QTech 3G Cellular Modem
CM910

Quick Start Guide
Introduction

The CM910 Cellular Modem is the latest addition to the QTech Remote Control product line.

It features a GSM/GPRS/UMTS (3G) cellular modem which is capable of connectivity with all current New Zealand telecommunication companies (Spark, Vodafone and 2 Degrees) for both SMS and data communications.

The modem is controlled by an AT command interface via either a standard serial RS232 or by USB connection. It offers a wide range of operating voltages from 9-24V DC.

By default the yellow status LED indicates the current state of the modem. It can be user custom configured to match your application providing both solid and flashing states.

This modem is suitable for:

- **Cellular IP Data Communications**
  A communication option for an XL4 RTU to the DATRAN SCADA base station. This requires XL4 firmware v6.05+, QTech Workbench v1.8.14 or above and DATRAN VI v6.68 SP1+

- **DATRAN SMS Direct**
  For sending SMS alarms from the DATRAN SCADA base station. DATRAN VI v6.68 SP1+ is required.

Each CM910 (Part Number PD9320) is supplied with the following:

1. Qty 1x CM910 Modem
2. Qty 1x Internal Stub aerial 2.1dBi Gain
3. Qty 1x DC power cable 1m length
4. Qty 1x Serial Cable
5. Qty 1x USB Type A-B
Aerial Connection

Carefully connect the aerial. Do not operate the CM910 without an aerial connected. Refer to Technical Details section for alternatives. The aerial must be vertically orientated.

Aerial must be vertical when wall mounted

Parallel to wall surface

Perpendicular to flat surface

Aerial must be vertical if mounted flat

Install the SIM Card

Before installing the SIM card, ensure that it is activated. We recommend you insert the SIM into a regular cell phone to check this. Carefully remove the CM910 cover by prising the side panels close to the retaining dimples.

Locate the SIM card holder adjacent to the USB and RS232 connectors. Push the top part of the holder in the direction of the “Open” arrows (away from the aerial). Carefully insert the SIM card from your chosen Telco. Be careful to orientate the card correctly, once in place carefully slide the plastic retainer towards the aerial to “Lock”.

Unlock Holder Lift & Insert SIM Close Holder Lock Holder

⚠️ Note – The SIM card must be a “full size” card, not a “micro SIM”.

Installation and Operation Notes

Cellular IP Data Communications
For this application the CM910 is selected as a communications option on the XL4’s RS232A port. The required configuration is performed in the XL4 RTU using the QTech Workbench application.

USB Connectivity
Use the supplied Type A-B USB cable to connect the CM910 to your desktop computer.

A driver needs to be installed to enable the CM910's USB port to become a virtual COM port on your computer. You will need to install the appropriate driver depending on your computers operating system. Drivers are available for a wide range of operating systems from Windows XP through to Windows 8, Mac OS and Linux.

Choose the appropriate driver to download from here: http://www.ftdichip.com/FTDrivers.htm
Once the FTDI driver is installed the COM port number can be found using device manager.

![Computer Management](image)

### DATRAN SMS Direct Operation

Explore the DATRAN server and double click the “SMS Direct” application.

Key configuration for the CM910 is under the “Modem Settings” tab:

- **Modem Type**: QTech Cellular Modem
- **Com Port**: Either physical or USB virtual comm port as shown in device manager e.g. COM55
- **Port Settings**: 115200,n,8,1
- **Call Centre**: Select the applicable number for your GSM Telco provider.
  - New Zealand: +6421600600
  - Australia: +61415011501
  - New Zealand Spark: +64277439010
  - New Zealand 2 Degrees: +64220227672

Please refer to the DATRAN VI help for specific configuration for SMS Direct.
Status Indicators

The CM910 modem has two status LED’s:

Yellow LED – Status
The operation of this LED depends on the mode of operation.

SMS Direct Mode
The LED is being controlled by the modem
Fast Flash – searching for cellular network
Slow Flash – connected to the network & ready for use

XL4 RTU Cellular Data Mode
The LED is being controlled by the RTU
Fast Flash – searching for cellular network
Slow Flash – connected to the network and ready for use
ON the modem has a data connection to DATTRAN base station

Green LED - Power
ON the modem has power
Technical Details

Operating Voltage¹: 12 – 24 Volts DC
Power Connector: 2.1mm DC Socket, centre pin positive
Operating Current: ~14mA @ 12V
~10mA @ 24V
Aerial²: 50Ohms, SMA connector
USB Port³: Type B socket
RS232 Port⁴: DB9 female connector
Operating Conditions: 0 - 70°C
90% humidity, non-condensing
Case Size: 112 x 75 x 25mm (Overall)
Weight: 261 grams (with supplied aerial)
Mounting Holes: Qty 4x M4 mounting holes at ~102 x 50mm centres
RSM SCN: Z891
Modem specifications⁵: GSM/UMTS/HSPA+ bands (MHz) 800/850, 900, 2100

1. The CM910 is over voltage protected by a 30 volt Zenner diode. Voltages greater than this will blow the internal 500mA fast blow fuse.
   The supply voltage should be clean, continuous and transient free.

⚠️ Warning – Do NOT use Switch Mode Power Supplies (SMPS) with this product. The DC power supply used for this product MUST have a grounded negative or be a “linear” transformer based plug pack. The reason is that the aerial, programming port and external connections can provide exposed earth points and the SMPS can impose an AC voltage on the DC ground, which can lead to damage. Suitable cost effective plug packs are available from QTech P/N PD5412, PD5413 & PD5414.

2. The reliability of all cellular products is dependent on good signal strength. Before deciding on the Telco to choose, please check coverage. We suggest that a cellular phone is taken to site, to check the signal strength, i.e. how many “bars” are displayed.
The supplied stub aerial (P/N PD9230) should be suitable for locations with good cellular coverage (full bars) and where the CM910 is in a non-conductive enclosure (plastic etc).
Other external mounting aerial options are available; contact your equipment supplier for more details.

⚠️ Warning – Do NOT operate the CM910 without an aerial connection.

3. Can be used as an AT command control interface to a PC. Please refer to Installation and Operation Notes.
4. Used as an AT command interface to either
   - XL4 RTU via the provided DB9 (male) to RJ45 serial cable
   - Pc via a standard straight through RS232 cable
5. Provides connectivity with all current New Zealand telecommunications companies (Spark, Vodafone and 2 Degrees).