Linx TECHNOLOGIES

OEM Compact Handheld Transmitter

Data Guide

Wireless made simple®

Warning: Some customers may want Linx radio frequency ("RF") products to control machinery or devices remotely, including machinery or devices that can cause death, bodily injuries, and/or property damage if improperly or inadvertently triggered, particularly in industrial settings or other applications implicating life-safety concerns ("Life and Property Safety Situations").

NO OEM LINX REMOTE CONTROL OR FUNCTION MODULE SHOULD EVER BE USED IN LIFE AND PROPERTY SAFETY SITUATIONS. No OEM Linx Remote Control or Function Module should be modified for Life and Property Safety Situations. Such modification cannot provide sufficient safety and will void the product's regulatory certification and warranty.

Customers may use our (non-Function) Modules, Antenna and Connectors as part of other systems in Life Safety Situations, but only with necessary and industry appropriate redundancies and in compliance with applicable safety standards, including without limitation, ANSI and NFPA standards. It is solely the responsibility of any Linx customer who uses one or more of these products to incorporate appropriate redundancies and safety standards for the Life and Property Safety Situation application.

Do not use this or any Linx product to trigger an action directly from the data line or RSSI lines without a protocol or encoder/decoder to validate the data. Without validation, any signal from another unrelated transmitter in the environment received by the module could inadvertently trigger the action.

All RF products are susceptible to RF interference that can prevent communication. RF products without frequency agility or hopping implemented are more subject to interference. This module does not have a frequency hopping protocol built in.

Do not use any Linx product over the limits in this data guide. Excessive voltage or extended operation at the maximum voltage could cause product failure. Exceeding the reflow temperature profile could cause product failure which is not immediately evident.

Do not make any physical or electrical modifications to any Linx product. This will void the warranty and regulatory and UL certifications and may cause product failure which is not immediately evident.

Ordering Information

Ordering Information	
Part Number	**Description**
CMD-HHCP-***-xxx-MD	Compact Handheld Transmitter
EVAL-***-HHCP	HHCP Basic Evaluation Kit

*** = 315, 418 (Standard) or 433.92MHz
xxx = Custom color, leave blank for black

Figure 3: Ordering Information

Electrical Specifications

Electrical Specifications						
Parameter	**Designation**	**Min.**	**Typ.**	**Max.**	**Units**	**Notes**
Power Supply						
Operating Voltage	V_{CC}	2.1	3.0	3.6	VDC	
Supply Current	I_{CC}		3.4		mA	
Power-Down Current	I_{PDN}		5.0		nA	1
Transmitter Section						
Transmit Frequency Range	F_C					
CMD-HHCP-315-MD			315		MHz	
CMD-HHCP-418-MD			418		MHz	
CMD-HHCP-433-MD			433.92		MHz	
Center Frequency Accuracy		–50		+50	kHz	
Environmental						
Operating Temperature Range		–40		+85	°C	1

1. Characterized, but not tested

Figure 4: Electrical Specifications

Protocols

The DS Series encoder inside the Compact Handheld transmitter supports two protocols. The first protocol is based on the Holtek HT640 encoder and is completely backwards compatible with older generation transmitters and systems based on the HT658 decoder. The second is a serial protocol that offers more noise immunity and faster response time while keeping the simple addressing.

The transmitter can use only one protocol at a time. The protocols do not work together.

The protocol is selected with a switch next to the battery. Figure 5 shows this switch.

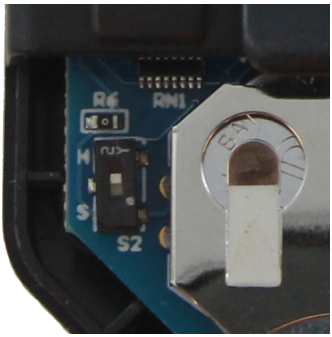

Figure 5: Protocol Selection Switch

If the switch is toward the top then the Holtek protocol is selected. If the switch is toward the bottom then the serial protocol is selected.

Connection Considerations

It is important to understand that only one transmitter at a time can be activated within a reception area. While the transmitted signal consists of encoded digital data, only one carrier of any particular frequency can occupy airspace without contention at any given time. If two transmitters are activated in the same area at the same time, then the signals will interfere with each other and the decoder will not see a valid transmission, so it will not take any action.

Battery Replacement

The remote unit utilizes a standard CR2032 lithium button cell. To replace the battery, remove the access cover by pressing down firmly on the label area and sliding it off. Once the unit is open, remove the battery by sliding it from beneath the holder. There may be the risk of explosion if the battery is replaced by the wrong type. Replace it with the same type of battery while observing the polarity shown in Figure 8.

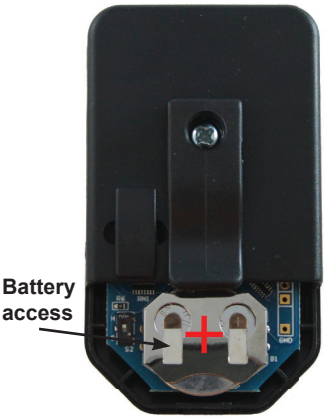

Figure 8: Battery Access

Assembly Diagram

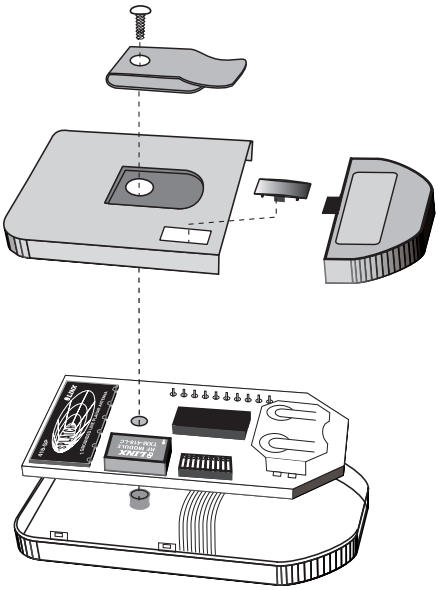

Figure 9: CMD-HHCP-***-MD Assembly

Receivers

There are four options for receivers within the Linx product line. The first option is to use one of the OEM Function Modules, such as the Relay Module. These items are also pre-certified and can be immediately included in a product.

FCTN-RLY4-***

TRM-***-LT

RXM-***-LR

RXD-***-KH2 / KH3

Figure 10: Linx Receivers

The other options are to use one of the Linx receiver modules. The signal sent by the Keyfob transmitter can be received by the LR Series receiver module or the LT Series transceiver module. These modules can be connected to the DS Series decoder to decode the signal, or a custom microcontroller can be programmed to decode it and take specific action.

The KH2 or KH3 Series offers a slightly simpler solution by combining the LR Series receiver and the Holtek or DS Series decoder in a single package. The KH2 Series receiver only supports the Holtek protocol, not the serial protocol. The KH3 Series receiver supports both protocols.

When a button is pressed on the transmitter, a corresponding line on the decoder goes high (as long as the addresses match). This can then be connected to whatever circuitry is required by the application.

Application Note AN-00300 discusses in detail how to set the addresses on all of the units. Data guides for all of the receivers, the Holtek HT640 encoder, HT658 decoder and the DS Series decoder can be found on the Linx website, www.linxtechnologies.com.

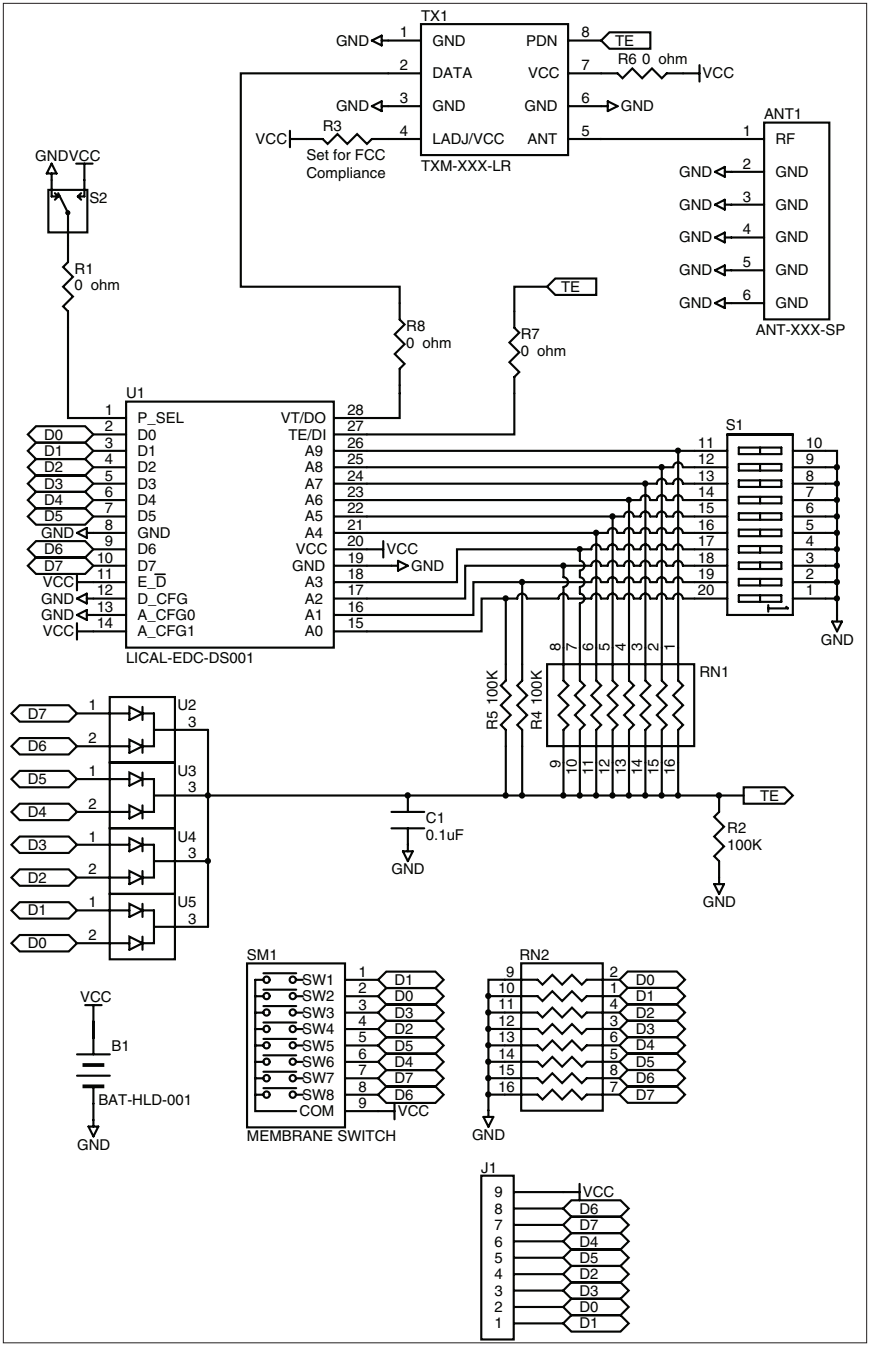

Figure 12: CMD-HHCP-***-MD Schematic

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