

CM910 Cellular Modem

User Guide

CM910 Cellular Modem
Revision 2.1



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Revision Details

- | | | |
|-----|----------------|--|
| 1.0 | September 2014 | Initial Issue of Quick Start Guide |
| 2.0 | December 2016 | Formatting changes |
| 2.1 | January 2020 | Converted to User Guide format and changes to take account of LE910 modem. |

Introduction

The CM910 Cellular Modem features a 3G/4G LTE 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 and can be used with an XL4 or XL4 *Plus* RTU by using the cable provided from the RS232 port DB9 (male) on the CM910 and the RS232 port on the RTU using the RJ45 connector.

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 – e.g., 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.

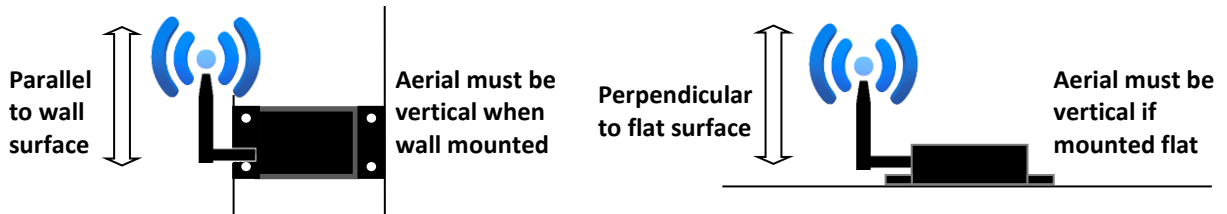
Each CM910 (Part Number PD9320) is supplied with the following:

Qty 1x CM910 Modem	
Qty 1x Internal Stub aerial 2.1dBi Gain	
Qty 1x Serial Cable	
Qty 1x DC power cable 1m length	
Qty 1x USB Type A-B	

Installation

Antenna Connection

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



The supplied stub antenna (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 antenna options are available; contact your equipment supplier for more details.



Warning – Do NOT operate the CM910 without an antenna connection.

Power Supply

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 as the antenna, 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.

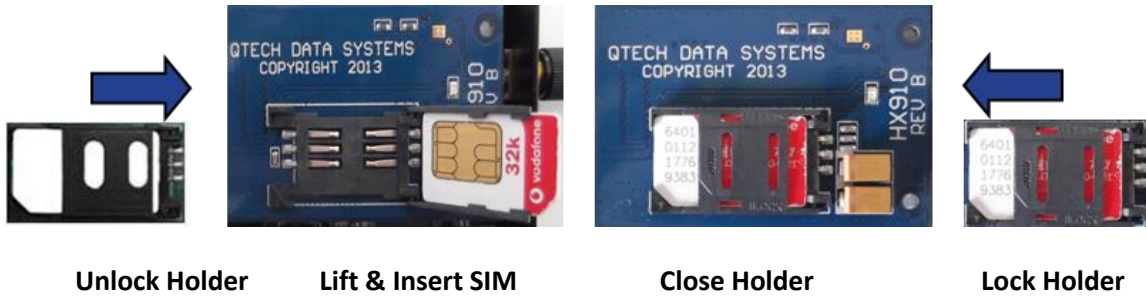
Suitable cost effective plug packs are available from QTech P/N PD5412, PD5413 & PD5414.


Installing the SIM Card

Note: 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.

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 antenna). 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 antenna to “Lock”.



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

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.

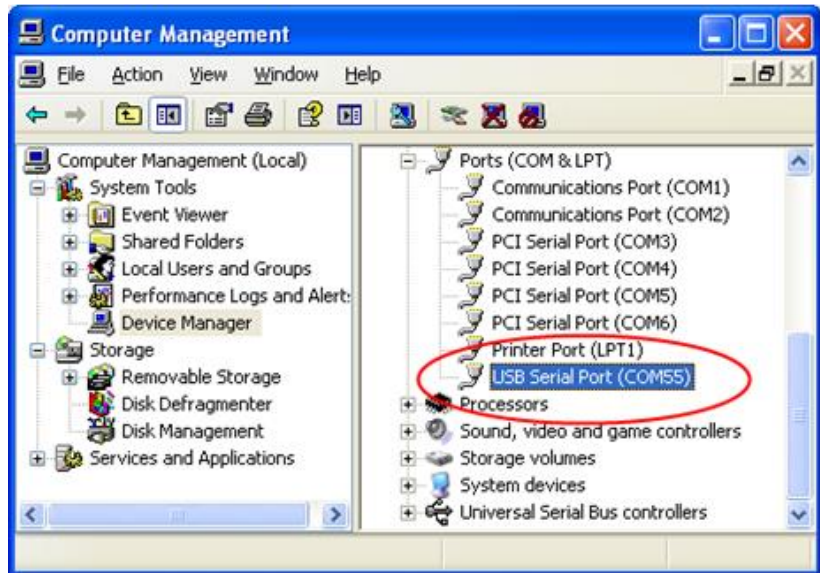
USB Connectivity

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.

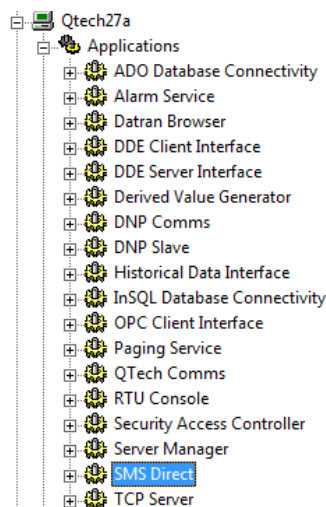
Choose the appropriate driver to download from: <http://www.ftdichip.com/FTDrivers.htm>

Once the FTDI driver is installed the COM port number can be found using device manager.



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 Vodafone: **+6421600600** Australia Vodafone: **+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 DATRAN 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
Antenna²:	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 antenna)
Mounting Holes:	Qty 4x M4 mounting holes at ~102 x 50mm centres
RSM SCN:	R-NZ
Modem specifications⁵:	3G bands (MHz): B1(2100), B5(850), B8(900) 4G bands (MHz): B1(2100), B3(1800), B5(850), B8(900) B28(700)

Warranty

The CM910 hardware and software is covered by QTech Limited Warranty Agreement and software End User License Agreement, respectively.

Please refer to the QTech Limited Product Warranty Agreement, which may be downloaded from the QTech website: www.qtech.co.nz

QTech Data Systems Limited does not warrant the suitability of this product for any particular application as the conditions in which it is used are beyond our control. This is not withstanding warranty of merchantability.

Additional Information and Support

If you have problems try the following:

- Visit the QTech web site for application notes and guides
- Refer to the troubleshooting section if one is present in this document
- Contact the support desk at support@qtech.co.nz
- Phone the support desk, contact details at beginning of this document

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