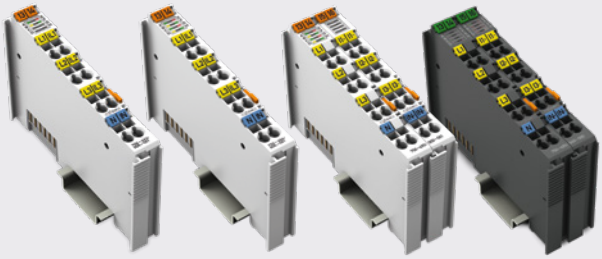
WAGO Current and Energy Measurement Technology

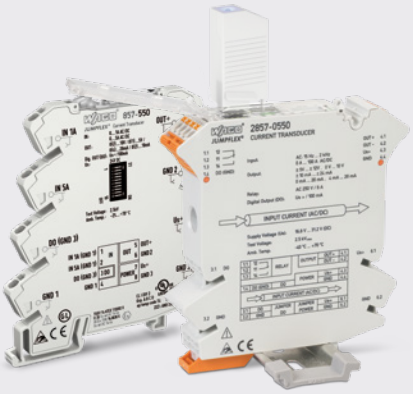
Product Overview

Contents



3-Phase Power
Measurement Modules

3-Phase Power Measurement Modules



Current, Voltage and Power
Measurement Modules

Voltage Taps

WAGO Current and Energy Measurement Technology

Product Overview

Never before has the demand for systematic energy management been greater, because it can significantly reduce escalating energy costs. The use of standardized and cost-effective automation technology is simplifying what was previously an exhausting puzzle consisting of incredibly varied technological components.
Many energy management projects show that energy savings of 30% or more are possible, depending on the operating situation.

When this type of project is started, however, only the total energy costs are initially known. There is a lack of detailed information about the amount of energy used at specific points, and exactly where energy can be saved. Therefore, improvement processes begin with the systematic recording, analysis and evaluation of an organization's energy consumption.

Current and Voltage Taps

Plug-In Current Transformers with CAGE CLAMP®

Plug-In Current Transformers
with a *picoMAX*® Pluggable Connector

Split-Core Current Transformers

Rogowski Coils

WAGO I/O System, 750 Series
3-phase power measurement modules,
for analysis of voltage, current, power and energy consumption in 3-phase networks

3-Phase Power Measurement Modules, 2857 Series
With the 3-phase power measurement module in a DIN-rail-mount enclosure, WAGO offers the ideal solution to measure currents and voltage in a three-phase supply network remotely from the control level.

Current, Voltage and Power Measurement Modules, 857 and 2857 Series
For measuring DC and AC currents
or DC and AC voltages

Voltage Taps, 855 Series
To safely tap the measurement voltage
- For insulated conductors
- For busbars

Current and Voltage Taps, 855 Series
Combining a current transformer and voltage tap, this ingenious solution can be quickly and easily mounted in the jumper slot of WAGO's 285 Series 2-Conductor Through Terminal Blocks.

Current Transformers, 855 Series
For converting AC currents
- Plug-In Current Transformers with CAGE CLAMP®
- Plug-In Current Transformers with a *picoMAX*® Pluggable Connector
- Split-Core Current Transformers

Rogowski Coils, 855 Series
For converting AC currents up to 4000 A

WAGO Energy Data Management – the Right Solution for Every Step

With Our State-of-the-Art Energy Data Collection

Transparency Pays Off
Synchronized electricity and energy measurement solutions enable the comprehensive recording of consumption data to create a basis for determining relevant efficiency ratios. This transparency is essential for discovering potential savings and, with appropriate measures, significantly trimming costs. This is also particularly important for large-scale consumers, such as the press line or body construction in an auto plant.

Measurement – Systematically Record Energy Consumption
Anywhere high currents must be measured and processed, plug-in current transformers are always the first choice. If existing systems need to be retrofitted, save time by using Rogowski coils to avoid disassembling cables or interrupting processes.

Cloud Connectivity
(via MQTT)

PARAMETER SETTING
VISUALIZING

Evaluating – Identify and Plan Energy Use
Three standard operation 3-phase power measurement modules within the WAGO I/O System 750 are available for recording and evaluating all relevant metrics from a three-phase supply network. A special line (XTR) is also available for use in extreme conditions. This allows comprehensive network analysis to be performed and the power supply for machine drives to be controlled optimally, helping prevent damage, machine failures and downtimes.

EVALUATING

Parameterization and Visualization
Software solutions for the WAGO I/O System and WAGO's Signal Conditioners make parameterization and visualization child's play with the new WAGO Energy Data Management application.

Cloud Connectivity
The MQTT software extension for the PFC100 and PFC200 Controllers allows data to be easily transmitted from the field level to the cloud. You can decide whether the controller sends the data to Microsoft Azure, Amazon Web Services or IBM Bluemix.

MEASURING

Measurement System with Added Value

Easily Record, Visualize and Analyze Energy Data

With our energy data management solution, you can quickly record and visualize your measurement data for different media and influencing variables, as well as the key figures calculated from them. Continuous collection and monitoring provide the basis for the resource-efficient energy usage – the environment will thank you and your operating costs will be minimized. And by the way, the conformity with DIN EN 50001 for the energy assessment is part of the package. WAGO Energy Data Management consists of Web-based application software combined with a modular control system. It records measurement data from different media and influencing variables for energy monitoring and processes them for further analyses, archiving and reporting. The software automatically detects different signals from the connected meters and sensors, making them available for additional energy analysis tools via simple parameter settings. This allows you to optimize energy consumption in your building or production facility, whether the sites are local or spread across the globe.

Your Benefits:

- Ready to go in a few easy steps
- No programming experience required
- Integrated cloud connectivity

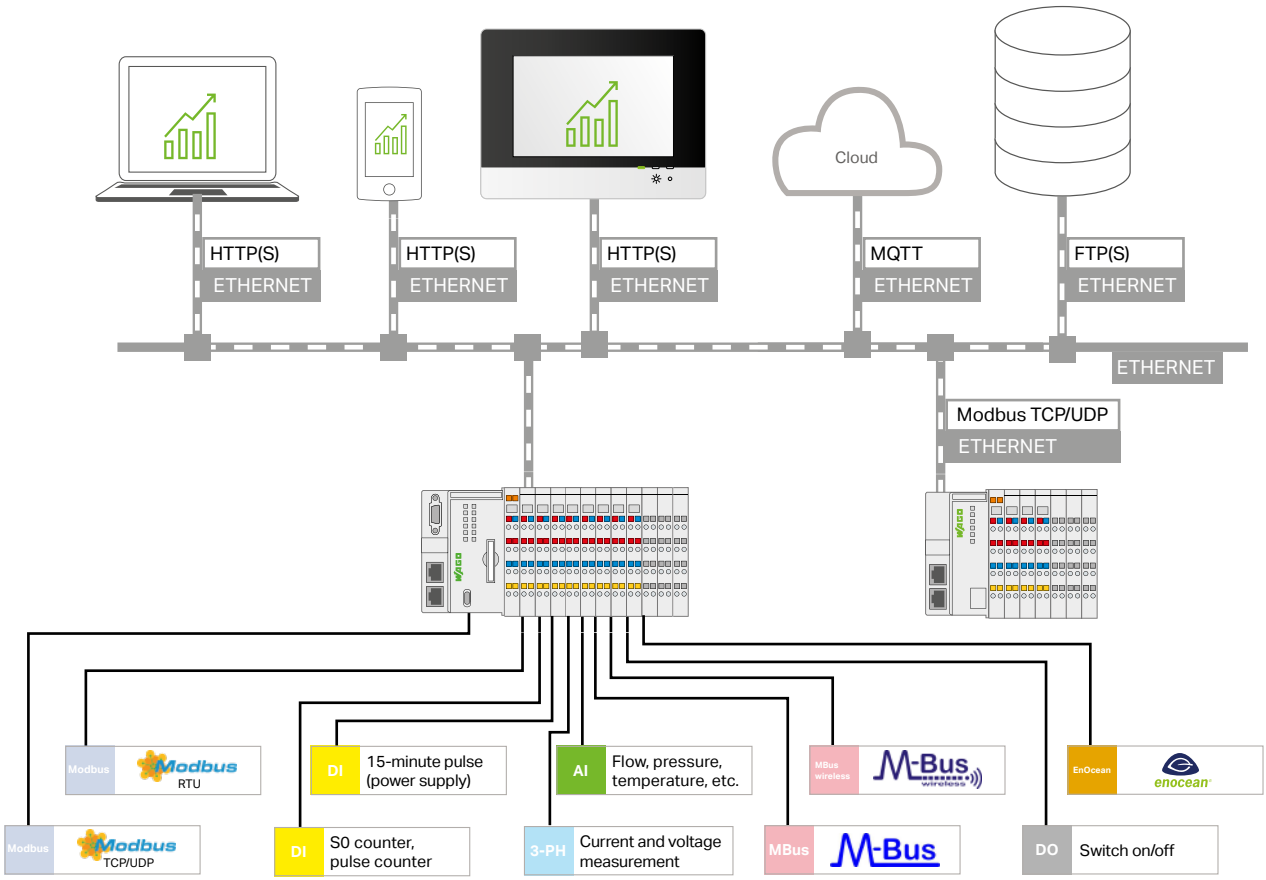
Easy parameter setting – not programming

Touch Panel 600

PFC200 Controller

Find out more:
www.wago.com/energy-management

System Scope at a Glance



Precisely Tailored Hardware

Modular energy and process data collection, management and visualization

Evaluating

Evaluating energy data and deriving efficiency plans is simple

Parameter Setting – Not Programming

Easy input parameterization via Web visualization – no programming experience required

Retrofitting Existing Systems

Connect existing sensors to the WAGO I/O System – integration into existing systems maximizes both flexibility and your return on investment

Cybersecurity

Functions integrated into the controller, such as OpenVPN, IPsec or a firewall, secure the transmission path, allowing secure storage of your data in the cloud

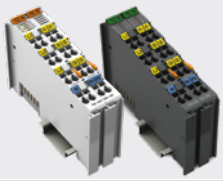
WAGO Power and Energy Measurement

With the WAGO I/O System 750 and 750 XTR

WAGO's 3-phase power measurement modules measure and process all relevant metrics from a three-phase supply network. They provide system operators with greater insight into energy consumption by specific machines and systems, as well as the ability to perform comprehensive network analysis.

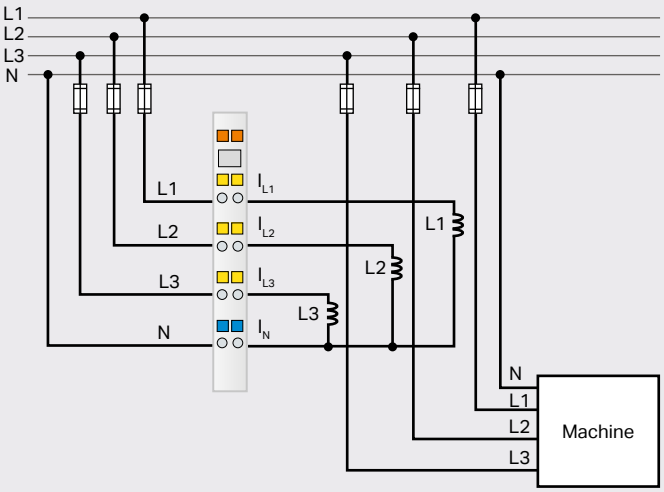
Your Benefits:

- Measurement of machine and system energy consumption values
- Detection and processing of all relevant metrics
- Comprehensive network analysis
- Connection to the fieldbus-independent, compact and flexible WAGO I/O System
- The dark gray modules from the 750 XTR Series can also be used in eXTReme environments and offer these advantages:
  – eXTReme temperatures from −40 to +70°C (−40 … +158°F)
  – eXTReme isolation up to 5 kV of impulse voltage
  – eXTReme vibration resistance up to 5g of acceleration

Image			
Energy consumption	✓	✓	✓
Voltage	3~ 480 V	3~ 480 V	3~ 480 V/690 V
Current	1 A (750-493) 5 A (750-493/000-001)	1 A (750-494) 5 A (750-494/000-001) External Shunts (750-494/000-005)	1 A (750-495) 5 A (750-495/000-001) Rogowski Coil (750-495/000-002)
Active energy/power	✓	✓	✓
Phase position	✓	✓	✓
Reactive power/energy	Via function block	✓	✓
Apparent power/energy	Via function block	✓	✓
Rotary field detection		✓	✓
Power factor	(✓)	✓	✓
Frequency measurement	✓	✓	✓
Four-quadrant operation (inductive, capacitive, consumer, generator)		✓	✓
Harmonic analysis (up to the 41st harmonic)		✓	✓
Neutral conductor measurement			✓
Other product variants		Extended temperature range: −20 … +60°C (−4 … 140°F): 750-494/025-000 (1 A), 750-494/025-001 (5 A)	750 XTR: 750-495/040-000 (1 A), 750-495/040-001 (5 A), 750-495/040-002 (Rogowski Coil)
Housing width	12 mm (0.472 in)	12 mm (0.472 in)	24 mm (0.945 in)
Item number	**750-493**	**750-494**	**750-495**
EAN number	4055143374385	4050821548232	4050821548256

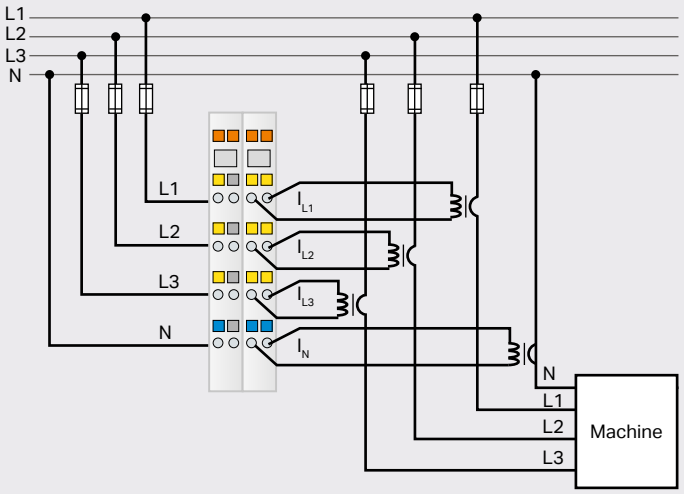
General Configuration

Power and energy measurement of a machine in a 480 VAC mains network via 3-Phase Power Measurement Module (750-493, 750-494)



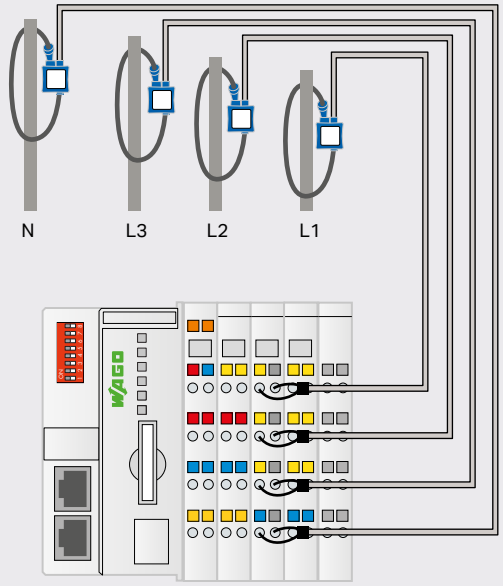
General Configuration

Power, energy and N-conductor measurement of a machine in a 480/690 VAC mains network via 3-Phase Power Measurement Module (750-495)



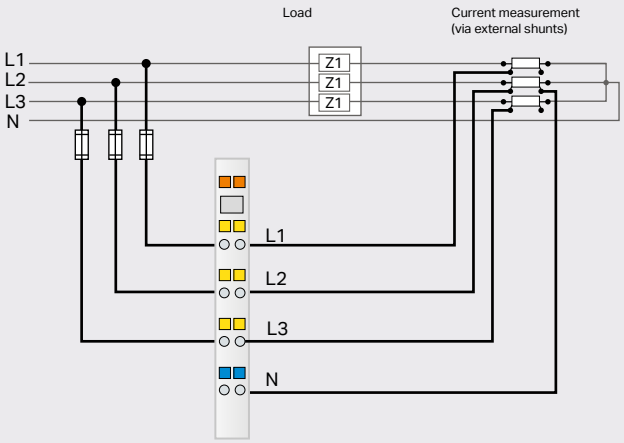
Application

Direct connection of Rogowski coils to the 3-Phase Power Measurement Module (750-495/000-002)

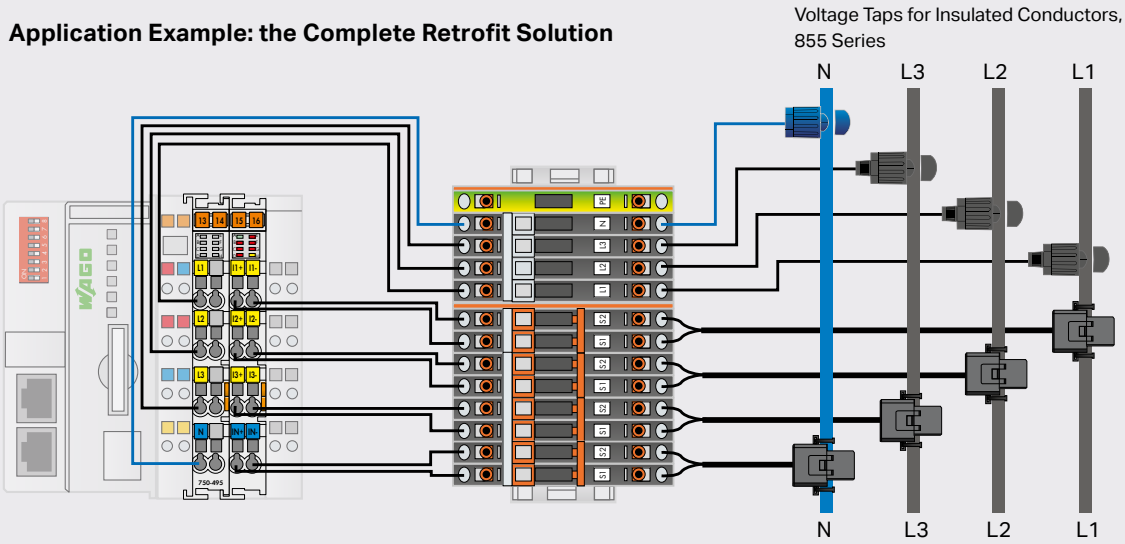


Application

Direct connection of external shunts to the 3-Phase Power Measurement Module (750-494/000-005)



Application Example: the Complete Retrofit Solution



3-Phase Power Measurement Module, 750-495

Terminal Block Assembly, 2007-8874

Split-Core Current Transformers, 855 Series

WAGO Voltage Taps

For Insulated Conductors

Installation on insulated conductor with IDC connection

Integrated SIBA fuse to protect equipment and conductor

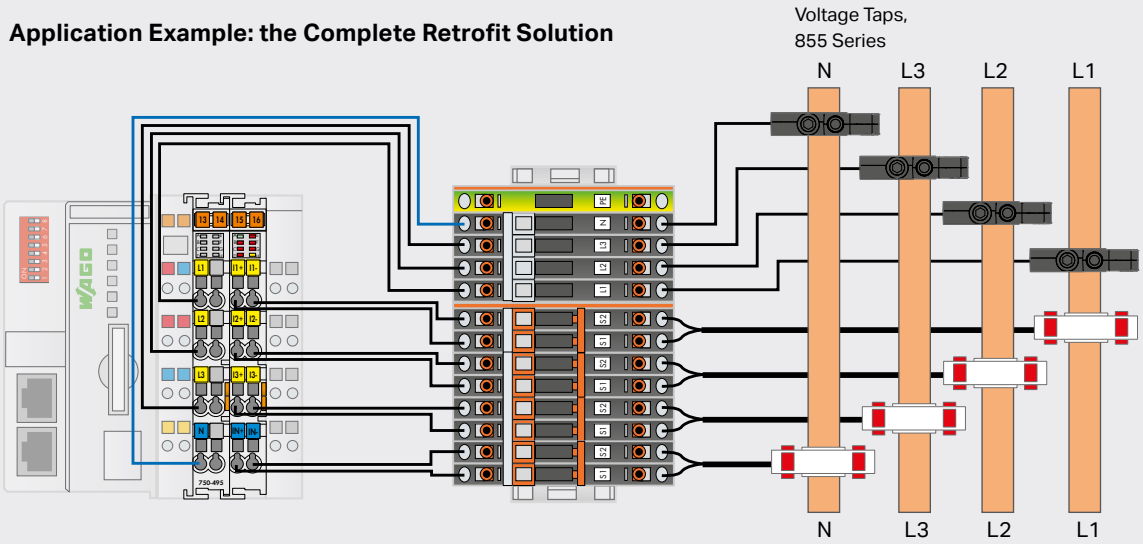
Your Benefits:

- Faster measurement voltage tapping with just one turn
- Tool-free assembly
- Conductor contact via IDC connection
- Integrated SIBA fuse reliably protects the measurement device and conductor

Watch the video to learn more.

Image	Conductor Cross-Section	Fuse	Cable Length	Mounting	Item Number	EAN Number
	2.5 … 6 mm² (14 … 10 AWG) Ø 3 … 5 mm (feedthrough for measurement conductor)	2 A, 450 V, F, 70 kA (5 x 25 mm)	3 m (pre-assembled)	Conductor contact via IDC connection	**855-8001**	4055143371780
		–			**855-8002**	4055143378857
	10 … 16 mm² (8 … 6 AWG) Ø 5 … 7 mm (feedthrough for measurement conductor)	2 A, 450 V, F, 70 kA (5 x 25 mm)			**855-8003**	4055143371797
		–			**855-8004**	4055143378840

Application Example: the Complete Retrofit Solution

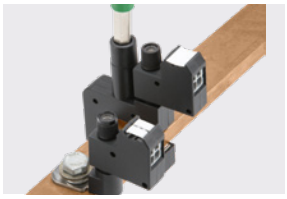


3-Phase Power Measurement Module, 750-495

Terminal Block Assembly, 2007-8874

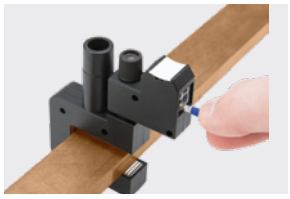
Plug-In Current Transformers with CAGE CLAMP®, 855 Series

For Busbars

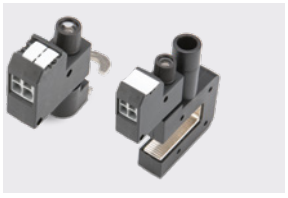


Installation on busbar; fastening with Allen wrench

Integrated SIBA fuse (overload and short circuit protection)



Push-in CAGE CLAMP® connection technology



Various marking options for clear identification

Your Benefits:

- Fast, easy installation on a live busbar with clamp mount or M6/M8 mount
- Marking options for clear identification
- Universal conductor termination via Push-in CAGE CLAMP® direct connection technology
- Fused voltage path protects downstream measurement devices

Watch the video to learn more.

Image	Fuse	Connection Technology Solid/Fine-Stranded	Mounting	Item Number	EAN Number
	2 A, 450 V, F, 70 kA (5 x 25 mm)	Push-in CAGE CLAMP® (WAGO 2624 Series)	M6 mount	**855-8006**	4055143720038
			M8 mount	**855-8008**	4055143720052
			Clamp mount (4 … 15 mm bar thickness)	**855-8015**	4055143720076
	T-wrench			**855-8000**	–

Selection Guide: WAGO Current Transformers

The Right Solution for Every Application

Current Transformers, 855 Series	Split-Core Current Transformers	Plug-In Current Transformers with CAGE CLAMP® Connection Technology
		
Application	Retrofits	New systems
Coil bobbin	Separable	Closed
Connection technology	Connection cable (color coded)	CAGE CLAMP®
Mounting	Round cable (insulated), copper current bar (insulated)	Round cable, copper current bar, DIN-rail, mounting plate
Compatibility with other WAGO components	750-493, (750-493/000-001) 750-494, (750-494/000-001) 750-495, (750-495/000-001) 857-550, 2857-570/024-001 2857-570/024-005	
Primary rated current	60 … 1000 A	50 … 2500 A
Secondary rated current	1 A / 5 A	1 A / 5 A
Accuracy class	0.5; 1 or 3	1 or 3
Surrounding air temperature	–10 … 55 °C	–5 … 50 °C
Standards	EN 61869-2	EN 61869-2
Approvals	–	c UL us
Connection examples		

*In the measurement range from 0.8 to 32 A and in combination with the 3-Phase Power Measurement Modules, accuracy class 0.5 per EN 61869-2 is a

Plug-In Current Transformers with a *picoMAX*® Pluggable Connector		Current and Voltage Taps	Rogowski Coils RC 70 / RC 125 / RC 175
			
New systems		New systems	Retrofits
Closed		Closed	Bayonet connector, separable
picoMAX®		Push-in CAGE CLAMP®	Connecting cable
Round cable, DIN-rail, mounting plate		Jumper slot of the 285 Series 2-Conductor Through Terminal Blocks 285-150, 285-195, 285-1185, 285-141, 285-181, 285-1161	Round cable, copper current bar
750-493,750-494 750-495, 857-550, 2857-570/024-001		750-493 750-494 750-495 857-550 2857-570/024-001	750-495/000-002 857-552 2857-570/024-000
32 A	35 / 64 A	150 … 350 A	Up to 4000 A
320 mA	1 A	1 A	22.5 mV / kA
0.5*	1	0.5	0.5
−10 … 55 °C		−25 … +70 °C	−40 … +80 °C
EN 61869-2		EN 61869-2, EN 60947-7-3, IEC 60068-2-6	IEC 61010-1 / EN 61869-2
–	c UL us	–	UL listed
			

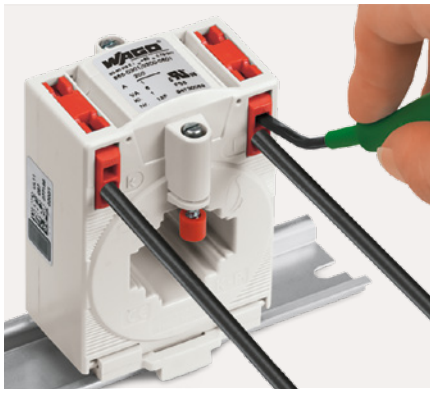
chieved.

WAGO Plug-In Current Transformers

with CAGE CLAMP® Connection Technology

Your Benefits:

- Screwless CAGE CLAMP® connection technology
- Primary currents 50 to 2500 A / secondary currents 1 A or 5 A
- Continuous overload of 120% the nominal primary current
- Tool-free installation via quick-mount kit
- Low-voltage current transformer for max. operating voltages up to 1.2 kV
- UL certified (Certificate No. E356480)
- EN 61869-1 / EN 61869-2

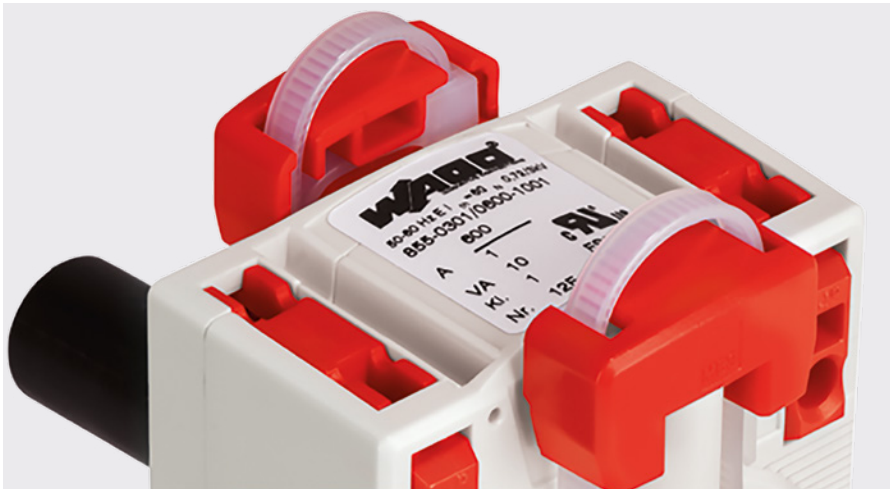


Inserting a conductor

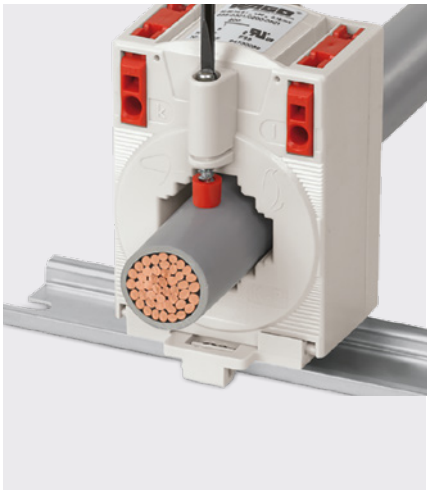
CAGE CLAMP® connection

Watch the video to learn more

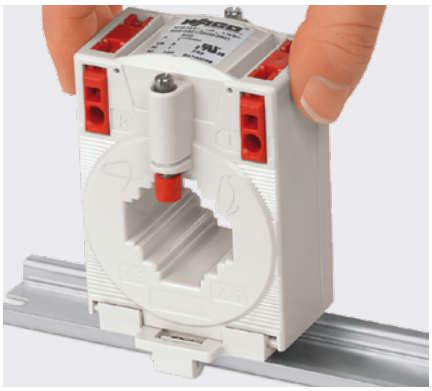
Time-Saving Installation with Plug-In Current Transformers from WAGO



Quick-Mount Kit, 855-9910

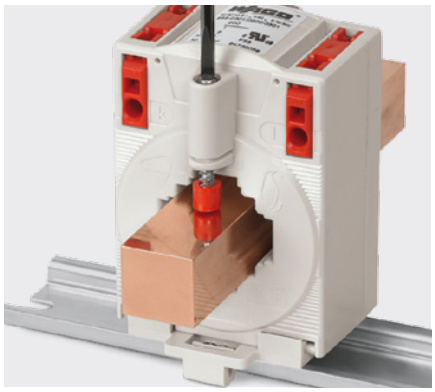


Mounting on round cable



Mounting on DIN-rail via DIN-rail adapter

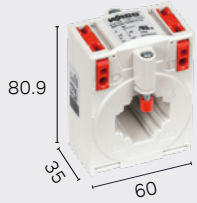
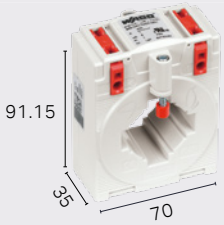
Installation on mounting plate



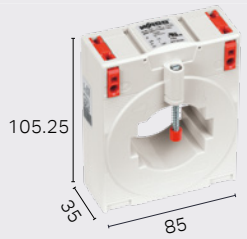
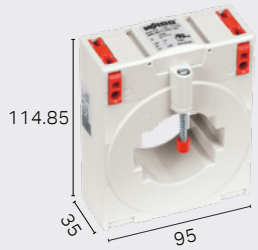
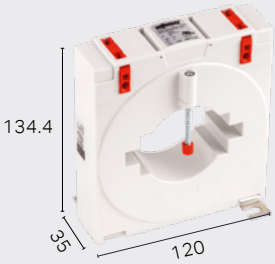
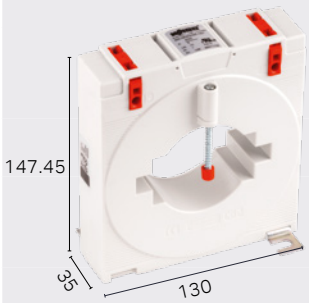
Mounting on copper current bar

WAGO Plug-In Current Transformers

with CAGE CLAMP® Connection Technology

Image	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Item Number	EAN Number
 Current bar 1: 30 x 10 mm Current bar 2: 25 x 12 mm Current bar 3: 20 x 20 mm **Round cable: 26 mm**	50 A	1 A	1.25 VA	3	**855-301/050-103**	4050821614654
	50 A	5 A	1.25 VA	3	**855-305/050-103**	4050821749301
	60 A	1 A	1.25 VA	1	**855-301/060-101**	4050821616856
	60 A	5 A	1.25 VA	1	**855-305/060-101**	4050821749318
	75 A	1 A	2.5 VA	1	**855-301/075-201**	4050821616863
	75 A	5 A	2.5 VA	1	**855-305/075-201**	4050821749325
	100 A	1 A	2.5 VA	1	**855-301/100-201**	4050821616870
	100 A	5 A	2.5 VA	1	**855-305/100-201**	4050821749332
	150 A	1 A	5 VA	1	**855-301/150-501**	4050821616887
	150 A	5 A	5 VA	1	**855-305/150-501**	4050821749349
	200 A	1 A	5 VA	1	**855-301/200-501**	4050821616894
	200 A	5 A	5 VA	1	**855-305/200-501**	4050821749356
	250 A	1 A	5 VA	1	**855-301/250-501**	4050821616900
	250 A	5 A	5 VA	1	**855-305/250-501**	4050821616900
	300 A	5 A	5 VA	1	**855-305/300-501**	4055143389174
	400 A	1 A	10 VA	1	**855-301/400-1001**	4050821616917
	400 A	5 A	10 VA	1	**855-305/400-1001**	4050821749387
	600 A	1 A	10 VA	1	**855-301/600-1001**	4050821616924
	600 A	5 A	10 VA	1	**855-305/600-1001**	4050821749400
 Current bar 1: 40 x 10 mm Current bar 2: 30 x 15 mm **Round cable: 32 mm**	250 A	1 A	5 VA	1	**855-401/250-501**	4055143523226
	250 A	5 A	5 VA	1	**855-405/250-501**	4050821845706
	400 A	1 A	5 VA	1	**855-401/400-501**	4050821616931
	400 A	5 A	5 VA	1	**855-405/400-501**	4050821749370
	600 A	1 A	5 VA	1	**855-401/600-501**	4055143262521
	750 A	5 A	5 VA	1	**855-405/750-501**	4055143389181

Accessories		Item Number	EAN Number
	DIN-Rail Adapter for Plug-In Current Transformers (for 855-3xx/xxxx-xxxx and 855-4xx/xxxx-xxxx)	**855-9900**	4050821627593
	Quick-Mount Kit (2 pieces, including cable tie)	**855-9910**	4050821749981

Image	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Item Number	EAN Number
	400 A	1 A	10 VA	1	**855-501/400-1001**	4055143523233
	400 A	5 A	10 VA	1	**855-505/400-1001**	4050821845881
	600 A	1 A	10 VA	1	**855-501/600-1001**	4055143523240
	600 A	5 A	10 VA	1	**855-505/600-1001**	4050821845737
	800 A	1 A	10 VA	1	**855-501/800-1001**	4055143523257
	800 A	5 A	10 VA	1	**855-505/800-1001**	4050821845744
	1000 A	1 A	10 VA	1	**855-501/1000-1001**	4050821616948
Current bar 1: 50 x 12 mm Current bar 2: 40 x 30 mm **Round cable: 44 mm**	1000 A	5 A	10 VA	1	**855-505/1000-1001**	4050821749417
	1500 A	1 A	5 VA	1	**855-601/1500-501**	4055143262538
	1500 A	5 A	5 VA	1	**855-605/1500-501**	4055143263009
Current bar 1: 63 x 10 mm Current bar 2: 50 x 30 mm **Round cable: 44 mm**						
	1000 A	1 A	10 VA	1	**855-801/1000-1001**	4055143523264
	2000 A	1 A	10 VA	1	**855-801/2000-1001**	4055143262996
	2000 A	5 A	10 VA	1	**855-805/2000-1001**	4055143262989
Current bar 1: 80 x 10 mm Current bar 2: 60 x 30 mm **Round cable: 55 mm**						
	2500 A	1 A	10 VA	1	**855-1001/2500-1001**	4055143262972
	2500 A	5 A	10 VA	1	**855-1005/2500-1001**	4055143262965
Current bar 1: 100 x 10 mm Current bar 2: 80 x 30 mm **Round cable: 70 mm**						

WAGO Split-Core Current Transformers

For Retrofitting Existing Systems

WAGO's Split-Core Current Transformers are ideal for retrofitting existing systems and have the great advantage of working without interrupting the measuring line. These new current transformers measure primary currents of 60 A to 1000 A, as well as secondary currents of 1 A or 5 A. Thanks to a compact and easy-to-open housing, they can be mounted quickly. If space is limited, their hinge (855-5xxx) can be completely removed. The enclosed cable ties allow the current transformers to be secured easily and economically. They offer color-coded connection cables and meet the requirements of EN 61869-1/ EN 61869-2.

Your Benefits:

- Compact and separable split-core current transformers – ideal for retrofitting existing systems
- No current path interruption
- Easy and cost-effective installation via cable ties
- Transformer leg (855-5xxx) can be completely removed if space is tight

Watch the video to learn more

Simple Termination!

- Compact split-core current transformers – ideal for retrofitting existing systems

- Transformer leg (855-5xxx) can be completely removed if space is tight
- With color-coded connecting cables

Quick and Easy Mounting

- No current path interruption
- Easy and cost-effective installation via cable ties

- Audible click confirms correct installation

Technical Details

WAGO Split-Core Current Transformers

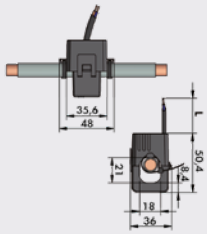
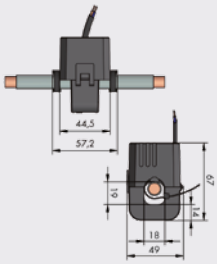
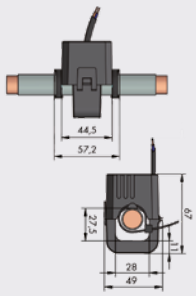
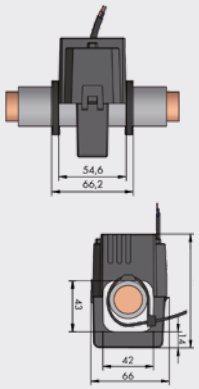
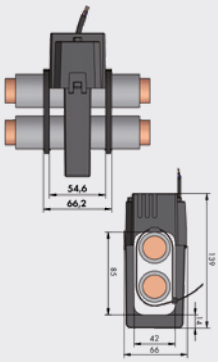
Image	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Cable Length	Item Number	EAN Number
Ø 18 mm							
	60 A	1 A	0.2 VA	3	3 m	**855-3001/060-003**	4050821880554
	75 A	1 A	0.2 VA	3	3 m	**855-3001/075-003**	4050821880561
	100 A	1 A	0.2 VA	3	3 m	**855-3001/100-003**	–
	125 A	1 A	0.2 VA	3	3 m	**855-3001/125-003**	–
	150 A	1 A	0.2 VA	3	3 m	**855-3001/150-003**	–
	200 A	1 A	0.2 VA	1	3 m	**855-3001/200-001**	4050821880677
	250 A	1 A	0.2 VA	1	3 m	**855-3001/250-001**	4050821880684
Ø 18 mm							
	100 A	1 A	0.2 VA	1	3 m	**855-4001/100-001**	4050821880578
	125 A	1 A	0.2 VA	1	3 m	**855-4001/125-001**	–
	150 A	1 A	0.2 VA	1	3 m	**855-4001/150-001**	4050821880585
	200 A	1 A	0.2 VA	0.5	3 m	**855-4001/200-001**	4050821880592
	250 A	1 A	0.2 VA	0.5	3 m	**855-4001/250-000**	–
	150 A	5 A	1 VA	1	0.5 m	**855-4005/150-101**	4055143056342
	200 A	5 A	1 VA	1	0.5 m	**855-4005/200-101**	–
	250 A	5 A	1 VA	0.5	0.5 m	**855-4005/250-100**	–
Ø 28 mm							
	200 A	1 A	0.2 VA	1	3 m	**855-4101/200-001**	4050821880608
	250 A	1 A	0.2 VA	1	3 m	**855-4101/250-001**	4050821880615
	300 A	1 A	0.2 VA	1	3 m	**855-4101/300-001**	–
	400 A	1 A	0.2 VA	1	3 m	**855-4101/400-001**	4050821880622
	500 A	1 A	0.2 VA	0.5	3 m	**855-4101/500-000**	–
	250 A	5 A	1 VA	1	0.5 m	**855-4105/250-101**	4055143056359
	300 A	5 A	1 VA	1	0.5 m	**855-4105/300-101**	–
	400 A	5 A	1 VA	1	0.5 m	**855-4105/400-101**	4055143056366
	500 A	5 A	1 VA	1	0.5 m	**855-4105/500-101**	–

Image	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Cable Length	Item Number	EAN Number
Ø 42 mm							
	250 A	1 A	0.5 VA	1	5 m	**855-5001/250-001**	4055143163064
	300 A	1 A	0.5 VA	1	5 m	**855-5001/300-001**	–
	400 A	1 A	0.5 VA	0.5	5 m	**855-5001/400-000**	4050821880653
	500 A	1 A	0.5 VA	0.5	5 m	**855-5001/500-000**	–
	600 A	1 A	0.5 VA	0.5	5 m	**855-5001/600-000**	4050821880646
	750 A	1 A	0.5 VA	0.5	5 m	**855-5001/750-000**	–
	800 A	1 A	0.5 VA	0.5	5 m	**855-5001/800-000**	–
	1000 A	1 A	0.5 VA	0.5	5 m	**855-5001/1000-000**	4050821880639
	300 A	5 A	0.5 VA	1	3 m	**855-5005/300-001**	–
	400 A	5 A	0.5 VA	1	3 m	**855-5005/400-001**	4055143056373
	500 A	5 A	0.5 VA	1	3 m	**855-5005/500-001**	–
	600 A	5 A	0.5 VA	0.5	3 m	**855-5005/600-000**	4055143056380
	750 A	5 A	0.5 VA	0.5	3 m	**855-5005/750-001**	–
	800 A	5 A	0.5 VA	0.5	3 m	**855-5005/800-001**	–
	1000 A	5 A	0.5 VA	0.5	3 m	**855-5005/1000-000**	4055143056397
2 x Ø 42 mm							
	250 A	1 A	0.5 VA	1	5 m	**855-5101/250-001**	–
	300 A	1 A	0.5 VA	1	5 m	**855-5101/300-001**	–
	400 A	1 A	0.5 VA	0.5	5 m	**855-5101/400-000**	–
	500 A	1 A	0.5 VA	0.5	5 m	**855-5101/500-000**	–
	600 A	1 A	0.5 VA	0.5	5 m	**855-5101/600-000**	–
	750 A	1 A	0.5 VA	0.5	5 m	**855-5101/750-000**	–
	800 A	1 A	0.5 VA	0.5	5 m	**855-5101/800-000**	–
	1000 A	1 A	0.5 VA	0.5	5 m	**855-5101/1000-000**	4050821880660
	300 A	5 A	0.5 VA	1	3 m	**855-5105/300-001**	–
	400 A	5 A	0.5 VA	1	3 m	**855-5105/400-001**	–
	500 A	5 A	0.5 VA	1	3 m	**855-5105/500-001**	–
	600 A	5 A	0.5 VA	0.5	3 m	**855-5105/600-000**	–
	750 A	5 A	0.5 VA	0.5	3 m	**855-5105/750-000**	–
	800 A	5 A	0.5 VA	0.5	3 m	**855-5105/800-000**	–
	1000 A	5 A	0.5 VA	0.5	3 m	**855-5105/1000-000**	4055143056403

WAGO Plug-In Current Transformers

With a *pico*MAX® Pluggable Connector

With 1 A Output

Your Benefits:

- Convert 35 A or 64 A to 1 A
- Accuracy class 1 per EN 61869-2
- Mount on DIN-rail or mounting plates via DIN-rail adapter
- UL certified (Certificate No. E356480)
- EN 61869-1 / EN 61869-2

Watch the video to learn more

Mounting

Just snap together

Use DIN-rail adapter to snap to DIN-rail

As a space-saving option, mount directly above circuit breaker

Conductor Termination

Push-in termination of solid conductors and fine-stranded conductors with ferrules

Universal connection for fine-stranded conductors

Image	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Conductor Feed-through	Item Number	EAN Number
	35 A	1 A	0.2 VA	1	Ø 7.5 mm	**855-2701/035-001**	4050821864240
	64 A	1 A	0.2 VA	1	Ø 7.5 mm	**855-2701/064-001**	4050821864189
	DIN-rail adapter					**855-9927**	4050821866381

With Low Power Output

Your Benefits:

- The first transformer with lower power output
- Specifically designed for converting low currents from 32 A to 320 mA
- Complies with accuracy class 0.5 per EN 61869-2 in the measurement range of 0.8 to 32 A and in combination with the 3-Phase Power Measurement Module

Watch the video to learn more

Mounting

Just slide together

Side-by-side assembly

To save space, mount directly above circuit breaker

Conductor Termination

Push-in termination of solid conductors and fine-stranded conductors with ferrules

Universal connection for fine-stranded conductors

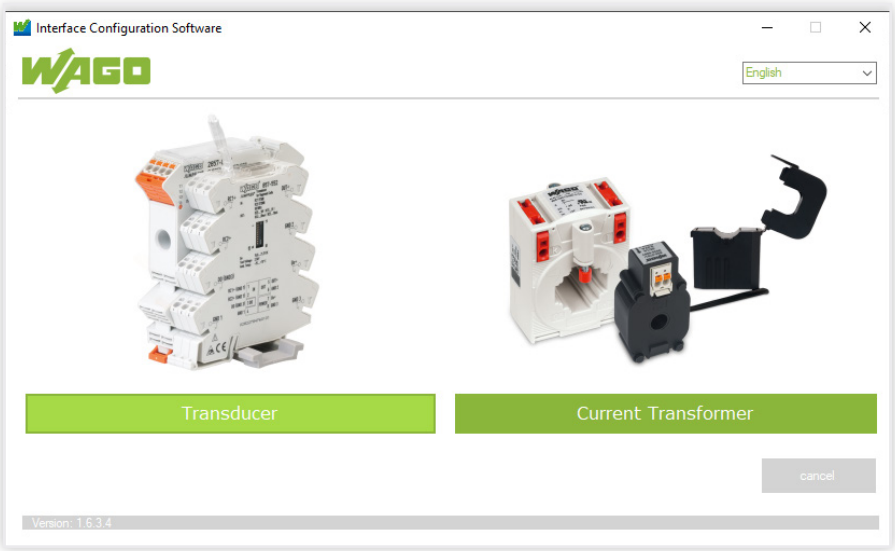
Image	Primary Rated Current	Secondary Rated Current	Rated Power	Accuracy Class	Conductor Feed-through	Item Number	EAN Number
	32 A*	320 mA	0.1 Ω	0.5**	Ø 5.0 mm	**855-1700/ 032-000**	4055143333436

*Measurement range: 0.8 to 32 A in combination with the 3-Phase Power Measurement Modules (750-493/494/-495)
**Testing adheres to EN 61869-2 with a conversion ratio of 16 A/0.16 A (accuracy class: 0.5) and extended primary current of 200%

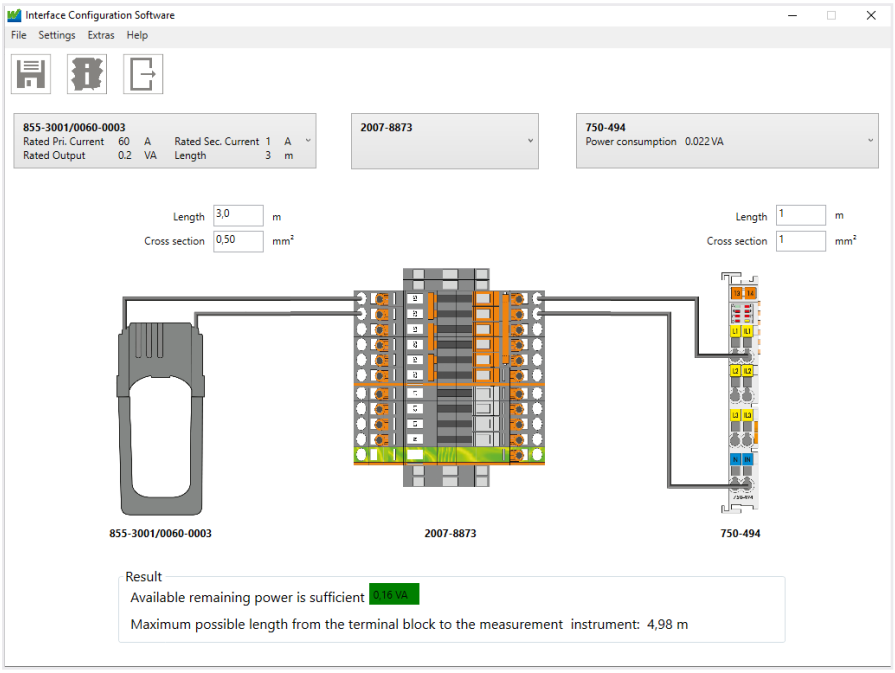
Line Length Calculation for WAGO Current Transformers

The Sophisticated Solution for Your System Planning

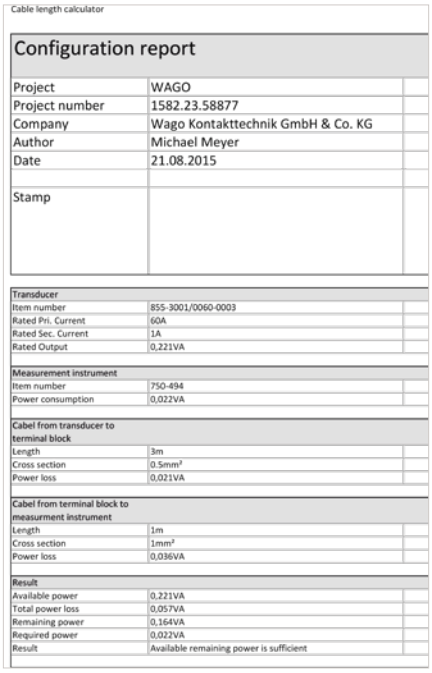
To determine actual power requirements, both the power requirements of the connected measurement devices and the power losses from the measurement lines connected to a transformer's secondary circuit must be taken into account. The WAGO Interface Configuration Software's new feature quickly and easily calculates cable lengths and provides the results for your system documentation.



Start screen of the WAGO Interface Configuration Software



Line length calculation using WAGO Interface Configuration Software



Easy documentation!

Power calculation of copper cables between measurement device and current transformer

$$P_V = \frac{I_S^2 \times 2 \times l}{A_{CU} \times 56} \text{ VA}$$

I_S = Secondary rated current strength [A]
l = Simple cable length in m
A_{CU} = Cable cross-section in mm²
P_V = Power loss of connection cables

Note: When a common three-phase return line is used, the values for P_V are halved.

Current transformer, 5 A

$$P_V = \frac{5^2 \times 2 \times 10}{1.5 \times 56} = 5.96 \text{ VA}$$

Current transformer, 1 A

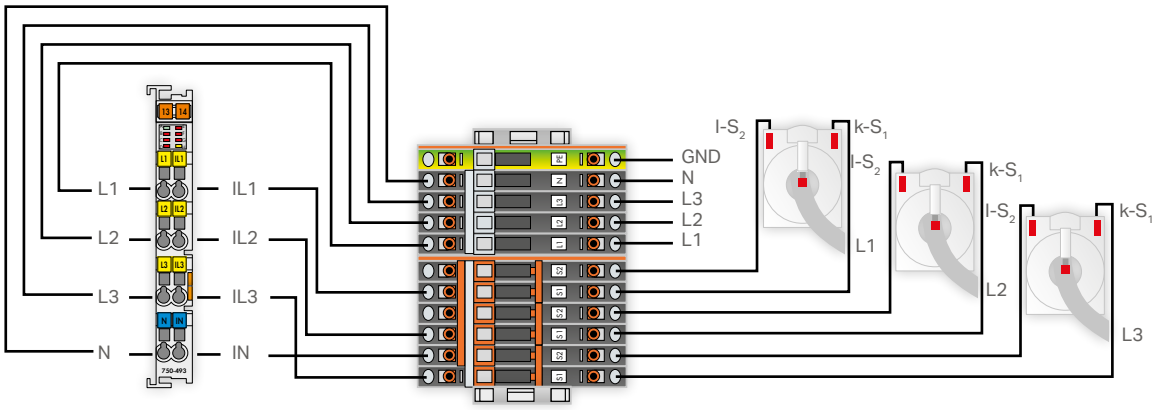
$$P_V = \frac{1^2 \times 2 \times 10}{1.5 \times 56} \text{ VA} = 0.24 \text{ VA}$$

Example:
A 1 amp or 5 amp current transformer is used, with an ammeter on the secondary circuit, at a distance of 10 m between the transformer and the measurement device.

Free software download at:
www.wago.com/configuration-software

Terminal Block Assemblies for WAGO Current Transformers and WAGO Voltage Taps

With a *pico*MAX® Pluggable Connector



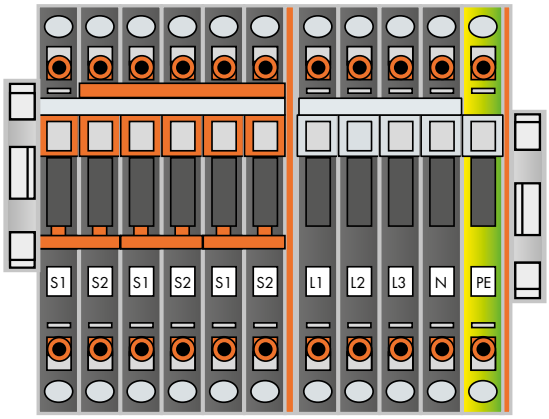
3-Phase Power Measurement Module, 750 Series

Terminal Block Assembly (2007 Series) for Current Transformers and Voltage Taps

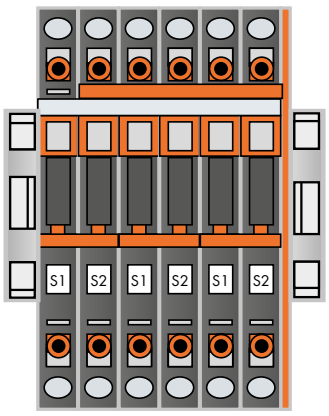
Current Transformers, 855 Series

Suitable for 1 A (750-493), 5 A (750-493/000-001) 1 A (750-494), 5 A (750-494/000-001)

Pre-assembled terminal block assembly for easily connecting and short-circuiting current transformers; suitable for 3-Phase Power Measurement Modules (750-493 and 750-494)



Compact terminal block for current transformer circuit, 2007-8873
Connection option for current and voltage, including star point jumper

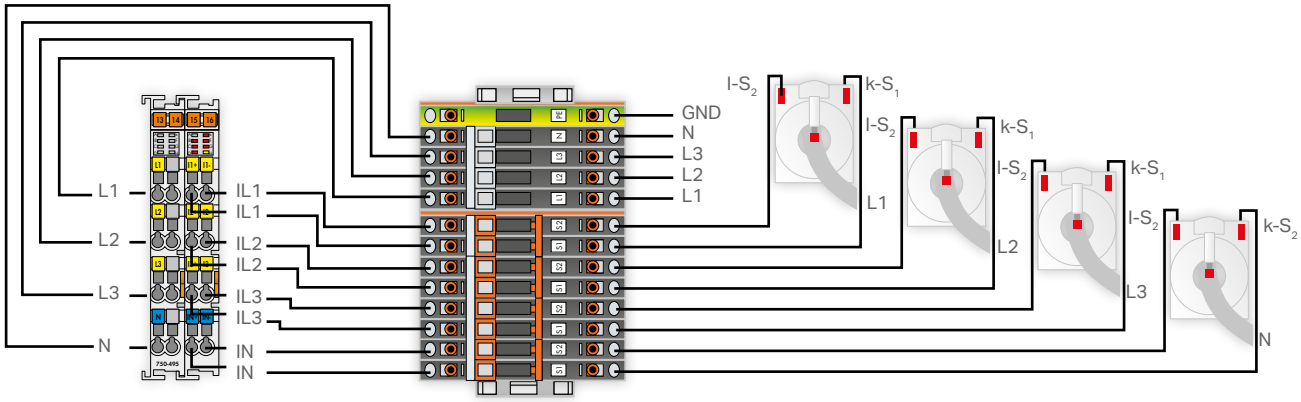


Compact terminal block for current transformer circuit, 2007-8875
Connection option for current and voltage, including star point jumper

Watch the video to learn more

Your Benefits:

- Star point jumper
- Easy and clear wiring
- Short-circuiting of current transformers
- Test sockets for control measurements
- Visible current and voltage path separation



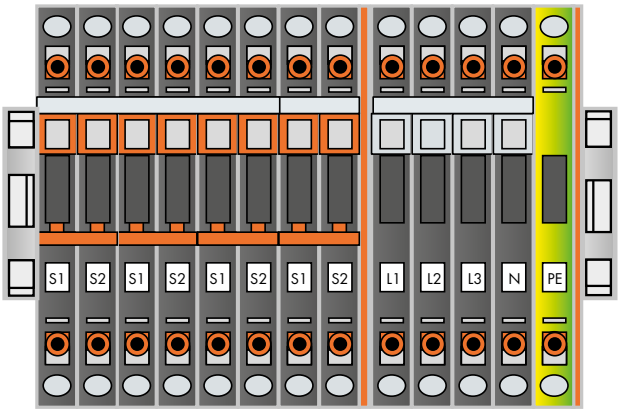
3-Phase Power Measurement Module, 750 Series
Alternative: 2857-570 3-Phase Power Measurement Module

Terminal Block Assembly (2007 Series) for Current Transformers and Voltage Taps

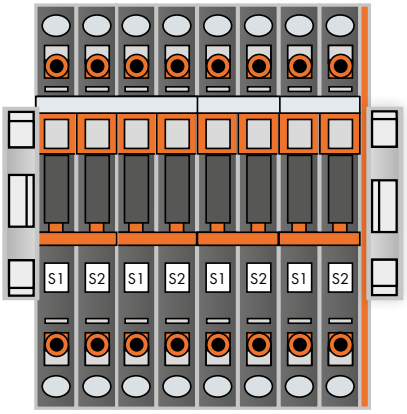
Current Transformers, 855 Series

Suitable for 1 A (750-495), 5 A (750-495/000-001) 1 A (2857-570/024-001), 5 A (2857-570/024-005)

Pre-assembled terminal block assembly for easily connecting and short-circuiting current transformers; suitable for 3-Phase Power Measurement Modules (750-495, 2857-570/000-001 and 2857-570/000-005)



Compact terminal block for current transformer circuit, 2007-8874
Connection option for current and voltage



Compact terminal block for current transformer circuit, 2007-8877
Connection option for current

WAGO Current and Voltage Taps

The 2-in-1 Solution

Combining a current transformer and voltage tap, this ingenious solution can be quickly and easily mounted in the jumper slot of WAGO's 285 Series 2-Conductor Through Terminal Blocks. This combination is the perfect fit for any successful energy management plan.

Your Benefits:

- Same overall width as 2-conductor through terminal blocks
- Easy installation – simply insert the tap into the jumper slot of the 2-conductor through terminal blocks
- Current transformer can be short circuited via S1 and S2 using a jumper (2000-402)
- Safe protection in case of overload and short circuit via integrated fuse with indicator
- Clear identification via WAGO's marking options
- UL certified

Output – Voltage
- Redundant design

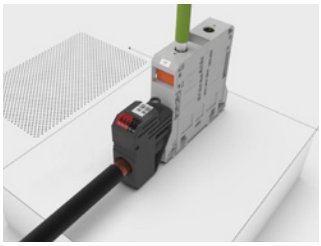
Output – Current
- Connecting the energy measurement device (1 A)
- Short-circuiting the current transformer
- Star point jumper

Circuit Protection

Marking Options
- TOPJOB® S Marking Strips
- WMB Inline Markers

Feedthrough for Primary Conductors

Watch the video to learn more.



Feedthrough for primary conductors

Integrated fuse

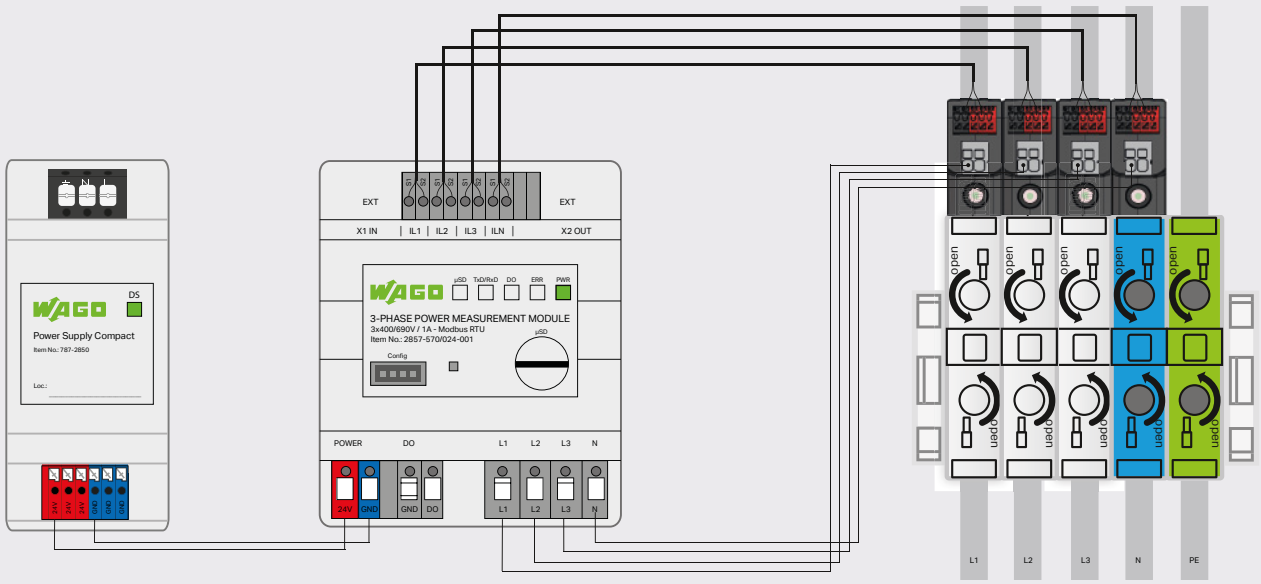
Installation via jumper slot

Marking option

Technical Data

Product			
			
Item number	**855-0501 / 150-000**	**855-0951 / 250-000**	**855-1851 / 350-000**
Feedthrough for measurement conductor	ø 12.0 mm	ø 16.0 mm	ø 21.5 mm
Primary rated current I_{pri}	150 A	250 A	350 A
Secondary rated current I_{sec}	1 A		
Accuracy class	0.5 (per EN 61869-2)		
Rated power	0.2 VA (8.0 m cable length for conductors up to 1.5 mm²/16 AWG)		
Rated voltage	400 VAC		
Fuse (voltage path)	F2 A, 450 V, 70 kA, 5 x 25 mm		
Operating temperature	-25 … +70 °C		
Product standard	EN 61869-2, EN 60947-7-3, IEC 60068-2-6		
Suitable for 2-conductor through terminal blocks	50 mm² (1/0 AWG)	95 mm² (4/0 AWG)	185 mm² (350 kcmil)
For DIN-rail mounting	285 - 150	285 - 195	285 - 1185
	285 - 154	285 - 194	285 - 1184
With mounting flanges	285 - 141	285 - 181	285 - 1161
	285 - 144	285 - 184	285 - 1164

Application Example



Power Supply, 787-2850

3-Phase Power Measurement Module, 2857-570/000-001

Supply

WAGO Rogowski Coils

For Quick, Easy Retrofitting of Existing Systems

Your Benefits:

- Rated insulation voltage: 1000 V Cat. III / 600 V Cat. IV
- Accuracy class 1 per EN 61869-2
- Protection type: IP65
- Surrounding air temperature: −40 … +80 °C
- UL certified

Watch the video to learn more.

Image	Description	Cable Length		Feedthrough for Measurement Conductor
	RC-070 Rogowski Coil	1.5 m		Ø 70 mm
		4.5 m		
	RC-125 Rogowski Coil	1.5 m		Ø 125 mm
		4.5 m		
	RC-175 Rogowski Coil	1.5 m		Ø 175 mm
		4.5 m		

* *The specifications for the primary rated current refer to a combination with WAGO's modules (857-552 and 750-495/000-002) and 2857-570/000-000.
Rogowski technology allows the coils to measure a wide primary current range of up to 10000 A without losing accuracy, because there are no saturation effects wit

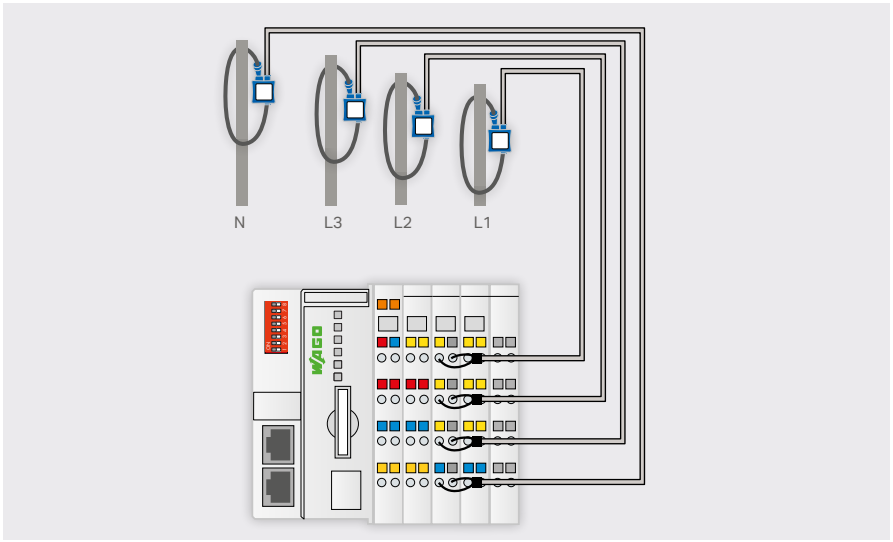
Bayonet connector:
Robust and durable

Fixing lugs:
Quick and easy mounting with cable ties

Lock-out seal:
Greater security via sealable bayonet lock

Easy to Use:

- Rogowski coil diameter: 70, 125 or 175 mm
- Length of signal line: 1.5 m or 4.5 m
- Sealable bayonet connector
- Anchor points for cable ties



Direct connection of Rogowski coils to the 3-Phase Power Measurement Module (750-495/000-002 or 2857-570/000-001)

Primary Rated Current*	Output Signal	Accuracy Class**	Item Number	EAN Number
4000 AAC	22.5 mV / kA at 50 Hz	0.5	**855-9150/2000-0701**	4055143419185
			855-9450/2000-0701	4055143419239
4000 AAC	22.5 mV / kA at 50 Hz	0.5	**855-9150/2000-1251**	4055143419208
			855-9450/2000-1251	4055143419215
4000 AAC	22.5 mV / kA at 50 Hz	0.5	**855-9150/2000-1751**	4055143419192
			855-9450/2000-1751	4055143419222

th this technology.

**Per EN 61869-2

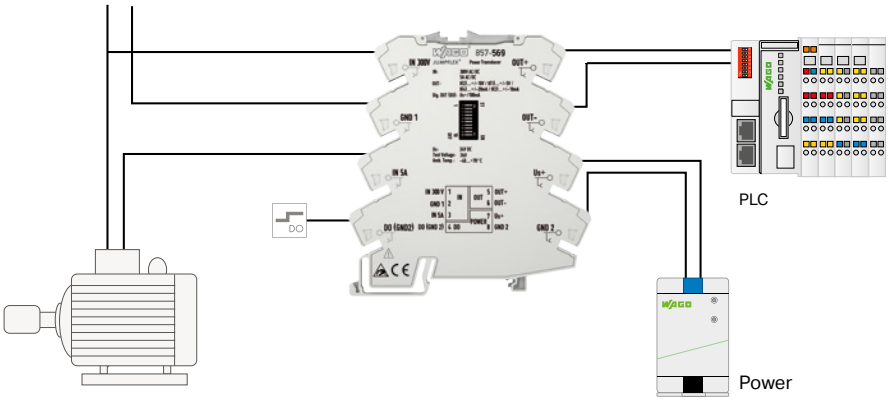
WAGO Current/Voltage Signal Conditioners and Power Measurement Modules

Besides current and voltage signal conditioners which record DC and AC currents and voltages, this impressive range also includes a power measurement module that can measure current and voltage in parallel, convert them to power and output them as an analog standard signal. Additionally, WAGO's signal conditioner for Rogowski coils offers a solution for retrofitting existing systems. Thus it is not necessary to disconnect the live conductor.

Your Benefits:

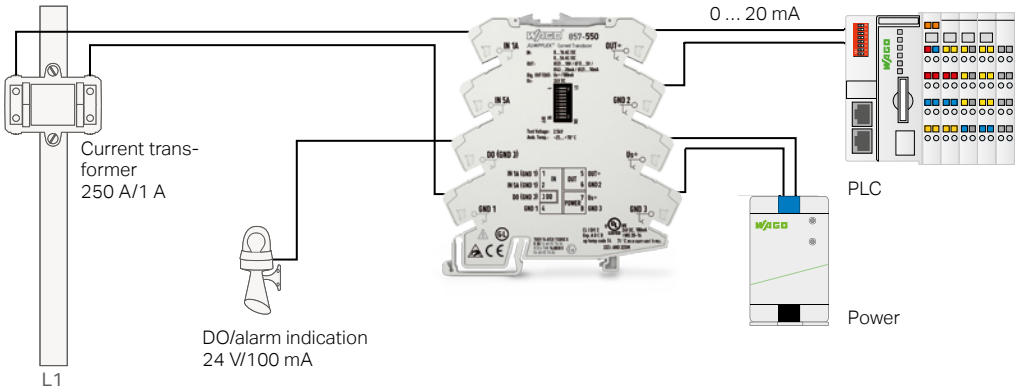
- Signal acquisition of DC and AC voltages up to 300 VAC/VDC using modules that are just 6 mm wide
- AC currents up to 4000 A via Rogowski coil
- Switchable filter function to prevent signal interference
- A digital signal output (DO) reacts to freely configurable measurement range limits (this allows use as a threshold value switch – with activation/deactivation delay)

Application Examples



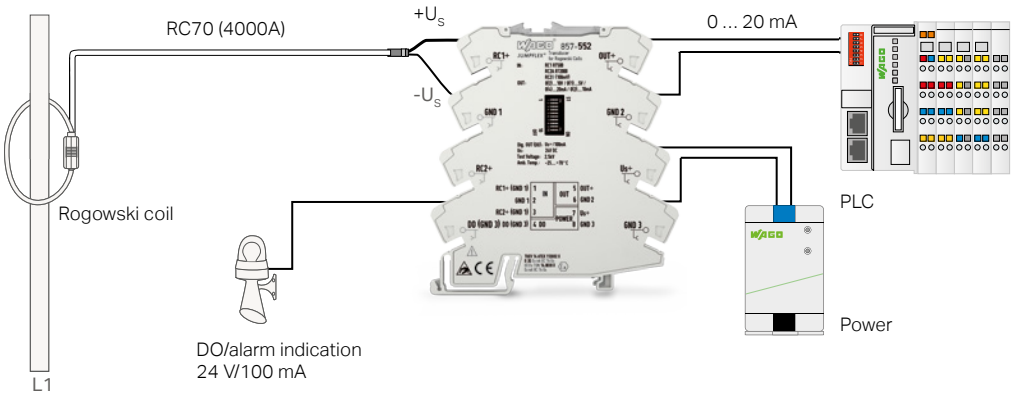
Power Measurement Module, 857-569

1-phase power measurement



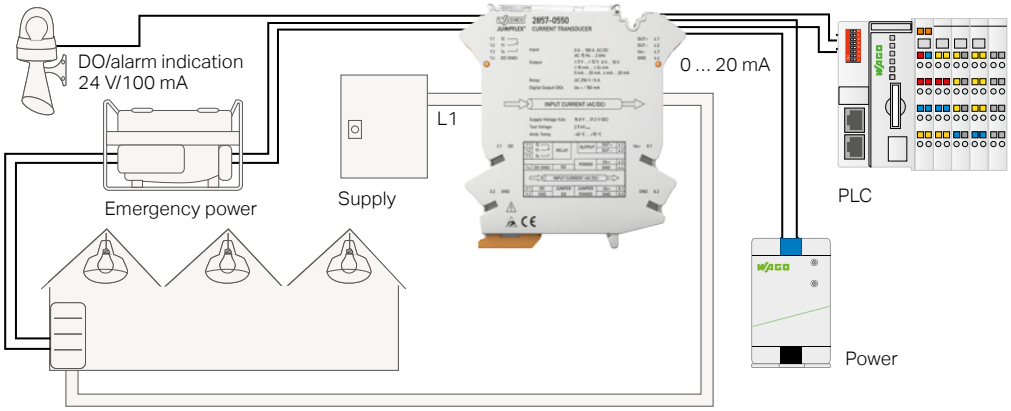
Current Signal Conditioner, 857-550

Current measurement via plug-in current transformer



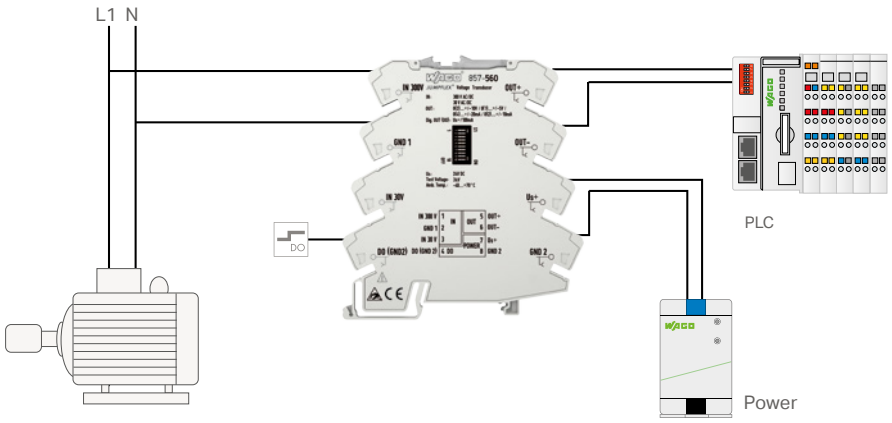
Rogowski Signal Conditioner, 857-552

Current measurement via Rogowski coils



Current Signal Conditioner, 2857-550

Light monitoring

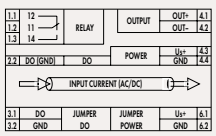
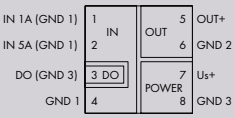
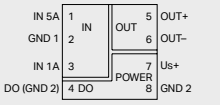
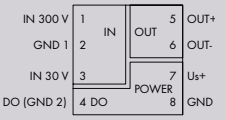
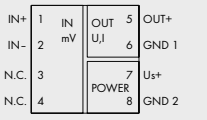


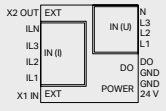
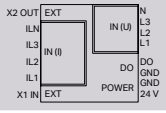
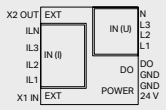
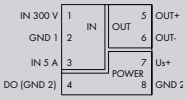
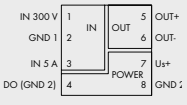
Voltage Signal Conditioner, 857-560

Voltage Measurement

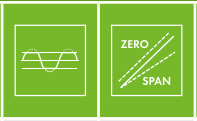
Technical Details

WAGO Current and Voltage Signal Conditioners

	Description	Image	Circuit Diagram	Input			Output	
Current and Voltage Signal Conditioners	Current and Voltage Signal Conditioners			A	V		A	V
	Through-Hole Current Signal Conditioner			100 A AC/DC			0 … 10 mA 2 … 10 mA 0 … 20 mA 4 … 20 mA	0 … 5 V 1 … 5 V 0 … 10 V 2 … 10 V
	Current Signal Conditioner			1 A AC/DC 5 A AC/DC (SELV)			0 … 10 mA 2 … 10 mA 0 … 20 mA 4 … 20 mA	0 … 5 V 1 … 5 V 0 … 10 V 2 … 10 V
	Current Signal Conditioner			1 A AC/DC 5 A AC/DC*			0 … 10 mA 2 … 10 mA 0 … 20 mA 4 … 20 mA	0 … 5 V 1 … 5 V 0 … 10 V 2 … 10 V
	Voltage Signal Conditioner			300 V AC/DC			0 … 10 mA 2 … 10 mA 0 … 20 mA 4 … 20 mA	0 … 5 V 1 … 5 V 0 … 10 V 2 … 10 V
	Millivolt Signal Conditioner				0 … 200 mV 0 … 1000 mV	±100 mV	0 … 10 mA 2 … 10 mA 0 … 20 mA 4 … 20 mA	0 … 5 V 1 … 5 V 0 … 10 V 2 … 10 V

	Description	Image	Circuit Diagram	Input			Output	
Power Measurement Modules	Power Measurement Modules			A	V		A	V
	3-Phase Power Measurement Module; 1 A; Modbus RTU			1 AAC	U_{LN} 400 VAC U_{LL} 690 VAC			
	3-Phase Power Measurement Module, 5 A, Modbus RTU			5 AAC	U_{LN} 400 VAC U_{LL} 690 VAC			
	3-Phase Power Measurement Module RC, Modbus RTU			22.5 mV/kA (Rogowski coil)	U_{LN} 400 VAC U_{LL} 690 VAC			
	Power Measurement Module			300 V AC/DC	5 V AC/DC		±20 mA	±10 V
	Power Measurement Module			8 A AC/DC	500 V AC/DC		±24 mA	±12 V

*When mounted individually, the new module can directly measure up to 6 A AC/DC (setting via WAGO Interface Configuration Software).

	Special Functions					Configuration				Power Supply	Item No.	EAN No.
												
±12 V ±24 mA	x	x	x	x	x	x	x	x	x	24 VDC	**2857-550**	4050821676997
	x	x				x	x	x		24 VDC	**857-550**	4050821226734
±10 V ± 20 mA	x	x				x	x			24 VDC	**857-551**	4050821476917
±10 V ± 20 mA	x	x				x	x	x		24 VDC	**857-560**	4055143481571
		x				x	x	x		24 VDC	**857-819**	4045454665975

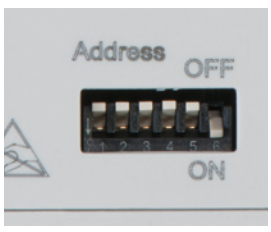
	Special Functions				Configuration					Power Supply	Item No.	EAN No.
												
Modbus RTU	x						x			24 VDC	**2857 - 570 / 024 – 001**	4055143827539
Modbus RTU	x						x			24 VDC	**2857 - 570 / 024 – 005**	4055143827461
Modbus RTU	x						x			24 VDC	**2857 - 570 / 024 – 000**	4055143829199
	x	x			x		x	x		24 VDC	**857-569**	4055143501026
	x	x	x	x			x		x	24 VDC	**2857-569**	4055143907323

Intelligent Current Sensors

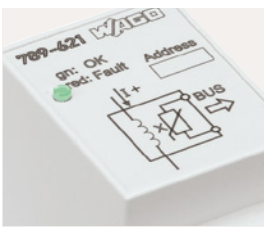
For Monitoring Solar Plants via Modbus Communication

Your Benefits:

- Wide measurement range for measuring AC and DC current
- Measure line and sum currents for perfect system monitoring
- Easily guide a live conductor through current sensor
- Quickly mount to DIN-rail
- UL certified

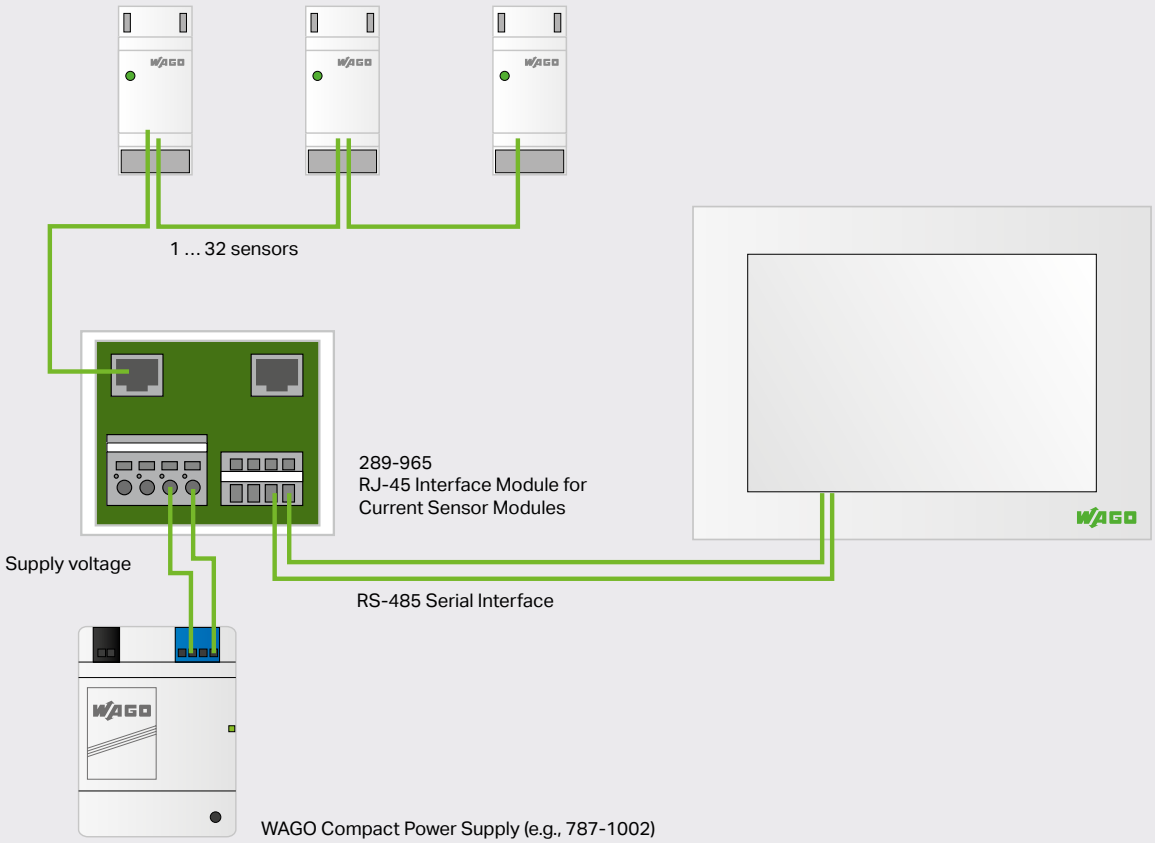


Addressing



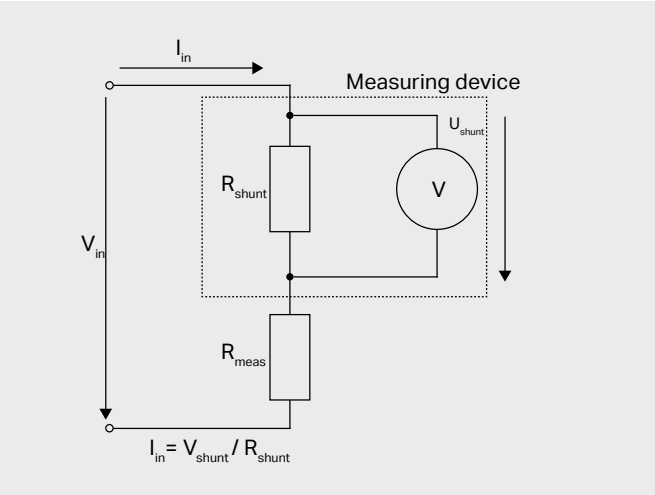
Status indicator

Connection to a Control Panel

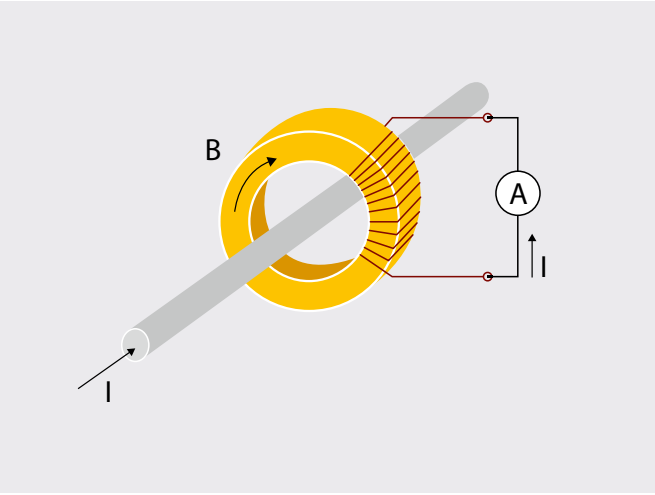


			
Measurement range	0 ... 80 ADC	0 ... 140 ADC	0 ... 50 A_{rms} AC
Transmission error	≤ 0.5 % of upper-range value	≤ 0.5 % of upper-range value	≤ 0.5 % of upper-range value
Power supply	12 ... 34 V (via RJ-45)	12 ... 34 V (via RJ-45)	12 ... 34 V (via RJ-45)
Feedthrough	15 mm (for power cable)	15 mm (for power cable)	15 mm (for power cable)
Interface	RS-485	RS-485	RS-485
Protocol	MODBUS over serial line	MODBUS over serial line	MODBUS over serial line
Addressing	1 ... 32	1 ... 32	1 ... 32
Max. length of bus line	≤ 1200 m	≤ 1200 m	≤ 1200 m
Item number	**789-620**	**789-621**	**789-622**

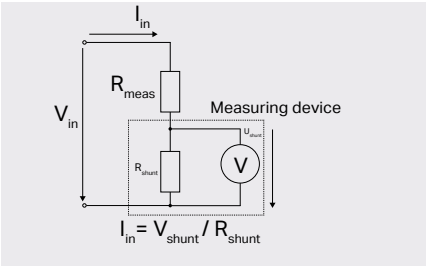
Measurement Methods



High-side method



Transformer principle

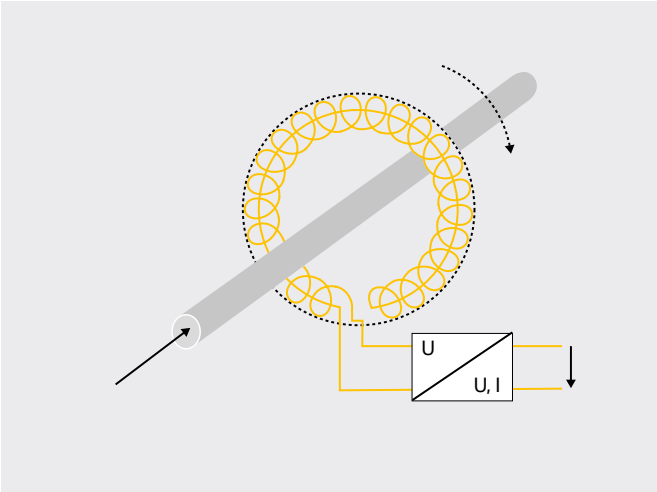


Low-side method

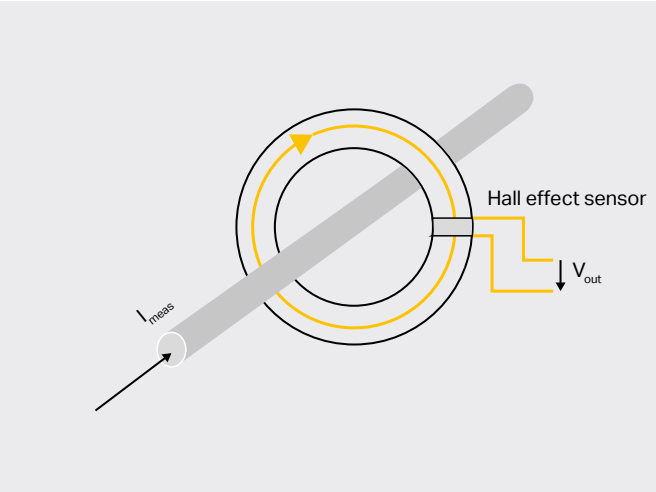
Shunt Measurement (AC/DC)
Current measurement is performed using a low-ohm resistor (shunt), which is connected in parallel to a voltmeter. The current is proportional to the current measured at the shunt resistor, I = U/R.

The shunt can be located upstream or downstream of the load (high-side/low-side method). WAGO products are equipped for both methods, giving users the freedom to decide where the conductor section should be disconnected. In addition to DC and AC currents, shunt measurements are also suitable for measuring superimposed signals (DC + AC). Accuracies of 0.1% or better can be achieved. WAGO's 855 Series Plug-In Current Transformers with a predefined division ratio can be used to expand the measurement range for pure AC measurements.

Shunt Measurement in Combination with Plug-In Current Transformer (AC)
Plug-In Current Transformers are used with higher measurement currents. They function on the transformer principle and expand the range of an existing measurement system (usually a shunt transformer). The number of secondary windings reflects the fixed setting of the division ratio. The electrically isolated output AC is proportional and in phase with the input AC. The measurement error typically lies below 1%.



Rogowski coil



Hall effect sensor

Rogowski Coil (AC)
A closed-air coil, i.e., coil without iron core, is applied around the conductor that will be measured. The AC current flowing through the conductor induces a proportional voltage into the Rogowski coil. The output voltage is amplified and conditioned. A measurement error of less than 2% and a response threshold of only a few amps guarantee straightforward measurement of high to very high AC currents.

Hall Effect Sensors (AC/DC)
A soft, magnetic core is wrapped around the conductor. The core has a small air gap in which the Hall effect sensor is located. A magnetic flux is generated in the ring-shaped core by the current flowing through the conductor. The magnetic flux also flows through the Hall effect sensor, which outputs a voltage signal proportional to the current measured. This signal is prepared and forwarded for processing. Using the Hall method, different signals (AC/DC) and measurement ranges can be mapped, depending on the design. Measurement accuracy lies between 0.5% and 1%.

Measurement Method	Advantage	Application Areas
Shunt	• Exceptional accuracy • Suitable for DC and AC currents	• Integration into control and regulation systems • Process and energy technology
Shunt + current transformer	• Suitable for higher AC currents • Potential-free measurement	• Installations and systems technology • Network monitoring and analysis
Hall effect	• Potential-free measurement • For higher currents • DC and AC versions	• PV systems and general energy technology • Control processing of several individual systems

Accuracy Requirement per EN 61869

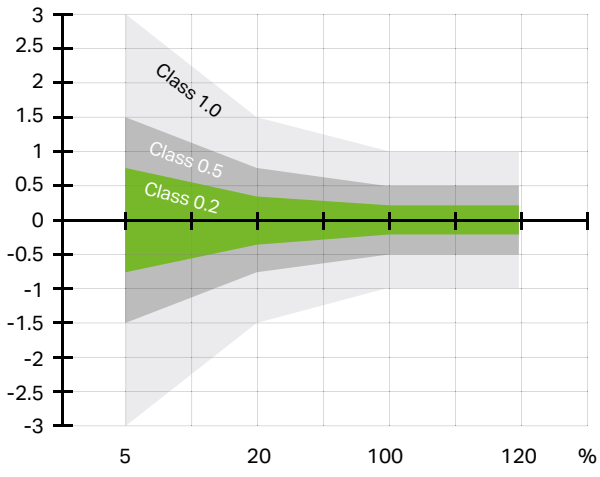
Current transformers are divided into classes according to their accuracy. According to DIN EN 61869-2 (Instrument transformers – Part 2: Additional requirements for current transformers), the extensions are 120% for 0.1, 0.2, 0.5, 1; 3; 5; 0.1S, 0.2S, 0.5S and in classes 0.1, 0.2, 0.5, 1, 3. The accuracy class is composed of an error curve of the current and angle error. For example, the accuracy class describes measurement accuracy of +/−1% of the rated current, but that is only partially correct. Accuracy classes require a measurement not only at 100% of the rated current, but also at 5%, 20% and 120% of the nominal primary current. Furthermore, phase shift criteria must be taken into account for identical primary nominal currents.

Both criteria must be met to ensure class accuracy of 0.2, 0.5 or 3.

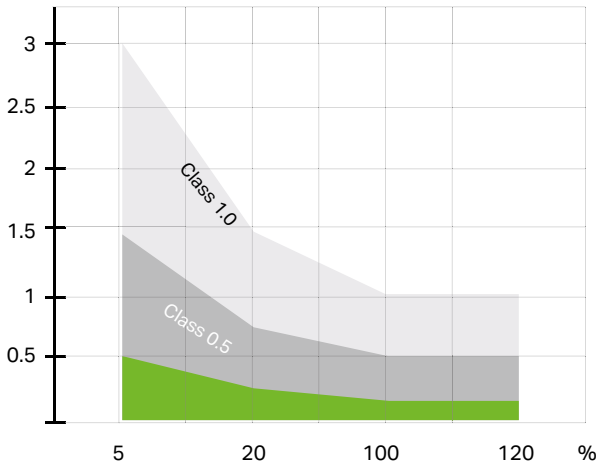
Accuracy class	Transmission measurement error, ± % for current (% of rated current)					Phase shift for current (% of rated current)							
	5	20	50	100	120	Minutes (±)	Degrees (°)	Minutes (±)	Degrees (°)	Minutes (±)	De-grees (°)	Minutes (±)	Degrees (°)
						5		20		100		120	
0.1	0.4	0.2		0.1	0.1	15	0.25	8	0.13	5	0.08	5	0.08
0.2	0.75	0.35		0.2	0.2	30	0.50	15	0.25	10	0.17	10	0.17
0.5	1.5	0.75		0.5	0.5	90	1.50	45	0.75	30	0.50	30	0.50
1	3	1.5		1	1	180	3.00	90	1.50	60	1.00	60	1.00
3			3		3								

Limiting values for ratio errors and phase shift for measurement of current transformers (accuracy classes 0, 1 ... 3)

Transmission Measurement Error (%)



Phase Shift (°)



Example

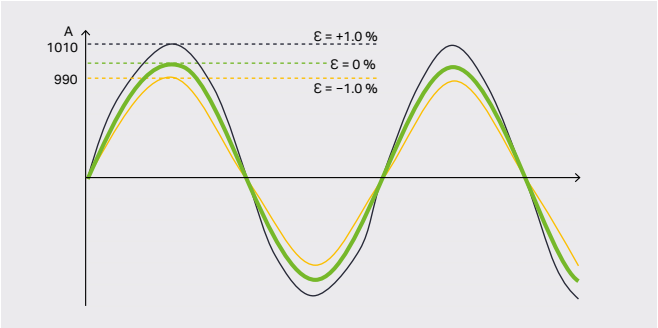
Current transformer with accuracy class 1, at 1000 A primary current, 50 Hz

Current transformer at 100%, with rated current
1000 A x 1.00 = 1000 A

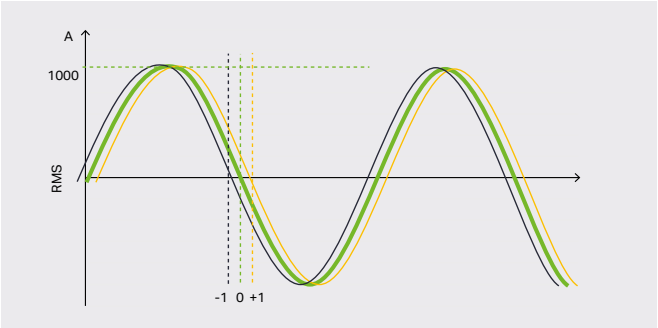
The max. permissible transmission measurement error is ± 1%.
+1% = 1010 A/−1% = 990 A

The maximum permissible phase shift is ± 1.0 °.

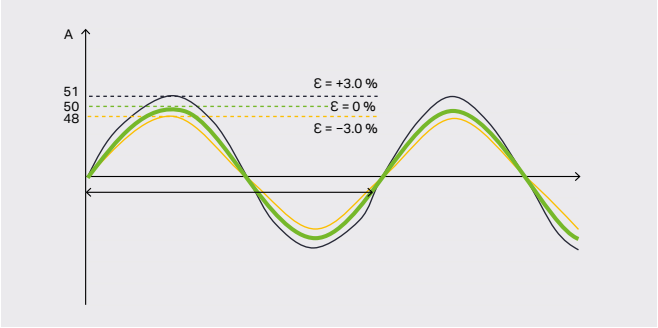
Transmission Measurement Error for 100% I_{Pr}



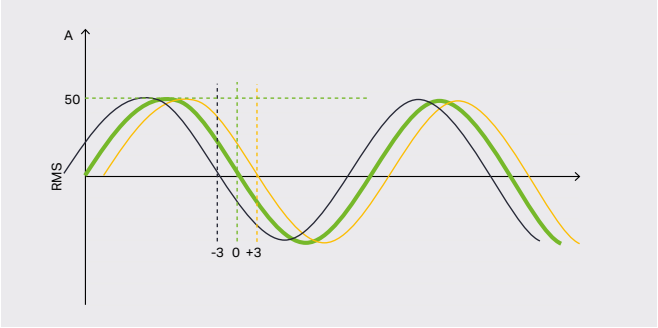
Phase Shift (°) for 100% I_{Pr}



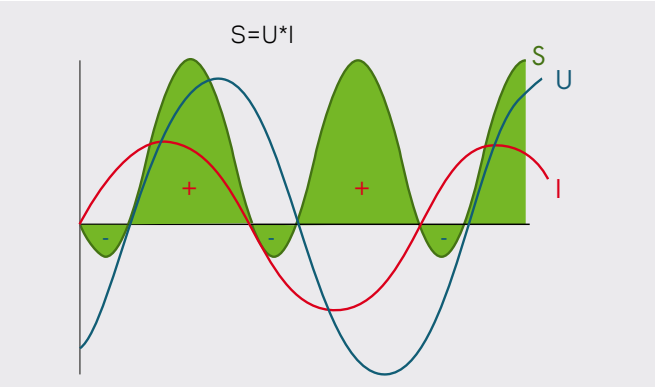
Transmission Measurement Error for 5% I_{Pr}



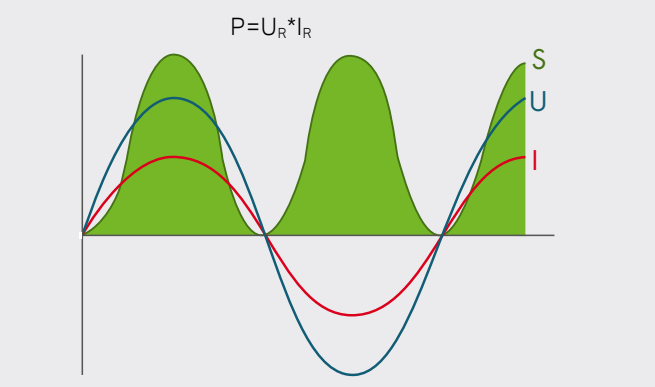
Phase Shift (°) for 5% I_{Pr}



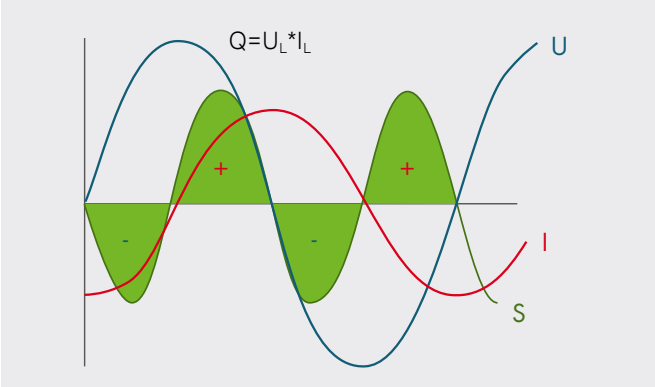
Glossary



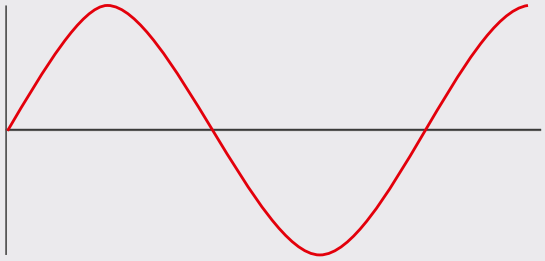
Apparent Power S
Apparent power (S) is the total power of a transmission network. It is composed of active power (P) and reactive power (Q). Positive apparent power, which is in the interest of the consumer, means that the power is drawn from the grid. Negative apparent power, however, means that power is fed back into the grid.



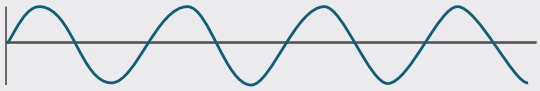
Active Power P
The active power (P) is the power actually consumed. It has no phase shift between current and voltage and relates to a resistive load. For an alternating voltage, the active power results from the multiplication of the RMS values for current and voltage.



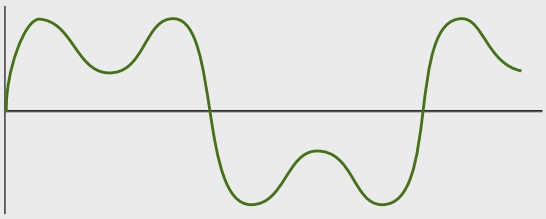
Reactive Power Q
Reactive power (Q) refers to a load on the power grid which acts against the power flowing from the producer to the consumer. Reactive power is the product of voltage and current flowing through a reactance. Reactive power is generated by any device that is connected to an AC grid. All electrical equipment generates an electromagnetic field when voltage is applied. The magnetic field is constantly being increased and decreased by the alternating voltage. The energy created when the field is being decreased is fed back into the power grid, increasing the resistance to the current flow.



Fundamental frequency, 50 Hz



Third harmonic (150 Hz)



The addition creates a non-sinusoidal wave form

Harmonics

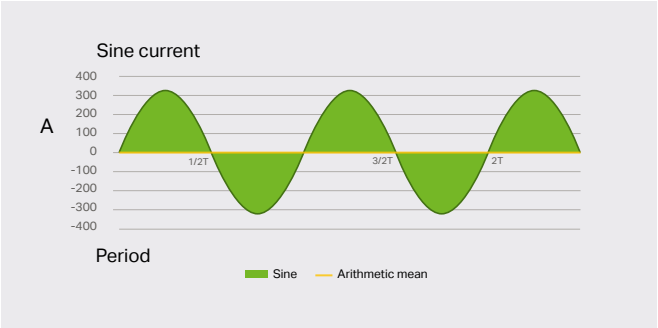
Harmonics are currents with frequencies that are multiples of the 50 Hz fundamental frequency. The harmonic degree is defined as the relationship between harmonic and fundamental frequency.

Harmonics are created by devices with non-linear characteristic curves (e.g., transformers, rectifiers, televisions, computers and halogen lighting). The non-sinusoidal currents of these devices result in a voltage drop in the network impedance, which distorts the network nominal voltage and affects operation.

The impacts of harmonics contamination include: failure of protective devices, thermal overload and premature aging of electrical equipment, loss of mechanical stability, performance loss, measurement errors, higher noise level, hard drive failures, system crashes, operational breakdowns and more.

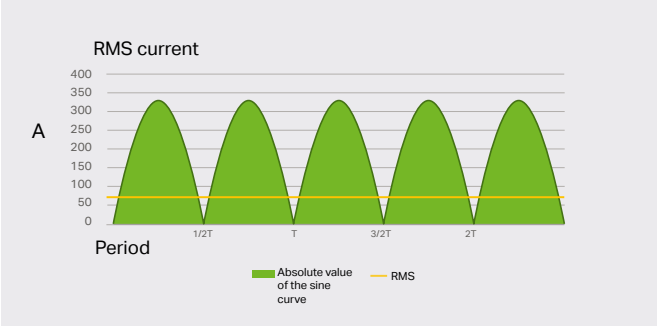
If many devices are operated within a network that generates the third harmonic, it may result in a very high current load of the neutral conductor. Neutral conductor currents caused by harmonics in TN-C power networks travel within the entire equipotential bonding system via water/heating pipes, grounding systems, shields of data lines, video lines and communication systems. This can lead to increased corrosion or the pitting of piping systems. Therefore, continuous harmonics and neutral conductor analysis are required for guaranteeing both the power supply and overvoltage protection, as well as fire safety.

Glossary



Arithmetic Mean
The arithmetic mean (also average) is the sum of all measured values detected, divided by the number of measured values.

For periodic variables (e.g., sine waves), the arithmetic mean is zero. For this reason, it is not meaningful for use with periodic variables, or it only provides information about a possibly present constant. For DC variables, the arithmetic mean corresponds to the average measured value viewed over time.

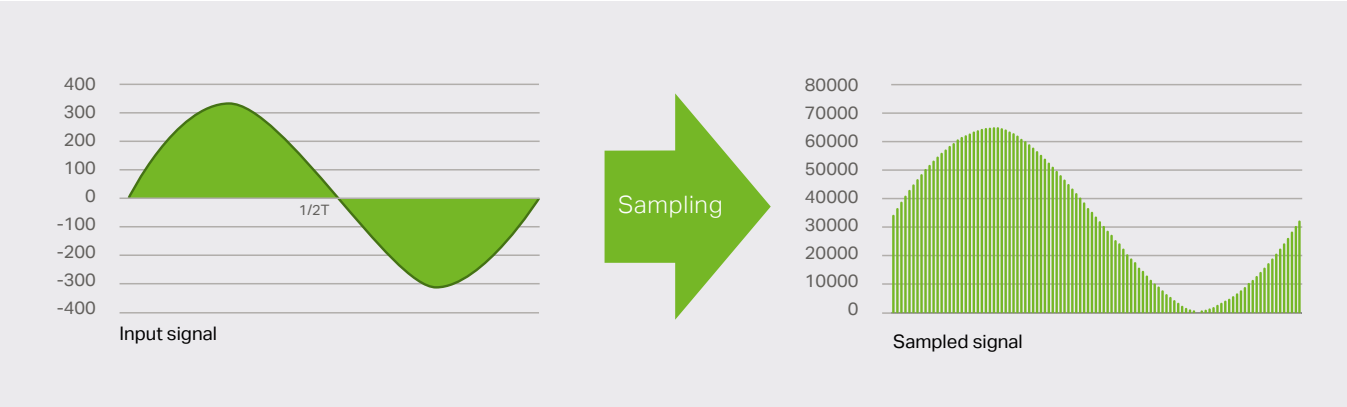


$$I_{rms} \approx \sqrt{\frac{1}{n}\sum_{i=1}^{n} x_i^2}$$

Effective Value
The effective value – RMS (root mean square), also the TRMS (true root mean square) – is the square root of the quotient of the sum of squares for the measured values and number of measured values.

In electrical engineering, the effective value of a periodic quantity corresponds to the effective value of the DC variable. It is characteristic of the power transformed in the consumer.

There is often a distinction between the terms RMS and TRMS. This is based on historical context, so that newer measuring procedures are preferred over form-factor-based methods. In principle, WAGO measures according to the TRMS method. However, no special differentiation is made, as both terms describe the same mathematical equation, and one merely indicates the specific accuracy of the measurement.



Digital Processing
During digital processing, the signal is sampled in very short defined time intervals (digitized). The sampled values are processed and, e.g., converted into an analog standard signal.

Digital processes are becoming increasingly common, since high reproducibility and signal-authentic mapping can be guaranteed due to high sampling rates. In addition, further processing or transmission of the digitized information is easier, less susceptible to interference and more flexible, due to the software.

Analog Processing
During analog processing, the input signal is fed directly to a processing unit and prepared according to a fixed transfer function. The processing uses an operational amplifier (OpAmp) and a few passive components.

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