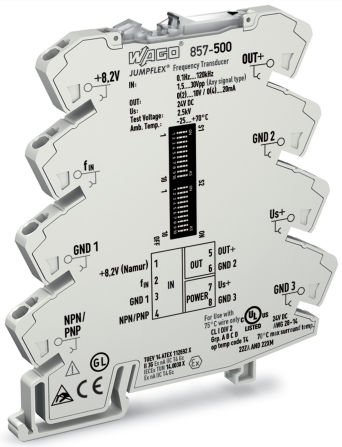
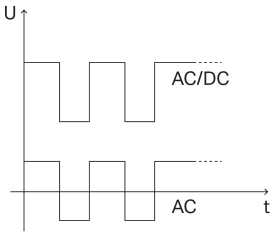
Data Sheet | Item Number: 857-500

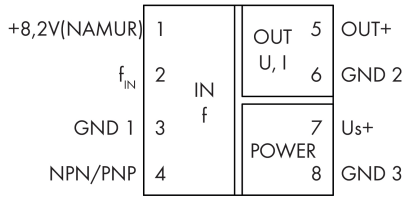
Frequency signal conditioner; Current and voltage output signal; Configuration via software; Supply voltage: 24 VDC; 6 mm module width

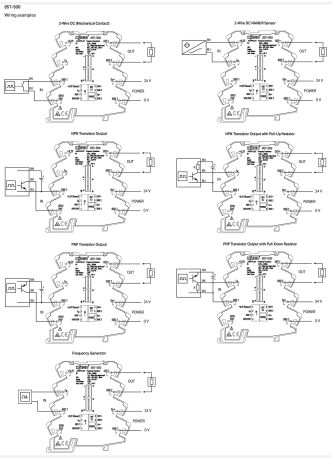
https://www.wago.com/857-500

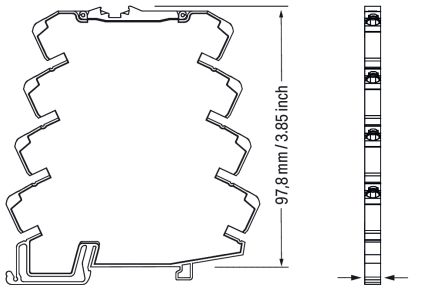


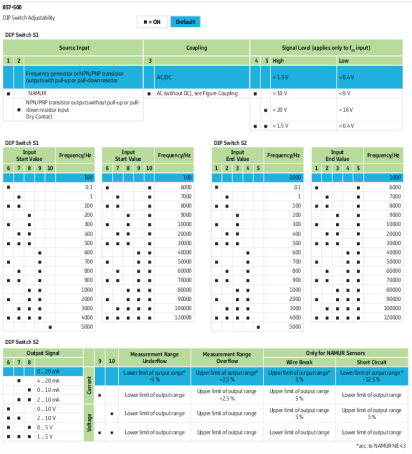


Coupling









Short description:

WAGO's frequency signal conditioner collects 0.1 Hz ... 120 kHz signals from NAMUR, NPN or PNP sensors and converts them into a standard analog signal.

Features:

- PC configuration interface
- Signal acquisition from NAMUR, NPN or PNP sensors
- Calibrated measurement range switching

- 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!
Safety information 2	Adjacent devices of the same type are devices of the same design (series) that are arranged next to one another on the DIN-rail with the same orientation. An end stop (249-116) must be fitted to devices of other types for compliance with the reinforced insulation requirements.
Note	**Use shielded cables for data and signal lines.** Electromagnetic interference is reduced and signal quality increased. Measurement errors, data transmission faults and interference due to excessive voltage can be prevented! Additional setting options via the WAGO Interface Configuration Software

Technical data

Configuration

Configuration options	DIP switch WAGO Interface Configuration Software

Input

Input signal type	Frequency generators NAMUR sensors NPN/PNP transistor outputs Mechanical contact (potential-free)

Input (sensor type 1)

Sensor type 1	Frequency generator NPN/PNP transistor output with pull-up or pull-down resistor
Measurement range (frequency) 1	0.1 Hz … 120 kHz
Pulse length 1	≥ 1 µs
Measurement span 1 (min.)	10 Hz
Signal level	1.5 V; 10 V; 20 V (switchable)
Input voltage (max.)	± 31.2 VDC
Signal form	any
Coupling	AC/DC (adjustable; f_{min} (AC) = 10 Hz)
Input resistance	10 kΩ

Input (sensor type 2)

Sensor type 2	NAMUR sensor per DIN EN 60947-5-6
Measurement range (frequency) 2	0.1 Hz … 1 kHz
Pulse length 2	≥ 500 µs
Measurement span 2 (min.)	10 Hz
Sensor supply	8.2 VDC (max. 19 mA)
Signal current (0)	≤ 1.2 mA
Signal current (1)	≥ 2.1 mA
Hysteresis	0.45 mA
Short-circuit current (max.)	14 mA
Short circuit monitoring	≥ 4.7 mA
Wire break monitoring	≤ 0.2 mA
Input resistance 2	≤ 600 Ω

Input (sensor type 3)

Sensor type 3	NPN/PNP transistor output without pull-up or pull-down resistor Mechanical contact (potential-free)
Measurement range (frequency) 3	0.1 Hz … 20 kHz
Pulse length 3	≥ 25 µs
Measurement span 3 (min.)	100 Hz
Open-circuit voltage	5 VDC
Output current (max.)	0.75 mA
NPN residual voltage	≤ 1.5 V
PNP switching voltage	≥ 7.5 V (+ residual voltage U_{CE} sat)

Output (analog)

Output signal type	Current Voltage
Output signal (voltage)	0 … 5 V 1 … 5 V 0 … 10 V 2 … 10 V
Output signal (current)	0 … 10 mA 2 … 10 mA 0 … 20 mA 4 … 20 mA
Load impedance (voltage output)	≥ 2 kΩ
Load impedance (current output)	≤ 600 Ω

Signal Processing

Conversion time	Peak-time measurement method (> 400 Hz): < 20 ms; Pulse time measurement method (< 400 Hz): < 200 µs + $T_{Cycle\ duration}$

Measurement Error

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

Continued on next page

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	≤ 50 mA

Signaling

Signaling	LED green (Power supply connected) Flashing LED (red, 8 Hz, Wire break/short circuit on the sensor side) Flashing LED (red, 2 Hz, Measurement range: overflow/Underflow) LED red (Product failure; product must be returned!)

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 (between adjacent devices of the same type)	Double insulation (safe isolation)
Insulation type (to adjacent devices of different types)	Basic insulation
Safety information 2	Adjacent devices of the same type are devices of the same design (series) that are arranged next to one another on the DIN-rail with the same orientation. An end stop (249-116) must be fitted to devices of other types for compliance with the reinforced insulation requirements.

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

Continued on next page

Material data

Insulation material (main housing)	Polyamide (PA66)
Flammability class per UL94	V0
Fire load	0.536 MJ
Weight	37.3 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	≥ ($T_{ambient}$ + 15 K)
Temperature range of the connection cable (UL)	75 °C
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; EN 61000-6-4
Standards/specifications	EN 61373 EN 61010-2-201

Commercial data

Product Group	6 (INTERFACE ELECTRONIC)
PU (SPU)	1 pcs
Packaging type	Bag
Country of origin	DE
GTIN	4066966874105
Customs tariff number	85437090300

Product Classification

UNSPSC	41113630
eCl@ss 10.0	27-21-01-28
eCl@ss 9.0	27-21-01-28
ETIM 9.0	EC002918
ETIM 10.0	EC002918
ECCN	NO US CLASSIFICATION

Environmental Product Compliance

RoHS Compliance Status	Compliant,No Exemption
SCIP notification number (Austria)	6d73a011-84c6-4de8-9203-d6ba0a4a08c8
SCIP notification number (Belgium)	6cd3b3c9-9745-4390-aa1a-ac93ba1da332
SCIP notification number (Bulgaria)	b01c1302-d9c2-438c-9217-730bfdfae0f7
SCIP notification number (Czech Republic)	e8fd4d44-e267-4bd8-b97b-1fcb8247f4fd
SCIP notification number (Denmark)	4da2ee18-6d67-44d0-9743-ad112597583e
SCIP notification number (Finland)	d0fa661d-f8f9-44c9-878c-daf953ee7c3a
SCIP notification number (France)	b6021de5-253c-45e8-9fd6-fea69eda5701
SCIP notification number (Germany)	07e3e21f-4fb2-4986-8866-7a14b9699500
SCIP notification number (Hungary)	0606f24e-06bf-4ebc-a260-31eab59b8e88
SCIP notification number (Italy)	6fc50000-c684-468e-973f-e70a3fb7bf3b
SCIP notification number (Netherlands)	0de14568-55e9-47a7-877e-b1bb752ffa03
SCIP notification number (Poland)	37c59afc-3304-41ef-b57e-b4af0981cd37

Continued on next page

Environmental Product Compliance

SCIP notification number (Romania)	b23ce25d-4008-47ae-b458-9cacfbfae760
SCIP notification number (Sweden)	721e6b08-10d7-4ada-96af-c2849dd874af

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 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 857-500

Continued on next page

Documentation

Manual

WAGO Signal Conditioners with Special Functions	

Bid Text

857-500	09.01.2019	docx 18.77 KB

Instruction Leaflet

CCC Ex (Additional information)	26.04.2023	pdf 140.99 KB	
Messumformer und Trennverstärker	V 2.0.0 17.12.2025	pdf 1016.79 KB	

CAD/CAE-Data

CAD data

2D/3D Models 857-500

CAE data

EPLAN Data Portal 857-500
WSCAD Universe 857-500
ZUKEN Portal 857-500

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

Continued on next page

1.1.3 Installation

1.1.3.1 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

1.1.4 Interface module

1.1.4.1 Interface adapters



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

1.1.5 Jumper

1.1.5.1 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

Continued on next page

1.1.5.1 Jumper



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

1.1.6 Marking

1.1.6.1 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

1.1.6.2 Marking strip



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

1.1.7 Power supply

1.1.7.1 Power Supply



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

1.1.8 Terminal blocks

1.1.8.1 Supply and through module



Item No.: 857-979
Supply and through module

1.1.9 Tool

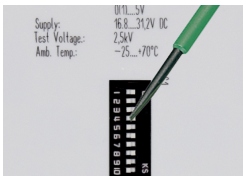
1.1.9.1 Operating tool



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

Installation Notes

Configuring

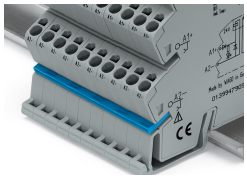


Configuration via DIP switch



Configuration via WAGO Interface Configuration Software

Commoning



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