

Precision flexible alternating current probes of type **FCP2x21** and **FCP3x21** operate on the principle of Rogowski coil designed to measure alternating current up to 3 000 A, 6 000 A, 10 000 A, 12 000 A (FCP3x21).

Current probes of type **FCP 2x21** can be used as AC current sensors for multimeters, scopemeters, current and power measuring apparatus.

Current probes of type **FCP 3121** (single-phase) and **FCP 3321** (three-phase) are designed for usage with measuring equipment which is able to use I²C communication for accessing software calibration parameters stored in probe's internal EEPROM memory.

FCP 3x10/WS can be connected also to the working standard WS.

Highlights

- Quick and easy access to the measured current.
- No additional error for wire position.
- Symmetric flexible shielding for excellent suppression of strange electric fields
- Symmetric sensor coil for excellent suppression of strange magnetic fields
- Low noise, dual gain, high CMRR amplifier with precision integrator
- Low output impedance
- Super flexible sensor cable Ø 6 mm
- Application tailored sensor cable sensitivity and frequency range (*optional*).

Available types

Types with hardware calibration

Type	Phases	Class
FCP 2121C	1	0,2
FCP 2121D	1	0,5
FCP 2121P	1	1,0
FCP 2321C	3	0,2
FCP 2321D	3	0,5
FCP 2321P	3	1,0

Types with software calibration

Type	Phases	Class
FCP 3121C	1	0,2
FCP 3121D	1	0,5
FCP 3121P	1	1,0
FCP 3321C	3	0,2
FCP 3321D	3	0,5
FCP 3321P	3	1,0



Flexible Current Probe FCP 2x21



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Three-phase current probe FCP 3321D for connecting to WS 2320

Technical data

General parameters	FCP 2x21	FCP 3x21
Basic frequency	40 Hz ... 70 kHz	
Working frequency (3dB) ¹	20 Hz .. 50 kHz	0,8 Hz .. 50 kHz
Gain ¹	1 mV/A	1 mV/A & 100 mV/A
Measuring range (crest factor <1.5 at basic frequency) ¹	1 A ... 10 kA	1 A ... 6 kA
Output voltage	± 15 V (No load)	± 4,5 V peak
Peak dl/dt	-	20 A/μs
Operating/Test voltage (sensor cable without coupling area)	600 V/ 2 kV	-
Operating/Test Voltage (signal cable and coupling area)	600 V/ 2 kV	
Output to earth voltage	30 V max.	
Safety	EN 610010-1, 600V	
EMC	EN 61326:1998	
Load resistance	≥ 1kΩ	
Operating temperature	-20 ... +60 °C	
Storage temperature	-20 ... +60 °C	
Weight of electronics	approx. 50 g	approx. 100 g
Size of electronics	65 x 65 x 27 mm	50 x 40 x 25 mm
Power supply	External Voltage Source 9 – 36 V DC ²	
Consumption	<1.5 W	approx. 50 mA/phase
Output connection	Terminal Block	OEM (output, supply, I ² C control) ¹ ; WS (Working standard connector) ¹

Accuracy specifications	FCP 2x21C	FCP 2x21D	FCP 2x21P	FCP 3x21C	FCP 3x21D	FCP 3x21P
Amplitude gain error	< 0,2 % ³	< 0,5 % ³	< 1 % ³	< 0,2 % ⁴	< 0,5 % ⁴	< 1 % ⁴
Phase error	< 0,05° ³	< 0,1° ³	< 0,2° ³	< 0,1° ⁴	< 0,3° ⁴	< 0,3° ⁴
Influence of current outside closed sensor cable	< 0,1 %	< 0,3 %	< 0,5 %	< 0,1 %	< 0,3 %	< 0,5 %
Gain TC	< 0,005 %/K	< 0,01 %/K		< 0,02 %/K	< 0,05 %/K	
Linearity	< 0,01 % (differential nonlinearity)			< 0,01 %		
Output DC offset	< 0,2 mV			< 0,1 mV		
Influence of potential of adjacent conductor (at 50 Hz)	< 1 μA/V			< 1 μA/V		
Input noise (f < 10Hz)	< 300 mA			12 mA _{RMS}		

Measuring head parameters	FCP 2x21	FCP 3x21
Sensor cable length ¹	500 mm	500 mm
Sensor cable diameter / Minimum bend radius	Ø 6 mm / Ø 50 mm	Ø 6 mm / Ø 20 mm
Signal cable length ¹	1000 mm	1500 mm
Signal cable diameter	Ø 4 mm	Ø 4 mm

Options

OEM cable output (FCP 3x21); Calibration kit (FCP 3x21); special cable lengths and/or gains on request

¹ Optional specification; ² Power Supply should be Current limited for accidental polarity reversal / overvoltage to < 0.3 A; ³ Basic frequency range at 23 °C, current 0,002 * I_{max} to I_{max}; ⁴ Basic frequency range at 25 °C, current > 100 mA, except 25 mm coupling area

Ordering information

FCP 2x21	FCP 3x21
FCP xy2zp / SeCL / SiCL / MaxC	FCP xy2zp / SeCL / SiCL / MaxC / OutC
x - calibration type: 2 – hardware	x - calibration type: 3 - software
y - number of phases: 1 or 3	y - number of phases: 1 or 3
z - sensor cable diameter: 1 (Ø 6 mm)	z - sensor cable diameter: 1 (Ø 6 mm)
p - class: C (0,2%/0,05°), D (0,5%/0,15°) or P (1%/0,3°)	p - class: C (0,2%/0,1°); D (0,5%/0,3°) or P (1%/0,3°)
SeCL sensor cable length [mm]	SeCL sensor cable length [mm]
SiCL signal cable length [mm]	SiCL signal cable length [mm]
MaxCmaximal current [A] (default: 6000A)	MaxC maximal current [A] (default: 6000A)
	OutC output connection (OEM or WS)
Default configuration:	Default configurations:
FCP 2x21p /500 /1000 /6000	FCP 3121p / 600 / 1500 / 6000 / OEM
	FCP 3321p / 600 / 1500 / 6000 / OEM