GMC INSTRUMENTS

CAMILLE BAUER

SIRAX BT5500
Programmable multi-function transducer

Description

The SIRAX BT5500 is a programmable multifunctional transducer for measuring parameters in a three-phase 3- or 4-wire AC network. It ensures the conversion of measured values into analog standard signals. The output signals are galvanically isolated from the input signals and the power supply.
It can be parameterized via the RS485 interface with Modbus RTU or via the USB interface with the configuration software. The relay outputs signal the overflow of the selected measured variables and the pulse output can be used to monitor the consumption of active energy.

Properties

- True RMS measurement
- Detection and signaling of incorrect phase sequence
- THD measurement
- Fully onsite programmable input potential (PT) and current (CT) transformer ratio
- Programmable parameters trough the RS485 interface when using Modbus RTU or USB when using the configuration software
- Onsite selectable analog output range
- Diagnostic LEDs
- Fast and easy installation on DIN Rail or onto a wall or in a panel using optional screw hole bracket
- Simple connection through conventional screw type terminals

Features

Measuring Input:
AC Voltage/Current input signal, sine wave or distorted wave form.

Analog Output:
Analog output which can be set between -20mA ... 20mA onsite.
Admissible overflow on analog output: 20% of lower and upper value.

Energy Measurement:
Tetraquadrantic energy measurement (Ep+, Ep-, EqL, Eqc).

Mean Active Power:
Measurement of 15, 30 or 60 minutes mean active power (synchronization by an internal clock or a walking window) with the archiving function of 1000 last samples.

Galvanic Isolation
Transducer output signal are galvanically isolated from the input signal.

Pulse constant of OC type output:
5000 .... 20000 imp./kWh, independently on setting of ratios Ku, Ki

Alarm Indications:
The alarm indication can be set for measured input parameter.

LED Indication:
LED indication for power on, RS485 transmission, reception and alarm switching.

Programmable potential (PT) and current (CT) transformer ratio:
The SIRAX BT5500 can be programmed onsite using RS485 interface or USB port for reading measured parameter and configuration of input/output.

Technical specifications

Input

AC voltage

Nominal input (Un)	100 ... 400 VL-L (3-phase, 3-wire) 57.5 ... 230 VL-N (3-phase, 4-wire)
Measuring range	0 ... 0.05 ... 1.2 of rated value (Un)
Accuracy voltage L-L	±0.5%
Accuracy voltage L-N	±0.2%
Burden	≤ 0.05 VA
Maximum overload	1.2 x Un continuously (480 V max.) 20 x Un for 5 s

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AC current

Nominal input (In)	1 / 5 A
Measuring range	0 ... 1.2 of rated value (In)
Accuracy	±0.2%
Burden	≤ 0.1 VA
Maximum overload	1.2 x In continuously (6 A max.) 10 x In for 5 s

Frequency

Range	47 ... 63 Hz
Accuracy	±0.2%

Auxiliary Supply

Nominal voltage range	85 ... 253 VAC (40 ... 400 Hz) or 90 ... 320 VDC 20 ... 40 VAC (40 ... 400 Hz) or 20 ... 60 VDC
Burden	≤ 10 VA

Power

Active Power range	-1.65 kW ... 1.4 W ... 1.65 kW
Accuracy	±0.5%
Reactive Power range	-1.65 kvar ... 1.4 var ... 1.65 kvar
Accuracy	±0.5%
Apparent Power range	1.4 VA ... 1.65 kVA
Accuracy	±0.5%
Power factor	-1 ... 0 ... 1 (0 Lag ... 1 ... Lead 0) (0 ... 0.1 ... 1.2 In and 0 ... 0.1 ... 1.2 Un) sinusoidal (THD ≤ 8%)
Accuracy	±0.5%
Tangens φ	-1.2 ... 0 ... 1.2 (0 ... 0.1 ... 1.2 In and 0 ... 0.1 ... 1.2 Un) sinusoidal (THD ≤ 8%)
Accuracy	±1%
Cosinus φ	-1 ... 1
Accuracy	±1%
Angle between U and I	-180° ... 180°
Accuracy	±0.5%

Energy

Input active energy	0 ... 99999999.9 kWh
Accuracy	±0.5%
Developed active energy	0 ... 99999999.9 kvarh
Accuracy	±0.5%
Reactive inductive energy	0 ... 99999999.9 kWh
Accuracy	±0.5%
Reactive capacitive energy	0 ... 99999999.9 kvarh
Accuracy	±0.5%
Total harmonic distortion (THD)	0 ... 100% (in the range 10 ... 120% U,I)
Accuracy	±5%

Output

Analog Outputs

Number of analog outputs	0, 2 or 4 programmable outputs
Range for current	-24 ... -20 ... 0 ... +20 ... +24 mA
Maximum load resistance	0 ... 750 Ω (for admissible overflow of 20% on analog output Rload = 0 ... 600 Ω)
Accuracy	0.2%
Responce time	3 s

Relay Outputs

Number of relays	0, 2 or 4 relays, voltageless NO contacts
Load capacity	250 V~ / 0.5 A~

Pulse Output

Energy pulse output	ouput of OC type, passive acc. to EN62053-31
Pulse constant of OC type output	5000 ... 20000 imp./kWh, independently on setting ratios Ku, Ki
Ratio of the voltage transformer Ku	0.1 ... 4000.0
Ratio of the current transformer Ki	1 ... 10000

Communication interface

RS-485, Modbus/RTU

Physics	Via screw terminal, RS-485, max. 1200m
Protocol	Modbus/RTU
Responce time	500 ms
Address	1 ... 247
Mode	8N2, 8E1, 8O1, 8N1
Baud rate	4800, 9600, 19200, 38400 kbits/s
Number of participants	< 32

USB

Physics	USB 1.1 / 2.0
Protocol	Modbus/RTU
Responce time	500 ms
Address	1
Mode	8N2
Baud rate	9600 kbit/s

Environmental conditions

Operating temperature	-10 ... +55 °C
Storage temperature	-30 ... +70 °C
Relative humidity	25 ... 95% (inadmissible condensation)
Preheating time	5 min.
Altitude	< 2000 m

Safety

EMC immunity	acc. to IEC 61000-4-2
EMC emission	acc. to IEC 61000-6-4
Protection class	II (Protection Isolated acc. to EN 61010-1)
Pollution degree	2
Installation category	CATIII
Maximal phase-to-earth voltage	300V (for supply and measurement circuit) 50V (for other circuit)

Isolation between circuits	50Hz,1min. (EN 61010-1) 3110 VDC, All terminals versus ooter surface 3110 VDC, Input versus all other circuit 3110 VDC, Auxiliary supply versus outer surface and all other circuit
Housing protection class	IP40, housing acc. to EN50529 IP20, terminal acc. to EN50529

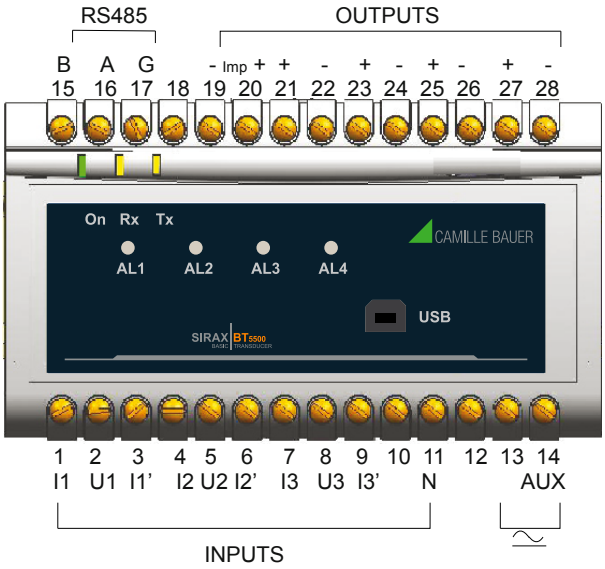
Mechanical properties

Mounting	DIN Rail mounting / wall mounting
Work position	Any
Connectors	Conventional Screw type terminal ≤ 4.0 mm single wire or 2 x 2.5 mm Fine wire
Flammability class	UL94 V-0, self-extinguishing, non-dripping, free of halogen
Dimensions	122.5 x 66.0 x 106.5 mm (w x h x d)
Weight	0.45 kg

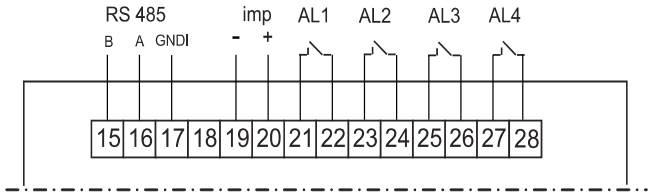
LED indication

LED	State	Indication
ON	Green continuous	Aux Supply healthy condition and calibration ok
Rx	Pulsing	Data reception through RS-485
Tx	Pulsing	Data transmission through RS-485
AL1 ... AL4	Continuous ON	Alarm ON

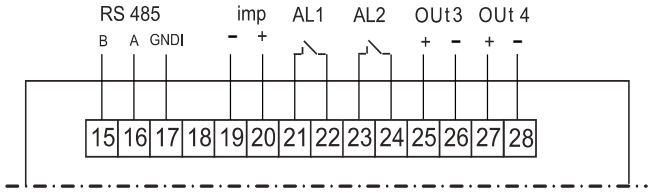
Terminal and connection details



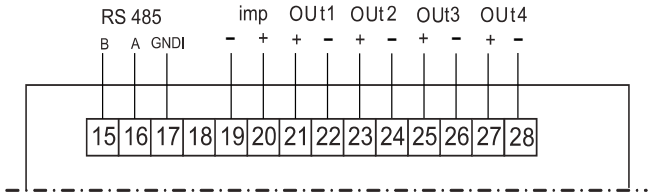
Version without analog outputs 4 relays



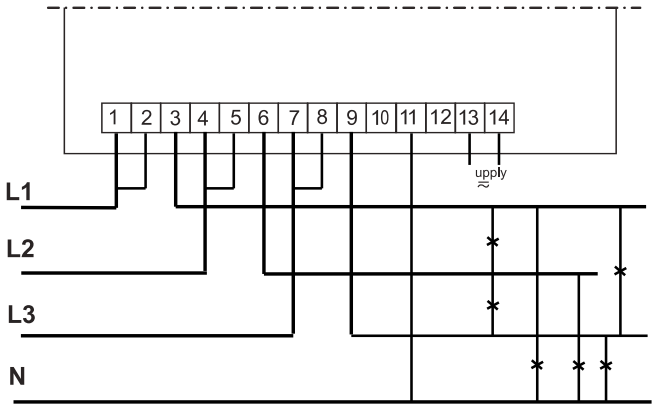
Version with 2 analog outputs 2 relays



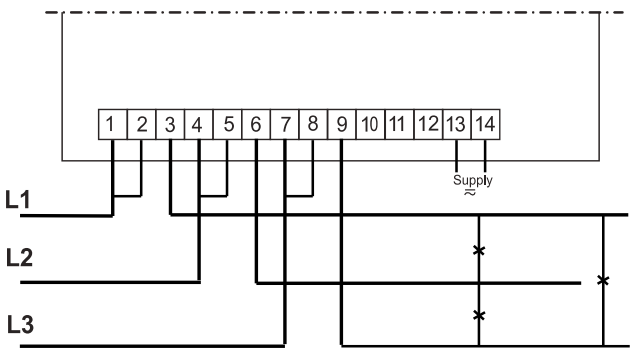
Version with 4 analog outputs without relays



Direct measurement in a four-wire network



Direct measurement in a three-wire network



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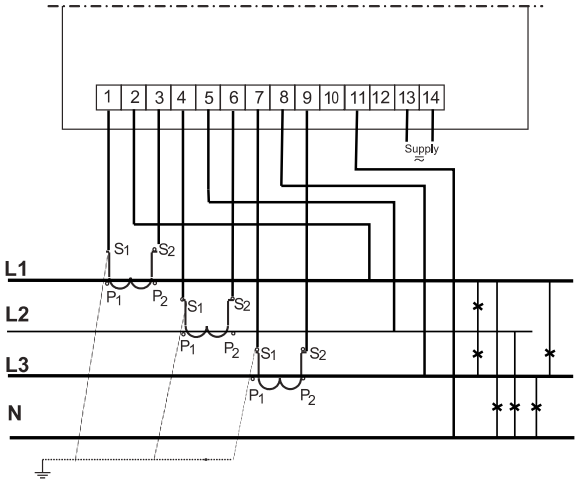
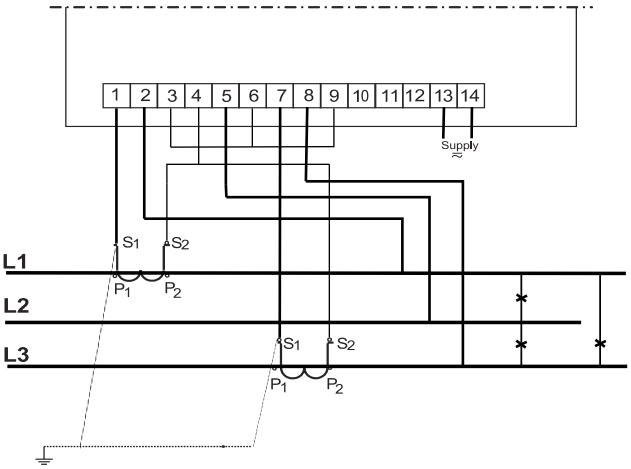
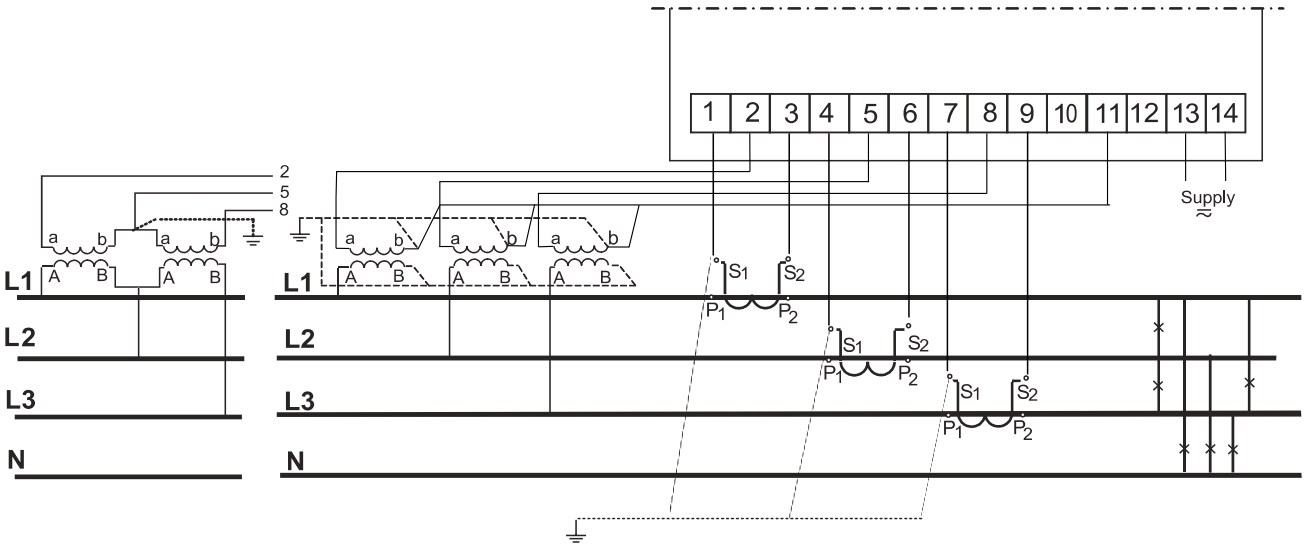
Measurement with the use of current transformer in a four-wire network



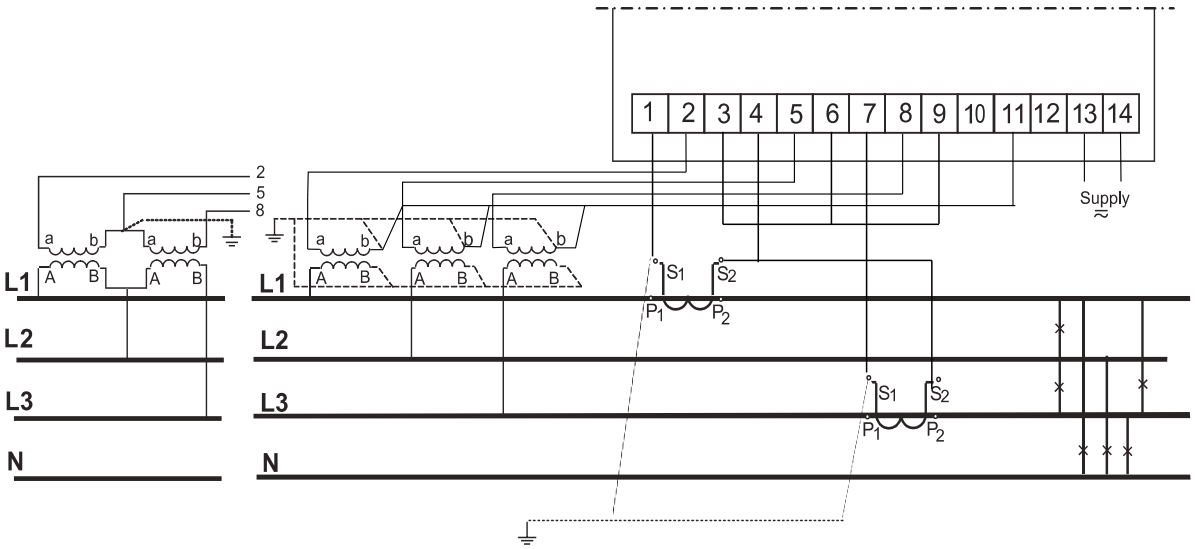
Semidirect measurement in a three-wire network



Indirect measurement with the use of 3 current transformers and 2 or 3 voltage transformers in a four-wire network



Indirect measurement with the use of 2 current transformers and 2 or 3 voltage transformers in a three-wire network



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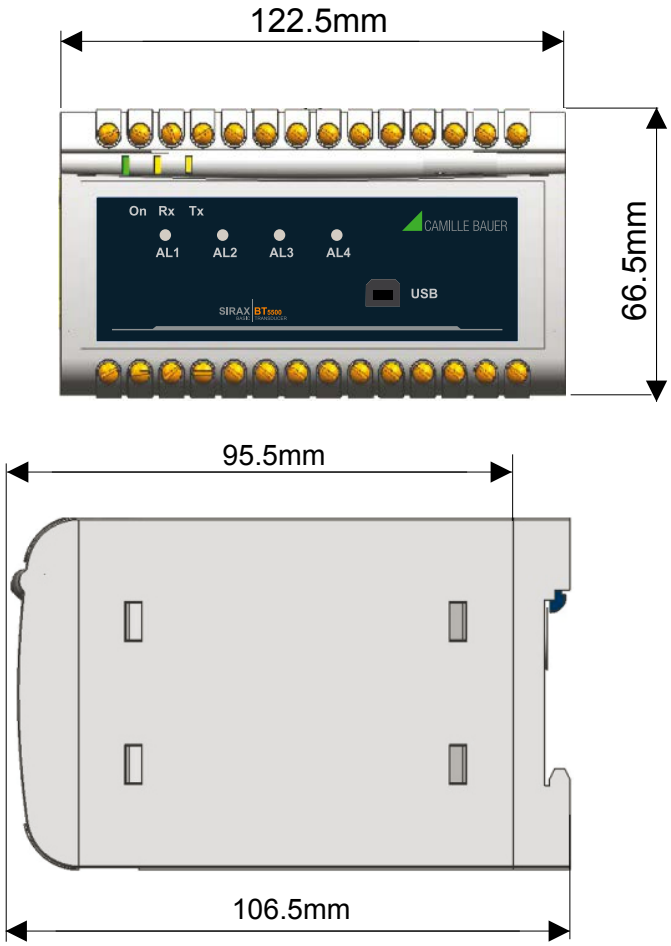
Dimensions

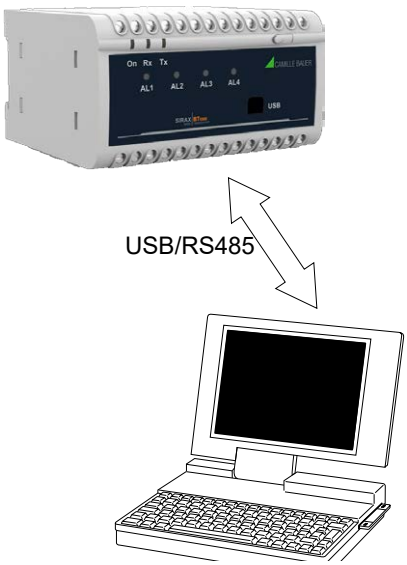


Ordering information

Description		Ordercode
SIRAX BT5500 -		BT5500-
1.	**Current input In**	
	1 A	1
	5 A	2
2.	**Voltage input (phase/phase-to-phase) Un**	
	3 phase 57.7/100 V	1
	3 phase 230/400 V	2
3.	**Supply voltage**	
	85 ... 253 VAC, 90 ... 320 VDC	1
	20 ... 40 VAC, 20 ... 60 VDC	2
4.	**Output type**	
	without analog outputs, 4 relays	1
	2 analog outputs, 2 relays	2
	4 analog outputs, without relays	3
5.	**Load resistance R_L**	
	750 Ohm	1

Programming

The SIRAX BT5500 can be configuraed via software. The transducer has to be connected to the computer through the RS-485 converter, if the communication will be performed using RS-485/Modbus Interface or directly through the USB.



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