

# Smart Passive Sensors™ : SPS UHF Reader Hub

## SPSPRDR1-8

The SPS UHF Reader hub is designed to enable optimized system performance for applications using ON Semiconductor Smart Passive Sensors powered by Magnus® technology. The SPS reader hub is compatible with the UHF EPC global Gen 2 UHF standard. The reader hub supports up to 8 reader antennas connected through standard RP-SMA coaxial connections. RF output power is adjustable from 5 dBm to 30 dBm in 0.5 dBm increments, and the reader supports read rates of up to 100 tags/second and 1 SPS read/second. Maximum read range is 9m when used with appropriate antennas in free space.

The reader supports all UHF RFID bands residing between 860–930 MHz. The SPSPRDR1–8 is powered by a Quad–core 64–bit ARM Cortex processor, with on board memory and removable flash storage. The reader also includes connectivity through Ethernet and micro–USB on the back of the device.

### Features

- Compatible with EPC Global Gen2 UHF Standard
- Support for all UHF RFID bands
- Adjustable RF Output Power up to +30 dBm
- 8 RF antenna ports supported
- Connectivity through micro–USB, Wired Ethernet

**Table 1. STANDARD OPERATING CONDITIONS**

| Parameter                   | Rating     | Unit |
|-----------------------------|------------|------|
| Operating Temperature Range | –20 to +50 | °C   |



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**SPS UHF Reader / Hub Server  
CASE MODGM**

### ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.



**Figure 1. Port Connections**

# SPSPRDR1-8

## SPS UHF READER INFORMATION

The SPSRDR1-8 is a complete reader hub platform for Smart Passive Sensors. Included software is used for basic tag reading and connectivity. A feature rich REST API is in development for the SPSRDR1-8 and is available upon request. Details on the functionality and performance of the reader hub are provided below

### Software Functionality

The SPS UHF Reader comes with simple to use software that enables users to quickly read data from Magnus based SPS tags. The included software provides a log of EPC, sensor codes, RSSI value, temperature values, and other data to provide for fast system started and evaluations. Additional software may be available for application specific needs.

**Table 2. READER SPECIFICATIONS**

|                                  |  |  |
|----------------------------------|--|--|
| <b>Standard Compatibility</b>    | EPC Global Gen2 UHF  | ISO 18000-6C with DRM<br>ISO 18000-6B (optional) |
| <b>Operating Frequency</b>       | See Ordering Table   |  |
| <b>RF Output Power (Note 1)</b>  | 5 dBm to 30 dBm  | Adjustable in 0.5 dBm steps                      |
| <b>RF Antenna Ports</b>          | 8  | SMA 50 $\Omega$ connection                       |
| <b>VSWR</b>                      | 1.1  |  |
| <b>Connectivity</b>              | RJ45 (10/100 Base-T Ethernet)<br>1x USB2.0 Type A console port<br>3x USB2.0 Type A accessory ports<br>Power Jack | 1.7/4.0 mm connector (DC Power)                  |
| <b>Read Rate</b>                 | 100 tags/second  |  |
| <b>SPS Sensor Read Rate</b>      | 1 sensor read/second   |  |
| <b>Maximum Read Distance</b>     | 9m   | Using 6dBi antenna (36 dBm EIRP)                 |
| <b>Max Receive Sensitivity</b>   | -62 dBm  |  |
| <b>Power Supply Requirements</b> | 7.5 V-40.0 V DC, 15W   |  |
| <b>Standby Power Consumption</b> | 0.250W   |  |
| <b>Storage Temperature</b>       | -40°C to +85°C   |  |
| <b>Dimensions</b>                | 19.2 cm x 10.3 cm x 3.2 cm<br>7.6" x 4.1" x 1.3"   |  |
| <b>Weight</b>                    | 0.9 kg<br>2.0 lbs  |  |

NOTE:

1. RF output power adjustable through provided user software. User is responsible to ensure that appropriate antenna is selected to remain compatible with maximum system RF output power. Firmware on reader will limit maximum power at RF port based on regional certification.

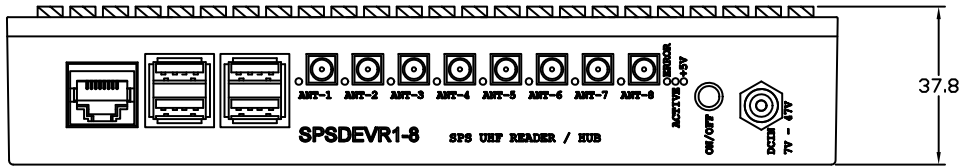
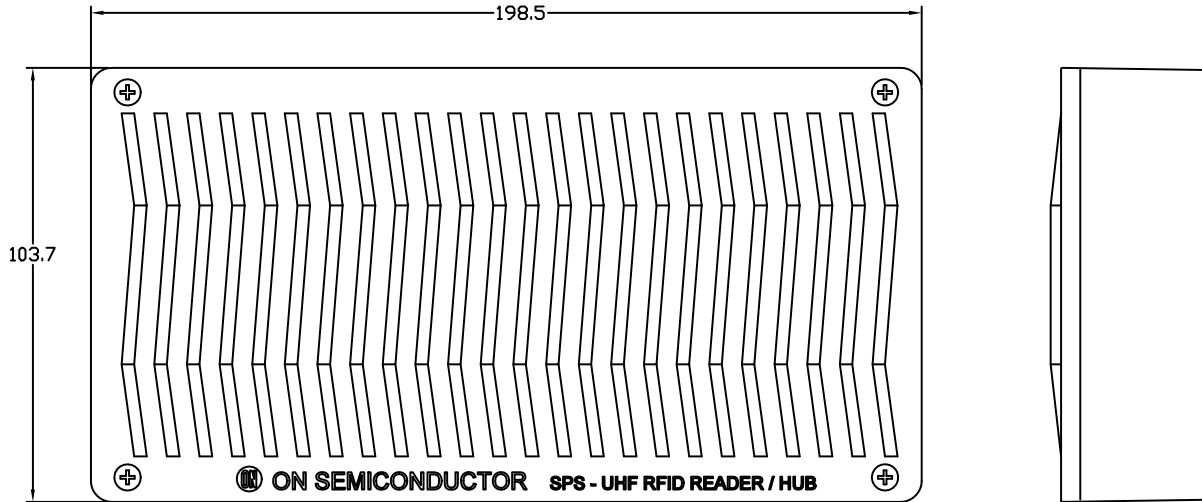
### ORDERING INFORMATION

| <b>Device</b> | <b>Regional Certification</b> | <b>Frequency Range</b> | <b>Package</b> | <b>Shipping</b> |
|---------------|-------------------------------|------------------------|----------------|-----------------|
| SPSPRDR1-8NA  | FCC, North America            | 902-928 MHz            | Box            | 1 unit          |
| SPSPRDR1-8EU  | ETSI, Europe                  | 865-868 MHz            | Box            | 1 unit          |
| SPSPRDR1-8CH  | MII, China                    | 920-924 MHz            | Box            | 1 unit          |
| SPSPRDR1-8KR  | South Korea                   | 917-920 MHz            | Box            | 1 unit          |
| SPSPRDR1-8JP  | MIC, Japan                    | 916-923 MHz            | Box            | 1 unit          |

# SPSPDR1-8


## PACKAGE DIMENSIONS

### SPS UHF Reader / Hub Server CASE MODGM ISSUE 0



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