

# 4GL Cellular Modem Installation Guide

C | L | O | U | D | M | A | S | T | E | R



## IMPORTANT

1. Modem black power wire does NOT go to solenoid common (see photo).
2. Connect antenna, finger tight only, to connector marked '4G' (not 'LoRa').
3. Signal strength must be better than 12 for a reliable result.



4GL cellular modem

## Dimensions

Width x Height x Depth in mm when DIN rail mounted.

25 x 120 x 80 – Bare unit, no allowance for cable clearance.

40 x 220 x 90 – Suggested minimum space allowed.

## Indicator Lights

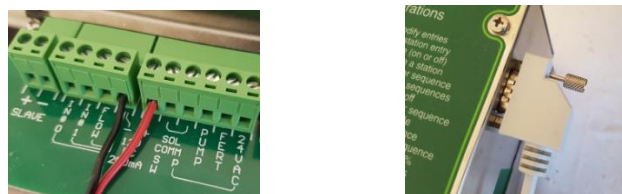
For normal operation the light marked 4G should be steady green (excellent signal) or yellow (good signal). Red for poor signal. Blinking indicates no network connection. When connected to a Cloudmaster the I/O light should also be steady green. A brightness pulse indicates data flow between the controller and modem.

## Location & Mounting

The modem should be located in a cool, dry place protected from the elements and possible ant or rodent infestation. The modem is designed to clip onto the supplied section of 35mm DIN rail which should be mounted horizontally.

## Electrical Connection

The modem is powered directly from the Cloudmaster controller. Power off the Cloudmaster before making connections. Per the photo below, the modem power cable red wire connects to the Cloudmaster terminal marked '12V' (or 'Spare' on very old units). The black wire connects to the terminal immediately to the left of 12V i.e. the far right hand terminal of the four way terminal block. The white serial cable connects the modem to the DB9 on the side of the Cloudmaster. Take care when plugging the serial cable on and off as the pins can get bent.



4GL modem power and serial cable connections

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## Antenna Location

Antennas do not work from inside a metal enclosure. When the modem is housed inside a metal box an external panel mount antenna must be used.

Received signal strength is primarily determined by proximity to the local cell and efficiency of the antenna system. The antenna should be mounted as far from electrical cabling and metallic objects as possible. It is important to check the received signal strength as described below. If a sufficient signal strength reading cannot be obtained then a higher gain, external antenna can be purchased. Antenna connectors only need to be done up finger tight and unused connectors should remain protected with the red cap.

## Testing Signal Strength

Operation 22 displays the signal strength which is equivalent to bars on your mobile phone. The value range is from 1 to 31. For reliable operation the signal strength should be 12 or more. A reading less than 10 could be problematic. The display updates every second so this can be a useful way to find the best location for the antenna before permanently mounting it. Signal strength testing should be done with any cabinet or building doors closed.

Signal strength can also be obtained remotely with the SMS command **.signal**

## SIM Card Requirements

The modem comes with an industrial, machine to machine SIM card preinstalled.

## Fault Finding

Fault: All lights on the 4GL modem are off even though the Cloudmaster is switched on.

Fix: Check power cable is connected correctly on the Cloudmaster and the modem and inline fuse has not blown. **Important: the black wire does not go to solenoid common.** Refer to section 'Electrical Connection' above.

Fault: Modem constantly resetting.

Fix: Check antenna is connected to the connector marked 4G and not LoRa. Power cycle the modem after changing. Ensure antenna is installed correctly and check the signal strength.

Fault: OP22 is showing a blank bottom line on the LCD.

Fix: Check modem is powered up and there are lights on on the front of the modem. Check that RS232 baud rate is set to 96 using OP91. Check that there are no bent pins on both connectors of the white serial cable. Power cycle the unit. If necessary, replace the white serial cable.

Fault: SMS messages can take a long time to get through.

Fix: Check signal strength is within optimum range.

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