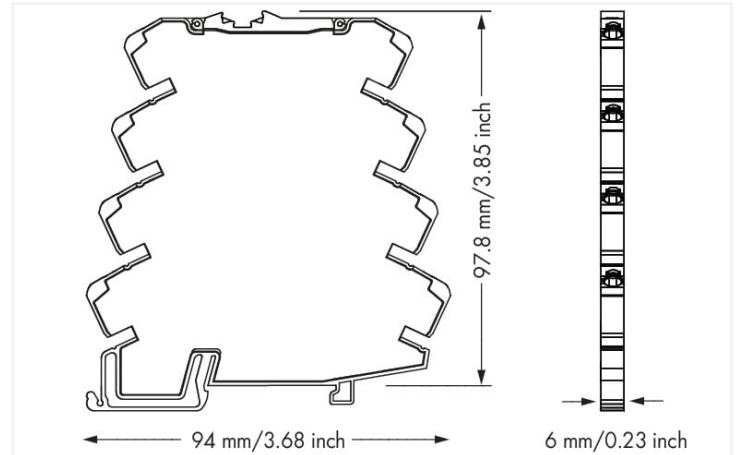
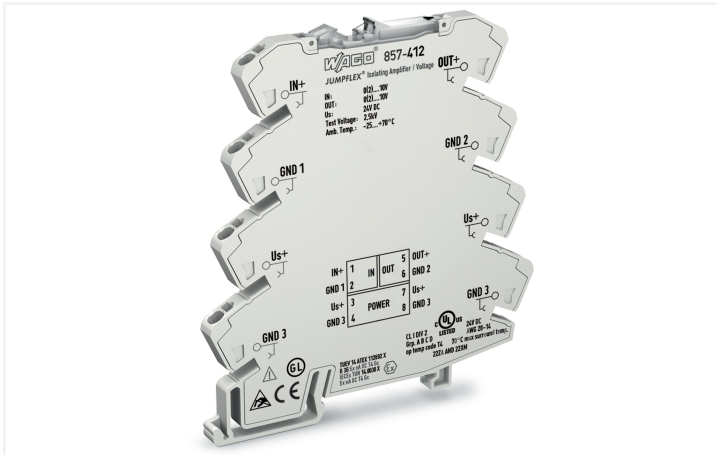


Data Sheet | Item Number: 857-412

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

<https://www.wago.com/857-412>



Dimensions in mm

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 3 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. Current carrying capacity between 3/4 and 7/8 connections: 1 A (max.)

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.

Technical data

Configuration

Configuration options: Pre-configured

Input

Input signal type: Voltage
 Input signal (voltage): 0 ... 10 V; 2 ... 10 V
 Input resistance (voltage input): $\geq 100 \text{ k}\Omega$
 Input voltage (max.): 30 V

Output (analog)

Output signal type: Voltage
 Output signal (voltage): 0 ... 10 V; 2 ... 10 V
 Load impedance (voltage output): $\geq 2 \text{ k}\Omega$

Signal processing

Limit frequency: 100 Hz
 Step response (typ.): 3.5 ms

Measurement error

Transmission error (typ.): $\leq 0.1 \%$ of upper-range value
 Temperature coefficient: $\leq 0.01 \%$ /K

Power supply

Power supply type: 24 VDC (SELV)
 Nominal supply voltage U_S : DC 24 V
 Supply voltage range: $\pm 30 \%$
 Current consumption at nominal supply voltage: $\leq 20 \text{ mA}$

Operating data

| | |
|---------------------|---------|
| Current consumption | ≤ 25 mA |
|---------------------|---------|

Safety and protection

| | | | |
|-----------------|-------|------------------------------------|-----------------------|
| Rated Voltage | 300 V | Test voltage | |
| Protection type | IP20 | Test voltage (input/output/supply) | AC 3 kV; 50 Hz; 1 min |

Insulation coordination

| | |
|---|--|
| Overtoltage 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 mm ² / 28 ... 14 AWG |
| Fine-stranded conductor | 0.34 ... 2.5 mm ² / 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 | 0.363 MJ |
| Weight | 35.6 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 UL 508 |

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 | 4045454471309 |
| 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) | ea9905d9-dd39-4427-a795-254278c09f8e |
| SCIP notification number (Belgium) | 4b738452-4977-4af9-9aaf-ef41e3bb2eea |
| SCIP notification number (Bulgaria) | c5dfb54e-8cf7-4efd-82a7-9175592951b9 |
| SCIP notification number (Czech Republic) | e3c5e78e-87f0-4022-ba04-4797129ddc12 |
| SCIP notification number (Denmark) | fce12377-0557-4b21-9439-99554bc995fa |
| SCIP notification number (Finland) | 2be5d354-f861-4897-880e-58acb5aecd10 |
| SCIP notification number (France) | 0fd92282-b633-4c27-ac35-47f0b79265ca |
| SCIP notification number (Germany) | fcc600bd-eef5-4520-ad8b-694dd42b04cf |
| SCIP notification number (Hungary) | 5f74e66d-8252-41fa-b0b4-546399855ebf |
| SCIP notification number (Italy) | b767196c-afdb-4720-8608-c3c3c8d3b71c |
| SCIP notification number (Netherlands) | add308f0-0cb3-4e25-8f3d-e06ae5cf3b15 |
| SCIP notification number (Poland) | c154edb9-f830-4428-94e1-1e15b1c436e7 |
| SCIP notification number (Romania) | 8fecf5a4-2498-4570-8fb7-0d76a1ba7b18 |
| SCIP notification number (Sweden) | 77c83d89-058b-4c02-921c-1e7ba56819ca |

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 |

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 857-412 | ↓ |
|--|-------------------|

Documentation

| Bid Text | | | |
|----------|------------|------------------|-------------------|
| 857-412 | 18.07.2019 | xml 5.28 KB | ↓ |
| 857-412 | 18.07.2019 | docx 18.19 KB | ↓ |
| 857-412 | 18.07.2019 | pdf 72.47 KB | ↓ |

| Instruction Leaflet | | | |
|----------------------------------|-----------------------|-------------------|-------------------|
| CCC Ex (Additional information) | 26.04.2023 | pdf 140.99 KB | ↓ |
| Messumformer und Trennverstärker | V 1.2.1 21.01.2020 | pdf 1589.43 KB | ↓ |

CAD/CAE-Data

| CAD data | CAE data |
|--|---|
| 2D/3D Models 857-412  | EPLAN Data Portal 857-412  |
| | WSCAD Universe 857-412  |
| | ZUKEN Portal 857-412  |

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; 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



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

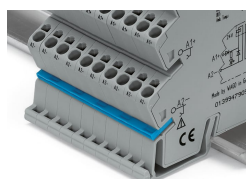


Item No.: 210-720

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

Installation Notes

Commoning



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