

# Measuring transducers

## Indicators and transducers



Power transducer, current



Current transducer

### Function

SOCOMEC **transducers** convert an electrical parameter (A, W) into a DC signal. They come in a protruding case (CS range).

### Characteristics

- Dielectric quality:
  - 2.5 kV (50 Hz - 1 mm) between input and output,
  - 2.5 kV (50 Hz - 1 mm) between power supply and other terminals,
  - 4 kV (50 Hz - 1 mm) between earth and other terminals.
- Accuracy class: 0.5 or 0.2 depending on the model.
- Response time < 200 ms (0 - 90% of the output signal).
- Overloads:
  - Circuit I: 1.2 I<sub>n</sub> permanent; 20 I<sub>n</sub>/3 s, - 40 I<sub>n</sub>/1 s,
  - Circuit U: 1.2 U<sub>n</sub> permanent; 2 U<sub>n</sub>/10 s.
- Max. load resistance:
  - Current output: R<sub>O</sub> (Ω) = 12 V/I<sub>O</sub> (mA),
  - Voltage output: R<sub>O</sub> (Ω) = V<sub>O</sub>/10 mA.
- Consumption:
  - Self-powered: 1.5 VA,
  - Current input: 0.2 VA,
  - Voltage input: (U<sub>n</sub> x 1 mA) VA.
- Operating temperature: -10 °C to +60°C.
- Residual ripple rate: 0.3%.
- Operating frequency: 50/60 Hz.

### References

Current transducer with auxiliary power supply

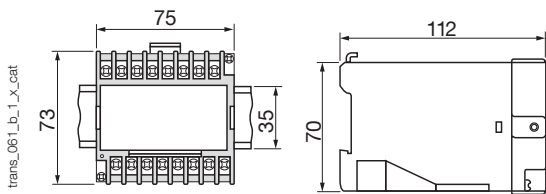
|       |           |                        |           | CSA-A4    |
|-------|-----------|------------------------|-----------|-----------|
| Input | Output    | Auxiliary power supply | Frequency | Reference |
| 5 A   | 4 - 20 mA | 230 VAC                | 50 Hz     | 192Y 1104 |
| 1 A   | 4 - 20 mA | 230 VAC                | 50 Hz     | 192Y 1106 |

Active power transducer with auxiliary power supply

|         |            |           |                        | CSA-P3FE<br>Three-phase | CSA-P3FNE<br>Three-phase | CSA-P4FNE<br>Three-phase |
|---------|------------|-----------|------------------------|-------------------------|--------------------------|--------------------------|
| Input   | Connection | Output    | Auxiliary power supply | Reference               | Reference                | Reference                |
| 400 VAC | 5 A CT     | 4 - 20 mA | 230 VAC                | 192Y 3132               | 192Y 3332                | 192Y 3432                |
| 400 VAC | 5 A CT     | 4 - 20 mA | 24 VDC                 | 179Y 3133               | -                        | -                        |
| 400 VAC | 5 A CT     | 4 - 20 mA | 24 VDC                 | -                       | 179Y 3333                | -                        |

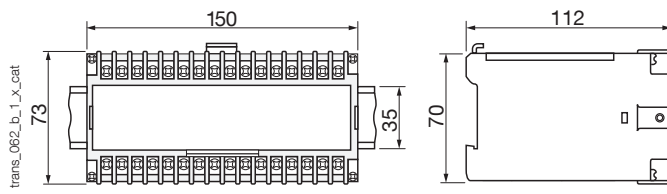
### Cases

Case A



IP20 for the case - IP10 for the terminal

Case B



IP20 for the case - IP10 for the terminal

### Characteristics

#### Current transducer

| Model | Measurement        | Input   | Output             | Auxiliary power supply $U_s$ | Number of CTs | Connection diagram | Case |
|-------|--------------------|---------|--------------------|------------------------------|---------------|--------------------|------|
| CSA-A | RMS <sup>(1)</sup> | 1 - 5 A | 1 - 5 - 10 - 20 mA | No                           | 1             | SC 1               | A    |

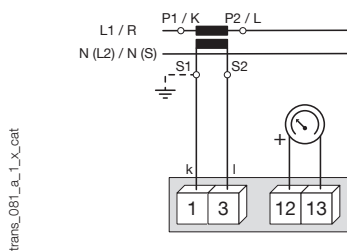
(1) RMS: sine wave.

#### Active power transducer

| Model     | Network type                | Input                              | Output                          | Auxiliary power supply $U_s$ | Number of CTs | Connection diagram | Case |
|-----------|-----------------------------|------------------------------------|---------------------------------|------------------------------|---------------|--------------------|------|
| CSA-P3FE  | Balanced 3-wire 3-phase     | 100 - 115 - 230 - 400 V<br>1 - 5 A | 1 - 5 - 10 - 20 mA<br>4 - 20 mA | Yes                          | 1             | SC 16              | B    |
| CSA-P3FNE | Non-balanced 3-wire 3-phase | 100 - 115 - 230 - 400 V<br>1 - 5 A | 1 - 5 - 10 - 20 mA<br>4 - 20 mA | Yes                          | 2             | SC 18              | B    |
| CSA-P4FNE | Non-balanced 4-wire 3-phase | 100 - 115 - 230 - 400 V<br>1 - 5 A | 1 - 5 - 10 - 20 mA<br>4 - 20 mA | Yes                          | 3             | SC 20              | B    |

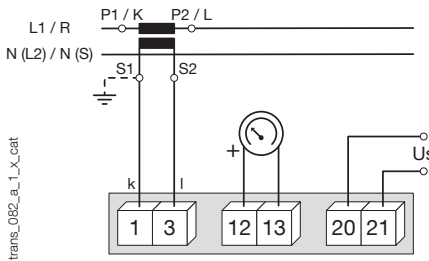
### Connections

SC 1: Self-powered current transducer (CSA-A)



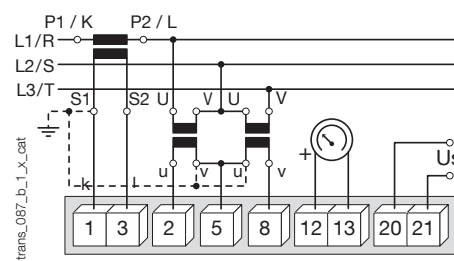
Connections with 1 CT without  $U_s$

SC 2: Current transducer with auxiliary power supply (CSA-A4)



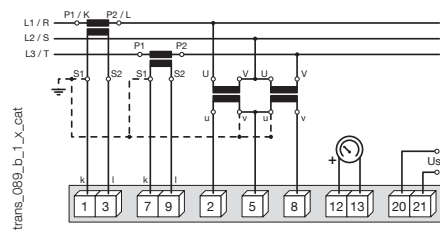
Connections with 1 CT and  $U_s$

SC 16: Power transducer (CSA-P3FE)



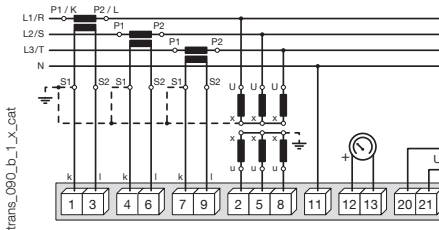
Connections with 1 CT 2 VTs and  $U_s$

SC 18: Power transducer (CSA-P3FNE)



Connections with 2 CT 2 VTs and  $U_s$

SC 20: Power transducer (CSA-P4FNE)



Connections with 3 CT 3 VTs and  $U_s$