

# 267 Series - Nuclear Grade OFF-Delay Timer

## 5 & 10 Amp Contacts

- Nuclear Grade time delay relay - IMPROVED version of the popular 236 series. Timing circuit is made using a solid-state timing IC to achieve 3% repeatability over voltage and temperature range.

**Note: Timing Module is not software programmed. The chips are hardware programmed. cannot be reprogrammed. See Page #3 of this Data Sheet for additional Module information and**

- Base Relay is made from the 219 Series with contacts that can be configured up to 3PDT or 5PST.
- Both Standard and Sensitive Bifurcated contacts can be combined in the same relay.
- Locking Shaft potentiometer and integral locking clip are standard.
- Large option list makes this product easily customized for special application. Blow out magnets can be added to increase DC switching capability. 94V-O rated enclosure and materials.

### GENERAL SPECIFICATIONS (@ 25° C)

#### Timing:

|                                    |                             |
|------------------------------------|-----------------------------|
| Functions Available                | Off-delay,                  |
| Time Range                         | Up to 7 hours               |
| Timing Adjustment                  | Locking shaft potentiometer |
| Timing Repeatability               | 3%                          |
| (Constant voltage and temperature) |                             |
| Reset Time maximum                 | 150mS                       |



#### Contacts:

|                             |                              |
|-----------------------------|------------------------------|
| Contact Configuration       | DPDT, DPDT+NO, 3PDT          |
| Contact Material            | Silver Alloy Gold Diffused   |
| Contact Rating              |                              |
| 120 / 240VAC Resistive      | 10 Amp (50mA min.) / 5 Amp   |
| 28VDC Resistive             | 10 Amp                       |
| Minimum Contact Load        | 50 mA                        |
| Motor 120VAC                |                              |
| Motor 240VAC                |                              |
| Minimum Contact Load        | 500mW                        |
| Contact Resistance, Initial | 100 milliohms max @ 6VDC, 1A |

See page 2 for additional options

See page 3 for additional contact ratings



#### Coil:

|                             |                        |
|-----------------------------|------------------------|
| Coils Available             | AC and DC              |
| Nominal Coil Power          | 5VA 2.5W               |
| Input Voltage Tolerance -AC | 85% to 110% of nominal |
| Input Voltage Tolerance -DC | 80% to 110% of nominal |
| Transient Protection        | Yes                    |
| Reverse Polarity Protection | Yes                    |
| Duty                        | Continuous             |

#### Dielectric Strength:

|                                   |                          |
|-----------------------------------|--------------------------|
| Across Open Contacts              | 500Vrms                  |
| Between Mutually Insulated Points | 1500Vrms                 |
| Insulation Resistance             | 1,000 Mohms min @ 500VDC |

#### Temperature:

|           |                             |
|-----------|-----------------------------|
| Operating | -20 to 70°C (-4 to 158°F)   |
| Storage   | -40 to 105°C (-40 to 221°F) |

#### Life Expectancy:

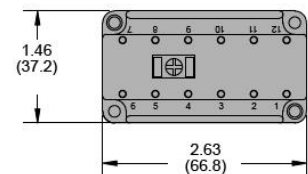
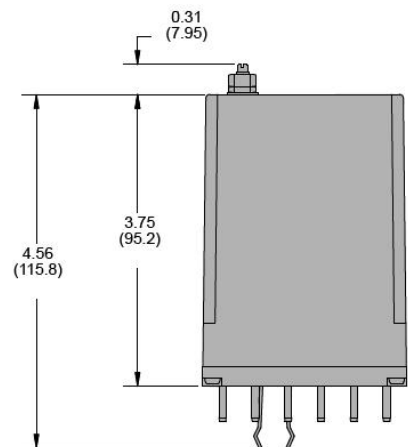
|                                   |            |
|-----------------------------------|------------|
| Electrical (full load operations) | 100,000    |
| Mechanical (no load operations)   | 10,000,000 |

#### Miscellaneous:

|                   |                                  |
|-------------------|----------------------------------|
| Mounting Position | Any                              |
| Enclosure         | Clear Polycarbonate              |
| Weight            | 8.5oz (241 grams)                |
| Mating Socket     | 12 PIN = 27390 (D)               |
|                   | 14 PIN = 33377 (D)               |
|                   | (D) is option for DIN Rail Mount |

#### Outline Dimensions

Dimensions shown in inches & (Millimeters)



# 267 Series - Nuclear Grade OFF-Delay Timer

## 5 & 10 Amp Contacts

**Ordering Code** 267 ABX 69 P LM33V 010 120VAC

**Series**  
267 - Off delay

**Contact Arrangement**

ABX (1 N.O. + DPDT) 12-Pin  
 XBX (DPDT) - (2 form C) 12-Pin  
 XCX (3PDT) - (3 form C) 12-Pin  
 BBX (2 N.O. + DPDT) 12-Pin  
 BXB (2 N.O. + 2 N.C.) 12-Pin  
 EXX(5PST) - (5 N.O.) 14-Pin

**Construction**

Blowout Magnet - 69  
 Polycarbonate Cover - CODE P

**Other Options**

Lamp Indicator - L  
 Manual Actuator - M  
 Bifurcated Contacts - 33  
 Coil Suppression Diode - V  
 Cover Gasket - N

**Timing Ranges**

0.1 - 1 seconds - CODE 001  
 1.0 - 10 seconds - CODE 010  
 10 - 100 seconds - CODE 100  
 100 - 1000 seconds - CODE 01K  
 1000 - 10,000 seconds - CODE 10K  
 Other timing ranges available

**Operating Voltage**

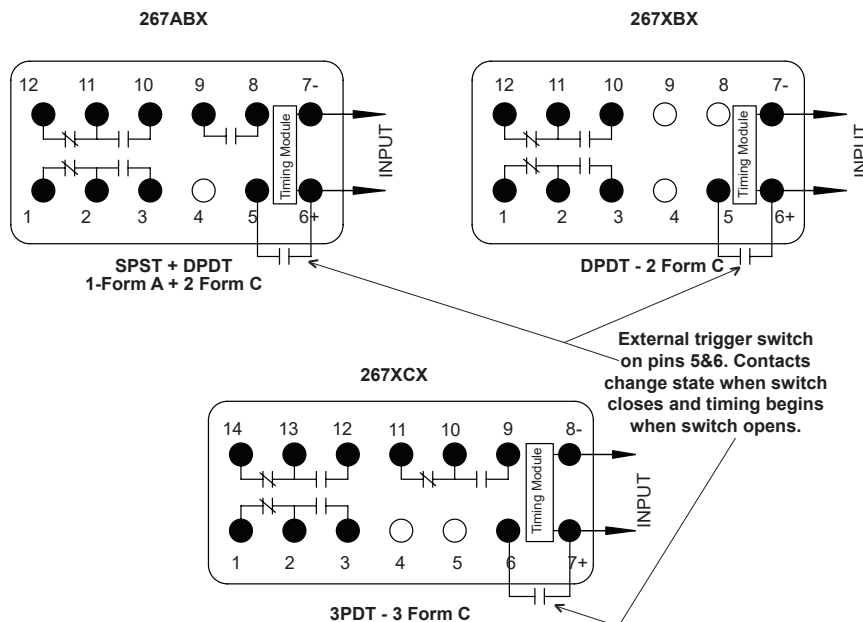
VAC: 6, 12, 24, 120, 208, 220, 240 (Add VAC)  
 VDC: 12, 24, 48, 115-125 (Add VDC)

Use Code "69" for optional Blowout Magnet when switching voltages above 40VDC.

Use Code "33" for bifurcated contacts when switching low level current below 50mA up to 5 Amps.

**Note:** If both 10A and 5A "33" contacts are needed on the same relay a special part number will need to be assigned. To accomplish that, contact the factory directly through [info@struthers-dunn.com](mailto:info@struthers-dunn.com)

**267 Wire Diagram**



# 267 Series - Nuclear Grade OFF-Delay Timer

## 5 & 10 Amp Contacts

### 267 Series Coil Specifications

| AC Coils, 50/60HZ |                     |              |     |                | DC Coils        |                     |              |     |
|-------------------|---------------------|--------------|-----|----------------|-----------------|---------------------|--------------|-----|
| Nominal voltage   | Resistance ohms 10% | Milliamperes |     | Impedance ohms | Nominal voltage | Resistance ohms 10% | Milliamperes |     |
|                   |                     | Cold         | Hot |                |                 |                     | Cold         | Hot |
| 6                 | 1.1                 | 1500         | 840 | 7.2            | 6               | 15.5                | 385          | 304 |
| 12                | 4.2                 | 750          | 410 | 27             | 12              | 63.5                | 189          | 147 |
| 24                | 15.5                | 375          | 200 | 120            | 24              | 250                 | 96           | 77  |
| 120               | 540                 | 75           | 40  | 2700           | 48              | 975                 | 49           | 39  |
| 240               | 2100                | 32           | 17  | 13400          | 115/125*        | 6200                | 20           | 16  |
|                   |                     |              |     |                | 250             | 27777               | 9            | 7   |

Note: Standard 125VDC relays have nameplates stamped 115/125VDC. These relays operate at 80% of the lower voltages and operate within allowable temperature rises at higher voltages.

### Standard Contact Load Ratings

| Contact Configuration     | Max Current / HP                  | Load Voltage                             | Load Voltage                             | Type of Load                             |
|---------------------------|-----------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
| All Styles EXCEPT Code 33 | 10 Amp<br>5 Amp<br>1/6HP<br>1/3HP | 120 VAC<br>240 VAC<br>120 VAC<br>240 VAC | 50/60Hz<br>50/60Hz<br>50/60Hz<br>50/60Hz | Resistive<br>Resistive<br>Motor<br>Motor |
| Code 33                   | 5 Amp<br>2.5 Amp                  | 120 VAC<br>240 VAC                       | 50/60Hz<br>50/60Hz                       | General Purpose<br>General Purpose       |

Use Code "69" for optional Blowout Magnets when switching above 40VDC voltages.

Use Code "33" for bifurcated contacts when switching low level current below 50mA up to 5 Amps.

### See Page 4 for Additional Lab-tested Contact Ratings

#### Questions and Answers Concerning the Security of the 267 Series Timer Electronics:

- Q. Is the solid-state timing IC CMOS or something else and, is it a Struthers-Dunn proprietary ASIC or off-the-shelf, etc?
- A. CMOS - off the shelf. The timing circuit includes an IC with an internal binary counter employing digital logic gates.
- Q. Are there any microprocessors or microcontrollers?
- A. No
- Q. Are there any programmable logic devices (CPLD, FPGA, etc.)?
- A. No
- Q. Are there any memory devices (flash, EEPROM, etc.)?
- A. No
- Q. Are there any ASICs?
- A. No
- Q. What does "hardware programmed" mean?
- A. No software. Programmed by IC Pins tied to either HI or LO and external resistor/capacitor (external to IC but internal to the timer module/relay.)
- Q. Are there any oscillators inside the device? This includes crystal oscillators, free- running RC oscillators, switching power modules, and anything that could generate high-frequency noise?
- A. The IC has an internal oscillator controlled by an external R/C network. The frequency will vary according to the R/C values. Typically: 2Hz to 4KHz. The shorter the timing, the higher the frequency.

# 267 Series - Nuclear Grade Time Delay Relay Up To 5 & 10 Amp Contacts

Below are optionally lab-tested contact load factors based on switching configurations and various Voltage/Current loads that are for reference only. (Not official UL ratings)

## Highest Load for **Standard** Contacts

\*Current - A, Resistive unless otherwise noted

| Voltage       | Current, A                | Switching Type |
|---------------|---------------------------|----------------|
| 28 VDC, "69"  | 10A                       | Make & Break   |
| 48 VDC, "69"  | 10A                       | Make & Carry   |
|               | 5A                        | Make & Break   |
| 125 VDC, "69" | 10A                       | Make & Carry   |
|               | 4A                        | Carry & Break  |
|               | 3A                        | Make & Break   |
| 250 VDC, "69" | 4A                        | Make & Carry   |
|               | 2A                        | Carry & Break  |
|               | 1A                        | Make & Break   |
| 120 VAC       | 10A, 3A Inductive, 1/6 HP | Make & Break   |
| 240 VAC       | 10A, 1/3 HP               | Make & Break   |
| 277 VAC       | 10A                       | Make & Carry   |
|               | 7A                        | Carry & Break  |
|               | 4.5A                      | Make & Break   |

## Lowest Load for **Bifurcated** Contacts

\*Current - A, Resistive unless otherwise noted

| Voltage | Current, A | Switching Type |
|---------|------------|----------------|
| 5 VDC   | 0.1A       | Make & Break   |
| 12 VDC  | 0.075A     | Make & Break   |
| 28 VDC  | 0.01A      | Make & Break   |
| 48 VDC  | 0.005A     | Make & Break   |
| 125VDC  | 0.005A     | Make & Break   |
| 250 VDC | 0.001A     | Make & Break   |
| 120 VAC | 0.01A      | Make & Break   |
| 240 VAC | 0.005A     | Make & Break   |
| 480 VAC | 0.001A     | Make & Break   |

## Lowest Load for **Standard** Contacts

\*Current - A, Resistive unless otherwise noted

| Voltage | Current, A | Switching Type |
|---------|------------|----------------|
| 5 VDC   | 1A         | Make & Break   |
| 12 VDC  | 0.75A      | Make & Break   |
| 28 VDC  | 0.050A     | Make & Break   |
| 48 VDC  | 0.050A     | Make & Break   |
| 125VDC  | 0.050 A    | Make & Break   |
| 250 VDC | 0.050A     | Make & Break   |
| 120 VAC | 0.050A     | Make & Break   |
| 240 VAC | 0.050A     | Make & Break   |
| 480 VAC | 0.050A     | Make & Break   |

## Highest Load for **Bifurcated** Contacts

\*Current - A, Resistive unless otherwise noted

| Voltage | Current, A | Switching Type |
|---------|------------|----------------|
| 28 VDC  | 5A         | Make & Carry   |
|         | 3A         | Carry & Break  |
|         | 2.5        | Make & Break   |
| 48 VDC  | 3A         | Make & Carry   |
|         | 2A         | Carry & Break  |
|         | 1.5A       | Make & Break   |
| 150VDC  | 1A         | Make & Carry   |
|         | 0.5        | Carry & Break  |
|         | 0.25       | Make & Break   |
| 250 VDC | 0.5A       | Make & Carry   |
|         | 0.25A      | Carry & Break  |
|         | 0.1A       | Make & Break   |
| 120 VAC | 5A         | Make & Carry   |
|         | 3A         | Carry & Break  |
|         | 5          | Make & Break   |
| 240 VAC | 2.5A       | Make & Carry   |
|         | 1.5A       | Carry & Break  |
|         | 2.5 A      | Make & Break   |
| 277 VAC | 2.5A       | Make & Carry   |
|         | 1.5A       | Carry & Break  |
|         | 1.0A       | Make & Break   |
| 480 VAC | 0.5A       | Make & Carry   |
|         | 0.2A       | Make & Break   |

## Bifurcated Contacts - Explanation

### What are the advantages of Bifurcated contacts?

Bifurcated contacts are a set of contacts that are on a blade that is split into two parts. (See Photo)

**Advantages:** Bifurcated contacts are used specifically for low-level switching of current and voltages that are not reliably possible with standard contacts. The bifurcated contacts provide an increased amount of contact surface to transfer low-current signals with greater reliability.

The contacts can be set up like regular contacts in any combination with Normally Closed and/or Open contacts. The blades with the "dual contacts" move simultaneously to make contact with the Open and Closed set of contacts - just like Standard contacts.

Bifurcated contacts can be in a separate relay by themselves using the **Code 33** in the part number (See Pg. 2 for Ordering Codes) or combined in a relay alongside standard contacts. Relays with dual-type contacts are given special part numbers that would need to be assigned to ensure future compliance if replacements are needed.

**Example of what Bifurcated contacts look like.**

