

True power monitoring P1WP



True power converter for 1 and 3-phase power supplies with analogue true value output

Features

- Direct measurement of motors with a 2.2 kW (400 V) rating
- Analogue output
- Suitable for current transformers
- Suitable for use with motors and generators

| Technical Details | P1WP |
|--|---|
| Electrical data | |
| Measuring voltage = Supply voltage | 3 AC: 24, 42, 48, 110, 120, 230, 240, 400, 415, 440, 460, 500 550 V |
| Tolerance | 85 ... 110 % |
| AC frequency range | 50 ... 60 Hz |
| Power consumption | Approx. 4 VA |
| Output circuit | |
| Motor operation: | |
| Output voltage | DC: 0 ... 10 V |
| Terminating impedance | ≥ 1 kΩ |
| Output current | DC: 0 ... 20 mA |
| Terminating impedance | ≤ 0.5 kΩ |
| Generator operation: | |
| Output voltage | DC: 0 ... -10 V |
| Terminating impedance | ≥ 2 kΩ |
| Output current | DC: 0 ... -10 mA |
| Terminating impedance | ≤ 0.5 kΩ |
| Measuring circuit | |
| Adjustable measuring range limit values | 1 A version: 0.2; 0.4; 0.6; 0.8; 1 A 5 A version: 1; 2; 3; 4; 5 A |
| Max. overload | 1 A version: 1.2 A, 6 A/max. 3 s 5 A version: 6 A, 25 A/max. 3 s |
| Reaction time | Approx. 200 ms |
| Start-up suppression time | 0.5 ... 20 s adjustable |
| Mechanical data | |
| Max. cable cross section of external conductor | 2 x 2.5 mm ² Single-core or multi-core with crimp connector |
| Torque setting for connection terminals | 1.2 Nm (screws) |
| Dimensions (H x W x D) | 75 x 45 x 110 mm |
| Weight | 380 g |

Description

The true power converter is enclosed in a P-75 housing. Three phase AC voltage is required for operation.

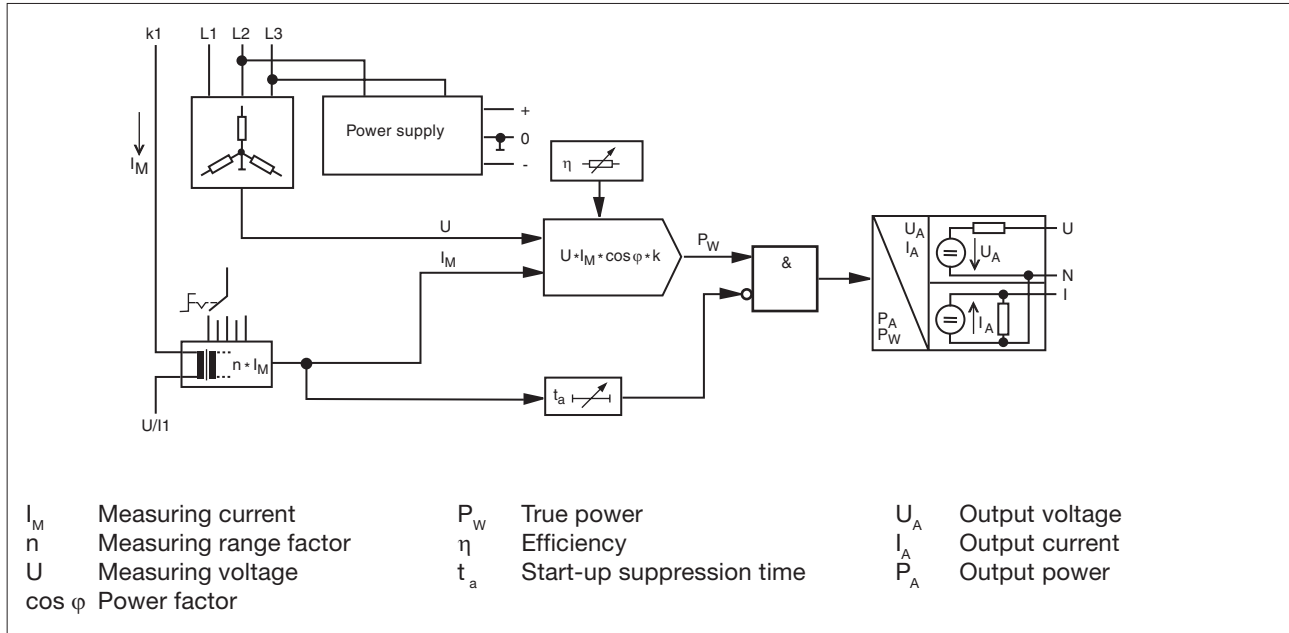
Features:

- 2 versions, each with 5 adjustable measuring ranges, up to max. 1 A or up to max. 5 A
- Adjustable start-up suppression time
- LED for supply voltage

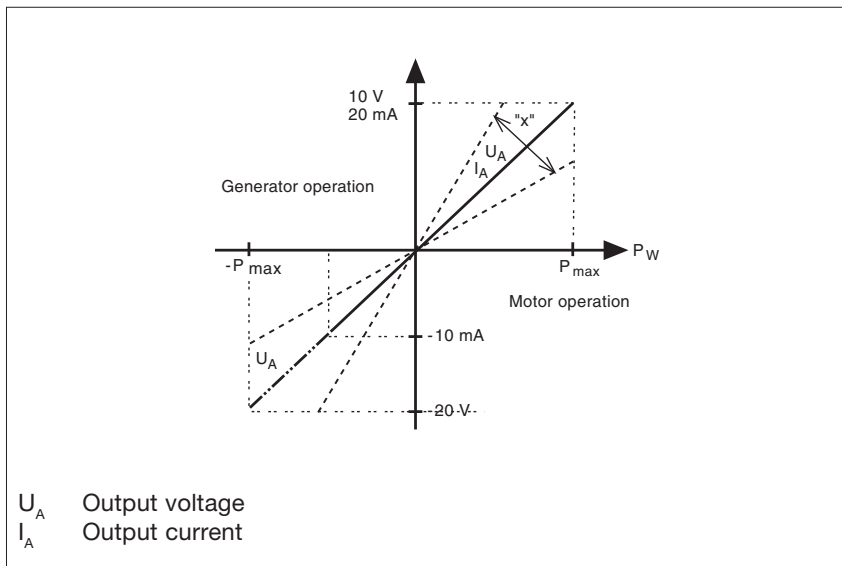
The P1WP converts the true power or the rated power used on a motor or generator into an electrical output signal which is proportional to the true power. Measurement is suppressed during the start-up phase to avoid spurious output signals. The start-up suppression time t_a can be set.

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Block diagram



Timing diagram

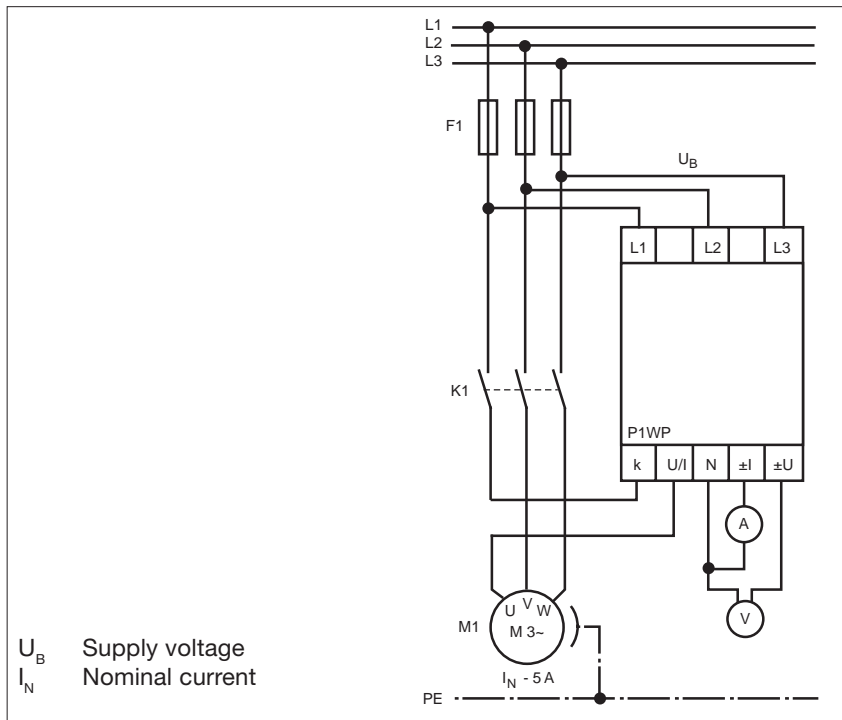


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Connection examples

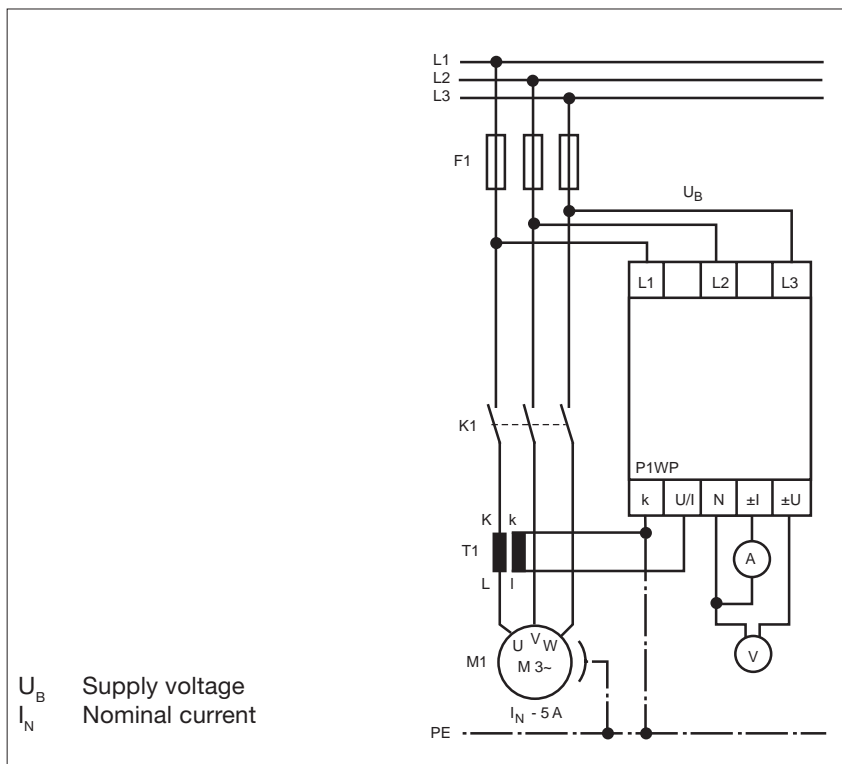
● Example 1

Measuring a three phase motor, $I < 5\text{ A}$



● Example 2

Measuring a three phase motor, $I < 5\text{ A}$ (with current converter)



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General Details

Unless stated otherwise in the technical details for the specific unit.

Electrical data

| | |
|--------------------|--------------|
| AC frequency range | 50 ... 60 Hz |
| DC residual ripple | 160 % |
| Contact material | AgCdO |
| Continuous duty | 100 % |

Environmental data

| | |
|--|--|
| EMC | EN 50 081-1, 01/92; EN 50.082-2, 03/95 |
| Vibration in accordance with EN 60068-2-6, 04/95 | Frequency: 10 ... 55 Hz, Amplitude: 0.35 mm |
| Climatic suitability | IEC 60068-2-3, 1969 |
| Airgap creepage | DIN VDE 0110-1, 04/97 |
| Ambient temperature | -10 ... +55 °C |
| Storage temperature | -40 ... +85 °C |

Mechanical data

| | |
|---|---|
| Torque setting for connection terminals | 0.6 Nm (screws) |
| Mounting position | Any |
| Housing material | Thermoplastic Noryl SE 100 |
| Protection types | Mounting: IP 54 Housing: IP 40 Terminals: IP 20 |

Order references key

| | |
|-------|-------------------|
| U_B | Supply voltage |
| U_M | Measuring voltage |
| I_M | Measuring current |
| I_A | Output current |

Order references

| Type | U_B | I_M | I_A | Order no. |
|------|---------|-------|---------|-----------|
| P1WP | 230 VAC | 1 A | | 490 050 |
| P1WP | 230 VAC | 5 A | | 490 150 |
| P1WP | 400 VAC | 1 A | | 490 060 |
| P1WP | 400 VAC | 1 A | 4-20 mA | 490 061 |
| P1WP | 400 VAC | 5 A | | 490 160 |
| P1WP | 400 VAC | 5 A | 4-20 mA | 490 161 |
| P1WP | 415 VAC | 5 A | | 490 165 |
| P1WP | 440 VAC | 1 A | | 490 062 |
| P1WP | 440 VAC | 5 A | | 490 170 |
| P1WP | 460 VAC | 5 A | | 490 175 |
| P1WP | 500 VAC | 1 A | | 490 080 |
| P1WP | 500 VAC | 1 A | 4-20 mA | 490 081 |
| P1WP | 500 VAC | 5 A | | 490 180 |
| P1WP | 500 VAC | 5 A | 4-20 mA | 490 184 |
| P1WP | 550 VAC | 5 A | | 490 185 |

Additional versions available on request