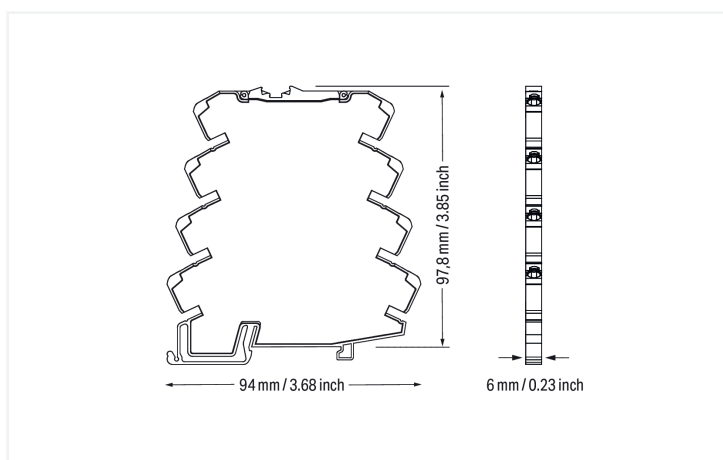
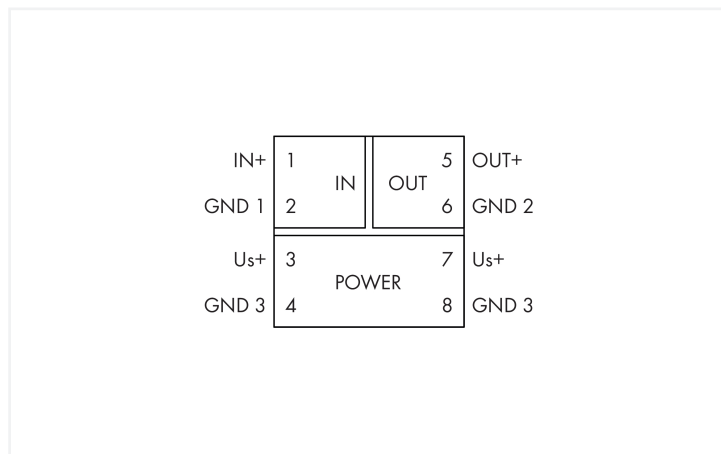


Data Sheet | Item Number: 857-412

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>



Short description:

This 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 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.

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)	≥ 100 kΩ
Input voltage (max.)	30 V

Output (analog)

Output signal type	Voltage
Output signal (voltage)	0 ... 10 V 2 ... 10 V
Load impedance (voltage output)	≥ 2 kΩ

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	≤ 20 mA

Operating Data

Current consumption	≤ 25 mA
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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 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
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Material data

Insulation material (main housing)	Polyamide (PA66)
Flammability class per UL94	V0
Fire load	0.495 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	$\geq (T_{\text{ambient}} + 25 \text{ K})$
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 61000-6-4
Standards/specifications	EN 61010-1 UL 508

Commercial data

Product Group	6 (INTERFACE ELECTRONIC)
PU (SPU)	1 pcs
Packaging type	Bag
Country of origin	DE
GTIN	4045454471309
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

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-58acb5aedc10
SCIP notification number (France)	0fd92282-b633-4c27-ac35-47f0b79265ca
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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_CO
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

2D/3D Models 857-412



CAE data

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



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 and through module



Item No.: 857-979

Supply and through module

1.1.7 Tool

1.1.7.1 Operating tool

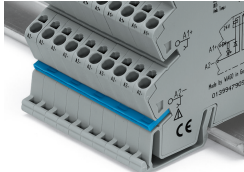


Item No.: 210-720

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

Installation Notes

Commoning



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