

2x16 Rackmount GNSS Splitter

DESCRIPTION

The RMS216 amplifies and splits the GPS/GNSS signal. It includes dual input ports and 16 output ports. The dual input ports connect two GPS receive antennas. The output ports grant up to 16 GPS/GNSS receivers signal access at one time.

Typically, the RMS216 is configured with an 110VAC input (-48V telecom power input also available) and a regulated DC output voltage that is passed to the antenna input ports in order to power an active GPS antenna on that port. In this scenario, the RF outputs (OUT1 – OUT16) would feature a 200 Ohm DC load to simulate an antenna DC current draw for any receiver connected to those ports.

Redundancy is acquired through the use of a primary antenna and a backup antenna. The ability of the RMS216 to switch antennas allows all connected GPS devices to remain fully functional in the event of an antenna failure. Faults are indicated on the front panel LED and status via a DB9 interface.

Within the RMS216 is an antenna health sensor and an embedded antenna switch. The sensor monitors the health of the primary antenna connected to the splitter. Based on the information provided by the sensor, the splitter will switch to the secondary antenna in the event of a failure with the primary antenna.

If the failure in the primary antenna is resolved, the splitter will automatically switch back to the primary. The embedded switch has been designed so it can be controlled externally via an external rocker switch that can override the internal automatic switch mechanism.

The dual power supply option allows two internal power supply units to share the load. If one unit is not available (internally or externally), the other will seamlessly take over without any loss in power. The fault will be indicated on the front panel LED and status via a DB9 interface.



FEATURES

- 16 GPS/GNSS Output Ports
- -48VDC Power Supply Option
- Embedded Antenna Health Sensor
- Automatic Internal Antenna Port Switch
- External Antenna Port Switching Capability
- Passes GPS L1/L2, GLONASS L1/L2, Galileo, Compass
- Antenna Fault Indicator Panel
- Dual Power Option

OPTIONS

The RMS216 splitter comes with many available options to meet specific needs. Please contact GPS Source via phone, fax, email, or visit the website for further information on product options and specifications.

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1. RMS216 Specifications

1.1 Electrical Specifications

 Table 1-1.
 Operating Temperature -40°C to 85°C

| | Conditions | Min | Тур | Max | Units |
|--------------------------------------|--|--|--|--|--|
| Range | Ant (J1, J2): Any Port; Unused Ports: 50Ω | 1.0 | | 1.65 | GHz |
| Amplified (Normal) | Ant (J1, J2): Any Port; Unused Ports: 50Ω 6 8 | | 10 | dB | |
| Amplified (Custom) ⁽¹⁾ | As Specified (xdB, 0 to 14dB) | | Х | X + 2 | dB |
| ed. | Ant:(J1, J2), OUT1-OUT16 | | 50 | | Ω |
| | All Ports 50Ω | | | 2.0:1 | |
| 'R | All Ports 50Ω | | | 2.0:1 | |
| re | Ant (J1, J2): Any Port; Unused Ports: 50Ω , Gain = 8dB | | | 5 | dB |
| ess | $ L1 - L2 $ Ant (J1, J2): Any Port; Unused Ports: 50Ω | | | 3 | dB |
| nce | $ J3-J4 ,$ Ant (J1, J2) - Any Port: Unused Ports: 50Ω | | | 3 | dB |
| ance | Phase (J3 - J4), Ant: (J1, J2) Any Port; Unused Ports: 50Ω | | | 1.0 | Degree |
| ay Flatness | Td, max - Td, min, Ant - Any Port | | | 1 | ns |
| Amn (Hilso) | Measured at 1227MHz and 1575MHz | 38 | | | |
| (Gain = 0dB) | Opposite Ports: Ant – 50Ω Adjacent Ports: Ant – 50Ω | 24 | | | dB |
| (Amplified) | Ant: Any Port; Unused Ports 50Ω , Gain = 8dB, Tone Spacing = 1MHz | -7 | | | dBm |
| _B (Amplified) | Ant: Any Port; Unused Ports 50Ω , Gain = 8dB | -16 | | | dBm |
| 110/220/240 | Wall Mount Transformer (Various international plug types included) | 110 | | 240 | VAC |
| DC Blk | All output ports blocked with a 200 Ω Load | | | 14 | VDC |
| | Powered, Mil. Conn. with leads option | 12 | | 16 | VDC |
| | Powered Mil Conn ⁽²⁾ with leads option | +20 | +48 | | VDC |
| | | | +48 | | VDC |
| _{ternal}) | Current Consumption of device (excludes Ant. Cur.) | | | 150 | mA |
| Powered | Input Port | | | 100 | mA |
| Amplified | Max RF Input Without Damage | | | 20 | dBm |
| | Amplified (Normal) Amplified (Custom) ⁽¹⁾ ed. R R R R R R Amp (Hi Iso.) (Gain = 0dB) (Amplified) B (Amplified) 110/220/240 DC Blk ternal) Powered | RangeAnt (J1, J2): Any Port; Unused Ports: 50ΩAmplified (Normal)Ant (J1, J2): Any Port; Unused Ports: 50ΩAmplified (Custom)(1)As Specified (xdB, 0 to 14dB)ed.Ant: (J1, J2), OUT1-OUT16All Ports 50ΩAll Ports 50ΩreAll Ports 50ΩreAnt (J1, J2): Any Port; Unused Ports: 50Ω, Gain = 8dBeds.[L1 - L2] Ant (J1, J2): Any Port; Unused Ports: 50Ωince[J3 - J4], Ant (J1, J2): Any Port; Unused Ports: 50Ωince[J3 - J4], Ant (J1, J2) - Any Port: Unused Ports: 50Ωange (Hi Iso.) (Gain = 0dB)Measured at 1227MHz and 1575MHz Opposite Ports: Ant - 50ΩAmplified)Ant: Any Port; Unused Ports 50Ω, Gain = 8dB, Tone Spacing = 1MHz110/220/240Wall Mount Transformer (Various international plug types included)DC BlkAll output ports blocked with a 200Ω LoadPowered, Mil. Conn. ⁽²⁾ with leads optionPowered, Mil. Conn. ⁽²⁾ with leads optionPoweredInput Port | RangeAnt (J1, J2): Any Port; Unused Ports: 50Ω1.0Amplified (Normal)Ant (J1, J2): Any Port; Unused Ports: 50Ω6Amplified (Custom) ⁽¹⁾ As Specified (xdB, 0 to 14dB)X - 2ad.Ant:(J1, J2), OUT1-OUT16ad.Ant:(J1, J2), OUT1-OUT16RAll Ports 50ΩreAnt (J1, J2): Any Port; Unused Ports: 50Ω, Gain = 8dBass[L1 - L2] Ant (J1, J2): Any Port; Unused Ports: 50ΩnceJ3 - J4], Ant (J1, J2): Any Port; Unused Ports: 50ΩancePhase (J3 - J4), Ant: (J1, J2) Any Port; Unused Ports: 50Ωay FlatnessTd.max - Td.min, Ant - Any Portay FlatnessTd.max - Td.min, Ant - Any PortAmp (Hi Iso.) (Gain = 0dB)Measured at 1227MHz and 1575MHz Opposite Ports: Ant - 50Ω Adjacent Ports: DOL Gain = 8dB Ant: Any Port; Unused Ports 50Ω, Gain = 8dB Ant: All output ports blocked with a 200Ω LoadIDC BlkAll output ports blocked with a 200Ω LoadPowe | RangeAnt (J1, J2): Any Port; Unused Ports: 50Ω1.0Amplified (Normal)Ant (J1, J2): Any Port; Unused Ports: 50Ω68Amplified (Custom) ⁽¹⁾ As Specified (xdB, 0 to 14dB)X - 2Xed.Ant:(J1, J2). OUT1-OUT16I50All Ports 50ΩIIIRAll Ports 50ΩIIreAnt (J1, J2): Any Port; Unused Ports: 50Ω, Gain = 8dBIIses[L1 - L2] Ant (J1, J2): Any Port; Unused Ports: 50ΩIIreJ3 - J4], Ant (J1, J2): Any Port; Unused Ports: 50ΩIInceJ3 - J4], Ant (J1, J2): Any Port; Unused Ports: 50ΩIIancePhase (J3 - J4), Ant: (J1, J2) Any Port; Unused Ports: 50ΩIIancePhase (J3 - J4), Ant: (J1, J2) Any Port; Unused Ports: 50ΩIIanceMeasured at 1227MHz and 1575MHz Opposite Ports: Ant - 50Ω Adjacent Ports: Ant - 50Ω38 24IAmp (Hi Iso.) (Gain = 0dB)Ant: Any Port; Unused Ports 50Ω, Gain = 8dB, Tone Spacing = 1MHz-7Ia (Amplified)Ant: Any Port; Unused Ports 50Ω, Gain = 8dB-16I110/220/240Wall Mount Transformer (Various international plug types included)110IDC BlkAll output ports blocked with a 200Ω Load12IPowered, Mil. Conn. ⁽²⁾ with leads option12IIPowered, Mil. Conn. ⁽²⁾ with leads option12IIPoweredInput PortIIIPoweredInput Port <td< td=""><td>RangeAnt (J1, J2): Any Port; Unused Ports: 50Ω1.01.01.65Amplified (Normal)Ant (J1, J2): Any Port; Unused Ports: 50Ω6810Amplified (Custom)(1)As Specified (xdB, 0 to 14dB)X - 2XX + 2ad.Ant (J1, J2): OUT1-OUT16Implified5010All Ports 50ΩImplifiedImplified2.0:1RAll Ports 50ΩImplifiedImplified1.050RAll Ports 50ΩImplifiedImplified2.0:1RAll Ports 50ΩImplifiedImplifiedImplifiedImplifiedGain = 8dBAnt (J1, J2): Any Port; Unused Ports: 50ΩImplifiedImplifiedImplifiedgain = 8dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedgain = 8dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedgain = 8dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedgain = 0dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedAmplifiedAnt: Any Port; Unused Ports 50Ω, Gain = 8dB, Torne Spacing = 1MHzImplifiedImplifiedImplifiedg (Amplified)Ant: Any Port; Unused Ports 50Ω, Gain = 8dB, Torne Spacing = 1MHzImplifiedImplifiedImplifiedImplifiedAnt: Any Port; Unused Ports 50Ω, Gain = 8dB, Torne Spacing = 1MHzImplifiedImplifiedImplifiedImplifiedAnt: Any Port; Unused Ports 50Ω, Gain = 8dB<!--</td--></td></td<> | RangeAnt (J1, J2): Any Port; Unused Ports: 50Ω1.01.01.65Amplified (Normal)Ant (J1, J2): Any Port; Unused Ports: 50Ω6810Amplified (Custom)(1)As Specified (xdB, 0 to 14dB)X - 2XX + 2ad.Ant (J1, J2): OUT1-OUT16Implified5010All Ports 50ΩImplifiedImplified2.0:1RAll Ports 50ΩImplifiedImplified1.050RAll Ports 50ΩImplifiedImplified2.0:1RAll Ports 50ΩImplifiedImplifiedImplifiedImplifiedGain = 8dBAnt (J1, J2): Any Port; Unused Ports: 50ΩImplifiedImplifiedImplifiedgain = 8dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedgain = 8dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedgain = 8dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedgain = 0dBImplifiedImplifiedImplifiedImplifiedImplifiedImplifiedAmplifiedAnt: Any Port; Unused Ports 50Ω, Gain = 8dB, Torne Spacing = 1MHzImplifiedImplifiedImplifiedg (Amplified)Ant: Any Port; Unused Ports 50Ω, Gain = 8dB, Torne Spacing = 1MHzImplifiedImplifiedImplifiedImplifiedAnt: Any Port; Unused Ports 50Ω, Gain = 8dB, Torne Spacing = 1MHzImplifiedImplifiedImplifiedImplifiedAnt: Any Port; Unused Ports 50Ω, Gain = 8dB </td |

Notes: 1. Custom gain options available

2. Supports -48VDC power supply



1.2 Antenna Control Specifications

Antenna control can be automatic with manual override.

1.2.1 Automatic Control

(Default Option) — The automatic control will automatically select the primary or alternate antenna based on the fault status of the two antennas. The fault status is determined by the current draw of the antennas. A current draw below 12.5mA and above 120mA will signal a fault for the respective input port. The fault condition will cause the device to automatically switch to the other input port. The fault status is displayed on the front panel and indicated via the DB9.

1.2.2 Antenna Control

The secondary antenna is manually selected by activating an illuminated rocker switch on the front panel.

1.3 Antenna Power Fault

The antenna and power status is available to an external application via a set of signals in the DB9 connector. The signals enable the external application to identify antenna faults at J1 and J2 or a faulty power input. The fault status is output via a SPDT relay. The relay is energized when unit is powered and no fault is present. The relay will be deenergized when a fault is present or when power is off. An available factory option, reverses the energized position.

The relay can switch up to 100mA at up to 60VDC or 60VAC. The normally open contact, the normally closed contact, and the common are brought out in the rear panel DB9 connector.

| | Pin # | No Fault | Fault |
|--------|-------|------------------|------------------|
| 000000 | Pin 6 | Shorted to pin 7 | Open to pin 7 |
| 0000 | Pin 8 | Open to pin 7 | Shorted to pin 7 |

DB9(F) Pinout

1.4 Fault Panel Indicator

1.4.1 Single Power Option

The fault panel indicator on the face plate of the RMS216 displays antenna faults at J1 and J2. If a faults exists at either of the input ports, the "FAULT" message along with "J1" or "J2" is displayed.

1.4.2 Dual Power Option

The fault panel indicator on the face plate of the RMS216 displays antenna faults at J1 and J2. If a faults exists at either of the input ports, the "FAULT" message along with "J1" or "J2" is displayed.

In addition, a simple "Fault" message will be displayed if one of the two internal power supplies fail or if one of the two power sources (at input) fail.



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2. Performance Data

2.1 RMS216 — Active Hi Isolation

Figure 2-1. Active Hi Isolation RMS216 Splitter: Gain vs. Frequency



Figure 2-2. Active Hi Isolation RMS216 Splitter: SWR vs. Frequency







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3. Product Options

Table 3-1. RMS216 Available Options

| Power Supply | | | | | |
|------------------------|--|--------------------------|--|--|--|
| Source Voltage Options | Voltage Input | Туре | | | |
| | 110 VAC | Wall Mount Transformer | | | |
| | 220 VAC | Wall Mount Transformer | | | |
| | 240 VAC (U.K.) | Wall Mount Transformer | | | |
| | ±20V to ±50V | Military Style Connector | | | |
| Output Voltage | DC Voltage Out | | | | |
| Output Voltage | 5.0 | | | | |
| Connector | Connector Type | Limitations | | | |
| | N (Female/Male) | N/A | | | |
| | SMA (Female/Male) | N/A | | | |
| | TNC (Female/Male) | N/A | | | |
| Housing | | | | | |
| Housings | Housing Type | Limitations | | | |
| | 19 x 8 x 3.5 in Rack Mount | None | | | |
| Port Options | | | | | |
| DC Blocked | OUT1 thru OUT16 are DC Blocked and 200 Ω Loaded, DC is passed to J1 (ANT 1) & J2 (ANT2) | | | | |



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| Power Supply Option | | | | | |
|---|---------------------|--------------------|----------|-----------------------------|--|
| Config. | Pin | Description | | 2 Pin Cylindrical Connector | |
| Single Power Supply, Single Input (Standard) | A B | Positive Ground | | | |
| Config. | Pin | Descr | iption | 6 pin Cylindrical Connector | |
| | A Positive Supply 1 | | | | |
| Dual Power Supply, | В | Ground | | 3 0700 | |
| Dual Input (Option) | С | Positive | Supply 2 | A Partie | |
| | D | Ground | | | |

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4. Product Code Decoder



Note: To have product/part codes customized to meet exact needs, contact GPS Source at techsales@gpssource.com or visit the website at www.gpssource.com.



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5. Mechanical Drawing

RMS216 — FSA-AJQ-AAX-KBZ









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AS9100C:2009 and ISO 9001:2008 Compliant Company



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