



Precision Cordless Screwdrivers

Stuttgart, Germany, October 9th, 2012



QX Series Agenda

- Product Overview
- System Tour
- Programing and Control Overview
- Aftermarket
- Programming
 - On-Tool Programming
 - Programming with ICS via USB Cable or Wireless Process Communication Module
- Process Monitoring with ICS



QX Series Precision Cordless Screwdrivers



The best in tightening technologies in a cost-effective package.



True closed-loop transducerized torque and angle control provides excellent accuracy and traceability.



Advanced tightening strategies, including prevailing torque, torque and/or angle control for best-in-class and flexible process control.



8 user-programmable torque/angle/speed configurations allow one tool to do the jobs previously done by many.



Tool can be programmed using integrated keypad, USB port or wirelessly with ICS software.



Multi-function LCD and keypad offers quick setup and visual feedback.



Onboard motor control eliminates need and cost of external controller.



Wireless communication allows for process control,
real-time data transfer and archiving.



System Tour

Drive Spindle

➤ **Function:**

- Retains the bit or socket.
- Transfers fastening profile to the joint.

➤ **Options available:**

- 1/4" square drive,
- 3/8" square drive,
- 1/4" hex quick-change.

➤ **Key Features:**

- Thrust bearing provides axial load protection; designed with drop testing.
- Output spindle decoupled from gearing and transducer.
- Load and shock absorbed through the housing, not the transducer.



Gear Case

➤ **Function:**

- Provides for alignment through the drive train.
- Transfers spindle loading and impacts to the housing.

➤ **Key Features:**

- Impact resistant die-cast aluminum housing.
- Bushing provides support for radial loads.



QX Gearing

➤ Function:

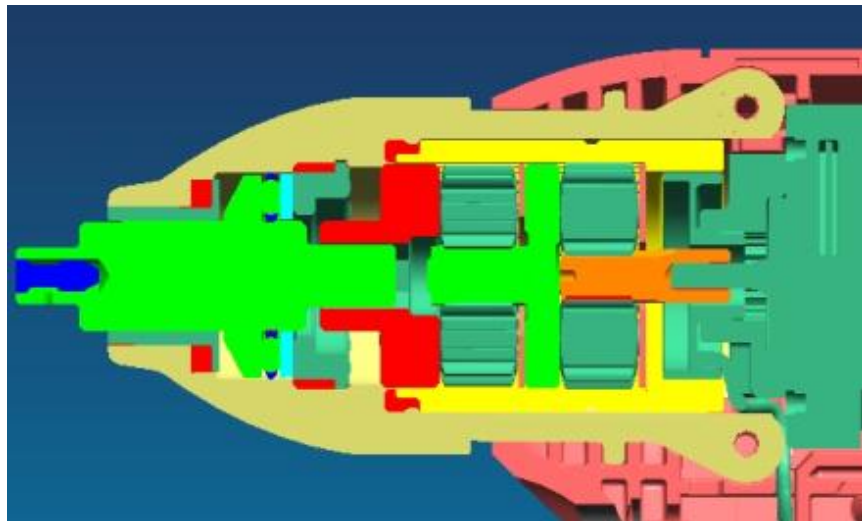
- Increases motor torque.

➤ Options available:

- 4 Nm, 1 500rpm,
- 8 Nm, 1 150 rpm,
- 12 Nm, 750 rpm.

➤ Key Features:

- Durable, metal planetary gearing.
- Low stress design, based on QE4.



QX Transducer

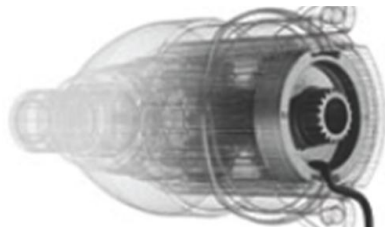
SERIES

- Function:
 - Converts strain data into torque data
 - Allows for closed-loop control
- Key Features:
 - Proven QE2 design
 - Traceable to NIST standard
 - Keystone for enhanced functionality



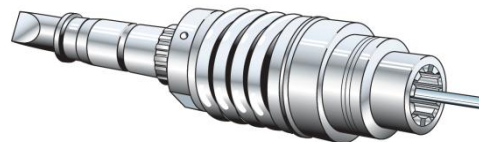


Patented Transducer Control



Transducer

VS.



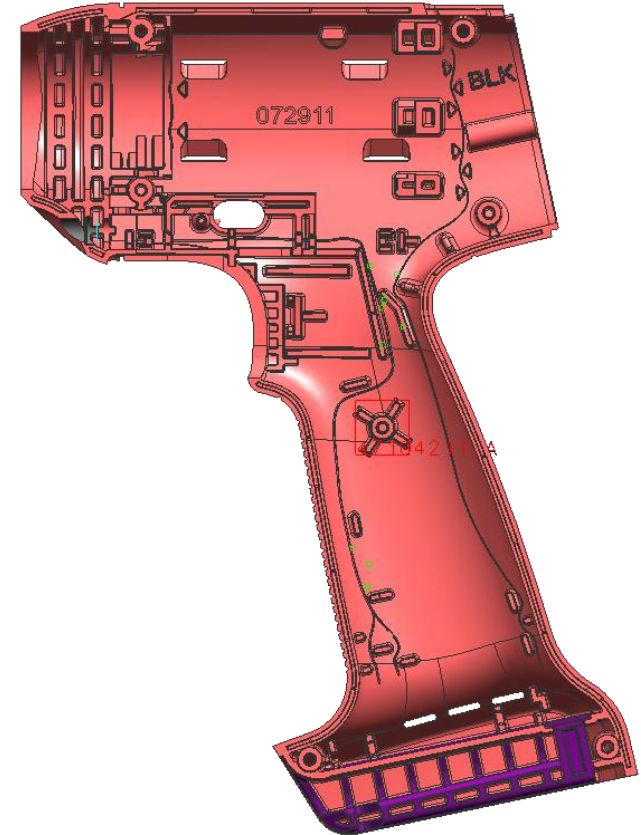
Mechanical Clutch

➤ **Transducerized torque, angle and speed control provides excellent accuracy and traceability.**

- Torque traceability
- Multiple configurations available on 1 tool
- Prevailing torque applications possible
- Fewer wear parts
- Easy to setup

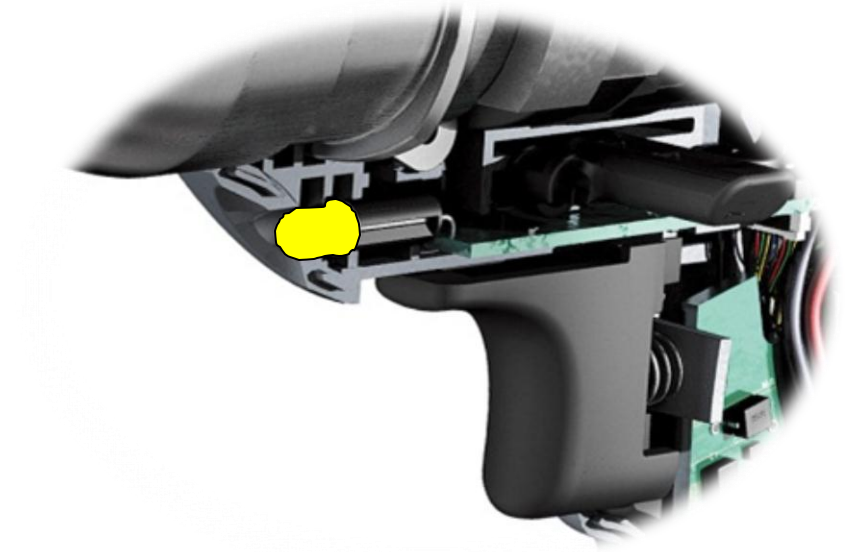
DX Housing

- Function:
 - Provides ergonomic grip and tool structure.
 - Provides battery interface structure.
- Key Features:
 - Impact resistant 30% glass-filled nylon.
 - Sculpted to fit hand.
 - Designed for optimal weight balance.
 - Optimal venting to resist heat rise but protect interior.



Headlight

- Function:
 - Improves operator visibility of the joint.
- Key Features:
 - Super-bright LED.
 - Optionally On/Off.
 - Optional time duration following fastening completion.



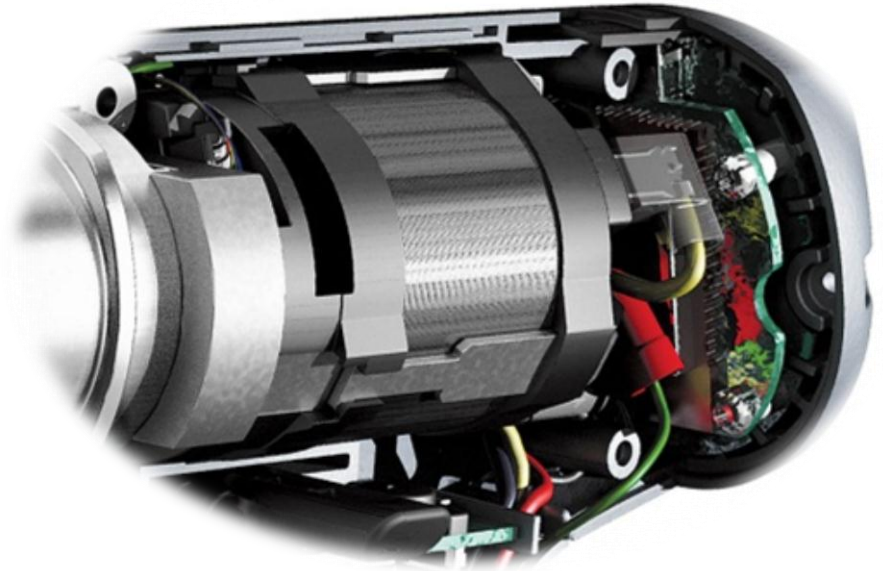
Brushless Motor

➤ **Function:**

- Powers the gear train to provide the necessary fastening profile.

➤ **Key Features:**

- Durable for high-cycle industrial assembly use (tested to over 1 million cycles).
- No brush wear or resulting carbon dust.
- Hall based position sensor delivers angle positioning.



DX Trigger

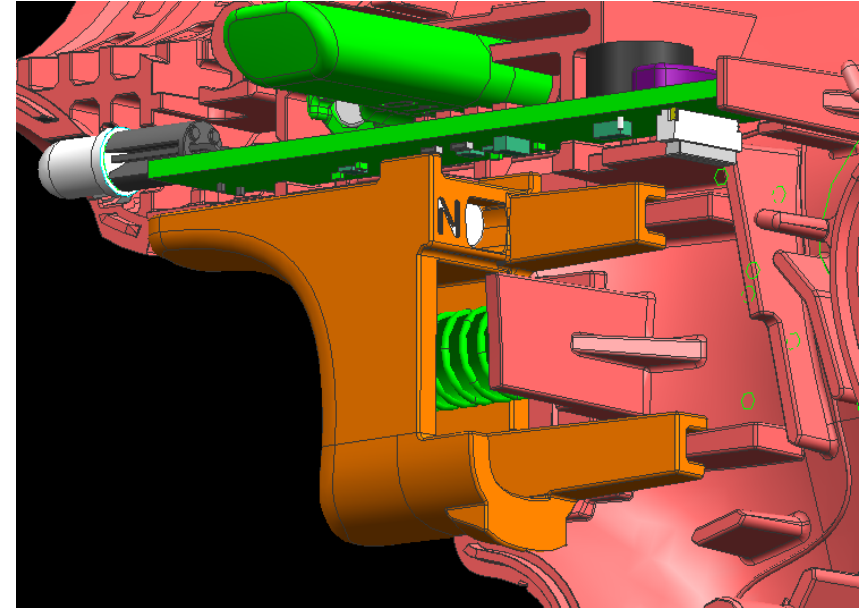
SERIES

➤ Function:

- Turns on headlight with half depression.
- Starts fastening rundown.
- Wakes up tool when in sleep mode.

➤ Key Features:

- High durability non-contact hall effect switching.
- High durability patent pending two-rail design.





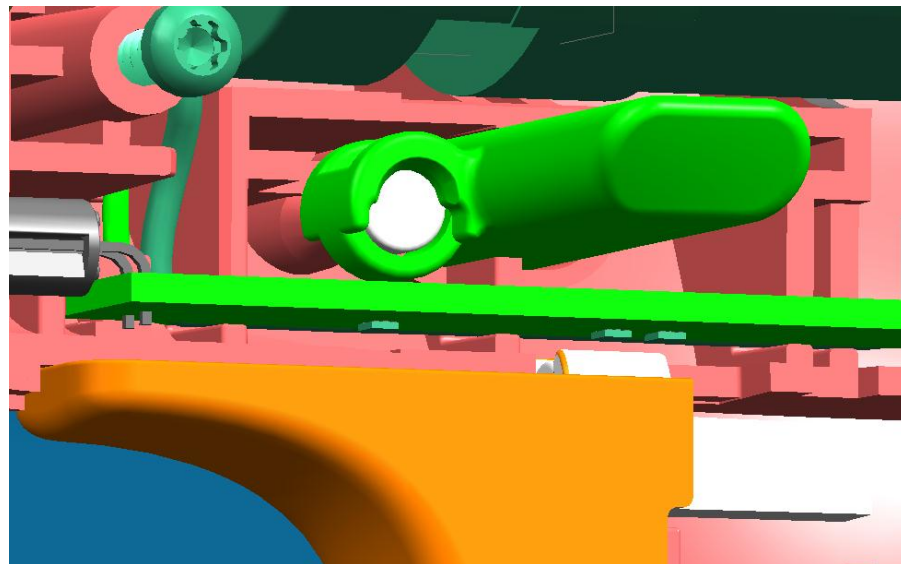
Forward / Reverse Button

➤ **Function:**

- Changes direction of spindle rotation.

➤ **Key Features:**

- High durability non-contact hall effect switching (with trigger board).
- Magnet also serves as detent mechanism (patent pending).





Backlit LCD and Keyboard

- Easy fastening configuration programming.
- Fastening configuration change.
- Display of end-of-run results
- Stores up to 1,200 end-of-run data.
- Password protected access.
- Visual feedback of fastening status.
- Audible alarms.
- Maintenance alarms.





Human-Machine Interface

Backlit display offers remarkable visual feedback

High-strength, impact-resistant lens guards against damage

Escape button

Onboard memory stores cycle data for up to 1,200 rundowns

Wireless board option transmits end-of-run data wirelessly to the Process Communication Module (PCM) and receives tool settings and configurations



Cycle Status lights and audible alarm give immediate user feedback
Yellow = below limit
Green = OK
Red = above limit

Fault code indication light
Blue = active alarm condition

Validation button

Keypad enables quick navigation for easy setup and ability to select between eight user-programmed configurations

Circuit Boards

1. Wireless Board:

- Sends and receives wireless signals.

2. Display Board:

- Controls display and input from keypad.

3. Power Board:

- Sends power to the motor.

4. DSP Board:

- Tells power board how to send power to motor.

5. Trigger Board:

- Senses trigger and reverse button movement.
- Supports headlight and buzzer.



Battery Interface

➤ **Function:**

- Provides contacts for battery power to enter tool.
- Lockout feature prevents use of other battery types.

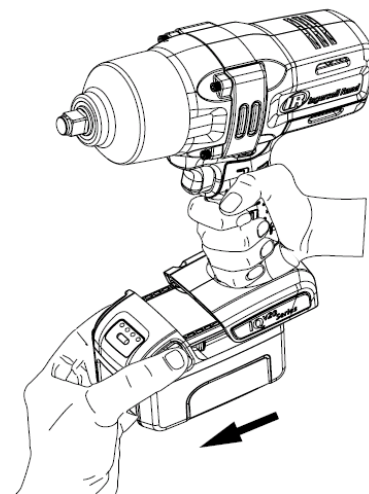
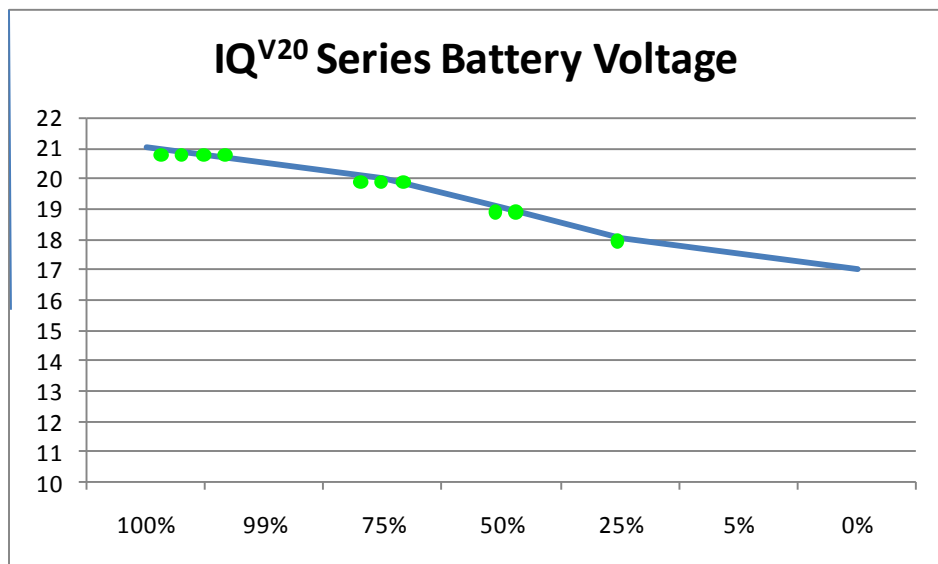
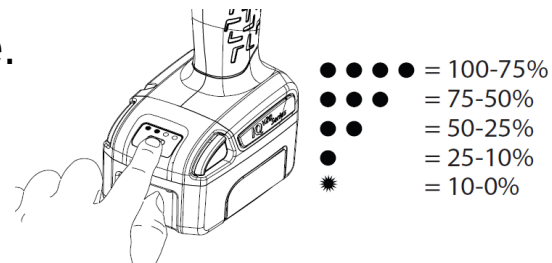
➤ **Key Features:**

- Slide pack provides secure engagement.



IQX 20 V Batteries

- Intelligent 20 V batteries give more power and runtime.
 - New high density cells with Lithium-Ion technology.
 - More efficient with higher unit voltage (maximum cell voltage 4.2 V and average 4.0V).
 - LED fuel gauges on the battery.
 - Robust slide mount for all next generation IQv Cordless Tools.



Batteries

- Two IQ^{V20} battery options for QX Series screwdrivers:
- **BL2005** – 20 V, 1.5 Ah, 0.45 kg
 - Low-weight and compact size for reduced end-user fatigue and accessibility.
 - Approximately 1 000 cycles per charge*.
 - Only 1.36 kg with QX Series pistol screwdriver.
- **BL2010** – 20 V, 3.0 Ah, 0,73 kg
 - High-capacity for extended run-time.
 - Approximately 2 000 cycles per charge*.
 - Only 1.64 kg with QX Series pistol screwdriver

* With sleep mode enabled and without wireless or with wireless communication disabled.



BL2005



BL2010



Battery charger

- Universal for the new IQ^{V20} range (BL2005 & BL2010).
- Quick charge, less than 1 hour.
- Intelligent charge with loading gauges and defaults indications.
- USB port for charging mobile devices.
- Can be wall or bench mounting possible.
- Input voltage 100 to 220V AC (50/60Hz) with specific regional plugs (EU and U.K.).



LED charge status and
fuel gauges



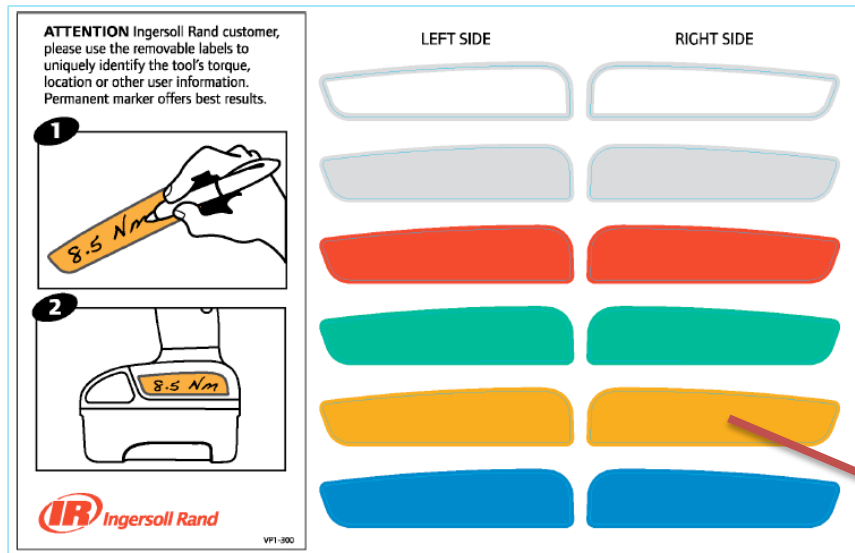
USB charging port

BC1120-EU





Tool Color Identification



- Tool Identification labels come with every tool to enable customized marking of torque, job, cell, calibration date or other useful information.

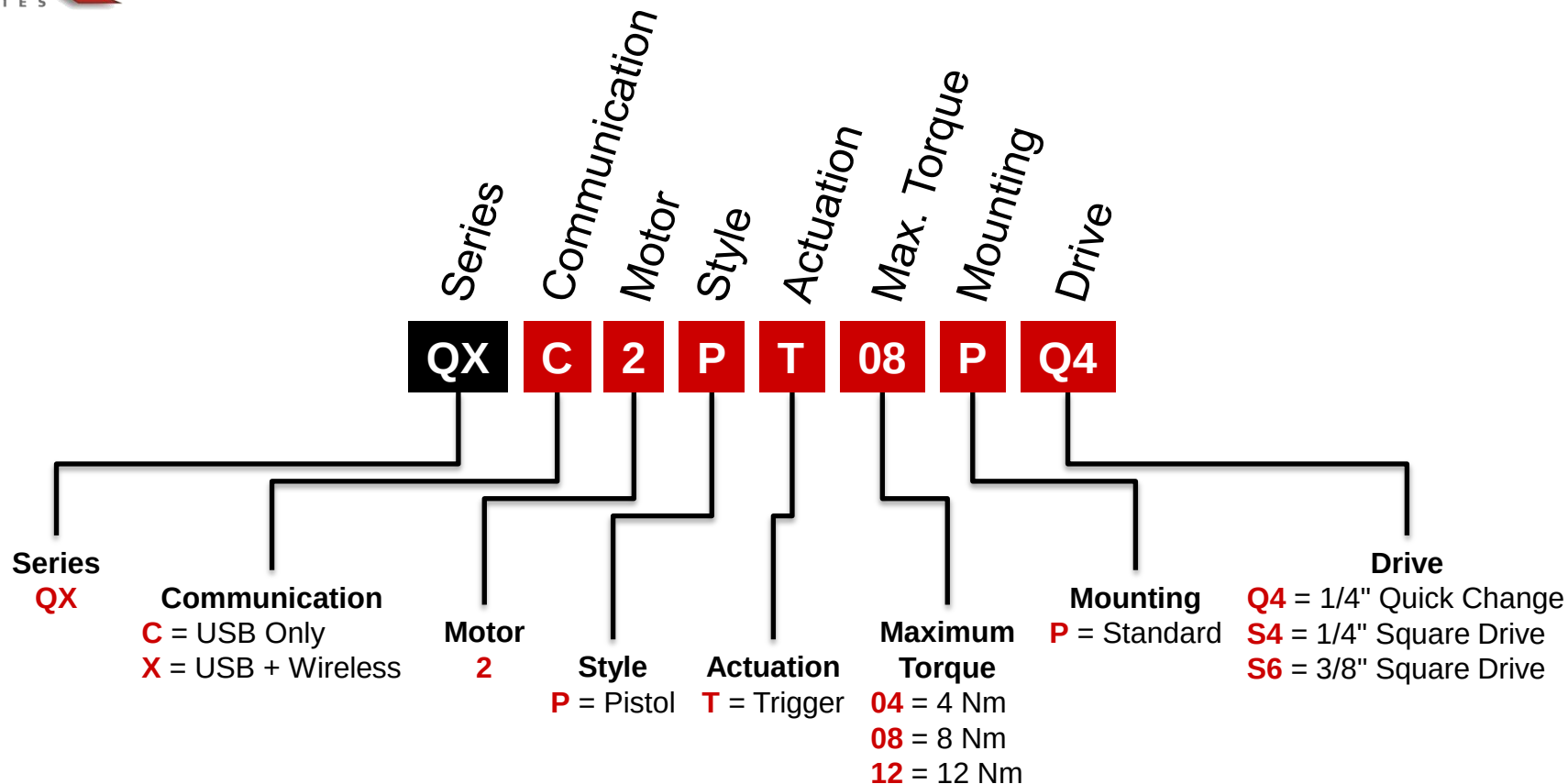
18 Configurations

- **3 torque / speed versions:**
 - 0.8 – 4 Nm / 150 – 1 500 rpm
 - 1.6 – 8 Nm / 115 – 1 150 rpm
 - 2.4 – 12 Nm / 75 – 750 rpm
- **3 drive versions:**
 - 1/4" quick change 
 - 1/4" square drive 
 - 3/8" square drive 
- **2 communication versions:**
 - USB only
 - USB and Wireless





Model Number Nomenclature



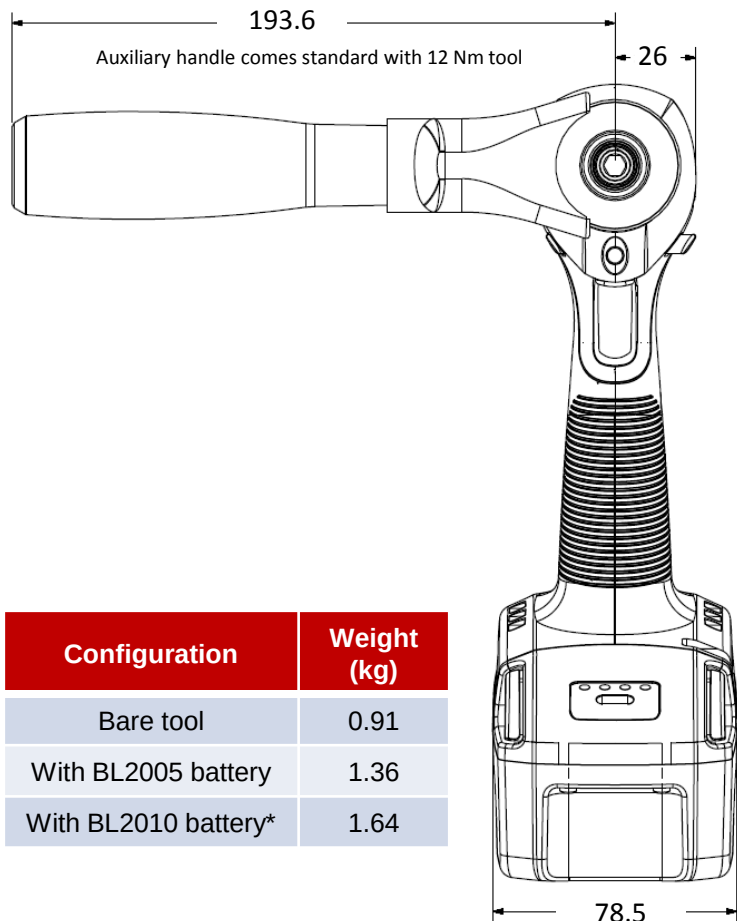


Specification Chart

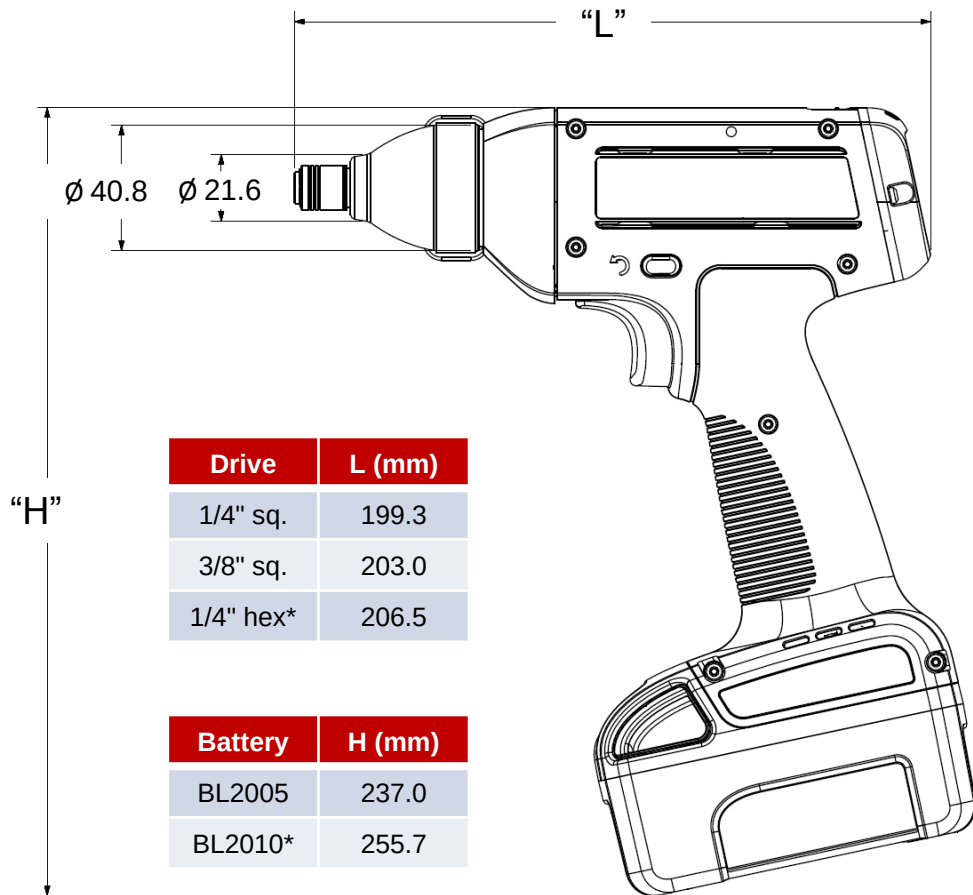
Tool* model no. USB only	CPN	Tool* model no. USB + wireless	CPN	Torque range Nm	Speed range rpm	Drive type	Tool weight ⁽¹⁾ kg	Tool length mm	Sound pressure ⁽²⁾ dB(A)	Vibration level ⁽³⁾ m/s ²
20 V Precision Cordless Screwdrivers										
QXC2PT04PQ4	47104039	QXX2PT04PQ4	47104062	0.8 - 4	150 - 1500	1/4"	0.91	215	< 70	< 2.5
QXC2PT04PS4	47104047	QXX2PT04PS4	47104070	0.8 - 4	150 - 1500	1/4"	0.91	208	< 70	< 2.5
QXC2PT04PS6	47104054	QXX2PT04PS6	47104088	0.8 - 4	150 - 1500	3/8"	0.91	212	< 70	< 2.5
QXC2PT08PQ4	47103973	QXX2PT08PQ4	47104005	1.6 - 8	115 - 1150	1/4"	0.91	215	< 70	< 2.5
QXC2PT08PS4	47103981	QXX2PT08PS4	47104013	1.6 - 8	115 - 1150	1/4"	0.91	208	< 70	< 2.5
QXC2PT08PS6	47103999	QXX2PT08PS6	47104021	1.6 - 8	115 - 1150	3/8"	0.91	212	< 70	< 2.5
QXC2PT12PQ4	47103916	QXX2PT12PQ4	47103940	2.4 - 12	75 - 750	1/4"	0.91	215	< 70	< 2.5
QXC2PT12PS4	47103924	QXX2PT12PS4	47103957	2.4 - 12	75 - 750	1/4"	0.91	208	< 70	< 2.5
QXC2PT12PS6	47103932	QXX2PT12PS6	47103965	2.4 - 12	75 - 750	3/8"	0.91	212	< 70	< 2.5



Compact, Lightweight & Ergonomic



Configuration	Weight (kg)
Bare tool	0.91
With BL2005 battery	1.36
With BL2010 battery*	1.64



Drive	L (mm)
1/4" sq.	199.3
3/8" sq.	203.0
1/4" hex*	206.5

Battery	H (mm)
BL2005	237.0
BL2010*	255.7

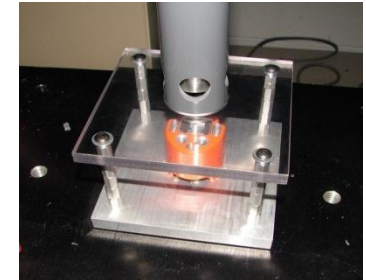
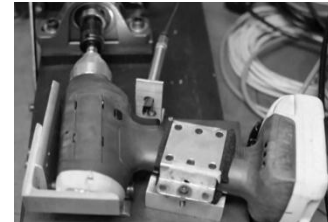
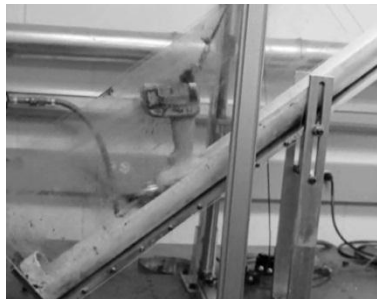
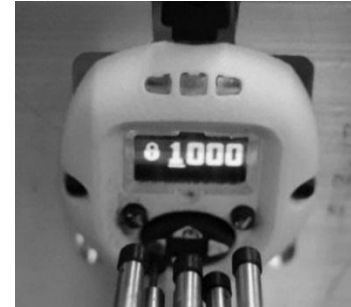
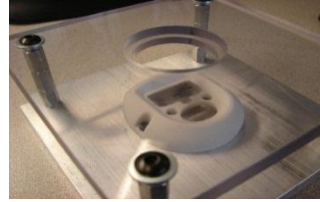
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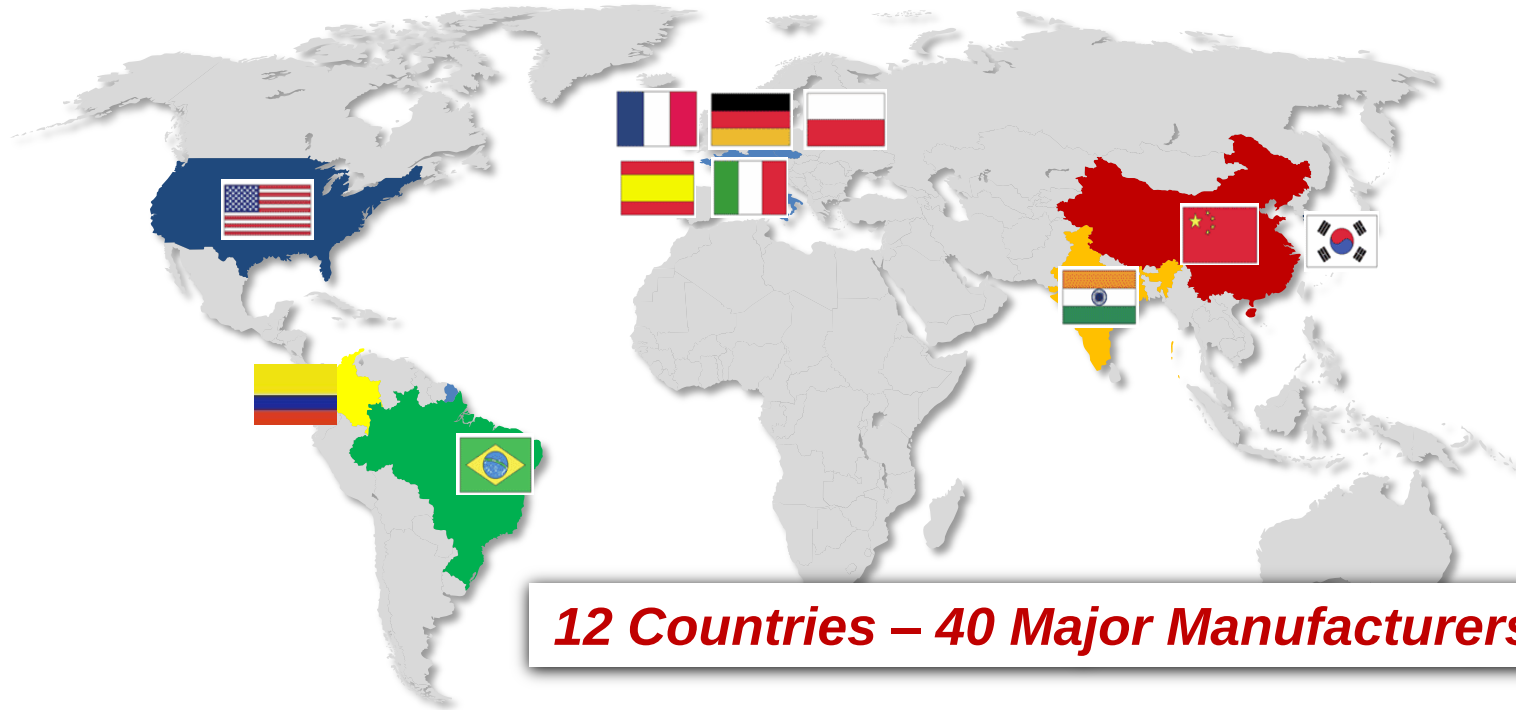
Design Verification Testing

- Performance / Capability
- Durability
- Fasteners per charge
- Drop Tests
- Holster Test
- Hanger Test
- Sound and Vibration
- Heat Rise
- ESD / EMI
- Display Keypad Durability
- Wireless Testing
- Contamination Testing
- Chemical tests
- Destructive tests
- Field Trials





Product Validation



12 Countries – 40 Major Manufacturers

ABB
BOEING
BORGWARNER
CHRYSLER
CLUB CAR
CUMMINS

DELPHI
FORD
GE
HUSQVARNA
HONDA
HYUNDAI

IVECO
JOHN DEERE
KENWORTH
KOHLER
MOEN
MUSCO LIGHTING

NISSAN
POLARIS
PEUGEOT CITROEN
SAMSUNG
SAUER DANFOSS
TESLA

THERMO KING
TRANE
VOLKSWAGEN
YAMAHA



Production Overview

- Assembled in our plant in Southern Pines, NC, USA
- Same climate controlled assembly room as DC tools
- Every tool must pass stringent End-of-Line (EOL) test
- Automated EOL tester performs:
 - Functional testing
 - Capability testing
 - Wireless testing
- Every tool comes with Torque Certification Report



Southern Pines, NC





Automated End-of-Line Tester

- Fully automated testing:
 - Decreased cycle time,
 - Statistical Process Control Charts.
- Automatically selects joint:
 - Oil filled Belleville washer joint.
- Checks LED color and intensity.
- Actuates and test all buttons.
- Tests wireless signal strength.
- Checks motor current draw.
- Checks low voltage cutoff.
- Checks drag torque.
- Calibrates transducer.
- Accuracy tests to homologation standard.





End-of-Line Report

➤ Each tool is supplied with an End-of-Line report showing:

- Tool Model Number.
- Tool Serial Number.
- Test Date.
- Results from 30 cycles on a hard joint.
- Results from 30 cycles on a soft joint.

➤ Test is performed according to ISO5393.

Tool Certification Report

Tool Data
Model Number: 10007111550
Serial Number: 151100000
Tool Material: 151100000
Tool Finish: 151100000
Tool Machine: 151100000

Tool Data
Tool Name: 10007111550
Tool Material: 151100000
Tool Finish: 151100000
Tool Machine: 151100000

This tool has been tested with equipment traceable to National Institute of Standards and Technology (NIST).

Test Cycle	Force (N)	Time (s)	Angle (deg)	Test Cycle	Force (N)	Time (s)	Angle (deg)
1	13.36	13.12	23	16	13.36	13.12	23
2	13.36	13.12	23	17	13.36	13.12	23
3	13.36	13.12	23	18	13.36	13.12	23
4	13.36	13.12	23	19	13.36	13.12	23
5	13.36	13.12	23	20	13.36	13.12	23
6	13.36	13.12	23	21	13.36	13.12	23
7	13.36	13.12	23	22	13.36	13.12	23
8	13.36	13.12	23	23	13.36	13.12	23
9	13.36	13.12	23	24	13.36	13.12	23
10	13.36	13.12	23	25	13.36	13.12	23
11	13.36	13.12	23	26	13.36	13.12	23
12	13.36	13.12	23	27	13.36	13.12	23
13	13.36	13.12	23	28	13.36	13.12	23
14	13.36	13.12	23	29	13.36	13.12	23
15	13.36	13.12	23	30	13.36	13.12	23
16	13.36	13.12	23	31	13.36	13.12	23
17	13.36	13.12	23	32	13.36	13.12	23
18	13.36	13.12	23	33	13.36	13.12	23
19	13.36	13.12	23	34	13.36	13.12	23
20	13.36	13.12	23	35	13.36	13.12	23
21	13.36	13.12	23	36	13.36	13.12	23
22	13.36	13.12	23	37	13.36	13.12	23
23	13.36	13.12	23	38	13.36	13.12	23
24	13.36	13.12	23	39	13.36	13.12	23
25	13.36	13.12	23	40	13.36	13.12	23
26	13.36	13.12	23	41	13.36	13.12	23
27	13.36	13.12	23	42	13.36	13.12	23
28	13.36	13.12	23	43	13.36	13.12	23
29	13.36	13.12	23	44	13.36	13.12	23
30	13.36	13.12	23	45	13.36	13.12	23
31	13.36	13.12	23	46	13.36	13.12	23
32	13.36	13.12	23	47	13.36	13.12	23
33	13.36	13.12	23	48	13.36	13.12	23
34	13.36	13.12	23	49	13.36	13.12	23
35	13.36	13.12	23	50	13.36	13.12	23
36	13.36	13.12	23	51	13.36	13.12	23
37	13.36	13.12	23	52	13.36	13.12	23
38	13.36	13.12	23	53	13.36	13.12	23
39	13.36	13.12	23	54	13.36	13.12	23
40	13.36	13.12	23	55	13.36	13.12	23
41	13.36	13.12	23	56	13.36	13.12	23
42	13.36	13.12	23	57	13.36	13.12	23
43	13.36	13.12	23	58	13.36	13.12	23
44	13.36	13.12	23	59	13.36	13.12	23
45	13.36	13.12	23	60	13.36	13.12	23
46	13.36	13.12	23	61	13.36	13.12	23
47	13.36	13.12	23	62	13.36	13.12	23
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58	13.36	13.12	23	73	13.36	13.12	23
59	13.36	13.12	23	74	13.36	13.12	23
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62	13.36	13.12	23	77	13.36	13.12	23
63	13.36	13.12	23	78	13.36	13.12	23
64	13.36	13.12	23	79	13.36	13.12	23
65	13.36	13.12	23	80	13.36	13.12	23
66	13.36	13.12	23	81	13.36	13.12	23
67	13.36	13.12	23	82	13.36	13.12	23
68	13.36	13.12	23	83	13.36	13.12	23
69	13.36	13.12	23	84	13.36	13.12	23
70	13.36	13.12	23	85	13.36	13.12	23
71	13.36	13.12	23	86	13.36	13.12	23
72	13.36	13.12	23	87	13.36	13.12	23
73	13.36	13.12	23	88	13.36	13.12	23
74	13.36	13.12	23	89	13.36	13.12	23
75	13.36	13.12	23	90	13.36	13.12	23
76	13.36	13.12	23	91	13.36	13.12	23
77	13.36	13.12	23	92	13.36	13.12	23
78	13.36	13.12	23	93	13.36	13.12	23
79	13.36	13.12	23	94	13.36	13.12	23
80	13.36	13.12	23	95	13.36	13.12	23
81	13.36	13.12	23	96	13.36	13.12	23
82	13.36	13.12	23	97	13.36	13.12	23
83	13.36	13.12	23	98	13.36	13.12	23
84	13.36	13.12	23	99	13.36	13.12	23
85	13.36	13.12	23	100	13.36	13.12	23
86	13.36	13.12	23	101	13.36	13.12	23
87	13.36	13.12	23	102	13.36	13.12	23
88	13.36	13.12	23	103	13.36	13.12	23
89	13.36	13.12	23	104	13.36	13.12	23
90	13.36	13.12	23	105	13.36	13.12	23
91	13.36	13.12	23	106	13.36	13.12	23
92	13.36	13.12	23	107	13.36	13.12	23
93	13.36	13.12	23	108	13.36	13.12	23
94	13.36	13.12	23	109	13.36	13.12	23
95	13.36	13.12	23	110	13.36	13.12	23
96	13.36	13.12	23	111	13.36	13.12	23
97	13.36	13.12	23	112	13.36	13.12	23
98	13.36	13.12	23	113	13.36	13.12	23
99	13.36	13.12	23	114	13.36	13.12	23
100	13.36	13.12	23	115	13.36	13.12	23
101	13.36	13.12	23	116	13.36	13.12	23
102	13.36	13.12	23	117	13.36	13.12	23
103	13.36	13.12	23	118	13.36	13.12	23
104	13.36	13.12	23	119	13.36	13.12	23
105	13.36	13.12	23	120	13.36	13.12	23
106	13.36	13.12	23	121	13.36	13.12	23
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109	13.36	13.12	23	124	13.36	13.12	23
110	13.36	13.12	23	125	13.36	13.12	23
111	13.36	13.12	23	126	13.36	13.12	23
112	13.36	13.12	23	127	13.36	13.12	23
113	13.36	13.12	23	128	13.36	13.12	23
114	13.36	13.12	23	129	13.36	13.12	23
115	13.36	13.12	23	130	13.36	13.12	23
116	13.36	13.12	23	131	13.36	13.12	23
117	13.36	13.12	23	132	13.36	13.12	23
118	13.36	13.12	23	133	13.36	13.12	23
119	13.36	13.12	23	134	13.36	13.12	23
120	13.36	13.12	23	135	13.36	13.12	23
121	13.36	13.12	23	136	13.36	13.12	23
122	13.36	13.12	23	137	13.36	13.12	23
123	13.36	13.12	23	138	13.36	13.12	23
124	13.36	13.12	23	139	13.36	13.12	23
125	13.36	13.12	23	140	13.36	13.12	23
126	13.36	13.12	23	141	13.36	13.12	23
127	13.36	13.12	23	142	13.36	13.12	23
128	13.36	13.12	23	143	13.36	13.12	23
129	13.36	13.12	23	144	13.36	13.12	23
130	13.36	13.12	23	145	13.36	13.12	23
131	13.36	13.12	23	146	13.36	13.12	23
132	13.36	13.12	23	147	13.36	13.12	23
133	13.36	13.12	23	148	13.36	13.12	23
134	13.36	13.12	23	149	13.36	13.12	23
135	13.36	13.12	23	150	13.36	13.12	23
136	13.36	13.12	23	151	13.36	13.12	23
137	13.36	13.12	23	152	13.36	13.12	23
138	13.36	13.12	23	153	13.36	13.12	23
139	13.36	13.12	23	154	13.36	13.12	23
140	13.36	13.12	23	155	13.36	13.12	23
141	13.36	13.12	23	156	13.36	13.12	23
142	13.36	13.12	23	157	13.36	13.12	23
143	13.36	13.12	23	158	13.36	13.12	23
144	13.36	13.12	23	159	13.36	13.12	23
145	13.36	13.12	23	160	13.36	13.12	23
146	13.36	13.12	23	161	13.36	13.12	23
147	13.36	13.12	23	162	13.36	13.12	23
148	13.36	13.12	23	163	13.36	13.12	23
149	13.36	13.12	23	164	13.36	13.12	23
150	13.36	13.12	23	165	13.36	13.12	23
151	13.36	13.12	23	166	13.36	13.12	23
152	13.36	13.12	23	167	13.36	13.12	23
153	13.36	13.12	23	168	13.36	13.12	23
154	13.36	13.12	23	169	13.36	13.12	23
155	13.36	13.12	23	170	13.36	13.12	23
156	13.36	13.12	23	171	13.36	13.12	23
157	13.36	13.12	23	172	13.36	13.12	23
158	13.36	13.12	23	173	13.36	13.12	23
159	13.36	13.12	23	174	13.36	13.12	23
160	13.36	13.12	23	175	13.36	1	



Programing and Control Overview



Standalone System and On-Tool Programming



- One standard tightening strategy (torque, angle, speed) can be programmed.
- Programming directly on the tool using integrated keyboard and screen.



Standalone System and USB Programming

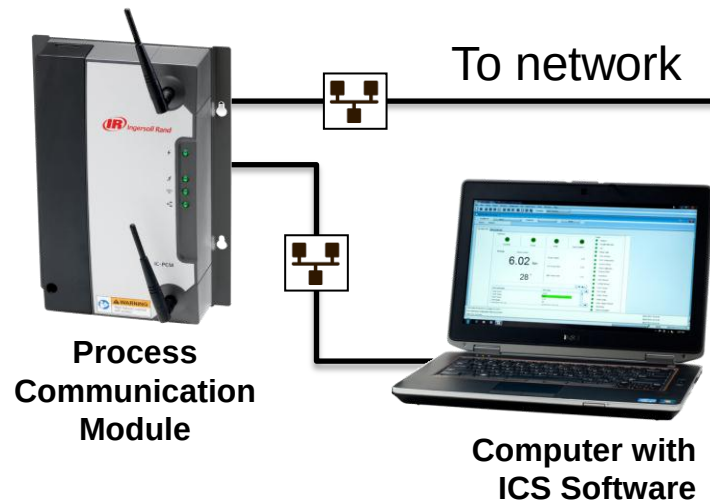


Computer with ICS Software

- All advanced tightening strategies can be programmed (torque, prevailing torque, angle, speed).
- Programming through the USB port using the ICS Connect software installed on a computer.
- Up to 8 different fastening configurations can be programmed for each tool.
- Cycle data stored on the tool (up to 1200 cycles) can be retrieved to a computer equipped with ICS Connect.



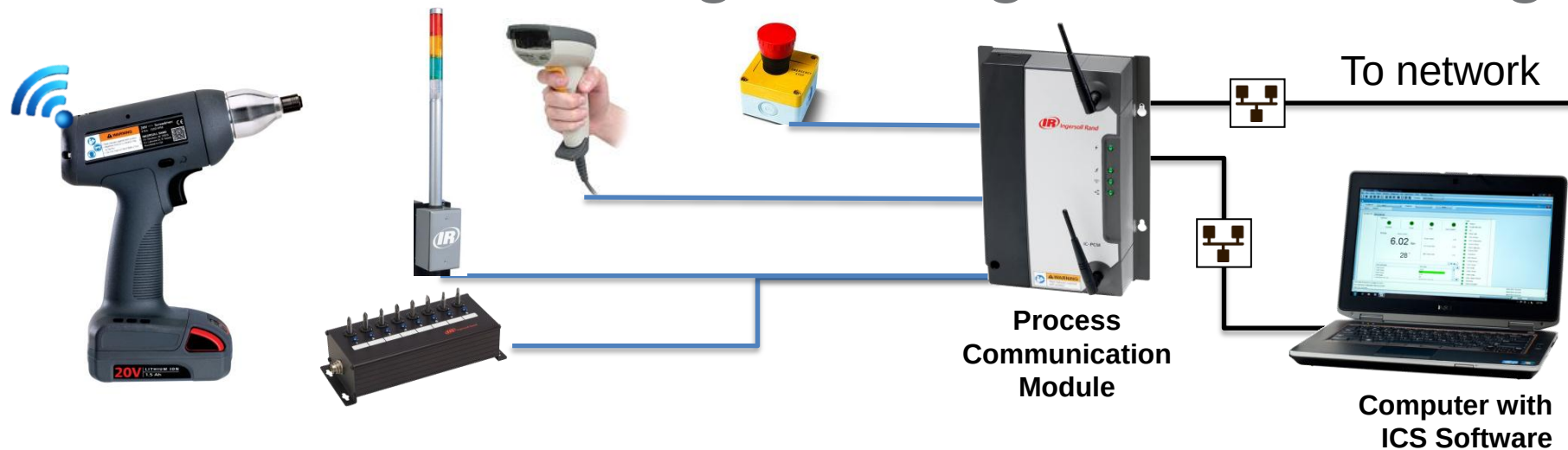
Multi-Tool System and Wireless Programming and Monitoring



- All advanced tightening strategies can be programmed.
- Wireless programming through the Process Communication Module connected to a computer using the ICS Connect software installed on a computer.
- Up to 8 different fastening configurations can be programmed for each tool.
- Up to 10 remote tools can be programmed and monitored wirelessly.
- Cycle data stored on the tool (up to 1200 cycles) can be retrieved to a computer equipped with ICS Connect.



Single-Tool System and Wireless Programming and Monitoring



- All advanced tightening strategies can be programmed.
- Wireless programming through the Process Communication Module connected to a computer using the ICS Connect software installed on a computer.
- Up to 8 different fastening configurations can be programmed for each tool.
- Only 1 remote tool can be programmed and monitored wirelessly.
- Cycle data stored on the tool (up to 1200 cycles) can be retrieved to a computer equipped with ICS Connect.



Fastening Strategies

- **Torque Control**
20% to 100% with angle monitoring
- **Angle Control**
with torque monitoring
- **Prevailing Torque**
- **Adjustable Speed**
10% to 100%
- **Multiple Configuration Setting**
Replace up to 8 tools with only 1 cordless





Process Communication Module





PCM Usage Options

1 to 1 Wireless

- 1 QXX tool to 1 PCM
- Ethernet end-of-run
- 8 I/O (inputs/outputs)
- Fieldbus cards
- Serial port for
 - Bar code scanner
 - Printer



10 to 1 Wireless

- Up to 10 QXX tools to 1 PCM
- Data pass through
- Ethernet end-of-run



PCM Usage Options

		IC-PCM-2-EU	
Main Power Supply	84737-A499-PCM-5V (supplied)	•	•
	100-240 V AC input - 5V DC output		
Tool Connections	Wireless tool connections	1	Up to 10
Software	ICS Connect	•	•
Communication	Ethernet to ICS	•	•
	Ethernet / IP, DeviceNet		
Fieldbus Options	Interbus-S, Profibus	•	
	Modbus-TCP		
Protocols	Open Protocol, Ethernet EOR, Serial EOR	•	
Printers/Devices	Serial RS 232, Bar code, Label printing	•	
I/O	8 inputs / 8 outputs		
	with behavior assignable through ICS software, operates at 24 V DC	•	
I/O Power Supply	84737-A499-PCM-24V (supplied)	•	
	100-240 V AC input - 24V DC output		
Indicators	Power ON, System Ready	•	•
	Wireless Activity, Ethernet Activity		



Process Communication Module





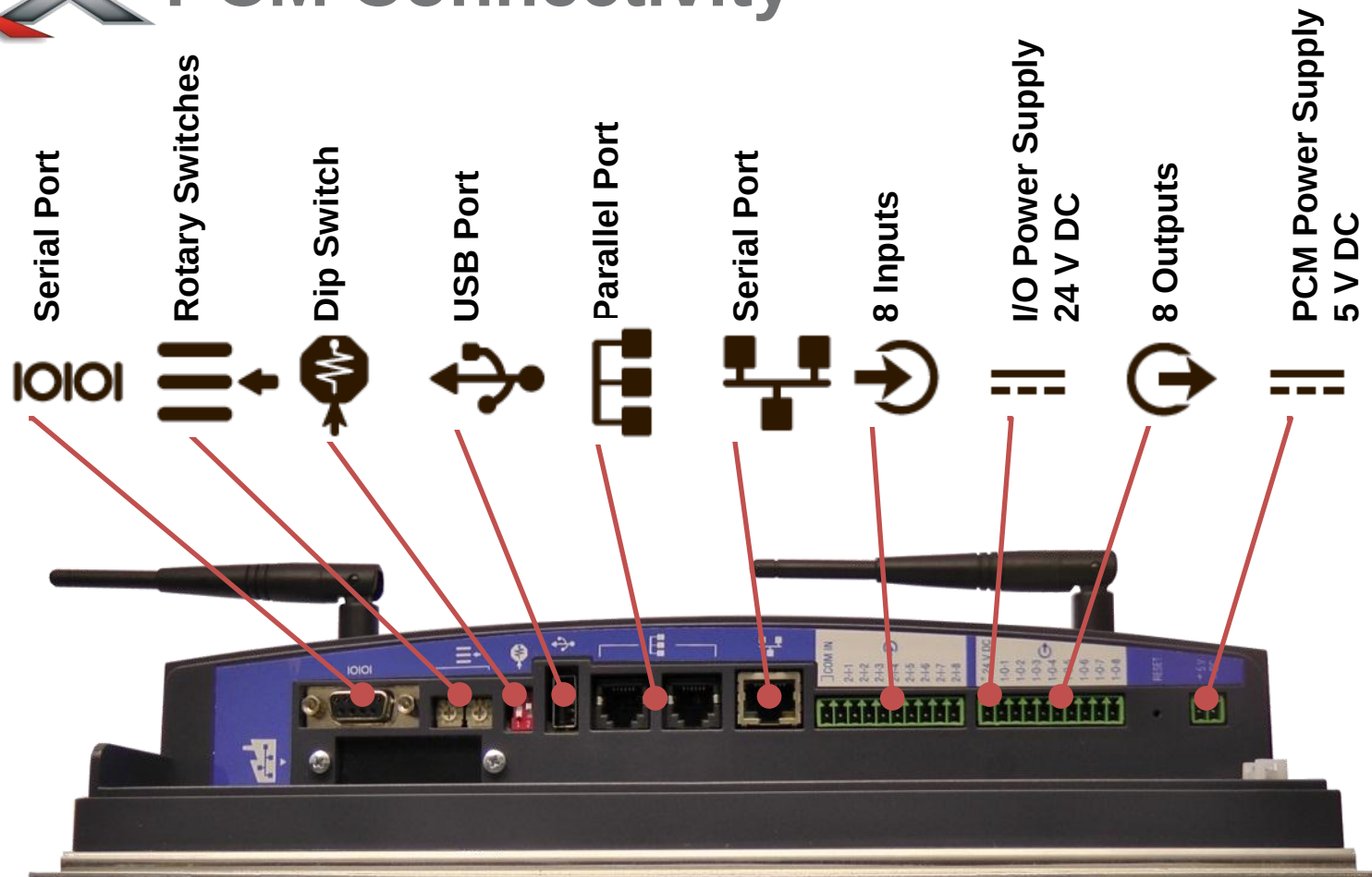
PCM Specifications

- **PCM to tool distance** < 30 m
- **Ambient Operating Conditions:** 0 - 50°C
20 - 90% non-condensing humidity
- **Enclosure:** IP52
mounted in upright vertical position
- **System Weight:** 1.4 kg (2.0 lb)
- **Overall Dimensions:** 291 x 103 x 210 mm
11.5 x 4.1 x 8.3 in
- **PCM Power Supply:** 5 V DC
84737-A499-PCM-5V
- **I/O Power Supply:** 24 V DC
84737-A499-PCM-24V



Process Communication Module

DX SERIES PCM Connectivity



Accessories

- Take advantage of our extensive line of accessories to optimize your assembly operations and maximize your productivity.



Sockets



Tool Boot
VP1-Boot
48411292



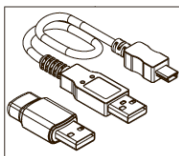
Auxiliary Handle
VP1-A48
47107263



Suspension Bale
VP1-365
48382147



Spring Balancer
BMDS-2
92842152



Communication Kit
84737-Comm-Kit
48414460



Bit Selector Tray
IC-BIT-8
45637113



Socket Selector Tray
IC-SOCKET-8
45473006



Selector Tray Cables



Torque Tester 1.2-12 Nm
EXTT-12
45654068

Ordering

- All QX Series Precision Cordless Screwdrivers will only be available for sale as single tools (without batteries and charger sold separately)



Precision Fastening Price List**EUR**

- **QXC models**
(without wireless communication) **1 350.00**
- **QXX models**
(with wireless communication) **1 550.00**
- **IC-PCM-2-EU** (24119638)
Process Communication Module **1 950.00**

Accessories

- **BC1120-EU** (17028960)
Universal Battery Charger **99.00**
- **BL2005** (48386783)
20 V, 1.5 Ah Li-ion battery **140.00**
- **BL2010** (48386791)
20 V, 3.0 Ah Li-ion battery **200.00**

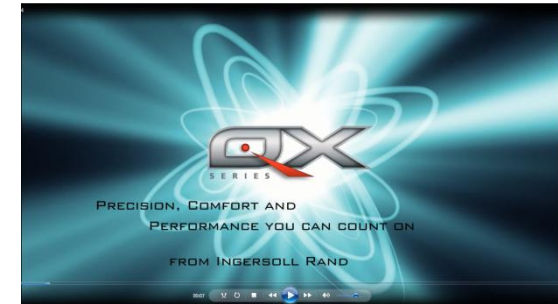
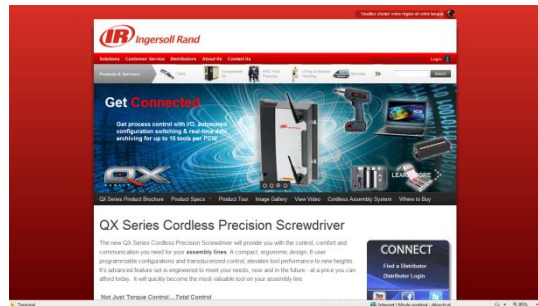


Tool Stocking Policy

Tool models stocked and forecasted (MTS class)	Initial Stock
➤ QXC2PT04PQ4 - 4 Nm, 1/4" hex, w/o wireless	28
➤ QXX2PT04PQ4 - 4 Nm, 1/4" hex, with wireless	33
➤ QXC2PT08PQ4 - 8 Nm, 1/4" hex, w/o wireless	74
➤ QXX2PT08PQ4 - 8 Nm, 1/4" hex, with wireless	53
➤ QXC2PT12PQ4 - 12 Nm, 1/4" hex, w/o wireless	74
➤ QXX2PT12PQ4 - 12 Nm, 1/4" hex, with wireless	86
➤ QXC2PT12PS6 - 12 Nm, 3/8" sq. dr., w/o wireless	44
➤ QXX2PT12PS6 - 12 Nm, 3/8" sq. dr., with wireless	28
➤ IC-PCM-2-EU - Process Communication Module	79
➤ Other tool models are not stocked but can be ordered with full lead-time.	

QX SERIES Marketing Support

- Product range brochure (4-page) (EN, DE and more languages to come)
- Product data sheet for each model (EN, FR, DE and more to come)
- Product images
- QX Series tool and accessory price list
- Video
- Interactive product tour
- Internet Page





Aftermarket

	1 Year ⁽¹⁾	2 Years ⁽²⁾	3 Years ⁽³⁾
QX Series Tools	Replace or Repair	-	-
PCM	Replace or Repair	-	-
IQ ^{V20} Charger	Replacement	Replace or Repair	Replace or Repair
BL2005 Battery	Replacement	-	-
BL2010 Battery	Replacement	Replacement	-

1. One (1) year from the original date of end-user purchase or 18 months from the date stamp on battery in absence of proof of purchase.
2. Two (2) years from the original date of end-user purchase or 30 months from the date stamp on battery in absence of proof of purchase.
3. Three (3) years from the original date of end-user purchase or 42 months from the date stamp on battery in absence of proof of purchase.

➤ Until end-of June 2013 all major failures should be reported to product management and upon assessment returned to the designated Solution Center.

Product Support

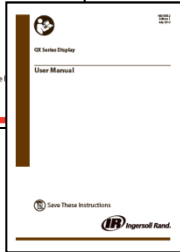
QX SERIES SCREWDRIVERS



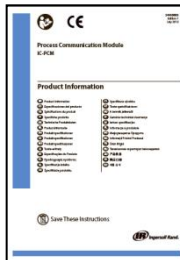
**Product Manual
47104286**



**Parts Manual
47104294**

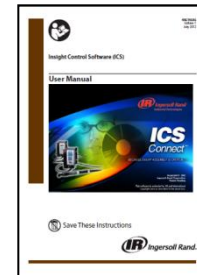


**User Manual
48619852**



**Product Manual
24058885**

ICS SOFTWARE



**User Manual
48619696**

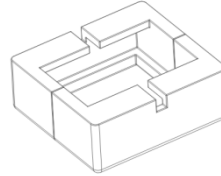
www.irtechpubs.com



Service Equipment



Bearing Nut Tool
VP1-00003



Gear Case Holding Fixture
VP1-0004

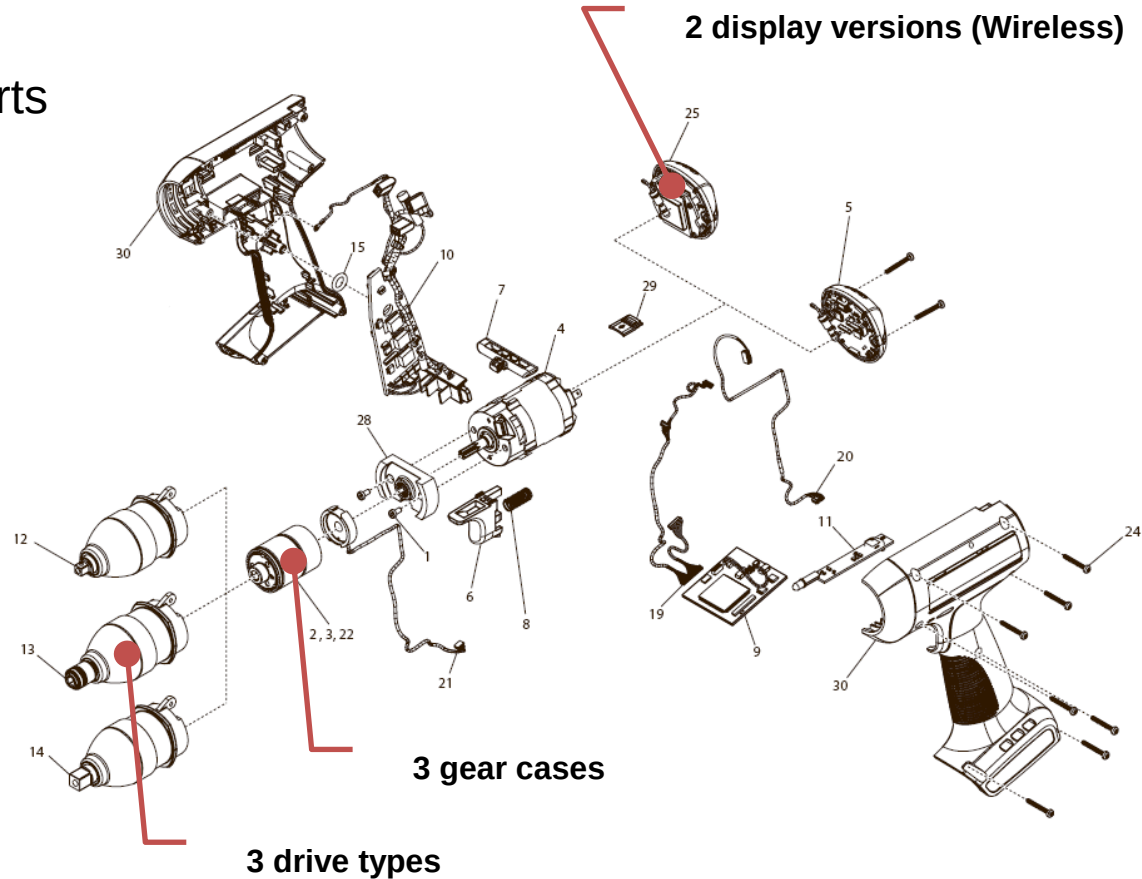


Torque Tester 1.2-12 Nm
EXTT-12

- **2 Nm torque screwdriver** for housing and motor mount screws.
- **T10 Torx® bit** for housing screws.
- **2 mm Allen® wrench** for motor mount screws.
- **Needle nose pliers** for accessing connectors.
- **Nylon pick** for O-rings, wires, etc.
- **3/8" square drive 20 Nm torque wrench** for gear case housing nut.

QX Parts

- Only 30 different service parts for all QX Series models.
- Only 18 main components (excluding hardware and labels).





Sales, Programming, Service Trainings

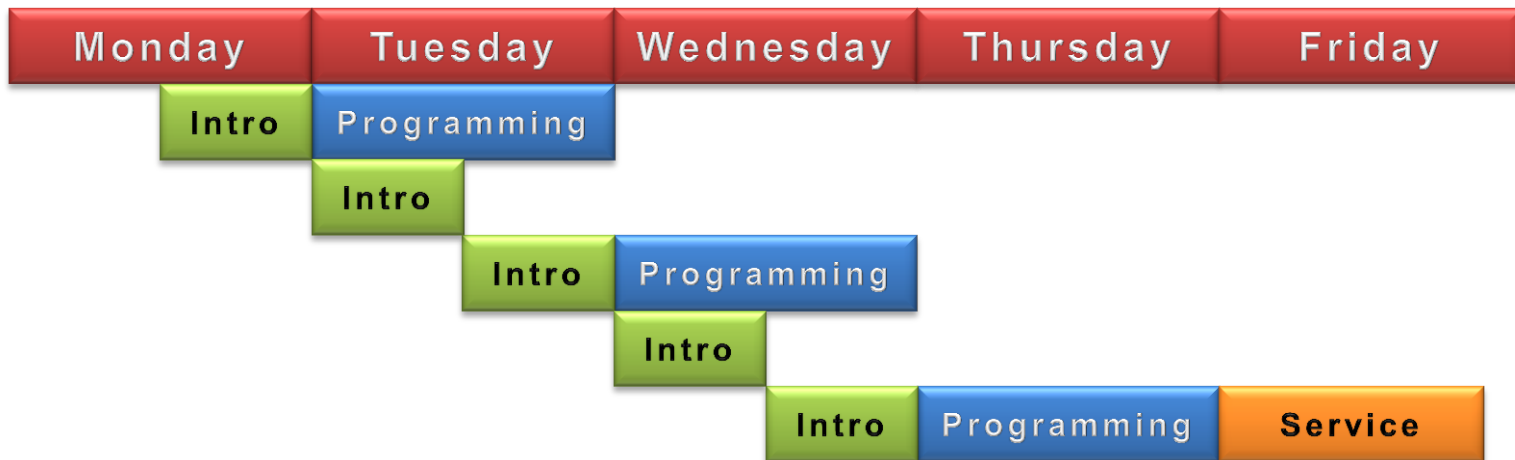
Course 1

Course 2

Course 3

Course 4

Course 5



- **Introduction** (1/2 day): sales & marketing training covering tool design, feature & benefits, pricing and overview of on-tool basic programming.
- **Programming** (1 day): hands-on basic on-tool programming, and programming with ICS connect through USB and wireless.
- **Service** (3/4 day): hands-on tool servicing and calibration.



Sales, Programming, Service Trainings

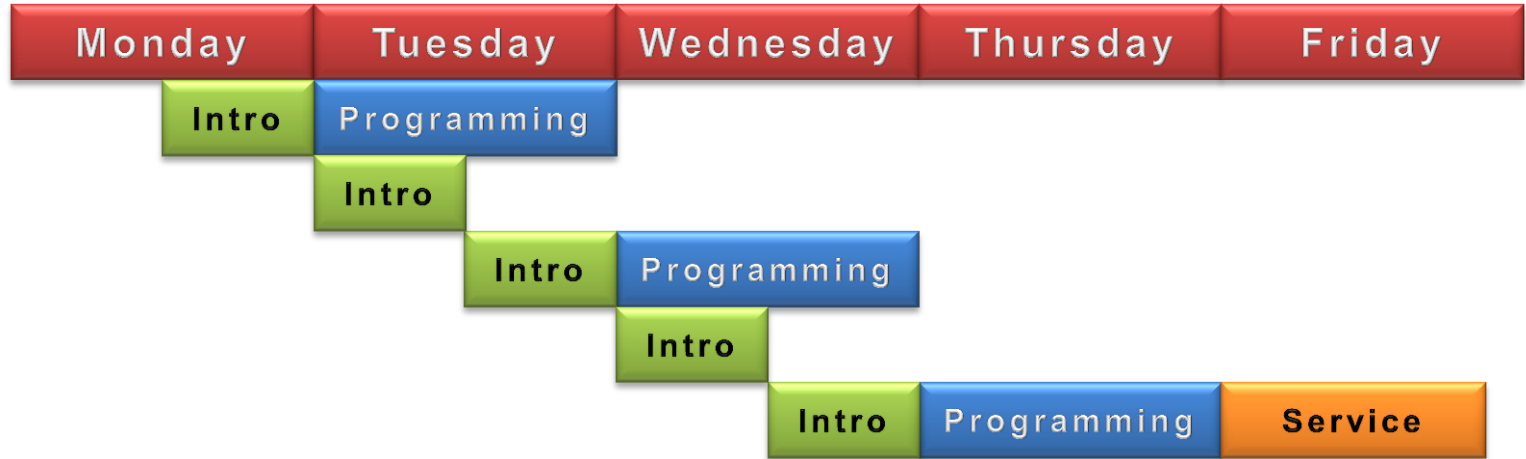
Course 1

Course 2

Course 3

Course 4

Course 5



- **Course 1 & 3** for specialized assembly market distributors and Ingersoll Rand sales people (maximum 10 participants per course)
- **Course 2 & 4** for general industry distributors and sales people (maximum 20 participants per course)
- **Course 5** for specialized assembly market distributors and their service technicians (maximum 10 participants)



Programming



Programming and Operation

- There are 3 ways to program the QX Series Precision Cordless Screwdrivers.

1. Onboard Display Module
2. ICS-Connect Software via USB Cable
3. ICS-Connect Software via Wireless PCM

1



2



3





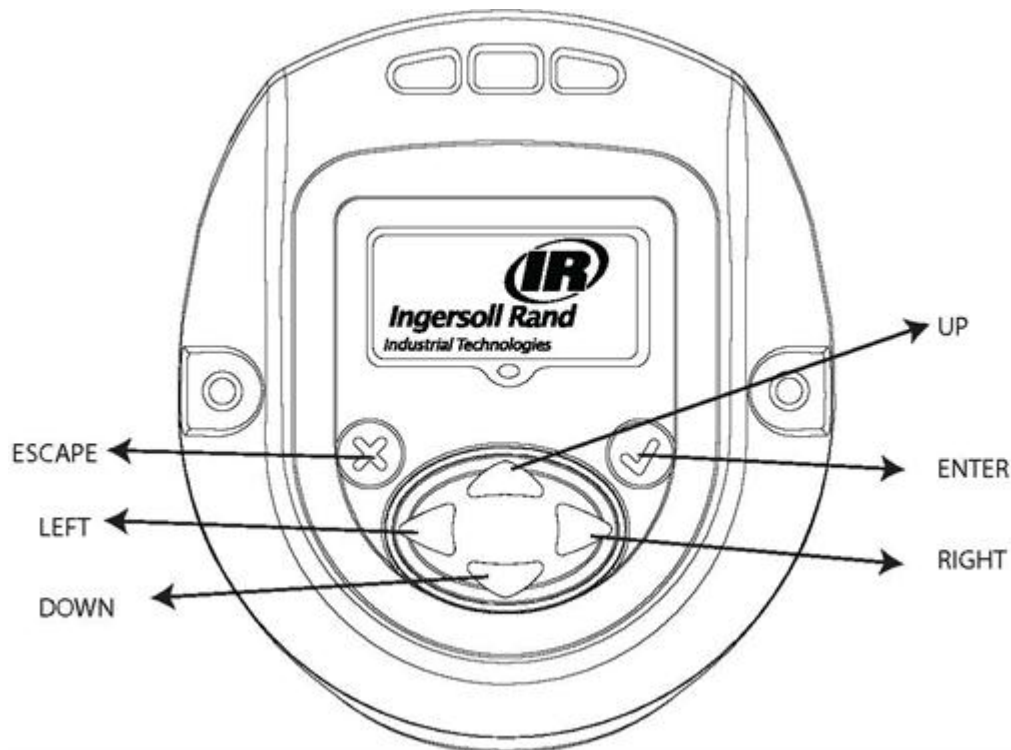
Main Run Screens





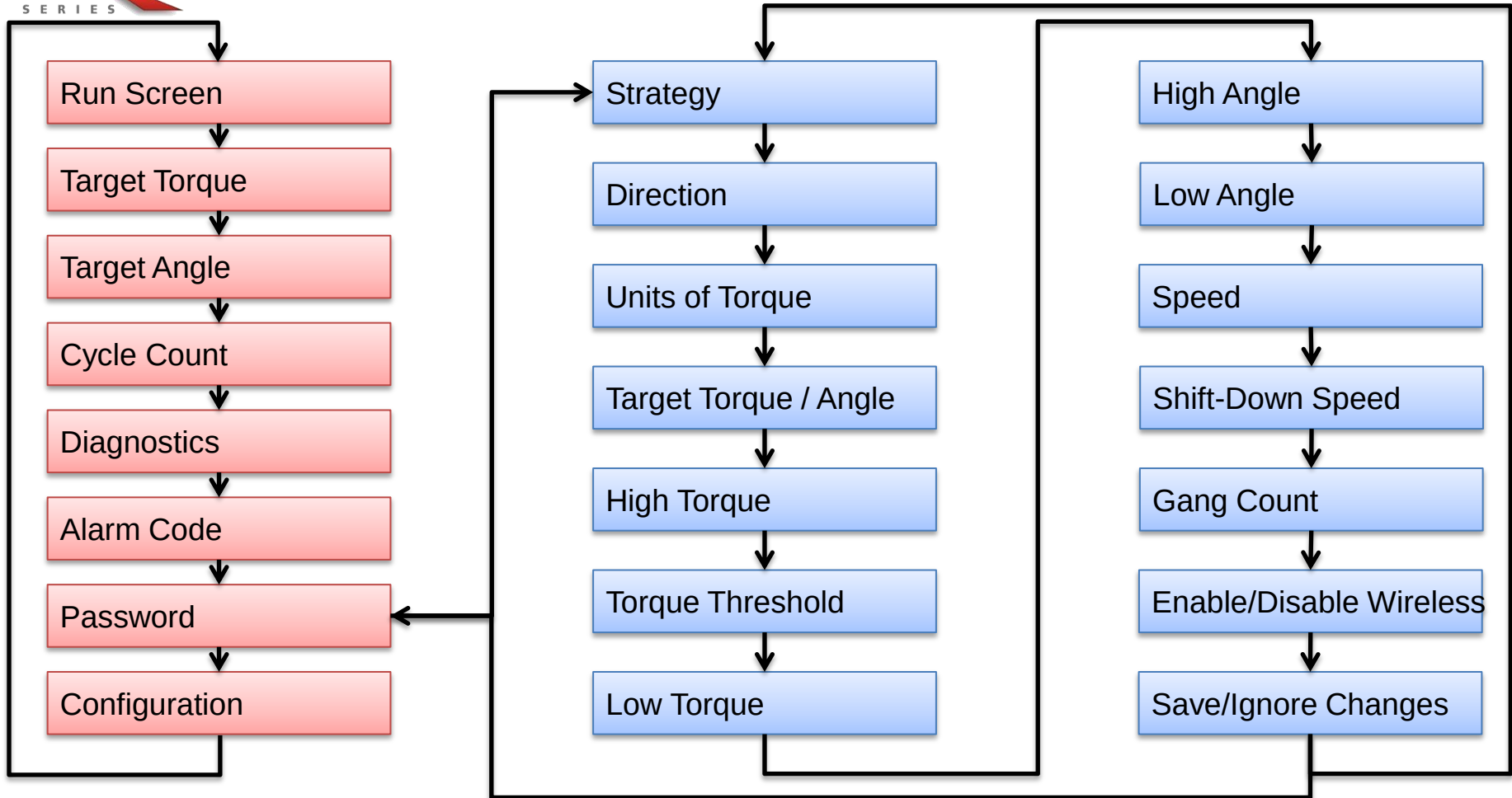
Tool Backcap Buttons

Symbol	Function
	Escape / Exit
	Enter / Edit
	UP
	DOWN
	RIGHT
	LEFT





Programming Menu Map



Main Run Screen

- Primary Display:
 - Latest peak torque (for a torque strategy) or
 - latest peak angle (for an angle strategy), with units
- Secondary display on left:
 - cycle count or
 - gang count, if gang count is programmed
- Secondary display on right:
 - Active fastening configuration number





Torque Setting

- Primary Display:
 - Target torque

- Secondary display on left:
 - Lower torque limit

- Secondary display on right:
 - Upper torque limit

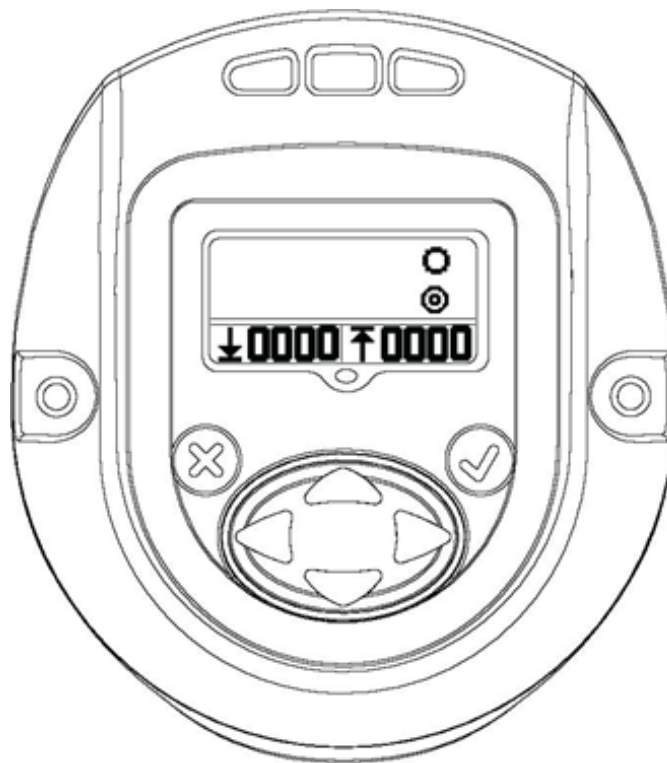


Angle Setting

- Primary Display:
 - Target angle

- Secondary display on left:
 - Lower angle limit

- Secondary display on right:
 - Upper angle limit



QX Cycle Count

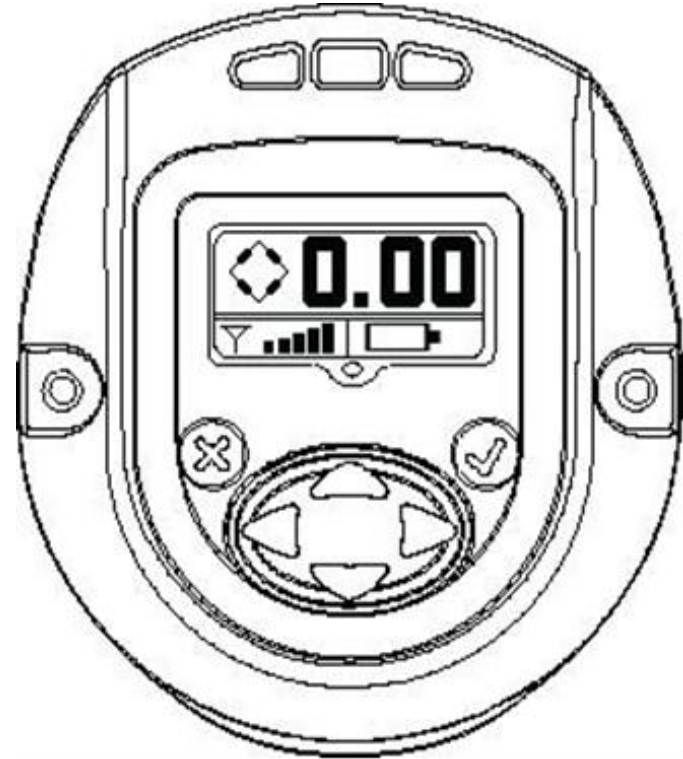
- This value shows number of cycles run by the QX Series tool, since the last time it was changed.
- With the tool unlocked, press 'ENTER' key to edit this screen. Press either the 'UP' or 'DOWN' key to clear the cycle count. For this change to be retained a cycle must be run before removing power to the tool. Otherwise, the old cycle count is restored.





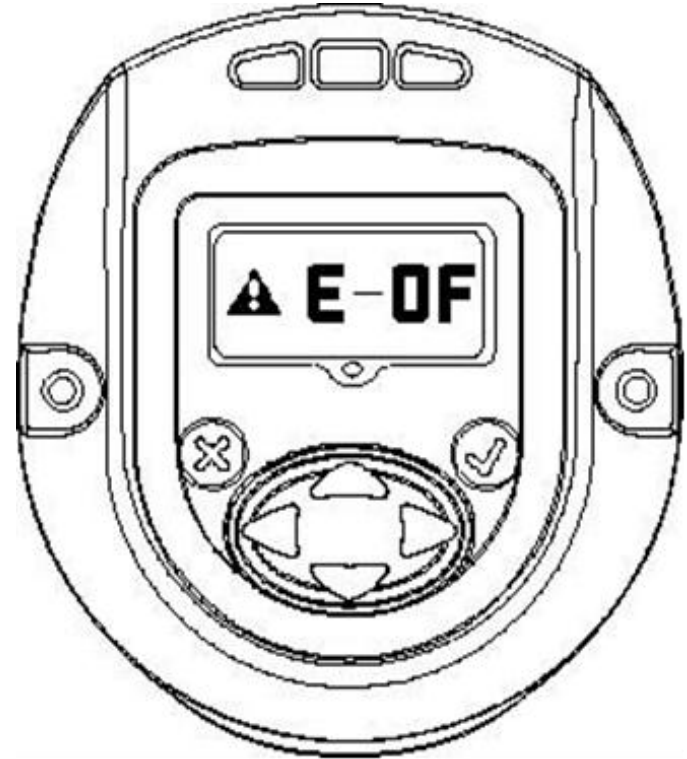
Shunt Calibration, RF Signal, Battery

- Primary Display:
 - Shunt calibration value
- Secondary display on left:
 - Wireless signal strength (if activated)
- Secondary display on right:
 - Battery charge level



Warning Screen

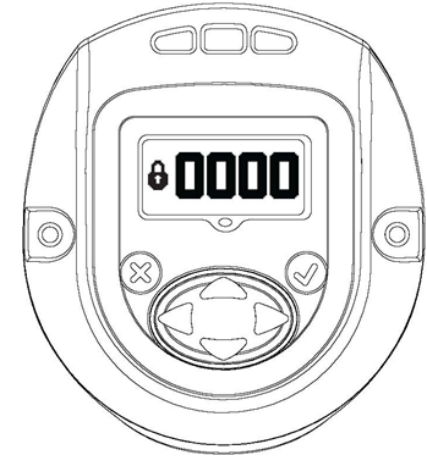
- Error code display
- Refer to the error code list provided in the QX Series User Manual



QX Password

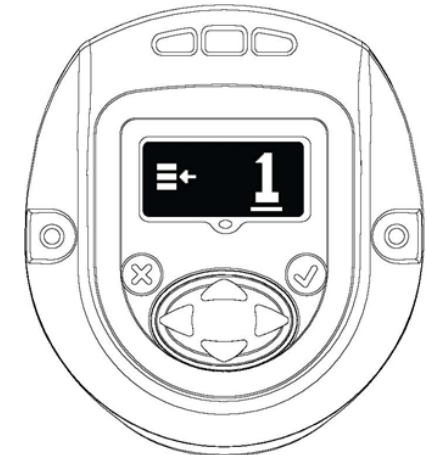
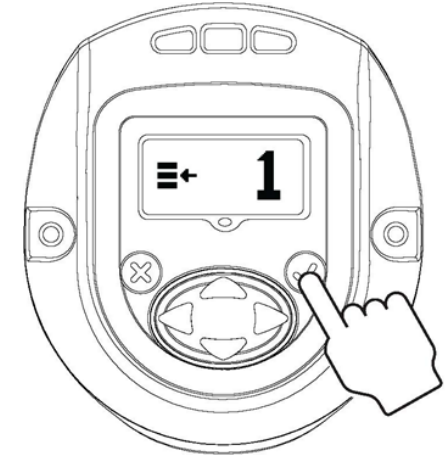
SERIES

- The password screen shows whether the display is locked or unlocked. If the display is locked the parameters of the QX Series tool cannot be edited.
- Password can be changed by entering into “EDIT MODE” and using “UP” or “DOWN” key.
- If “FFFF” is entered on the Password screen, the user may use the left arrow to go to the Tool ID and software version page



DX Configuration

- Screen shows Configuration setting used in the tool
- NOTE: Only Configuration 1 can be programmed through the display module
- Pressing “ENTER” will enable the “EDIT MODE” (This procedure to enter “EDIT MODE” is same for all settings update)
- “UP” or “DOWN” key can be used to update the configuration. Pressing “ENTER” again will select the modified configuration.





On-Tool Programming



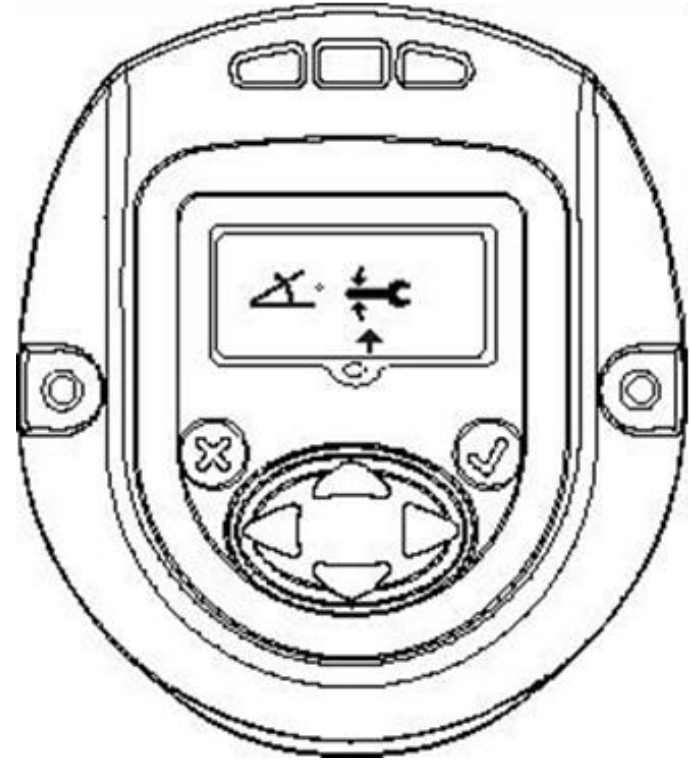
DX Password

SERIES

- Enter "FFFF" to unlock the tool.
- RIGHT key to enter tool configuration menu.



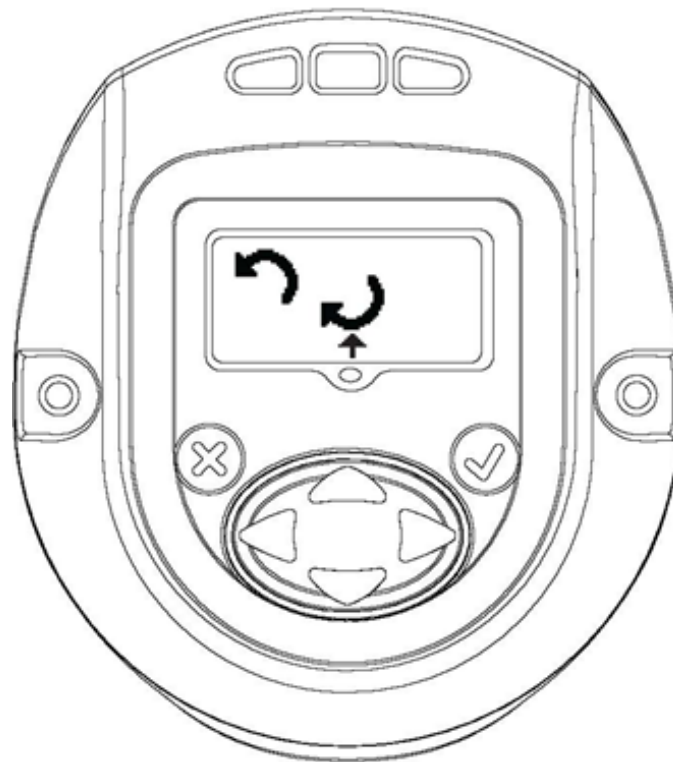
- This screen indicates configuration strategy being used.
- Left – Angle, Right – Torque
- The pointing arrow indicates the present configuration being used.
- This can be changed by entering “EDIT MODE” and using “RIGHT” or “LEFT” key





Direction of Rotation

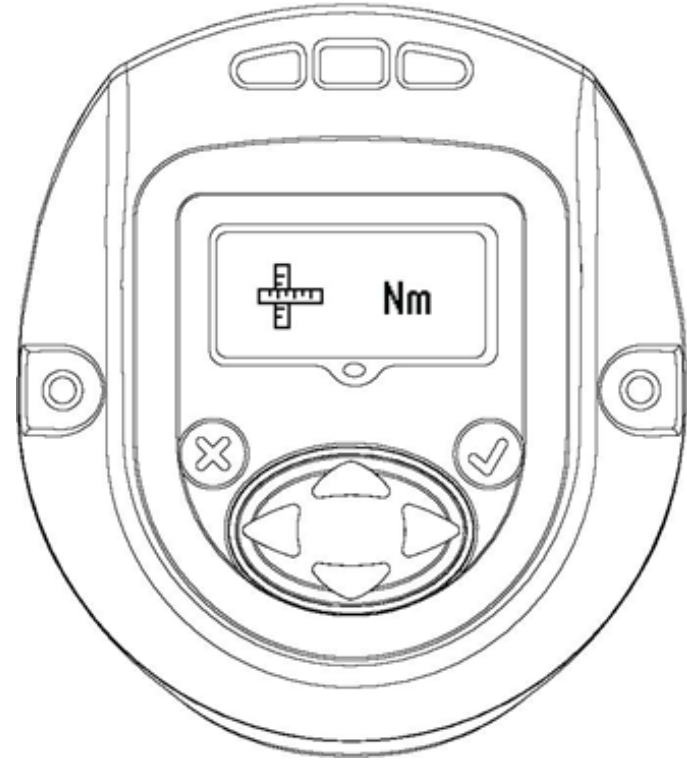
- Image shows direction of rotation in which the QX Series tool rotates.
- ↺ indicates counter clockwise rotation
- ↻ indicates clock wise rotation
- This can be changed by entering “EDIT MODE” Key and updating using “RIGHT” or “LEFT” key





Unit of Torque

- Indicates unit of the Torque displayed in Configuration 1 (Nm, inlb, ftlb, dNm)
- This can be changed by entering “EDIT MODE” and updating using “UP” or “DOWN” key.



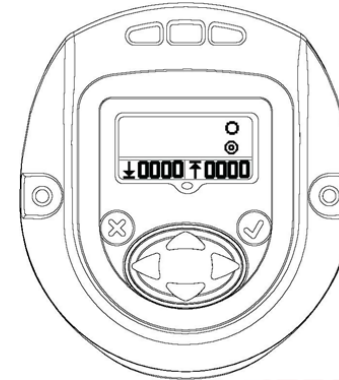


Target Torque / Angle

- Primary display:
 - Target Torque
- Secondary Display on left:
 - Lower torque limit
 - Default: 80% of target torque
- Secondary Display on right:
 - Higher torque limit
 - Default: 120% of target torque



- Primary display – Target Angle
- Secondary Display on left – Angle low (default: 90% of target torque)
- Secondary Display on right - Angle High (default: 110% of target torque)

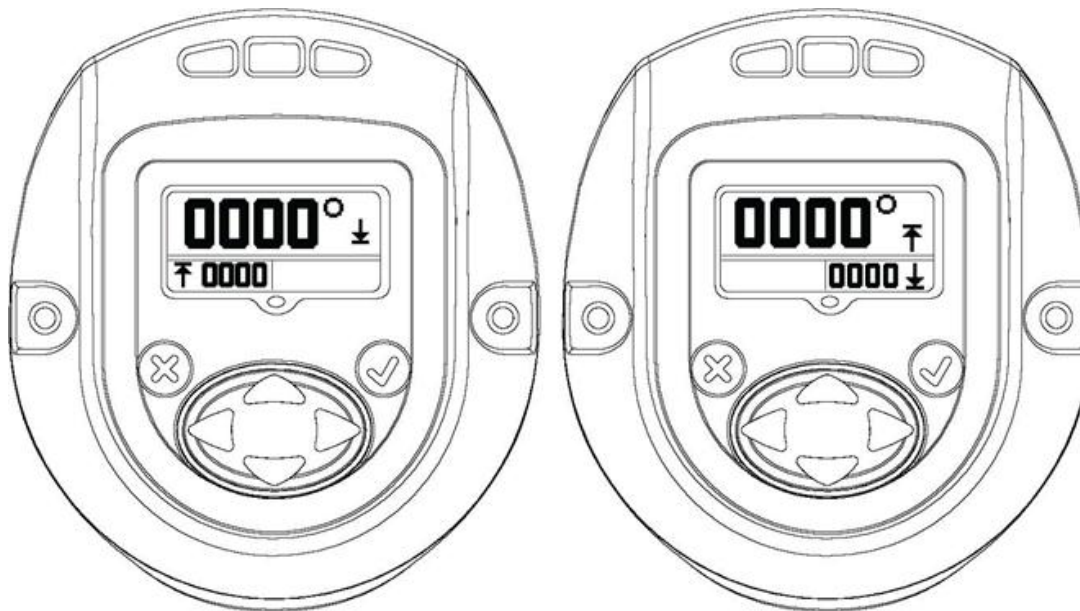


- Torque “LOW” Display
- Torque “LOW” can be modified in this mode by entering “EDIT” mode and using “UP” or “DOWN” key.



- Torque “HIGH” Display
- Torque “HIGH” can be modified in this mode by entering “EDIT” mode and using “UP” or “DOWN” key.





- Angle “LOW” Display
- Angle “LOW” can be modified in this mode by entering “EDIT” mode and using “UP or “DOWN” key.

- Angle “HIGH” Display
- Angle “HIGH” can be modified in this mode by entering “EDIT” mode and using “UP or “DOWN” key.



Torque Threshold

- The Torque at which reading of the angle will be started. The value can be edited by entering “EDIT” mode and using “UP” and “DOWN” arrow.



Free Speed

- The below screen indicates free speed of the QX Series tool. The value can be edited by entering “EDIT” mode and using “UP” and “DOWN” arrow. The programmed speed is a percentage of tool maximum speed.





Shiftdown Point Config

- This screen indicates “Torque Threshold for shiftdown point”. This can be changed by entering “EDIT MODE” and updating using “UP” or “DOWN” key.





Shiftdown Speed

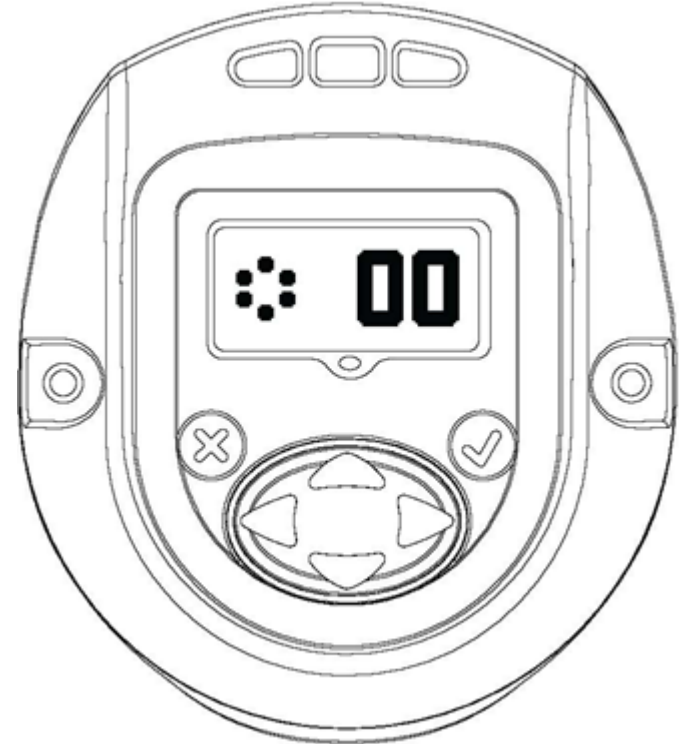
- This screen indicates shiftdown speed of the QX Series tool. Shiftdown speed can be edited by entering “EDIT MODE” and updating using UP and DOWN arrow.





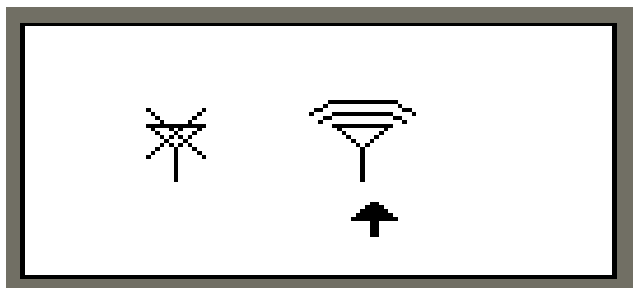
Gang Count

- The screen shows the gang count number of bolts to be fastened per Group, Gang, or Set for Configuration 1.
- This can be modified by entering “EDIT MODE”.





Wireless Enabled/Disabled



Wireless disabled



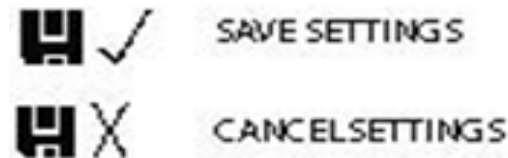
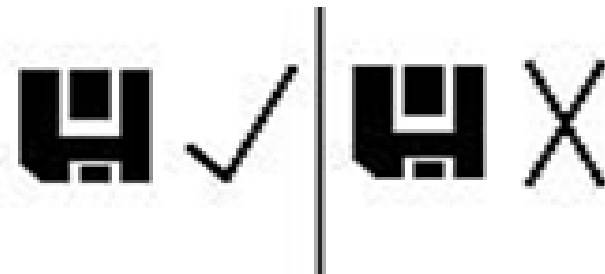
Wireless enabled

- This screen allows the user to enable or disable the wireless module.
- The selection on the left disables the wireless module and the selection on the right enables the wireless module.



Save/Ignore Setting

- After all the required changes are completed, Press enter to highlight the save settings box on the left. Press the right or left arrow key to select cancel on the right. Pressing enter a second time causes the tool to leave edit mode.





Programming with ICS

Insight Control Software

File Run Setup Status Statistics Diagnostic ICS Data Source View Window Help

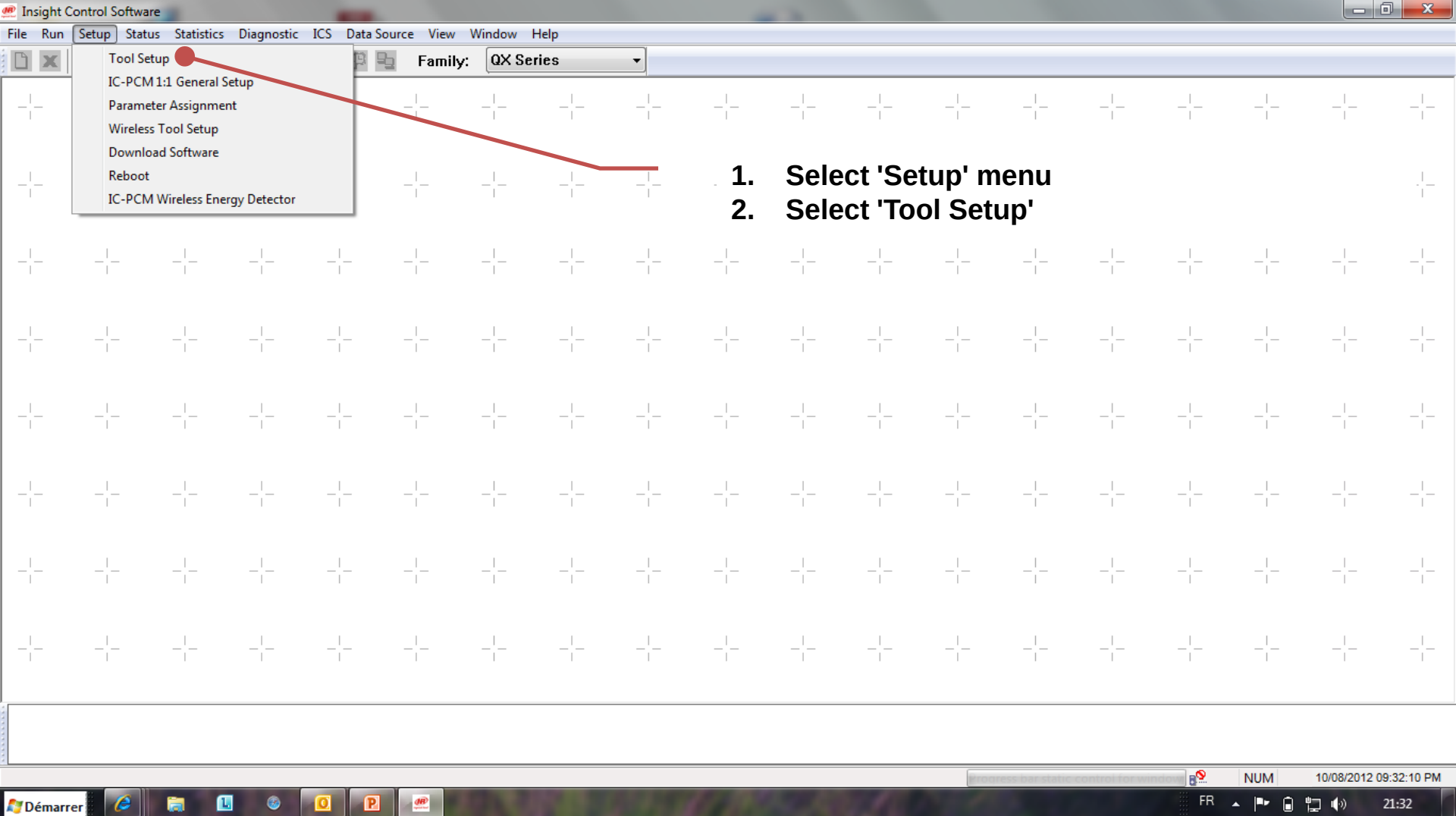
Family: QX Series

1. Select QX Series from the drop down list

Time Sync Success
Login Success for Port = 3
Tool Connection to Port no = 3 is Successful

10/02/2012 16:23:21
10/02/2012 16:23:12
10/02/2012 16:23:12

NUM 10/02/2012 04:29:36 PM
FR 16:29



Insight Control Software - QX Tool Setup - 3

File Run Setup Status Statistics Diagnostic ICS Data Source View Window Help

Family: QX Series

QX Tool Setup - 3

Location ID: 000:6 Config: 1

ConfigSet Name Source Network Date-TimeStamp

Tightening Configuration General Setup

Common Settings

Strategy: Torque

Torque Display Units: Nm

Gang Count: 0

Cycle Delay (sec): 0.00

Auto Increment: 0

Joint Type: Hard

Direction: ☒ CW ☐ CCW

Audible Alert: ☐ On ☒ Off

Socket Selection: Number: 0

Tool Max Torque: 12.00

Reset to: Assembly Complete

Disable Reverse

Reverse Speed (%): 100

Torque Settings

Target Torque	5.00	Angle High Limit (deg)	9999	Angle Low Limit (deg)	0
Torque Threshold for Counting Angle	2.50	Torque High Limit	6.00	Torque Low Limit	4.00
Torque Threshold for Shift down	0.05	Step Timeout (sec)	15	Acceleration (%)	100
Free Speed (%)	50	Shiftdown Speed (%)	20		

Get Tightening Configuration Data Successful

Get Tightening Configuration Data Successful

Get General SetupData Successful

10/02/2012 16:37:24

10/02/2012 16:36:48

10/02/2012 16:36:14

NUM 10/02/2012 04:37:29 PM

FR 16:37

1. Select tool to be
(connected via USB or PCM)

2. Select configuration to be
programmed

Location ID  000:6

Config 1

ConfigSet Name

Source

Network

Date-TimeStamp

Tightening Configuration

General Setup

Common Settings

Strategy

Torque

Torque Display Units

Nm

Gang Count

0

Cycle Delay (sec)

0.00

Auto Increment

0

Joint Type

Hard

Direction

☒ CW☐ CCW

Tool Max Torque: 12.00

Audible Alert

☐ On☒ Off

Reset to

☐ Assembly Complete☐ Disable Reverse

Reverse Speed (%)

100

Socket Selection

Number

0

Torque Settings

Target Torque

5.00

Angle High Limit (deg)

9999

Angle Low Limit (deg)

0

Torque Threshold for Counting Angle

2.50

Torque High Limit

6.00

Torque Low Limit

4.00

Torque Threshold for Shift down

0.05

Step Timeout (sec)

15

Acceleration (%)

100

Free Speed (%)

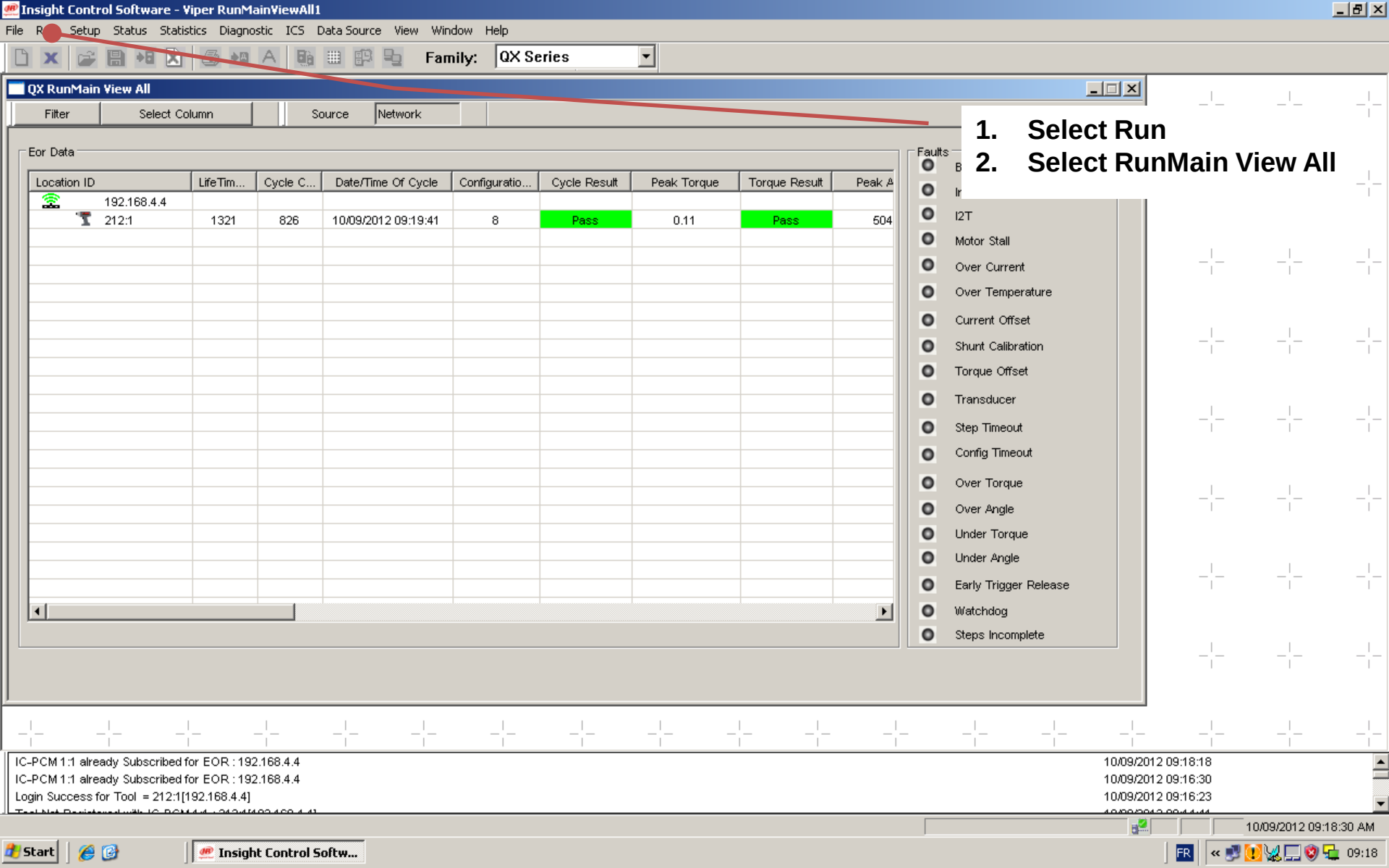
50

Shiftdown Speed (%)

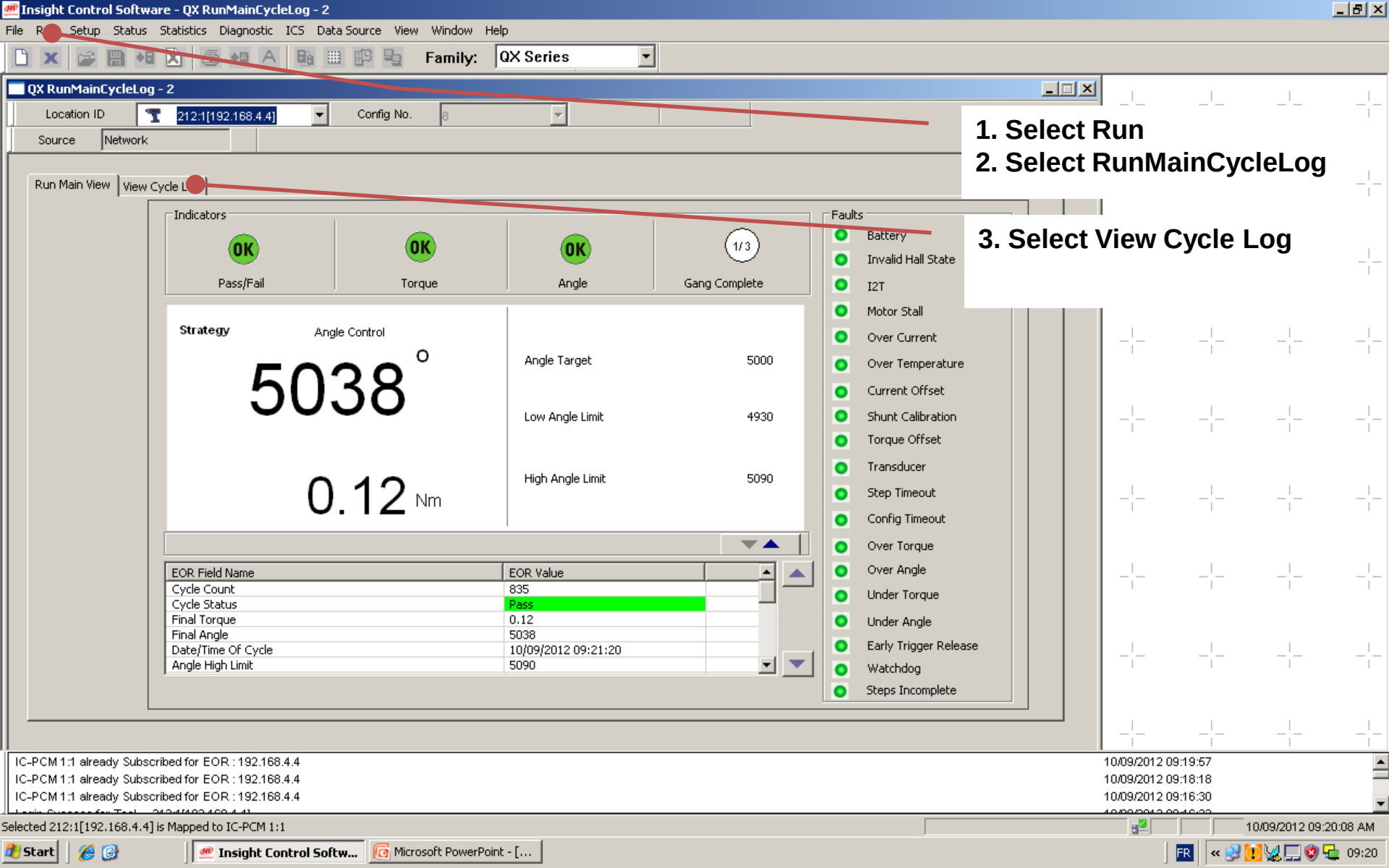
20



Process Monitoring with ICS



1. Select Run
2. Select RunMain View All



1. Select Run
2. Select RunMainCycleLog

3. Select View Cycle Log

