# UNAVCO Resources: Cables and Connectors

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## Cables and Connectors

A multitude of cables and connectors are needed for GNSS installations, whether for permanent or campaign sites. Generally, for campaign sites, the cables used are proprietary cables that come from the GNSS equipment manufacturer. For permanent sites, however, some cables are customized based on length.

### Cables

- **Antenna** (GNSS antenna to GNSS receiver) - coaxial cable, typically RG58 from the manufacturer; LMR-200 or greater for permanent installations (see the Times Microwave Systems Coax Selection Guide )
- **Download/data transfer/communications** (GNSS receiver to a computer or communications device) - most commonly serial cable, typically RS232; also Ethernet cable for newer receiver models
- **AC Power** (GNSS receiver to an AC power source) -proprietary from the GNSS equipment manufacturer
- **DC power** (GNSS receiver to a DC power source) - proprietary from the GNSS equipment manufacturer
- **Radio cables** (power, communications)

### Connectors

| | Connector | Cable Type | Devices Connects To |
|---|---|---|---|
|  | N | GNSS antenna | Chokering and older generation GP antennas<br>Trimble NetRS receivers |
|  | TNC | GNSS antenna | Trimble Zephyr and Zephyr Geodetic antennas<br>Trimble R7 and 5700, Topcon GB-1000 |

| | | | |
|---|---|---|---|
| | | | receivers |
|  | BNC | GNSS receiver data output | Trimble NetRS receivers |
|  | Lemo (1-, 5-, 7-, and 9-pin) | GNSS antenna (1-pin), data (7- or 9-pin), power (5-pin) | Trimble 4000SSE and 4000SSi receivers, Topcon GB-1000 receivers |
|  | DB9 | GNSS receiver data transfer | Trimble NetRS GNSS receiver |

## Manufacturer and Dealer Resources

- L-com Online Cable Configurator
- Ashtech and Pacific Crest cable diagrams

## UNAVCO Resources

- How to configure a Mac for a Keyspan USB-to-serial cable
- How to build a DB9 serial connector for the Vaisala WTX510/520 met pack
- Trimble 4000-series Compatible Cable Schematic Diagrams
- How to assemble a Times N-Type Connector (historical)

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