

# Multimode Relay MT

2 / 3 pole 10 A, DC- or AC-coil



F0161-A

- 2 C/O or 3 C/O contacts
- Cadmium-free contacts
- DC and AC coils
- Mechanical indicator as standard
- Electrical indicator
- New test system with front operated finger protected push-to-test button and integral locking test tab
- White write on panel

Applications  
Mechanical engineering, plant control



Technical data of approved types on request

## Contact data

|                                           |                                  |                  |
|-------------------------------------------|----------------------------------|------------------|
| Configuration                             | 2 C/O contacts or 3 C/O contacts |                  |
| Type of contact                           | single cont.                     | bifurcated cont. |
| Rated current                             | 10 A                             | 4 A              |
| Rated voltage / max. breaking voltage     | 250 Vac / 440 Vac                |                  |
| Rated breaking capacity                   | 2500 VA                          | 500 VA           |
| Make current (max. 4 s at duty cycle 10%) | 20 A                             | 8 A              |
| Contact material                          | AgNi 90/10                       |                  |

## Contact life

| Type  | Load                       | Operations        | Standard |
|-------|----------------------------|-------------------|----------|
| MT321 | 10 A, 250 Vac, C/O contact | 1x10 <sup>5</sup> | VDE 0435 |

## Coil data

|                    |         |             |
|--------------------|---------|-------------|
| Nominal voltage    | DC coil | 6...220 Vdc |
|                    | AC coil | 6...230 Vac |
| Nominal coil power | DC coil | typ. 1.2 W  |
|                    | AC coil | typ. 2.3 VA |
| Operate category   | 1 / a   |             |

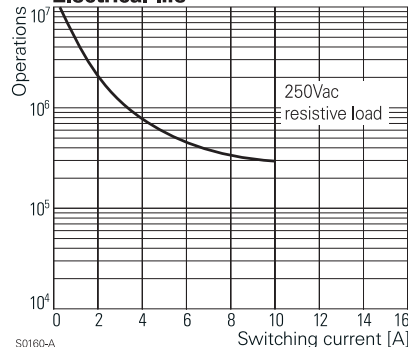
## Coil versions, DC-coil

| Coil code standard | PD*        | Nominal voltage Vdc | Pull-in voltage Vdc | Release voltage Vdc | Coil resistance Ω | Coil current mA |
|--------------------|------------|---------------------|---------------------|---------------------|-------------------|-----------------|
| 006                | 0A6        | 6                   | 4.5                 | 0.6                 | 32±10%            | 187.5           |
| 012                | 0B2        | 12                  | 9.0                 | 1.2                 | 110±10%           | 109.1           |
| <b>024</b>         | <b>0C4</b> | <b>24</b>           | <b>18.0</b>         | <b>2.4</b>          | <b>475±10%</b>    | <b>50.5</b>     |
| 048                | 0E8        | 48                  | 36.0                | 4.8                 | 2000±10%          | 24.0            |
| 060                | 0G0        | 60                  | 45.0                | 6.0                 | 2850±10%          | 21.1            |
| 110                | 1B0        | 110                 | 82.5                | 11.5                | 10000±12%         | 11.0            |
| 220                | 2C0        | 220                 | 165.0               | 22.0                | 40000±15%         | 5.5             |

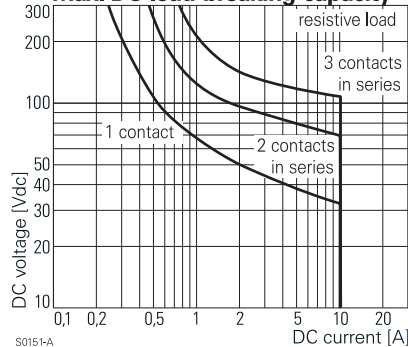
All figures are given for coil without preenergization, at ambient temperature +20°C

\* Protection diode PD; standard polarity: 2-pole relays: +2 / -7,  
3-pole relays: +2 / -10

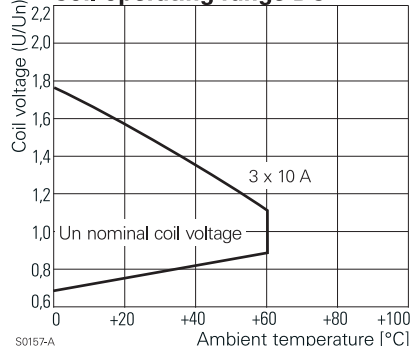
## Electrical life



## Max. DC load breaking capacity



## Coil operating range DC



# Multimode Relay MT

2 / 3 pole 10 A, DC- or AC-coil

## Coil versions, AC-coil

| Coil code  | Nominal voltage Vac | Pull-in voltage Vac | Release voltage Vac | Maximum voltage Vac | Coil resistance $\Omega$          | Coil current mA |
|------------|---------------------|---------------------|---------------------|---------------------|-----------------------------------|-----------------|
| 006        | 6                   | 4.8                 | 2.4                 | 7.8                 | $5.3 \pm 10\%$                    | 381.7           |
| 012        | 12                  | 9.6                 | 4.8                 | 15.6                | $24 \pm 10\%$                     | 182.5           |
| <b>024</b> | <b>24</b>           | <b>19.2</b>         | <b>9.6</b>          | <b>31.2</b>         | <b><math>86 \pm 10\%</math></b>   | <b>94.2</b>     |
| 048        | 48                  | 38.4                | 19.2                | 62.4                | $345 \pm 10\%$                    | 47.5            |
| 060        | 60                  | 48.0                | 24.0                | 78.0                | $544 \pm 10\%$                    | 37.8            |
| 115        | 115                 | 92.0                | 46.0                | 149.5               | $2000 \pm 10\%$                   | 20.6            |
| <b>230</b> | <b>230</b>          | <b>184.0</b>        | <b>92.0</b>         | <b>299.0</b>        | <b><math>8300 \pm 12\%</math></b> | <b>10.1</b>     |

All figures are given for coil without preenergization, at ambient temperature +20°C

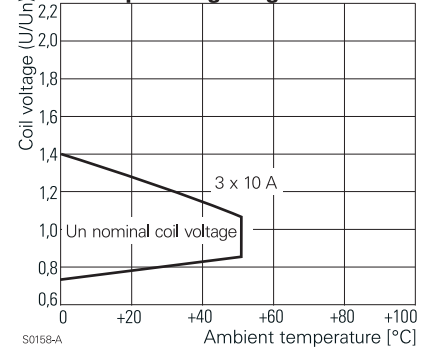
## Insulation

|                                       |                      |                       |
|---------------------------------------|----------------------|-----------------------|
| Dielectric strength                   | coil-contacts        | 2500 V <sub>rms</sub> |
|                                       | open contact circuit | 1500 V <sub>rms</sub> |
|                                       | adjacent contacts    | 2500 V <sub>rms</sub> |
| Clearance / creepage                  |                      | 2.8 / 4 mm            |
| Insulation to IEC 664/VDE 0110 (1/89) |                      |                       |
|                                       | Voltage rating       | 250                   |
|                                       | Pollution degree     | 3                     |
|                                       | Overvoltage category | III                   |
| Insulation to VDE 0110b (2/79)        |                      | C / 250               |
| Tracking resistance                   |                      | CTI 175               |

## Other data

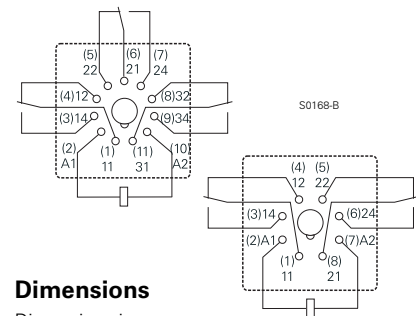
|                                              |                                              |
|----------------------------------------------|----------------------------------------------|
| Flammability class UL                        | V-0                                          |
| Ambient temperature                          | DC-coil -45...+60 °C<br>AC-coil -45...+50 °C |
| Mechanical life                              | >20x10 <sup>6</sup> operations               |
| Max. switching rate at rated- / minimum load | 20 min <sup>-1</sup> / 100 min <sup>-1</sup> |
| Operate- / release time                      | 12 / 5 ms                                    |
| Bounce time                                  | 4 ms                                         |
| Vibration resistance N/O / N/C contact       | >5 / 2 g                                     |
| Shock resistance (function) N/O / N/C        | >50 / 10 g                                   |
| Protection category                          | IP 50                                        |
| Relay weight                                 | 80 g                                         |
| Packaging unit                               | 25 pcs.                                      |
| Accessories                                  | see accessories MT, page 113                 |

## Coil operating range AC



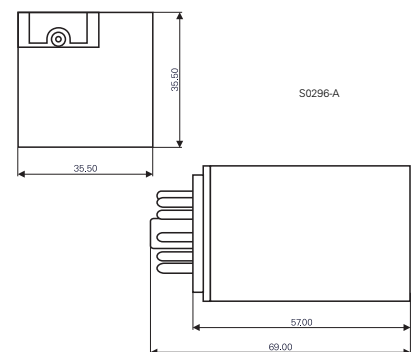
## Terminal assignment

View on solder pins



## Dimensions

Dimensions in mm



## Ordering key

|                        |                                                                               |                                                       |  |  |  |
|------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------|--|--|--|
| Type                   | <b>M</b> <b>T</b>                                                             |                                                       |  |  |  |
| Contact configuration  | <b>2</b> 2 C/O contacts, 8-pole                                               | <b>3</b> 3 C/O contacts, 11-pole                      |  |  |  |
| Contact material       | <b>2</b> AgNi 90/10                                                           | <b>B</b> AgNi 90/10, bifurcated contacts, gold plated |  |  |  |
|                        | <b>3</b> AgNi 90/10, gold plated                                              |                                                       |  |  |  |
| Version                | <b>1</b> DC with test button                                                  | <b>6</b> AC with test button                          |  |  |  |
|                        | <b>3</b> DC with test button and LED                                          | <b>8</b> AC with test button and LED                  |  |  |  |
| Coil                   | Coil code: please refer to coil versions table, preferred types in bold print |                                                       |  |  |  |
| Other types on request |                                                                               |                                                       |  |  |  |

## Accessories Multimode Relay MT



F0205-A

### Socket system MT 78 740 and MT 78 745

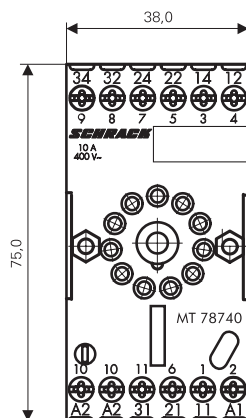
- 8/11 pin socket for MT2 / MT3
- Double A2 screw for simple further connection of coil supply
- Snap-on mounting on DIN-rail
- Screw mounting
- Pozidrive screws with rising clamp terminals
- Logical layout of input/output connections
- With marking area

**MT 78 740** MT socket with screw-type terminals for MT3

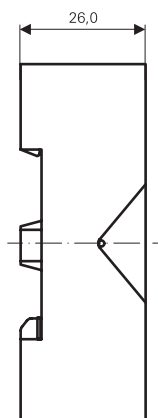
**MT 78 745** MT socket with screw-type terminals for MT2



F0200-A



S0366-A



Dimensions in mm

### Technical Data

|                                             |                        |
|---------------------------------------------|------------------------|
| Rated current                               | 10 A                   |
| Rated voltage                               | 400 Vac                |
| Dielectric strength coil/cont.              | >3000 V <sub>eff</sub> |
| Ambient temperature                         | +80 °C                 |
| Protection category                         | IP 20                  |
| Protection against accidental contact meets | VBG 4                  |
| Mounting/DIN rail                           | DIN50022               |
| Wire cross section                          | 2 x 2,5mm <sup>2</sup> |
| Packaging unit                              | 10 Stk.                |

Retaining clip **MR 28 800**

## LED and Protection Modules



F0201-A



F0202-A

### LED and Protection modules

| Ordering code     | Type                    |
|-------------------|-------------------------|
| <b>MTM T0 0A0</b> | Protection diode 1N4007 |
| <b>MTM U0 524</b> | RC-network 24...115 Vac |
| <b>MTM U0 730</b> | RC-network 230 Vac      |
| <b>MTM L0 024</b> | LED 24 Vac / Vdc        |
| <b>MTM L0 730</b> | LED 230 Vac             |

# Accessories Multimode Relay MT

## MT Function Modules



### Function modules

| Ordering code | Type          |
|---------------|---------------|
| MTM Z0 W00    | Delay ON      |
| MTM F0 W00    | Multifunction |

### Technical data - Function modules

|                           |                          |
|---------------------------|--------------------------|
| Nominal voltage           | 24...240 Vac / Vac       |
| Mains frequency           | 48...63 Hz               |
| Precision of time setting | ± 0,5 %                  |
| Readiness for repetition  | ≤ 0,5 % or 5 ms          |
| Influence of temperature  | ≤ 0,1 %/°C               |
| Time range switchable     | 0,05s...240h in 8 ranges |
| Ambient temperature       | -25...+55 °C             |

### Function modules

| Function                               |               |
|----------------------------------------|---------------|
| Delay ON                               | U/t<br>R      |
| Delay OFF                              | U/t<br>S<br>R |
| single shot leading edge               | U/t<br>S<br>R |
| single shot trailing edge              | U/t<br>S<br>R |
| Delay ON<br>triggerd by signal contact | U/t<br>S<br>R |
| single shot                            | U/t<br>R      |
| flasher starting with pause            | U/t<br>R      |
| flasher starting with pulse            | U/t<br>R      |

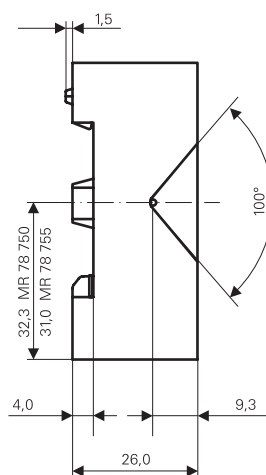
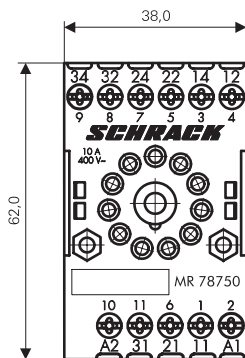
# Accessories Multimode Relay MT

**MR 78 750** MT3 socket 11 pole

**MR 78 755** MT2 socket 8 pole



F0103-A



Retaining clip **MR 28 800**

S0311-A



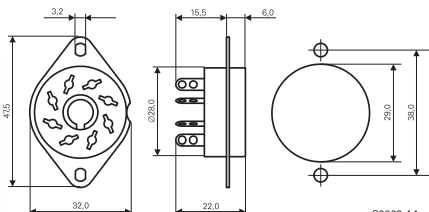
## Technical data

|                                             |                         |
|---------------------------------------------|-------------------------|
| Rated current                               | 10 A                    |
| Rated voltage                               | 400 Vac                 |
| Dielectric strength coil/cont.              | >3500 V <sub>rms</sub>  |
| Insulation cat. (VDE 0110b)                 | C / 400 Vac             |
| Tracking resistance                         | CTI 300                 |
| Ambient temperature                         | +80 °C                  |
| Protection category                         | IP 20                   |
| Protection against accidental contact meets | VBG 4                   |
| Mounting                                    | DIN 50024 / 22          |
| Wire cross section                          | 2 x 2.5 mm <sup>2</sup> |
| Terminal torque                             | 0.8 Nm                  |
| max.                                        | 1.0 Nm                  |
| Packaging unit                              | 25 pcs.                 |

**MR 78 710** Socket 8 pole with solder terminals



F0107-A



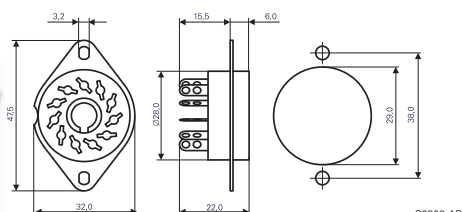
S0309-AA

Retaining clip **RN 28 611**

**MR 78 711** Socket 11 pole with solder terminals



F0104-A



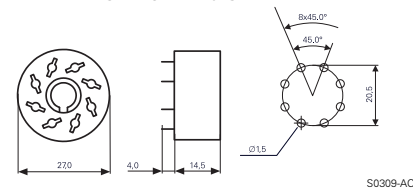
S0309-AB

Retaining clip **RN 28 611**

**MR 78 712** Socket 8 pole with PCB terminals



F0105-A

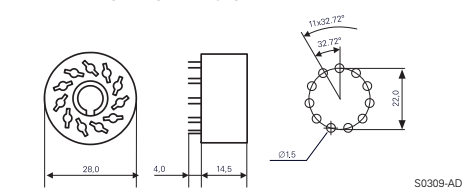


S0309-AC

**MR 78 713** Socket 11 pole with PCB terminals



F0106-A

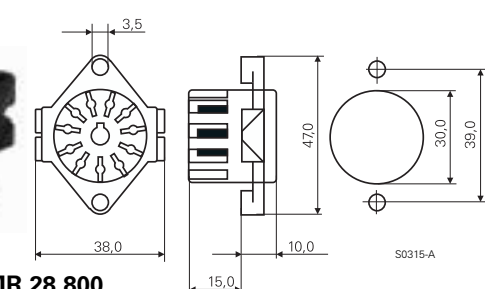


S0309-AD

**RN 78 731** Socket 11 pole with Faston connectors



F0181-A



S0315-A

Retaining clip **MR 28 800**

## Technical data MR78710...RN78731

|                                |                        |
|--------------------------------|------------------------|
| Rated current                  | 10 A                   |
| Rated voltage                  | 250 Vac                |
| Dielectric strength coil/cont. | >2500 V <sub>rms</sub> |
| Ambient temperature            | -40...+70 °C           |

Dimensions in mm