

Quick Installation Guide – LR-2000 Long-Range Reader and Tags

If you are new to the LR-2000 reader, or if this is your first long-range installation, and you are having any concerns, we suggest that you call AWID Support at +1-408-825-1100.

The LR-2000 Reader is an extra-long-range Radio Frequency Identification reader that works with a selection of encoded hand-held cards and vehicle-mounted tags. These instructions describe the Wiegand interface. For RS-232 serial interface, see AWID's Technical Reference. Before you start the installation, study the **LR-2000 Installation Manual**, available from AWID.

Preparation

- **Layout Plan:** Ideal conditions for the installation site are –
 - 1 car length between reader and gate.
 - Vehicles driving in a single lane, in a straight line near the reader, at 5 miles per hour.
 - Adjustable bracket for aiming the reader.
 - Reader location and height to match vehicle and tag types.
 - Reader and tags parallel to each other at the reading distance.
 - Tag location determined by tests before attaching.
 - For turning lanes, or mixed small and large vehicles, using LR-2000HiLoMA reader set.
- **Power Supply:** Separate independent DC power supply for each LR-2000 reader, connected to nothing else. For a 12-14 volt DC supply, current rating = 1.5 amperes minimum. AWID's Pt.No. PS-12-3.3A is good if 8 feet from the reader.
- **Cable:** May be separate cables for data and for power, or may be combined for data and power together. Max. length = 500 feet. For power alone – 18 gauge, 2 conductors, stranded wires, color-coded, overall 100% shielded, high quality. For data alone – 22 gauge, 3 conductors, stranded wires, color-coded, not twisted pairs, overall 100% shielded, high quality. For combined cable – 18 gauge, 5 conductors, stranded wires, color-coded, not twisted pairs, overall 100% shielded, high quality.
- **Mounting:** An adjustable pan-and-tilt bracket (Pt.No. LR-911MB) in most installations, to aim the reader at the tags for reading.

Pre-Installation Testing

1. Before installing at the site: These tests can be done on the bench at your shop, or in your van at the site – almost anywhere.
2. Pt.No. LR-2000KIT: Use this Testing & Set-up Kit with the reader. No need to mount the reader or interface to the system.
3. Connections: Connect three negatives (black wires) on reader, test unit, and power supply, plus reader's yellow wire, together. Connect reader's orange wire to test unit's orange wire. Connect three positive power lines (red wires) on reader, test unit, and power supply together. See Figure 1 for connections.
4. Holding test tags: Press tag between fingertips as far from hand and body as possible. Have clear space between tag and reader.
5. Procedure: When test unit's LED shows red, present one of the two test tags from the Kit to the reader. Measure the maximum distance where reads occur. Measure width of the effective field at half of maximum reading distance.
6. Results: Tags should give reads at rate of 2 or 3 reads per second, at distances. See Figure 2 for typical RF field.

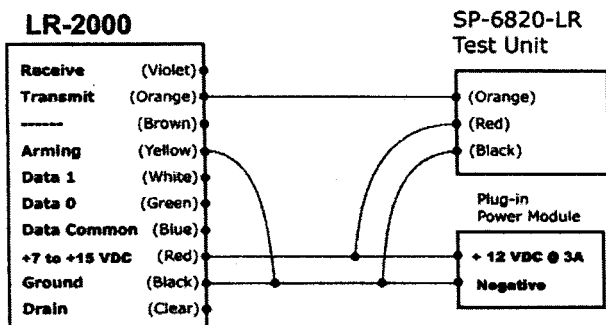


Figure 1. Connections for Pre-Installation Testing

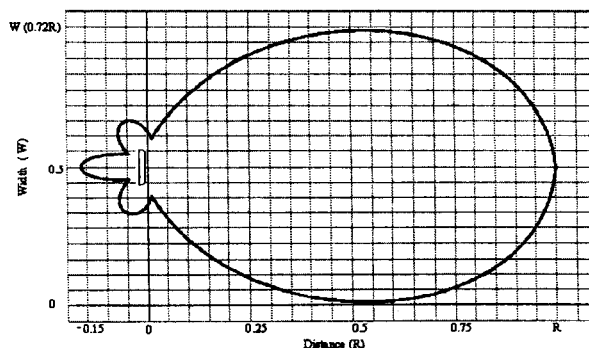


Figure 2. Effective RF Field for LR-2000 Reader

Mounting the Reader

1. Fasten the mounting bracket to the pole, post, pedestal, wall or beam. Leave space for the reader's pan-and-tilt adjustment.
2. Fasten the LR-2000 reader to the bracket using 2 ¼"-20 screws. The LR-911MB bracket includes all fasteners.
3. Cut off connectors from the reader's cable. Connect the wires to the cable(s) that run to the panel and power supply. See Fig.3.
4. Aim the reader toward the location of tags when they are mounted on vehicles, 10 feet to 15 feet from the reader.

Wiring the Reader (for Wiegand Interface)

1. Check the cable(s) to be certain that they meet AWID's specifications. Study Figure 3 carefully.
2. Connect the wires -- *yellow to black* at the reader; *black and red* to the power supply; *green and white* and *blue* to the controller.
3. Connect the reader's *drain* wire (bare) to shields of all cables. **Do not ground** any of these wires – they all must float.
4. Keep the reader's *orange* wire available permanently for the LR-2000KIT's test unit. Tape off *violet* and *brown* separately.
5. Do not seal or "wrap up" the junctions until the complete system has been tested thoroughly. Keep all junctions accessible.
6. Test the reader using the LR-2000KIT Test & Set-up Kit. Be certain that hand-held test tags read on the test unit at full distance.

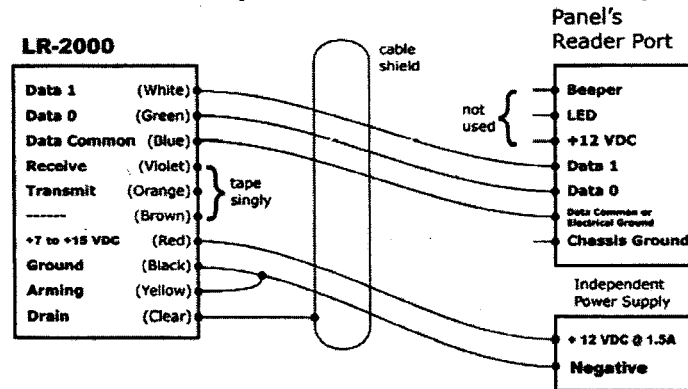


Figure 3. Wiring the Complete System

Attaching the Cards and Tags

- Select a location for the tags that has clear line-of-sight between the tags and the reader. The tags should be about parallel to the face of the reader at the reading distance (10 feet or 15 feet, depending upon the tag type). Test tags "landscape" and "portrait".

VT-UHF Visor Tag: Clip the tag on the sun visor. At 10 feet or 15 feet, the driver lowers the visor so the tag faces the reader.

HT-UHF Hangtag: Hang the tag by its hook on the inside rearview mirror's stem, facing the reader. Or hold the tag by the fingers.

RV-UHF Mirror Tag: Using the tag's adhesive, press the tag uniformly on the frame of the inside mirror, facing the windshield.

WS-G2 Windshield Tag: Using the tag's adhesive, press the tag firmly inside the glass, at least 2 inches from edge of windshield.

MT-G2 Metal-Mount Tag: Fasten outside or inside the vehicle, using screws or rivets or the tag's adhesive. Seal around edges.

CS-UHF Clamshell Card and GR-UHF Graphics Card: Hold facing reader with fingers at edge of card. (Read on UA-612 also.)

Programming the System

1. Complete the LR-2000 reader's interface to the host access control or vehicle identification system.
2. Program the applications system for the type of reader, and for the tags' code format, facility (or site) code, and card numbers.
3. Assign suitable programming for the individual tags in the cardholders' database – gate groups, time zones, priority levels, etc.
4. Program the applications for the action to be taken for each valid read – gate motor operation, data recording, reports generation.

Testing the Completed System

1. Drive a vehicle with a mounted tag into the reading distance on the lane. Observe the code registered by the system for accuracy.
2. Test operation of all functions by driving a vehicle with an authorized tag code past the reader and through the gate repeatedly.
3. Study the PC monitor's data display for full and correct information about events on the system.
4. Enter command for a report on events in the system – for individual vehicles in a time period and for history at a single gate.

If a Problem Occurs

1. Use the LR-2000KIT Test & Set-up Kit to measure performance of the reader with hand-held test tags. Isolate the cause.
2. Study the LR-2000 Installation Manual, Part C – Trouble-Shooting, for an organized way to identify a problem source.
3. Visit AWID's web site (www.awid.com) for product data and downloads. For technical support questions visit ... www.awid.com/support or call +1-800-369-5533 (in the U.S.) or +1-408-825-1100 from 8:00 a.m. to 5:00 p.m. Pacific Time.