

## 916.50, 868.35 MHz RFID Receiver

The R916ID is a complete RFID receiver with an RS-232 output. The RS-232 output generates a four hexadecimal character ASCII ID output for each tag transmission that is detected. This output may be interfaced to a PC or microcontroller. Up to 32,768 T916ID tags may be recognized by the receiver. The R916ID receiver is designed for long range applications such as asset tracking, personnel monitoring, animal tracking, telemetry (tags may be customized to transmit data), vehicle tracking and many security related applications.

The open-collector output may be used for perimeter alarm applications. Depending on which mode is chosen, the output becomes active either when any of up to eight preprogrammed tags falls out of range of the receiver or is in range of receiver. This allows the system to operate in a standalone mode without a PC connected.

The receiver is shipped with a ½-wave omni-directional antenna, AC adapter and 6 foot RS-232 cable (DB-9). This product is also available in the European 868-870 MHz band to comply with ETSI 300 220 regulations. Please consult factory for customization options.



### Features

- RS-232 Serial Output (9600 baud)
- High Sensitivity Receiver (-109 dBm)
- Ceramic Front End Filters and LNA
- Compatible with T916ID Active Tags
- Three Internal Range Settings
- Open Collector Output for Stand-Alone Operation
- ½ Wave Antenna Included

### Typical Applications

- Asset Tracking
- Personnel Monitoring
- Animal Tracking
- Telemetry
- Retail Security

### Related Products

<i>Model</i>	<i>Freq (MHz)</i>	<i>Description</i>
R916ID	916.50	RFID Receiver
T916ID	916.50	Active RFID Tag
R868ID	868.35	RFID Receiver
T868ID	868.35	Active RFID Tag

**Electrical Characteristics**

Sym	Parameter	Min	Typ	Max	Unit
VCC	Operating Voltage Range	7.5	12	14	Volts
I <sub>cc</sub>	Operating Current (at VCC=9V)		30		mA
f <sub>c</sub>	Center Frequency	916.3	916.5	916.7	MHz
Z <sub>out</sub>	Antenna Input Impedance		50		Ohms
T <sub>op</sub>	Operating Temperature	-20		+70	C
I <sub>1</sub>	Sink Current-Open Collector Output			150	MA
V <sub>1G</sub>	Permissible Voltage- Open Collector Output			60	VDC

**Pinout Assignment**

Pinout	Description	Notes
1	Open Collector Output	Active Low when any tag is within range.
2	RS-232 Data Out	Hexadecimal Output, 9600, 8, No, 1
3	NC	
4	NC	
5	Ground	
6-9	NC	

**RFID RECEIVER SET-UP AND OPERATING INSTRUCTIONS**

Referring to the table below, set jumper settings to the desired mode (if required).

	RS-232 Output (pin 2)	Open Collector Output (pin 1)	Jumper Settings
Mode 1 (Default)	ID for all tags received	Active LOW, 2-sec duration, for each Tag reception, high impedance otherwise	○ ○-○   U2 ○ ○-○
Mode 2	ID for previously learned Tags received.	Active LOW, 2-sec duration, for each learned tag received, high impedance otherwise	○-○ ○   U2 ○ ○-○
Mode 3	ID for previously learned tags NOT received in 15 second time frame	Active LOW, 2-sec duration, for each tag in memory NOT received.	○ ○-○   U2 ○-○ ○

Connect the following:

- RS-232 Output, DB-9, Female, Use straight through type serial cable to PC.
- Antenna Input, BNC, 50 Ohms, Use supplied ½-wave whip antenna and keep the antenna oriented vertically for omni-directional coverage.
- DC Input, 9-12 VDC, 50 ma., Use supplied AC adaptor.

**PC Set-up**

Hyperterminal or any similar program may be used to display the received RFID tag numbers. Use the following serial communication parameters:

9600 baud  
8 bits  
No parity  
1 Stop bit

Specifications subject to change without notice or obligation.

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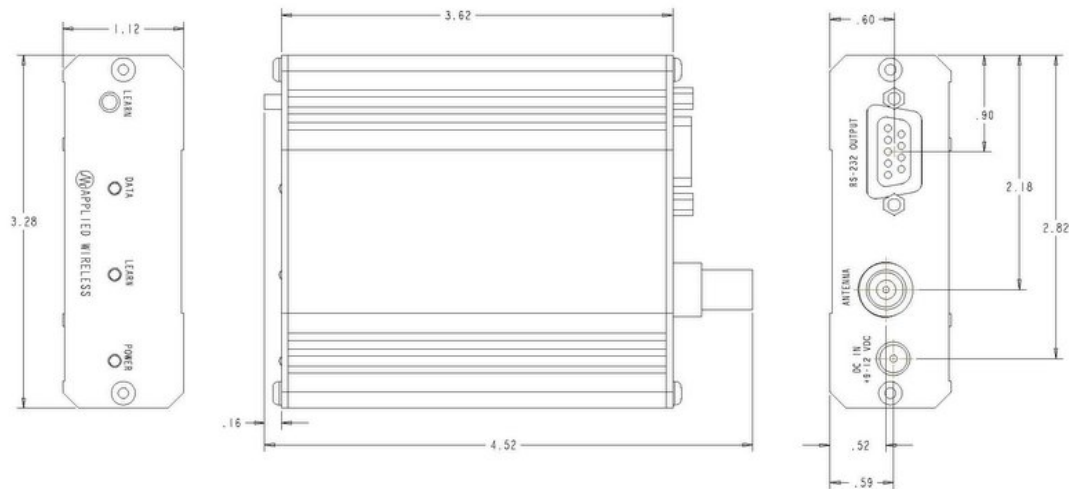
### Programming Procedure

This receiver has been set up from the factory to receive all Tags (mode 1) (practical limit depending on Tag transmission interval) within range, therefore no programming is necessary.

Alternatively, the R916ID can be set up to read only those Tags programmed into memory using the program button. In that configuration, only 8 tags can be programmed and monitored. To put the unit in this mode, set the two jumpers on the circuit board as indicated.

Action	Procedure
Program first Tag into memory	<ol style="list-style-type: none"> <li>1. Remove antenna from receiver to limit range of receiver to a few feet.</li> <li>2. Make sure no other tags are within range of the receiver. Verify by checking that DATA LED does not periodically activate.</li> <li>3. Bring Tag to be programmed within 1 foot of receiver.</li> <li>4. Press LEARN button. Learn LED will light and then go out when tag is learned. This should take less than 5-seconds.</li> </ol> <p>Note- Maximum number of tags that can be stored in memory is 8.</p>
Program additional Tags	<ol style="list-style-type: none"> <li>1. Repeat the steps above, making sure that no tags are within receive range of the receiver except for the tag you will program next.</li> </ol> <p>Note: Tags are programmed on a "First In – First Out" basis. Once 8 tags are learned, trying to learn a ninth tag will program that tag but erase the first tag learned into memory.</p>
Erase All Tags from memory	<ol style="list-style-type: none"> <li>1. Press and hold the LEARN button for 5-seconds on power-up. The LED will go on when the memory has been erased.</li> </ol>

### Package



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