

LoRa Mesh Radios

Long range. No infrastructure. Radios that relay for each other.

LoRa mesh radios pass short messages and GPS positions from radio to radio, with no cell towers, repeaters, or internet. When the network is down, or was never there, command can still see where its people are.

What is LoRa?

LoRa (Long Range) is a radio technique that trades bandwidth for reach and battery life: miles of range on very little power. It carries positions, text, and small data. It is not built for voice or video.*

*Voice over LoRa mesh is possible but not typically recommended.

How a mesh network works

1 Radios talk directly

Each radio sends and receives positions and messages over LoRa. No tower in between.



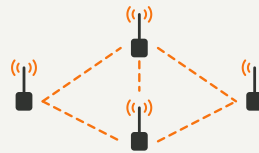
2 Nodes relay

Out of range? Any radio in between passes the message along automatically.



3 Multiple paths

Messages can take more than one route, so one blocked path doesn't stop them.



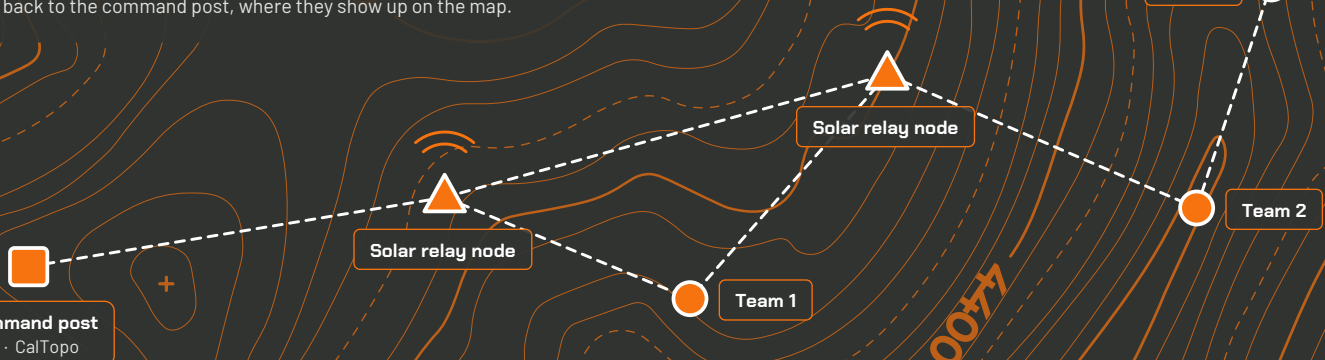
4 Self-healing

If a node drops out, the mesh routes around it through the radios that remain.



In the field: one mesh across the search area

Portable radios ride with each team. Solar nodes on high ground relay their positions back to the command post, where they show up on the map.



Why it works

- Long range**
Miles between radios, and farther with a relay on high ground.
- Low power**
Days to weeks on a battery. Solar keeps fixed nodes running.
- Resilient**
No single point of failure. The mesh re-forms as radios move.
- Scalable**
Add radios to extend coverage. Every one is also a relay.

Where it's used

- Search and rescue**
Live team positions in terrain with no cell coverage.
- Disaster response**
Comms that deploy in minutes when infrastructure is down.
- Responder accountability**
Command knows where its people are, the whole time.
- Remote operations**
Events, wildland, and backcountry work beyond the network.

Built for it: the RM-1 and RM-2

One rugged platform, two power levels. Carry it or mount it.

RM-1 1W

RM-2 2W

- Metal, waterproof housing
- Quad-helix GPS antenna
- Portable or solar-mounted
- Works with TAK and CalTopo