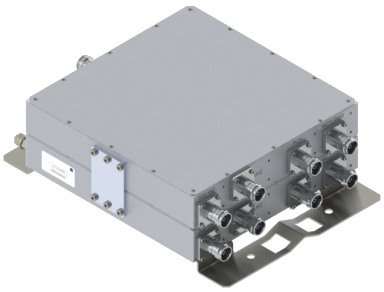
DATA SHEET

# Broadband Quadplexer Combiner

QPO-69197236-xxx



- Combines 600/700/850/900 bands (555-960 MHz), PCS (1850-1995 MHz), AWS (1695-2200 MHz) and WCS/BRS (2305-2690 MHz) onto a common port.
- High power 200 W per port with low insertion loss
- AISG 2.0 compliant with multiple options for DC/AISG pass through
- Low intermodulation with isolation of >50 dB port to port
- Available twin unit configuration
- High reliability of >500K Hours MTBF and multi-strike lightning protection
- Lightweight outdoor enclosure with pole or wall mounting options

## Overview

Communication Components, Inc. Outdoor Broadband Quadplexer Combiner combines 555-960 MHz, PCS, AWS and WCS/BRS band Basestation Tx/Rx signals onto a common port. Specifically intended for use in quad band systems with limited feeder lines, the CCI Quadplexer model QPX-69197236 facilitates the addition of new technologies including LTE and new spectrum including AWS-3 to existing sites while providing a high degree of isolation between systems. By reducing the number of feeder lines, the cost to upgrade a site (tower loading, leasing and installation costs) is reduced.

The CCI Outdoor Broadband Quadplexer 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 antennas and base station, saving precious transmit power. DC and AISG pass-through retains full RET and TMA capability utilizing CCI's AISG suite of products.

## Technical Description:

The Outdoor Broadband Quadplexer Combiner consists of multiple filters to combine (or divide) full band 555-960 MHz, PCS, AWS and WCS/BRS signals. This tower mount unit can be used as either a splitter or combiner to aggregate multiple bands on a common feeder line. The fully weatherproof tower mount unit incorporates a unique intelligent Bias-T architecture which passes the DC and AISG carrier frequency from any of the input ports to the common port while blocking the DC and AISG signals from being re-injected into the other input ports. The unit has internal lightning strike protection using a multi-stage surge protection circuit.
The filters have been designed to minimize insertion loss while maximizing isolation. Particular attention has been given to the intermodulation performance of the Broadband Diplexer to minimize any passive intermodulation products from occurring. The Quadplexer enclosure and connectors are fully IP67 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.

SPECIFICATIONS

## Broadband Quadplexer Combiner

QPO-69197236-xxx

### Electrical Specification

| RF Parameters | Ports | Frequency(MHz) | Specification |
|---|---|---|---|
| Return Loss | Common | 555 - 960 | 18 dB minimum, 20 dB typical |
| | | 1850 - 1995 | 18 dB minimum, 20 dB typical |
| | | 1695 - 1780 | 18 dB minimum, 20 dB typical |
| | | 2110 - 2200 | 18 dB minimum, 20 dB typical |
| | | 2305 - 2690 | 18 dB minimum, 20 dB typical |
| | Low Band | 555 - 960 | 18 dB minimum, 20 dB typical |
| | PCS | 1850 - 1995 | 18 dB minimum, 20 dB typical |
| | AWS | 1695 - 1780 | 18 dB minimum, 20 dB typical |
| | | 2110 - 2200 | 18 dB minimum, 20 dB typical |
| | WCS/BRS | 2305 - 2690 | 18 dB minimum, 20 dB typical |
| Insertion Loss | COM to Low Band | 555 - 960 | 0.1 dB maximum |
| | COM to PCS | 1850 - 1995 | 0.25 dB typical, 0.35 dB maximum |
| | COM to AWS | 1695 - 1780 | 0.25 dB typical, 0.35 dB maximum |
| | | 2110 - 2200 | 0.20 dB typical, 0.35 dB maximum |
| | COM to WCS/BRS | 2305 - 2690 | 0.25 dB typical, 0.35 dB maximum |
| Rejection | COM to Low Band | 1850 - 1995 | 50 dB minimum |
| | | 1695 - 1780 | 50 dB minimum |
| | | 2110 - 2200 | 50 dB minimum |
| | | 2305 - 2690 | 50 dB minimum |
| | COM to PCS | 555 - 960 | 50 dB minimum |
| | | 1695 - 1780 | 50 dB minimum |
| | | 2110 - 2200 | 50 dB minimum |
| | | 2305 - 2690 | 50 dB minimum |
| | COM to AWS | 555 - 960 | 50 dB minimum |
| | | 1850 - 1995 | 50 dB minimum |
| | | 2305 - 2690 | 50 dB minimum |
| | COM to WCS/BRS | 555 - 960 | 50 dB minimum |
| | | 1850 - 1995 | 50 dB minimum |
| | | 1695 - 1780 | 50 dB minimum |
| | | 2110 - 2180 | 50 dB minimum |
| | | 2180 - 2200 | 45 dB minimum |

| General Characteristics | |
|---|---|
| Impedance | 50 ohms |
| Continuous Average Power | 60 W maximum per input port |
| Peak Envelope Power | 1.2 kW maximum per input port, excluding WCS/BRS port which is 650 W |
| Intermodulation Performance(all ports) | <-117 dBm (-160 dBc) typical (2 × +43 dBm tones) all bands |
| DC Pass Current/AISG Pass | 3A/AISG signal (2.176 Mhz) per AISG 2.0 |

### Environmental Specification

| | |
|---|---|
| Operating Temperature | -40˚C to +65˚C |
| Ingress Protection | IP67 |
| MTBF | >500,000 hours |
| Lightning Protection | 8/20us, ±10KA max, 10 strikes each, IEC61000-4-5 |

SPECIFICATIONS

## Broadband Quadplexer Combiner

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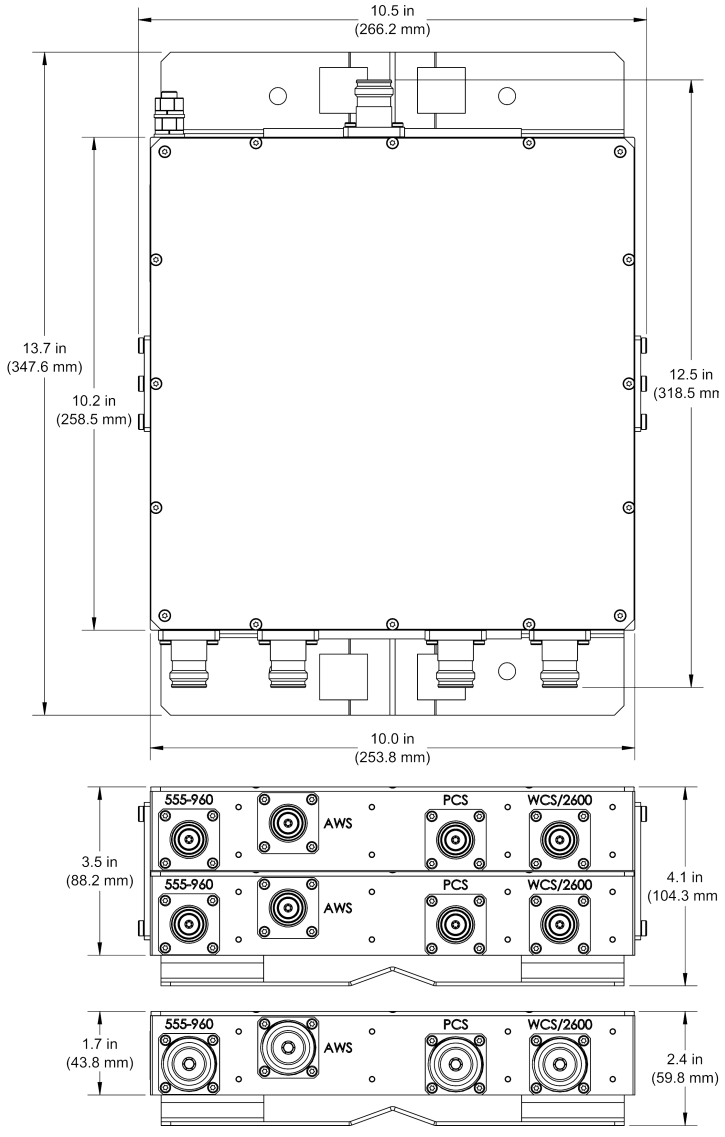
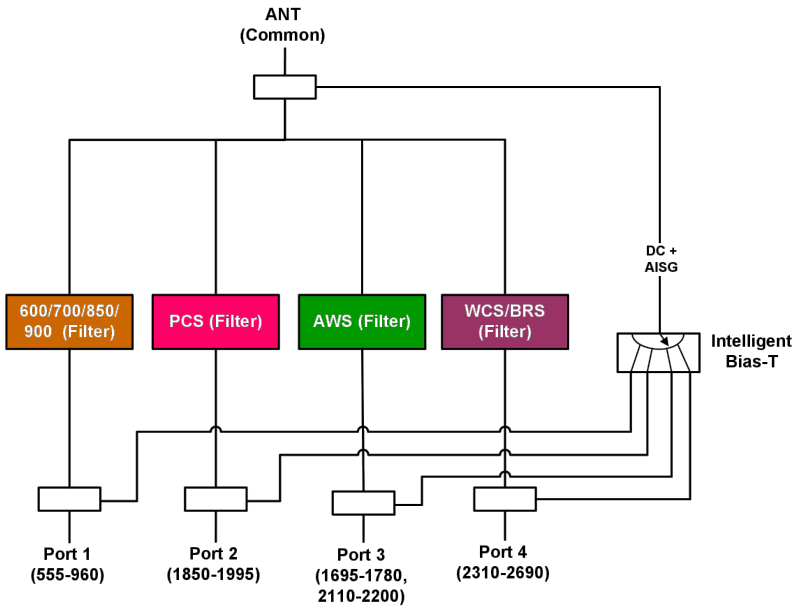
### Mechanical Specification

| Model | Single | Twin |
|---|---|---|
| Connectors | 5 x (4.3-10 or 7-16) female | 10 x (4.3-10 or 7-16) female |
| Housing Dimensions | 10.0 x 10.2 x 1.7 in. (253.8 x 258.5 x 43.8 mm) | 10.5 x 10.2 x 3.5 in. (266.2 x 258.5 x 88.2 mm) |
| Dimensions w/Bracket | 10.0 x 13.7 x 2.4 in. (253.8 x 347.6 x 59.8 mm) | 10.5 x 13.7 x 4.1 in. (266.2 x 347.6 x 104.3 mm) |
| Weight | 12.8 lbs (5.8 kg) | 25.1lbs (11.4 kg) |
| Frontal Wind Load | 223 N @150km/hour | 223 N @150km/hour |
| Lateral Wind Load | 38.5 N @150km/hour | 77.5 N @150km/hour |




*Outdoor Broadband Quadraplexer Outline Drawing*

## Block Diagram




*Outdoor Broadband Quadraplexer Block Diagram*

STANDARDS & CERTIFICATIONS

## Broadband Quadplexer Combiner

QPO-69197236-xxx

### Parts & Accessories

| | |
|---|---|
| QPO-69197236-x-S2 | Outdoor Quadplexer with 4.3-10 connectors |
| QPO-69197236-x-T2 | Outdoor Twin Quadplexer with 4.3-10 connectors |
| QPO-69197236-x-S1 | Outdoor Quadplexer with 7-16 connectors |
| QPO-69197236-x-T1 | Outdoor Twin Quadplexer with 7-16 connectors |

| Option (-x) | Description |
|---|---|
| -S | Smart Bias-T, DC/AISG Pass through on either port |
| -0 | No DC/AISG Pass through |
| -1 | DC/AISG Pass through 555-960 Band to COMMON, DC Block on all other input ports |
| -2 | DC/AISG Pass through PCS Band to COMMON, DC Block on all other input ports |
| -3 | DC/AISG Pass through AWS to COMMON, DC Block on all other input ports |
| -4 | DC/AISG Pass through WCS/BRS to COMMON, DC Block on all other input ports |

### Standards & Compliance

| | |
|---|---|
| Safety | EN 60950-1, UL 60950-1 |
| Emission | EN 55022 |
| Immunity | EN 55024 |
| Environmental | 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 IP67, IP68 |

### Certifications

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