



# Filters & Combiners

DATA SHEET

## Broadband Pentaplexer Combiner

5PX-0827-RM



- Combines five frequency ranges 694-862 MHz, 880-960 MHz, 1710-1880 MHz, 1920-2170 MHz, and 2300-2690 MHz onto a single common port.
- The CCI pentaplexer covers the full 700/800, 900, 1800, 2100 and 2330/2600 bands.
- High power 300 W per port with low insertion loss in a compact enclosure.
- Low intermodulation with isolation of >45 dB port to port
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Available in an indoor rack mounted configuration
- Optional wall mount available for the indoor configuration

### Overview

The CCI Broadband Pentaplexer passes the frequency ranges 694-862 MHz, 880-960 MHz, 1710-1880 MHz, 1920-2170 MHz, and 2300-2690 MHz on its five input ports and then combines the Tx/Rx signals onto a common port. Specifically intended for use in feeder line limited sites or multi-band high power DAS systems, the CCI Pentaplexer facilitates the addition of new technologies including LTE to existing sites while providing a low insertion loss and a high degree of isolation between systems. The cost and complexity of upgrading a Macro or DAS site is significantly reduced.

The CCI Broadband Pentaplexer Combiner provides full band performance for each band with low insertion loss, low Intermodulation, and high power handling. Excellent return loss delivers the best match to the DAS system and base station, saving precious transmit power. The unit is available in an indoor rack mountable version with an optional wall mount bracket.

### Technical Description:

The Broadband Pentaplexer Combiner consists of multiple filters and can be used as either a splitter or combiner to aggregate the full 700/800, 900, 1800, 2100 and 2300/2600 band signals. All RF ports are DIN 7-16 connectors. The filters have been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Pentaplexer in order to minimize any passive intermodulation products from occurring. The unit is available in both an indoor or outdoor configuration. The indoor version comes standard with a 19 inch rack mount, with an optional wall mount available. The rack mounted Pentaplexer is indoor rated at a minimum of IP20. The CCI Pentaplexer features connectors that are fully IP68 rated.

CCI filter and combiner products are designed and produced to ISO 9001 certification standards for reliability and quality at our state-of-the-art engineering and manufacturing facilities.



# Filters & Combiners

## SPECIFICATIONS

### Broadband Pentaplexer Combiner

5PX-0827-RM

#### Electrical Specification

| RF Parameters      | Ports                 | Frequency(MHz)   | Specification                |                                 |               |
|--------------------|-----------------------|------------------|------------------------------|---------------------------------|---------------|
| <b>Return Loss</b> | Common                | 694 - 862        | 18 dB minimum, 20 dB typical |                                 |               |
|                    |                       | 880 - 960        | 18 dB minimum, 20 dB typical |                                 |               |
|                    |                       | 1710 - 1880      | 18 dB minimum, 20 dB typical |                                 |               |
|                    |                       | 1920 - 2170      | 18 dB minimum, 20 dB typical |                                 |               |
|                    |                       | 2300 - 2690      | 18 dB minimum, 20 dB typical |                                 |               |
|                    | 700/800               | 700/800          | 694 - 862                    | 18 dB minimum, 20 dB typical    |               |
|                    |                       |                  | 880 - 960                    | 18 dB minimum, 20 dB typical    |               |
|                    |                       |                  | 1710 - 1880                  | 18 dB minimum, 20 dB typical    |               |
|                    |                       |                  | 1920 - 2170                  | 18 dB minimum, 20 dB typical    |               |
|                    |                       |                  | 2300/2600                    | 18 dB minimum, 20 dB typical    |               |
|                    |                       |                  | 2300/2600                    | 18 dB minimum, 20 dB typical    |               |
|                    | <b>Insertion Loss</b> | COM to 700/800   | 694 - 862                    | 0.38 dB typical, 0.5 dB maximum |               |
|                    |                       | COM to 900       | 880 - 960                    | 0.38 dB typical, 0.5 dB maximum |               |
|                    |                       | COM to 1800      | 1710 - 1880                  | 0.38 dB typical, 0.5 dB maximum |               |
|                    |                       | COM to 2100      | 1920 - 2170                  | 0.38 dB typical, 0.5 dB maximum |               |
|                    |                       | COM to 2300/2600 | 2300 - 2690                  | 0.38 dB typical, 0.5 dB maximum |               |
|                    | <b>Isolation</b>      | COM to 700/800   | 880 - 960                    | 45 dB minimum                   |               |
|                    |                       |                  | 1710 - 1880                  | 45 dB minimum                   |               |
|                    |                       |                  | 1920 - 2170                  | 45 dB minimum                   |               |
|                    |                       |                  | 2300 - 2690                  | 45 dB minimum                   |               |
| COM to 900         |                       |                  | 694 - 862                    | 45 dB minimum                   |               |
| COM to 900         |                       | COM to 900       | 1710 - 1880                  | 45 dB minimum                   |               |
|                    |                       |                  | 1920 - 2170                  | 45 dB minimum                   |               |
|                    |                       |                  | 2300 - 2690                  | 45 dB minimum                   |               |
|                    |                       |                  | COM to 1800                  | 694 - 862                       | 45 dB minimum |
|                    |                       |                  | COM to 1800                  | COM to 1800                     | 880 - 960     |
| 1920 - 2170        |                       | 45 dB minimum    |                              |                                 |               |
| 2300 - 2690        |                       | 45 dB minimum    |                              |                                 |               |
| COM to 2100        |                       | 694 - 862        |                              |                                 | 45 dB minimum |
| COM to 2100        |                       | COM to 2100      |                              |                                 | 880 - 960     |
|                    |                       |                  | 1710 - 1880                  | 45 dB minimum                   |               |
|                    |                       |                  | 2300 - 2690                  | 45 dB minimum                   |               |
|                    |                       |                  | COM to 2300/2600             | 694 - 862                       | 45 dB minimum |
|                    |                       |                  | COM to 2300/2600             | COM to 2300/2600                | 880 - 960     |
| 1710 - 1880        |                       | 45 dB minimum    |                              |                                 |               |
| 1920 - 2170        |                       | 45 dB minimum    |                              |                                 |               |

| General Characteristics                         |  |
|---|--|
| <b>Impedance</b>                                | 50 ohms  |
| <b>Continuous Average Power</b>                 | 300 W max.   |
| <b>Peak Envelope Power</b>                      | 3 kW max.  |
| <b>Intermodulation Performance<br/>COM port</b> | <-117 dBm (-160 dBc) typical (2 x +43 dBm tones) all bands |



# Filters & Combiners

## SPECIFICATIONS

### Broadband Pentaplexer Combiner

5PX-0827-RM

#### Environmental Specification

|                              |  |
|------------------------------|--|
| <b>Operating Temperature</b> | 0 °C to +65 °C                                   |
| <b>Enclosure</b>             | IP20 minimum                                     |
| <b>Relative Humidity</b>     | 0 - 45 % (Indoor) / 0 - 99% (Outdoor)            |
| <b>MTBF</b>                  | >500,000 hours                                   |
| <b>Lightning Protection</b>  | 8/20us, ±10KA max, 10 strikes each, IEC61000-4-5 |

#### Mechanical Specification

|  |  |
|--|--|
| <b>Indoor Rack Mount</b>                     |  |
| <b>Connectors</b>                            | 6 × 7-16 DIN female long neck                          |
| <b>Dimensions Enclosure</b>                  | 7.97 × 17.44 × 1.73 in. (202.5 × 443.0 × 44.0 mm)      |
| <b>Dimensions w/ connectors &amp; panel)</b> | 9.21 × 19.02 × 1.73 in. (233.97 × 483.0 × 44.0 mm)     |
| <b>Weight</b>                                | 12.5 lbs (5.7 kg)                                      |
| <b>Mounting</b>                              | 19 in. rack mountable (Wall mounting bracket optional) |

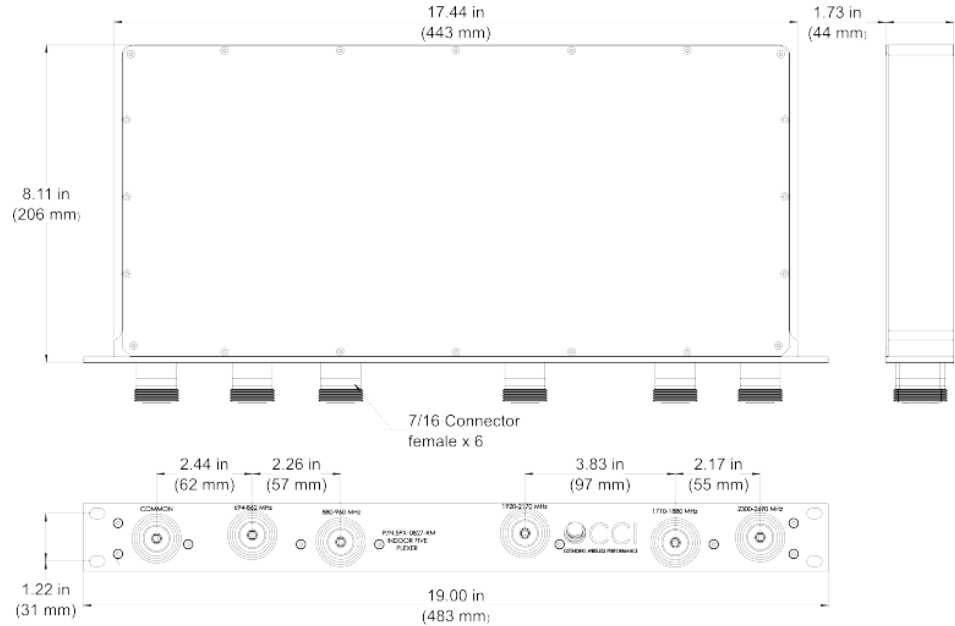


# Filters & Combiners

## SPECIFICATIONS

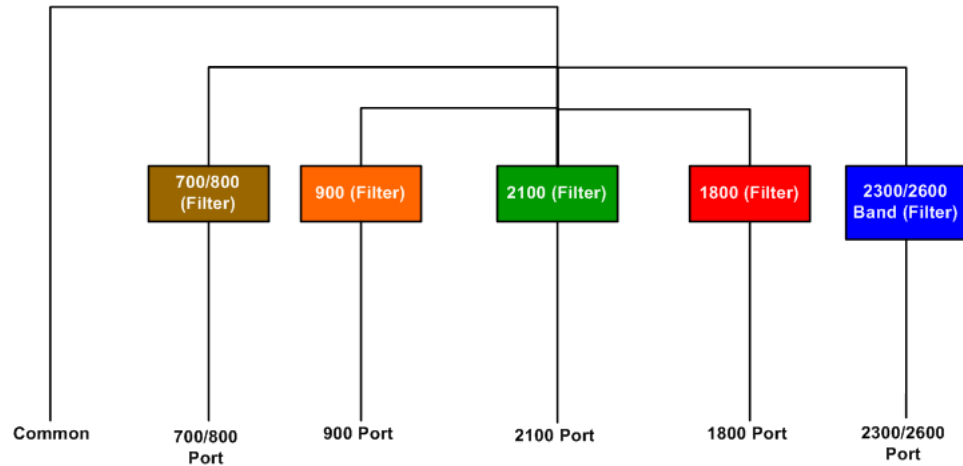
### Broadband Pentaplexer Combiner

5PX-0827-RM



Indoor Broadband Pentaplexer (5PX-0827-RM) Outline Drawing

### Block Diagram



Outdoor Broadband Pentaplexer (5PX-0827-O) Block Diagram



# Filters & Combiners

## STANDARDS & CERTIFICATIONS

### Broadband Pentaplexer Combiner

5PX-0827-RM

#### Parts & Accessories

**5PX-0827-RM** Indoor 19 inch rack mount Pentaplexer with wall mount bracket

#### Standards & Compliance

|                      |  |
|----------------------|--|
| <b>Safety</b>        | EN 60950-1, UL 60950-1   |
| <b>Emission</b>      | EN 55022   |
| <b>Immunity</b>      | EN 55024   |
| <b>Environmental</b> | IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5, IEC 60068-2-6, IEC-60068-2-11, IEC 60068-2-14, IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29, IEC 60068-02-30, IEC 60068-2-52, IEC 60068-2-64, IEC61000-4-5, GR-63-CORE 4.3.1, EN 60529 IP20, IP68 |

#### Certifications

Federal Communication Commission (FCC) Part 15 Class B, CE, CSA US, ISO 9001

