

LoRa Transceiver Modules

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Sensors & Modules



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LoRa modules send small amounts of data over long distances - kilometres in open areas - using a low-power radio protocol that suits remote sensors, outdoor projects and data networks. They teach long-range wireless the internet of things way.

Key Features

- RA-02/RA-01 and SX1276/8 chips
- 433, 868, 915 MHz bands
- Range of 1-5 km line of sight
- Very low power
- SPI interface and libraries

Typical Uses in the Workshop

- Send sensor data across a campus
- Build remote weather stations
- Create long-range tracking beacons
- Mesh and star IoT networks

Safe Operation

1. Check the frequency band for the region
2. Wire SPI pins and antenna
3. Set the same frequency and spreading factor on both ends
4. Test range in stages
5. Power from a stable regulated supply

SAFETY NOTES

- Use the legal frequency and power for the region
- Keep the antenna clear of people and power lines
- Do not transmit for long without duty-cycle checks
- Check the module voltage rating
- Store with the antenna attached

Maintenance & Consumables

- Check the antenna connection
- Verify range and RSSI regularly
- Keep firmware consistent on pairs
- Protect modules from moisture outdoors
- Keep spares for the pairs

Specification & Buying Notes

Buy LoRa modules with an antenna tuned to the local band. Pairs must be matched. Quality modules hold range; cheap ones drift frequency. Check the regional legal settings.