

# General Purpose Relay

# MJN

## Relay with Plug-in Termination, available in SPDT, DPDT or 3PDT models

- Rugged power driver offers superior 3/16" through-air and 3/8 over-surface spacing
- Interlocked frame and contact block prevent contact misalignment during plug-in
- Available with dust covers, indicator lamps and push-to-operate buttons
- UL and CSA recognition as motor controllers up to 600 VAC
- Recognized for 1/2 hp motor control applications at 240/480/600 VAC (1/3 hp at 120 VAC)



## Ordering Information

To Order: Select part number and add the desired coil voltage rating (e.g. MJN1C-AC24).

| Item                                   |          |              | Model                        |                               |                              |                 |
|----------------------------------------|----------|--------------|------------------------------|-------------------------------|------------------------------|-----------------|
| Type                                   | Terminal | Contact form | 10A Version, flange mounting | 20 A Version, flange mounting | 30A Version, flange mounting | 10 A Relay only |
| Standard                               | Plug-in  | SPDT         | MJN1CF                       | ---                           | MJN1Z-E-RP                   | MJN1C           |
|                                        |          | DPDT         | MJN2CF                       | MJN2CE                        | ---                          | MJN2C           |
|                                        |          | 3PDT         | MJN3CF                       | ---                           | ---                          | MJN3C           |
| LED indicator                          | Plug-in  | SPDT         | MJN1CF-N*                    | ---                           | ---                          | MJN1C-N         |
|                                        |          | DPDT         | MJN2CF-N*                    | ---                           | ---                          | MJN2C-N         |
|                                        |          | 3PDT         | MJN3CF-N*                    | ---                           | ---                          | MJN3C-N         |
| Push-to-operate button                 | Plug-in  | SPDT         | MJN1CF-I*                    | ---                           | ---                          | MJN1C-I         |
|                                        |          | DPDT         | MJN2CF-I*                    | ---                           | ---                          | MJN2C-I         |
|                                        |          | 3PDT         | MJN3CF-I*                    | ---                           | ---                          | MJN3C-I         |
| Push-to-operate button & LED indicator | Plug-in  | SPDT         | MJN1CF-IN*                   | ---                           | ---                          | MJN1C-IN        |
|                                        |          | DPDT         | MJN2CF-IN*                   | ---                           | ---                          | MJN2C-IN        |
|                                        |          | 3PDT         | MJN3CF-IN*                   | ---                           | ---                          | MJN3C-IN        |
| Latching                               | Plug-in  | DPDT         | ---                          | ---                           | ---                          | MJN2CK          |

**Note:** All part numbers marked with an "\*" are non-standard parts. Contact an Omron representative for additional information.

# Specifications

## ■ Contact Data

|                                   |             |                                                                                                                                                                                    |
|-----------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Configuration</b>              |             | SPDT, DPDT, 3PDT                                                                                                                                                                   |
| <b>Initial contact resistance</b> |             | 50 mΩ max.                                                                                                                                                                         |
| <b>Materials</b>                  |             | 3/16" diameter Ag-Alloy                                                                                                                                                            |
| <b>Contact UL ratings</b>         | <b>10 A</b> | 10 amp @ 28 VDC and 120/240 VAC at 80% pf, 1/3 hp @ 120 VAC, 1/2 hp @ 277/240/480/600 VAC<br>8.5 FLA - 36 LRA at 18 VDC, 3 amp @ 480/600 VAC at 80% pf, 10 amp @ 277 VAC resistive |
|                                   | <b>20 A</b> | 20 amp @ 28 VDC and 120/240/277 VAC, 10 amp @ 480/600 VAC, 3.4 hp @ 120 VAC, 1-1/2 hp @ 240 VAC, 17 FLA - 65 LRA at 300VAC                                                         |
|                                   | <b>30 A</b> | 30 amp @ 28 VDC, 15 amp @ 480 / 600 VAC, 1hp @ 120 VAC, 1-1/2 hp @ 240 VAC                                                                                                         |
| <b>UL recognized file number</b>  |             | E41643                                                                                                                                                                             |

## ■ Coil Data

### Non-latching - AC

| Nominal voltage | Resistance in Ohms ± 10% |       | Nominal coil power |        | Coil voltages            | Insulation resistance      | Pick up voltage at 25°C (77°F) |
|-----------------|--------------------------|-------|--------------------|--------|--------------------------|----------------------------|--------------------------------|
|                 | 1 & 2 PDT                | 3PDT  | 1 & 2 PDT          | 3PDT   |                          |                            |                                |
| 6 VAC           | 6.0                      | 4.2   | 1.7 VA             | 2.0 VA | 6 to 240 VAC<br>50/60 Hz | 1,000 MΩ<br>min. @ 500 VDC | 85% of nominal                 |
| 12 VAC          | 21                       | 18    |                    |        |                          |                            |                                |
| 24 VAC          | 75                       | 72    |                    |        |                          |                            |                                |
| 120 VAC         | 2,250                    | 1,700 |                    |        |                          |                            |                                |
| 240 VAC         | 9,100                    | 7,200 |                    |        |                          |                            |                                |

### Non-latching - DC

| Nominal voltage | Resistance in Ohms ± 10% | Nominal coil power | Coil voltages | Insulation resistance      | Pick up voltage at 25°C (77°F) |
|-----------------|--------------------------|--------------------|---------------|----------------------------|--------------------------------|
| 5 VDC           | 20                       | 1.2 W              | 5 to 110 VDC  | 1,000 MΩ<br>min. @ 500 VDC | 75% of nominal                 |
| 6 VDC           | 32                       |                    |               |                            |                                |
| 12 VDC          | 120                      |                    |               |                            |                                |
| 24 VDC          | 470                      |                    |               |                            |                                |
| 48 VDC          | 1,800                    |                    |               |                            |                                |
| 110 VDC         | 10,000                   |                    |               |                            |                                |

### Latching - AC

| Nominal voltage | Latch coil resistance in Ohms ± 10% | Unlatch coil resistance in Ohms ± 10% | Nominal coil power |        | Coil voltages            | Insulation resistance      | Operate voltage (latch/unlatch) at 25°C (77°F) (see note) |
|-----------------|-------------------------------------|---------------------------------------|--------------------|--------|--------------------------|----------------------------|-----------------------------------------------------------|
| 6 VAC           | 5.5                                 | 105                                   | 1.7 VA             | 2.0 VA | 6 to 240 VAC<br>50/60 Hz | 1,000 MΩ<br>min. @ 500 VDC | 85% of nominal                                            |
| 12 VAC          | 22                                  | 445                                   |                    |        |                          |                            |                                                           |
| 24 VAC          | 88                                  | 1,740                                 |                    |        |                          |                            |                                                           |
| 120 VAC         | 2,090                               | 17,430                                |                    |        |                          |                            |                                                           |

**Note:** 120% of nominal or greater (one second duration single pulse) unlatch voltage - - above this the relay latches again.  
Maximum continuous voltage: 120% of nominal (one coil only).

## Latching - DC

| Nominal voltage | Latch coil resistance in Ohms $\pm 10\%$ | Unlatch coil resistance in Ohms $\pm 10\%$ | Nominal coil power | Coil voltages | Insulation resistance           | Operate voltage (latch/unlatch) at 25°C (77°F) (see note) |
|-----------------|------------------------------------------|--------------------------------------------|--------------------|---------------|---------------------------------|-----------------------------------------------------------|
| 5 VDC           | 14                                       | 45                                         | 1.2 W              | 5 to 110 VDC  | 1,000 M $\Omega$ min. @ 500 VDC | 75% of nominal                                            |
| 6 VDC           | 20                                       | 64                                         |                    |               |                                 |                                                           |
| 12 VDC          | 80                                       | 275                                        |                    |               |                                 |                                                           |
| 24 VDC          | 330                                      | 1,070                                      |                    |               |                                 |                                                           |
| 48 VDC          | 1,290                                    | 2,850                                      |                    |               |                                 |                                                           |
| 110 VDC         | 5,125                                    | 10,750                                     |                    |               |                                 |                                                           |

**Note:** 120% of nominal or greater (one second duration single pulse) unlatch voltage - - above this the relay latches again.  
Maximum continuous voltage: 120% of nominal (one coil only).

## ■ Characteristics

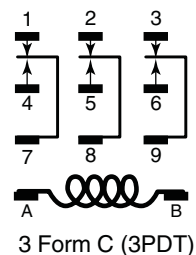
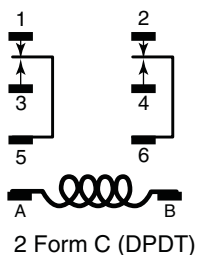
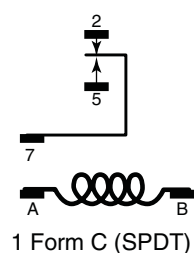
|                               |                   |                          |                                                                                                                                                |
|-------------------------------|-------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Operate time                  |                   |                          | 15 ms nominal; 20 ms maximum                                                                                                                   |
| Release time                  |                   |                          | 6 ms nominal; 10 ms maximum                                                                                                                    |
| Latch time                    |                   |                          | 13 ms nominal with a one second pulse of nominal voltage (See note)                                                                            |
| Unlatch time                  |                   |                          | 13 ms nominal with a one second pulse of nominal unlatch voltage after latching with a one second pulse of nominal latching voltage (See note) |
| Operating ambient temperature | AC: 1 & 2 pole    | Operating                | -45° to 60°C (-49° to 140°F)                                                                                                                   |
|                               |                   | Storage                  | -65° to 100°C (-85° to 212°F)                                                                                                                  |
|                               | AC: 3 pole        | Operating                | -45° to 45°C (-49° to 113°F)                                                                                                                   |
|                               |                   | Storage                  | -65° to 100°C (-85° to 212°F)                                                                                                                  |
|                               | DC: 1, 2 & 3 pole | Operating                | -45° to 70°C (-49° to 158°F)                                                                                                                   |
|                               |                   | Storage                  | -65° to 100°C (-85° to 212°F)                                                                                                                  |
| Insulation material           |                   |                          | High quality phenolic                                                                                                                          |
| Duty cycle                    |                   |                          | Rated for continuous duty operation at 25% overvoltage                                                                                         |
| Shock                         |                   |                          | 15 g's 11±1 ms (non-operating test, no mechanical damage)                                                                                      |
| Vibration                     |                   |                          | 0.1" DA or 10 g's, 10 to 55 Hz (operating test, no contact chatter)                                                                            |
| Life expectancy               |                   | Electrical at rated load | 100,000 operations                                                                                                                             |
|                               |                   | Mechanical               | 10,000,000 operations                                                                                                                          |
| Dielectric strength           |                   |                          | Greater than 750 VAC, RMS 60 Hz across open contacts<br>Greater than 2,500 VAC, RMS 60 Hz all other mutually insulated elements                |
| Terminals                     |                   |                          | Quick Connect                                                                                                                                  |
| Weight                        |                   |                          | 64 g (2.3 oz) open relay<br>54 g (3.0 oz) enclosed relay                                                                                       |

**Note:** A latch pulse of 50 ms minimum at nominal voltage is recommended to insure positive latching.

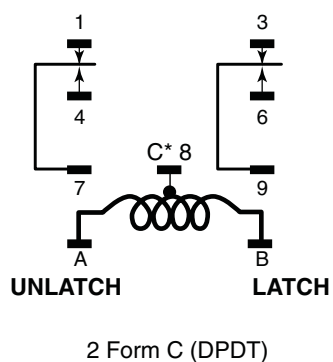
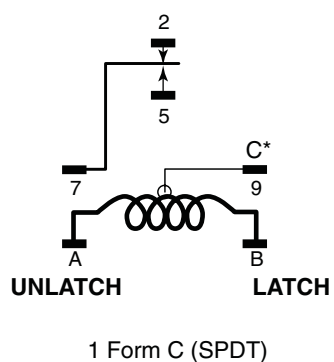
# Terminal Arrangement

## ■ Non-Latching

Reference only



## ■ Latching / Unlatching



\* C denoted common connection. On 3-pole relays the common connection is a wire lead coming off of the coil. It is not terminated to the relay header. Consult your Omron representative for single coil or isolated double coil models.

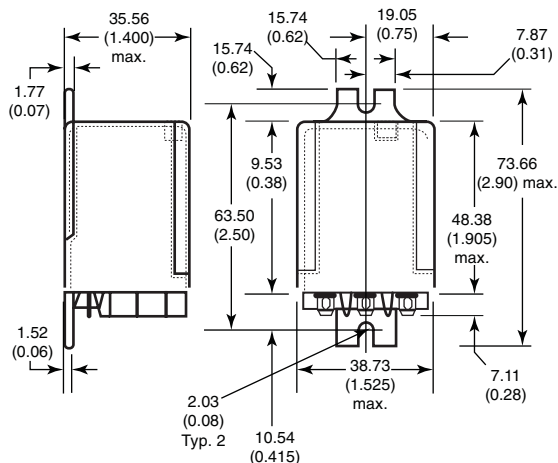
# Dimensions

Unit: mm (inch)

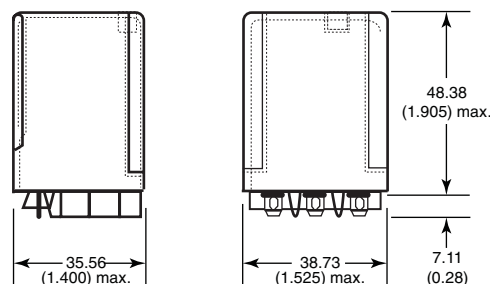
## Relays

MJN□CF/MJN2CE

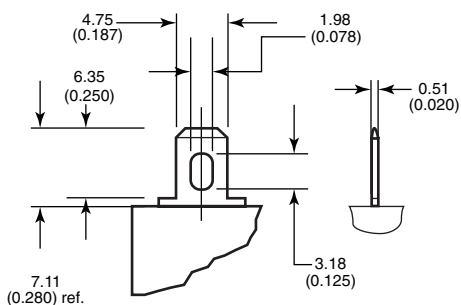
Dust cover with mounting flanges



Dust cover MJN

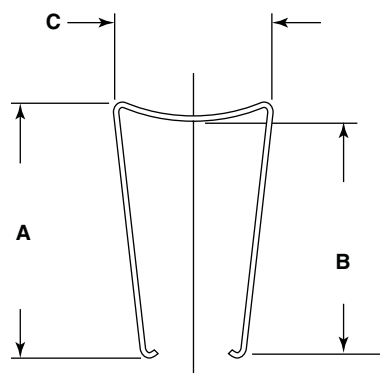


## Terminal-10 Amp Version

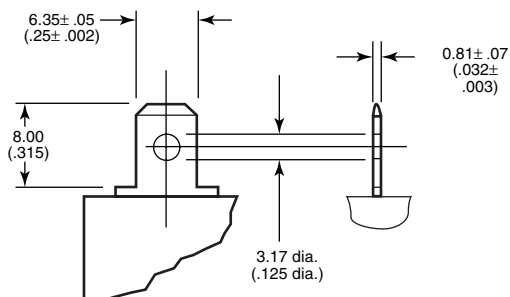


**Note:** Mates with .187" UL standard quick-connect terminals; also suitable for solder connection.

## Hold Down Springs



## Terminal-20 and 30 Amp Versions

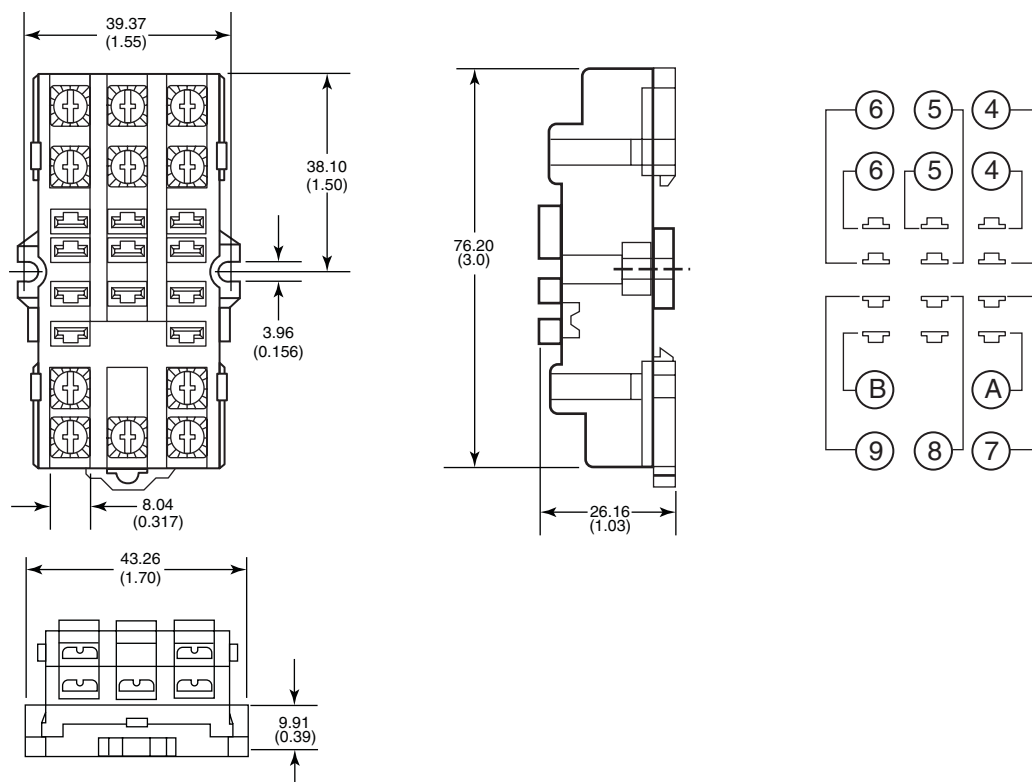


Hold Down Springs Dimensional Reference chart

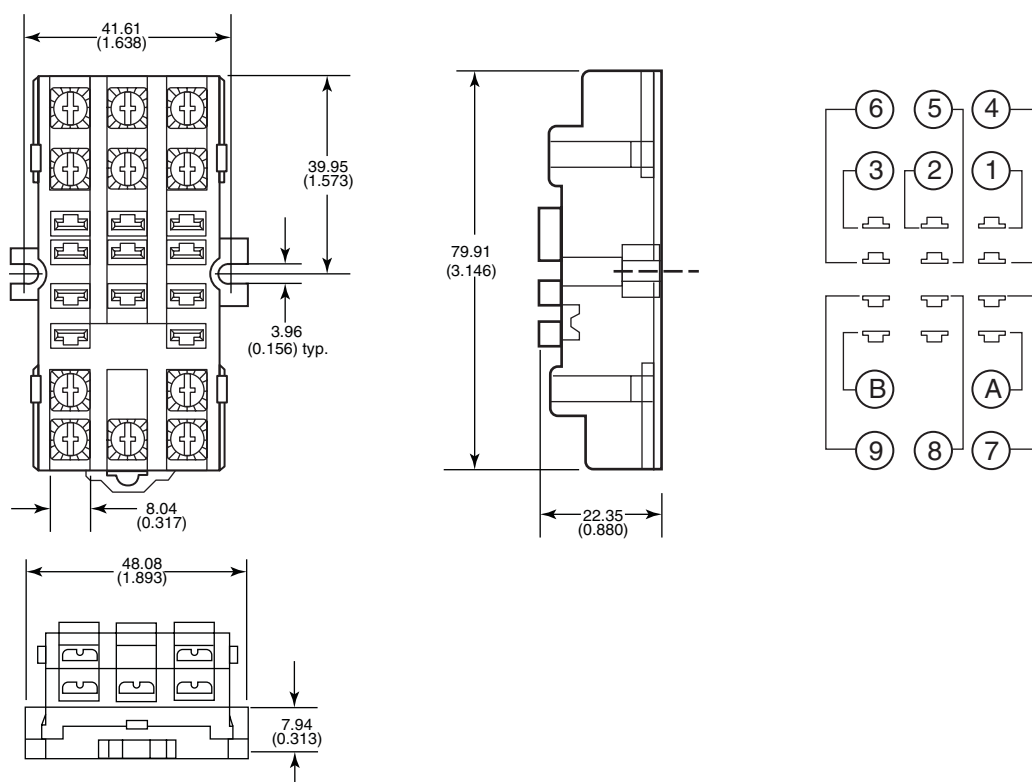
| Part number | Reference dimension | Actual dimension |
|-------------|---------------------|------------------|
| PYMJN-PCB   | A                   | 58.67 (2.31)     |
|             | B                   | 53.82 (2.12)     |
|             | C                   | 37.08 (1.46)     |
| PYMJN-S     | A                   | 58.67 (2.31)     |
|             | B                   | 53.59 (2.11)     |
|             | C                   | 40.26 (1.59)     |

# ■ Sockets (for use with 10 Amp, non-flange mount versions)

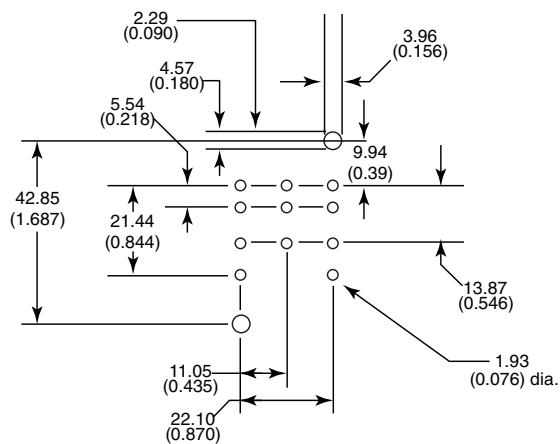
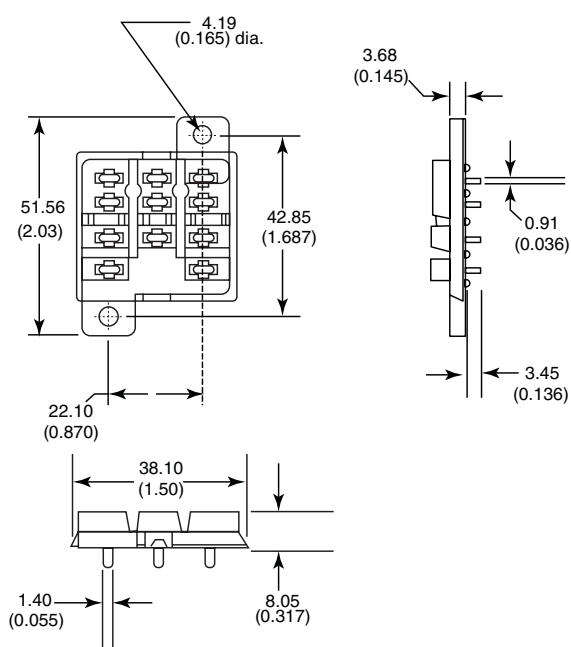
PTF11PC



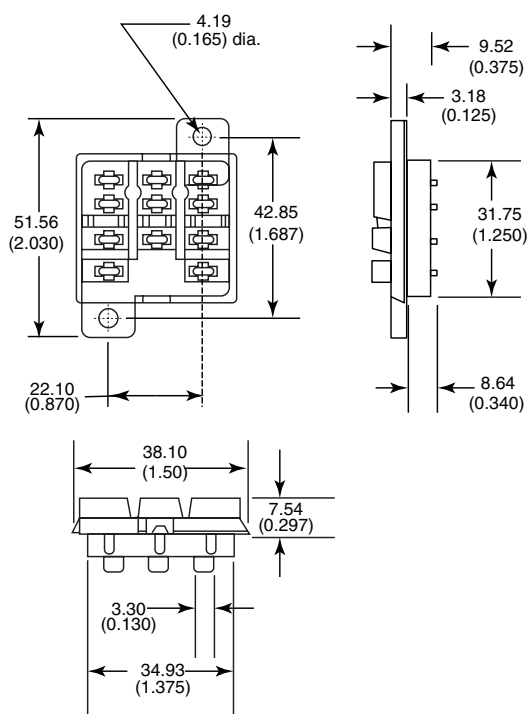
PTF21PC



**PTFPCB**



## PTF11QDC



**ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.**

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.