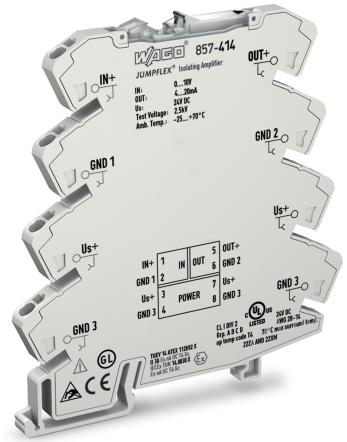
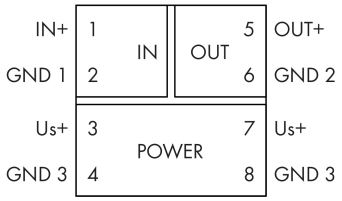
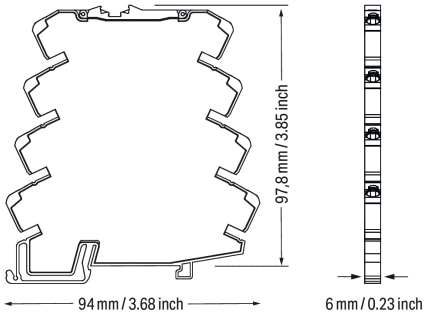
# Data Sheet | Item Number: 857-414

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

https://www.wago.com/857-414




**Short description:**
WAGO's pre-configured signal conditioner converts, amplifies, filters and electrically isolates analog standard signals.

**Features:**
- Input/output: current or voltage signal
- 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 | The 3 (Us+), 7 (Us+), 4 (GND 3) and 8 (GND 3) connections are internally commoned.<br>Current carrying capacity between 3/4 and 7/8 connections: 1 A (max.)<br><br>**Use shielded signal cables!**<br>Only use shielded signal cables for analog input and output signals.<br>This ensures the device maintains its specified accuracy and immunity to interference, even when external disturbances affect the signal cable. |

## Technical data

### Configuration

| | |
|---|---|
| Configuration options | Pre-configured |

### Input

| | |
|---|---|
| Input signal type | Voltage |
| Input signal (voltage) | 0 … 10 V |
| Input resistance (voltage input) | ≥ 100 kΩ |
| Input voltage (max.) | 30 V |

### Output (analog)

| | |
|---|---|
| Output signal type | Current |
| Output signal (current) | 4 … 20 mA |
| Load impedance (current output) | ≤ 600 Ω |

### Signal Processing

| | |
|---|---|
| Limit frequency | 100 Hz |
| Step response (typ.) | 3.5 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 | ≤ 30 mA |

### Operating Data

| | |
|---|---|
| Current consumption | ≤ 40 mA |

## Safety and protection

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

### Test voltage

| | |
|---|---|
| Test voltage (input/output/supply) | 3 kVAC; 50 Hz; 1 min |

### Insulation coordination

| | |
|---|---|
| Overvoltage category | II |
| Pollution degree | 2 |
| Insulation type (input IN 2.1/relay output) | 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 |

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## 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 | 0.495 MJ |
| Weight | 35.5 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 | ≥ ($T_{ambient}$ + 25 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 61000-6-4 |
| Standards/specifications | EN 61010-1<br>UL 508 |

## Commercial data

| | |
|---|---|
| Product Group | 6 (INTERFACE ELECTRONIC) |
| PU (SPU) | 1 pcs |
| Packaging type | Bag |
| Country of origin | DE |
| GTIN | 4045454609863 |
| Customs tariff number | 85437090300 |

## Product Classification

| | |
|---|---|
| UNSPSC | 39121008 |
| 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 |

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## Environmental Product Compliance

| | |
|---|---|
| CAS-No. | 1303-86-2<br>1317-36-8<br>7439-92-1<br>75980-60-8 |
| REACH Candidate List Substance | Diboron trioxide<br>Lead<br>Lead monoxide<br>Phosphine oxide, diphenyl(2,4,6-trimethylbenzoyl)- |
| RoHS Compliance Status | Compliant,With Exemption |
| RoHS Exemption | 7(a)<br>7(c)-I |
| SCIP notification number (Austria) | ee0f7499-85aa-4ad6-b4e4-f5ee04e550d1 |
| SCIP notification number (Belgium) | d1965de1-863d-4785-992f-75acc6b3516e |
| SCIP notification number (Bulgaria) | 2d2bea65-4b3e-4e3c-8dd4-2e96cfdbf0ba |
| SCIP notification number (Czech Republic) | 4533b34f-dd11-4414-8f1e-e4b95dcf8c4a |
| SCIP notification number (Denmark) | b2977381-317e-46af-8c7a-d6025e2303ea |
| SCIP notification number (Finland) | e2c94759-0892-4253-bdb9-3bda2c3d237d |
| SCIP notification number (France) | 10081c24-d42a-48b7-9033-7a2c32922d7f |
| SCIP notification number (Germany) | 4529de71-b650-4e0a-91d8-38a9ca0b8821 |
| SCIP notification number (Hungary) | bc1ca59a-c040-45d8-b2f4-8b8a932479f9 |
| SCIP notification number (Italy) | 171a7562-eeb8-4681-9cfb-c198f40895f7 |
| SCIP notification number (Netherlands) | a733b0bd-2ddb-4678-abe3-33e1b582ba42 |
| SCIP notification number (Poland) | 4344dacc-72be-4947-96d7-250e67cd947a |
| SCIP notification number (Romania) | 9257b894-50f0-4313-957e-8bc854054435 |
| SCIP notification number (Sweden) | f8e7ff6a-6d51-4780-88b0-6f3882c13d57 |

## 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 | - | - |
| UK-Declaration of Conformity<br>WAGO GmbH & Co. KG | - | - |

### Approvals for marine applications

| Approval | Standard | Certificate Name |
|---|---|---|
| BV<br>Bureau Veritas S.A. | Rules for class. of Steel Ships | 40179_C0 |
| DNV<br>DNV Germany GmbH | DNV-CG-0339,Aug.2021 | TAA00001D1 |
| PRS<br>Polski Rejestr Statków | - | TE/1098/880590/23 |

### Approvals for hazardous areas

| Approval | Standard | Certificate Name |
|---|---|---|
| ATEX<br>TUEV Nord Cert GmbH | EN 60079-0 | TUEV14ATEX112692X (II 3G Ex ec IIC T4 Gc) |
| CCC<br>CNEX | CNCA-C23-01 | 2020312310000210 (Ex ec IIC T4 Gc) |
| IECEx<br>TUEV Nord Cert GmbH | - | IECEX TUN14.0030X |
| UKEx<br>WAGO GmbH & Co. KG | EN 60079-0 | WAGO22UKEX004X |
| UL<br>Underwriters Laboratories Inc. (HAZARDOUS LOCATIONS) | ANSI/ISA 12.12.01 | E198726 |

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## Downloads

### Environmental Product Compliance

**Compliance Search**

Environmental Product Compliance 857-414

### Documentation

**Bid Text**

| | | | |
|---|---|---|---|
| 857-414 | 18.07.2019 | xml 5.24 KB | |
| 857-414 | 18.07.2019 | docx 18.26 KB | |
| 857-414 | 18.07.2019 | pdf 72.39 KB | |

**Instruction Leaflet**

| | | | |
|---|---|---|---|
| CCC Ex (Additional information) | 26.04.2023 | pdf 140.99 KB | |
| Messumformer und Trennverstärker | V 2.0.0 16.08.2022 | pdf 2190.51 KB | |

### CAD/CAE-Data

**CAD data**

2D/3D Models 857-414

**CAE data**

EPLAN Data Portal 857-414

WSCAD Universe 857-414

ZUKEN Portal 857-414

## 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

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## 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; 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

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## 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; 50  m on roll; 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 and through module

Item No.: 857-979
Supply and through module

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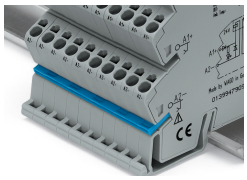
### 1.1.7 Tool

#### 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

### Commoning



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