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LINEAR BT135-W Access Control Readers User Guide

PRINTER'S INSTRUCTIONS:
INSTR,QUICK START,NBT125-W,ENG – P/N: 10030867 Rev-B – INK: BLACK – MATERIAL: 20 LB. MEAD BOND
– SIZE: 8.500" X 11.000" – PRINT FRONT AND BACK –
TOLERANCE: ± .125" – SCALE: 1-1
Access Control Readers
BLE Mobile / 125 kHz / 13.56 MHz
HAF Reader
Quick Start Guide

Contents

Introduction

A key component of a physical security electronic access control system, the Linear Access Control reader combines RFID and Bluetooth technology. In operation, it is capable of reading data stored on physical and/or mobile credentials via radio frequency without physical contact, and then passing the data obtained to the physical access control system. Access control systems typically manage and record the movement of individuals through a protected area, such as a locked door.

This Quick Start Guide is intended for experienced installing technicians. It is a basic reference to ensure all connections are properly made. Models include Linear NBT125, BT125 and BT135. For additional information please reference Linear's website **www.linear-solutions.com**.

Mounting

Provisions Each reader may be installed either indoors or outdoors, mullion-mount or single gang mount. Please recycle any unused housing components. Installation and wiring of systems must be done in accordance with National Electrical Code, ANSI/NFPA 70.

MULLION
(Slim Mount)

SINGLE-GANG
(Wide Mount)

Reader Wiring

Wiegand

Conductor	Function
Red	DC (8-14 VDC)
Black	Ground
Green	Data 0
White	Data 1
Brown	Red LED †
Orange	Not Used
Yellow	Not Used
Blue	Beeper (BT135 only) † †
Violet	CSN Mode

NOTES:
† Single Line LED: This is the standard operating mode and does not make use of the Orange conductor.
While idle, the LED on the NBT125 model is Red and flashes when a card is presented.

While idle, the LED on BT125 and BT135 models is Blue and flashes when a card is presented.

On all models, the LED turns green when the Brown Conductor is pulled low by the access control panel.

†† Sector vs CSN: The standard operating mode for BT135 readers does not make use of the Purple conductor and will only output a smart card's Sector data. Pulling the Purple conductor low (grounded) will cause the reader to output a smart card's CSN data.

Cable Requirements

22 AWG minimum, multi-conductor stranded with an overall foil shield, for example, Belden 8445 or similar supporting the five conductors comprising the physical layer of the Wiegand interface (power, ground, data0, data 1, and/or beeper and LED). Alternatively, Belden 9539 is equivalent or higher quality, for all reader functions. Contact your access control system manufacturer for their specific requirements. Per the SIA's Wiegand specification, the maximum cable length is 500 feet (152 m).

NOTE: Unused conductors should be trimmed, isolated and taped back to prevent unintended current flows. Apply positive voltage only to the Red DC Conductor.

Output Formats

Wiegand (industry standard 26 bit Wiegand and custom Weigand formats):
NBT-125W
BT125-W
BT135-W
Bi-directional Open Supervised Device Protocol (OSDP):
BT125-P
BT135-P

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 earth ground at one point.

Power

The reader may be powered by the access panel. A Linear power supply is recommended for best operation.

Voltage

NBT125: 8 to 14 VDC, 70 mA typical. 73 mA peak.
BT125: 8 to 14 VDC, 70 mA typical. 100 mA peak.
BT135: 8 to 14 VDC, 79 mA typical. 257 mA peak.

Connection

The connection must be done in accordance with NFPA 70. Do not connect to a receptacle controlled by a switch. Connect to a power-limited DC voltage source.

Troubleshooting

1. When the reader is first powered on it will beep 4-times, and the LED will shine red or blue.

2. Presenting a supported access credential will result in the reader beeping and the LED flashing once.

NOTE: The access panel controls LED functionality, such as switching the LED to green.

If the reader does not recognize the card or tag (no beep, no LED flash) or exhibits short read range, please see the table below for possible causes and solutions.

Possible Cause	Corrective Action
Incorrect cabling	Verify gauge, connections and cabling length
Not enough power	12 VDC recommended
Incorrect card used	Verify if card technology is supported
Reader/access panel not properly grounded	Earth ground needed – verify shield and reader ground are tied at access panel and connect to ground at one point
Supply generating interference	Linear power supply recommended, verify switching power supply before use

Should any of the corrective actions mentioned above not improve performance, disconnect the reader from the access panel and power it with a separate power supply or 9 VDC battery, and re-test card functionality. By powering the readers separately, most variables that may lead to reduced performance can be eliminated. Should the problem persist, please contact Linear directly?

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 product can be used without license conditions or restrictions in all European Union countries, including Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden, United Kingdom, as well as other non-EU countries, including Iceland, Norway, and Switzerland.

Many Linear Data Readers carry the following certifications:

Linear reserves the right to change specifications without notice.

Models: P3500, CSB3500, PB3500

Documents / Resources

LINEAR BT135-W Access Control Readers [pdf] User Guide
BT135-W, Access Control Readers

References

- ∧ **Linear | Professional Access Control Company**