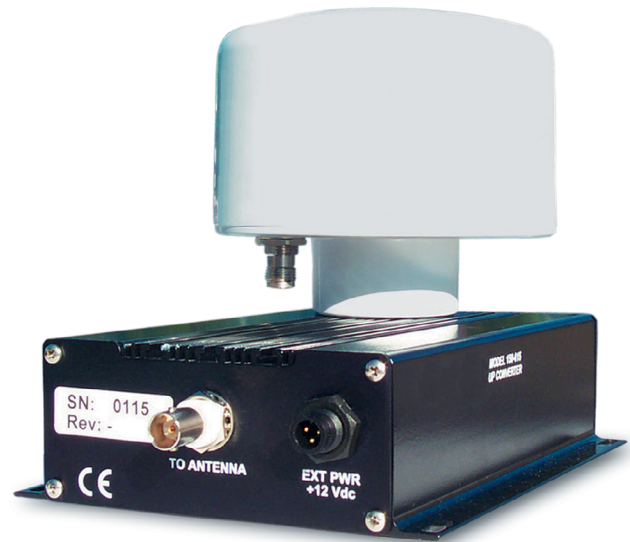


# Down/Up Converter

## L1 GPS Antenna Down/Up Converter



### Key Features

- Increases Antenna Cable Length Up to 1500 ft. (457 meters)
- Excellent Signal Noise Immunity
- Signal Conversion Transparent to the GPS Receiver
- Eliminates Need for Cable Amplifiers

GPS signal down/up conversion is required when signal losses in the antenna cable limit the distance between the receiver and the antenna assembly. At just over 250 feet (76 meters) in cable length, the benefits can be realized using a Down/Up Converter assembly versus the use of low loss cable and amplifiers. Signal strengths and noise immunity as well as the cost benefits over the use of low loss cable and amplifiers are the main advantages of using the Antenna Down/Up Converter assembly.

The down converter antenna and up converter unit replace the standard L1 GPS antenna. Power for the system is provided by the GPS receiver or an optional external power supply. The down/up conversion

process is transparent to the GPS receiver. As with any precision timing GPS receiver, only cable delay and down conversion delays need to be entered into the receiver.

The Down/Up Converter may also work with non- Microsemi L1 GPS receivers. The signal output from the converter is L1 C/A code that can be decoded by any L1 GPS receiver. Since the Down/Up Converter can be externally powered, L1 GPS receivers that can interface to the Down/Up Converter BNC connector should be able to use the signal. However, note that the Down/Up Converter introduces latency in the signal in addition to cable delay. For precision timing applications the receiver must be able to account for these factors.

# Down/Up Converter

## Specifications

### Antenna Down Converter

#### Physical Specifications

- Size: 4.4" W x 2.1" H  
(11.17 cm W x 6.85 cm H)
- Weight  
(including mounting mast): 0.60 lb. (0.272 kg)
- Cable: RG-58  
Available lengths = 250 -1500' (76-457 m),  
50' (15 m) standard, 2.7 lb. (1.23 kg) per 100' (30 m)  
Recommended: Belden 8219 or Belden  
Plenum 88240

#### Operating specifications

- Power: +12 Vdc @ 135 mA  $\pm$ 10%
- LO frequency: 16.368 MHz @ 1 Vp-p
- IF frequency: 4.092 MHz @ 1 Vp-p
- Antenna frequency (L1): 1575.42 MHz
- Input code: L1 C/A Code
- I/O connector: Female TNC

#### Environmental specifications

- Operating temperature: -40°C to + 70°C
- Storage temperature: -55°C to + 85°C
- Humidity: 100%, condensing

### Antenna Up Converter

#### Physical Specifications

- Size: 6.8" L x 4.2" W x 1.8" H  
(17.27 cm L x 10.67 cm W x 4.57 cm H)
- Weight: 1.5 lb. (0.68 kg)
- Cable: RG-59 3 ft. (91 cm)  
Recommended: Belden 9104 or  
Belden  
Plenum 9104P

#### Operating specifications

- Power: +12 Vdc @ 200 mA  $\pm$ 10% including Down Converter
- Input LO frequency: 16.368 MHz @ 1 Vp-p received from the  
Down Converter
- Input IF frequency: 4.092 MHz @ 1 Vp-p received from the  
Down Converter
- Output frequency (L1): 1575.42 MHz
- Output Code: L1 C/A Code

#### Environmental specifications

- Operating temperature: 0°C to + 50°C
- Storage temperature: -40°C to + 85°C
- Humidity: 95%, noncondensing
- Up converter connection
- To antenna: Female BNC
- To receiver: Female TNC

#### Certifications

- FCC, CE, UL

#### Product Includes

- L1 GPS antenna down converter
- Up converter
- 1 ft. Mounting mast (30 cm)
- 2 Clamps
- 3 ft. Up converter cable (91 cm)
- 50 ft. Antenna cable (15 m)\*
- Manual

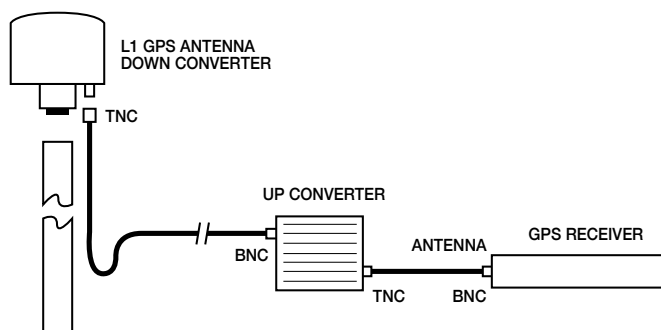
#### Options

- External 12 Vdc power supply for computer plug-in card applications

Input: 100-240 Vac, 47-63 Hz  
DC output: +12 Vdc/2.1 A

- Lightning arrestor
- Antenna cables: 250, 500, 750, 1000, 1250 and 1500 feet, (76, 152, 228, 305, 381 and 457 meters)

\*Optional extended cable lengths are provided in lieu of 50 ft. cable



**Microsemi Corporate Headquarters**  
One Enterprise, Aliso Viejo, CA 92656 USA  
Within the USA: +1 (800) 713-4113  
Outside the USA: +1 (949) 380-6100  
Sales: +1 (949) 380-6136  
Fax: +1 (949) 215-4996  
email: sales.support@microsemi.com  
www.microsemi.com

Microsemi Corporation (Nasdaq: MSCC) offers a comprehensive portfolio of semiconductor and system solutions for communications, defense & security, aerospace and industrial markets. Products include high-performance and radiation-hardened analog mixed-signal integrated circuits, FPGAs, SoCs and ASICs; power management products; timing and synchronization devices and precise time solutions, setting the world's standard for time; voice processing devices; RF solutions; discrete components; security technologies and scalable anti-tamper products; Ethernet Solutions; Power-over-Ethernet ICs and midspans; as well as custom design capabilities and services. Microsemi is headquartered in Aliso Viejo, Calif., and has approximately 3,600 employees globally. Learn more at [www.microsemi.com](http://www.microsemi.com).

©2016 Microsemi Corporation. All rights reserved. Microsemi and the Microsemi logo are registered trademarks of Microsemi Corporation. All other trademarks and service marks are the property of their respective owners.