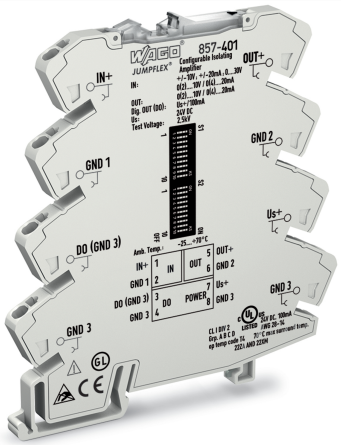
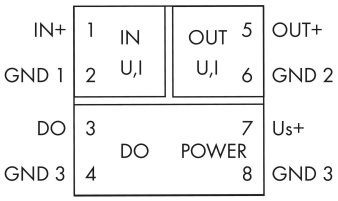
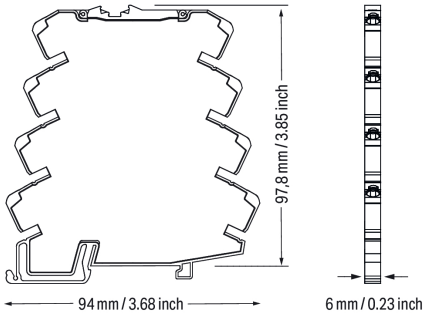
# Data Sheet | Item Number: 857-401

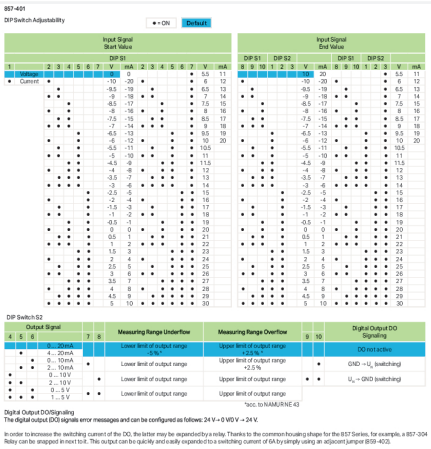
Isolation amplifier; Current and voltage input signal; Current and voltage output signal; Digital output; Supply voltage: 24 VDC; 6 mm module width; 2,50 mm²

https://www.wago.com/857-401




**Short description:**
This configurable signal conditioner converts, amplifies, filters and electrically isolates standard analog signals.
**Digital switching output (DO):**
The digital switching output (DO) allows signaling of a message. Two switching behaviors can be selected for the edge:
GND switching: For all values below the lower threshold or above the upper threshold, the digital output switches to "GND."
$U_s$ switching: For all values below the lower threshold or above the upper threshold, the digital output (DO) matches the supply voltage level.

The preset switching thresholds are 0% and 100% of the input measurement range. These thresholds can be adjusted via the PC configuration interface. The switching threshold hysteresis is 5 mV/5 µA.

**Features:**
- PC configuration interface
- Calibrated measurement range switching
- Analog unipolar and bipolar standard signals at the input
- Clipping capability

for analog signal limitation to output end values
- 3-way electrical isolation with 2.5 kV test voltage

## Notes

| | |
|---|---|
| Safety Information | Input and output must be safely isolated from any hazardous live parts! |
| Note | Additional setting options via the WAGO Interface Configuration Software<br>Terminals 4 (GND 3) and 8 (GND 3) are internally bridged. Current carrying capacity between terminals 4 and 8: max: 1 A |

**Use shielded signal cables!**
Only use shielded signal cables for analog input and output signals.
This ensures the device maintains its specified accuracy and immunity to interference, even when external disturbances affect the signal cable.

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

## Technical data

### Configuration

| | |
|---|---|
| Configuration options | DIP switch<br>WAGO Interface Configuration Software |

### Input

| | |
|---|---|
| Input signal type | Voltage (DC)<br>Current (DC) |
| Input signal (voltage) | ±10 V<br>0 … 30 V |
| Input signal (current) | ±20 mA |
| Input resistance (current input) | ≤ 200 Ω |
| Input resistance (voltage input) | ≥ 100 kΩ |
| Input current (max.) | 22 mA |
| Input voltage (max.) | 31 V |
| Measurement span (min.) | 1 V |
| Measurement span (current) min. | 2 mA |

### Output (analog)

| | |
|---|---|
| Output signal type | Current<br>Voltage |
| Output signal (voltage) | 0 … 5 V<br>1 … 5 V<br>0 … 10 V<br>2 … 10 V |
| Output signal (current) | 0 … 10 mA<br>2 … 10 mA<br>0 … 20 mA<br>4 … 20 mA |
| Load impedance (voltage output) | ≥ 2 kΩ |
| Load impedance (current output) | ≤ 550 Ω |

### Output (digital)

| | |
|---|---|
| Switching voltage (DO) max. | Supply voltage applied |
| Continuous current (DO) max. | 100 mA (no internal restriction) |
| Number of switching thresholds (DO) | 2 (adjustable) |

### Signal Processing

| | |
|---|---|
| Step response (typ.) | 8 ms |

### Measurement Error

| | |
|---|---|
| Transmission error (typ.) | ≤ 0.1 % of upper-range value |
| Temperature coefficient | ≤ 0.01 %/K |

### Power Supply

| | |
|---|---|
| Power supply type | 24 VDC (SELV) |
| Nominal supply voltage $U_S$ | 24 VDC |
| Supply voltage range | ±30 % |
| Current consumption at nominal supply voltage | ≤ 40 mA (+ $I_{DO}$) |


Continued on next page

## Safety and protection

| | |
|---|---|
| Rated Voltage | 300 V |
| Protection type | IP20 |

## Test voltage

| | |
|---|---|
| Test voltage (input/output/supply) | 2.5 kVAC; 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 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 |

## Material data

| | |
|---|---|
| Insulation material (main housing) | Polyamide (PA66) |
| Flammability class per UL94 | V0 |
| Fire load | 0.536 MJ |
| Weight | 37 g |

## Environmental requirements

| | |
|---|---|
| Ambient temperature (operation) | -25 … +70 °C (Individual arrangement; -25 … +60 °C (block arrangement)) |
| Ambient temperature (storage) | -40 … +85 °C |
| Temperature range of connection cable | ≥ ($T_{ambient}$ + 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; EN 61326-1; EN 50121-3-2 |
| EMC emission of interference | EN 61326-1 |
| Standards/specifications | DNV<br>EN 50121-3-2<br>EN 61000-6-4<br>EN 61010-2-201<br>EN 61373 |


Continued on next page

## Commercial data

| | |
|---|---|
| Product Group | 6 (INTERFACE ELECTRONIC) |
| PU (SPU) | 1 pcs |
| Packaging type | Bag |
| Country of origin | DE |
| GTIN | 4045454828509 |
| Customs tariff number | 85437090300 |

## Product Classification

| | |
|---|---|
| UNSPSC | 32101502 |
| eCl@ss 10.0 | 27-21-01-20 |
| eCl@ss 9.0 | 27-21-01-20 |
| ETIM 9.0 | EC002653 |
| ETIM 10.0 | EC002653 |
| ECCN | NO US CLASSIFICATION |

## Environmental Product Compliance

| | |
|---|---|
| CAS-No. | 1303-86-2<br>1317-36-8<br>7439-92-1<br>75980-60-8<br>79-94-7<br>80-05-7 |
| REACH Candidate List Substance | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol<br>4,4'-isopropylidenediphenol<br>Diboron trioxide<br>Lead<br>Lead monoxide<br>Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)- |
| RoHS Compliance Status | Compliant,With Exemption |
| RoHS Exemption | 6(c)<br>7(a)<br>7(c)-I<br>7(c)-II |
| SCIP notification number (Austria) | aff0c6db-2e8d-40df-bb25-c0857553add0 |
| SCIP notification number (Belgium) | e213ff0d-2609-4996-8776-552c3940adb5 |
| SCIP notification number (Bulgaria) | fda52b6c-252d-4865-8b7b-006d61ae0362 |
| SCIP notification number (Czech Republic) | 9e6dc05b-8858-42d0-8506-d974c363c8eb |
| SCIP notification number (Denmark) | 9c7f385a-1237-4d96-b43d-39905b245808 |
| SCIP notification number (Finland) | 00ecaf4e-bf48-46a7-bd9f-4304f62b07de |
| SCIP notification number (France) | 84768d73-a171-4ad6-b0bf-c06e4790b135 |
| SCIP notification number (Germany) | ff05be1c-f993-4d8d-87f4-089b262c2e93 |
| SCIP notification number (Hungary) | b6abe888-47d6-44d8-beb7-2bb65ab6ef95 |
| SCIP notification number (Italy) | 38b69325-eb5e-4b88-aa3f-bf9c997c1044 |
| SCIP notification number (Netherlands) | 02d3ec9a-5098-4436-ac58-bc00c2e94d3a |
| SCIP notification number (Poland) | eb1f3c08-d52f-4472-9c0d-af6649be66e7 |
| SCIP notification number (Romania) | 009dc6d9-a76a-43d2-9b7b-afcfef2a2776 |
| SCIP notification number (Sweden) | 3d18b596-90fd-4b86-b283-23e0a76d6d35 |


Continued on next page

## Approvals / Certificates

### General approvals

| Approval | Standard | Certificate Name |
|---|---|---|
| EAC<br>GZO Almaty Standart | TP TC 020/2011 | EAC CoC 03081 |
| UL<br>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<br>WAGO GmbH & Co. KG | - | - |
| MFD for Railway<br>WAGO GmbH & Co. KG | - | - |
| UK-Declaration of Conformity<br>WAGO GmbH & Co. KG | - | - |

### Approvals for marine applications

| Approval | Standard | Certificate Name |
|---|---|---|
| DNV<br>DNV Germany GmbH | DNV-CG-0339,Aug.2021 | TAA00001D1 |

### Approvals for hazardous areas

| Approval | Standard | Certificate Name |
|---|---|---|
| UL<br>Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS) | ANSI/ISA 12.12.01 | E198726 |

## Downloads

### Environmental Product Compliance

**Compliance Search**

Environmental Product Compliance 857-401

### Documentation

**Manual**

WAGO Isolating Amplifiers

**Bid Text**

| | | |
|---|---|---|
| 857-401 | 18.07.2019 | xml<br>6.65 KB |
| 857-401 | 18.07.2019 | docx<br>19.75 KB |
| 857-401 | 18.07.2019 | pdf<br>76.23 KB |

**Instruction Leaflet**

| | | |
|---|---|---|
| Signal Conditioners | V 2.0.0<br>24.01.2023 | pdf<br>2162.69 KB |

## CAD/CAE-Data

| CAD data | CAE data |
| --- | --- |
| 2D/3D Models 857-401 | EPLAN Data Portal 857-401 |
| | WSCAD Universe 857-401 |
| | ZUKEN Portal 857-401 |

## 1 Compatible Products

### 1.1 Optional Accessories

#### 1.1.1 Cables and connectors

##### 1.1.1.1 Communication cable



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

#### 1.1.2 Communication

##### 1.1.2.1 Communication cable



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

#### 1.1.3 Interface module

##### 1.1.3.1 Interface adapters



Item No.: 857-980
Interface adapter; 16-pole; analog

#### 1.1.4 Jumper

##### 1.1.4.1 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


Continued on next page

### 1.1.4.1 Jumper



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; 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

## 1.1.5 Marking

### 1.1.5.1 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


Continued on next page

### 1.1.5.2 Marking strip



Item No.: 2009-110
Marking strips; for Smart Printer; on reel; not stretchable; plain; snap-on type; white

### 1.1.6 Power supply

### 1.1.6.1 Power Supply



Item No.: 787-2852
Switched-mode power supply; 1-phase; 24 VDC output voltage; 1 A output current

### 1.1.7 Relay module

### 1.1.7.1 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

### 1.1.8 Screwless end stop

### 1.1.8.1 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

### 1.1.9 Terminal blocks

### 1.1.9.1 Supply and through module



Item No.: 857-979
Supply and through module


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### 1.1.10 Tool

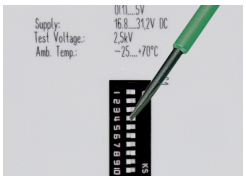
#### 1.1.10.1 Operating tool



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

## Installation Notes

### Configuring

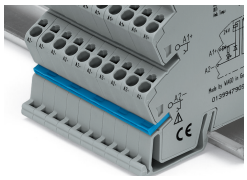



Configuration via DIP switch



Configuration via WAGO Interface Configuration Software

### Commoning



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