FCTN-MD09XXX

OEM DECODER MODULE DATA GUIDE

DESCRIPTION

The Linx FCTN-MD09-XXX decoder module is ideal for general-purpose remote control and command applications. When paired with a matching Linx command module or Linx LC series transmitter, the module is capable of operation at distances in excess of 300 ft.The module is pre-authorized to meet FCC requirements, thereby reducing costs and speeding product introduction. Available in 315, 418 or 433.92 MHz (418MHz standard), this decoder module mounts directly onto an OEM's PC board. The on-board receiver/decoder combination provides eight switched outputs which correspond to the state of the data lines on the transmitter's encoder. Nine tri-state* address lines are also provided to allow up to 19,683 unique identification codes. The module operates from 5 vDC @ 8 mA typical. Header pins on .100 centers allow direct or socketed connection to a user's PCB. The integral antenna tilts and swivels to allow maximum mounting flexibility.

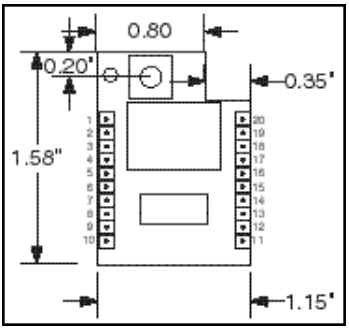
FEATURES

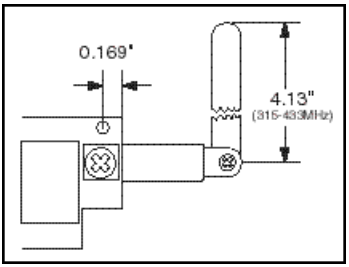
- Pre-Authorized for Immediate Integration
- Complete RF to Data Solution
- Convenient Through-hole Package
- Low Power Consumption
- Swivel Antenna for Mounting Flexibility
- 8 Data/9 Address Encoder On-board

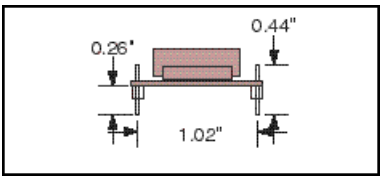
APPLICATIONS INCLUDE:

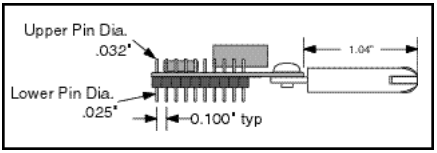
- General Remote Control
- Keyless Entry
- Garage / Gate Openers
- Lighting Control
- Call Systems
- Home / Industrial Automation
- Wire Elimination

PHYSICAL DIMENSIONS









ORDERING INFORMATION

PART #	DESCRIPTION
FCTN-MD09315	315MHz Decoder Module
FCTN-MD09418	*418MHz Decoder Module
FCTN-MD09433	433.92MHz Decoder Module

* = Standard Frequency

THEORY OF OPERATION

The FCTN-MD09-XXX decoder module combines the popular Linx LC series receiver with a decoder IC and RA series antenna in a convenient through-hole package. When transmitted data is received, the data is presented to the decoder. The decoder detects the logic states of the DIP switch address lines. If these match with the address settings of the transmitter, the decoders output(s) are set to replicate the state of the transmitter's data lines.

Decoder Pinouts

Pin#			Pin#
1	Address 6	Address 5	20
2	Address 7	Address 4	19
3	Address 8	Address 3	18
4	Data 0	Address 2	17
5	VCC	Address 1	16
6	Data 5	Address 0	15
7	Data 4	Data 6	14
8	Data 3	Data 7	13
9	Data 2	Valid TX	12
10	Data 1	GND	11

ELECTRICAL SPECIFICATIONS

	Min.	Typ.	Max.	Units
Operating Voltage	4.0	5	5.2	VDC
Current Continuous	-	9	10	mA
Receive Frequency	*315, 418, 433.92			MHz
Sensitivity@10^{-5}BER	-92	-95		
Output Drive Current				
V_{OH}=0.9vcc (sink or source)	.6	1.2		mA

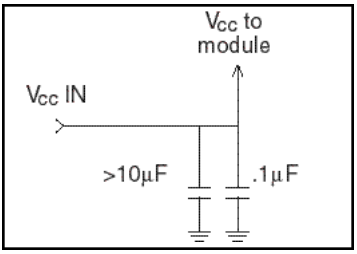
* Model Dependent

OUTPUT PIN CONSIDERATIONS

The output pins will normally require buffering due to their low sink or source current capability. The external addition of a transistor or other buffer is recommended to provide the appropriate sink or source current for devices such as relays, LED's or motors.

POWER SUPPLY REQUIREMENTS

The receiver module requires a clean, well-regulated power source. While it is preferable to power the unit from a battery, the unit can also be operated from a power supply as long as noise and 'hash' is less than 20 mV. In cases where the quality of supply power is poor the module's supply line should have a filter such as that shown.



Suggested supply filter

LAYOUT CONSIDERATIONS

A 1/4 wave antenna such as that employed on the FCTN-MD09XXX utilizes groundplane as the antenna's counterpoise. In order to achieve the best range and uniformity, the designer should provide an additional external groundplane. This can be accomplished in several ways. A metal enclosure through which the antenna protrudes can serve as an excellent groundplane, or a ground fill on the product's PC board will generally suffice.

SETTING DECODER MODULE'S ADDRESS

Nine tri-state address lines are provided which allow the selection of up to 19,683 unique identification codes. The address lines are normally attached to a DIP switch or PCB Jumpers. **Note: Tri-State means the address lines have three distinct states; hi, low, and floating. The data lines will not function unless the address lines share identical stateswith the encoder address lines.*

CONTENTION CONSIDERATIONS

An unlimited number of decoder modules may be operated in proximity without interference. It is important, however, 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 frequency can occupy airspace without contention at any given time.

COMPLIANCE REQUIREMENTS (LABELING)

The FCTN-MD09-XXX has been tested by an FCC-approved facility and found to comply will all applicable FCC requirements as of the date, of this document. A declaration of conformity (DOC) is on file. It is the user's responsibility to consult the FCC or other testing body to determine what additional testing may be required on the user's completed product. In products where no additional testing is required, the product may be offered for sale when labeled in the following manner:

- The following label shall be affixed in a conspicuous location to any device self-certified under the FCC's Declaration of Conformity process, when the product is authorized based on assembly using separately authorized components and the resulting product does not require additional testing:

- When the device is constructed in two or more sections connected by wires and marketed together, the label is required to be affixed only to the main control unit.

- When the device is so small or for such use that it is not practical to place the statement on the unit itself, the information shown on the label shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed.However, the unique FCC logo, device trade name, and model number must be present on the device.

- The label shall not be a stick-on paper label.The label shall be "permanently affixed" to the device (meaning the label is etched, engraved, stamped, silk-screened, indelibly printed on a permanently attached part of the device or on a nameplate fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and may not be readily detachable.

COMPLIANCE REQUIREMENTS (INSTRUCTION MANUAL)

For products containing the FCTN-MD09XXX, it is necessary to include the following statement in the end product's instruction manual or insert card.

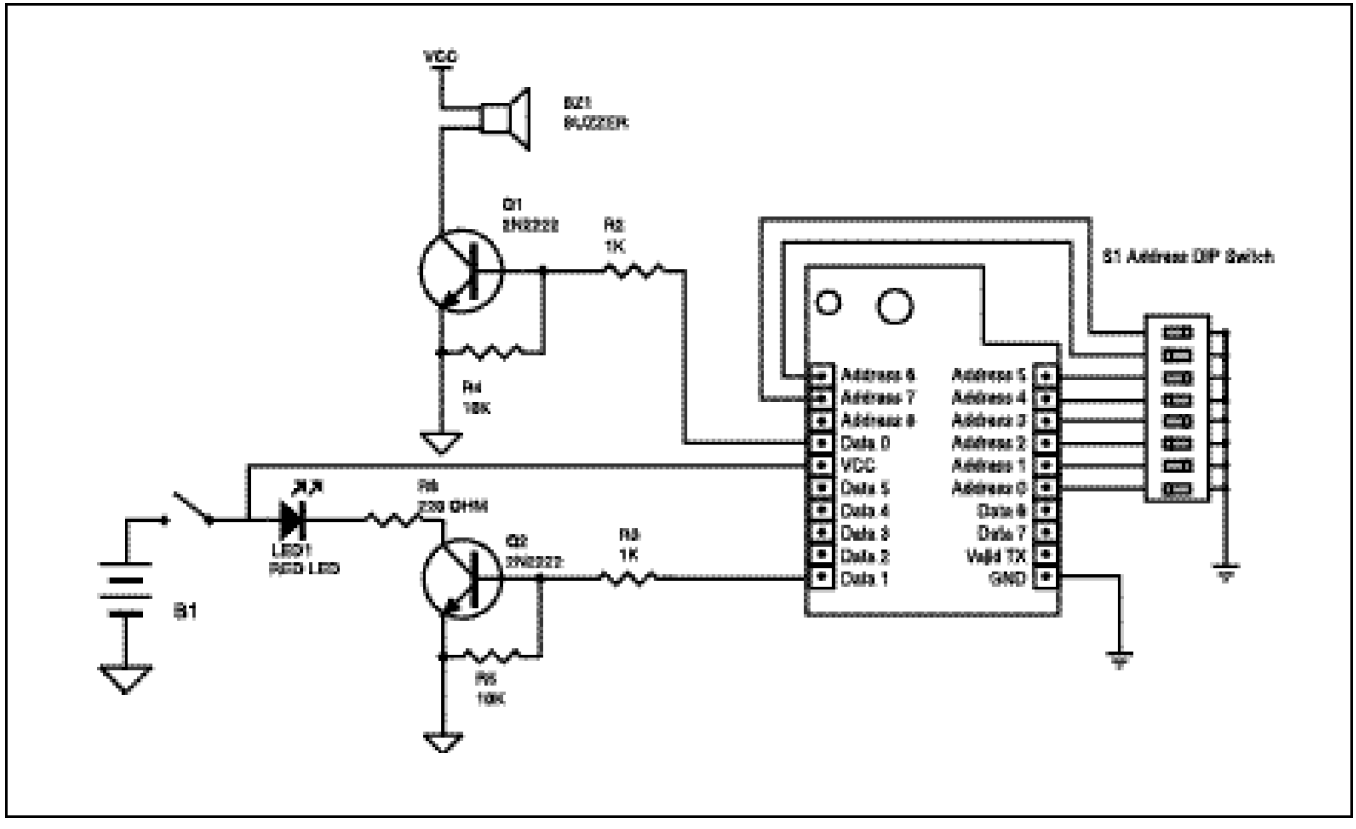
INSTRUCTIONS TO THE USER

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part I5 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

In order to maintain compliance with FCC regulations, shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Place the above statement in the instruction manual or insert card.



Typical Application for FCTN-MD09XXX

REFERENCE SECTION

The following declarations of conformity are on file at Linx Technologies and may be inspected on request.

DECLARATION OF CONFORMITY

TRADE NAME:	Receiver Module
MODEL NUMBER:	RT-418-CTL
COMPLIANCE TEST REPORT NUMBER:	B90429D1
COMPLIANCE TEST REPORT DATE:	4/29/99
RESPONSIBLE PARTY (IN USA):	Linx Technologies, Inc.
ADDRESS:	575 SE Ashley Place, Grants Pass, OR 97526
TELEPHONE:	541-471-6256

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If the unit does cause harmful interference to radio or television reception, please refer to your user's manual for instructions on correcting the problem.

I, the undersigned, hereby declare that the equipment specified above conforms to the above requirements.

Place: Grants Pass, OR Name and Signature On File

Date: August 19,1996 Title: Linx FCC Coordinator

DECLARATION OF CONFORMITY

TRADE NAME:	Receiver Module 315MHz
MODEL NUMBER:	RT-315-CTL
COMPLIANCE TEST REPORT NUMBER:	
COMPLIANCE TEST REPORT DATE:	
RESPONSIBLE PARTY (IN USA):	Linx Technologies, Inc.
ADDRESS:	575 SE Ashley Place, Grants Pass, OR 97526
TELEPHONE:	541-471-6256

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If the unit does cause harmful interference to radio or television reception, please refer to your user's manual for instructions on correcting the problem.
I, the undersigned, hereby declare that the equipment specified above conforms to the above requirements.

Place: Grants Pass, OR
Date:

Signature:

Full Name:

DECLARATION OF CONFORMITY

TRADE NAME:	Receiver Module 433 MHz
MODEL NUMBER:	RT-433-CTL
COMPLIANCE TEST REPORT NUMBER:	
COMPLIANCE TEST REPORT DATE:	
RESPONSIBLE PARTY (IN USA):	Linx Technologies, Inc.
ADDRESS:	575 SE Ashley Place, Grants Pass, OR 97526
TELEPHONE:	541-471-6256

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If the unit does cause harmful interference to radio or television reception, please refer to your user's manual for instructions on correcting the problem.
I, the undersigned, hereby declare that the equipment specified above conforms to the above requirements.

Place: Grants Pass, OR
Date:

Signature:

Full Name:

U.S. CORPORATE HEADQUARTERS:

LINX TECHNOLOGIES, INC.
575 S.E. ASHLEY PLACE
GRANTS PASS, OR 97526

Phone: (541) 471-6256
FAX: (541) 471-6251
http://www.linxtechnologies.com

Disclaimer

Linx Technologies is continually striving to improve the quality and function of its products; for this reason, we reserve the right to make changes without notice. The information contained in this Data Sheet is believed to be accurate as of the time of publication.Specifications are based on representative lot samples. Values may vary from lot to lot and are not guaranteed. Linx Technologies makes no guarantee, warranty, or representation regarding the suitability or legality of any product for use in a specific application.None of these devices is intended for use in applications of a critical nature where the safety of life or property is at risk.The user assumes full liability for the use of product in such applications. Under no conditions will Linx Technologies be responsible for losses arising from the use or failure of the device in any application, other than the repair, replacement, or refund limited to the original product purchase price. Some devices described in this publication are patented. Under no circumstances shall any user be conveyed any license or right to the use or ownership of these patents.