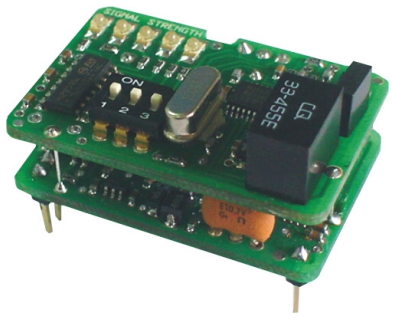
R15105

151.600MHz FSK Radio Data Receiver



Features

- 7 frequencies selectable via 3 way dip switch
- LED Signal Strength Indicator
- Receivers digital data
- Baud rates 40 - 4800bps
- Low cost, small size, low current consumption

Application

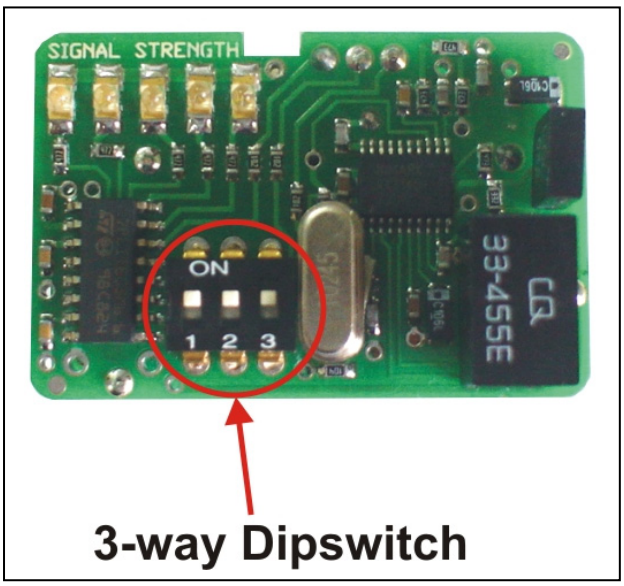
- Telecommand Systems
- Security Systems
- Alarms
- Radio Data Communications
- Commercial / Industrial Telemetry

Description

The R15105 is a radio data receiver to receive digital data. Baud rates of 40 to 4800 bps can be received. The low cost, small size, low current consumption makes it ideal for various applications.

The R15105 Data receiver has signal strength LED indicators which show the strength of the receiving signals. During installations if more then 3 LED's are ON without any transmission, than the user should switch to a different frequency. This indicates that there is interference and your receiving range will be greatly reduced.

The frequency can be changed by setting the 3-way dipswitch on the receiver module. The transmitter should also have the same setting as the receiver in order to operate. Below is a picture showing the location of the 3-way dipswitch and a list of frequencies.

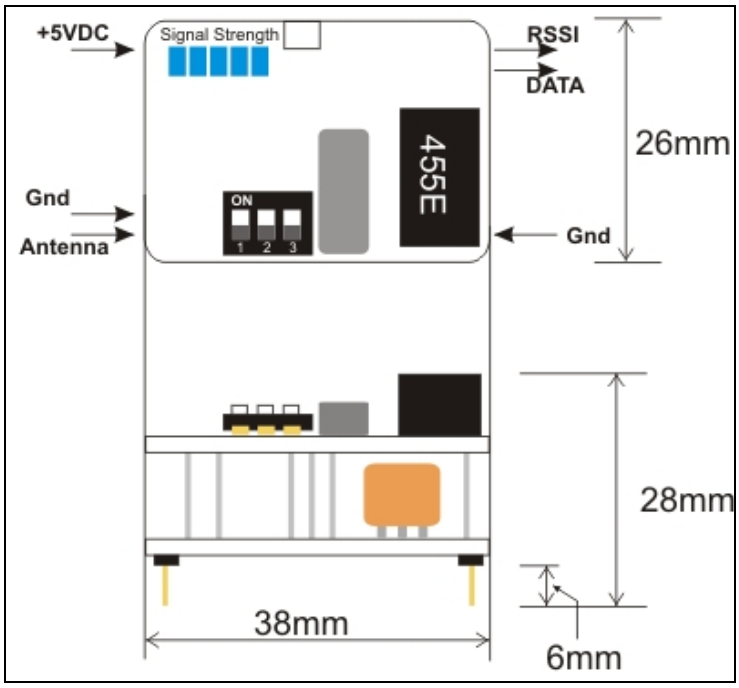


Frequency	1	2	3
151.600 MHz	On	On	On
152.375 MHz	Off	On	On
151.775 MHz	On	Off	On
151.400 MHz	Off	Off	On
151.175MHz	On	On	Off
151.025 MHz	Off	On	Off
150.900 MHz	On	Off	Off
150.825 MHz	Off	Off	Off

Technical Data

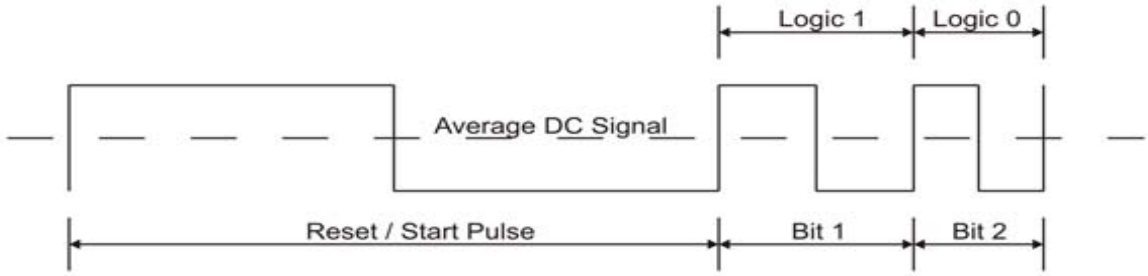
Supply Voltage	4.5 - 5.5 VDC Absolute maximum 6.0VDC.
Current Consumption	28mA
Receiver Type	Dual Conversion Superheterodyne
Receiving Freq	151.6MHz (8 selectable frequencies).
Oscillation System	VCO with 10ppm Crystal Controlled reference Oscillator
Operating Temperature Range	-5 to 50°C
1st IF Freq	10.7 MHz
2nd IF Freq	455 KHz
Selectivity	Better than -6 dB at + - 25 KHz
Image Rejection	Better than -40dB at 130.200
Sensitivity	-112dBm or 0.6µV
Type of Demodulation	Narrow-band-width Frequency Modulation. (FM)
Occupied Band Width	25KHz at -20dB.
Baud Rate	40 to 4800 bps with 50% duty cycle
Data Output Level	0-5V
Frequency Response	20 to 2400Hz
Dimension	38 x 26 x 28mm
Weight	22 grams
Usable Transmitter	T15105 Data Transmitter
Antenna	50 ohms, 151MHz Antenna

Connection



R15105 Data Format

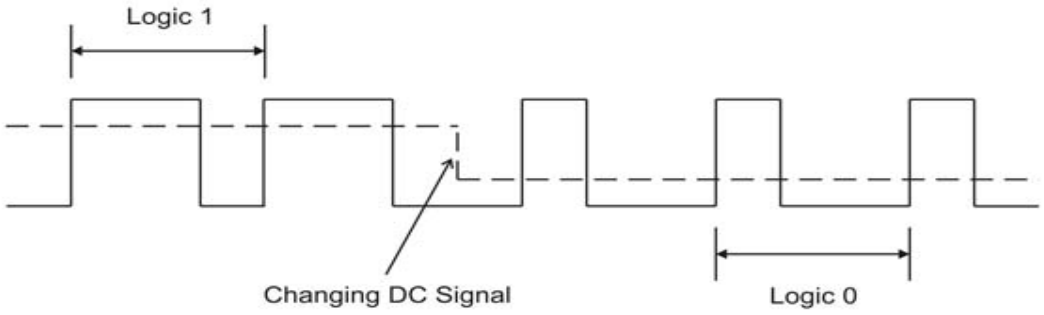
It is important to input the correct data format otherwise the receiver will have a lower sensitivity which will result in a reduced transmission range.
The R15105 receiver data slicer is set for 50/50-duty cycle, therefore the “data in” should have a 50/50-duty cycle. The 50/50-duty cycle data can be pulse-width modulated to transmit resets, 0's or 1's. See diagram below :



A 50/50-duty cycle will have an average DC signal resulting in a constant reference for the data slicer. Users should use pulse-width modulation to transmit data with logic 1's or 0's.

If a different duty cycle is used, for example 66/33 (Manchester format) the data slicer in the receiver will try to adjust itself to the average DC signal. Since this average DC signal is changing with different data bits this will result in a constantly changing reference for the data slicer, resulting in lower sensitivity.

See diagram below :



*Only 50/50 duty cycle data is suitable for the T15105 transmitter and R15105 receiver.

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