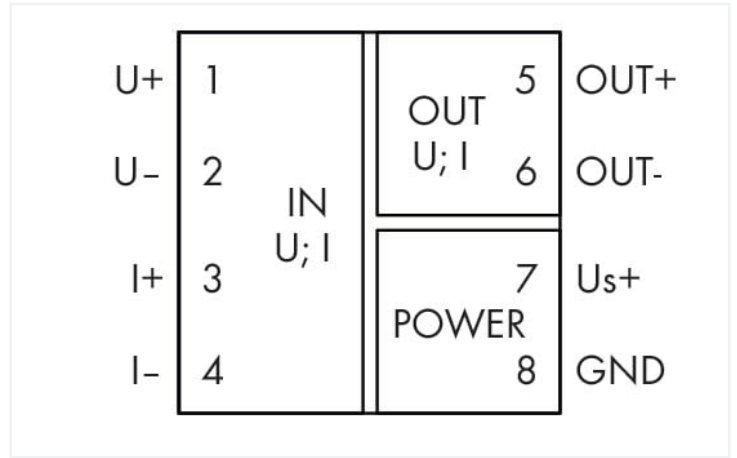
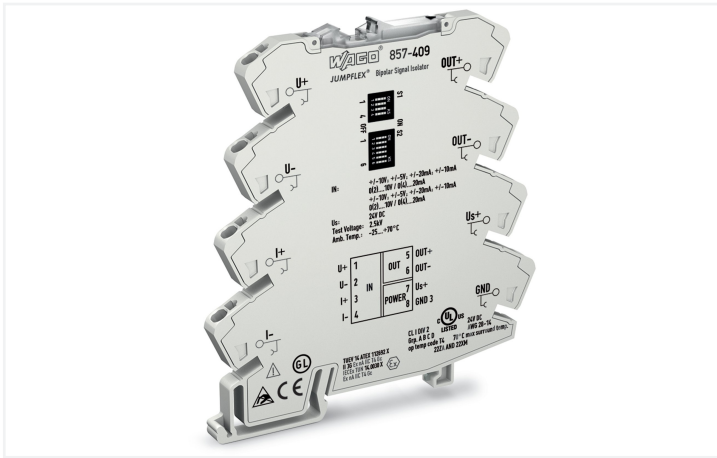


# Data Sheet | Item Number: 857-409

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>



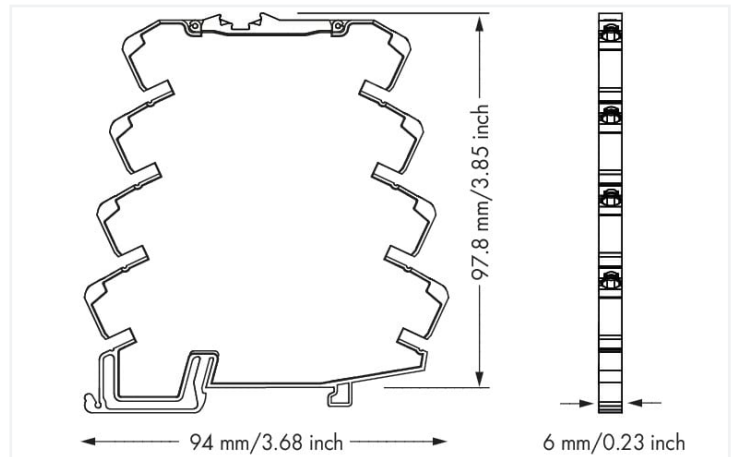
<https://www.wago.com/857-409>



857-409  
DIP Switch Adjustability

ON  Default

DIP Switch S1 (4-fold)				DIP Switch S2 (6-fold)					Max. Operating Frequency	
1	2	3	4	1	2	3	4	5		6
•	•									5 kHz
•	•									100 Hz
•	•									
•	•									



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

### Power 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 coordination

Overvoltage 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

Insulation material (main housing)	Polyamide (PA66)
Flammability class per UL94	V0
Fire load	0.363 MJ
Weight	39.2 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	≥ (T <sub>ambient</sub> + 10 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 9.0	EC002653
ETIM 8.0	EC002653
PU (SPU)	1 pcs
Packaging type	Bag
Country of origin	DE
GTIN	4045454828493
Customs tariff number	85437090300

### Environmental Product Compliance

CAS-No.	1303-86-2 1317-36-8 7439-92-1 75980-60-8
REACH Candidate List Substance	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)	3045ef60-f28a-43e4-9dba-b63435d5553d
SCIP notification number (Belgium)	8f1d744b-8731-4270-a640-73cf63782d7f
SCIP notification number (Bulgaria)	74cd0cd4-d3cc-4fa9-ac76-5a1ca5bb11a1
SCIP notification number (Czech Republic)	0689176b-e48c-48ed-859f-591c9a9bb606
SCIP notification number (Denmark)	ffd652f9-d5f2-45bf-981b-f0fde66c585f
SCIP notification number (Finland)	7c145b78-dbc2-4260-85cc-22a468112985
SCIP notification number (France)	3a00d327-3185-4fcb-a0b8-36a561c46061
SCIP notification number (Germany)	15951163-bfc4-44d4-b679-9146fa50b484
SCIP notification number (Hungary)	5fd6a05b-6f43-463e-8f9a-4ab07da40dfd
SCIP notification number (Italy)	ea8b18af-ed6a-4f27-b024-7378eb0f2d3d
SCIP notification number (Netherlands)	56e8430c-ad8e-4e3a-b6f2-897614bc0f79
SCIP notification number (Poland)	62fe04e8-fd16-49c4-be93-f76f40eef9e0
SCIP notification number (Romania)	01c54ad8-3056-427f-8fc0-0b8e8c12d949
SCIP notification number (Sweden)	4527d706-aff0-40c4-95f8-d5d44d48a189

### Approvals / Certificates

#### General approvals



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

#### Declarations of conformity and manufacturer's declarations

Approval	Standard	Certificate Name
EU-Declaration of Conformity WAGO GmbH & Co. KG	-	-
UK-Declaration of Conformity WAGO GmbH & Co. KG	-	-

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/1098/880590/23

Approvals for hazardous areas



Approval	Standard	Certificate Name
ATEX TUEV Nord Cert GmbH	EN 60079-0	TUEV14ATEX112692X (II 3G Ex ec IIC T4 Gc)
CCC CNEX	CNCA-C23-01	2020312310000210 (Ex ec IIC T4 Gc)
IECEX TUEV Nord Cert GmbH	-	IECEX TUN14.0030X
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



Documentation

Manual

WAGO Isolating Amplifiers



Bid Text

Item	Date	File Name	Size	Download
857-409	18.07.2019	xml	6.15 KB	
857-409	18.07.2019	docx	18.48 KB	
857-409	18.07.2019	pdf	74.80 KB	

Instruction Leaflet

CCC Ex (Additional information)	26.04.2023	pdf 140.99 KB	
Trennverstärker; bipolares Strom- und Spannungseingangssignal; bipolares Strom- und Spannungsausgangssignal	V 2.1.0 07.04.2022	pdf 2111.32 KB	

CAD/CAE-Data

CAD data

2D/3D Models 857-409



CAE data

EPLAN Data Portal  
857-409



WSCAD Universe  
857-409



ZUKEN Portal 857-409



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

1.1.3.1 Jumper



**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; 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



**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



**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

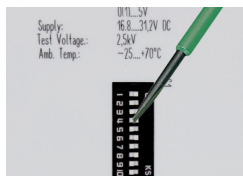


**Item No.: 210-720**

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

## Installation Notes

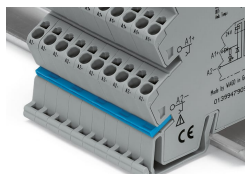
### Configuring



Configuration via DIP switch



## Commoning



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