

Cellular Connectivity



Overview

The RV50 is an industrial 4G LTE cellular gateway that provides serial and Ethernet connectivity to numerous cellular networks. It is capable of LTE, CDMA/EV-DO, and GSM/GPRS/EDGE/WCDMA networking and is carrier approved in North America for Verizon,

AT&T, T-Mobile USA, Rogers, Bell, and Telus. The networking and carrier used by the RV50 is determined by the active SIM card(s) inserted into the device. The RV50 automatically falls back to 3G or 2G when 4G coverage is not available.

Benefits and Features

- › Easily provides Internet connectivity to Campbell Scientific dataloggers and peripherals anywhere there is cellular network coverage
- › Compatible with all Campbell Scientific dataloggers
- › Very low power consumption when compared to other industrial cellular gateways
- › 4G LTE networking with automatic fallback to 3G and 2G
- › Works with many cellular network carriers

Technical Details

Internet Connectivity

The RV50 provides Internet connectivity to any of our dataloggers located within range of a compatible cellular network. Armed with Internet connectivity, a datalogger can remotely connect to Campbell Scientific software on your PC, mobile device, and the cloud. The RV50 also enables many of our dataloggers to communicate using other Internet protocols, such as Modbus, DNP3, Email, and web (HTTP).

Device Intelligence

The RV50 is powered by the Sierra Wireless ALEOS® embedded operating system that allows the RV50 to provide highly reliable connectivity and remote device management independent of the device to which it is connected. Embedded services include IP serial server and client, local PPP host, dynamic DNS client, routing, VPN, and more.



Establishing Cellular Service

Campbell Scientific offers low-cost, cellular data service plans for the RV50. Our data service plans include Verizon in the United States and AT&T in North America (US, Mexico, Canada), as well

as international access to over 600 carriers in 185 countries. The Konect Router Service is included to assure a secure connection with Campbell Scientific datalogger support software.

Configuring the RV50

The RV50 is configured using ACEManager, a web based configuration tool hosted by the gateway. ACEManager can be accessed using Internet Explorer or Firefox remotely over the cellular WAN

or locally over Ethernet. A number of templates will be provided for download to make most configurations very simple once connected to ACEManager.

System Components

Datalogger Connection

Dataloggers can be connected in a variety of ways to suit the needs of the application. Common methods include the use of one of the following serial or Ethernet peripherals. The 28899 Ethernet cable is shipped with the RV50 for connecting Ethernet devices.

Datalogger	Serial	Ethernet
CR300	18663 RS-232 null modem	NL201
CR310	18663 RS-232 null modem	NL201 Direct to Ethernet (via 28899 cable)
CR6, CR1000X	1055 CFI/RS-232 cable 17855 C-port- to-RS-232 cable SC105 CS I/O-to-RS-232 adapter	NL201 Direct to Ethernet (via 28899 cable)
CR800, CR850	18663 RS-232 null modem 17855 C-port- to-RS-232 cable SC105 CS I/O-to-RS-232 adapter	NL201
CR3000	18663 RS-232 null modem 17855 C-port- to-RS-232 cable SC105 CS I/O-to-RS-232 adapter	NL116 NL121 NL201

Powering the RV50

Compared to many other industrial cellular gateways, the RV50 has a very low power consumption. The average current consumption at 12 Vdc is about 65 to 95 mA when idle, depending on its configuration. Additionally, the RV50 can be turned on and off easily using a datalogger C, U, or SW12V port. When using the SW12V terminal, the modem can typically be powered with a BP12 battery, a CH150 charger/regulator, and a SP10 solar panel.

Antennas

Campbell Scientific offers three antennas for the RV50. Our 4G/3G/2G 0 dBd cellular dipole whip antenna (pn 32256) connects directly to the RV50 (no cable required) and can transmit short distances. Our higher gain omnidirectional (pn 18285) and Yagi (pn 31128) antennas require a cable to connect them to the RV50. The COAXSMA-L cable connects the antennas directly to the RV50 cellular antenna connector. The COAXNTN-L cable and a surge protector (pn 31317) are used when the RV50 is susceptible to lightning or electrostatic buildup or for long cable runs.

Specifications

- Network Technology: 4G with automatic fallback to 3G and 2G
- Cellular WAN: North American Model
 - Carrier Approvals: Verizon, AT&T, Sprint, T-Mobile USA, Rogers, Bell, Telus
 - LTE: 1900(B2), AWS(B4), 850(B5), 700(B13), 700(B17), 1900(B25)
 - WCDMA: 2100(B1), 1900(B2), AWS(B4), 850(B5), 900(B8))
 - EV-DO/CDMA: 800(BC0), 1900(BC1), 1700(BC10)
 - GSM/GPRS/EDGE: Quad-band
 - Industry Approvals: FCC, IC, PTCRB
 - Software defined radio with automatic network operator switching
 - Dual SIM Interfaces
- RF Connectors: three SMA jacks for primary cellular and optional diversity cellular and GPS
- Operating Voltage: 7 to 36 Vdc
- Host Interfaces
 - 10/100/1000 Ethernet RJ45
 - RS-232 Serial DTE DB9 Female
 - USB 2.0 Micro-B
- Typical Current Drain at 12 Vdc
 - Enable / Ignition Sense Low: 1 mA
 - Idle: 65 to 95 mA, depending on configuration
 - Active: 250 to 300 mA, depending on configuration
- Operating Temperature Range: -30° to +70°C
- Width: 11.9 cm (4.69 in)
- Height: 3.4 cm (1.34 in)
- Depth: 9.4 cm (3.7 in)
- Weight: 320 g (11.3 oz)

