CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

CS-GSM/CS-GPRS

Digital Transceiver Kits (using the COM110A modem)

Ready-to-go kits

Easy communication over GSM/GPRS networks

Overview

The CS-GSM/GPRS kits feature a preconfigured COM110A modem that allows data to be collected from a remote datalogger across the GSM cell phone network. Also included are all of the necessary cables, interfaces, mounting brackets and an antenna to provide an easy to use solution out of the box. All that is needed to get the system up and running is a SIM obtained from service provider who provides good coverage at the intended site of operation*.

Once installed, it is then possible to collect data from the datalogger. This may either be done using GSM dial-up (sometimes called Circuit Switched Data mode), in a similar way to a normal landline modem connection or the COM110A can be configured to run a GPRS/IP connection, where the logger can be accessed via a TCP/IP connection.

GSM dial-up connections are generally easier to set up and to get running, but are charged for on a time of connection basis. Obtaining a GSM dial-up service is however becoming more difficult to get as some operators no longer support it, especially for access from a landline network. GPRS communications is now the norm but setting up a connection is slightly more complicated. Power allowing, GPRS can generally be left always-on and is normally charged for by data volume not time.

*When the kit is to be used in association with Campbell Scientific's Konect data collection service a SIM will normally be provided as part of the subscription package.

Benefits and Features

- Ready-to-go kits for easy communication over GSM networks
- Quad-band Edge compatible transceiver supports transparent and non-transparent modes so is compatible with most GSM networks worldwide
- Can be used to collect data at speeds comparable with land line modems and above (in GPRS mode)
- Can provide GSM dial-up or GPRS connections with any Campbell datalogger
- Can also be used to send alarms and data via SMS text messaging
- Very low power consumption so can often be left on all the time
- Wide operating temperature: -30 °C to +75 °C
- Compact package: 88 x 60 x 26 mm (modem only)

In either mode of operation calls can either be made from a server, normally running Campbell Scientific's Loggernet package, or the datalogger can be programmed to call back to a server. Data can also be exchanged between dataloggers over the connection.

More advanced dataloggers, such as the CR800, CR1000 and CR3000, when running in GPRS mode can, in addition to normal communications, serve many of the functions normally possible over a wired IP connection which includes sending alarms and data via ftp, http or email, serving web pages and internet clock synchronisation.

The datalogger can also be programmed to send SMS text messages for alarms or to send small amounts of data. More advanced dataloggers can be programmed to respond to text messages, e.g. to trigger changes in logging speed or communications methods.

The COM110A modem has a low power use so in many circumstances can be left powered on. For very low power applications, it can be switched off at certain times of the day using the power switch built into some dataloggers or using an optional PSW12 solid state switch.

Three different kits are available from Campbell Scientific differing mainly in the interface provided. Details are provided below. These are all preconfigured with settings which will allow GSM dial-up use. The modems and the datalogger can easily be reconfigured with a configuration cable using a PC software tool called the Mobile Data Assistant which can be downloaded from our website.

Note: The COM110A replaces the COM110. It is functionally equivalent but in a smaller package.

Kits available:

All kits include a modem, mounting bracket, logger connection cables and the GSM-ANT2 antenna and cabling (see below). All of the kits can be configured for either GSM dial-up or GPRS use using the Mobile Data Assistant package.

CS-GSM/GPRS-RS232 kit: this is the lowest cost package and includes a special null-modem cable for connection to the RS232 port of the datalogger. This kit also includes a modem programming cable.

CS-GSM kit: is a mid-priced package and includes the SC-WMI interface for connection of the module to the CS I/O port of the datalogger (not the CR200 series). This leaves the RS232 port of the logger free for servicing during site visits. The SC-WMI is normally limited to baud rates below 38400 baud, so cannot achieve the maximum throughput possible over a GPRS connection. It is most commonly used for GSM dial-up applications. Note: the SC-WMI should not be used where other devices also need to be connected to the CS I/O port, e.g. the SC115, CR1000KD, MD485 or RF416.

CS-GPRS kit: includes the SC105 SDC interface which supports baud rates up to the maximum supported by the datalogger and can also be used in parallel with other devices on the CS I/O port. As this connects to the CS I/O port it leaves the RS232 free for other uses. This kit includes a modem programming cable.

Optional extras:

Part Number 010286 COM110A Programming Cable allows direct connection of the COM110A modem to a PC serial port.

This is normally only needed for reconfiguration of the modem. This cable is supplied in some kits (see above).

Part Number 009545 PSW12 Power Switch can be used to switch 12V power to the COM110A module, controlled by a datalogger control port. This switch can be used to turn off power to the COM110A modem where system power consumption must be kept to an absolute minimum. In such an application, the datalogger might only turn on the module for 5 minutes per hour.

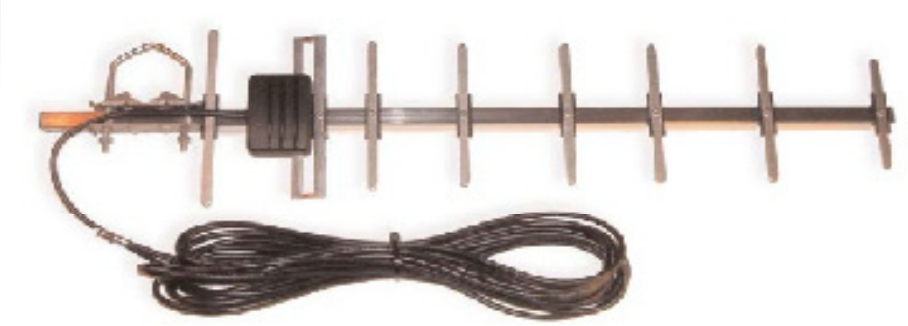
These packages do not include airtime contracts and SIM cards. The end user needs to source the best contract suited to their needs making sure that the network chosen will support the required method of communications now and for the forseeable future. Note that GSM dial-up access, is not supported on all networks. For the GPRS use it is recommended you read a copy of the manual before purchase of an airtime contract, as this discusses different options for GPRS access which may require finding a specialist airtime supplier.

Antenna

The standard CS-GSM kits include the GSM-ANT2 antenna that is a cost-effective, 0dBd, omnidirectional antenna as shown below. This can be mounted on vertical poles from 30-54 mm in diameter, or it can be wall mounted. It is fitted with 5 m of cable allowing the antenna to be mounted as high as possible to achieve best signal reception.

For installations on remote sites with poor reception we can also supply directional YAGI antennae of 10 dBd gain, fitted with 10 m of cable, as shown below. These can only be used on fixed installation where the bearing to the nearest cell station is known. As they need aligning, setup is more complicated. Please contact Campbell Scientific for ordering details as a specific model of antenna is needed for different networks.

We can also supply specialist antenna for installations requiring discrete or compact antenna.



Mobile Data Assistant

The Mobile Data Assistant (MDA) is a free utility designed to allow customers to configure Campbell Scientific (Europe) GPRS and GSM packages that include a COM110A modem. The MDA provides setup and diagnostic information and uses a wizard style interface to accept the users requirements and gather settings. Where applicable it also gives the option to program any corresponding datalogger settings too. It can also be used by Konect subscribers to program their COM110A modems for GPRS and GRPS Call-back.

The mobile data assistant package runs on most Windows PC platforms (XP SP3 and above).

Specifications

- Input Power Supply Requirements:
  5-32V DC at an average maximum current of 400 mA (peak 2.5 amps @ 5.5V)
- System Power Consumption:
  Typical: (modem only) 5 mA in `standby' mode (GSM)
  <400 mA on-line, transmitting
  ~ 20-30 mA when online in GPRS mode.
- Communication:
- Modem serial port speed: Typically set at 9600 baud with Campbell Scientific dataloggers (in GSM mode). Can be set up to 115 kbaud if the datalogger supports it.
- Data throughput rate (from the modem): typically a maximum of 960 bytes per second in GSM mode. Rates can be up to 4000 bytes per second in GPRS mode, but this is signal strength and network dependent.
- Physical: (module only)
  Operating Temperature: -40°C to +85°C
- Humidity: Up to 90%, non-condensing
- Size: 63 x 60 x 22 mm