

Technical Reference

INTERFACING AWID'S READERS TO FEDERAL APD'S PASSPORT ACCESS CONTROL SYSTEM

Interfacing readers that transmit Wiegand-formatted data to the Federal APD Passport system can be a challenge for the people who install and program the system. This memo recommends (Section A) power connections for the reader into the Federal Logic Module, and (Section B) programming for the data format in the computer that runs Federal's Passport system.

A. Power for Readers

The DC power terminal on the Federal input module may supply sufficient current for small readers that are connected to it, but not for larger readers that draw more power than the Federal module's capacity. Therefore, an **external DC power supply** is often required. The external power supply should be a linear regulated supply. Its current capacity must exceed the sum of the peak current rating for all readers that are fed by that power supply.

For AWID's proximity readers, the DC voltage may be between 5 volts and 12 volts (ideally 12 volts). If the reader is AWID's MR-1824, use an external power supply, such as AWID's PS12-1A plug-in power module. Use a separate PS12-1A supply for each MR-1824 reader.

For AWID's LR-911 long-range reader, the DC voltage may be between 6.5 volts and 15 volts (typically 12 volts). The power supply's current rating should be at least 0.75 ampere per reader. AWID's PS12-1A plug-in power module is good for a single LR-911 reader.

Wiring:

1. Carefully follow the wiring instructions in the Installation Sheet that AWID ships with every reader.
2. For **proximity readers**, connect together the 3 electrical ground wires on (a) the Federal module's reader port, (b) the reader's black wire, and (c) the external power supply.
3. For the LR-911 **long-range reader**, connect the reader's black wire to the external power supply's ground or common terminal, but to nowhere else.
4. Connect the Wiegand data lines from the reader to the data input ports on the module – green wire to Data 0, and white wire to Data 1. For the LR-911 reader, connect also the blue wire to the electrical ground terminal on that same reader input port, for data-common.
5. For proximity readers, connect any other control wires that are used, such as, LED line or Beeper line or Hold circuit.
6. For the LR-911 reader, connect the yellow wire to an arming sensor (if any); or tie the yellow wire permanently to the reader's black wire.
7. Connect the reader's drain wire (bare wire or clear insulation) to the shield or drain wire of the cable between the reader and the Federal module. For proximity readers, connect the cable shield to *earth* ground at the controller end of the cable only. For LR-911 reader, do not ground the shield at either the controller or the reader.
8. Connect the reader's red wire for DC power to the + power terminal on the *external power supply*.

B. Programming the Data Format

These notes describe a typical Federal APD system – but not all of them.

1. How the Federal APD System Uses Input Code

- a. The Federal APD system strips the two parity error-checking bits from the ends of the standard Wiegand 26-bit format. The system ignores the parity error-checking bits.
- b. The system then reverses the order of the two Wiegand data fields – it puts the ID Number field first, and then the Facility Code (or Site Code) field.
- c. For a 26-bit Wiegand industry-standard format, the system assigns bit number 1 to the start of the ID Number field, and bit number 17 to the start of the Facility Code field.

2. Procedure

- a. In the Federal APD programming procedure, set the DIP switch for the 26-bit format that allocates 16 bits to the ID Number field, and 8 bits to the Facility Code field.
- b. Select the option that turns the parity checks off.
- c. Select just these two fields – ID Number and Facility Code.
- d. Select Most-Significant-Bit (MSB) first.
- e. Set the ID Number field for start bit = 1, and length of field = 16 bits.
- f. Set the Facility Code for start bit = 17, and length of field = 8 bits.
- g. Program a test card into the system’s user database. Assign this card to yourself as the cardholder (user). Assign yourself top-level access, with time zone set for “All Times”, and with access to all door groups.
- h. Test results using your card at the card reader for any door.
- i. If the system does not grant access for your card, read the message that appears on the PC’s monitor. If it indicates an error in the code format or code data, recheck the system’s programming (steps a through g).
- j. If the “Access Denied” message continues, read the facility code and the card ID number from the Federal APD system, and compare it with the code that is printed on your test card.
- k. If trouble persists, try reprogramming the system with other options.

C. Notes

- ❑ Not all Federal APD systems work this way. Users report different programming requirements to AWID. Call AWID to discuss programming of your system.
- ❑ A cable with **22 gauge** wires is sufficient to connect all AWID readers to controllers. Substituting an 18 gauge cable will not improve the current capacity for the readers. Using an external power supply *will*.
- ❑ Attachment: Bit chart for industry-standard 26-bit Wiegand format