



166ML

**DELTROL****controls** | 

DIVISION OF DELTROL CORP.

# 165ML/166ML

## 5 & 10 AMP PLUG-IN MAGNETIC LATCHING RELAYS

### FEATURES

- Compact Size – Fits in Standard Rectangular 11 Blade Socket
- Positive Magnetic Latch – Maintains Status without Power
- Single Coil Resets by Reversing Polarity
- Dual Coil Resets by Energizing Reset Winding

### CONTACT DATA

#### CONFIGURATION:

AC & DC Single Coil thru 3PDT  
DC Dual Coil thru DPDT

#### MATERIALS:

##### 5 AMP:

1/8" Diameter Moveable Fine Silver  
3/16" Diameter Stationary Fine Silver

##### 10 AMP:

3/16" Diameter Moveable Silver Cadmium Oxide  
3/16" Diameter Stationary Fine Silver

Gold Flash Standard on All Contacts

Gold Diffused Available on Special Order – Min. Qty. Req'd.

### CONTACT RATINGS

| MODEL | POLE CONFIGURATION | UL RATINGS   |
|-------|--------------------|--|
| 165ML | thru 3PDT          | 5 amp or 1/8 HP at 120VAC<br>5 amp or 1/4 HP at 277VAC<br>2 amp at 600VAC<br>5 amp at 28VDC  |
| 166ML | thru 3PDT          | 10 amp or 1/3 HP at 120VAC<br>10 amp or 1/2 HP at 277VAC*<br>10 amp at 28VDC<br>1 HP at 277VAC – 3 phase<br>3 amp or 1/2 HP at 600VAC<br>12 FLA, 35 LRA at 15VAC |

\* 3 Pole Devices Rated at 6-2/3 Amp When Switching Greater Than 150VAC, Unless Polarity is the Same on All Poles.

UL RECOGNIZED FILE NO.: E37066

CSA CERTIFIED FILE NO.: LR20690

### EXPECTED LIFE

#### Electrical At Rated Load (Minimum)

100,000 Operations Except as Noted

#### Mechanical Life

10,000,000 Operations

### DIELECTRIC STRENGTH

800 VRMS, 60 Hz Between Contacts  
2200 VRMS, 60 Hz Between All Other Elements

### MODELS

**165ML:** 5 Amp Single or Dual Coil

**166ML:** 10 Amp Single or Dual Coil

**165MLB:** 5 Amp ML Relay with Push to Test Button

**166MLB:** 10 Amp ML Relay with Push to Test Button  
Other Suffixes Available

F-Flange Cover, P-Printed Circuit Terminals

TM-Top Mount Cover



### COIL DATA

|                | NOMINAL VOLTAGE | RESISTANCE IN OHMS<br>± 10% | NOMINAL COIL POWER |
|----------------|-----------------|-----------------------------|--------------------|
| AC Single Coil | 6VAC            | 4.5                         | 4.0VA              |
|                | 12VAC           | 18                          |                    |
|                | 24VAC           | 72                          |                    |
|                | 48VAC           | 285                         |                    |
|                | 120VAC          | 1850                        |                    |
| DC Single Coil | 240VAC          | 7200                        | 1.5W               |
|                | 6VDC            | 24                          |                    |
|                | 12VDC           | 96                          |                    |
|                | 24VDC           | 375                         |                    |
|                | 48VDC           | 1500                        |                    |
| DC Dual Coil   | 110VDC          | 8000                        | 1.9W               |
|                | 6VDC            | 19                          |                    |
|                | 12VDC           | 75                          |                    |
|                | 24VDC           | 300                         |                    |
|                | 48VDC           | 1200                        |                    |
|                | 110VDC          | 6300                        |                    |

**Coil Voltages:** AC: Up to 277 Volts/60 Hz

DC: Up to 125 Volts

**Coil Treatment:** Single Coil: Molded Rynite® Std. Class F

Dual Coil: Acetate Wrapped Class B

**Insulation Resistance:** 100 Megohms Minimum

**UL Insulation System File No.:** E74443

S130 130°C Total Temperature – Class B

S155D 155°C Total Temperature – Class F

### OPERATE DATA

**Pick Up (at 25°C):** AC: Volts 85% or Less of Nominal

DC: Volts 75% or Less of Nominal

**Operate Time:** Approx. 20 Milliseconds

### ENVIRONMENTAL DATA

**Operating Ambient:** AC: -45° to 70°C

DC: -45° to 85°C

**Coil Temperature Rise:** (25°C Ambient – Continuous Duty)

AC: 45°C Approx. @ 60 Hz – Use at 50 Hz will

Cause Slight Increase in Coil Rise

DC: 35°C Approx.

### MECHANICAL DATA

**Terminals:** All Versions (Except P suffix)

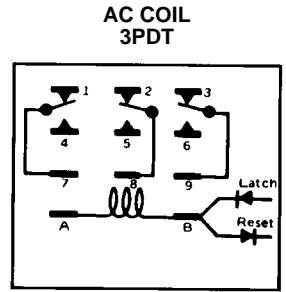
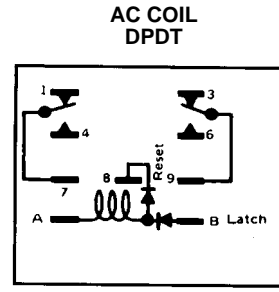
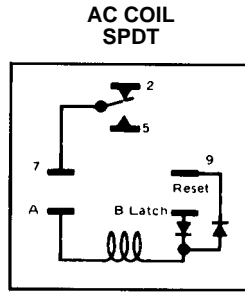
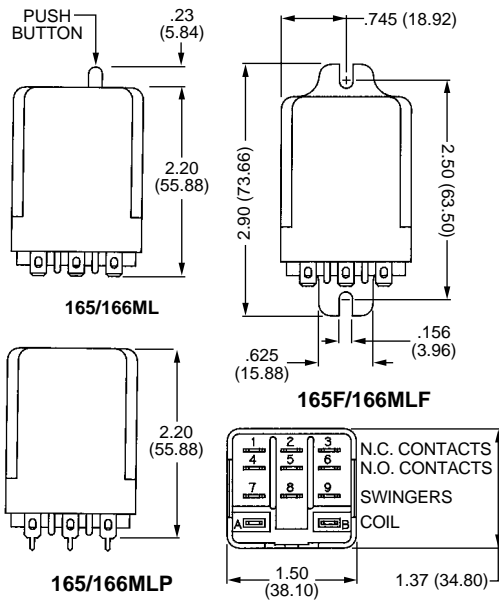
.187" x .020" Quick Connect/Solder

P Suffix Version Printed Circuit Pins

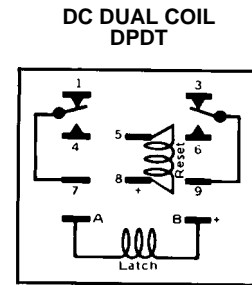
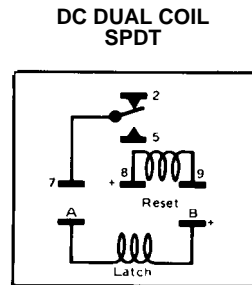
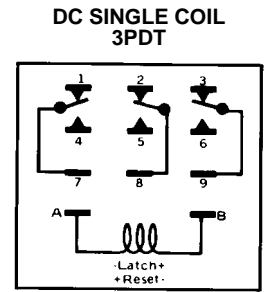
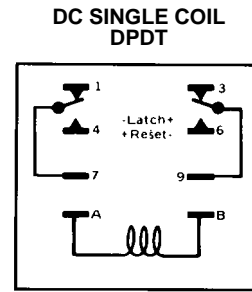
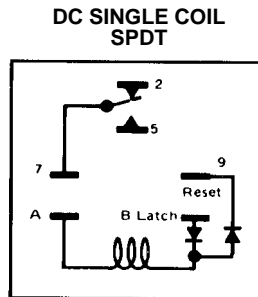
**Cover:** Clear Polycarbonate – Flammability Rating 94V2

**Weight:** Approx. 3.5 oz. (142 g)

## DIMENSIONS [Unit Inch (mm)]      SCHEMATICS



DIODES ARE EXTERNALLY WIRED AND SUPPLIED BY CUSTOMER. TYPE IN4005 OR EQUIVALENT RECOMMENDED 3PDT ONLY



DC DUAL COIL 3PDT NOT AVAILABLE

## ORDERING INFORMATION

### 10 AMP Part Numbers – Single Coil Versions

| AC Coils |                    |          |           |          | DC Coils |          |          |
|----------|--------------------|----------|-----------|----------|----------|----------|----------|
| MODEL    | POLE CONFIGURATION | 24VAC    | 120VAC    | 240VAC   | 12VDC    | 24VDC    | 110VDC   |
| 166ML    | SPDT               | 20523-82 | 20523-84  | 20523-85 | 20529-81 | 20529-82 | 20529-84 |
|          | DPDT               | 20525-82 | 20525-84* | 20525-85 | 20531-81 | 20531-82 | 20531-84 |
|          | 3PDT               | 20527-82 | 20527-84  | 20527-85 | 20533-81 | 20533-82 | 20533-84 |

### 10 AMP Part Numbers – Dual Coil Versions

|       |      |     |     |     |          |          |          |
|-------|------|-----|-----|-----|----------|----------|----------|
| 166ML | SPDT | --- | --- | --- | 20535-81 | 20535-82 | 20535-84 |
|       | DPDT | --- | --- | --- | 20537-81 | 20537-82 | 20537-84 |
|       | 3PDT | --- | --- | --- | ---      | ---      | ---      |

\* Black Items are Normally Stocked.

Blue Items are Non-Stock. Minimum may be required.

## SOCKETS

See Page 30 for Dimensions and Specifications

| DIN Rail Mtg                    | Hold Down Springs  | Back Connecting  |  |   |  |
|---------------------------------|--|--|--|---|--|
|                                 |  |  |  |   |  |
| DPDT 20982-81<br>3PDT 20982-82* | For DIN Sockets 20902-03*<br>For Back Connecting 20902-00* | Quick-Connect<br>SPDT 20313-80<br>DPDT 20313-81*<br>3PDT 20313-82* | Solder<br>20312-80<br>20312-81*<br>20312-82* | Deep Barrier Type<br>20395-80<br>20395-81<br>20395-82 | Printed Circuit<br>20314-80<br>20314-81<br>20314-82* |