SE-CUR-A110 / SE-CUR-A130

CURRENT SENSOR

SINGLE- OR 3-PHASE AC CURRENT SENSOR, UP TO 30,000 A

PRECAUTIONS

The SE-CUR-A110 is protected against voltages up to 600 V with respect to earth in measurement category IV, or 1000 V in category III. The SE-CUR-A130 is protected against voltages up to 600 V with respect to earth in measurement category III.

The protection assured by the current sensor can be compromised if it is used in a way that is not recommended by the manufacturer.

- Comply with the rated maximum voltage and current and the measurement category.
- Never exceed the protection limits stated in the specifications.
- Comply with the conditions of use, that is to say temperature, humidity, altitude, degree of pollution and location of use.
- Do not use the instrument if it is open, damaged, or incorrectly reassembled. Before each use, check the integrity of the insulation on the coil, the leads, and the electronic unit.
- The application or withdrawal of the sensor on uninsulated conductors at dangerous voltages requires the use of suitable safety equipment.
- If it is not possible to power down the installation, follow safe operating procedures and use suitable means of protection.
- All troubleshooting and meteorological checks must be done by competent, accredited personnel.

GENERAL

SE-CUR-A1x0 sensors take the form of a flexible coil connected by a shielded lead to a housing containing the signal processing electronics, powered by batteries.

The flexibility of the sensors facilitates the clamping of the conductor to be measured, regardless of its nature (cable, bar, strand, etc.) and its accessibility. The design of the coil opening and closing device, by snap locking, allows handling while wearing protective gloves.

The electronic unit can be connected to the mV_{AC} or V_{AC} input of a measuring instrument having an input impedance of ≥1 MW.

MEASUREMENT PRINCIPLE

The sensors use the principle of the Rogowski coil. The sensor used achieves:

- Very good linearity and no saturation effect (and so no overheating)
- Wide measurement dynamic, up to several kA
- Insensitivity to DC (measurement of the AC component of any AC + DC signal)
- Light weight (no magnetic circuit)

SE-CUR-A110 / SE-CUR-A130

DEWETRON

TECHNICAL SPECIFICATIONS

Current sensor	Measure-ment range	Sensor length	Clamping ø	Calibres (A/V)	Band-width	Output cable connection	Processing unit dimensions
SE-CUR-A110	0.08 A to 3,000 A	45 cm	14 cm	3-30-300-3,000/3	10 Hz ... 20 kHz	Cable 0.5 m long terminated by 2x Ø 4 mm isolated male banana plugs	120 x 58 x 36 mm (overall)
		80 cm	25 cm				
	0.5 A to 30,000 A	120 cm	38 cm	30-300-3,000-30,000/3	10 Hz ... 20 kHz[1)]		
SE-CUR-A130	0.5 A to 3,000 A	80 cm	25 cm	30-300-3,000/3 10	10 Hz ... 20 kHz	3 coaxial cables 0.5 m long terminated by 1 isolated male BNC plug	

1) 10 Hz ... 5 kHz with 30 A calibre

SE-CUR-A110 (SINGLE-PHASE CURRENT SENSOR)

SE-CUR-A110 series single-phase sensors constitute a line of three models, 45, 80, and 120 cm long, that convert alternating currents ranging from 3 to 3000 A (for the 45 and 80 cm models) or from 30 to 30,000 A (for the 120 cm model) into proportional AC voltages.

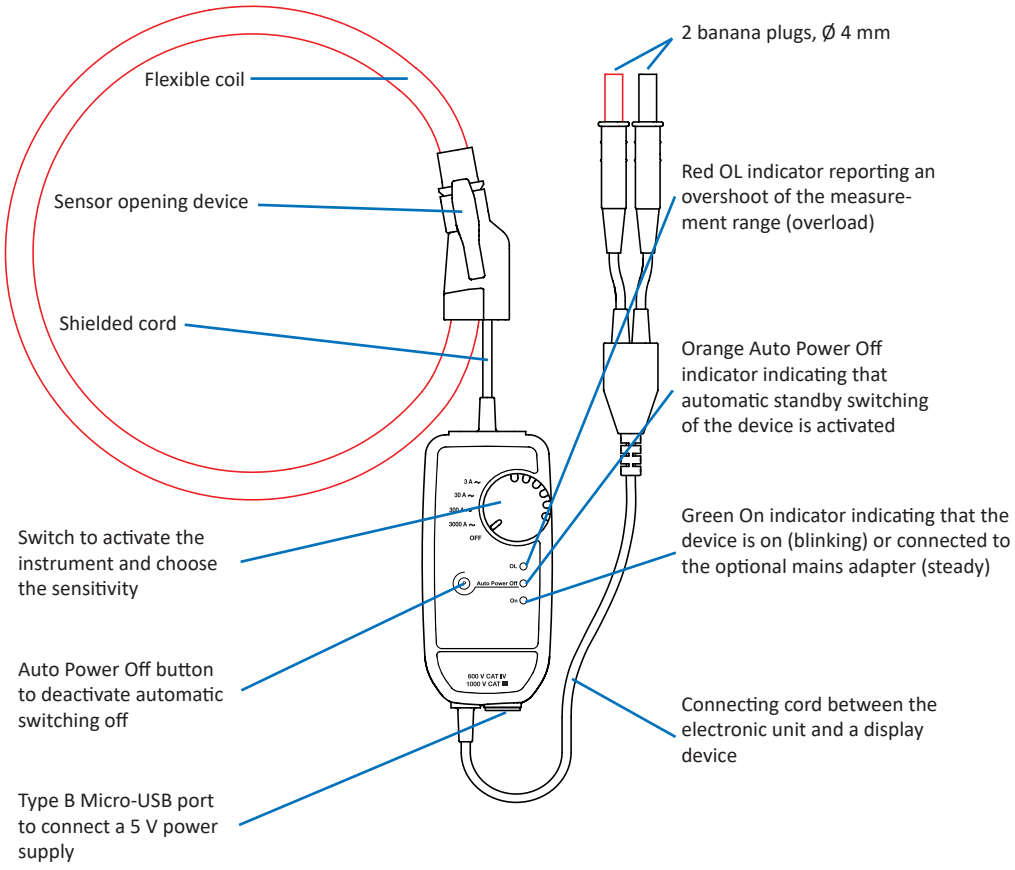


Fig. 1: Overview SE-CUR-A110 (single-phase current sensor)

SE-CUR-A130 (THREE-PHASE CURRENT SENSOR)

The SE-CUR-A130 series sensor converts alternating currents ranging from 30 to 3000 A into proportional AC voltages. It comprises 3 sensors 80 cm long connected to the electronic unit. The output is via 3 BNC connectors on which it is possible to place the adapters provided in order to obtain outputs with 2 safety plugs.

The three outputs of the electronic unit can be connected to a standard wattmeter (as auxiliary inputs), to multimeters, to a recorder, etc.

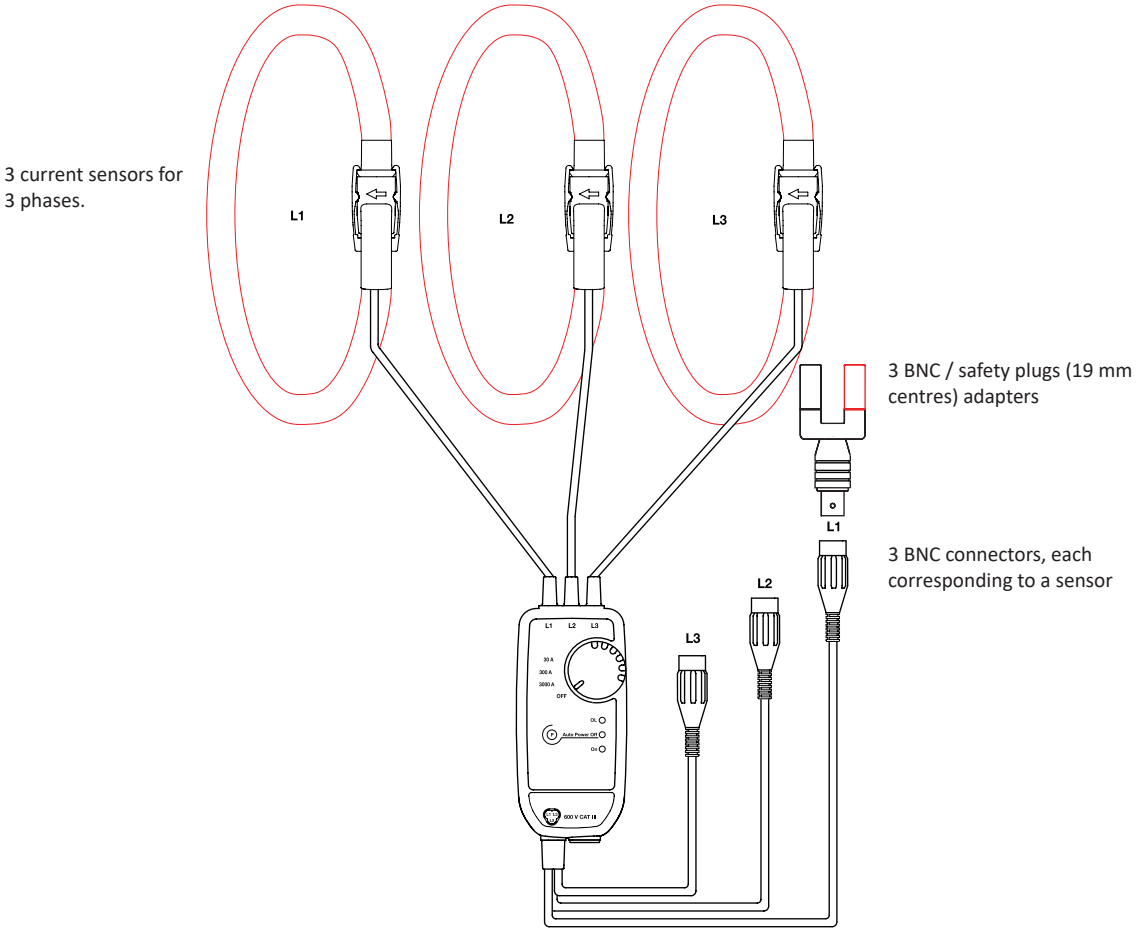


Fig. 2: SE-CUR-A130 (three-phase current sensor)

INFORMATION

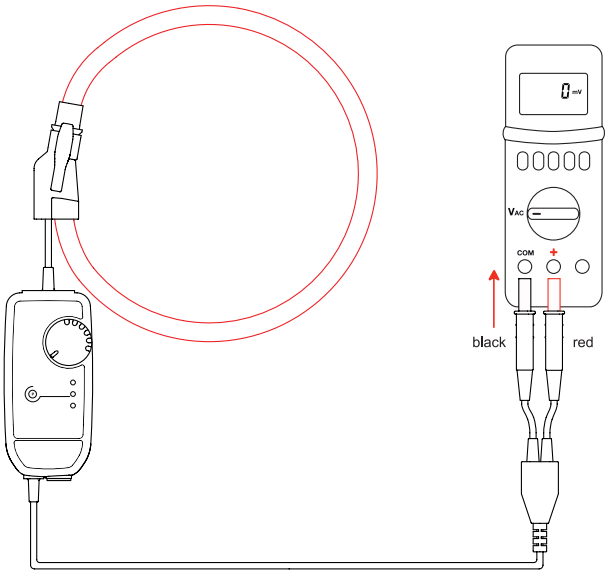
The multimeter or instrument connected must have a maximum voltage and a measurement category at least equal to those of the AmpFlex® sensor, since otherwise the maximum voltage and category of the assembly will be those of the lowest-rated component.

USE

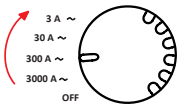
CONNECTING THE SE-CUR-A110

To connect the A110 current sensor proceed as follows.

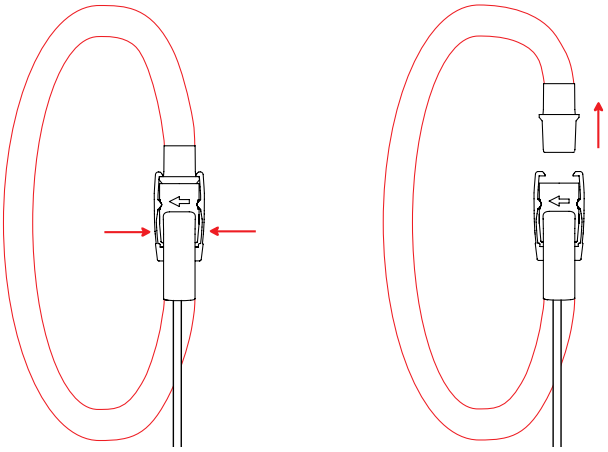
1. Connect the output leads to a measuring instrument having an input impedance ≥ 1 MW. Switch it on and set to AC voltage measurement.



2. Put the electronic unit into operation by turning the switch to some position. The green ON indicator starts blinking.

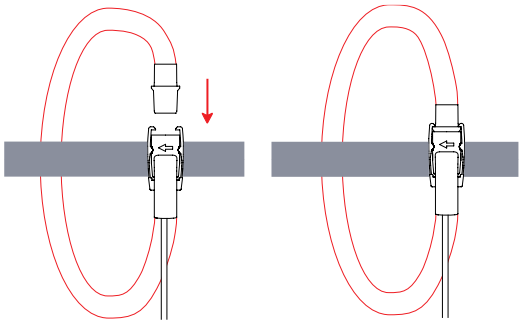


3. Press both sides of the opening device to open the flexible coil.



4. Open it and place it around the conductor carrying the current to be measured (only one conductor in the sensor). Close the coil. You must hear the “click”.

   CAUTION In case of an uninsulated conductor at a dangerous voltage, use individual protection equipment.



   To optimize measurement quality, center the conductor in the coil.

5. Set the switch of the electronic unit to the range providing the best sensitivity and check that the red OL indicator is off (saturation of the electronics entailing a measurement error).

6. Read the measurement on the multimeter, applying the reading coefficient indicated on the label on the electronic unit corresponding to the setting of the switch.

3 A~ range	1000 mV~/A~		30 A~ range	100 mV~/A~
30 A~ range	100 mV~/A~	and	300 A~ range	10 mV~/A~
300 A~ range	10 mV~/A~		3000 A~ range	1 mV~/A~
3000 A~ range	1 mV~/A~		30000 A~ range	0.1 mV~/A~

7. Multiply the reading by the coefficient.

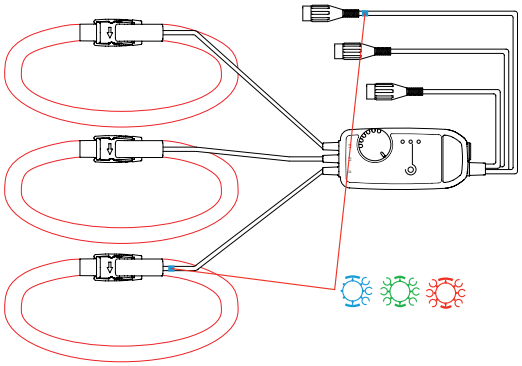
   For example, a reading of 1 V on the measuring instrument corresponds to a current of $\frac{1\ \text{V}}{10\ \text{mV/A}}$ = 100 A in the 300 A~ range.

The SE-CUR-A110 current sensor has now been connected.

CONNECTING THE SENSORS OF THE A130

To connect the SE-CUR-A130 proceed as follows:

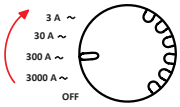
1. Identify the sensors and the output leads:
   - Mark them with the coloured rings provided with the device.
   - Clip rings of the same colour on the sensor and on the corresponding output leads.



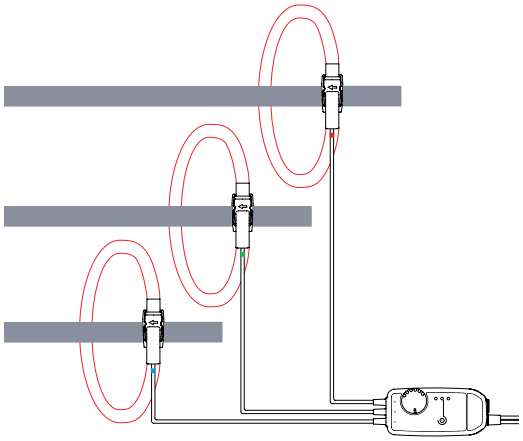
2. Connect the output leads to a measuring instrument.

   See the *Connecting the SE-CUR-A110* procedure above for the connection scheme.

3. Put the electronic unit into operation by turning the switch to some position. The green ON indicator starts blinking.



4. Open the 3 sensors and place them on the 3 phases.



5. Proceed with *step 4* from the *SE-CUR-A110 connection procedure* above.

The SE-CUR-A130 has now been connected.

DISCONNECTING THE SE-CUR-A1X0

- Withdraw the flexible coil from the conductor, set the switch to OFF, and disconnect the electronic unit from the multimeter.