

DATRAN XL4 *Plus* RTU

FIRMWARE VERSION 7.09

October 2018

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Introduction

QTech advise that we have released DATRAN XL4 Plus RTU Firmware version 7.09.

While this release adds new functionality, it is primarily a maintenance release.

The previous release was V7.08.

QTech views this as a **mandatory upgrade** and strongly recommends that all DATRAN XL4 Plus RTUs are upgraded to this firmware version. QTech requests that a list of the Serial Numbers of all RTU's post upgrade to this version of firmware is provided to us to assist us in monitoring its use and efficacy.

The following sections of this document describe the enhancements and the installation prerequisites.

Your feedback on the product and possible future enhancements is always appreciated.

Please contact QTech on +64 3 366 3713, or email to techsupport@qtech.co.nz.

Prerequisites for Upgrade

- **Hardware Platform**

The DATRAN XL4 Plus RTU Firmware Upgrade is designed for both the XL4 *Plus* and the previous model XL4 RTUs.

NB To upgrade a DATRAN XL4 RTU to a XL4 *Plus*, please contact the QTech sales team at sales@qtech.co.nz to order the upgrade licence key. You will need to supply the serial number of the RTU to be upgraded.

- **Firmware Options Licencing**

All pre-existing licence options for the RTU to be upgraded shall continue with this firmware upgrade.

- **Firmware Upgrade Process**

For an existing XL4 *Plus* RTU:

To upgrade an RTU which already has XL4 *Plus* firmware, ensure you are using at least version 2.6 of QTech's Workbench (available for free download at https://www.qtech.co.nz/shop/Telemetry+Hardware/Workbench/x_sku/00936.html).

Then follow the procedure in the User Manual, or the [Application Note – “Upgrading QO4 firmware to QO4 Plus on an XL4 RTU”](#), noting Points 8 and 10 in particular.

XL4 RTU to XL4 Plus using this Firmware version:

For assistance in upgrading an XL4 RTU for which you have purchased a new XL4 *Plus* license, please ensure that you follow the [Application Note – “Upgrading QO4 firmware to QO4 Plus on an XL4 RTU”](#), and have read the [Application Note - “Guide to Porting XL4 to XL4 Plus V1.2”](#).

Summary of Changes:

- Improvements to TCP/IP connections to handle loss of connection
- Fix to an issue wherein the RTU license information can be lost
- Improvements to QComms communication buffer and RTU Datalogging buffers, adding more robust checks for data overruns and buffer corruption
- Generation of exception logs in the case of an unexpected RTU reset
- Fix to display MODBUS register numbers correctly

Changes brought forward from V7.08:

- Expose some variables such as “last time reset” to Workbench interface
- Addition of warnings and notifications to DATRAN in the event of communications failures, mute line on too long, communication status of IPB, modbus and QComms
- Deadband value of zero now disables datalogging (per XL4 behaviour)
- Disconnection of a cable to a slave no longer affects RTU master TCP communications
- Improved diagnostics messages
- Various fixes and improvements to RTU datalogging including alignment of logs to log interval boundaries
- Support for Local time and UTC in the RTU - relevant to DLP programme calls to system analogues.

Additional Details for technical support personnel:

Time Management

Datran always distributes the time to the RTU in UTC time. DLP programmes make use of RTU system variables to evaluate the time, such as: **CKHOUR**, **CKDOW**, **CKDATE**, **CKMONTH**, **CKYEAR**. In XL4 devices these variables evaluate to the local time at the RTU (e.g. NZST – UTC+12 Hours).

In versions of XL4 *Plus* RTU firmware prior to this one, the system variables are evaluated in UTC time. This was done to standardise on one time base so that DLPs could be written in a timezone independent manner and so that reporting software could align logging information and apply local time offsets as

necessary, thus eliminating the role of the RTU to swap between UTC and say NZST for different functions.

However, this created a backwards compatibility issue for the many DLP programs already in use on XL4 based RTUs which are subsequently upgraded to XL4 *Plus*.

In this version of firmware, the system variables revert back to XL4 behaviour (e.g. NZST) and DATRAN is still used to send time-set messages in UTC with additional offsets to handle the time zone and daylight saving. Henceforth no changes are required to existing DLPs or to DATRAN in order to correctly operate the programmes.

A new set of system variables (UCKHOUR, UCKDATE etc.) has been introduced in the DLP Integrated Development Environment application software and in the RTU firmware. These support DLPs written and managed, from a datalogging perspective, solely in UTC time, making them portable worldwide and consistent with operating practices with third-party databases and reporting software.

In order for localised time operation on the RTU to work correctly DATRAN requires that if the node "TimeSet System" is present in the TBD, then it must be set to the value 1. The default value for this DATRAN parameter is 1 if the node is not explicitly present in the TBD. For further information contact QTech support.

Summary of Resolved Issues:

The following issues have been resolved since the last release of DATRAN XL4 Plus RTU.

QTech ID	Category	Description
6741	General	Data Abort Exception in DLP Runtime Task has been corrected
6740	General	RTU prevented from locking up if there are an excessive number of RTU datalogging records being generated
6738	General	RTU no longer stops servicing the IO table if its DLP triggers a log every iteration
6707	Configuration	Licensed features cannot be lost if a valid serial number exists in the RTU (v7.08 only)
6715	RTOS	Data Abort Exception in Datalogging Task has been rectified
6703	Communication Protocols	QComms server can no longer go into a half-open connection state
6704	Communication Protocols	TCP Keep-Alive messages are not in themselves sufficient for detecting a closed connection
6701	Workbench Interface Handlers	The MODBUS register numbers are displayed correctly

Disclaimer

While every endeavour has been made to ensure that the product description is accurate, details are subject to change. QTech Data Systems Ltd reserves the right to alter the product and system specifications if required. It is QTech's firm intention to continue to develop the features of the DATRAN VI product range and add additional modules.

QTech Data Systems Ltd does not warrant the suitability of this product for any particular application as the conditions in which the application is used are beyond QTech's control. This is notwithstanding warranty of merchantability.

Many systems are now connected to the Internet. QTech Data Systems Ltd cannot guarantee these services as being available or functional all of the time as network connections are beyond QTech's control.

Ongoing Support

QTech Data Systems Ltd encourages clients to configure their systems to allow remote access via a direct connect modem or Internet based VPN. This allows for off-site support from QTech staff.

QTech Data Systems Ltd provides options for support services and maintenance agreements, please talk to your QTech sales representative. Support services outside the scope of any maintenance agreements shall be charged at QTech's standard Engineering Support hourly rate plus disbursements.