INSIGHTqcx™ – without and with internal DIO

INTRODUCTION

This document provides release notes for versions 100.2.0.32 for INSIGHTqcx and 300.2.0.32 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.

- **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	100.2.0.32	300.2.0.32
Database	1.0.0	1.0.0
Operating System	0.0.1	0.0.3
External Radio	2.23	2.23
Controller Radio Version (CEL/Anaren)	2.6/103.37	NA

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 120.4.2.45
	MCE 3.6.1.65
QX Wi-Fi4 Limitless One Image	Display 130.0.2.28
	Wi-Fi 3.0.3.28
	MCE 3.6.1.65
QX Wi-Fi6 Limitless One Image	Display 140.1.1.40
	Wi-Fi 140.1.1.21
	MCE 3.6.2.3
RTS	Display 5.18

2.0 New Features and Enhancements:

2.1 PFOP Enhancements

- **MID1 Rev 6 Parameter Handling**

  Updated handling for PFOP MID1 Revision 6 parameters:

  - Parameter 15 is now populated with the Station Name (previously shown as blank or zero).
  - Parameters 12, 13, 14, and 16 remain unpopulated and continue to appear as blank or zero.

- **Tool Enable/Disable Behavior (MID42/43)**

  Introduced a new PFOP setting: Accept Tool Enable/Disable when Tool Online (default: disabled)

  - When enabled, the system allows enable/disable commands while the tool is online.
  - When disabled, sending enable/disable commands while the tool is offline results in a command error.

2.2 PFCS Enhancements

- **Custom Behavior 1 for Message Type 0003**

  Added PFCS setting: Custom Behavior 1 for Message Type 0003

  - Enables support for 3-digit Job IDs in message type 0003

2.3 UI Enhancements

- **Barcode Sequence Visibility**
  Home screen now displays the scanned barcode identifier sequence count versus total count

- **Tool Firmware Update UI Simplification**
  Firmware update popup now provides a single update button per QX and RTS tool (excluding Legacy tools) to mass update tools

- **Duplicate Barcode Alert**
  When “Ignore Duplicate Barcode” is enabled and a duplicate barcode is detected:

  - An alert message is displayed on the Home screen
  - The alert includes the Tool Serial Number

- **EOR Alert Message**
  If EORs are duplicated or cannot be stored on the controller, alert messages are displayed on the Home screen.

- **Invalid Socket Selection Alert**
  When an invalid socket is configured for a PSET:
  - Alert message is shown on the Home screen
  - The event is also logged in the Event Log.

3.0 Defect Fixes

3.1 INSIGHTqcx controller – with and without DIO

- **Socket tray USB I/O issue fix:** Resolved an issue where socket tray USB input/output behavior was failing, ensuring proper USB functionality
- **Tool enable/disable error (PFOP):** Fixed an error occurring during tool enable/disable via PFOP, aligned with the “Accept Tool Enable/Disable when Tool Online” enhancement to ensure consistent behavior.
- **Tool backup/restore stability:** Addressed an issue where tool backup and restore operations were intermittently failing with errors, improving reliability.
- **Missing barcode in cycle results:** Resolved an issue where barcode data was occasionally missing in cycle results, ensuring complete data capture.
- **Incorrect barcode association in EOR results :** Fixed an issue where the controller attached an old barcode identifier to a new job’s EOR results, ensuring correct barcode-job mapping.

3.2 QX Wi-Fi 4.0 Tools

- **PSET jump issue:** Fixed an issue specific to jobs with 32 PSETs where pressing the trigger right after selecting the job caused the PSET to jump incorrectly (for example, from 25th to 12th)
- **Missing EOR issue:** Improved system performance to reduce missing EOR occurrences, with added UI indication for better user visibility
- **Tool reconnection reliability:** Resolved an issue where tools required a power cycle to reconnect after going out of range; tools now automatically reconnect when back in range.
- **Job results download fix:** Fixed an issue occurred in version v300.2.0.11 where job results download from the Web Interface was failing

3.3 QX Wi-Fi 6.0 Tools

- **RSSI update recovery**: Addressed an issue where the tool RSSI value got stuck and did not update on power-up; the system now auto-resets the Wi-Fi module without requiring a reboot, enabling RSSI to refresh correctly on the display, with a D-EC code shown to indicate recovery
- **USB communication stability**: USB connection with the INSIGHT Connect Desktop application now works reliably.
- **EOR transmission mitigation**: Introduced a solution on display firmware to recover tools that stop sending End of Run (EOR) results (typically after going out of range) by reconciling cycle results

4.0 Known Issues:

- **INSIGHTqcx with and without DIO 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:**
    - Tool reboot may occur during continuous rapid cycling when paired over Radio mode
    - Scanner status LED stays red if a barcode is scanned after job completion during EOR transmit or reconciliation. Rescan is required.

5.0 Upgrade Instructions

5.1 INSIGHTqcx Controller Firmware Update

- **Updating from INSIGHTqcx Version 2.x.x**
    - If updating from INSIGHTqcx version 2.x.x, user must perform a USB Image Update to version 100.1.5.10. Then update to version 100.2.0.32
    - See instructions here : https://irtoolhelp.ingersollrand.com/hc/en-us/articles/43672349864979-How-to-perform-a-USB-System-Image-Update-on-QCX-and-QCD-controller

- **Updating from INSIGHTqcx 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

- **Updating from INSIGHTqcx with Internal DIO Controller Version 300.2.0.11**
    - If updating from INSIGHTqcx with internal DIO version 300.0.1.1, user must perform a USB Image update to version 300.0.2.28. Then update to version 300.2.0.32 using the .irb file.
    - See instructions here : https://irtoolhelp.ingersollrand.com/hc/en-us/articles/43672349864979-How-to-perform-a-USB-System-Image-Update-on-QCX-and-QCD-controller

- **Updating from INSIGHTqcx with Internal DIO Controller (Other Versions)**
    - If updating from INSIGHTqcx with internal DIO controller version other than **300.0.1.1**, download the firmware 300.2.0.32 (**.irb**) file from IR Secure Data Transfer System (Send Safely) and copy the file to PC or USB drive for installation.

- **OSFS Patch Verification**
    - On the INSIGHTqcx controller with internal DIO, go to the About screen and check the OSFS Patch Version - If the version is not 0.0.3, install OSFS Patch version 0.0.3.

5.2 Tool Firmware Update

5.2.1 QX Wi-Fi 4 Tools

- It is recommended to use the INSIGHT Connect App to perform tool firmware updates.
- Alternatively, users may update the tool firmware while the tool is paired with the controller.
- Refer to the following link for detailed instructions on updating QX and QX Connect tool firmware using an MTC controller: https://irtoolhelp.ingersollrand.com/hc/en-us/articles/5120212430739--How-to-Update-QX-and-QX-Connect-tool-firmware-using-an-MTC-controller

Note:

If a tool firmware update initiated from the controller USB fails, repeat the firmware update from the controller to complete the update successfully.

5.2.2 QX Wi-Fi 6 Tools

- During firmware upgrade, D-E9 error may appear on the tool display and in the logs depending on tool state; this can be ignored, and running a cycle will automatically clear the D-E9 code.

5.2.3 RTS tools

- To update an RTS tool using a controller, connect the tool to an updated controller using a USB cable. Follow the on-screen messages on the controller to complete the firmware update.
- If the RTS tool is updated from a version earlier than 4.3, the tool must be recalibrated using the application after the update to ensure proper operation.

5.3 IR Secure Data Transfer System (Send Safely):

Link to platform for collaborators –

https://filesafe.ingersollrand.com/receive/?packageCode=R0xH0l3CZTge7FOI2JUtkroDyiqJLwxfULry0BLVYno#keycode=AFFzeIR6NhkhOTThSclWRyjOe9J-2x9fbcDhTjLCgkk

Path to firmware file/s -

1. Home / INSIGHTqcx MTC- Cordless Controller Firmware / INSIGHTqcx MTC / Version 100.2.0.32
2. Home / INSIGHTqcx MTC- Cordless Controller Firmware / INSIGHTqcx MTC- Integrated IO / Version 300.2.0.32

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	Revision	MID	Description	Revision
1	Communication start	rev1-6	51	Vehicle Id Number upload subscribe	rev1-2
2	Communication start acknowledge	rev1-6	52	Vehicle Id Number upload	rev1-2
3	Communication stop	rev1	53	Vehicle Id Number upload acknowledge	rev1-2
4	Command error	rev1	54	Vehicle Id Number upload unsubscribe	rev1-2
5	Command accepted	rev1	60	Last tightening result data subscribe	1-7, 998-999
6	Spindle Connect Status	rev1	61	Last tightening result data upload	1-7, 998-999
8	Trace data Subscribe	rev1	62	Last tightening result data acknowledge	1-7, 998-999
9	Trace data unsubscribe	rev1	63	Last tightening result data unsubscribe	1-7, 998-999
10	Parameter set numbers upload request	rev1	64	Old tightening result upload request	rev1-5
11	Parameter set numbers upload reply	rev1-2	65	Old tightening result reply	rev1-5
12	Parameter set data upload request	rev1	70	Alarm subscribe	rev1-2
13	Parameter set data upload reply	rev1-4	71	Alarm Upload	rev1-2
14	Parameter set “selected” subscribe	rev1	127	Abort job	rev1
15	Parameter set “selected”	rev1	128	Job batch increment	rev1
16	Parameter set “selected” acknowledge	rev1	129	Job batch decrement	rev1-2
17	Parameter set “selected” unsubscribe	rev1	130	Job off	rev1
18	Select Parameter set	rev1	150	Identifier download request	rev1-2
19	Set Parameter set batch size	rev1	200	Set “external controlled” relays	rev1
20	Reset Parameter set batch size	rev1	210	Status “external monitored inputs” subscribe	rev1
30	Job numbers upload request	rev1-2	211	Status “external monitored inputs” upload	rev1
31	Job numbers upload reply	rev1-2	212	Status “external monitored inputs” upload acknowledge	rev1
32	Job data upload request	rev1-3	213	Status “external monitored inputs” unsubscribe	rev1
33	Job data upload reply	rev1-3	214	IO device status request	rev1
34	Job “info” subscribe	rev1-4	215	IO device status	rev1
35	Job “info”	rev1-4	224	Set digital input function	rev1
36	Job “info” acknowledge	rev1-4	250	Selector socket info subscribe	rev1
37	Job “info” unsubscribe”	rev1-4	251	Selector socket info	rev1
38	Select Job	rev1-2	252	Selector socket info acknowledge	rev1
39	Job restart	rev1-2	253	Selector socket info unsubsribe	rev1
40	Tool data upload request	rev1	410	AutoDisable settings request	rev1
41	Tool data upload reply	rev1-5	411	AutoDisable settings reply	rev1
42	Disable tool	rev1	900	Trace	rev1
43	Enable tool	rev1	2500	Tightening Program Message download	rev1
44	Disconnect tool	rev1	2501	Tightening Program Message Upload	rev1
50	Vehicle Id Number download request	rev1-2	9999	Keep alive message	rev1

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	06/24/2026	Draft	Amol Kulkarni
0.02	06/24/2026	Updated firmware upgrade instructions	Amol Kulkarni