

## TYPE 157



### FEATURES:

- The Type 157 relay is a rugged power driver offering superior 3/16" through air and 3/8" over-surface spacing.
- An interlocked frame and contact block prevent contact misalignment during plug-in.
- Open or dust covered available with indicator lamps and push-to-operate buttons.
- A magnetic latching version provides a unique switchable core which cannot be falsely latched.
- All Midtex catalog Type 157 relays have UL & CSA Recognition as motor controllers through 600 VAC
- They provide through air spacing of 3/16" minimum and over-surface spacing of 3/8" minimum and are recognized for 1/2 hp motor controller applications at 240/480/600 VAC (1/3 hp at 120 VAC).
- Chassis mounted open relays must employ 1/32" additional insulation between mounting surface and relay to insure 1/2" over-surface and through air to the mounting surface.
- Sockets for the 157 relays are constructed to meet UL requirements for these ratings.
- UL File E38802 CSA LR54109



## TYPE 157

CONTACTS		UL & CSA Recognition Rating	
Material			
-100	1/8" Fine Sliver (gold flash) 5 amp	5 amp, 28 VDC/ 2 amp 1/8 hp 1/4 hp 2 amp 7.2 amp in rush, 24 VAC (SP devices)	120/240 VAC, 80% pf 480/600 VAC, 80% pf 120 VAC 240 VAC
-200	3/16" Silver Cadmium Oxide 10 amp	10 amp, 28 VDC/ 1/3 hp 1/2 hp 36 LRA, 8.5 FLA, 18VDC 3 amp 10 amp	120/240 VAC, 80% pf 120 VAC 277/240/480/600 VAC 480/600 VAC, 80% pf 277VAC resistive
-300	3/16" Silver Cadmium Oxide 15 amp (UL on 1 & 2PDT only)	15 amp 10 amp 3 amp 1/3 hp 1/2 hp 600w Tungsten	277/240/120 VAC 28 VDC 480/600 VAC 120 VAC 240/480/600 VAC 120/240 VAC
-700	1/8" Fine Sliver Gold Diffused	5 amp, 28 VDC/ 2 amp 1/8 hp 1/4 hp 2 amp 7.2 amp in rush, 24 VAC (SP devices)	120/240 VAC, 80% pf 480/600 VAC, 80% pf 120 VAC 240 VAC
-3MO	Mag Blowout (See Note)	1 Form X 2 Form A 2 Form C	12A @ 150 VDC 7A @ 150 VDC 5A @ 150 VDC

**Note:** For Mag Blowout positive contacts are 7 and 9. Negative contacts are 1, 3, 4 and 6.

### ELECTRICAL/MECHANICAL CHARACTERISTICS

All ratings at 25°C ambient

#### Design and Construction

Recognized by UL for motor controllers up to 600 VAC in accordance with UL Standard 508, Industrial Control Equipment. Optional features include manual push-to-test button and indicator lamp.

**Insulation Material**—High quality phenolic

**Weight** (approximate)—2.3 ounces (64 grams)—open relay  
3.0 ounces (84 grams)—enclosed relay

#### Marking

Midtex name, part number, nominal voltage, and terminal identification are standard. Customer marking optional.

**Initial Contact Resistance**—50 milliohms max.

COILS						
<b>Voltage Ratings</b>	6 to 240 VAC 50/60 Hz 5 to 110 VDC					
<b>Pick-up Voltage</b>	AC—85% of nominal DC—75% of nominal					
<b>Duty Cycle</b>	Rated for continuous duty operation at 25% overvoltage					
<b>Shock</b>	15 g's, 11±1mS (non-operating test, no mechanical damage)					
<b>Vibration</b>	0.1" DA or 10g's, 10 to 55 Hz (operating test, no contact chatter)					
<b>Power Ratings*</b>						
	<b>1 &amp; 2 Pole AC</b>	<b>3 Pole AC</b>	<b>DC</b>			
Nominal	1.7 VA	2.0 VA	1.2 W			
Max. Continuous	2.7 VA	3.1 VA	1.9 W			
<b>Temperature Rise*</b>						
	<b>1 &amp; 2 Pole AC</b>		<b>3 Pole AC</b>		<b>DC</b>	
	<b>Open</b>	<b>Enc.</b>	<b>Open</b>	<b>Enc.</b>	<b>Open</b>	<b>Enc.</b>
Nominal Voltage	35°C	45°C	45°C	60°C	35°C	40°C
25% overvoltage	55°C	65°C	75°C	85°C	50°C	55°C

\*60 Hz operation  
Increase values 20% for 50 Hz operation.

### COIL CHARACTERISTICS

Nominal Voltage	Resistance (Ohms±10%)		
	1 & 2PDT		3PDT
5	20		
6	32		
V	120		
D	470		
24	1800		
48	10000		
110			
6	6.0	4.2	
V	21	18	
A	75	72	
24	2250	1700	
C	9100	7200	
120			
240			

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## PART NUMBERING SYSTEM

Relay Type	Enclosure and Terminals	Contact Arr.	Coil	Contacts	Standard or Special
157	1—Open, Solder/Plug-in/.187 Quick Connect 2—Plain Cover, Solder/Plug-in/.187 Quick Connect 3—Flanged Cover, Solder/.187 Quick Connect 4—Plain Cover with End Mounting Bracket, Solder/Plug-in/.187 Quick Connect 9—Plain Cover, P.C. Terminal 0—Special (Including top flange)	1—SPDT 2—2PDT 3—3PDT 4—1 Form A 5—1 Form B 6—2 Form A 7—2 Form B 8—1 Form X 9—1 Form Y  0—Special	E—5 VDC A—6 VDC B—12 VDC C—24 VDC D—48 VDC F—110 VDC N—6 VAC P—12 VAC Q—24 VAC T—120 VAC U—240 VAC S—Special	1—1/8" Fine Silver Gold Flash 2—3/16" Silver Cadmium Oxide (10 Amp) 3—3/16" Silver Cadmium Oxide (15 Amp) 7—1/8" Fine Silver Gold Diffused  0—Special	00—Standard C0—Push Button Actuator D0—Diode across Coil F0—Class "F" Coil L0—Lamp Across Coil LC—Lamp & Push Button M0—Mag Blowout 09—PC Terminal without Cover. Use 9 in first digit. A1-Z9—Special *Top Flange avail.—Consult Factory

Example: 157-23C200 is a Type 157 relay, plain cover, solder/plug-in/.187 quick connect terminals 3 pole double throw contacts, 24VDC coil, 3/16" diameter Silver Cadmium Oxide contacts, of completely standard construction.

**Stock items:** 157-22B200, 157-22C200, 157-22C2L0, 157-22F200, 157-22Q200, 157-22Q2LC, 157-22T200, 157-22T2L0, 157-22U200, 157-23B200, 157-23C200, 157-23C2L0, 157-23Q200, 157-23Q2L0, 157-23T200, 157-23T2L0, 157-23T2LC, 157-32B200, 157-32C200, 157-32Q200, 157-32T200, 157-33B200, 157-33C200, 157-33Q200, 157-33T200.

## TEMPERATURE RANGE

Operating**	Minimum	Maximum		Storage
		Open	Enclosed	
1 & 2 pole AC	-45°C	+70°C	+60°C	-65°C to +100°C
3 pole AC	-45°C	+60°C	+45°C	
1, 2, 3, pole DC	-45°C	+80°C	+70°C	

\*\*50/60 Hz operation, based on 105°C limit.

## ELECTRICAL CHARACTERISTICS

### Dielectric Breakdown

Greater than 1200 VAC, RMS 60 Hz across open contacts  
 Greater than 2500 VAC, RMS 60 Hz all other mutually insulated elements

### Insulation Resistance

1000 megohms minimum at 500 VDC

### Timing

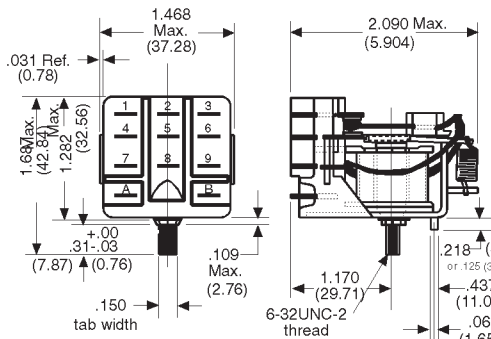
Operate time—15 mS nominal, 20 mS maximum  
 Release time—6 mS nominal, 10 mS maximum  
 (Nominal voltage, no coils suppression, DC relays only)

### Life Expectancy

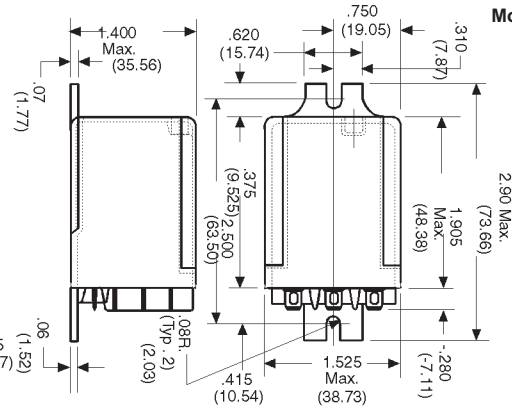
Mechanical—10 million operations  
 Electrical—100,000 operations at rated load

## DIMENSIONS

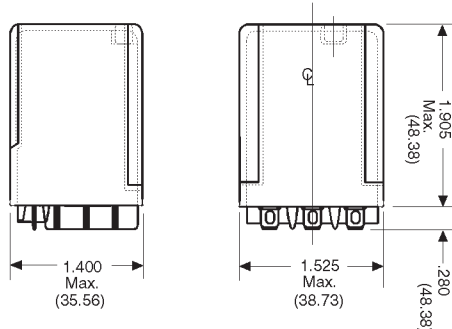
Open  
Model 157-1



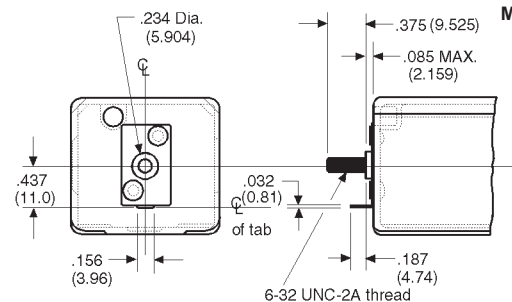
Model 157-3



Dust Cover  
Model 157-2



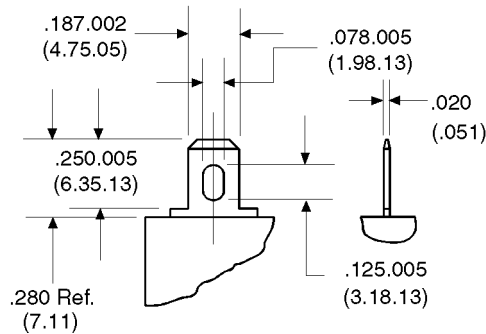
Model 157-4



# TYPE 157

## TERMINALS

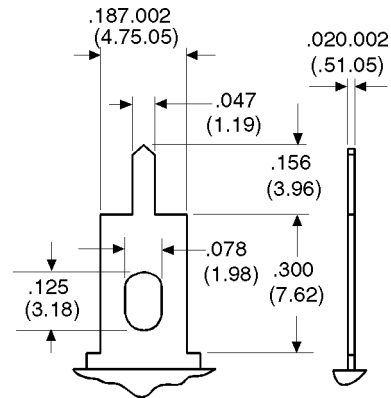
### Solder/Plug In .187 Quick Connect



Inches  
(Millimeters)

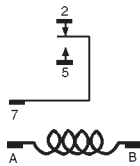
Mates with .187" UL standard quick connect terminal also suitable for solder connection. Model 157-1,-2,-3,-4

### Printed Circuit Terminal

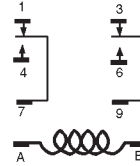


Printed Circuit Terminal For direct relay to PCB mounting. Model 157-9

## WIRING

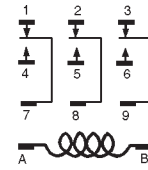


1 Form C (SPDT)



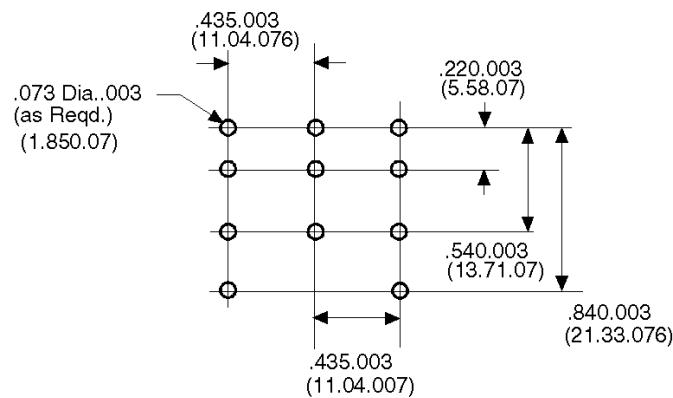
2 Form C (DPDT)

Reference Only



3 Form C (3PDT)

## PCB LAYOUT



Bottom View  
Reference Only

See RELAY SOCKETS on page 51.  
See HOLD DOWN SPRINGS on page 53.

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