

## WR-137 Waveguide Electromechanical Relay Latching Switch SPDT 8.2 GHz Max Frequency, 12,000 Watts C Band CPR-137F Flange

The FMWGS6024 electromechanical WR-137 waveguide switch operates across a wide frequency range from 5.85 GHz to 8.2 GHz and is configured for single pole double throw (SPDT) operation. A shorting plate on port 3 can be removed for optional double pole double throw (DPDT) operation. This innovative design features a latching Self Cut Off actuator and patented motor drive with arc suppression. The motor drive housing supports a viewable position indicator window and a cover that can be removed for manual override access.

Impressive performance includes 0.012 dB typ insertion loss, 105 dB typ Isolation, 1.03:1 typ VSWR, and an operating life of 250K cycles minimum. The design operates across a temperature range of -40°C to +85°C, requires +28Vdc nominal bias voltage, and has an input power rating of up to 12 KW CW maximum. The waveguide ports have Standard CPR-137F Flanges. The rugged package design is fully weatherized for up to 100% humidity exposure and supports a quick connect circular 6 pin MIL-SPEC DC bias connector with mate included.

### Electrical Specifications

|                    |                                                 |
|--------------------|-------------------------------------------------|
| Switch Type        | SPDT                                            |
| Actuator Type      | Latching                                        |
| Switching Sequence | Break Before Make                               |
| Actuator Options   | Self Cut Off, Window Indicator, Manual Override |
| Polarity           | Negative Common                                 |

| Description                         | Min  | Typ    | Max    | Units  |
|-------------------------------------|------|--------|--------|--------|
| Frequency Range                     | 5.85 |        | 8.2    | GHz    |
| Impedance                           |      | 50     |        | Ohms   |
| Operating Voltage                   | 21   | 28     | 32     | Volts  |
| Actuating Current @ 28 Volts        |      | 180    | 1,000  | mA     |
| VSWR                                |      | 1.03:1 | 1.05:1 |        |
| Insertion Loss                      |      | 0.012  | 0.02   | dB     |
| Isolation                           | 70   | 105    |        | dB     |
| Switching Time                      |      | 56     | 100    | ms     |
| Input Power (CW)                    |      |        | 12     | KWatts |
| Input Power, Peak<br>10% Duty Cycle |      |        | 320    | KWatts |

### Mechanical Specifications

|                                 |                     |
|---------------------------------|---------------------|
| Size                            |                     |
| Length                          | 5.488 in [139.4 mm] |
| Width/Diameter                  | 2.25 in [57.15 mm]  |
| Height                          | 2.25 in [57.15 mm]  |
| Weight                          | 1.573 lbs [713.5 g] |
| Operating Life (Cold Switching) | 250,000 Cycles      |
| Operating Pressure              | 30 psig             |



### Features:

- 5.85 to 8.2 GHz SPDT Waveguide Switch
- Optional DPDT Configuration
- WR-137 Waveguide
- Insertion Loss: 0.012 dB typ
- Isolation: 105 dB typ
- +28 Vdc Nominal Voltage
- Input Power Rating up to 12 kW CW max
- Latching Self Cut Off Actuator
- Position Indicator and Manual Override Access
- Fully Weatherized Package
- Quick Connect Circular DC Connector with Mate
- -40°C to +85°C Operating Temperature

### Applications:

- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Research and Development

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### Configuration

|                            |                              |
|----------------------------|------------------------------|
| Waveguide Size             | WR-137                       |
| Flange Type                | CPR-137F                     |
| Flange Designation         | None                         |
| Body Material and Plating  | Aluminum, Chem Film          |
| Body Plating Specification | MIL-DTL-5541 Type II Class 3 |

### Mechanical Specification Notes:

Production Burn-In IAW MIL-DTL-55041 1500 cycles

### Environmental Specifications

#### Temperature

|                 |                   |
|-----------------|-------------------|
| Operating Range | -40 to +85 deg C  |
| Storage Range   | -55 to +100 deg C |

|                                |                                                                                                      |
|--------------------------------|------------------------------------------------------------------------------------------------------|
| Ingress Protection (IP) Rating | IP67                                                                                                 |
| Humidity                       | 0-100%, Fully Weatherized                                                                            |
| ESD Sensitivity                | ESD Sensitive Material, Transport material in Approved ESD bags. Handle in approved ESD Workstation. |

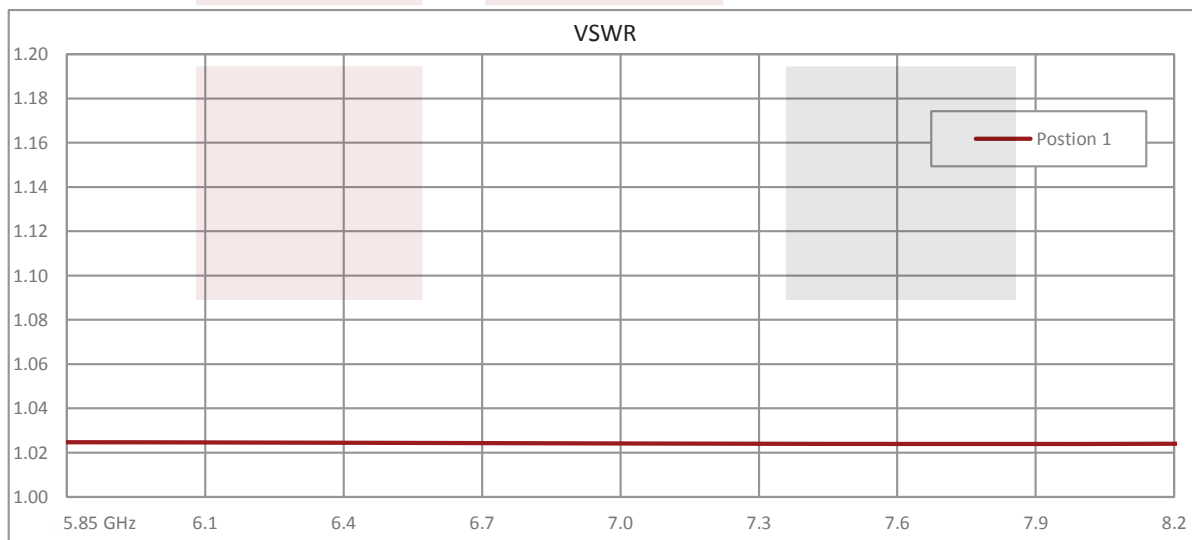


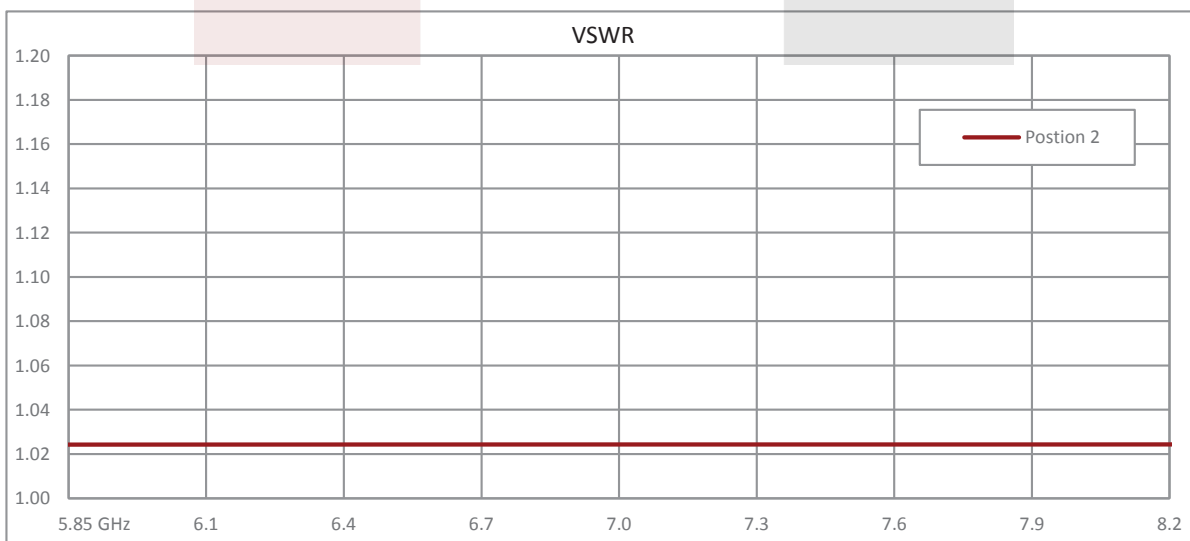
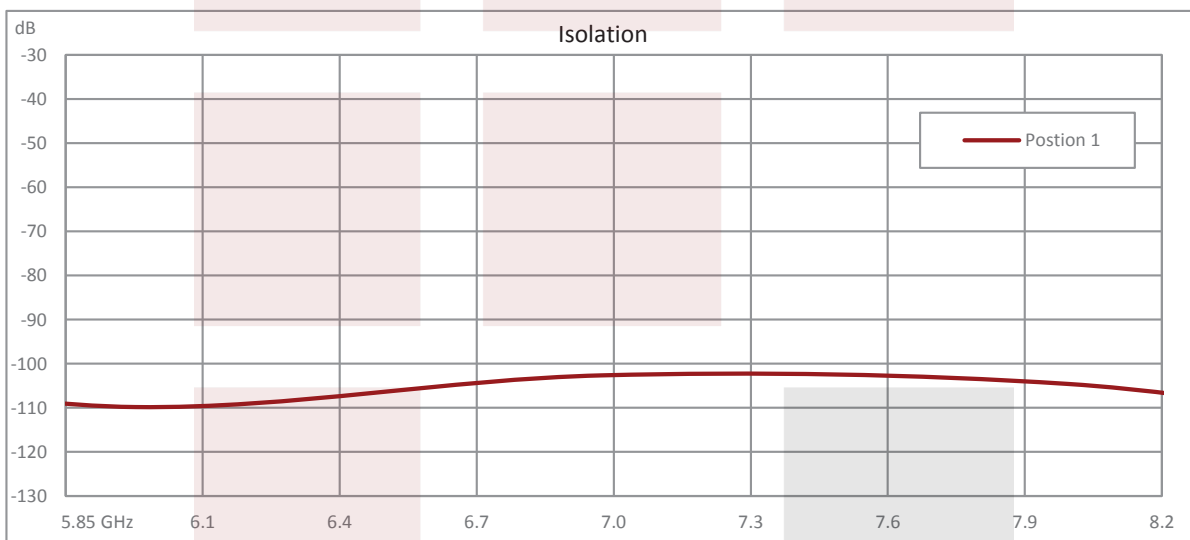
### Compliance Certifications (see [product page](#) for current document)

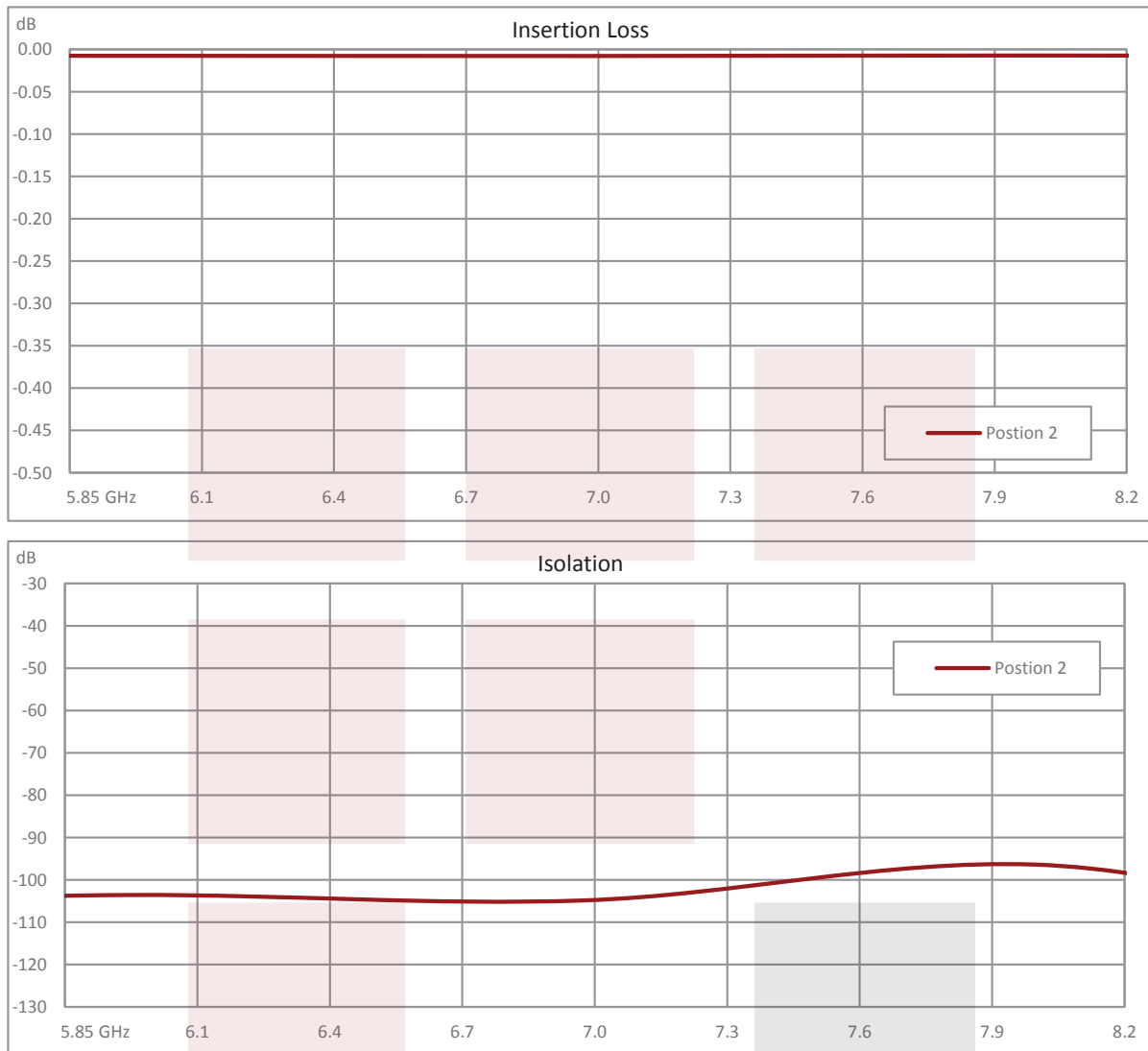
### Plotted and Other Data

Notes:

### Typical Performance Data





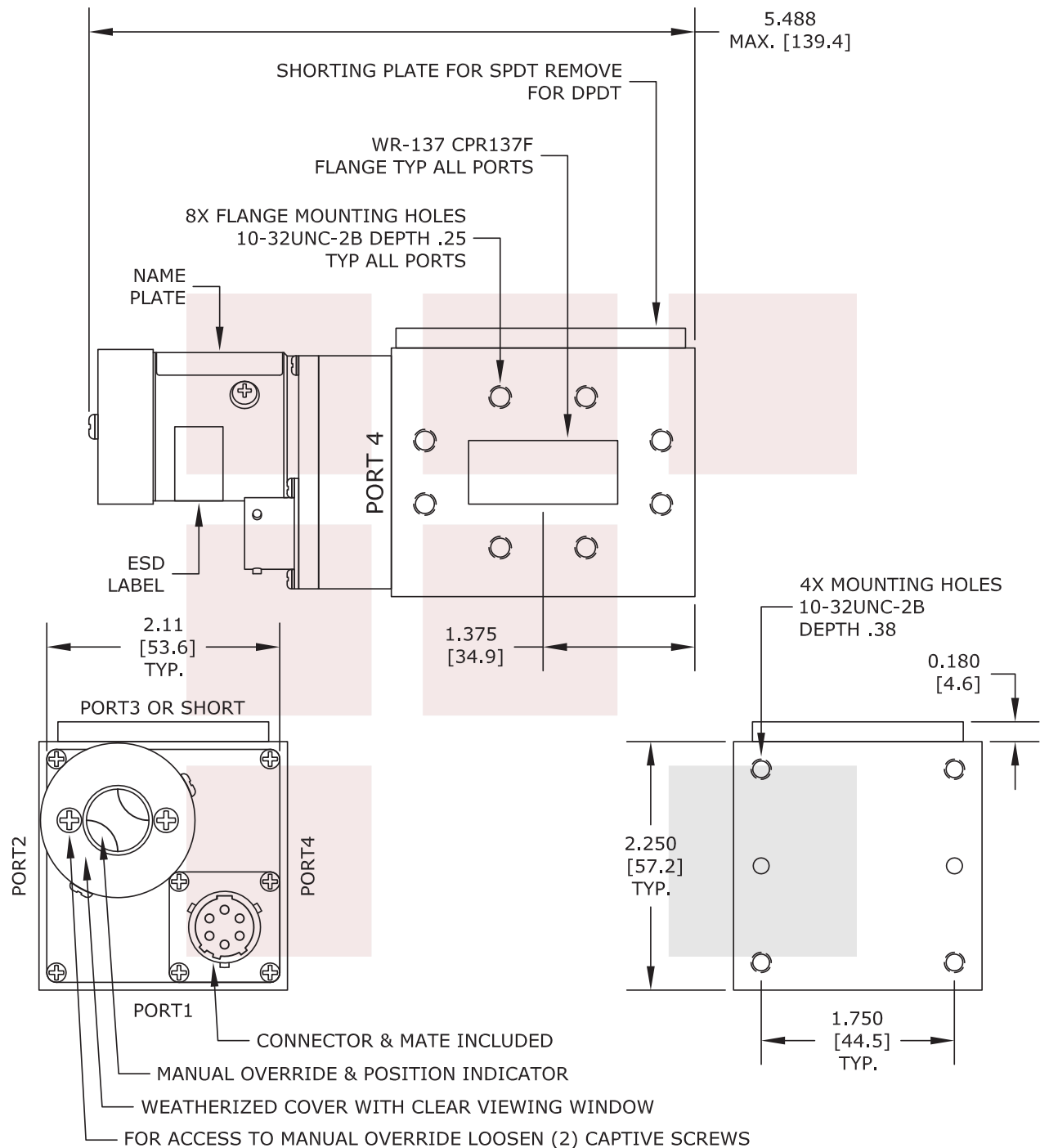


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For additional information on this product, please click the following link: [WR-137 Waveguide Electromechanical Relay Latching Switch SPDT 8.2 GHz Max Frequency, 12,000 Watts C Band CPR-137F Flange FMWGS6024](https://www.fairviewmicrowave.com/wr-137-waveguide-electromechanical-relay-latching-switch-spdt-8.2-ghz-fmwgs6024-p.aspx)

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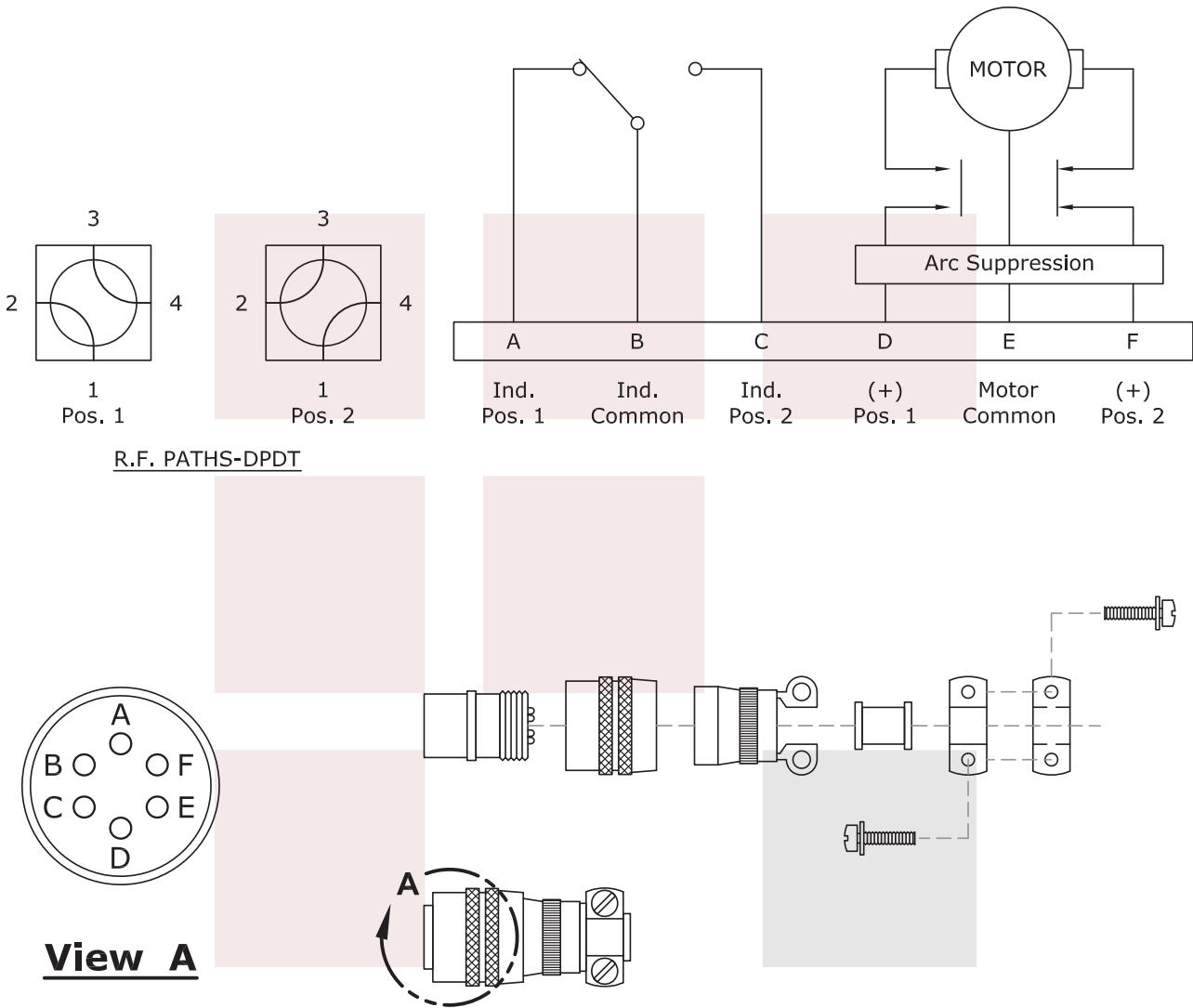


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3. DIMENSIONS ARE IN INCHES [mm].

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|          |           |       |           |     |        |
|----------|-----------|-------|-----------|-----|--------|
| DWG NO   | FMWGS6024 |       | CAGE CODE |     |        |
|          |           |       | 3FKR5     |     |        |
| CAD FILE | 010917    | SHEET | SCALE     | N/A | SIZE A |
|          |           |       |           |     | 2233   |



|                                                                                                                                                      |  |                              |  |                                                                                                                                                                                                                        |  |                                       |                             |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------|-----------------------------|
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| <div>TITLE</div> <div>WR-137 Waveguide Electromechanical Relay Latching Switch SPDT 8.2 GHz Max Frequency, 12,000 Watts C Band CPR-137F Flange</div> |  |                              |  | <div>DWG NO</div> <div>FMWGS6024</div>                                                                                                                                                                                 |  | <div>CAGE CODE</div> <div>3FKR5</div> |                             |
| <div>CAD FILE</div> <div>010917</div>                                                                                                                |  | <div>SHEET</div> <div></div> |  | <div>SCALE</div> <div>N/A</div>                                                                                                                                                                                        |  | <div>SIZE</div> <div>A</div>          | <div></div> <div>2233</div> |