

Delta Multi-Technology Readers: Quick Reference Guide

The Delta multi-technology models include the Delta3, Delta5, Delta5.3, and Delta 6.4.

All Delta multi-technology readers are compliant with the following organizations:



FCC compliance Statement: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The user is cautioned that making changes not approved by Farpointe Data may void the user's authority to use this equipment.

1.0 Cable Requirements

All readers operate at up to 500 feet (152 m) of cable, using nine-conductor, shielded, stranded cable. Per the Security Industry Association's Wiegand specification, AWG 24 (such as Belden 9539) is the minimum gauge required for data transfer in a 500-foot run length. However, the proper wire gauge must be determined by the current draw requirements of the reader, the length of the cable run, and the voltage applied to the reader.

If the reader is to be operated at 5 VDC, 5 VDC must be available at the reader (long cable runs have a voltage drop due to the resistance in the cable). A larger gauge of wire (having less resistance) or a separate power supply near the reader may be required to ensure 5 VDC is available at the reader.

2.0 Delta Multi-Technology Credential Compatibility

Delta multi-technology readers are capable of reading both 13.56 MHz and 125 kHz RFID credentials. Operating at 13.56 MHz the reader can read all ISO 14443 Type A contactless smartcard credentials (some are card serial number (CSN) only) and some ISO 14443 Type B contactless smartcard credentials. These credentials include Mifare 1K/4K (secure sectors or CSN), Mifare Ultralight (CSN only), Mifare DESfire (CSN Only), and both Type A and Type B PIV credentials (FIPS-201 compliant). Operating at 125 kHz Delta multi-technology readers can optionally read Pyramid, HID, and/or AWID 125 kHz proximity credentials. 125 kHz reading capability can be disabled if desired.

3.0 Contactless Smartcard Reader Modes

Delta multi-technology readers can be configured to read contactless smartcards in any of the following modes:

- Sector Plus CSN Mode: Reader looks for access control data in a secure sector but if none is found the reader outputs the card's CSN instead. This is the default mode.
- Sector Only Mode: Reader looks for access control data in a secure sector but if no valid data is found the reader outputs nothing.
- CSN Only Mode: Reader does not look for access control data in a secure sector and simply outputs the card's CSN.

4.0 14443 Type A CSN Output Formats

Delta multi-technology readers can be configured to output 14443 Type A CSNs in any of the following ways:

- 32-bit Wiegand: The reader outputs the 32-bit CSN as Wiegand data starting with the MSB. This is the default mode.
- 26-bit Wiegand: The reader outputs 26-bit Wiegand data comprised of the 16 lower bits of the 32-bit CSN, fixed 8-bit facility code, and beginning and ending parity bits. Facility code defaults to 001 (**Note: cutting off 16 MSBs from CSN can cause card duplication**).
- 34-bit Wiegand: The reader outputs 34-bit Wiegand data comprised of the 32-bit CSN MSB first plus beginning and ending parity bits.
- 40-bit Wiegand: The reader outputs 40-bit Wiegand data comprised of the 32-bit CSN followed by an 8-bit check sum.
- Magnetic Stripe (ABA Track II, clock and data, with card present): CSN is output in ABA Track II format.

5.0 Secure Sector Access Control Data Output Formats

Customer specified access control data programmed onto a secure Mifare 1K or 4K sector can be output in any of the following ways:

- Wiegand (industry standard 26-bit Wiegand and custom formats)
- Magnetic Stripe (ABA Track II, clock and data, with card present)

6.0 FIPS-201 Output Formats

Please see Farpointe Data's "FIPS-201 Reader Output Selection" document. Default output is 75-bit Wiegand.



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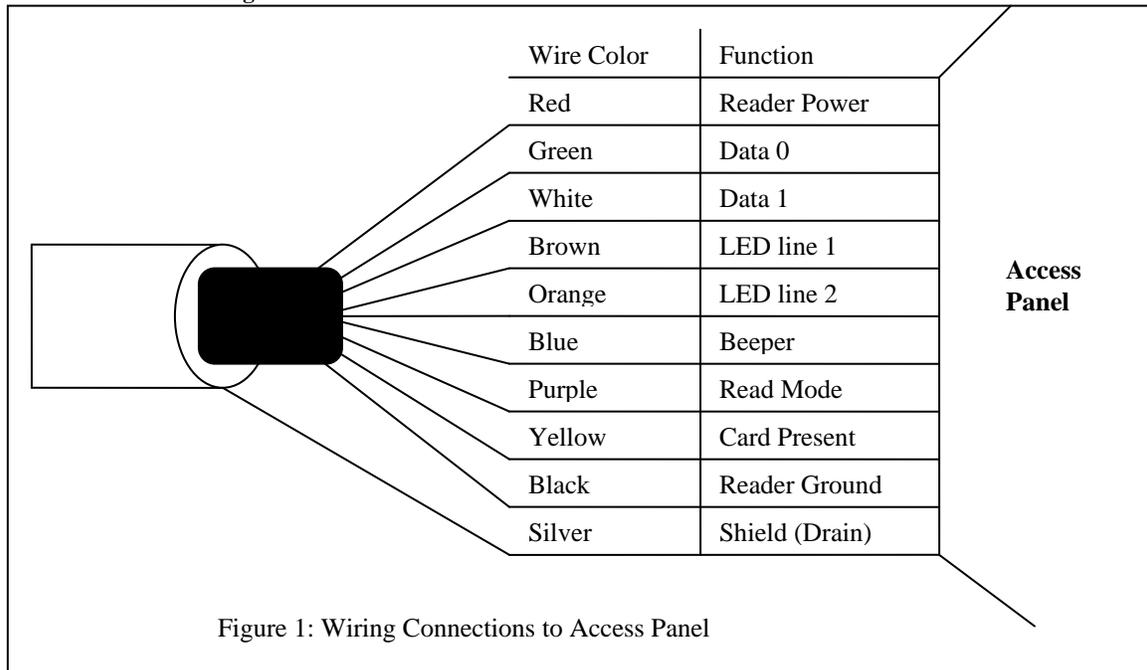
7.0 Grounding

Shield (drain) continuity must run from the reader to the access panel. Shield (drain) and reader ground must be tied together at the access panel and connect to an earth ground at one point.

8.0 Power and Voltage

Delta multi-technology readers may be powered by the access panel, so the reader is powered on when the access supply is powered on. However the best case is to power the readers by a separate, linear power supply. Voltage can range from 5 to 14 VDC, 12 VDC is nominal.

9.0 Reader Wiring



10.0 Connections in Detail

Wire Color	Line	I/O	Description
Red	Reader input voltage	Input	5 to 14 VDC
Green	Wiegand data 0/ Magstripe Clock	Output	Wiegand data or ABA Track II clock
White	Wiegand data 1/ Magstripe Data	Output	Wiegand data or ABA Track II data
Brown	Red LED host control	Input	LED host control. In single line LED control mode (default mode) pull line low to turn on green LED. In dual line LED mode pull line low to turn on Red LED
Orange	Green LED host control	Input	LED host control, only used in dual LED mode. In dual LED mode pull line low to turn on green LED.
Blue	Audio tone host control	Input	Beeper host control. Pull line low for beep.
Purple	Read mode control	Input	Read mode host control. Pull line low for "Sector Only" mode.
Yellow	Card Present	Output (can be configured as TTL or open collector)	Card present line for ABA Track II magnetic stripe output.
Black	Reader Ground	Input	Reader Ground
Silver	Cable shield	N/A	Cable shield (drain), must be grounded

