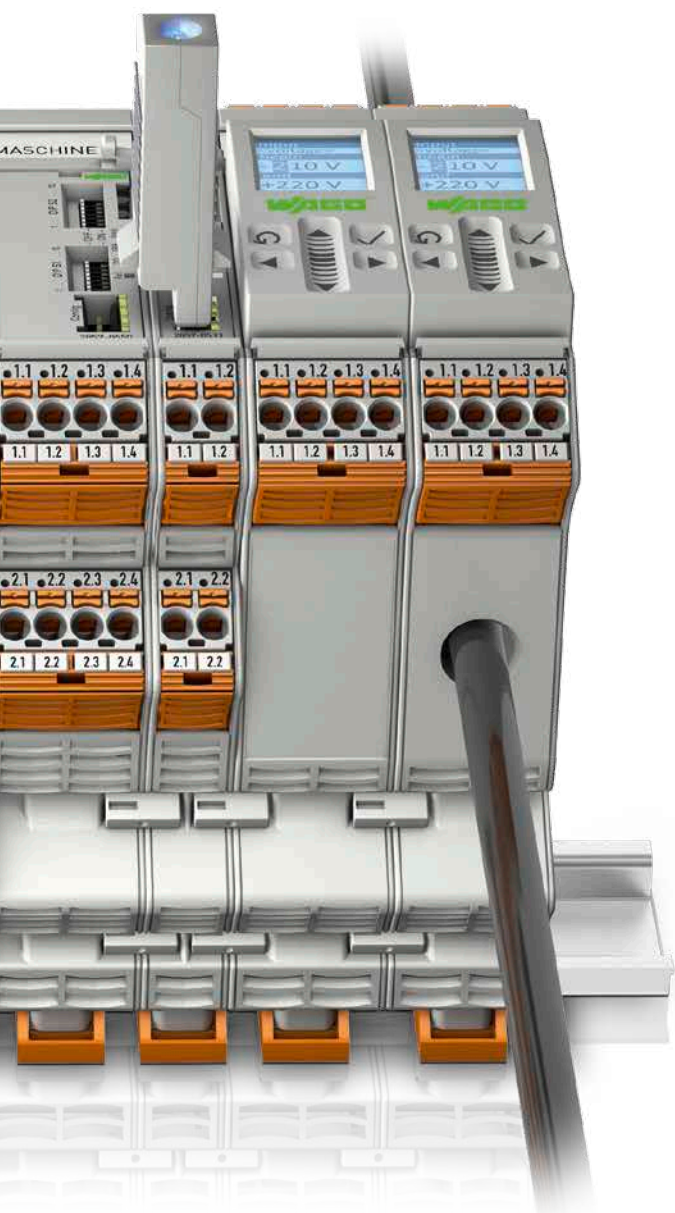
picoMAX®
Pluggable Connector



The right signal is crucial!

The success of the 857 Series JUMPFLEX® Signal Conditioners shaped the design of the new 2857 Series. Just like the 857 Series, usability and absolute reliability are at the core of the 2857 Series. However, the 2857 Series takes flexibility to new levels by providing several convenient configuration options.

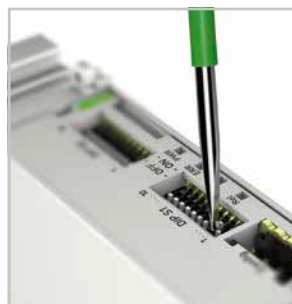
In addition to DIP switches, PC configuration software and a smartphone configuration app, there is also a newly developed touch panel display. Every aspect has been engineered for maximum flexibility – and is exactly what you'd expect from WAGO.



Configuration
via PC software



Configuration
via JUMPFLEX®-ToGo
Smartphone App



Configuration
via DIP switches



Configuration
via touch panel —
an innovative display



Pluggable connection
technology



For extreme temperatures
Extended temperature range
of -25 °C to +70 °C to
support more applications.



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



Lock-out seal option

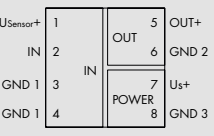
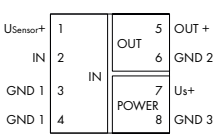
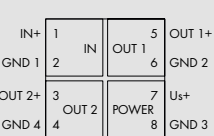
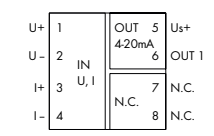
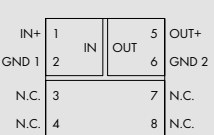
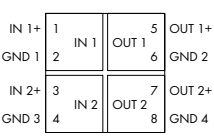
TECHNICAL DETAILS

Description		Item No.			Input																																		
 Isolation Amplifiers																																							
Isolation Amplifiers	Universal Isolation Amplifier	2857-0401		<table><tr><td>11</td><td>U+</td><td rowspan="2">INPUT VOLTAGE</td><td rowspan="2">OUTPUT</td><td>OUT+</td><td>4.1</td></tr><tr><td>12</td><td>U-</td><td>OUT-</td><td>4.2</td></tr><tr><td>21</td><td>I+</td><td rowspan="2">INPUT CURRENT</td><td rowspan="2">POWER</td><td>U_s+</td><td>5.1</td></tr><tr><td>22</td><td>I-</td><td>GND</td><td>5.2</td></tr><tr><td>31</td><td>DO (GND)</td><td>DO</td><td rowspan="2">JUMPER POWER</td><td>U_s+</td><td>6.1</td></tr><tr><td>32</td><td>DI (GND)</td><td>DI (HOLD)</td><td>GND</td><td>6.2</td></tr></table>	11	U+	INPUT VOLTAGE	OUTPUT	OUT+	4.1	12	U-	OUT-	4.2	21	I+	INPUT CURRENT	POWER	U _s +	5.1	22	I-	GND	5.2	31	DO (GND)	DO	JUMPER POWER	U _s +	6.1	32	DI (GND)	DI (HOLD)	GND	6.2	0–1 mA 0–10 mA 2–10 mA 0–20 mA 4–20 mA 0–100 mA	0–5 V 1–5 V 0–10 V 2–10 V 0–220 V	±1 mA ±10 mA ±20 mA ±100 mA ±1 V ±10 V ±30 V ±100 V ±200 V	0–10 mA 2–10 mA 0–20 mA 4–20 mA
	11	U+	INPUT VOLTAGE	OUTPUT	OUT+	4.1																																	
	12	U-			OUT-	4.2																																	
	21	I+	INPUT CURRENT	POWER	U _s +	5.1																																	
	22	I-			GND	5.2																																	
	31	DO (GND)	DO	JUMPER POWER	U _s +	6.1																																	
	32	DI (GND)	DI (HOLD)		GND	6.2																																	
Isolation Amplifier, Configurable via Zero/Span Adjustment	857-400		<table><tr><td>IN+</td><td>1</td><td>IN</td><td>OUT</td><td>5</td><td>OUT+</td></tr><tr><td>GND 1</td><td>2</td><td></td><td></td><td>6</td><td>GND 2</td></tr><tr><td>U_s+</td><td>3</td><td>POWER</td><td></td><td>7</td><td>U_s+</td></tr><tr><td>GND 3</td><td>4</td><td></td><td></td><td>8</td><td>GND 3</td></tr></table>	IN+	1	IN	OUT	5	OUT+	GND 1	2			6	GND 2	U _s +	3	POWER		7	U _s +	GND 3	4			8	GND 3	0–10 mA 2–10 mA 0–20 mA 4–20 mA	0–5 V 1–5 V 0–10 V 2–10 V		0–20 mA 4–20 mA								
IN+	1	IN	OUT	5	OUT+																																		
GND 1	2			6	GND 2																																		
U _s +	3	POWER		7	U _s +																																		
GND 3	4			8	GND 3																																		
Isolation Amplifier, Configurable via Digital Output	857-401		<table><tr><td>IN+</td><td>1</td><td>IN</td><td>OUT</td><td>5</td><td>OUT+</td></tr><tr><td>GND 1</td><td>2</td><td>U_s+</td><td>U_s+</td><td>6</td><td>GND 2</td></tr><tr><td>DO</td><td>3</td><td>DO</td><td>POWER</td><td>7</td><td>U_s+</td></tr><tr><td>GND 3</td><td>4</td><td></td><td></td><td>8</td><td>GND 3</td></tr></table>	IN+	1	IN	OUT	5	OUT+	GND 1	2	U _s +	U _s +	6	GND 2	DO	3	DO	POWER	7	U _s +	GND 3	4			8	GND 3	0–10 mA 2–10 mA 0–20 mA 4–20 mA	0–5 V 1–5 V 0–10 V 2–10 V	±20 mA ±10 V	0–10 mA 2–10 mA 0–20 mA 4–20 mA								
IN+	1	IN	OUT	5	OUT+																																		
GND 1	2	U _s +	U _s +	6	GND 2																																		
DO	3	DO	POWER	7	U _s +																																		
GND 3	4			8	GND 3																																		
Universal Isolation Amplifier	857-402		<table><tr><td>U+</td><td>1</td><td>OUT</td><td>5</td><td>OUT+</td></tr><tr><td>I+</td><td>2</td><td>U_s+</td><td>6</td><td>OUT-</td></tr><tr><td>I+</td><td>3</td><td>U_s+</td><td>7</td><td>U_s+</td></tr><tr><td>I-/U-</td><td>4</td><td>POWER</td><td>8</td><td>GND 3</td></tr></table>	U+	1	OUT	5	OUT+	I+	2	U _s +	6	OUT-	I+	3	U _s +	7	U _s +	I-/U-	4	POWER	8	GND 3	0–0.3 mA to 0–100 mA	0–60 mV to 0–200 V	±0.3 mA to ±100 mA ±60 mV to ±200 V	0–20 mA 4–20 mA												
U+	1	OUT	5	OUT+																																			
I+	2	U _s +	6	OUT-																																			
I+	3	U _s +	7	U _s +																																			
I-/U-	4	POWER	8	GND 3																																			
Bipolar Isolation Amplifier	857-409		<table><tr><td>U+</td><td>1</td><td>OUT</td><td>5</td><td>OUT+</td></tr><tr><td>U-</td><td>2</td><td>U_s+</td><td>6</td><td>OUT-</td></tr><tr><td>I+</td><td>3</td><td>POWER</td><td>7</td><td>U_s+</td></tr><tr><td>I-</td><td>4</td><td></td><td>8</td><td>GND</td></tr></table>	U+	1	OUT	5	OUT+	U-	2	U _s +	6	OUT-	I+	3	POWER	7	U _s +	I-	4		8	GND	0–10 mA 2–10 mA 0–20 mA 4–20 mA	0–5 V 1–5 V 0–10 V 2–10 V	±10 mA ±20 mA ±5 V ±10 V	0–10 mA 2–10 mA 0–20 mA 4–20 mA												
U+	1	OUT	5	OUT+																																			
U-	2	U _s +	6	OUT-																																			
I+	3	POWER	7	U _s +																																			
I-	4		8	GND																																			
Isolation Amplifiers, Pre-Configured	857-411		<table><tr><td>IN+</td><td>1</td><td>IN</td><td>OUT</td><td>5</td><td>OUT+</td></tr><tr><td>GND 1</td><td>2</td><td></td><td></td><td>6</td><td>GND 2</td></tr><tr><td>U_s+</td><td>3</td><td>POWER</td><td></td><td>7</td><td>U_s+</td></tr><tr><td>GND 3</td><td>4</td><td></td><td></td><td>8</td><td>GND 3</td></tr></table>	IN+	1	IN	OUT	5	OUT+	GND 1	2			6	GND 2	U _s +	3	POWER		7	U _s +	GND 3	4			8	GND 3	0(4)–20 mA			0(4)–20 mA								
	IN+			1	IN	OUT	5	OUT+																															
	GND 1			2			6	GND 2																															
	U _s +			3	POWER		7	U _s +																															
	GND 3			4			8	GND 3																															
	857-412				0(2)–10 V																																		
857-413		0–10 V		0–20 mA																																			
857-414		0–10 V		4–20 mA																																			
857-415		0–20 mA																																					
857-416		4–20 mA																																					

See page 36 for an explanation of symbols used. —>

Output		Specialty Functions				Configuration Options				Power	Isolation Amplifiers
											
0-5 V 1-5 V 0-10 V 2-10 V	±10 mA ±20 mA ±5 V ±10 V	x	x		x		x	x	x	24 VDC	
0-5 V 1-5 V 0-10 V 2-10 V				x	x					24 VDC	
0-5 V 1-5 V 0-10 V 2-10 V		x	x		x	x	x	x		24 VDC	
0-5 V 1-5 V 0-10 V 2-10 V	±10 mA ±20 mA ±5 V ±10 V		x	x	x	x				24 VDC	
0-5 V 1-5 V 0-10 V 2-10 V	±10 mA ±20 mA ±5 V ±10 V			x	x					24 VDC	
0(2)-10 V										24 VDC	
0-10 V											
0-10 V											

TECHNICAL DETAILS

	Description	Item No.	Figure	Circuit Diagram	Input			
	 Isolation Amplifiers							
Repeater Power Supplies	Repeater Power Supply	857-420		 <pre> U_{Sensor}+ 1 IN 2 GND 1 3 GND 1 4 IN 5 OUT 6 GND 2 6 U_S+ 7 POWER 8 GND 3 8 </pre>	0–20 mA 4–20 mA			0–20 mA 4–20 mA
	HART Repeater Power Supply	857-421		 <pre> U_{Sensor}+ 1 IN 2 GND 1 3 GND 1 4 IN 5 OUT 6 GND 2 6 U_S+ 7 POWER 8 GND 3 8 </pre>	4–20 mA			4–20 mA
Signal Splitter	Signal Splitter	857-423		 <pre> IN+ 1 GND 1 2 OUT 1 5 GND 2 6 OUT 2+ 3 GND 4 4 OUT 2 7 POWER 8 GND 3 8 </pre>	0–20 mA 4–20 mA	0–5 V 1–5 V 0–10 V 2–10 V		2 x 0(4)–20 mA
Passive Isolators	Loop-Powered Isolation Amplifier	857-450		 <pre> U+ 1 U- 2 I+ 3 I- 4 IN 5 U_I 6 OUT 1 6 N.C. 7 N.C. 8 U_S+ 5 OUT 1 6 N.C. 7 N.C. 8 </pre>	0–5 mA 0–10 mA 2–10 mA 0–20 mA 4–20 mA	0–1 V 0–5 V 1–5 V 0–10 V 2–10 V	±5 mA ±10 mA ±20 mA ±1 V, ±5 V ±10 V ±20 V	4–20 mA
	Passive Isolator, 1-Channel	857-451		 <pre> IN+ 1 GND 1 2 N.C. 3 N.C. 4 IN 5 OUT 6 N.C. 7 N.C. 8 OUT+ 5 GND 2 6 N.C. 7 N.C. 8 </pre>	0(4)–20 mA			0(4)–20 mA
	Passive Isolator, 2-Channel	857-452		 <pre> IN 1+ 1 GND 1 2 IN 2+ 3 GND 3 4 IN 1 5 OUT 1 6 IN 2 7 OUT 2 8 OUT 1+ 5 GND 2 6 OUT 2+ 7 GND 4 8 </pre>	2 x 0(4)–20 mA			2 x 0(4)–20 mA

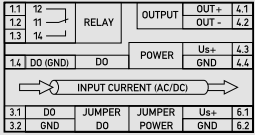
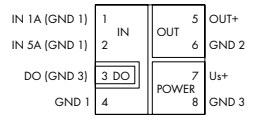
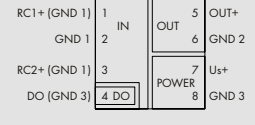
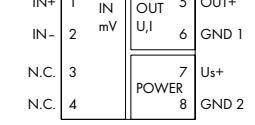
Frequency Signal Conditioner	Description		Item No.	Input																					
		Frequency Signal Conditioner																							
Frequency Signal Conditioner	Frequency Signal Conditioner	857-500		<table><tr><td>+8.2V(Namur)</td><td>1</td><td>OUT</td><td>5</td><td>OUT+</td></tr><tr><td>f_{IN}</td><td>2</td><td>IN</td><td>6</td><td>GND 2</td></tr><tr><td>GND 1</td><td>3</td><td>f</td><td>7</td><td>U_{S+}</td></tr><tr><td>NPN/PNP</td><td>4</td><td>POWER</td><td>8</td><td>GND 3</td></tr></table>	+8.2V(Namur)	1	OUT	5	OUT+	f_{IN}	2	IN	6	GND 2	GND 1	3	f	7	U_{S+}	NPN/PNP	4	POWER	8	GND 3	Frequency signals, NAMUR, NPN or PNP sensors 0.1 Hz–120 kHz
+8.2V(Namur)	1	OUT	5	OUT+																					
f_{IN}	2	IN	6	GND 2																					
GND 1	3	f	7	U_{S+}																					
NPN/PNP	4	POWER	8	GND 3																					
					0–10 mA 2–10 mA 0–20 mA 4–20 mA																				

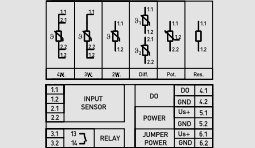
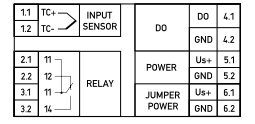
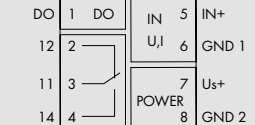
See page 36 for an explanation of symbols used. →

Output		Specialty Functions				Configuration Options				Power	
											
0-5 V 1-5 V 0-10 V 2-10 V					x					24 VDC	Repeater Power Supplies
										24 VDC	
					x					24 VDC	Signal Splitter
					x					Power via output	Passive Isolators
										Power via input	
										Power via input	

Output		Specialty Functions				Configuration Options				Power	
											
0-5 V 1-5 V 0-10 V 2-10 V			x		x		x	x		24 VDC	Frequency Signal Conditioner

TECHNICAL DETAILS

Description		Item No.		Input			
		Current and Voltage Signal Conditioners					
Current and Voltage Signal Conditioners	Through-Hole Current Signal Conditioner	2857-0550			AC/DC 100 A		0-10 mA 2-10 mA 0-20 mA 4-20 mA
	Current Signal Conditioner	857-550			1 A AC/DC 5 A AC/DC		0-10 mA 2-10 mA 0-20 mA 4-20 mA
	Rogowski Current Signal Conditioner	857-552			Rogowski Coils 500 AAC 2000 AAC		0-10 mA 2-10 mA 0-20 mA 4-20 mA
	Millivolt Signal Conditioner	857-819				0-200 mV 0-1000 mV	±100 mV 0-10 mA 2-10 mA 0-20 mA 4-20 mA

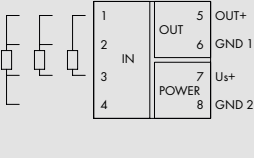
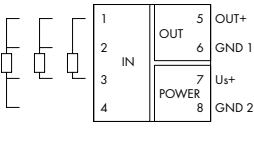
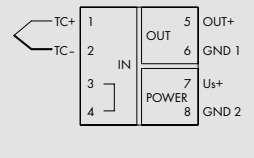
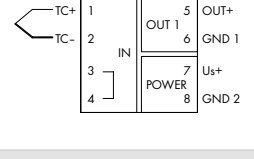
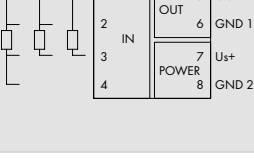
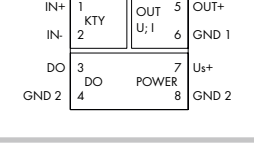
Description		Item No.		Input			
		Threshold Value Switches					
Threshold Value Switches	RTD Threshold Value Switch	2857-0533					0-100 kΩ
	Thermocouple Threshold Value Switch	2857-0534					
	Analog Threshold Value Switch	857-531			0-10 mA 2-10 mA 0-20 mA 4-20 mA	0-5 V 1-5 V 0-10 V 2-10 V 0-15 V 0-30 V	±10 mA ±20 mA ±5 V ±10 V

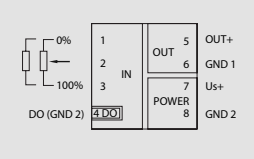
See page 36 for an explanation of symbols used. →

Output		Specialty Functions				Configuration Options				Power	Current and Voltage Signal Conditioners
											
0-5 V 1-5 V 0-10 V 2-10 V	±10 mA ±20 mA ±5 V ±10 V	x	x	x	x		x	x	x	24 VDC	
0-5 V 1-5 V 0-10 V 2-10 V		x	x		x		x	x		24 VDC	
0-5 V 1-5 V 0-10 V 2-10 V		x	x		x		x	x		24 VDC	
0-5 V 1-5 V 0-10 V 2-10 V			x		x		x	x		24 VDC	

Output		Specialty Functions				Configuration Options				Power	Threshold Value Switches
											
Pt100 Pt200 Pt500 Pt1000 Pt5000 Pt10,000 Pt10-20,000	250 VAC 6 A		x		x		x	x	x	24 VDC	
Type J, K, E, N, R, S, T, B, C	250 VAC 6 A		x		x		x	x	x	24 VDC	
	250 VAC 6 A		x		x	x	x	x		24 VDC	

TECHNICAL DETAILS

Description		Item No.	Input				
		Temperature Signal Conditioners					
Temperature Signal Conditioner for Pt Sensors and Resistance Sensors	857-800			Pt100 Pt200 Pt500 Pt1000	0-1 kΩ 0-4.5 kΩ	2-wire 3-wire 4-wire	0-10 mA 2-10 mA 0-20 mA 4-20 mA
Temperature Signal Conditioner for Pt Sensors and Resistance Sensors	857-801			Pt100 Pt200 Pt500 Pt1000	0-1 kΩ 0-4.5 kΩ	2-wire 3-wire 4-wire	0-10 mA 2-10 mA 0-20 mA 4-20 mA
Temperature Signal Conditioner for Thermocouples	857-810			Type J, K			0-10 mA 2-10 mA 0-20 mA 4-20 mA
Temperature Signal Conditioner for Thermocouples	857-811			Type J, K, E, R, N, S, T, B, S			0-10 mA 2-10 mA 0-20 mA 4-20 mA
Temperature Signal Conditioner for Ni Sensors	857-818			Ni100 Ni120 Ni200 Ni500 Ni1000		2-wire 3-wire 4-wire	0-10 mA 2-10 mA 0-20 mA 4-20 mA
Temperature Signal Conditioner for KTY Sensors	857-820			KTY sensors		2-wire	0-10 mA 2-10 mA 0-20 mA 4-20 mA

Description		Item No.	Input				
		Potentiometer Signal Conditioner					
Potentiometer Signal Conditioner	857-809			Potentiometer 0-100 kΩ	10-100 kΩ		0-10 mA 2-10 mA 0-20 mA 4-20 mA

See page 36 for an explanation of symbols used. →

Output		Specialty Functions				Configuration Options				Power
										
0-5 V 1-5 V 0-10 V 2-10 V			x		x					24 VDC
0-5 V 1-5 V 0-10 V 2-10 V			x		x		x	x		24 VDC
0-5 V 1-5 V 0-10 V 2-10 V			x		x					24 VDC
0-5 V 1-5 V 0-10 V 2-10 V			x		x		x	x		24 VDC
0-5 V 1-5 V 0-10 V 2-10 V			x		x					24 VDC
0-5 V 1-5 V 0-10 V 2-10 V		x	x		x					24 VDC

Temperature Signal Conditioners

Output		Specialty Functions				Configuration Options				Power
										
0-5 V 1-5 V 0-10 V 2-10 V		x	x		x	x	x	x		24 VDC

Potentiometer Signal Conditioner



JUMPFLEX® CONFIGURATION

857 and 2857 Series



Configuration Software — DIP Switch Alternative

Software features:

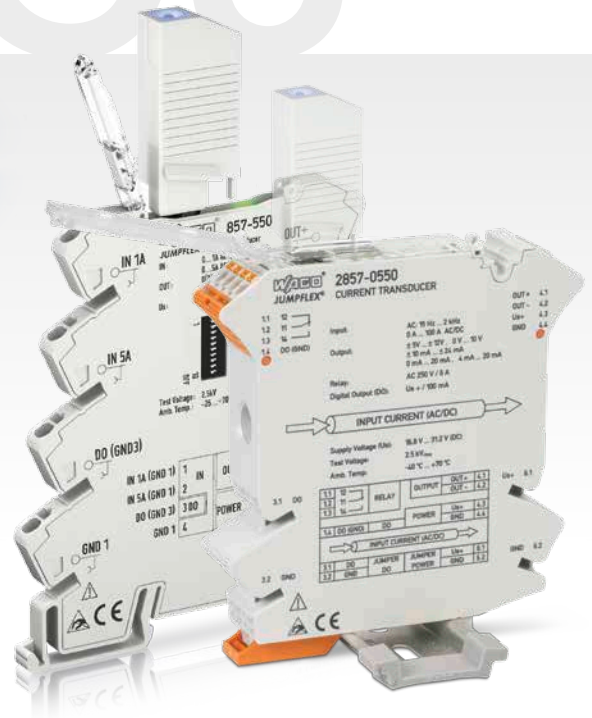
- Simulation of input and output parameters
- Automatic module detection
- Configuration and visualization of process values
- Parameterizing the digital switch output (threshold functionality)
- Communication via WAGO USB Service Cable (750-923)
or WAGO Bluetooth® Adapter (750-921)



JUMPFLEX®-ToGo



(Android smartphone)



750-921

JUMPFLEX®-ToGo Configuration App – DIP Switch Alternative

The free JUMPFLEX®-ToGo App brings the power of PC-based configuration software to your mobile device. Easily configure 857 Series Signal Conditioners' input and output parameters via finger swipe on your Android-based smartphone or tablet.

JUMPFLEX®-ToGo conveniently displays both configuration data and actual measured values. WAGO's 750-921 Bluetooth® Adapter seamlessly communicates between your smartphone and the signal conditioner.



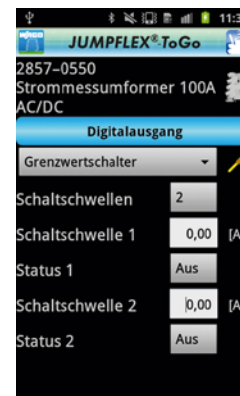
Device Information



Input Parameter



Output Parameter



Digital Output



Actual Value



JUMPFLEX[®] CONFIGURATION

2857 Series

Flexibility at its Finest!

The removable display can be quickly and easily attached to the housing. This unique feature carries an innovative capacitive touch panel for intuitively configuring devices. The multicolor display changes between orange, red, green or white depending on the 2857 Series' current status.

Integrated capabilities, such as the copy function, can transmit stored configuration data from one device to another of the same type. Passwords for protecting configured data may be assigned to prevent unauthorized access or changes.



Configuration Display
(2857-0900)



Suitable for 12.5 mm- and 22.5 mm-wide housings

Key features:

- Easy to attach
- Touch functionality via control panel
- Automatic module detection
- Configure and visualize process values
- Copy configuration data from device to device

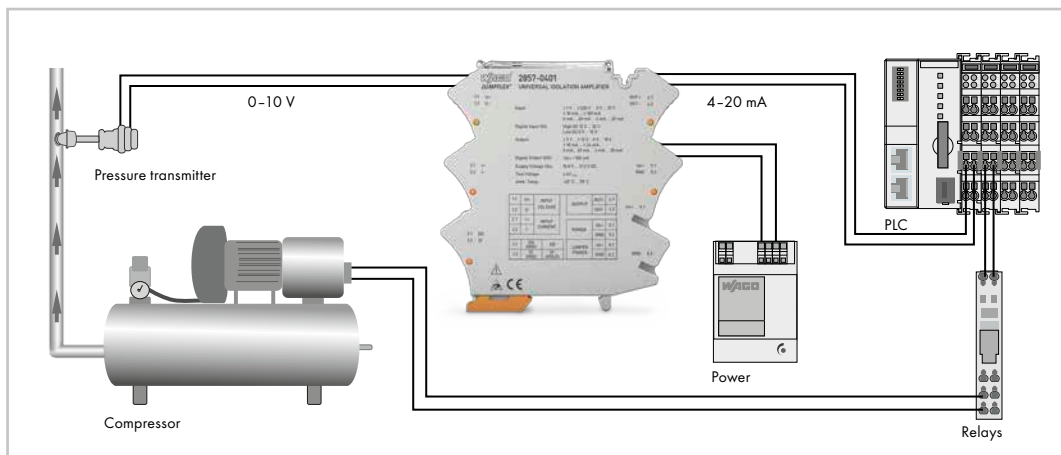


APPLICATION EXAMPLES

Isolation Amplifier with a Power Supply

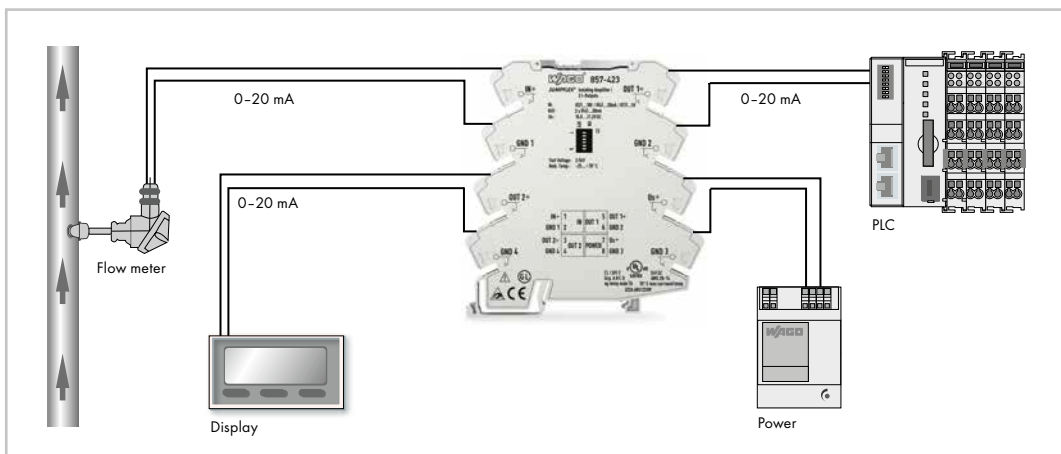
Universal Isolation Amplifier, 2857-401

Pressure monitoring



Signal Splitter, 857-423

Flow measurement

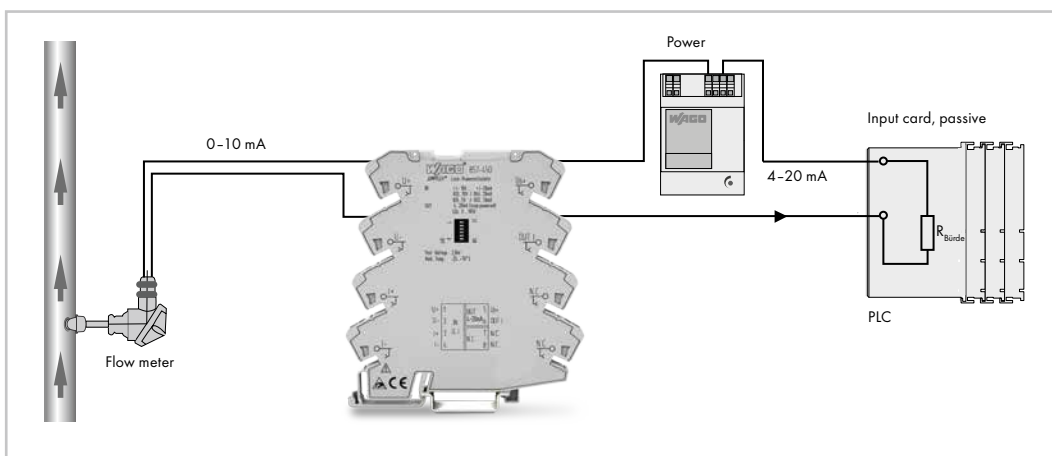
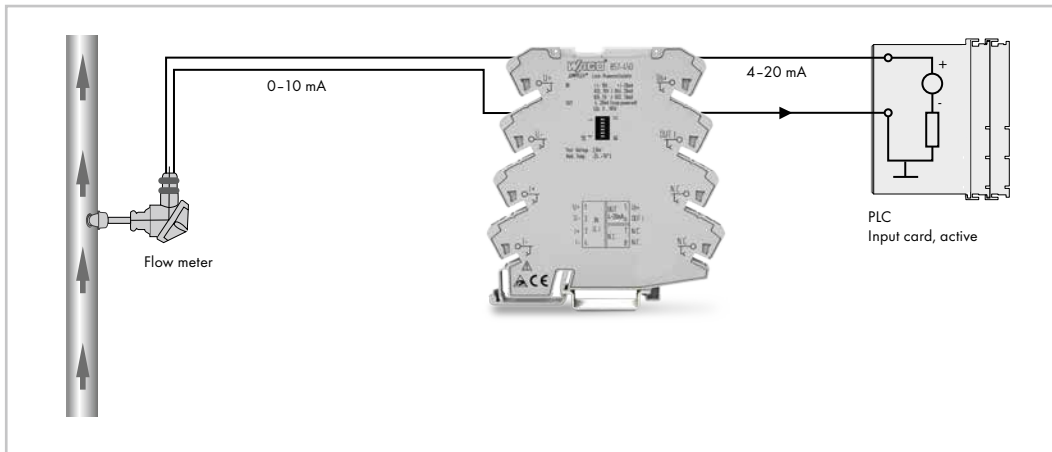




Isolation Amplifier without a Power Supply

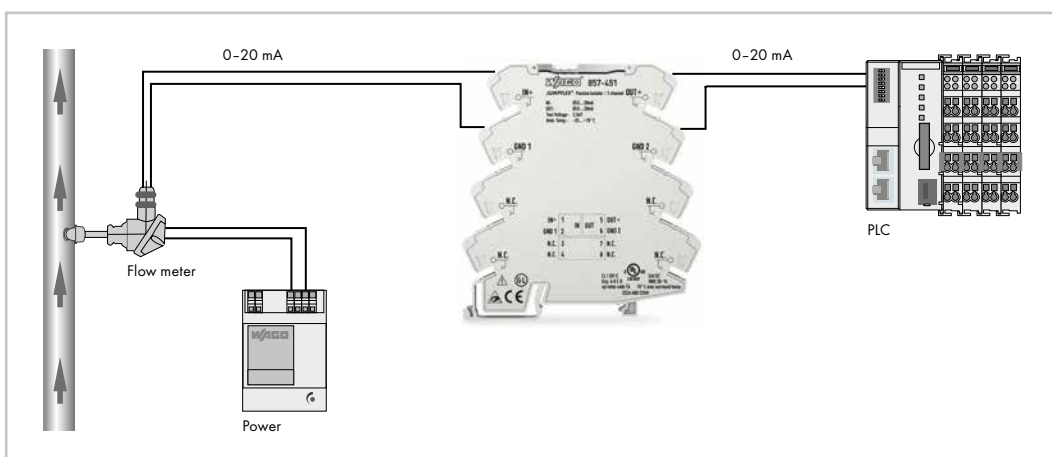
Loop-Powered Isolation Amplifier, 857-450

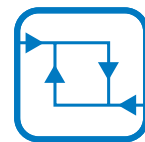
Flow measurement



Passive Isolator, 857-451

Flow measurement



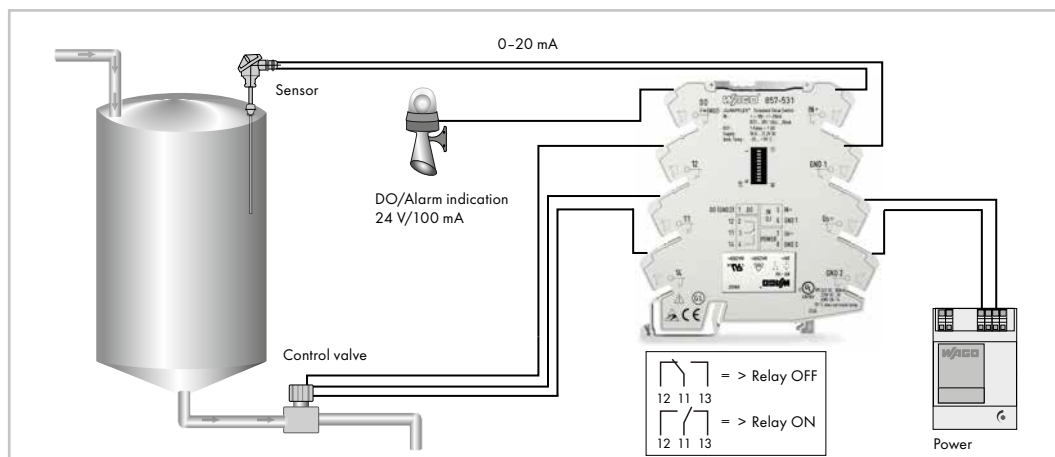


APPLICATION EXAMPLES

Threshold Value Switches

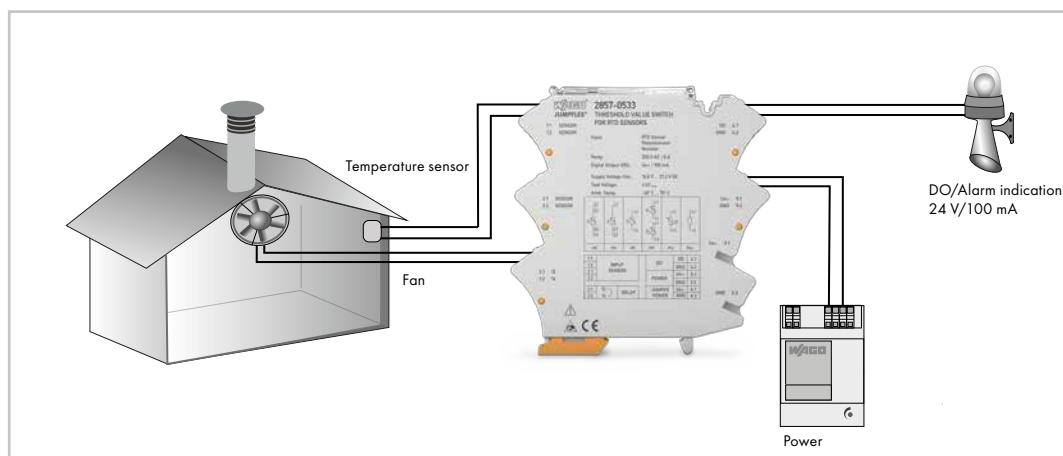
Analog Threshold Value Switch, 857-531

Level monitoring



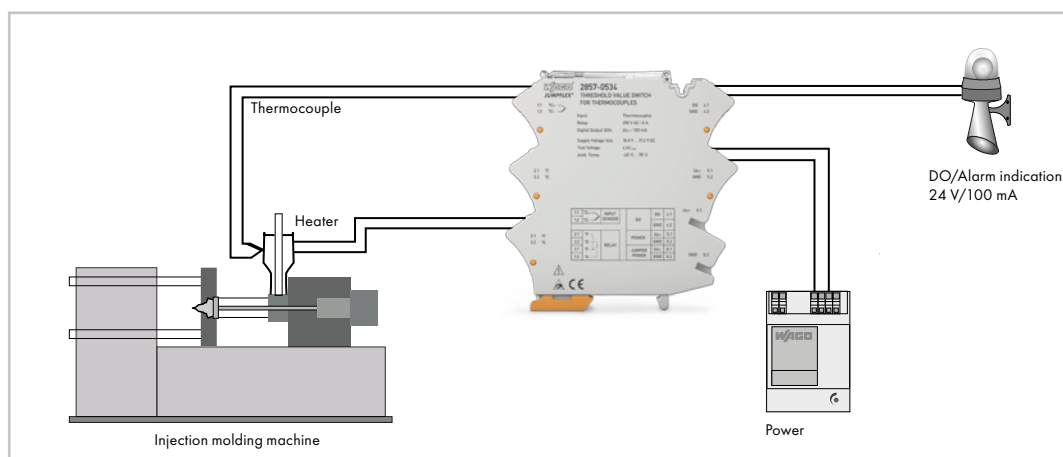
Resistance Threshold Value Switch, 2857-533

Temperature monitoring with threshold value functionality



Thermocouple Threshold Value Switch, 2857-534

Temperature monitoring with threshold value functionality

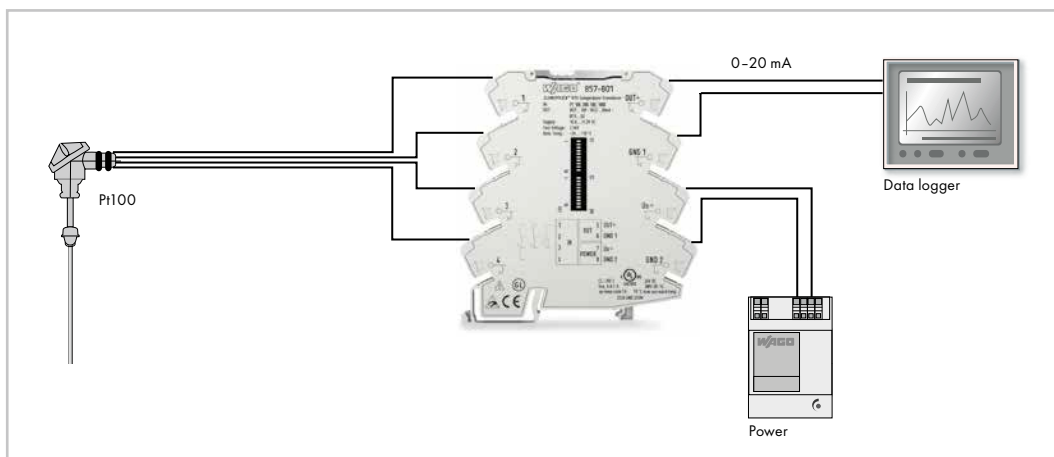




Threshold Value Switches

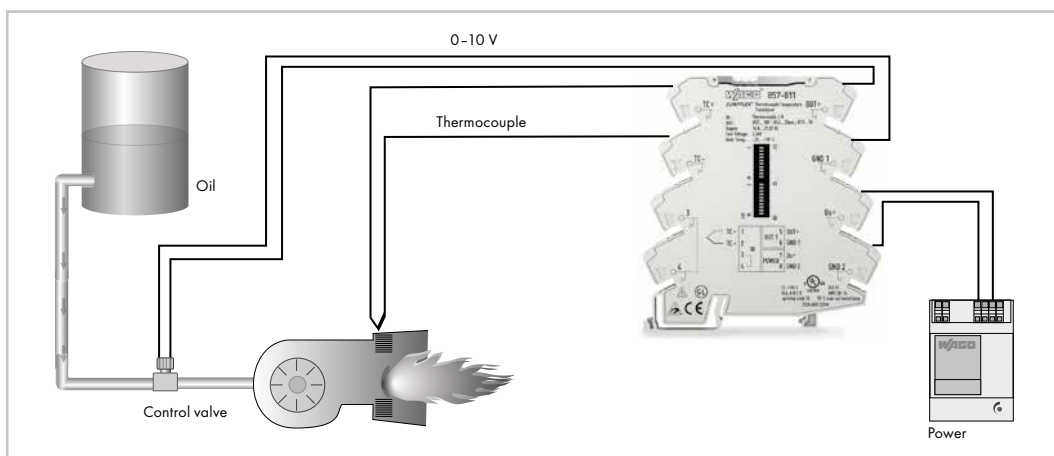
Temperature Signal Conditioner for Pt and Resistance Sensors, 857-801

Temperature monitoring via Pt sensor



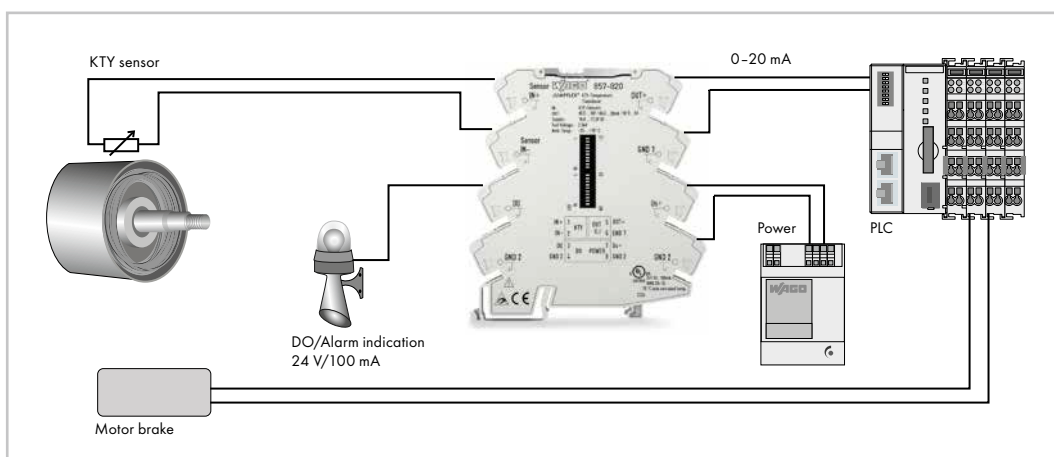
Temperature Signal Conditioner for Thermocouples, 857-811

Temperature monitoring via TC sensor



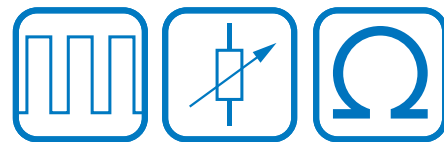
Temperature Signal Conditioner for KTY Sensors, 857-820

Temperature monitoring via KTY sensor



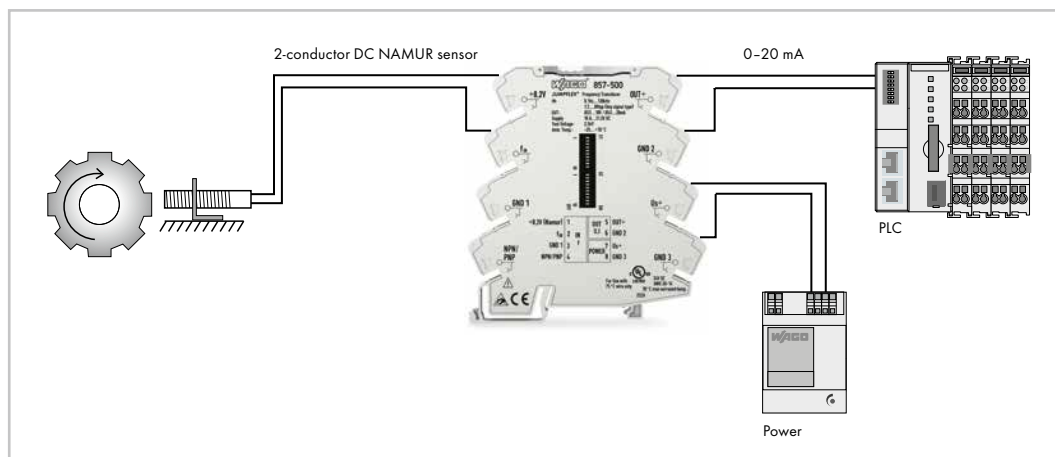
APPLICATION EXAMPLES

Specialty Functions



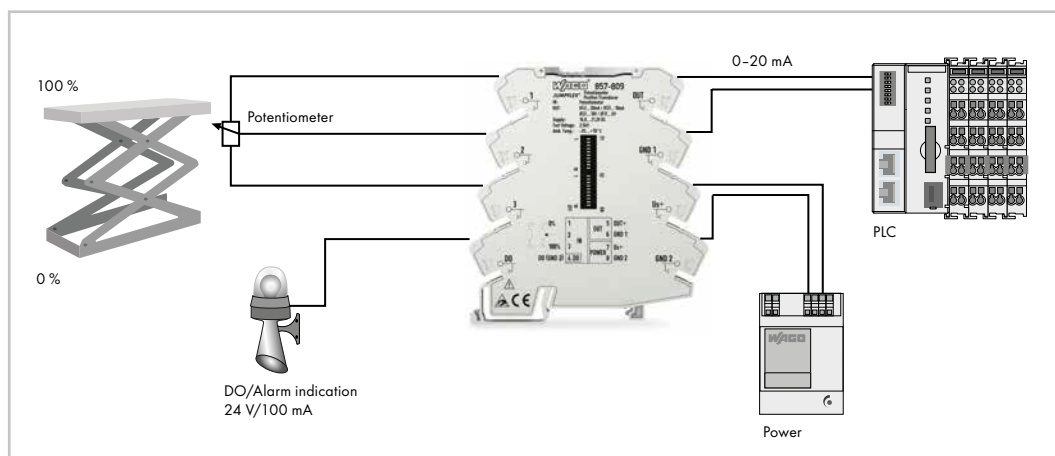
Frequency Signal Conditioner, 857-500

Speed measurement with NAMUR indicator



Potentiometer Signal Conditioner, 857-809

Resistance measurement via potentiometer

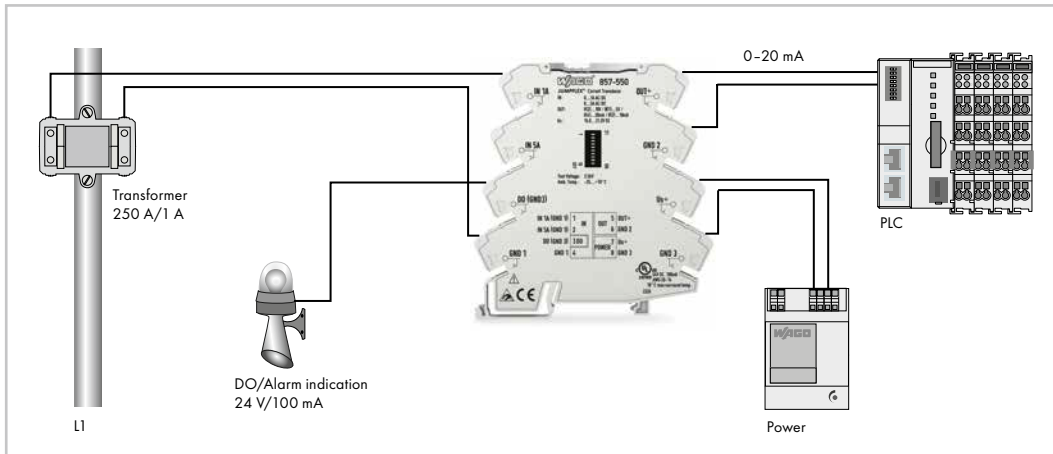




Current Signal Conditioner

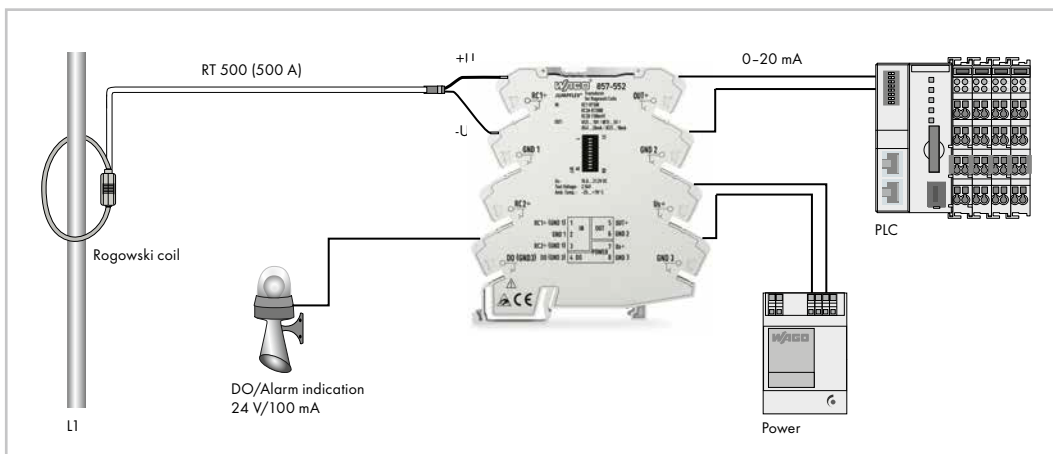
Current Signal Conditioner, 857-550

Current measurement via bushing-type current transformer



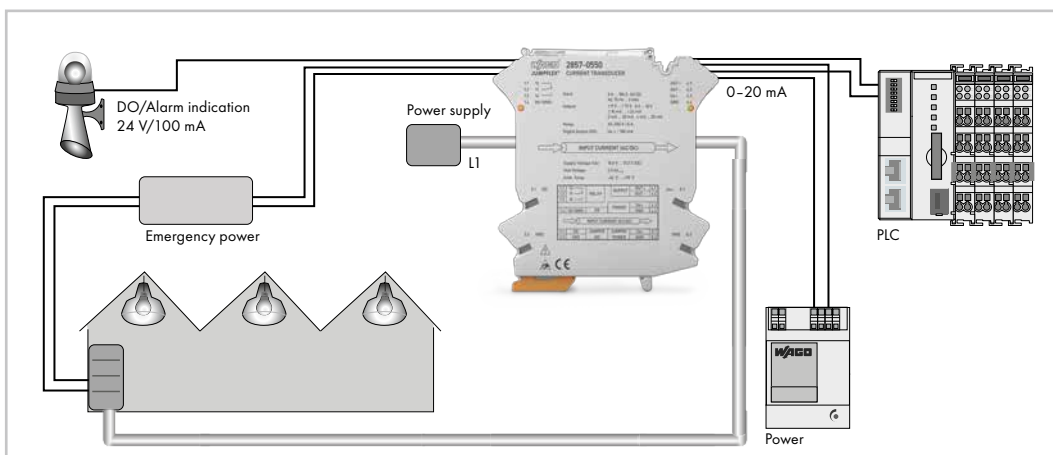
Rogowski Signal Conditioner, 857-552

Current measurement via Rogowski Coil



Current Signal Conditioner, 2857-550

Light monitoring



JUMPFLEX® ACCESSORIES

Software

Description		Item No.
	Configuration Software Configuration and display tool for PC	Free download: www.wago.com
	JUMPFLEX®-ToGo Smartphone App Configuration and display tool for smartphones (Android)	Free download from Google Play store
	WAGO USB Service Cable Connection between a PC (notebook) and an 857 Series' Signal Conditioner service interface	750-923
	WAGO Bluetooth® Adapter Connection between a PC (notebook) and an 857 Series' Signal Conditioner service interface	750-921

Push-In Type Jumper Bars

Description		Item No.
	Push-In Type Jumper Bars, light gray, insulated, 18 A	2-way 859-402
		3-way 859-403
		4-way 859-404
		5-way 859-405
		6-way 859-406
		7-way 859-407
		8-way 859-408
		9-way 859-409
		10-way 859-410
	Item no. suffixes for colored, push-in type jumper bars	yellow ... /000-029 red ... /000-005 blue ... /000-006
	Comb-Style Jumper Bar	2-way 281-482

Current Transformers and Rogowski Coils

Description		Item No.
	Transformers Primary current: 50–1000 A Secondary current: 1 A or 5 A (other values upon request or at www.wago.com)	855 Series
	Rogowski Coils RT 500 (1.5 m) RT 500 (3 m) RT 2000 (1.5 m) RT 2000 (3 m)	855-9100/500-0000 855-9300/500-0000 855-9100/2000-0000 855-9300/2000-0000
	JUMPFLEX® – powered by EPSITRON®	787-2852

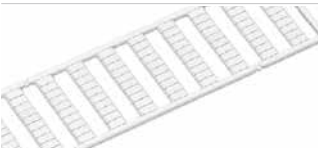
Cables

	Description	Item No.
	Interface Adapter for Connecting to WAGO-I/O-SYSTEM Modules Equipped with a Ribbon Cable Connector	857-980
	Supply and Through Module	857-979
	WAGO Interface Cable, 16-pole/free end, 2 m long	706-100/1602-200

Relays

	Description	Item No.
	Relay with 1 Changeover Contact 24/250 VDC / 6 A	857-304

Markers

	Description	Item No.
	WMB Multi Marking System	see www.wago.com

Accessories

	Description	Item No.
	Operating Tool with Partially Insulated Shaft, type 2, 3.5 x 0.5 mm blade	210-720
	End Stops	249-116 (6 mm wide) 249-117 (10 mm wide) 249-197 (14 mm wide)

JUMPFLEX® GLOSSARY

Relay/Digital Switching Output (DO)

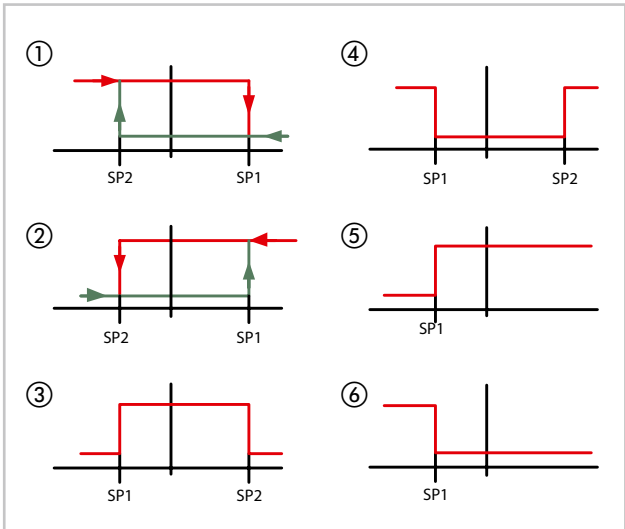
The switching output (relay or DO) signals switching thresholds that can be set relative to the transducer's input signal. Several configuration options are available (see figure). These switching thresholds, for example, can also be configured as a hysteresis to achieve simple 2-point control.

The DO can be configured for high-side or low-side switching. ($24\text{ V} > 0\text{ V}$ or $0\text{ V} > 24\text{ V}$)

In order to increase the DO's switching current, expand the DO with a relay. For example, a WAGO 857-304 Relay Socket may be snapped onto the rail next to it because the 857 and 2857 Series Modules share a common profile. This output can be quickly and easily expanded to a 6 A switching current by simply using WAGO's 859-402 Adjacent Jumper.

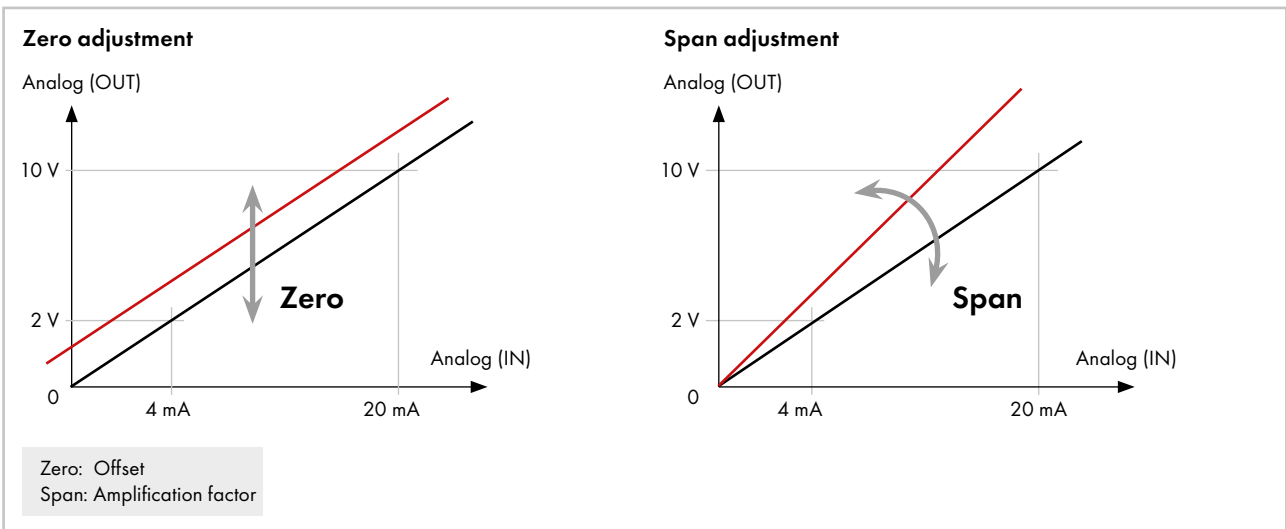


Switching output configuration options



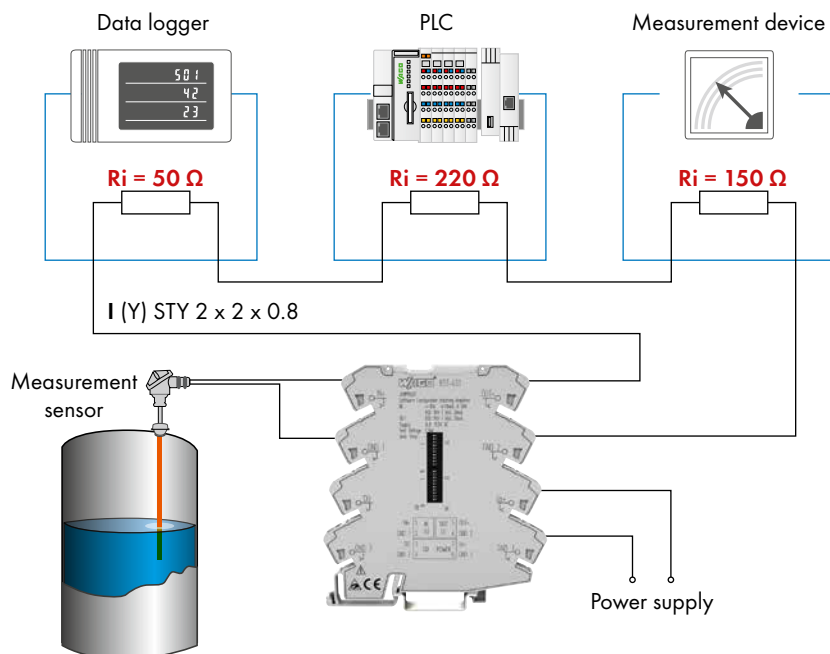
Zero/Span Adjustment

Error or signal offsets that may arise from sensor tolerances can be readily fine-tuned via front-mount potentiometers on the isolation amplifier. Measurement range compensation can be performed at the zero/span potentiometers to correct such deviations, ensuring downstream devices, e.g., a PLC, can continue receiving correct values.



Cables

Calculating the cable length between sensor and control room:



$$R_{\text{wire}} = \max. R_{\text{load}} - R_{\text{input}}$$

$$R_{\text{wire}} = 600 \Omega - (-50 \Omega + 220 \Omega + 150 \Omega)$$

$$R_{\text{wire}} = 180 \Omega$$

$$L_{\text{loop}} = R_{\text{wire}} / R_{\text{per meter}}$$

$$L_{\text{loop}} = 180 \Omega / (0.036 \Omega/\text{m}) = \underline{\underline{5,000 \text{ m}}}$$

Example:

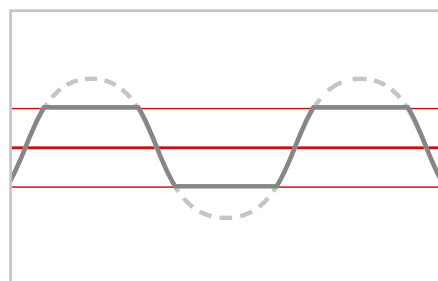
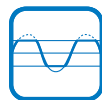
857-401 Isolation Amplifier's load impedance

Load impedance $\leq 600 \Omega$ (I output)

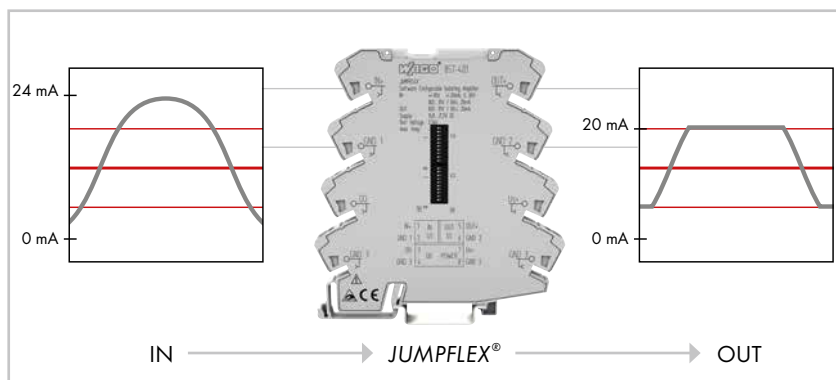
Specific electrical resistance of copper = $0.0178 \Omega/\text{m}$

Clipping Mode

In Clipping Mode, the analog output signal is limited to the upper range values. For example, if the standard 4–20 mA signal has been configured and Clipping Mode is activated, the output signal “freezes” at 4 mA (lower) and at 20 mA (upper) – even if the input signal exceeds one of these limits. This function is advantageous, for example, when the downstream control system cannot process negative signals, or when ensuring that the analog signal absolutely does not exceed 20 mA at the output.



Clipping



The **DIP switch**, **configuration software** or **smartphone configuration app** can be used to quickly switch Clipping Mode on/off.

JUMPFLEX® GLOSSARY

Isolation Technology Basics

Disconnecting, Amplifying, Filtering, Converting

In industrial applications, there are several requirements for safe and economical signal matching that demand appropriate solutions. This is precisely where the strengths of isolation amplifiers and transducers lie – they have a long and successful history of serving all branches of industry, including factory automation and process technology.

Solution		Issue
Isolating		Potential differences Ground loops
Amplifying/ Processing		High loads Long cable runs
Filtering		Interferences
Converting		Various signals PT, TC, KTY, Ni → Analog



Electrical Isolation

An isolation amplifier's main task is electrically isolating the supply, input and output signals. JUMPFLEX® family isolation amplifiers can be used to completely isolate these signals and prevent measurement errors that would otherwise arise due to equalizing currents triggered by potential differences such as ground current loops.



Amplifying Signals

Signal amplification by JUMPFLEX® family isolation amplifiers simplifies the transmission of weak process signals over long lines, enabling the use of these signals for applications that require greater signal power.



Converting Signals

Depending on which type of signal a controller must process, JUMPFLEX® family isolation amplifiers can convert the measured signal accordingly, e.g., from 0–10 V or Pt100, into a conditioned current signal of 4–20 mA. This significantly reduces the susceptibility of faults in voltage measurement values by converting them into current signals that are extremely immune to interference.



Filtering Signals

Process-related sources of interference that plague process measurements, such as capacitive and inductive coupling, are safely filtered out by JUMPFLEX® family isolation amplifiers.



ISOLATION AMPLIFIERS

Isolation Amplifiers with a Power Supply

- **Isolation Amplifiers, Pre-Configured**

Pre-configured isolation amplifiers convert, amplify, filter and electrically isolate standard analog signals, e.g., 0–10 V into 0–20 mA.

- **Isolation Amplifiers, Configurable**

For signal conditioners, and particularly two-wire signal conditioners, the measured signal is often in the 4–20 mA range as a current value. For the analog input card of a PLC, however, input voltages in the ranges of 0–10 V or 0–5 V are required.

Configurable isolation amplifiers support various standard signals at the input and output; the devices also convert, amplify, filter and electrically isolate analog standard signals. DIP switches accessible from the side can be used to configure both the input and output signals. Measurement range configuration is calibrated via DIP switch.

- **Universal Isolation Amplifiers**

In addition to the configurable isolation amplifiers, the universal isolation amplifiers can also be configured via PC configuration software or smartphone app. The configuration software also offers additional options, such as special input and output signal combinations with intermediate values or inversion of the analog output. An error message can be signaled via digital switching output.

- **Bipolar Isolation Amplifier**

Bipolar measurement signals often require processing, e.g., when motor currents are measured in both directions of rotation. Bipolar signals are also processed for recording distances or for better resolution of measurement signals.

- **Repeater Power Supply**

The repeater power supply energizes transmitters.

Two-wire transmitters regulate their own current consumption proportional to the measured value; the 4–20 mA connection provides auxiliary power for the transmitter and the magnitude of the current is the same as the output measured value.

Three-wire transmitters usually have an active current output for the measured value and additional connections for the supply voltage (auxiliary power).

- **Signal Splitter**

The signal splitter divides a standard signal into two signals. The measured signal can be supplied to different downstream devices without interference.

Example: A signal conditioner supplies 4–20 mA input current.

Output 1 is configured to 4–20 mA and transmits the measured value to a controller.

Output 2 is configured to 0–20 mA and regulates a controller.

Isolation Amplifiers without a Power Supply

- **Passive Isolator**

The required power is obtained from an input signal (4–20 mA) with the passive isolator.

Because no extra supply is required, no additional wiring or auxiliary power is needed.

- **Loop-Powered Isolation Amplifier**

The required power is obtained from an output signal (4–20 mA) via the loop-powered isolation amplifier.

Because no extra supply is required, no additional wiring or auxiliary power is needed.

JUMPFLEX® SIGNS AND SYMBOLS

SIGNAL CONDITIONERS AND ISOLATION AMPLIFIERS



Isolation amplifiers



Temperature signal conditioners



Threshold value switches



Frequency signal conditioners



Potentiometer signal conditioners



Resistance signal conditioners



Current signal conditioners



Voltage signal conditioner

SPECIALTY FUNCTIONS



Zero/Span adjustment



Clipping function



Digital output (DO)



Relay with 1 changeover contact



Relay with 1 make contact

CONFIGURATION



DIP switches



Configuration software



Configuration app



Touch panel



Push/Slide switch

GENERAL



Temperature sensors



Connection technology



Supply voltage

INPUT SIGNALS



Frequencies



Potentiometers



Resistors



Current



Voltage



Bipolar signals (current and voltage)

OUTPUT SIGNALS



Current



Voltage



Bipolar signals (current and voltage)

WE! INNOVATE!

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WAGO Kontakttechnik GmbH & Co. KG
Postfach 28 80 · D - 32385 Minden
Hansastraße 27 · D - 32423 Minden
Germany

Phone: +49 571 887-0
Fax: +49 571 887-169
Email: info@wago.com
Online: www.wago.com

