

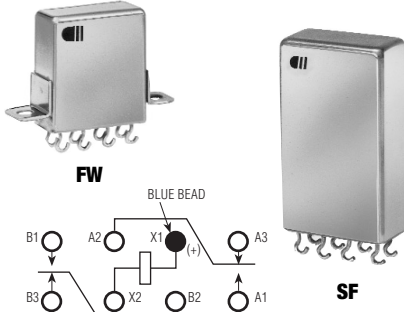
FW · FW5A · SF · SF5A

FULL SIZE HIGH PERFORMANCE RELAYS

FW · FW5A · SF · SF5A

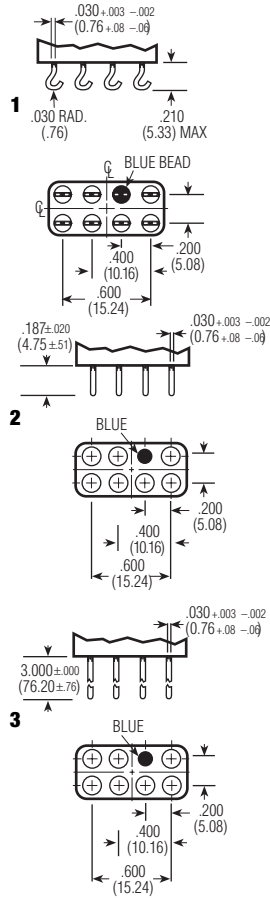
**TWO POLE FULL SIZE
CRYSTAL CAN RELAY**

FW QUALIFIED TO MIL-R-5757/10



FEATURES

- Hermetically sealed
- Up to 5 amps switching
- High shock & vibration ratings
- Optional terminals & mounting options
- Excellent RF switching



TERMINALS

ELECTRICAL CHARACTERISTICS

CONTACT ARRANGEMENT

2 Form C

CONTACT MATERIAL

Stationary:
Bifurcated hardened silver alloy

Moveable:

Gold plated hardened silver alloy

CONTACT RESISTANCE

Before Life: 50 milliohms max.
(measured @ 10 mA @ 6 Vdc)

After Life: 100 Milliohms max.
(measured @ 2 mA @ 28 Vdc)

MECHANICAL LIFE EXPECTANCY

50 million operations

COIL VOLTAGE

1.8 Vdc to 110 Vdc

COIL POWER

1.5 watts max. @ 25° C

DUTY CYCLE

Continuous

PICK-UP VOLTAGE

Approximately 50% of
nominal coil voltage

PICK-UP SENSITIVITY

250 mW (FW)
40 mW (SF)
80 mW (SF 5A)

RF PERFORMANCE (FW ONLY)

| FREQUENCY (MHz) | RFLOSSES (dB) | VSWR | ISOLATION (dB) |
|-----------------|---------------|--------|----------------|
| 100 | 0.1 | 1.17:1 | 40 |
| 250 | 0.2 | 1.18:1 | 33 |
| 500 | 0.3 | 1.19:1 | 28 |
| 750 | 0.4 | 1.19:1 | 25 |
| 1,000 | 0.4 | 1.19:1 | 23 |

OPERATING CHARACTERISTICS

TIMING

Operate Time:
15 ms max. (SF)
5 ms (FW)
6 ms max. (MIL-R-5757/10)

Release Time:
10 ms max. (SF)
5 ms max. (FW)
6 ms max. (MIL-R-5757/10)

Contact Bounce:
2 ms max.

DIELECTRIC WITHSTANDING VOLTAGE

Between Open Contacts:
500 Vrms, 60 Hz

Between Adjacent Contacts:
1,000 Vrms, 60 Hz

Between Contacts and Coil:
1,000 Vrms, 60 Hz

INSULATION RESISTANCE

10,000 Megohms @ 500 Vdc

ENVIRONMENTAL CHARACTERISTICS

TEMPERATURE RANGE

-65° to +125°C

WEIGHT

0.6 oz. max. (FW)
0.7 oz. max. (SF 6)
1.1 oz. max. (SF/SF 5A)

STANDARD VIBRATION RESISTANCE

20 G's, 10 to 2000 Hz (FW)
15 G's, 10 to 2000 Hz (SF)
QPL: 20 G's, 10 to 2000 Hz

SHOCK RESISTANCE

100 G's, 6 ± 1 ms

QPL APPROVAL

MIL-R-5757/10 (FW only)

QPL EQUIVALENT

MIL-R-5757/13 (SFonly)

CONTACT RATINGS

| CONTACT LOAD | TYPE | OPERATIONS MIN. |
|--------------------------------------|--------------------|-----------------|
| 5 A @ 28 Vdc (FW5A/SF5A) | Resistive | 100,000 |
| 3 A @ 28 Vdc (FW) | Resistive | 100,000 |
| 2 A @ 28 Vdc (SF) | Resistive | 100,000 |
| 1 A @ 115 Vac, 60 Hz & 400 Hz (FW) | Resistive | 100,000 |
| 0.3 A @ 115 Vac, 60 Hz & 400 Hz (SF) | Resistive | 100,000 |
| 1 A @ 28 Vdc | Inductive (200 mH) | 100,000 |
| 0.1 A @ 28 Vdc | Lamp | 100,000 |
| 10 uA @ 50 mVdc | Low Level | 1,000,000 |
| 75 WATTS @ 50 MHz (FW) | RF | 10,000,000 |

FW • FW5A • SF • SF5A

FULL SIZE HIGH PERFORMANCE RELAYS

FW COIL DATA

| NOM. COIL VOLTAGE (Vdc) | COIL RESISTANCE IN OHMS ±10% @ 25°C | PICKUP VOLTAGE Vdc (MAX.) @ 25°C | PICKUP VOLTAGE Vdc (MAX.) @ 125°C | DROPOUT VOLTAGE Vdc (MIN.) @ 25°C | DROPOUT VOLTAGE Vdc (MIN.) @ -65°C | NOM. COIL POWER (W) @ 25°C | MAX. COIL VOLTAGE | COIL DESIG. |
|-------------------------|-------------------------------------|----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|----------------------------|-------------------|-------------|
| 6.3 | 35 | 3.2 | 4.4 | 0.35 | 0.23 | 1.13 | 7.9 | A |
| 12.6 | 200 | 6.8 | 9.4 | 0.74 | 0.49 | .79 | 15.8 | D |
| 17.6 | 340 | 8.9 | 12.3 | 0.97 | 0.64 | .91 | 22.0 | E |
| 26.5 | 675 | 13.5 | 18.7 | 1.47 | 0.96 | 1.04 | 33.1 | G |
| 32.0 | 975 | 15.5 | 21.5 | 1.69 | 1.1 | 1.05 | 40.0 | H |
| 48.0 | 2,450 | 25.0 | 34.7 | 2.73 | 1.8 | .94 | 60.0 | L |
| 56.0 | 3,150 | 30.0 | 41.6 | 3.27 | 2.1 | 1.90 | 70.0 | M |
| 75.0 | 5,000 | 38.0 | 52.7 | 4.14 | 2.7 | 1.13 | 93.8 | N |
| 110.0 | 9,100 | 51.0 | 70.7 | 5.56 | 3.6 | 1.33 | 137.5 | R |

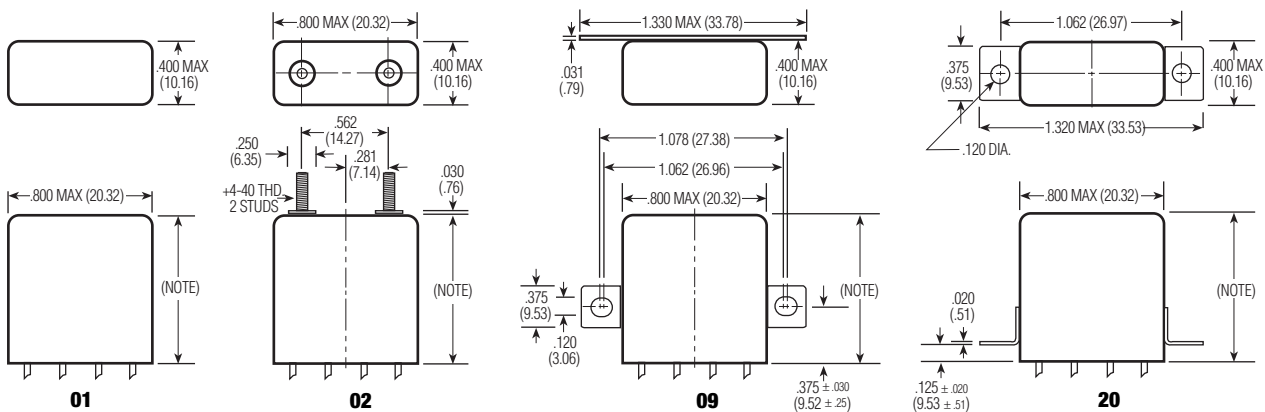
SF5 /SF6 COIL DATA

| NOM. COIL VOLTAGE (Vdc) | NOM. CURRENT (mA) | COIL RESISTANCE IN OHMS ±10% @ 25°C | PICKUP CURRENT (mA) @ 25°C | NOM. COIL POWER (mW) @ 25°C | COIL DESIG. |
|-------------------------|-------------------|-------------------------------------|----------------------------|-----------------------------|-------------|
| 1.8 | 90.0 | 20 | 45.0 | 162 | A |
| 9.0 | 18.0 | 500 | 9.0 | 162 | E |
| 12.6 | 12.6 | 1,000 | 6.5 | 159 | F |
| 16.5 | 11.0 | 1,500 | 5.2 | 182 | G |
| 18.0 | 9.0 | 2,000 | 4.5 | 162 | H |
| 20.0 | 8.0 | 2,500 | 4.0 | 160 | J |
| 26.5 | 5.3 | 5,000 | 2.8 | 140 | W |
| 36.0 | 4.5 | 8,000 | 2.3 | 162 | L |
| 40.0 | 4.0 | 10,000 | 2.0 | 160 | Y |

SF5A COIL DATA

| NOM. COIL VOLTAGE (Vdc) | NOM. CURRENT (mA) | COIL RESISTANCE IN OHMS ±10% @ 25°C | PICKUP CURRENT (mA) @ 25°C | NOM. COIL POWER (mW) @ 25°C | COIL DESIG. |
|-------------------------|-------------------|-------------------------------------|----------------------------|-----------------------------|-------------|
| 2.8 | 140.0 | 20 | 65.0 | 392 | A |
| 4.0 | 80.0 | 50 | 41.6 | 320 | B |
| 12.0 | 24.0 | 500 | 12.5 | 288 | E |
| 18.0 | 18.0 | 1,000 | 9.3 | 324 | F |
| 26.5 | 10.6 | 2,500 | 5.6 | 281 | J |
| 40.0 | 8.0 | 5,000 | 4.0 | 320 | W |

NOTE:
FW/FW5A = .875 (22.23) MAX
SF6 = .900 (22.86) MAX
SF5/SF5A5 = 1.281 (32.54) MAX



MOUNTING STYLES

SPECIFYING A PART NUMBER EXAMPLE:

| TYPE | SERIES | TERMINALS | MOUNTINGS | COILS | FEATURES |
|------|--------|-----------|-----------|-------|----------|
| FW | 1 | 1 | 20 | G | 00 |
| SF | 5 | 1 | 20 | W | 00 |
| SF5A | 5 | 1 | 20 | W | 00 |
| SF | 6 | 1 | 20 | W | 00 |

