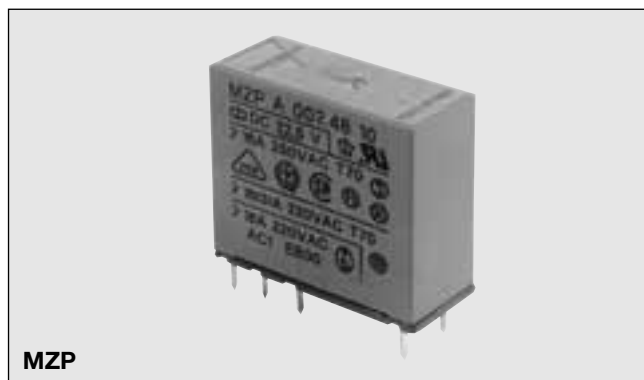


# Miniature Relays Series M

## Type MZ 2 poles 10A

### Monostable

CARLO GAVAZZI



MZP

- Miniature size
- PCB mounting
- Reinforced insulation 4 kV / 8 mm
- Switching capacity 10 A
- DC coils 1.87 to 160 VDC
- AC coils 4.8 to 264 VAC
- General purpose, industrial electronics
- Types: Standard, flux-free or sealed
- Switching AC/DC load

## Product Description

### Sealing

**P:** Standard, suitable for soldering and manual washing.  
**F:** Flux-free, suitable for automatic soldering and partial immersion or spray washing.

**H:** Sealed with inert gas according to IP 67, suitable for automatic soldering and/or partial immersion or spray washing.

For **General data**, notes and special versions see page 48

## Ordering Key

MZ P A 200 47 10

### Type

### Sealing

### Version (A = Standard)

### Contact code

### Coil reference number

### Contact rating

### Version

A = 5.0 mm / Ag CdO (standard)

C = 5.0 mm / hard gold plated

D = 5.0 mm / flash gilded

S = 5.0 mm / Ag Sn O<sub>2</sub>

Available only on request Ag Ni

## Type Selection

| Contact configuration                           | Contact rating | Contact code |
|-------------------------------------------------|----------------|--------------|
| 2 normally open contact (DPST -NO {2-form A})   | 10 A           | <b>200</b>   |
| 2 normally closed contact (DPST -NC {2-form B}) | 10 A           | <b>020</b>   |
| 2 change over contact DPDT {2-form C})          | 10 A           | <b>002</b>   |

## Coil Characteristics DC (20°C)

| Coil reference number | Rated Voltage |         | Winding resistance |     | Operating range |          |        | Must release VDC      |
|-----------------------|---------------|---------|--------------------|-----|-----------------|----------|--------|-----------------------|
|                       | 200/002 VDC   | 020 VDC | Ω                  | ± % | Min. VDC        | Max. VDC |        |                       |
| 40                    | 2.6           | 2.5     | 11                 | 10  | 1.98            | 1.87     | 3.50   | ≥ 5% of rated voltage |
| 41                    | 4.3           | 4.1     | 30                 | 10  | 3.30            | 3.13     | 5.75   |                       |
| 42                    | 5.9           | 5.6     | 55                 | 10  | 4.52            | 4.28     | 7.80   |                       |
| 43                    | 8.5           | 8.0     | 110                | 10  | 6.49            | 6.14     | 11.00  |                       |
| 44                    | 10.5          | 10.0    | 170                | 10  | 7.99            | 7.56     | 13.70  |                       |
| 45                    | 13.0          | 12.5    | 280                | 10  | 9.98            | 9.49     | 17.60  |                       |
| 46                    | 17.0          | 16.0    | 450                | 10  | 13.0            | 12.30    | 22.50  |                       |
| 47                    | 21.5          | 20.5    | 720                | 15  | 16.3            | 15.50    | 28.60  |                       |
| 48                    | 23.5          | 22.5    | 860                | 15  | 18.0            | 17.10    | 30.80  |                       |
| 49                    | 27.0          | 26.0    | 1150               | 15  | 20.7            | 19.70    | 35.70  |                       |
| 50                    | 34.5          | 32.5    | 1750               | 15  | 26.2            | 24.90    | 44.00  |                       |
| 51                    | 42.5          | 40.5    | 2700               | 15  | 32.6            | 30.90    | 55.00  |                       |
| 52                    | 54.5          | 51.5    | 4300               | 15  | 41.8            | 39.60    | 69.30  |                       |
| 53                    | 68.0          | 64.5    | 6450               | 15  | 52.0            | 49.20    | 84.70  |                       |
| 54                    | 87.5          | 83.0    | 9900               | 15  | 67.2            | 63.60    | 104.00 |                       |
| 55                    | 101.0         | 95.0    | 12550              | 15  | 77.0            | 73.00    | 117.00 |                       |
| 56                    | 115.0         | 109.0   | 16200              | 15  | 87.9            | 83.30    | 136.00 |                       |
| 57                    | 132.0         | 125.0   | 23500              | 15  | 101.0           | 96.00    | 160.00 |                       |

Miniature Relays Series M  
Type MZ 2poles 10A  
Monostable

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## Coil Characteristics AC (20°C)

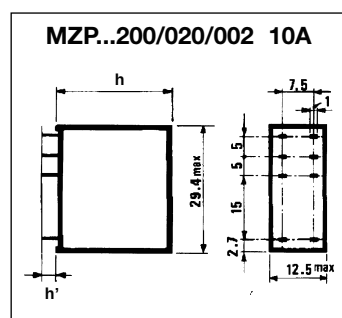
| Coil<br>ref. no. | Rated Voltage<br>VAC | Winding resistance |          | Operating range |          | Must release<br>VAC             | Rated Current (mA) |       | Inductance<br>H |
|------------------|----------------------|--------------------|----------|-----------------|----------|---------------------------------|--------------------|-------|-----------------|
|                  |                      | $\Omega$           | $\pm \%$ | min. VAC        | Max. VAC |                                 | 50Hz               | 60Hz  |                 |
| 90               | 6                    | 12                 | 10       | 4.8             | 6.6      | $\geq 15\%$ of<br>rated voltage | 270.0              | 237.0 | 0.059           |
| 91               | 12                   | 56                 | 10       | 9.6             | 13.2     |                                 | 119.0              | 104.0 | 0.267           |
| 92               | 24                   | 230                | 10       | 19.2            | 26.4     |                                 | 57.0               | 50.0  | 1.123           |
| 93               | 48                   | 870                | 15       | 38.4            | 52.8     |                                 | 30.5               | 26.7  | 4.170           |
| 94               | 60                   | 1500               | 15       | 48.0            | 66.0     |                                 | 23.8               | 21.0  | 6.450           |
| 95               | 110                  | 5300               | 15       | 88.0            | 129.0    |                                 | 12.3               | 10.8  | 22.400          |
| 96               | 220                  | 20000              | 15       | 176.0           | 242.0    |                                 | 5.9                | 5.2   | 100.200         |
| 97               | 240                  | 25000              | 15       | 192.0           | 264.0    |                                 | 5.7                | 5.0   | 107.800         |

## Contact Characteristics

|                                                                                                                          |                                               |                                                                                                                                                                                          |                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Rating</b>                                                                                                            | <b>10 A</b>                                   | <b>Power</b><br>Max. switching power with<br>resistive load in AC <sup>3)</sup><br>Max. switching power in DC<br>Minimum switching current <sup>2)</sup><br>(typical value)              | <b>2500 VA</b><br>see diagram 3<br><br><b>100mA at 24VDC</b>                                                                        |
| <b>Material</b> (standard version) <sup>2)</sup>                                                                         | <b>AgCdO</b>                                  |                                                                                                                                                                                          |                                                                                                                                     |
| <b>Current</b> (at 250VAC)<br>Rated current<br>Max. switching current<br>Overload current<br>(4sec ON / 40sec OFF cycle) | <b>10 A</b><br><b>12 A</b><br><br><b>14 A</b> | <b>Life</b> (see diagram 1)<br>Typical electrical life at max.<br>resistive load<br><br>1000 cycles/h<br>500 cycles/h<br>Max. electrical repetition rate<br>Mech. life at 18000 cycles/h | <b>7.5 x 10<sup>4</sup> cycles</b><br><b>8 x 10<sup>4</sup> cycles</b><br><b>3600 cycles/h</b><br><b>50 x 10<sup>3</sup> cycles</b> |
| <b>Voltage</b><br>Rated voltage<br>Max. switching voltage<br>(VDE 0435)                                                  | <b>250 VAC</b><br><br><b>380 VAC</b>          |                                                                                                                                                                                          |                                                                                                                                     |

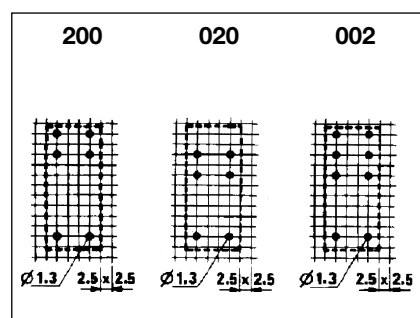
<sup>2) 3)</sup> See pag. 48

## Dimensions



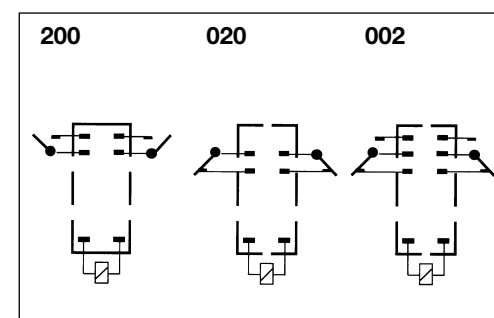
MZP: h = 25,2 mm  
h' = 4,3 - 5,3 mm

## Pin View



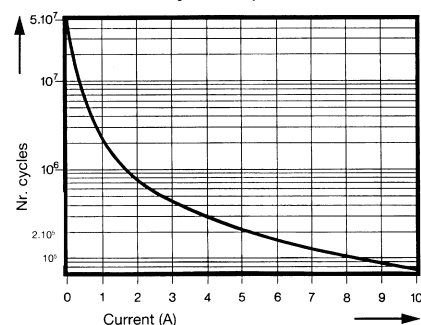
MZF/MZH: h = 26.5 mm  
h' = 2.8 - 3.8 mm

## Wiring Diagrams

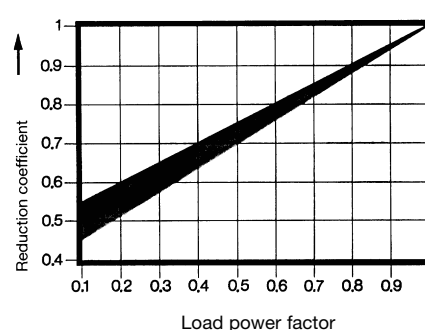


## Diagrams

**1 Expected life at 250 VAC**  
(Resistive loads and repetition  
rate 1000 cycles/h)



**2 Reduction of expected life  
against load power factor cos φ**



**3 Max. switching power DC**

