
**Q71B – 1200 bps FSK Radio Modem
for DATRAN XL4 and eXcel RTUs
Quick Start Guide**



Overview

The Q71B modem allows you to connect a DATRAN RTU via an RS232 serial port to a DATRAN 1200bps radio communications system using the V.23 FSK protocol but without the backward channel. This allows 1200bps in both directions as the modem uses a special turn around feature.

The Q71B interfaces to either a Tait TM81xx radio (fitted with a Q82 interface), or a DATRAN Q80 telemetry radio.

The radio type needs to be specified so QTech can supply the correct cable.

Each Q71B is supplied complete with a 1m Radio cable and a 400mm RS232 serial cable.



The Q71B can also simplify radio network upgrades from 300bps to 1200bps as it removes the need to change the internal modem hardware.

Prerequisites

The DATRAN II eXcel must have Q03 firmware v5.21 or later.

The Q90 software required is v3.27 or later.

If using the DATRAN XL4 RTU, all versions are compatible.

All versions of Workbench software are compatible.

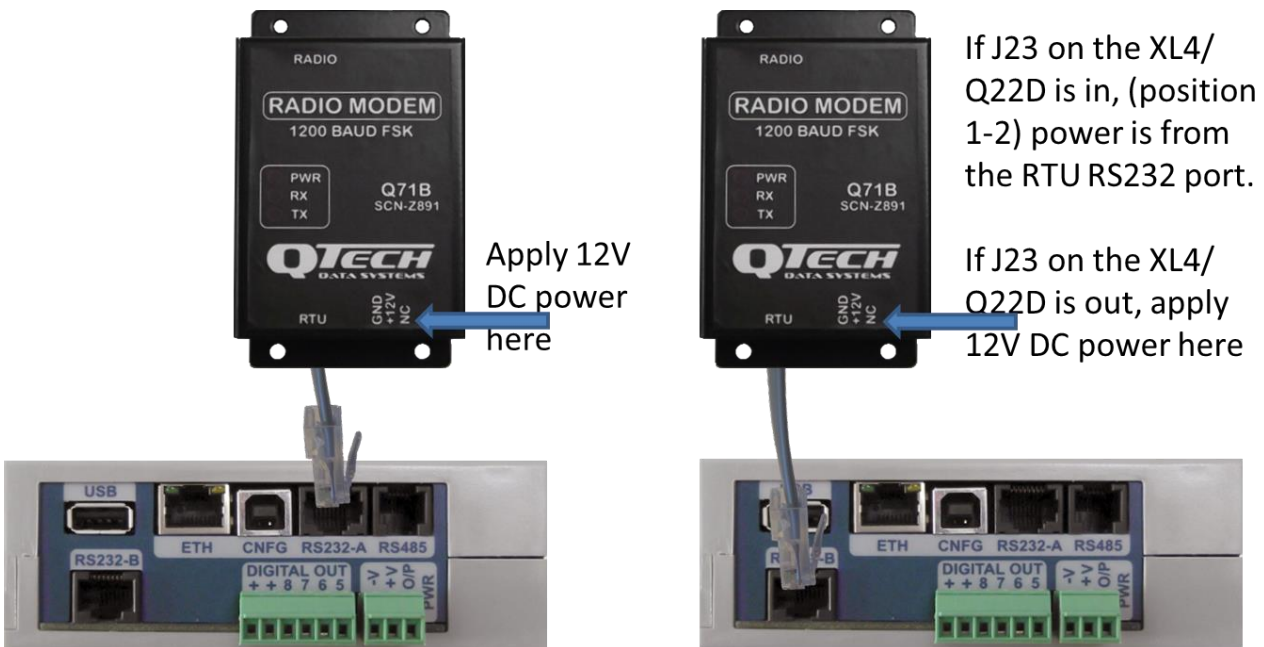
Power Supply Connections

The Q71B is designed to operate from a nominal 12V DC supply voltage within the range 8.0 to 15.0V DC. A supply voltage greater than 15.0V will blow the 500mA fuse inside the Q71B. A supply voltage less than 8.0V will result in degraded or unreliable performance.

The DATRAN XL4 RTU and the eXcel (Rev D) RTU have two RS232 ports; both can use the Q71B for analogue radio communications.

The significant difference between the two ports, is that the lower RS232 port (RS232-B) on the Q22D has a +Vsup DC output supply line. The Q71B can be powered via this line, so long as jumper J23 on the Q22D is in the 1-2 position. RS232-A port on the processor board does not have this supply line, so the Q71B must be powered through the three terminal power supply connector. The power supply connections are shown on the top cover

Left Pin	G	Power Supply Negative
Middle Pin	+	Power Supply Positive (8V – 15VDC)
Right Pin		Not connected



The default installation position of the Q71B is on the lower RS232 port. All new RTUs will be configured with the correct jumper setting for this. However, please check this jumper on existing RTUs before using a Q71B. If using the modem on the RS232-B port do not apply power from both the port and the external supply



If the DATRAN RTU is powered from a 24V DC system: Do not connect the Q71Modem to this 24V DC supply. Do not connect the Q71 modem to the RS232B port. Use RS232A and the Radios 12V DC supply connected to the Q71 power connector.

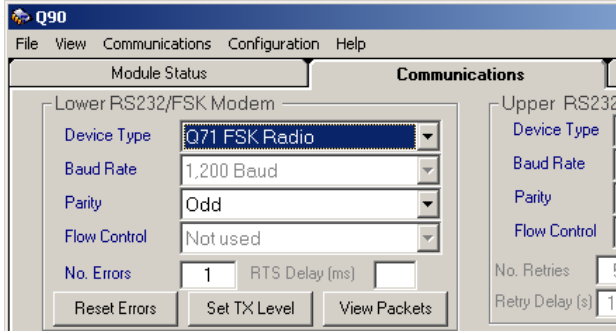
Configuration

The DATRAN II eXcel must be configured so that it will use the Q71B for communications. Power up the RTU and connect Q90 software to the RTU.

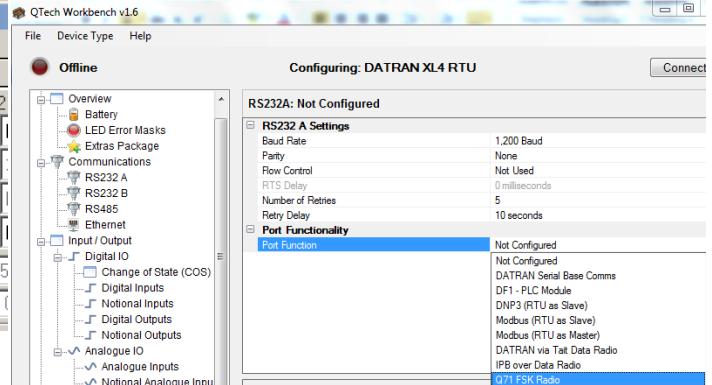
Navigate to the “Communications” tab and set “Device Type” as shown below.

The upper RS232 port is configured in the same way.

Q03 RTU Configuration

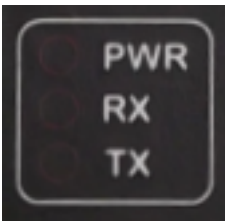


XL4 RTU Configuration



Diagnostics

The Q71B has three status LEDs.



PWR – Power. Green LED is on when power is applied.

RX – Receive. Orange LED is on when radio mute is active.

TX – Transmit. Orange LED is on when RTU is transmitting.

If the Green PWR LED is not on check the fuse. The fuse is a 500mA fast blow type. The early version of Q71 had a glass cartridge; later production uses a smaller surface mount fuse type.

Tuning

Q03 RTU Tuning

Once the Q03D has been configured to use the Q71B, the transmit audio signal level can be adjusted by pressing the “Set TX Level” button in Q90. This will make the Q71B transmit a continuous tone, and an AC voltage meter can be placed across the pins of the connector labelled “LVL” in the Q71B.

Turn the potentiometer anti-clockwise to reduce the signal level

Turn the potentiometer clockwise to increase the signal level

Note – this process will have already been performed as part of the factory setup at QTech prior to delivery.

The default level is -3 dBm (548mV) into a 600 Ω resistive load.

XL4 RTU Tuning

This is performed in a very similar method to the above Q03 process but via Workbench.

User Notes and Installation Details



QTech Data Systems Ltd

12 Midas Place, Middleton, Christchurch 8024

PO Box 9087, Tower Junction, Christchurch 8149

Ph: +64 3 366 3713

Fx: +64 3 365 2815

admin@qtech.co.nz

techsupport@qtech.co.nz

www.qtech.co.nz