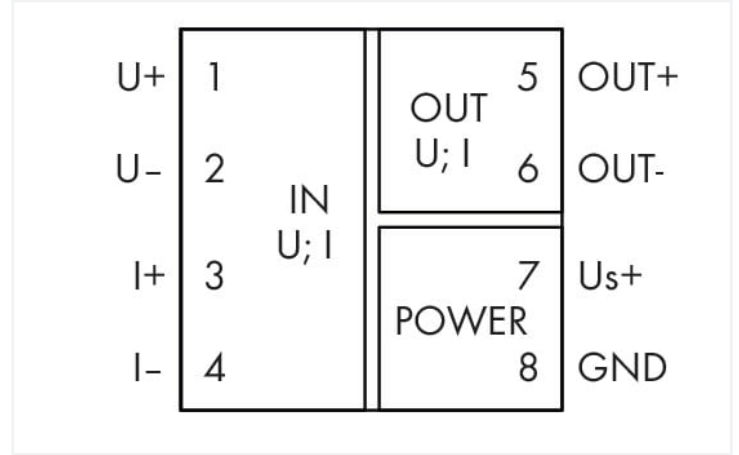
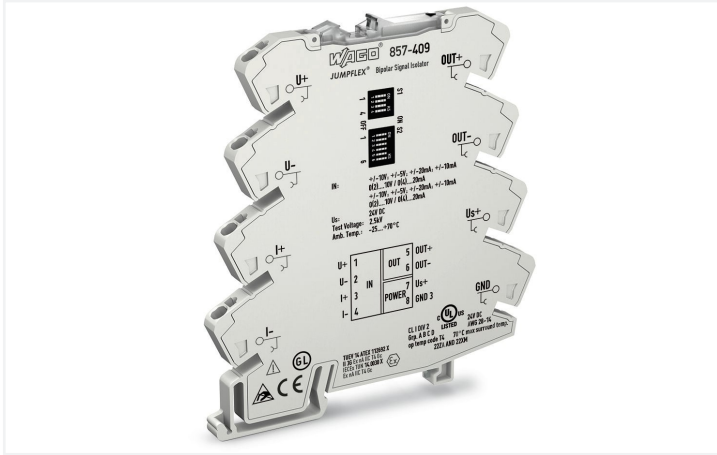


# Data Sheet | Item Number: 857-409

Isolation amplifier; Bipolar current and voltage input signal; Bipolar current and voltage output signal; Zero/span adjustment; Configuration via DIP switch; Supply voltage: 24 VDC; 6 mm module width; 2,50 mm<sup>2</sup>



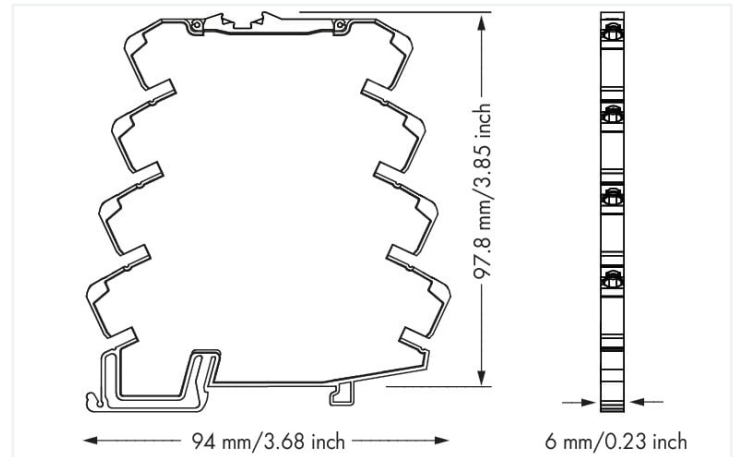
<https://www.wago.com/857-409>



857-409  
DIP Switch Adjustability

ON Default

DIP Switch S1 (4-fold)				DIP Switch S2 (6-fold)					Max. Operating Frequency			
Input Signal				Output Signal								
1	2	3	4	1	2	3	4	5	6			
•	•	•	•	•	•	•	•	•	•	±20 mA	•	5 kHz
•	•	•	•	•	•	•	•	•	•	±10 mA	•	100 Hz
•	•	•	•	•	•	•	•	•	•	±10 V	•	
•	•	•	•	•	•	•	•	•	•	±5 V	•	
•	•	•	•	•	•	•	•	•	•	0...20 mA	•	
•	•	•	•	•	•	•	•	•	•	4...20 mA	•	
•	•	•	•	•	•	•	•	•	•	0...10 mA	•	
•	•	•	•	•	•	•	•	•	•	2...10 mA	•	
•	•	•	•	•	•	•	•	•	•	0...10 V	•	
•	•	•	•	•	•	•	•	•	•	2...10 V	•	
•	•	•	•	•	•	•	•	•	•	0...5 V	•	
•	•	•	•	•	•	•	•	•	•	1...5 V	•	



Dimensions in mm

## Short description:

WAGO's bipolar signal conditioner converts standard unipolar/bipolar signals, as well as amplifies, filters and electrically isolates the bipolar standard analog signals.

## Features:

- Overload protection of current input via resettable fuse
- Zero/span adjustment across the entire measurement range
- Calibrated measurement range switching
- Unipolar/bipolar standard analog signals at both input/output
- Switchable limit frequency

## Notes

### Safety information

Input and output must be safely isolated from any hazardous live parts!

### 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.

Use in the living area is only permitted in conjunction with a power supply that meets the criteria of the living area according to EN 61000-6-3.

## Technical data

### Configuration

Configuration options	DIP switch Potentiometer
-----------------------	-----------------------------

### Input

Input signal type	Voltage Current
Input signal (voltage)	±5 V; 0 ... 5 V; 1 ... 5 V; ±10 V; 0 ... 10 V; 2 ... 10 V
Input signal (current)	±10 mA; 0 ... 10 mA; 2 ... 10 mA; ±20 mA; 0 ... 20 mA; 4 ... 20 mA
Input resistance (current input)	≤ 50 Ω
Input resistance (voltage input)	1 MΩ
Input current (max.)	50 mA
Input voltage (max.)	32 V
Zero/span adjustment	± 5 % of upper-range value

### Output (analog)

Output signal type	Current Voltage
Output signal (voltage)	± 5 V; 0 ... 5 V; 1 ... 5 V; ± 10 V; 0 ... 10 V; 2 ... 10 V
Output signal (current)	±10 mA; 0 ... 10 mA; 2 ... 10 mA; ±20 mA; 0 ... 20 mA; 4 ... 20 mA
Load impedance (voltage output)	≥ 2 kΩ
Load impedance (current output)	≤ 600 Ω
Residual ripple	≤ 10 mV (rms)

### Signal processing

Limit frequency	100 Hz / 5 kHz (configurable via DIP switch)
Step response (typ.)	3.5 ms (100 Hz); 68 μs (5 kHz)

### Measurement error

Transmission error (typ.)	≤ 0.1 % of upper-range value
Transmission error (max.)	≤ 0.2 % of upper-range value
Transmission error (under interference)	≤ 15 %
Temperature coefficient	≤ 0.01 %/K

### Supply

Power supply type	24 VDC (SELV)
Nominal supply voltage $U_S$	DC 24 V
Supply voltage range	±30 %
Current consumption (default)	≤ 20 mA
Current consumption (max.)	≤ 40 mA

### Safety and protection

Rated voltage	300 V
Protection type	IP20

### Test voltage

Test voltage (input/output/supply)	AC 3 kV; 50 Hz; 1 min
------------------------------------	-----------------------

### Insulation parameters

Overtoltage category	II
Pollution degree	2
Insulation type (input/analog output/supply)	Functional insulation
Insulation type (adjacent devices)	Reinforced insulation (safe isolation)

### Connection data

Connection technology	Push-in CAGE CLAMP®
Solid conductor	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 14 AWG
Fine-stranded conductor	0.34 ... 2.5 mm <sup>2</sup> / 22 ... 14 AWG
Strip length	9 ... 10 mm / 0.35 ... 0.39 inches
Cable type	Shielded cable

### 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

Fire load	0.598 MJ
Weight	38.4 g

### Environmental requirements

Ambient temperature (operation)	-25 ... +70 °C
Ambient temperature (storage)	-40 ... +85 °C
Processing temperature	-25 ... +50 °C
Temperature range of connection cable	$\geq (T_{\text{ambient}} + 10 \text{ K})$
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 61000-6-3
Standards/specifications	EN 61010-1 EN 61373 DNV

### Commercial data

Product Group	6 (INTERFACE ELECTRONIC)
eCl@ss 10.0	27-21-01-20
eCl@ss 9.0	27-21-01-20
ETIM 8.0	EC002653
ETIM 7.0	EC002653
PU (SPU)	1 pcs
Packaging type	Bag
Country of origin	DE
GTIN	4045454828493
Customs tariff number	85437090300

### Approvals / Certificates

#### General approvals



Approval	Standard	Certificate Name
EAC Brjansker Zertifizierungs- stelle	TP TC 020/2011	EAC_Certificate_RU_C- DE.AM02.B.00115_19

#### General approvals

UL UL International Nether- lands B.V. (ORDINARY LO- CATIONS)	UL 508	E175199 Sec.4
--	--------	---------------

Approvals for marine applications



Approval	Standard	Certificate Name
BV Bureau Veritas S.A.	Rules for class. of Steel Ships	40179_B0
DNV DNV Germany GmbH	DNV-CG-0339, Aug. 2021	TAA00001D1
PRS Polski Rejestr Statków	-	TE/2186/880590/18

Approvals for hazardous areas



Approval	Standard	Certificate Name
ATEX TUEV Nord Cert GmbH	EN 60079-0	TÜV_14_ATEX_112692_X Issue 01 (II 3G Ex ec IIC T4 Gc)
CCC CNEX	CNCA-C23-01	2020312310000210 (Ex ec IIC T4 Gc)
EAC Brjansker Zertifizierungsstelle	TP TC 012/2011	EAC RU C-DE.AM02. B.00144/19 (2 Ex nA IIC T4 Gc X)
IECEX TUEV Nord Cert GmbH	IEC 60079-0	IECEX_TUN_14.0030_X
UKEx WAGO GmbH & Co. KG	EN 60079-0	WAGO22UKEX004X
UL Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS)	ANSI/ISA 12.12.01	E198726

Downloads

Environmental Product Compliance

Compliance Search
Environmental Product Compliance 857-409 <a href="#">↓</a>

Documentation

Bid Text			
857-409	18.07.2019	xml 6.15 KB	<a href="#">↓</a>
857-409	18.07.2019	docx 18.48 KB	<a href="#">↓</a>
857-409	18.07.2019	pdf 74.80 KB	<a href="#">↓</a>

Instruction Leaflet			
CCC Ex (Additional information)		pdf 140.99 KB	<a href="#">↓</a>
Trennverstärker; bipolares Strom- und Spannungseingangssignal; bipolares Strom- und Spannungsausgangssignal	V 2.1.0 07.04.2022	pdf 2111.32 KB	<a href="#">↓</a>

CAD/CAE-Data

CAD data
2D/3D Models 857-409 <a href="#">↓</a>

CAE data
EPLAN Data Portal 857-409 <a href="#">↓</a>
WSCAD Universe 857-409 <a href="#">↓</a>
ZUKEN Portal 857-409 <a href="#">↓</a>

1 Compatible Products

1.1 Optional Accessories

### 1.1.1 Installation

#### 1.1.1.1 Mounting accessories



**Item No.: 249-117**

Screwless end stop; 10 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray



**Item No.: 249-197**

Screwless end stop; 14 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray



**Item No.: 249-116**

Screwless end stop; 6 mm wide; for DIN-rail 35 x 15 and 35 x 7.5; gray

### 1.1.2 Interface module

#### 1.1.2.1 Interface adapters



**Item No.: 857-980**

Interface adapter; 16-pole; analog

### 1.1.3 Jumper

#### 1.1.3.1 Jumper



**Item No.: 281-482**

Jumper; 2-way; insulated; gray



**Item No.: 859-410/000-006**

Jumper; for jumper slot; 10-way; insulated; blue



**Item No.: 859-410**

Jumper; for jumper slot; 10-way; insulated; light gray



**Item No.: 859-410/000-005**

Jumper; for jumper slot; 10-way; insulated; red



**Item No.: 859-410/000-029**

Jumper; for jumper slot; 10-way; insulated; yellow



**Item No.: 859-402/000-006**

Jumper; for jumper slot; 2-way; insulated; blue



**Item No.: 859-402**

Jumper; for jumper slot; 2-way; insulated; light gray



**Item No.: 859-402/000-005**

Jumper; for jumper slot; 2-way; insulated; red



**Item No.: 859-402/000-029**

Jumper; for jumper slot; 2-way; insulated; yellow



**Item No.: 859-403/000-006**

Jumper; for jumper slot; 3-way; insulated; blue



**Item No.: 859-403**

Jumper; for jumper slot; 3-way; insulated; light gray



**Item No.: 859-403/000-005**

Jumper; for jumper slot; 3-way; insulated; red



**Item No.: 859-403/000-029**

Jumper; for jumper slot; 3-way; insulated; yellow



**Item No.: 859-404/000-006**

Jumper; for jumper slot; 4-way; insulated; blue



**Item No.: 859-404**

Jumper; for jumper slot; 4-way; insulated; light gray



**Item No.: 859-404/000-005**

Jumper; for jumper slot; 4-way; insulated; red



**Item No.: 859-404/000-029**

Jumper; for jumper slot; 4-way; insulated; yellow



**Item No.: 859-405/000-006**

Jumper; for jumper slot; 5-way; insulated; blue



**Item No.: 859-405**

Jumper; for jumper slot; 5-way; insulated; light gray



**Item No.: 859-405/000-005**

Jumper; for jumper slot; 5-way; insulated; red



**Item No.: 859-405/000-029**

Jumper; for jumper slot; 5-way; insulated; yellow



**Item No.: 859-406/000-006**

Jumper; for jumper slot; 6-way; insulated; blue



**Item No.: 859-406**

Jumper; for jumper slot; 6-way; insulated; light gray



**Item No.: 859-406/000-005**

Jumper; for jumper slot; 6-way; insulated; red



**Item No.: 859-406/000-029**

Jumper; for jumper slot; 6-way; insulated; signal yellow



**Item No.: 859-407/000-006**

Jumper; for jumper slot; 7-way; insulated; blue



**Item No.: 859-407**

Jumper; for jumper slot; 7-way; insulated; light gray



**Item No.: 859-407/000-005**

Jumper; for jumper slot; 7-way; insulated; red



**Item No.: 859-407/000-029**

Jumper; for jumper slot; 7-way; insulated; yellow



**Item No.: 859-408/000-006**

Jumper; for jumper slot; 8-way; insulated; blue



**Item No.: 859-408**

Jumper; for jumper slot; 8-way; insulated; light gray



**Item No.: 859-408/000-005**

Jumper; for jumper slot; 8-way; insulated; red

### 1.1.3.1 Jumper



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

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

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

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



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

### 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 unit



**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

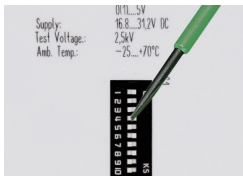


Item No.: 210-720

Operating tool; Blade: 3.5 x 0.5 mm; with a partially insulated shaft; multicoloured

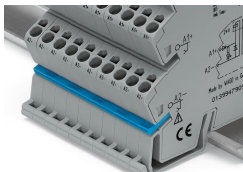
## Installation Notes

### Configuring



Configuration via DIP switch

### Commoning



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