



ioLINK Series LoRa[®] 2-Channel Hub

ioLINK Hub LR2

Datasheet

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1. Brief Description

ioLINK Hub LR2 is a compact, low cost, low power wide area network (LPWAN) wireless Hub that supports the Semtech LoRa® long range wireless protocol. It is a cost-effective alternative to costlier LoRaWAN® Gateway. It has capability to communicate on 2 Sperate Rx Channel & one dedicated Tx channel. It can be used for small indoor private LoRa® Network for upto 50 End Nodes which are sending data in very few times in a day.

This new LoRa® 2-channel Hub comes in indoor ABS material enclosure and houses SSTPL own high performance LoRa® Hub design. This Hub creates private LoRa® Network on the go with minimum cost.

1.1 Features

- Same LoRa® Network Security enabled when SSTPL Hub Server is used.
- Integrated with 4G LTE backhaul. LoRa® Stack Inside
- Range up to 3 km (Line of Sight)
- Ambient operating Temperature -20 to 75 °C
- IP67 waterproof enclosure with DC Power cable gland.

1.2 Applications

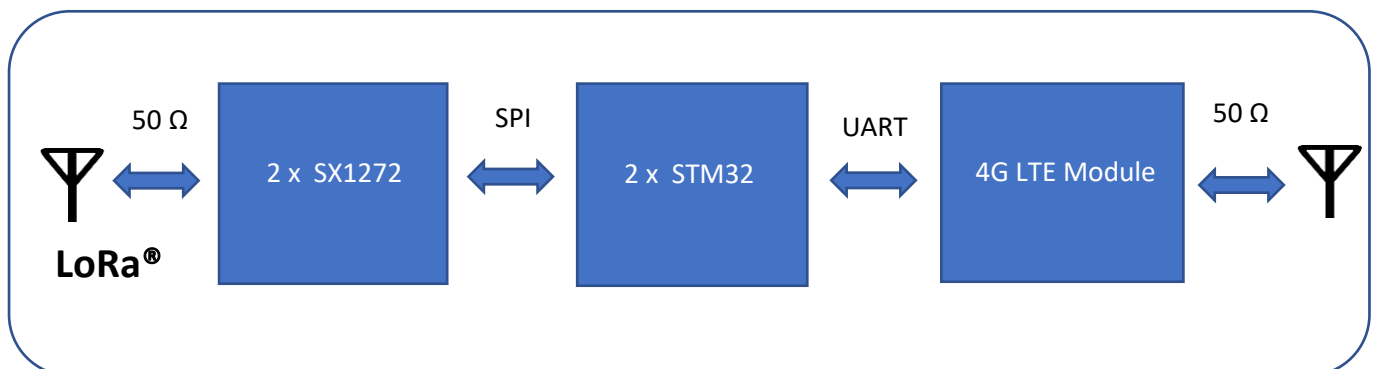
Typical applications for this Hub include society metering, small IoT projects, M2M and internet of things (IoT) edge nodes.

The module's applications are as following -

- Automated Meters Reading for Society & Buildings
- Home and Building Automation
- Sensor Hub applications
- Industrial Monitoring and Control
- Private network for Automated Irrigation Systems

2. Overview:

ioLINK HUB LR2 is an ultra-long range, high-performance, LoRa[®] Hub for wireless communication. It operates in the license free 865-867 MHz ISM frequency band and includes 2 x SX1272 LoRa[®] Transceiver with dedicated STM32 each Transceiver. This creates an affordable yet quite reliable 2-channel LoRa[®] Mini Gateway like solution. Below is the block diagram of the product:



It has 2 uplink frequency channels and 1 dedicated downlink channel. It is recommended to use in small IoT deployments where only 10-50 LoRa Nodes are installed in non-critical operations. It is integrated with 4G LTE module which communicate with central server over 4G Internet. If SSTPL Hub servers are used, then the whole communication from node to SSTPL server is AES-128 Bit secured. In case customer want to use his own server, either he/she can use his own security developed or use LoRa without security. SSTPL also offer the installation & commissioning of customised Hub Server application on Turnkey Basis.

ioLINK HUB LR2 comprises 3 major parts on hardware side:

1. 2 x LoRa[®] RF Modules with STM32 MCUs
2. 4G LTE Module
3. Power Supply Section and antennas

ioLINK Station is a commercial class device and qualifies major requirements of a small IoT Hub. LoRa[®] RF Module used in this product is based on SSTPL own RF Design which have enhanced RF performance in Transmit as well as Receive Parameters.

ioLINK Hub LR2 has default supply option of 5V DC/2A.

3. Hardware Specifications

Specs Group	Key Item	Detailed Specs
System Configuration	RF Transceiver	2 x SX1272
	MCU	STM32
	Internet Connectivity	4G LTE with 2G Failover
LoRa®	Max RF Transmit Power	+20 dBm
	Receive Sensitivity	Down up to -139 dBm on SF12 & 125KHz Channel BW
	SNR Sensitivity	up to -20 dBm
	Frequency	865-867 MHz (ISM Band India)
	No. of Transmit Channels	1 Channel, 125 KHz
	No. of Receive Channels	2 Channels, 125 KHz per Channel
	Spread Factor	SF7-SF12
	Data Rate	250 - 5470 bits/sec
	LoRa Antenna Port	1 × 50 Ω SMA
Power Supply	Default	5V DC / 2A
	Power Consumption	5W Typical, MAX 6.5W
Enclosure	Ingress Protection	IP67
	Dimensions	TBD
	Weight	TBD
	Mounting Option	Wall Mount
Environmental	Operating Temperature	-20°C to +70°C
	Storage Temperature	-20°C to +85°C
	Relative Humidity	0% to 95% (non-condensing) at 25°C

3.1 Transmitter RF Characteristics

T = 25°C, 866 MHz if nothing else stated					
Parameter	Condition	Min	Typ.	Max	Unit
Frequency Range		865	-	867	MHz
RF Output Power - 865 MHz Band		18	19	30	dBm
Modulation Techniques			LoRa®		
TX Frequency Variation vs. Temperature	-40 to +85°C	-	±10	-	kHz
TX Power Variation vs. Temperature		-	±0.5	-	dB

4. Software & Stacks

4.1 ioLINK Hub Stack

ioLINK HUB LR2 has customised LoRa® stack in which it communicates with the remote LoRa® End Nodes running on standard LoRa® stack with limited frequency channels. It sends acknowledgements to end nodes from the Hub itself and updates the LoRa® End Node status on central Hub server. Hub communicates with Hub Server over highly secure SSL connection thru a TCP/IP Web Socket Session. With the high availability of Web Socket Hub can reach any LoRa® End Node at any time and real time low cost 2-way communication can take place.

Note: Only SSTPL make LoRa® Node with customised SSTPL firmware can work with this ioLINK Hub, hence customer shall order the customised nodes as well.

4.2 ioLINK Hub Server Stack (To be ordered separately)

ioLINK Hub Server is intuitive IoT Device Manager where a user can activate or deactivate LoRa® End Nodes. The activation is done on Hub Server only. It maintains the real-time database of session with Hub and End Node device along with all RF parameters. User can fetch the payload of an End Node from the Hub Server through simple APIs as well as a downlink can be put in que on API which send the downlink to LoRa® End Node immediately. SSTPL ioLINK Hub server works with AES-128 Bit Security and highly secure by not compromising with any data theft.

The ioLINK HUB Server have 3 major components as below:

1. Device Activation – Deactivation Application
2. Live Device Status
3. API Integration for upstream server

Detailed description of server application shall be referred to respective Hub Server product document.

Note : ioLINK Hub & Hub Server does not support OTA activation.

5. Important Notice

5.1 Disclaimer

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5.2 Contact Information

Sehaj Synergy Technologies Pvt. Ltd. (SSTPL)

Indu Bhawan, J-9/J-7/3, Bhagwan Marg, Swage Farm,
New Sanganer Road, Sodala, Jaipur-302019, Rajasthan, India

T: +911414017908 M: +91 8890200333 E: info@sstpl.net.in Web: www.sstpl.in