BOLTEK
Lightning Detection Systems

Long Range Systems

LRX-1 Lightning Network Detector

LRX-1 Lightning Detection Network Receiver

ANT-50 Lightning Sensor / Timing GPS

OVERVIEW

The LRX-1 Receiver with ANT-50 Sensor/GPS is a long range lightning detector optimized for use in a time-of-arrival lightning detection network.

Precision timing, high thoughput, remote administration, easy installation and high reliability make the LRX-1/ANT-50 the ideal lightning network detector.

The LRX-1 Receiver with ANT-50 Sensor/GPS allows software developers and researchers to create their own lightning detection network or join the developmental Boltek Lightning Detection Network (BLDN). In the usual configuration, data from multiple distributed lightning detectors is sent over the internet to a central server for processing. The central server uses the lightning signal timestamp from several detectors to calculate an exact strike location. The strike location is then stored in a database on the server and sent back over the internet to live display clients. Static and animated lightning maps can also be created for display on a web site.

On power up the LRX-1 begins connecting to up to 3 lightning network servers while the ANT-50's GPS begins aquiring satellites. Within minutes the LRX-1 is active delivering data to your server(s) for time-of-arrival calculations. Support for multiple servers allows redundancy, regional servers and shared detectors.

☑ **High accuracy timing GPS receiver (15ns, 1 sigma)**

☑ **High accuracy signal capture (100ns, 12 bit resolution)**

☑ **Long range detection, up to 500 mi (800 km)**

☑ **Data delivered within milliseconds (subject to Internet delays)**

☑ **Weatherproof and UV resistant sensor**

☑ **Easy installation (connect the ANT-50 Sensor/GPS, Ethernet, and Power)**

☑ **Deliver strike data to up to 3 independant servers for redundancy and sharing**

☑ **Remote administration of receiver over secure ssh & sftp**

☑ **Remote firmware updates from any server**

☑ **Developer toolkit provided**

☑ **Server software available**

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LRX-1 Lightning Network Detector

SPECIFICATIONS

LED Indicators

Power (green)	On when power is applied
Strike (yellow)	Flashes as strikes are detected
GPS (green)	Flashes once per second from GPS
Server 1 (green)	Flashes when connecting to server
	On when connected
Server 2 (green)	Flashes when connecting to server
	On when connected
Server 3 (green)	Flashes when connecting to server
	On when connected

Communications

Ethernet (10/100Base-T)	Main data port for connections to servers, remote ssh & sftp access
USB Client	TTY connection to laptop (configuration)
USB Host	USB accessories (not normally used)
GPS	ANT-50 GPS (RS485) over Cat 5 cable
Lightning Sensor	ANT-50 lightning sensor (differential analog) over Cat 5 cable

Power

Connector	2.1mm/5.5mm coaxial
Voltage	11.5VDC - 14VDC
Power Consumption	8W (including ANT-50)
Source	120VAC US plug or 100-240VAC international multi-plug wall adapter provided. Plugging into a UPS recommended. 12VDC battery operation possible.

Enclosure

IP Rating LRX-1	IP20
Dimensions LRX-1	6.3" x 4.5" x 1.1" / 160 mm x 114 mm x 28 mm
IP Rating ANT-50	IP66
Dimensions ANT-50	4.9" diameter x 10" 124 mm diameter x 254 mm 3/4" NPT Pipe Mount, 24" / 610 mm long mast provided Pole mount bracket provided for poles 1.5" to 4" / 38 mm to 100 mm diameter

Environmental

Operating Temperature	-40 to 60 C / -40 to 140 F
Operating Humidity	0 to 99% non-condensing
Agency Approvals	CE, FCC, cULus, C-tick
Warranty	1 Year

Ordering Information

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LRX1-KIT-120V-100FT	LRX-1/ANT-50 kit for 120VAC
LRX1-KIT-220V-100FT	LRX-1/ANT-50 kit for 100-240VAC

Standard kit includes 100 foot / 30 m sensor cables. Longer cable lengths available.

Kits include:
- LRX-1 Lightning Network Detector
- ANT-50 Lightning Sensor / GPS Timing Receiver
- Mast & Pole Mount Bracket for ANT-50
- 120VAC or 100-240VAC Power Supply
- 100 ft (30 m) CAT5 Cable for ANT-50 Lightning Sensor
- 100 ft (30 m) CAT5 Cable for ANT-50 GPS
- 6 ft (1.8m) CAT5 Cable for LRX-1 Ethernet
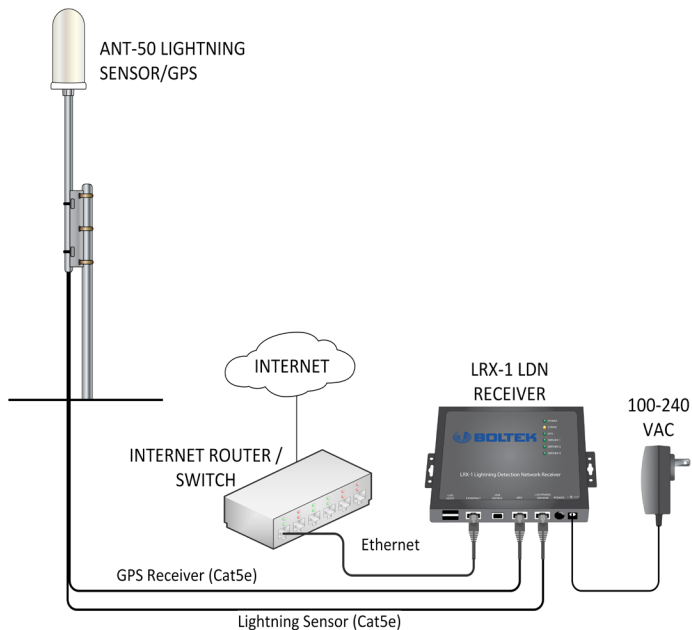
LRX-1 Connection Diagram
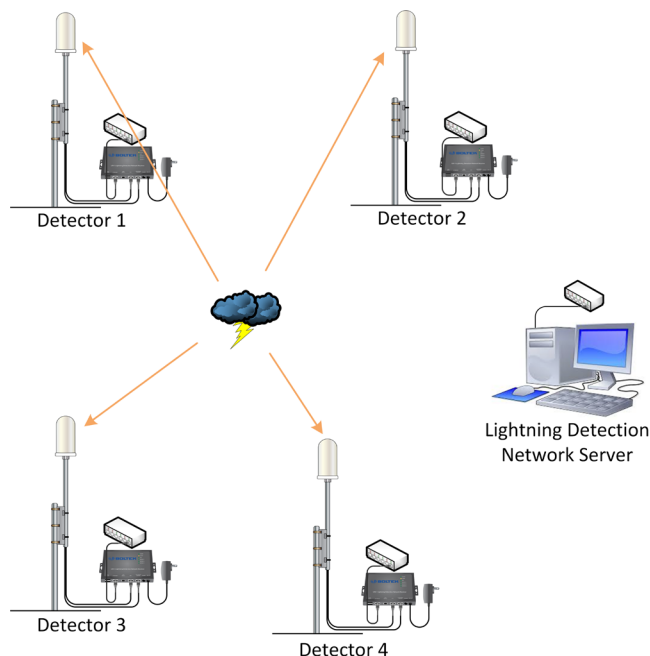
Lightning Detection Network Diagram

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