



## UHF Cavity Duplexers 380-512 MHz



28-56C-02A

A Duplexer is a 3-port device most commonly used to allow a transmitter and receiver, operating on different frequencies, to share a common antenna while operating simultaneously. The filters that make up the duplexer isolate the transmitter from the receiver by filtering out transmitter noise sidebands and protecting the receiver from transmitter carrier overload. The amount of isolation required is dependent on TX to RX frequency spacing. TX RX Systems offers a wide variety of Duplexer options to suit your application, including Vari-notch, Bandpass, and notch type circuits. The TX RX Vari-notch design provides a pseudo-bandpass characteristic that is ideal for UHF frequencies, combining low loss advantages of notch filters with the broad isolation and selective pass characteristics of bandpass filters. For system requirements that go beyond our standard models, contact TX RX Systems for a customized design.

### FEATURES

- ▶ Simplifies overall system by reducing down to one antenna, saving tower space while providing the necessary isolation between TX & RX frequencies
- ▶ A wide variety of duplexers to suit your needs: Vari-notch (pseudo-bandpass), bandpass, and notch type circuit options
- ▶ Circuit style (Vari-notch, bandpass, Series Notch) can be easily changed by ordering the appropriate conversion assemblies for future changes in site requirements
- ▶ Systems are built with our rugged, high quality cavities: welded construction, silver-plated loops, Alballoy-plated integrated loop plates and connectors, a unique fingerstock-free high conductivity silver-plated tuning probe, and hardened aluminum outer conductor
- ▶ 4" (102 mm) diameter, 6.625" (168 mm) diameter, and 1.25" x 2" (32 x 51 mm) rectangular cavity options
- ▶ Long-term product dependability and customer support
- ▶ Convenient and space efficient standard 19" rack mounting on most models, with options on some for 19" reverse flush rack mounting, and mobile plate mounting for models designed for mobile use

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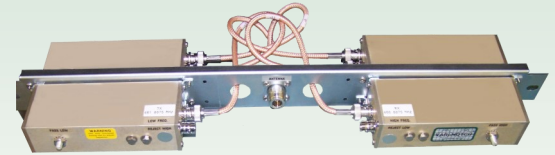
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## GENERAL SPECIFICATIONS

|                          |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| Frequency Range Options  | 380-420 MHz<br>406-430 MHz<br>442-450 MHz<br>450-470 MHz<br>470-512 MHz  |
| Cavity Type              | 3/4 wave                                                                 |
| Cavity Size Options      | 1.25" x 2" rectangle<br>4" (102 mm) diameter<br>6.625" (168 mm) diameter |
| Temperature Range        | -40°C to +80°C                                                           |
| Characteristic Impedance | 50 Ohms                                                                  |
| VSWR (all ports)         | 1.3:1 max                                                                |



28-70-15H



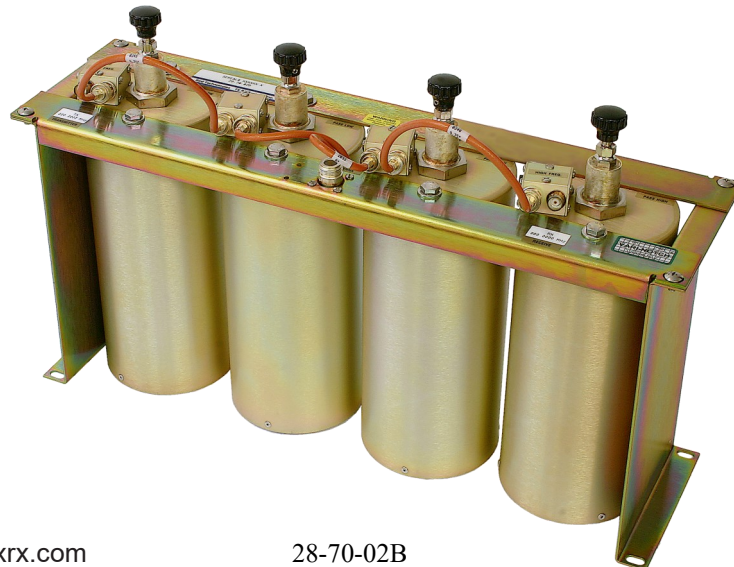
28-70-14A

## Electrical Specifications for Mobile Models

| Frequency Range (MHz) | Model Number | Minimum Frequency Separation (MHz) | Power Rating (W) | Circuit Type                 | Isolation (dB) |           | Insertion Loss (dB) |
|-----------------------|--------------|------------------------------------|------------------|------------------------------|----------------|-----------|---------------------|
|                       |              |                                    |                  |                              | Per Chan       | Bet. Chan |                     |
| 406-430               | 28-65-10H    | 4.5                                | 100              | Vari-notch (pseudo-bandpass) | 80             | 35        | 1.2                 |
| 442-450               | 28-66-04H    | 5.0                                | 100              | Vari-notch (pseudo-bandpass) | 80             | 35        | 1.5                 |
| 450-470               | 28-70-15H    | 5.0                                | 100              | Vari-notch (pseudo-bandpass) | 80             | 35        | 1.2                 |

## Mechanical Specifications for Mobile Models

| Frequency Range (MHz) | Model Number | Cavities |                                   | Type of Mount      | Dimensions (HWD)                        | TX & RX Ports | Antenna Port | Shipping Weight |
|-----------------------|--------------|----------|-----------------------------------|--------------------|-----------------------------------------|---------------|--------------|-----------------|
|                       |              | No.      | Size                              |                    |                                         |               |              |                 |
| 406-430               | 28-65-10H-N  | 4        | 1.25" x 2" (32 x 51 mm) rectangle | Mobile Plate Mount | 2.7" x 5.12" x 7.4" (30 x 130 x 188 mm) | BNC           | N            | 5 lbs (2.3 kg)  |
| 442-450               | 28-66-04H-N  | 4        | 1.25" x 2" (32 x 51 mm) rectangle | Mobile Plate Mount | 2.7" x 5.12" x 7.4" (30 x 130 x 188 mm) | N             | N            | 5 lbs (2.3 kg)  |
| 450-470               | 28-70-15H-N  | 4        | 1.25" x 2" (32 x 51 mm) rectangle | Mobile Plate Mount | 2.7" x 5.12" x 7.4" (30 x 130 x 188 mm) | BNC           | N            | 5 lbs (2.3 kg)  |



28-70-02B

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## Electrical Specifications for Base Station Models

| Frequency Range (MHz) | Model Number | Minimum Frequency Separation (MHz) | Power Rating (W) | Circuit Type                 | Isolation (dB) |           | Insertion Loss (dB) |
|-----------------------|--------------|------------------------------------|------------------|------------------------------|----------------|-----------|---------------------|
|                       |              |                                    |                  |                              | Per Chan       | Bet. Chan |                     |
| 380-420               | 28-56C-02A   | 5.0                                | 250              | Vari-notch (pseudo-bandpass) | 100            | 50        | 0.7                 |
| 406-430               | 28-65-01A    | 1.5                                | 350              | Vari-notch (pseudo-bandpass) | 90             | 50        | 1.5                 |
|                       | 28-65-02A    | 3.0                                | 350              | Vari-notch (pseudo-bandpass) | 80             | 30        | 0.8                 |
|                       | 28-65-02B    | 3.0                                | 350              | Vari-notch (pseudo-bandpass) | 80             | 30        | 0.8                 |
|                       | 28-65-05A    | 0.7                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 50        | 2.2                 |
|                       | 28-65-07A    | 3.0                                | 250              | Vari-notch (pseudo-bandpass) | 85             | 60        | 1.25                |
|                       | 28-65-07B    | 3.0                                | 250              | Vari-notch (pseudo-bandpass) | 85             | 60        | 1.25                |
|                       | 28-65-08A    | 4.5                                | 100              | Vari-notch (pseudo-bandpass) | 80             | 35        | 1.2                 |
|                       | 28-65-09A    | 2.5                                | 100              | Vari-notch (pseudo-bandpass) | 80             | 30        | 1.8                 |
| 442-450               | 26-66-01A    | 6.0                                | 100              | Bandpass                     | 70             | 55        | 1.2                 |
|                       | 28-66-02A    | 5.0                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 46        | 0.6                 |
|                       | 28-66-02B    | 5.0                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 46        | 0.6                 |
| 450-470               | 28-70-01A    | 1.5                                | 350              | Vari-notch (pseudo-bandpass) | 90             | 50        | 1.5                 |
|                       | 28-70-02A    | 5.0                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 46        | 0.6                 |
|                       | 28-70-02A-U* | 5.0                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 46        | 0.6                 |
|                       | 28-70-02B    | 5.0                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 46        | 0.6                 |
|                       | 28-70-02B-U* | 5.0                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 46        | 0.6                 |
|                       | 28-70-07A    | 0.7                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 50        | 2.2                 |
|                       | 28-70-09A    | 5.0                                | 250              | Vari-notch (pseudo-bandpass) | 100            | 70        | 1.25                |
|                       | 28-70-09B    | 5.0                                | 250              | Vari-notch (pseudo-bandpass) | 100            | 70        | 1.25                |
|                       | 28-70-14A    | 5.0                                | 100              | Vari-notch (pseudo-bandpass) | 80             | 35        | 1.2                 |
| 470-512               | 28-69-01A    | 1.5                                | 350              | Vari-notch (pseudo-bandpass) | 90             | 50        | 1.5                 |
|                       | 28-69-02A    | 3.0                                | 350              | Vari-notch (pseudo-bandpass) | 80             | 30        | 0.8                 |
|                       | 28-69-02B    | 3.0                                | 350              | Vari-notch (pseudo-bandpass) | 80             | 30        | 0.8                 |
|                       | 28-69-04A    | 0.7                                | 350              | Vari-notch (pseudo-bandpass) | 100            | 50        | 2.2                 |

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## Mechanical Specifications for Base Station Models

| Frequency Range (MHz) | Model Number | Cavities |                                   | Type of Mount                | Dimensions (HWD)                                     | TX & RX Ports | Antenna Port | Shipping Weight     |
|-----------------------|--------------|----------|-----------------------------------|------------------------------|------------------------------------------------------|---------------|--------------|---------------------|
|                       |              | No.      | Size                              |                              |                                                      |               |              |                     |
| 380-420               | 28-56C-02A   | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +5"/-12"<br>(133 x 483 x +127/-305 mm) | N             | N            | 19 lbs<br>(8.6 kg)  |
| 406-430               | 28-65-01A    | 4        | 6.625" (168 mm) diameter          | Standard 19" rack mount      | 17" x 19" x ±7.5"<br>(432 x 483 x ±191 mm)           | N             | N            | 37 lbs<br>(16.8 kg) |
|                       | 28-65-02A    | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +3"/-9"<br>(133 x 483 x +76/-229 mm)   | N             | N            | 14 lbs<br>(6.4 kg)  |
|                       | 28-65-02B    | 4        | 4" (102 mm) diameter              | 19" reverse flush rack mount | 5.25" x 19" x 12"<br>(133 x 483 x 305 mm)            | N             | N            | 16 lbs<br>(7.3 kg)  |
|                       | 28-65-05A    | 6        | 6.625" (168 mm) diameter          | Standard 19" rack mount      | 34" x 19" x ±7.5"<br>(864 x 483 x ±191 mm)           | N             | N            | 75 lbs<br>(34 kg)   |
|                       | 28-65-07A    | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +3"/-9"<br>(133 x 483 x +76/-229 mm)   | N             | N            | 14 lbs<br>(6.4 kg)  |
|                       | 28-65-07B    | 4        | 4" (102 mm) diameter              | 19" reverse flush rack mount | 5.25" x 19" x 12"<br>(133 x 483 x 305 mm)            | N             | N            | 16 lbs<br>(7.3 kg)  |
|                       | 28-65-08A    | 4        | 1.25" x 2" (32 x 51 mm) rectangle | Standard 19" rack mount      | 1.75" x 19" x ±2.5"<br>(44 x 483 x 64 mm)            | BNC           | N            | 5 lbs<br>(2.3 kg)   |
|                       | 28-65-09A    | 6        | 1.25" x 2" (32 x 51 mm) rectangle | Standard 19" rack mount      | 3.5" x 19" x ±2.5"<br>(89 x 483 x 64 mm)             | BNC           | N            | 7 lbs<br>(3.2 kg)   |
| 442-450               | 26-66-01A    | 2        | Comblane                          | Standard 19" rack mount      | 10" x 21.5" x 7.5"<br>(254 x 546 x 191 mm)           | N             | N            | 12 lbs<br>(5.4 kg)  |
|                       | 28-66-02A    | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +3"/-9"<br>(133 x 483 x +76/-229 mm)   | N             | N            | 14 lbs<br>(6.4 kg)  |
|                       | 28-66-02B    | 4        | 4" (102 mm) diameter              | 19" reverse flush rack mount | 5.25" x 19" x 12"<br>(133 x 483 x 305 mm)            | N             | N            | 16 lbs<br>(7.3 kg)  |
| 450-470               | 28-70-01A    | 4        | 6.625" (168 mm) diameter          | Standard 19" rack mount      | 17" x 19" x ±7.5"<br>(432 x 483 x ±191 mm)           | N             | N            | 37 lbs<br>(16.8 kg) |
|                       | 28-70-02A    | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +3"/-9"<br>(133 x 483 x +76/-229 mm)   | N             | N            | 14 lbs<br>(6.4 kg)  |
|                       | 28-70-02A-U* | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +3"/-9"<br>(133 x 483 x +76/-229 mm)   | N             | N            | 14 lbs<br>(6.4 kg)  |
|                       | 28-70-02B    | 4        | 4" (102 mm) diameter              | 19" reverse flush rack mount | 5.25" x 19" x 12"<br>(133 x 483 x 305 mm)            | N             | N            | 16 lbs<br>(7.3 kg)  |
|                       | 28-70-02B-U* | 4        | 4" (102 mm) diameter              | 19" reverse flush rack mount | 5.25" x 19" x 12"<br>(133 x 483 x 305 mm)            | N             | N            | 16 lbs<br>(7.3 kg)  |
|                       | 28-70-07A    | 6        | 6.625" (168 mm) diameter          | Standard 19" rack mount      | 34" x 19" x ±7.5"<br>(864 x 483 x ±191 mm)           | N             | N            | 55 lbs<br>(25 kg)   |
|                       | 28-70-09A    | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +3"/-9"<br>(133 x 483 x +76/-229 mm)   | N             | N            | 14 lbs<br>(6.4 kg)  |
|                       | 28-70-09B    | 4        | 4" (102 mm) diameter              | 19" reverse flush rack mount | 5.25" x 19" x 12"<br>(133 x 483 x 305 mm)            | N             | N            | 16 lbs<br>(7.3 kg)  |
|                       | 28-70-14A    | 4        | 1.25" x 2" (32 x 51 mm) rectangle | Standard 19" rack mount      | 1.75" x 19" x ±2.5"<br>(44 x 483 x 64 mm)            | BNC           | N            | 5 lbs<br>(2.3 kg)   |
| 470-512               | 28-69-01A    | 4        | 6.625" (168 mm) diameter          | Standard 19" rack mount      | 17" x 19" x ±7.5"<br>(432 x 483 x ±191 mm)           | N             | N            | 37 lbs<br>(16.8 kg) |
|                       | 28-69-02A    | 4        | 4" (102 mm) diameter              | Standard 19" rack mount      | 5.25" x 19" x +3"/-9"<br>(133 x 483 x +76/-229 mm)   | N             | N            | 14 lbs<br>(6.4 kg)  |
|                       | 28-69-02B    | 4        | 4" (102 mm) diameter              | 19" reverse flush rack mount | 5.25" x 19" x 12"<br>(133 x 483 x 305 mm)            | N             | N            | 16 lbs<br>(7.3 kg)  |
|                       | 28-69-04A    | 6        | 6.625" (168 mm) diameter          | Standard 19" rack mount      | 34" x 19" x ±7.5"<br>(864 x 483 x ±191 mm)           | N             | N            | 55 lbs<br>(25 kg)   |

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