Linx TECHNOLOGIES

Remote Control Overview Guide

Linx strives to *make every engineer a hero in record time*™ by minimizing the risk, delays and technical challenges for design engineers to implement wireless functionality and connectivity to the Internet. The Linx remote control products feature a variety of completely finished RF transmitters and receivers that have received FCC and Industry Canada certifications. The 433MHz versions have also received European CE certification. Linx pre-certified remotes greatly reduce the expense and time involved in bringing a wireless remote control product to market.

Wireless made simple®

Revised 5/11/2015

Linx Pre-Certified Remote Controls

Linx remote controls combine RF transmitters and receivers with encoders and decoders into versatile enclosures. All have FCC and Industry Canada certifications and the 433MHz versions also have European CE certification. This greatly reduces the time and expense of adding wireless remote control features to a product. There are three families to choose from.

	DS Family	MS Family	HS Family
	The DS Family is based on the DS Series encoder / decoder. Addressing is based on 10 DIP switches on the handhelds and 10 cut traces on the keyfob, and offers 1,022 unique addresses. The states of the address lines must match on both the transmitter and receiver to enable communication. This system is not secure and offers far fewer addresses than the MS or HS families. The receiver hardware footprint can be larger than the MS, but is likely smaller than the HS. This family is used when the simplicity of the DIP-switch based addressing is desired.	The MS Family is based on the MS Series encoder and decoder. This family offers superior range and performance than the Holtek© protocol in the DS family and more addresses than the DS. It has a 24-bit address set by a random number generator that is activated by a button press on the encoder. A button press places the decoder into Learn mode where it stores the address of any received packet. The 24-bit address offered by the MS Series gives almost 17 million unique addresses. This system is not highly secure, but is lower cost and simpler to use than the HS-based system. It also has more addresses, a more robust protocol and a smaller receiver hardware footprint than the DS-based system. However, addressing is a bit more complicated than the DS-based system. It is a good balance between simple operation, cost and security.	The HS Family is based on the HS Series encoder and decoder. This family offers extremely high security thanks to the CipherLinx protocol implemented in the HS Series. The key is generated by the decoder on the receiving side and passed to the encoder through an infrared link accessed on the back of the enclosure. An optional PIN prevents the transmitter from operating until a 4-button combination is entered. This family is suitable for applications where security is paramount and an encrypted “rolling code” remote control link is required.
Long-Range Handheld Transmitter The external antenna on this transmitter offers the best range performance.	 CMD-HHLR-***	 OTX-***-HH-LR8-MS	 OTX-***-HH-LR8-HS
Compact Handheld Transmitter An internal antenna gives this transmitter a compact design while supporting all 8 buttons.	 CMD-HHCP-***	 OTX-***-HH-CP8-MS	 OTX-***-HH-CP8-HS
Keyfob Transmitters This tiny fob has great performance in a tiny package. It is available in 1 through 5 buttons.	 **DS Protocol:** OTX-†††-HH-KF#-DS **Holtek Protocol:** OTX-†††-HH-KF#-HT	 OTX-†††-HH-KF#-MS	
	Receivers	**Receivers**	**Receivers**
The LR Series receiver is used to receive the signal from the remote control transmitters. A decoder interprets the signal according to the transmitter family. The different families are not compatible, so the correct decoder must be used.	 RXM-***-LR  LICAL-EDC-DS001	 RXM-***-LR  LICAL-DEC-MS001	 RXM-***-LR  LICAL-DEC-HS001

*** = Frequency; 315, 418, 433MHz
††† = Frequency; 418, 433MHz
# = Number of Buttons; 1, 2, 3, 4, 5

Custom Transmitters

Linx OEM transmitters can be customized to include artwork and logos specific to a customer. The handheld transmitter membrane switches can also be customized to have a different number of buttons and different button locations. Please contact Linx for more details on the customization program.

Basic Evaluation Kits and Master Development Systems

The evaluation and development kits are not an afterthought to us at Linx.

They are key to how we make Wireless Made Simple®. We do not consider a designer who purchases our kit to be a customer yet; they are potential customers who must be won over by our development experience and the support we provide. Linx kits are different in that they are:

1. **Intuitive** – We took inspiration from modern consumer products and usability best practices to design our kits to be extremely intuitive. Open the box and begin preliminary testing without reading the manual.
2. **Everything you need** – Contains everything a designer needs to make their product wireless including printed documentation, a fully assembled receiver board and spare parts for use on the first prototype. Master Development Kits include PC software to demonstrate the use of the transmitters.
3. **Ergonomic to develop** – Linx is unique in providing a hardware development area with easy to access lines and clips tied directly to the RF module. The developer can easily switch between the benchmark provided in the kit and the prototype development to troubleshoot.
4. **Affordable** – The goal of Linx is to make it as easy as possible to try out our products, not to make a profit on the kit. We price most development and evaluation kits at $99 and our master development kits at $149 to $199.

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