

# HS Compact Handheld Remote Control Transmitter



The HS Compact Handheld transmitter is ideal for general-purpose remote control and command applications that require the highest level of security. The small transmitter has a line of sight range of up to up to 750 feet (230m) when combined with an LR Series receiver and HS Series decoder. As a part of our HS family of wireless remote controls, it is available in 315, 418 (standard), and 433.92MHz. It has been pre-certified for FCC Part 15, Industry Canada, and European CE (433MHz only) compliance, reducing costs and time to market.

**Security:** The HS Compact Handheld transmitter uses the HS Series encoder, which uses CipherLinX® technology, an encrypted remote control protocol that provides ultimate RF security and unprecedented features. The encryption is based on the Skipjack cipher, widely considered one of the most secure ciphers available. It is a block cipher that uses 80-bit keys and 64-bit data blocks. It used by CipherLinX® in a specific mode (SPRP) to encrypt 128-bit data blocks. CipherLinX® never sends or accepts the same data twice, never loses sync, and changes codes with every packet, not just every button press.

**Features:** In addition to this high level of security, CipherLinX® also offers a number of features that are unique among remote control products. These include a large number of data lines, internal key generation, “button level” control permissions, an optional encoder PIN, as well as the ability for the decoder to identify the originating encoder.

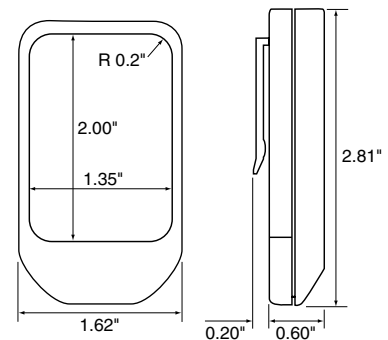
**Protocol:** The serial protocol used by the HS Series encoder is far superior to older pulse method protocols, so that the HS offers longer range and better performance within that range than older systems. It also results in fast response times.

**Tactile Buttons:** The membrane switch uses metal snap domes for a sharp click and tactile response.

**Pre-certified:** All units have FCC and Industry Canada certifications, the 433MHz version also has European CE certification.

**Accessories:** Optional accessories include retractor reel, lanyard and a rubber boot to protect the transmitter from damage.

**Customization:** The membrane switch can be customized to suite a particular application. This includes rearranging the buttons, different numbers of buttons (up to 8) and custom artwork. Logos or artwork can also be applied to the case. NREs and minimum orders apply.



Specifications	
Operating Voltage	2.1 to 3.6VDC
TX Supply Current	3.4mA
Frequency	
CMD-HHCP-315	315MHz
CMD-HHCP-418	418MHz
CMD-HHCP-433	433.92MHz
Power Down current	5nA
Operating Temperature Range	-40 to +85°C

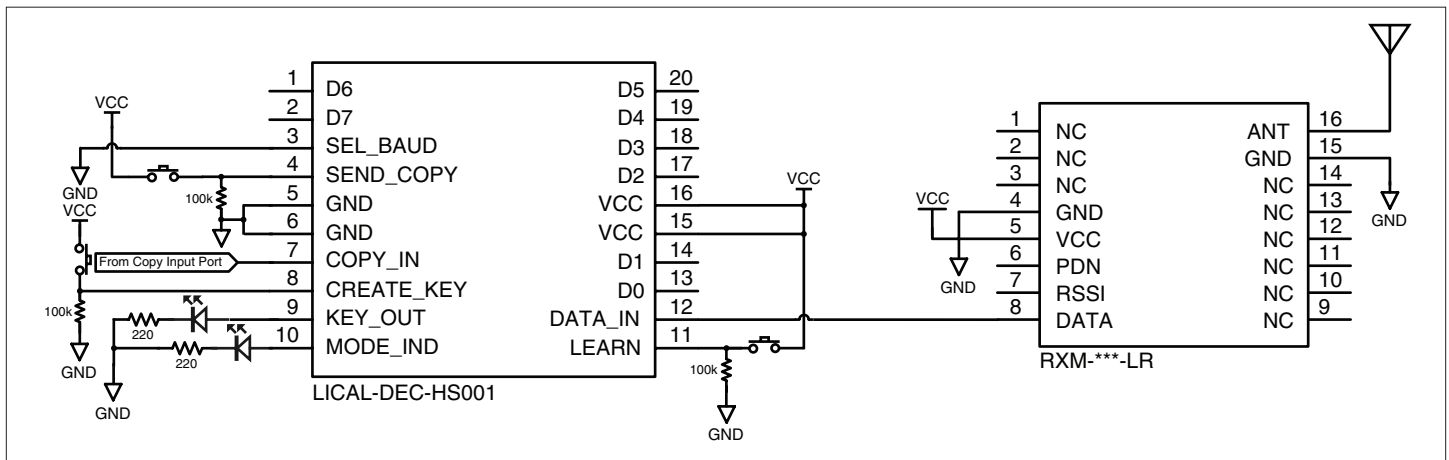
## Applications

- General remote control
- Keyless entry
- Garage / gate openers
- Lighting control
- Call systems
- Home / industrial automation



## Typical Receiver Application Circuit

The HS Compact Handheld transmitter is a complete remote control transmitter solution in a very generic package. The receiver side of remote control applications tends to be much more specific to each product. The receiver should incorporate the LR Series receiver and HS Series decoder as shown in the schematic below. The LR Series RF receiver outputs the data received from the transmitter to the decoder. The decoder decrypts and verifies the data and, if everything is correct, replicates the transmitter's inputs on its outputs. These outputs activate whatever circuits are required by the application.

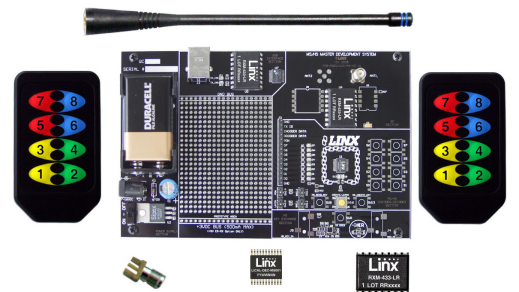


LR Receiver and HS Decoder Schematic

## Master Development System

The Master Development System gives a designer all the tools necessary to incorporate the HS Compact Handheld transmitter, LR Series receiver, and HS Series decoder into a product. The Master Development System serves several important functions. It allows the performance and features of the transmitter, LR Series and HS Series to be quickly evaluated. It shows how to design with the receiver and decoder and how to interface with other components. It also demonstrates the overall system function, making it easy to develop the initial system design. It allows for additional circuitry to be placed directly on the board so that it can act as the first prototype of the product. All of the signals are available on a wire-wrap header for easy connection to external circuitry.

When the decoder board is plugged into a USB port on a PC, the kit can be used to activate the features in the included software. When a data line goes high on the decoder, a microcontroller sends a command to the computer via a Linx USB interface module to control functions in the software. Please see the documentation included with the Development System for details.



### Ordering Information

Part Number	Description
OTX-***-HH-CP8-HS-xxx	HS Compact Handheld Transmitter
MDEV-***-HH-CP8-HS	HS Compact Transmitter Master Development System

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