

# MP and EL Industry Current Sensors

## Utilisation

Sensors to measure d.c., a.c. or pulsating currents with a galvanic insulation between primary and secondary circuits.

**Type MP25P1:** the rating (from 5 to 25A) is determined via a combination of the primary connections (see table: "Arrangement of primary terminals and related characteristics").

## Technical data

|                                       | Without primary bus bar               |          |                  |             |             |             |             |
|---------------------------------------|---------------------------------------|----------|------------------|-------------|-------------|-------------|-------------|
|                                       | With primary bus bar                  |          | -                | EL25P1      | EL50P1      | EL55P2      | EL100P2     |
|                                       |                                       | A r.m.s. | MP25P1           | EL25P1BB    | EL50P1BB    | EL55P2BB    | EL100P2BB   |
| Nominal primary current               |                                       | A peak   | See data page 11 | 25          | 50          | 50          | 100         |
| Measuring range                       | @ ±15V (±5%)                          |          |                  | ±55         | ±80         | ±80         | ±145        |
| Max. measuring resistance             | @ I <sub>p</sub> max & ±15V (±5%)     | Ω        | 216              | 142         | 78          | 93          | 29          |
| Min. measuring resistance             | @ I <sub>PN</sub> & ±15V (±5%) & 70°C | Ω        | 100              | 100         | 75          | 10          | 20          |
| Min. measuring resistance             | @ I <sub>PN</sub> & ±12V (±5%) & 70°C | Ω        | 0                | 0           | 15          | 0           | 0           |
| Turn number                           |                                       |          | See data page 11 | 1000        | 1000        | 2000        | 2000        |
| Secondary current at I <sub>PN</sub>  |                                       | mA       |                  | 25          | 50          | 25          | 50          |
| Rms accuracy at I <sub>PN</sub>       | -20 ... +70°C, sinus 50Hz             | %        | ≤±0.5            | ≤±0.5       | ≤±0.5       | ≤±0.5       | ≤±0.5       |
| Offset current                        | @ +25°C                               | mA       | ≤±0.1            | ≤±0.2       | ≤±0.2       | ≤±0.2       | ≤±0.2       |
| Linearity                             |                                       | %        | ≤0.1             | ≤0.1        | ≤0.1        | ≤0.1        | ≤0.1        |
| Thermal drift coefficient             | -20 ... +70°C                         | µA/°C    | 7                | 7           | 7           | 7           | 7           |
| Delay time                            |                                       | µs       | ≤0.1             | ≤0.1        | ≤0.1        | ≤0.1        | ≤0.1        |
| di/dt correctly followed              |                                       | A / µs   | ≤100             | ≤200        | ≤200        | ≤150        | ≤150        |
| Bandwidth                             | -1dB                                  | kHz      | ≤150             | ≤200        | ≤200        | ≤150        | ≤150        |
| Max. no-load consumption current      | @ ±15V (±5%)                          | mA       | ≤18              | ≤20         | ≤20         | ≤20         | ≤20         |
| Secondary resistance                  | @ +70°C                               | Ω        | ≤96              | ≤63         | ≤63         | ≤188        | ≤126        |
| Dielectric strength Primary/Secondary | 50 Hz, 1 min                          | kV       | 2.5              | 3           | 3           | 3           | 3           |
| Supply voltage                        | ±5%                                   | V dc     | ±12 ... ±15      | ±12 ... ±15 | ±12 ... ±15 | ±12 ... ±15 | ±12 ... ±15 |
| Voltage drop                          |                                       | V        | ≤3               | ≤3          | ≤3          | ≤3          | ≤3          |
| Mass (EL type)                        |                                       | kg       | -                | 0.020       | 0.020       | 0.020       | 0.020       |
| Mass (MP and EL...BB types)           |                                       | kg       | 0.027            | 0.027       | 0.027       | 0.027       | 0.027       |
| Operating temperature                 |                                       | °C       | -20 ... +70      | -20 ... +70 | -20 ... +70 | -20 ... +70 | -20 ... +70 |
| Storage temperature                   |                                       | °C       | -25 ... +85      | -25 ... +85 | -25 ... +85 | -25 ... +85 | -25 ... +85 |

### MP25P1



### EL25P1 to 100P2 / EL25P1BB to 100P2BB



## General data

### Direction of the current:

- **MP25P1 type:** a primary current flowing from pins 1- 5 to pins 6-10 results in a positive secondary output current from terminal M.
- **EL type:** a primary current flowing in the direction of the arrow results in a positive secondary output current from terminal M.

**Secondary connection:** 3 soldering pins.

### Unit packing:

- **MP25P1 type:** 40 per pack.
- **EL type:** 50 per pack.
- **EL...BB type:** 25 per pack.

## Fixing and connecting by soldering pins

(on PCB)

### Primary connection:

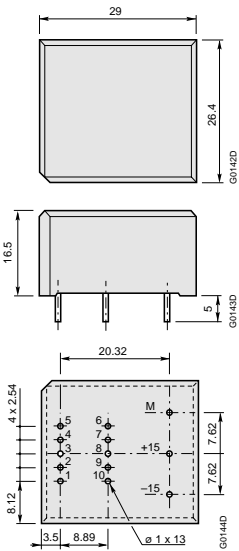
- **MP25P1 type:** by 10 soldering pins.
- **EL type:** hole for primary conductor (the temperature of the primary conductor in contact with the case must not exceed 100 °C)
- **EL...BB type:** primary bar included.

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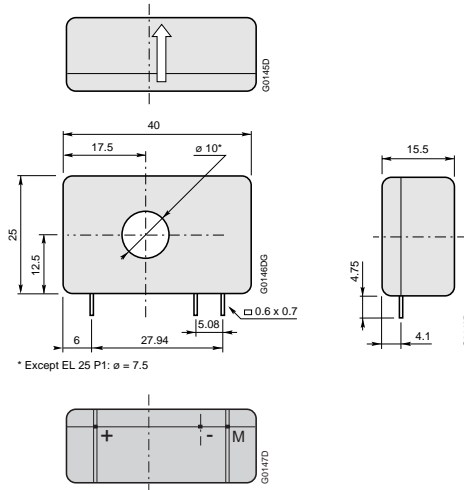
## MP25P1 : Arrangement of primary terminals and related characteristics

| Nominal primary current (A r.m.s.) | Measuring range @ ±15V (±5%) (A peak) | Secondary current at I <sub>pn</sub> (mA) (N) | Turn ratio P/Ns | Primary resistance (mΩ) con | Primary pin connections |
|------------------------------------|---------------------------------------|---|-----------------|-----------------------------|-------------------------|
| 25                                 | ±36                                   | 25  | 1/1000          | 0.3                         |                         |
| 12                                 | ±18                                   | 24  | 2/1000          | 1.1                         |                         |
| 8                                  | ±12                                   | 24  | 3/1000          | 2.5                         |                         |
| 6                                  | ±9                                    | 24  | 4/1000          | 4.4                         |                         |
| 5                                  | ±7                                    | 25  | 5/1000          | 6.3                         |                         |

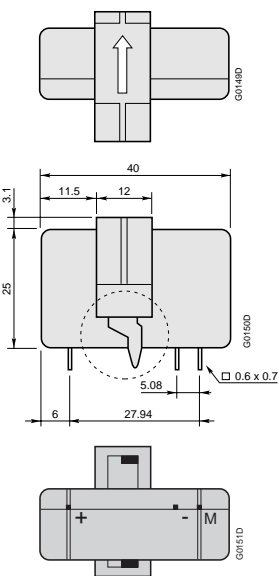
### Dimensions (in mm)



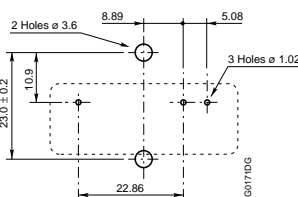
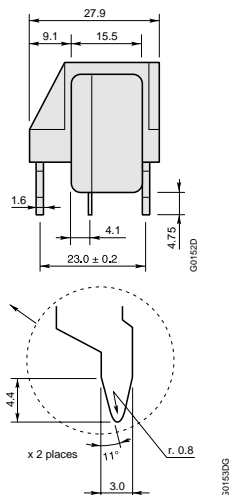
**MP current sensors**



**EL current sensors**



**EL...BB current sensors**



**EL...BB: PCB layout**