**Short description:**

The Rogowski Current Signal Conditioner acquires 5–2000A alternating currents in a three-phase system.

The magnetic field produced around each conductor is sensed via three non-contact Rogowski coils and provided as a proportional voltage signal to the signal conditioner. The current signal conditioner adjusts the phase of each of the three voltage signals, converting them into 100mA alternating current signals. These are then transmitted to the 750-494 3-Phase Power Measurement Module.

The 750-494 3-Phase Power Measurement Module within the WAGO-I/O-SYSTEM measures electrical data (e.g., voltages, currents, effective power and energy consumption) in a three-phase supply network. Thus, the user is always able to determine the load condition (imbalance, capacitive components), to optimize consumption and protect machines or systems from damage and breakdowns. Easy installation of Rogowski coils also allows existing systems to be retrofitted without process interruption.

Description	Item No.	Pack. Unit
Signal Conditioner for RT 2000 Rogowski Coils	789-654	1
<b>Accessories</b>		
Rogowski Coil RT 2000, 1.5 m output cable	855-9100/2000-000	3
Rogowski Coil RT 2000, 3 m output cable	855-9300/2000-000	3
3-Phase Power Measurement Module (480V/1A)	750-494	1
<b>Technical Data</b>		
<b>Input:</b>		
Input signal	3 x RT 2000 (2000 A)	
Sensitivity	42.2 mV	
	50 Hz sinus	
<b>Outputs</b>		
Output signal	3 x 100 mA AC	
Rated output current	100 mA AC (for direct connection to 750-494 Phase Power Measurement Module)	
Overcurrent	3000 A (max. 150 mA per output)	

Technical Data	
<b>General specifications:</b>	
Supply voltage range	16.8 ... 32 V
Max. power consumption	4000 mW
Operational indication	LED, green
Degree of protection	IP20
Phase error	< 1°
Max. operating frequency	300 Hz (phase accuracy at 50 Hz only)
Linearity	≤ 0.1 %
Temperature coefficient	≤ 0.1 %/K
Transmission error	< 1.1 %
Response threshold	2 A
<b>Environmental requirements:</b>	
Ambient operating temperature	-25 °C ... +70 °C
Storage temperature	-40 °C ... +85 °C
<b>Safety and protection:</b>	
Test voltage (input/output/supply)	2.5 kV AC, 50 Hz, 1 min.
<b>Connection and type of mounting:</b>	
Wire connection	CAGE CLAMP®
Cross sections	0.08 mm² ... 2.5 mm² / 28 ... 12 AWG
Strip lengths	5 ... 6 mm / 0.2 ... 0.24 in.
<b>Dimensions and weight:</b>	
Dimensions (mm) W x H x L	70 x 55 x 90
Weight	128.3 g
<b>Standards and approvals:</b>	
Conformity marking	CE
UL 508	(pending)

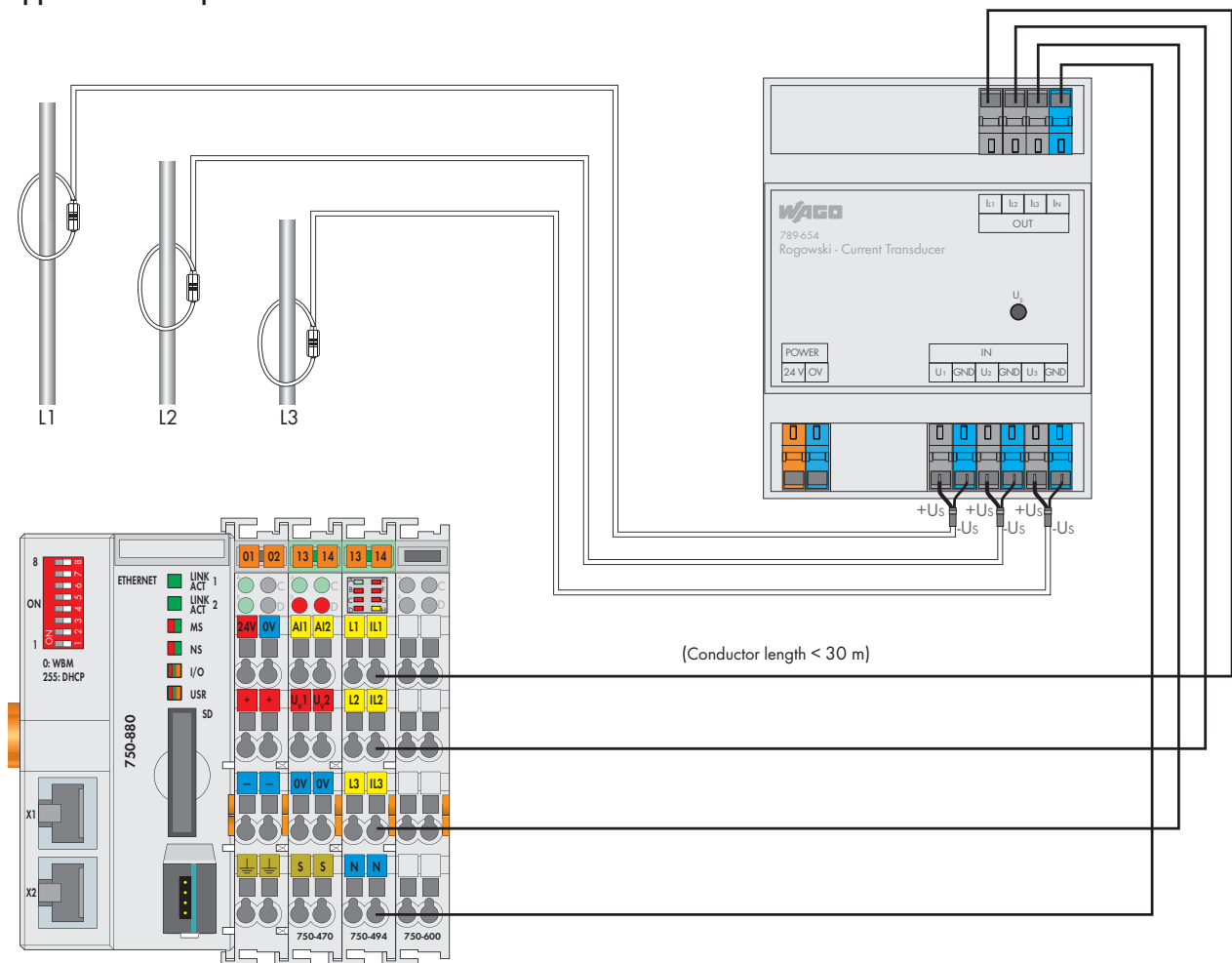
Recommended conductor sizes and lengths:

789-654

Conductor size in mm <sup>2</sup>	Conductor length in m							
	1	2	3	5	10	15	20	25
0.14	0.26	0.51	0.77	1.28	2.55	3.83	5.10	6.38
0.34	0.11	0.21	0.32	0.53	1.05	1.58	2.10	2.63
0.5	0.07	0.14	0.21	0.36	0.71	1.07	1.43	1.79
0.75	0.05	0.10	0.14	0.24	0.48	0.71	0.95	1.19
1	0.04	0.07	0.11	0.18	0.36	0.54	0.71	0.89
1.25	0.03	0.06	0.09	0.14	0.29	0.43	0.57	0.71
1.5	0.02	0.05	0.07	0.12	0.24	0.36	0.48	0.60
2.5	0.01	0.03	0.04	0.07	0.14	0.21	0.29	0.36

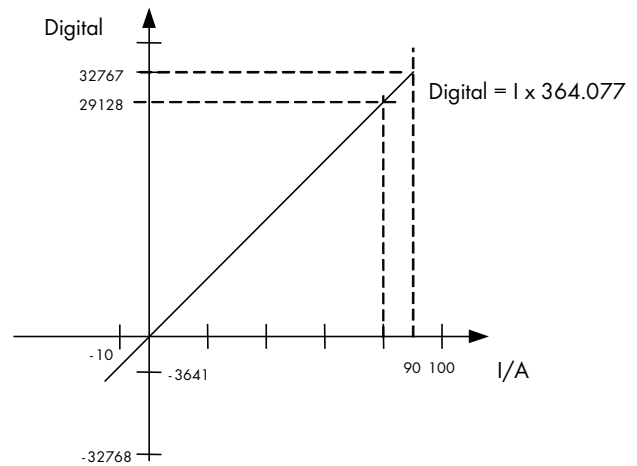
Conductor resistance in  $\Omega$  (total value for both outgoing and return conductors)  
 Recommendation: Select the conductor size so that the conductor resistance is  $\leq 0.3 \Omega$ .

Application example:



## Current Sensor with Bus Connection in DIN-Rail Mountable Enclosure

Measuring range 0 ... 80 A DC



### Short description:

Intelligent current sensor for monitoring solar plants or inverters for DC measurements within a large current measuring range.

Description	Item No.	Pack. Unit
Current sensor with bus connection	789-620	1
<b>Accessories</b>		
Accessories for data and auxiliary power supply		
RJ-45 interface module	289-965	1
RJ-45 interface module with shield (screen) clamping saddle	289-966	1
ETHERNET RJ-45 connector, IP20	750-975	1
<b>Approvals</b>		
Conformity marking	CE	
Standards/specifications	DIN EN 50178; EN 61000-6-2 ; EN 61000-6-4	
<b>General Specifications</b>		
Dimensions (mm) W x H x L	35 x 55 x 90 Height from upper-edge of DIN 35 rail	
Ambient operating temperature	-20 °C ... +70 °C	
Storage temperature	-40 °C ... +85 °C	

Technical Data	
<b>Electrical data:</b>	
Measuring range	0 ... 80 A DC
Voltage supply	12 ... 34 V
Max. current consumption	≤ 8 mA at 24 V
Transmission error	≤ 0.5 % of upper range value (at room temperature)
Temperature coefficient	0.01 % /K
Time frame for polling by master	< 30 ms
Hot plugging	possible
Terminating resistor	150 Ω (can be activated via DIP switch 1)
Status indication	Green: power Red: measured current < -3 A or > 83 A
<b>Mechanical data:</b>	
Power cable feed-through	15 mm
Degree of protection	IP20
<b>Communication:</b>	
Interface	RS-485
Transmission channels	Half duplex 8-bit data, 1 stop bit
Protocols	MODBUS over serial line
Connector	RJ-45
Addressing	1 ... 32
Max. length of bus line	≤ 1200m
Baud rate	19,200 baud
Parity	Even

## RJ-45-Connector Pin Assignment:

789-620

Pin	Function
1	Ub
2	
3	n.c.
4	A (Data+)
5	B (Data-)
6	n.c.
7	GND
8	

## Communication Description:

MODBUS Function	Read Holding Registers (0x03)
Address of Measured Value	0x0004
Data Type Measurement	Integer

Error Numbers:	
id	Description
01	Illegal Function
03	Illegal Data
101	Overflow (Current > +83 A)
102	Underflow (Current < -3 A)

## DIP Switch Adjustability

● = ON

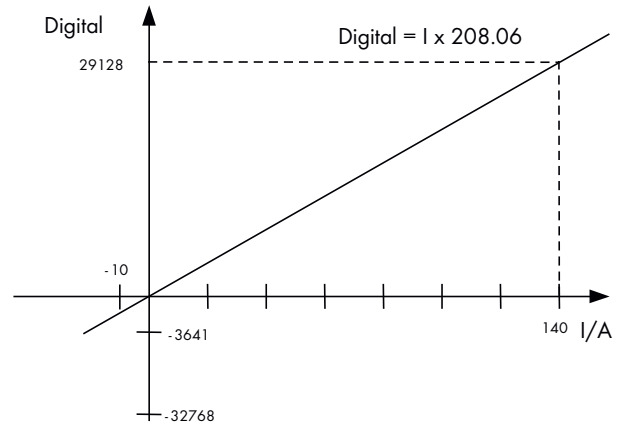
Adress	DIP Switch					
	2	3	4	5	6	
1						
2						●
3				●		
4				●		●
5			●			
6			●			●
7			●	●		
8			●	●		●
9		●				
10		●				●
11		●		●		
12		●		●		●
13		●	●			
14		●	●			●
15		●	●	●		
16		●	●	●		●
17	●					
18	●					●
19	●			●		
20	●			●		●
21	●		●			
22	●		●			●
23	●		●	●		
24	●		●	●		●
25	●	●				
26	●	●				●
27	●	●		●		
28	●	●		●		●
29	●	●	●			
30	●	●	●			●
31	●	●	●	●		
32	●	●	●	●		●

Terminating resistor	DIP Switch 1
-	
150 Ohm	●

**NOTICE:**  
Only set the MODBUS address in the OFF state.

## Current Sensor with Bus Connection in DIN-Rail Mountable Enclosure

Measuring range: 0 ... 140 A DC



### Short description:

Intelligent current sensor for monitoring solar plants or inverters for DC measurements within a large current measuring range.

Description	Item No.	Pack. Unit
Current sensor with bus connection	789-621	1
<b>Accessories</b>		
Accessories for data and auxiliary power supply		
RJ-45 interface module	289-965	1
RJ-45 interface module with shield (screen) clamping saddle	289-966	1
ETHERNET RJ-45 connector, IP20	750-975	1
<b>Approvals</b>		
Conformity marking	CE	
Standards/specifications	DIN EN 50178; EN 61000-6-2 ; EN 61000-6-4	
<b>General Specifications</b>		
Dimensions (mm) W x H x L	35 x 55 x 90	
Ambient operating temperature	-20 °C ... +70 °C	
Storage temperature	-40 °C ... +85 °C	

Technical Data	
<b>Electrical data:</b>	
Measuring range	0 ... 140 A DC
Voltage supply	12 ... 34 V
Max. current consumption	≤ 8 mA at 24 V
Transmission error	0 ... 80 A: ≤ 0.5% of upper range value (at room temperature); 80 ... 140 A: ≤ 1% of upper range value (at room temperature)
Temperature coefficient	≤ 0.05% /K (at ambient operating temperature: -20 °C ... +60 °C); ≤ 0.1% /K (at ambient operating temperature: +60 °C ... +70 °C)
Time frame for polling by master	< 30 ms
Hot plugging	possible
Terminating resistor	150Ω (can be activated via DIP switch 1)
Status indication	Green: power; Red: measured current < -3A or > 143 A
<b>Mechanical data:</b>	
Power cable feed-through	15 mm
Degree of protection	IP20
<b>Communication:</b>	
Interface	RS-485
Transmission channels	Half duplex, 8-bit data, 1 stop bit
Protocols	MODBUS RTU Slave over serial line
Connector	RJ-45
Addressing	1 ... 32
Max. length of bus line	≤ 1200 m
Baud rate	19200 baud
Parity	Even

## RJ-45-Connector Pin Assignment:

789-621

Pin	Function
1	Ub
2	
3	n.c.
4	A (Data+)
5	B (Data-)
6	n.c.
7	GND
8	

## Communication Description:

MODBUS Function	Read Holding Registers (0x03)
Address of Measured Value	0x0004
Data Type Measurement	Integer

## Error Numbers:

id	Description
01	Illegal Function
03	Illegal Data
101	Overflow (Current > +83 A)
102	Underflow (Current < -3 A)

## DIP Switch Adjustability

● = ON

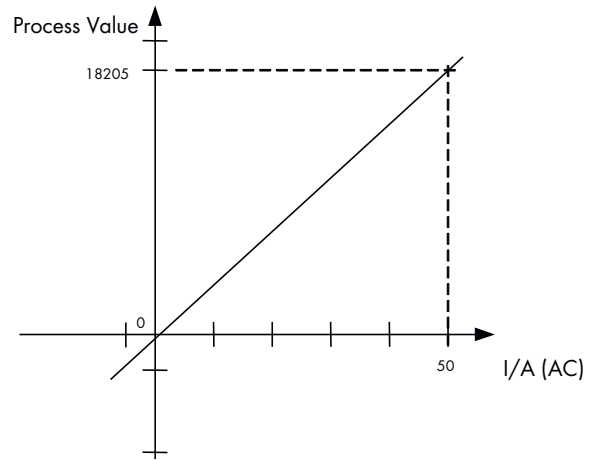
Address	DIP Switch				
	2	3	4	5	6
1					
2					●
3				●	
4				●	●
5			●		
6			●		●
7			●	●	
8			●	●	●
9		●			
10		●			●
11		●		●	
12		●		●	●
13		●	●		
14		●	●		●
15		●	●	●	
16		●	●	●	●
17	●				
18	●				●
19	●			●	
20	●			●	●
21	●		●		
22	●		●		●
23	●		●	●	
24	●		●	●	●
25	●	●			
26	●	●			●
27	●	●		●	
28	●	●		●	●
29	●	●	●		
30	●	●	●		●
31	●	●	●	●	
32	●	●	●	●	●

Terminating resistor	DIP Switch 1
-	
150 Ohm	●

NOTICE:  
Only set the MODBUS address in the  
OFF state.

## Current Sensor with Bus Connection in DIN-Rail Mountable Enclosure

Measuring range: 0 ... 50 A<sub>rms</sub> AC.



### Short description:

Intelligent DIN 35-rail mount current sensor for monitoring AC currents.

Description	Item No.	Pack. Unit	
Current sensor with bus connection	789-622	1	
<b>Accessories</b>			
Accessories	Description	Item No.	Pack. Unit
<b>Accessories for data and auxiliary power supply</b>			
	RJ-45 interface module	289-965	1
	RJ-45 interface module with shield (screen) clamping saddle	289-966	1
	ETHERNET RJ-45 connector, IP20	750-975	1
<b>Approvals</b>			
Conformity marking	CE		
Standards/specifications	DIN EN 50178; EN 61000-6-2 ; EN 61000-6-4		
<b>General Specifications</b>			
Dimensions (mm) W x H x L	35 x 55 x 90 Height from upper-edge of DIN 35 rail		
Ambient operating temperature	-20 °C ... +70 °C		
Storage temperature	-40 °C ... +85 °C		

Technical Data	
<b>Electrical data:</b>	
Measuring range	0 ... 50 A <sub>rms</sub> AC
Voltage supply	12 ... 34 V
Max. current consumption	≤ 8 mA at 24 V
Transmission error	typ. 1%, max. 3% of upper range value (at room temperature)
Temperature coefficient	≤ 0.01% /K
Time frame for polling by master	< 30 ms
Hot plugging	possible
Terminating resistor	150 Ω (can be activated via DIP switch 1)
Status indication	Green: Power Red: Measured current > 55 A <sub>rms,eff.</sub>
<b>Mechanical data:</b>	
Power cable feed-through	15 mm
Degree of protection	IP20
<b>Communication:</b>	
Interface	RS-485
Transmission channels	Half duplex, 8-bit data, 1 stop bit
Protocols	MODBUS RTU slave over serial line
Connector	RJ-45
Addressing	1 ... 32
Max. length of bus line	≤ 1200 m
Baud rate	19200 baud
Parity	Even

## RJ-45-Connector Pin Assignment:

789-622

Pin	Function
1	Ub
2	
3	n.c.
4	A (Data+)
5	B (Data-)
6	n.c.
7	GND
8	

## Communication Description:

MODBUS Function	Read Holding Registers (0x03)
Address of Measured Value	0x0004
Data Type Measurement	Integer

## Error Numbers:

id	Description
01	Illegal Function
03	Illegal Data
101	Overflow (Current > +83 A)
102	Underflow (Current < -3 A)

## DIP Switch Adjustability

● = ON

Address	DIP Switch					
	2	3	4	5	6	
1						
2						●
3				●		
4				●		●
5			●			
6			●			●
7			●	●		
8			●	●		●
9		●				
10		●				●
11		●		●		
12		●		●		●
13		●	●			
14		●	●			●
15		●	●	●		
16		●	●	●		●
17	●					
18	●					●
19	●			●		
20	●			●		●
21	●		●			
22	●		●			●
23	●		●	●		
24	●		●	●		●
25	●	●				
26	●	●				●
27	●	●		●		
28	●	●		●		●
29	●	●	●			
30	●	●	●			●
31	●	●	●	●		
32	●	●	●	●	●	

Terminating resistor	DIP Switch 1
-	
150 Ohm	●

NOTICE:  
Only set the MODBUS address in the  
OFF state.