



transponder and reader engineered systems

## **tres900 PASSIVE UHF READER**

### **ENGINEERING SPECIFICATIONS**

#### **Revision A**

### **Features and Benefits**

#### **Performance/Size/Cost**

There are no readers on the market that can outperform the **tres900** for providing a combination of performance, size and cost! Utilizing the 915 MHz frequency (902MHz ~ 928MHz frequency hopping), the **tres900** can achieve 18 to 25 feet of read range with a thin passive tag and is available at a cost that is about half that of most comparable readers.

#### **Multi-tag with Controllable Read Zone**

A common problem with long-range readers is uncontrollable read zones and handling of multiple tags within that read zone. The **tres900** provides simultaneous multi-tag and multi-protocol functionality to ensure reading of multiple tags. Multi-tag is a critical requirement for office environment asset monitoring applications. The **tres900** with defined read zone allows for the installation of readers in portals, gateways and hallways to monitor the flow of assets. Coupled with multi-tag capabilities, the **tres900** provides an unrivaled asset monitoring solution. The defined read zone, coupled with passive tag technology, also eliminates most of the problems caused by erroneous tag reads experienced in parking and gated entry applications and the high cost of battery powered tags.

#### **Immunity to Proximity of Metal Objects**

The **tres900** comes with a focused beam in a 70°-cone shape; it is totally oblivious to any metallic objects outside of that antenna field. Unlike the 125 kHz technology, metal objects will only shield or deflect **tres900's** antenna beam and will not absorb the beam to cause it to collapse. Since the **tres900** is immune to the proximity of metal objects, it's a simple matter to mount **tres900** on metal walls, metal posts or metallic enclosures.

## Superior Engineering

The **tres900** incorporates a patentable design for the receiver front-end and DSP (digital signal processing) algorithms to minimize hardware signal processing. The net result is a low component count with enhanced reader performance and reliability.

## Tag and Credential Configurations

All current tags for the **tres900** are passive technology, meaning there is no battery to limit tag life. The windshield tag affixes directly to a vehicle windshield utilizing an incorporated adhesive back surface.

## Products

### Manufacturer

- A. **tres900** Readers and Passive Tags should be purchased through Transponder and Reader Engineered Systems, Inc.<sup>®</sup>, 2142 O'Neal Lane Suite 354, Baton Rouge, LA 70816, 888.574.tres (8737).
- B. Substitutions: No substitutions allowed unless referred by Transponder and Reader Engineered Systems, Inc.<sup>®</sup>

## Readers

- A. Long-Range Readers – Mounting
  1. Provide surface mounting style 902MHz ~ 928MHz tag readers suitable for Post, Ceiling or Wall mounting, for Supply Chain, WIP, Asset Monitoring and Vehicle ID applications, and for mounting configurations as shown on the project plans.
  2. The reader shall be capable of data in standard Wiegand, RS232 and TCP/IP Ethernet formats from any tres recommended tags or equivalent, outputting the data in one of the following configurations:
    - a. The **tres900** reader shall output credential data in compliance with the SIA AC-01 Wiegand standard, compatible with all standard access control systems while simultaneously outputting the credential data in a Serial protocol interface, transmitting that data in ASCII format, compatible with a host device using an RS-232 serial port.
    - b. The **tres900E** reader shall output credential data in a TCP/IP Ethernet protocol interface, transmitting that data in ASCII format, compatible with a host device using an Ethernet TCP/IP port while simultaneously outputting the credential data in a Serial protocol interface, transmitting that data in ASCII format, compatible with a host device using an RS-232 serial port.
  3. The Reader shall provide the ability to change operational features in the field through the use of a factory-supplied GUI program. Operational programming options shall include:

- a. Configure the power level from the default 30 dB (maximum power level) to a minimum power level (approximately ½ read distances) with 20 dB.
4. Readers shall provide the following programmable audio indication:
  - a. A piezoelectric sounder shall provide an audible tone upon successful power up/self test and for a good card read.
5. The reader shall have a configurable hold input (Trigger lead), which when asserted shall either buffer a single card read or disable the reader, until the line is released. This input may be used for special applications, example with loop detectors.
6. Tag read range shall be:
  - a. Windshield Tag reads 15 to 25'
  - b. Hang Tag reads 18 to 25'
  - c. Metal Mount reads 8 to 15'
  - d. ISO Card reads 15 to 25'
7. Readers shall meet the following physical specifications:
  - a. Dimensions: 10.19" x 10.19" x 3.74" (260mm×260mm×90mm)
  - b. Weight: 4.2 lb (1.91kg)
  - c. Material: UL94 Polycarbonate
  - d. Color: White
8. Readers shall meet the following electrical specifications:
  - a. Operating voltage: 8 or 16 VDC, reverse voltage protected. Regulated power supply recommended.
  - a. Current requirements: (peak) 1.5A @ 12 VDC
9. Readers shall meet the following certifications:
  - a. FCC Part 15
  - b. CE Mark
10. Readers shall meet the following environmental specifications:
  - a. Operating temperature: 4°F to 158°F (-20°C to +70°C)
  - b. Operating humidity: 5% to 95% relative humidity non-condensing
  - c. Weatherized design suitable to withstand harsh environments The reader shall be of polycarbonate material, and sealed gasket and waterproof cable fitting to a NEMA rating of 3S (IP54).
11. Reader cabling requirements shall be:
  - a. Cable distance: (Wiegand): 500 feet (150m); RS-232 50 feet (15m); TCP/IP Ethernet: 328 feet (100m).
  - b. Cable type: 5-conductor #22 AWG w/overall shield for both Wiegand and RS232. CAT5 is used for the TCP/IP Ethernet version. Additional conductor will be required for trigger control function.
  - c. Standard reader termination: miniature screw terminal block
12. Warranty of Readers shall be 1 year against defects in materials and workmanship.
13. Reader shall be Transponder and Reader Engineered Systems, Inc. Model **tres900** Wiegand base model number.