

## INSIGHTqcx™ – without and with internal DIO

### INTRODUCTION

This is the software release notes for versions 100.1.8.24 for INSIGHTqcx and 300.0.3.52 for INSIGHTqcx (with internal DIO) Cordless Controllers. This document details the software version, tool versions supported, new features, enhancements and upgrade instructions for this release.

### 1. Release Information

The following software releases are launched as part of this release package.

Please upgrade both the Controller and tools with the latest versions as outlined in this section.

CONTROLLER VERSION		
Description	INSIGHTqcx	INSIGHTqcx With Internal DIO
Application	100.1.8.24	300.0.3.52
Database	1.0.0	1.0.0
Operating System	1.0.0	0.0.3
Ext Radio	2.23	2.23
Controller Radio Version (CEL/Anaren)	2.6/103.37	NA
Profinet stack version	2.20.1	2.20.1

TOOL VERSIONS	
Description	Version
QX Tool Display	200.1.2.12
QX Series MCE	3.6.1.53
Tool Radio Version (CEL/Anaren)	2.6/103.37
QX Connect Series One Image	Display 120.4.2.44
	MCE 3.6.1.63
QX Wi-Fi4 Limitless One Image	Display 130.0.2.5
	Wi-Fi 3.0.3.3
	MCE 3.6.1.63

QX Wi-Fi6 Limitless One Image	Display 140.1.1.5
	Wi-Fi 140.1.1.2
	MCE 3.6.2.1
RTS	Display 5.17

## 2. New Features:

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- **Enhanced Subscription Support:** Implemented VW-xml updates for improved compatibility.
- **Security Improvements:** Added full HTTPS support for secure communication.
- **System Reliability:** Incorporated current plausibility checks for QX Connect and WiFi tools for better validation.
- **User Experience Enhancements:** Introduced a force logout feature for session control.
- **IRB Update Reliability Improvement:** Added step counter, timer, and detailed logs during firmware updates for better transparency and troubleshooting.

## 3. Enhancements and Fixes

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### INSIGHTqcx controller – with and without DIO

- **Torque Parameter Accuracy:** Resolved PFOP EOR torque rounding issues.
- **Duplicate Results Handling:** Fixed issue where PFOP received results twice, though controller logs showed only once.
- **Job Completion Validation:** Fixed timing issue with PLC communication where job pass signal was missed after tightening completion
- **Data Export Reliability:** Corrected cycle results download issue in .csv format.
- **Error Handling:** Fixed L-40 error occurrence on QX WiFi-6 Tool.
- **Barcode Identifier Accuracy:** Resolved issue where previous job barcode identifier was attached to current job in controller cycle results.
- **System Timestamp Update:** Fixed the issue where the system log timestamp did not update after changing the system date/time
- **UI Stability:** Resolved the issue where a random blank screen appeared on the controller and remote browser, causing the user to be logged out.
- **Barcode Interlock Enforcement:** Corrected issue where tool moved to next job despite barcode interlock being enabled.
- **Wi-Fi Stability:** Resolved the issue where QX Wi-Fi 6 tools disconnected after scanning a barcode using the on-tool scanner.
- **NTP Synchronization:** Resolved issues related to NTP mode date/time.

## QX Connect Radio and Wi-Fi 4.0 with MCE Changes

- **Trace Alignment:** Corrected negative angle and limited trace data at the end of the cycle to eliminate mechanical unwinding of gears
- **Barcode Lock Enforcement:** Prevented tools from running additional cycles when barcode lock is enabled.

## RTS Tools

- **Barcode Lock Enforcement:** Prevented tools from running additional cycles when barcode lock is enabled.

## QX Connect Wi-Fi 6.0 Tool Changes

- **Connectivity Fixes:** Improved stability and resolved issues in Wi-Fi 6 mode.
- **Roaming and Connection Drops:** Corrected issues causing disconnections with the controller.
- **MES Integration:** Eliminated connectivity interruptions with external MES systems.
- **Error Handling:** Resolved B80 error occurring during tool operation.
- **VPG+ Fixes:**
  - Corrected IP address display format (removed leading zeros, e.g., 010.013.128.232 → 10.13.128.232).
  - Improved graph reliability to prevent dropouts during speed transitions and when the engine stops at the setpoint.

## 4. Known Issues:

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- **QCX 1000/2000 controllers:** Invalid trace data is generated for the first cycle after tool power-up or pairing. Subsequent cycles display correct trace data.
- **QX Wi-Fi 4 tools:** Tool firmware updates from the controller USB may occasionally fail. **Workaround:** Repeat the firmware update from the controller to complete successfully
- **QX Wi-Fi 6 tools :**
  - PM alarm cannot be configured on the controller when the tool is paired over a Wi-Fi connection.
  - After pairing, the barcode scanner may not appear in the controller's accessory screen until the tool is rebooted
  - After returning to range, the tool may fail to enter scan mode; a power cycle is required.

## 5. Upgrade Instructions

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### 5.1 Controller Firmware Update

#### 5.1.1 Updating from QCX Version 2.x.x

- Perform a USB Image Update to version 100.1.5.10, then update to version 100.1.8.24.
- See detailed instructions here: <https://irtoolhelp.ingersollrand.com/hc/en-us/articles/43672349864979-How-to-perform-a-USB-System-Image-Update-on-QCX-and-QCD-controller>

#### 5.1.2 Updating from QCX Controller Version 100.x.x.x

- Go to IR Secure Data Transfer System (Send Safely) and copy the Application (.irb) file to your PC or USB drive

#### 5.1.3 Updating from QCX with Internal DIO Controller Version 300.0.1.1

- Perform a USB Image Update to version 300.0.2.28, then update to version 300.0.3.52 using the .irb file.

Steps:

- Copy the rootfs.ext4 file to a Sandisk 2.0 USB drive (FAT32).
- Insert the drive into one of the controller's USB ports and power on.
- Wait up to 10 minutes for the update to be completed.
- Power off the controller, remove the USB drive, and power on again.

#### 5.1.4 Updating from QCX with Internal DIO Controller (Other Versions)

- Use the .irb file for version 300.0.3.52.
- Go to SendSafely and copy the Application (.irb) file to your PC or USB drive.

### IR Secure Data Transfer System (Send Safely):

Link to platform for collaborators –

<https://filesafe.ingersollrand.com/receive/?packageCode=R0xH0I3CZTge7FOI2JUtkroDyiqJLwxfULry0BLVYno#keycode=AFFzeIR6NhkhOTThSciWRyjOe9J-2x9fbcDhTjLCgkk>

### Path to firmware file/s -

1. Home / INSIGHTqcx MTC- Cordless Controller Firmware / INSIGHTqcx MTC / version 100.1.8.24
2. Home / INSIGHTqcx MTC- Cordless Controller Firmware / INSIGHTqcx MTC- Integrated IO / 300.0.3.52

## Register for IR Secure Data Transfer System :

<https://irtoolhelp.ingersollrand.com/hc/en-us/articles/25600256116243--INSIGHT-Control-Latest-Global-Releases>

See link for controller updating instructions:

<https://irtoolhelp.ingersollrand.com/hc/en-us/articles/5120119326867--How-to-Update-firmware-on-an-MTC-controller>

## 6. MID List

### 6.1 PFOP MID SUPPORTED

MID	Description	MID	Description
1	Communication on start	54	Vehicle Id Number upload unsubscribe
2	Communication on start acknowledge	60	Last tightening result data subscribe
3	Communication on stop	62	Last tightening result data acknowledge
4	Command error	63	Last tightening result data unsubscribe
5	Command accepted	64	Old tightening result upload request
8	Trace data subscribe	65	Old tightening result reply
9	Trace data unsubscribe	70	Alarm subscribe
10	Parameter set numbers upload request	71	Alarm Upload
11	Parameter set numbers upload reply	72	Alarm Upload acknowledge
12	Parameter set data upload request	73	Alarm Unsubscribe
13	Parameter set data upload reply	74	Alarm Acknowledged on torque controller
14	Parameter set "selected" subscribe	75	Alarm Acknowledged Ack
15	Parameter set "selected" acknowledge	76	Alarm Status
17	Parameter set "selected" unsubscribe	77	Alarm Status acknowledge
18	Select Parameter set	78	Acknowledge alarm remotely on torque controller
19	Set Parameter set batch size	80	Read time upload request
20	Reset Parameter set batch size	81	Time upload reply
30	Job numbers upload request	82	Set Time in the Torque Controller
31	Job numbers upload reply	127	Abort job
32	Job data upload request	128	Job batch increment
33	Job data upload reply	129	Job batch decrement
34	Job "Info" subscribe	130	Job off
35	Job "Info"	200	Set "external controlled" relays
36	Job "Info" acknowledge	210	Status "external monitored inputs" subscribe
37	Job "Info" unsubscribe	211	Status "external monitored inputs" upload
38	Select Job	212	Status "external monitored inputs" upload acknowledge
39	Job restart	213	Status "external monitored inputs" unsubscribe
40	Tool data upload request	215	IO device status request
41	Tool data upload reply	250	IO device status
42	Disable tool	251	Selector socket info subscribe
43	Enable tool	252	Selector socket info
44	Disconnect tool	253	Selector socket info acknowledge
50	Vehicle Id Number download request	254	Selector socket info unsubscribe
51	Vehicle Id Number upload subscribe	410	AutoDisable settings request
52	Vehicle Id Number upload acknowledge	411	AutoDisable settings reply
		900	Trace
		9999	Keep alive message

## 6.2 FOP MID SUPPORTED

MID	Description	MID	Description
MID 0001	Communication start	MID 0043	Enable tool
MID 0002	Communication start acknowledge	MID 0050	Vehicle Id Number download request
MID 0003	Communication stop	MID 0051	Vehicle Id Number upload subscribe
MID 0004	Command error	MID 0052	Vehicle Id Number
MID 0005	Command accepted	MID 0054	Vehicle Id Number upload unsubscribe
MID 0010	Parameter set number upload request	MID 0060	Last tightening result data subscribe
MID 0011	Parameter set numbers upload reply	MID 0061	Last tightening result data upload
MID 0012	Parameter set data upload request	MID 0062	Last tightening result data acknowledge
MID 0013	Parameter set data upload reply	MID 0063	Last tightening result data unsubscribe
MID 0014	Parameter set "selected" subscribe	MID 0070	Alarm subscribe
MID 0015	Parameter set selected	MID 0071	Alarm Upload
MID 0016	Parameter set selected acknowledge	MID 0072	Alarm upload acknowledge
MID 0017	Parameter set "selected" unsubscribe	MID 0073	Alarm unsubscribe
MID 0018	Select Parameter set	MID 0074	Alarm Acknowledged on Torque Controller
MID 0019	Set Parameter Set batch size	MID 0075	Alarm Acknowledged ACK
MID 0020	Reset Parameter Set batch size	MID 0076	Alarm Status
MID 0030	Job numbers upload request	MID 0077	Alarm Status Acknowledge
MID 0031	Job numbers upload reply	MID 0080	Read time upload request
MID 0034	Job info subscribe	MID 0081	Read time upload reply
MID 0035	Job info	MID 0082	Set Time in Torque Controller
MID 0037	Job info unsubscribe	MID 0100	Multi spindle result Subscribe
MID 0038	Select Job	MID 0101	Multi spindle result upload
MID 0039	Job restart	MID 0102	Multi spindle result upload acknowledged
MID 0040	Tool data upload request	MID 0411	Auto Disable settings request
MID 0041	Tool data upload reply	MID 0412	Auto Disable settings reply
MID 0042	Disable tool	MID 9999	Keep alive message

## 7. Revision History

Version	Date	Summary of Changes	Author
0.01	12/15/2025	Final	Amol Kulkarni