QX Tool Calibration

There are 3 methods for determining the calibration factor (TR) on a QX tool

Manual calculation of the TR value

1. Run 10 Pass cycles with a QX tool connected to some external Torque Measuring Device
2. Calculate the average torque from both the tool and the external device
3. Calculate the new TR value using the below equation

TR2 = (ET/IT)*TR1

TR2= New TR Value

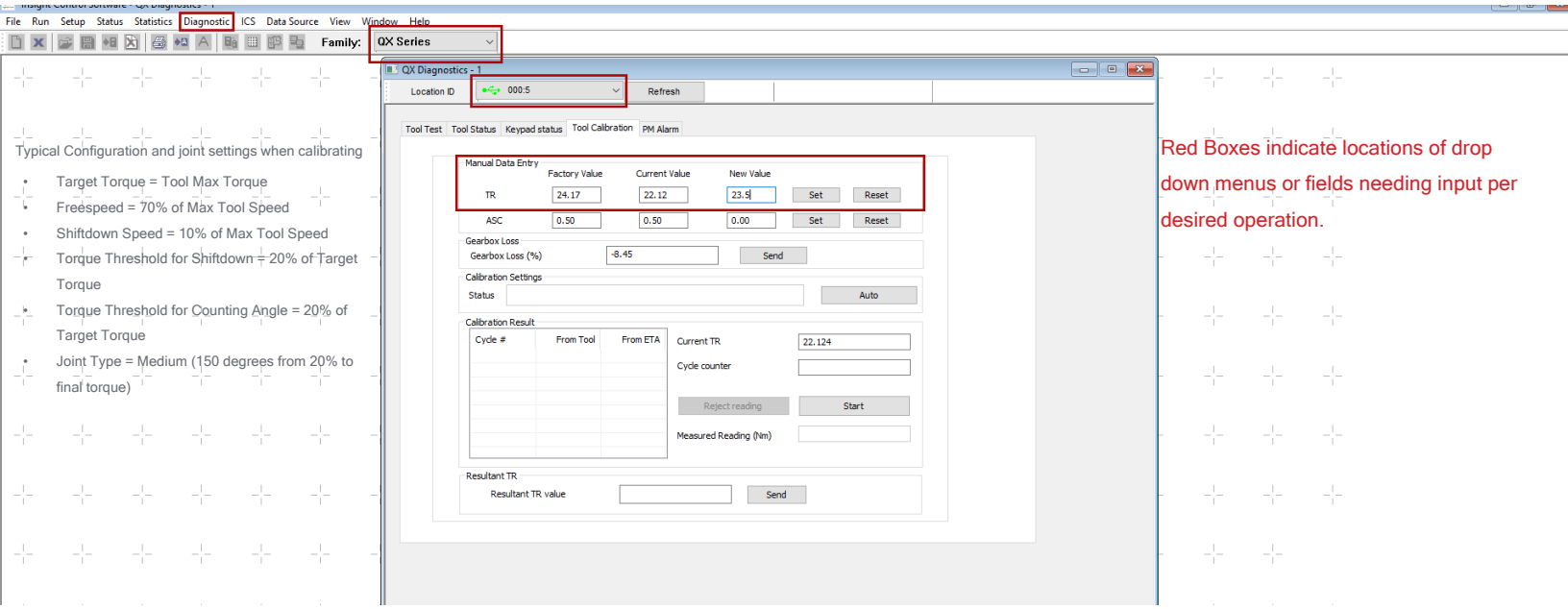
TR1= Default or Current TR Value

IT= Internal Measured Torque, Averaged over 10 cycles. Torque results output on the QX tool display

ET= External Measured Torque, Averaged over 10 cycles. Torque results output on EXTT/EXTA Torque Analyzer or other monitoring device

Once the New TR value is calculated

1. Connect QX Tool with a MICRO USB cable to the PC running ICS software.
2. Choose QX Series Family.
3. Open the Diagnostics->System Diagnostics Screen.
4. Select the Tool Calibration tab.
5. Select the tool from the Location ID drop box.
6. In the Manual Data Entry Table, enter a New Value for TR (Torque Calibration factor) or ASC (Angle Scaling Constant).
7. Select 'Set'.



Typical Configuration and joint settings when calibrating

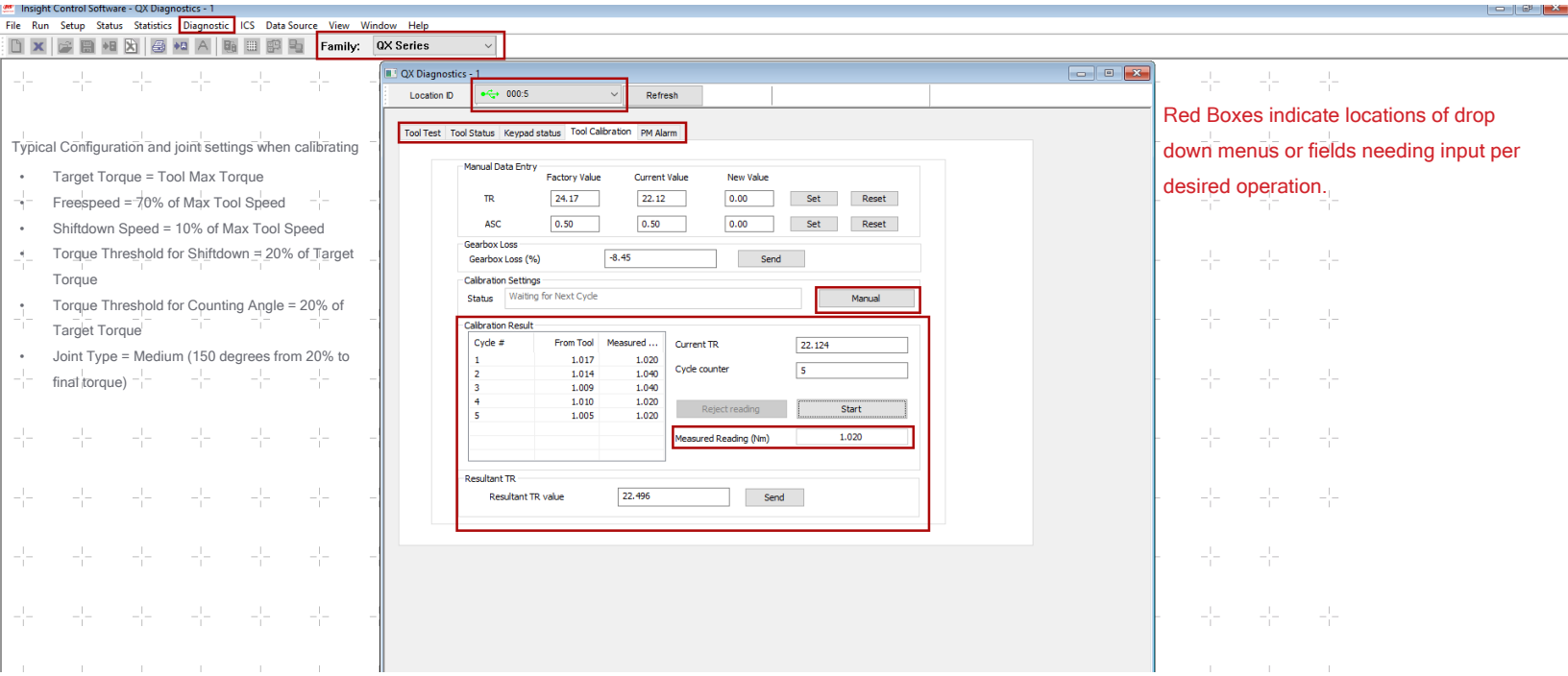
- Target Torque = Tool Max Torque
- Freespeed = 70% of Max Tool Speed
- Shiftdown Speed = 10% of Max Tool Speed
- Torque Threshold for Shiftdown = 20% of Target Torque
- Torque Threshold for Counting Angle = 20% of Target Torque
- Joint Type = Medium (150 degrees from 20% to final torque)

Red Boxes indicate locations of drop down menus or fields needing input per desired operation.

Ingersoll Rand

QX Manual Mode Calibration

1. Connect the QX Tool with a MICRO USB cable to the PC running ICS software.
2. Choose QX Series Family.
3. Open the Diagnostics->System Diagnostics Screen.
4. Select the Tool Calibration tab.
5. Select the tool from the Location ID drop box.
6. Click the ‘Auto’ button. It will change to Manual.
7. Click the ‘Start’ button.
8. Run a Pass cycle.
9. The QX tool torque will be populated in the Calibration Results table.
10. In the Measured Reading entry box enter the torque measured from the external torque transducer.
11. Press the ‘Tab’ key on PC keyboard or click the mouse on the Calibration Result table.
12. This will move the value from the Measure Reading entry box to the Calibration Result table.
13. Run the desired number of cycles and then select ‘Stop’
14. The Resultant TR value will be populated.
15. Click ‘Send’ to send this value to the tool.



Typical Configuration and joint settings when calibrating

- Target Torque = Tool Max Torque
- Freespeed = 70% of Max Tool Speed
- Shiftdown Speed = 10% of Max Tool Speed
- Torque Threshold for Shiftdown = 20% of Target Torque
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- Joint Type = Medium (150 degrees from 20% to final torque)

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Ingersoll Rand

QX Auto Mode Calibration

1. Connect an Ingersoll Rand EXTT or EXTA Torque Analyzer to the PC.
2. Choose QX Series Family.
3. From the ICS->Communication->Protocol Assignment->ETA screen set the desired Com Port for EXTT/EXTA communication.
4. From the ICS->Communication->Serial Settings screen verify the Com port settings.
5. Connect the QX Tool with a MICRO USB cable to the PC running ICS software.
6. Open the Diagnostics->System Diagnostics Screen.
7. Select the Tool Calibration tab.
8. Select the tool from the Location ID drop box.
9. Click the 'Start' button.
10. Run a Pass cycle on the EXTT joint adapter or on any joint with a transducer connected to the EXTA.
11. The QX tool torque and the EXTT/EXTA toque will be populated in the Calibration Results table.
12. Run the desired number of cycles and then select 'Stop'.
13. The Resultant TR value will be populated.
14. Click 'Send' to send this value to the tool.

Typical Configuration and joint settings when calibrating

- Target Torque = Tool Max Torque
- Freespeed = 70% of Max Tool Speed
- Shiftdown Speed = 10% of Max Tool Speed
- Torque Threshold for Shiftdown = 20% of Target Torque
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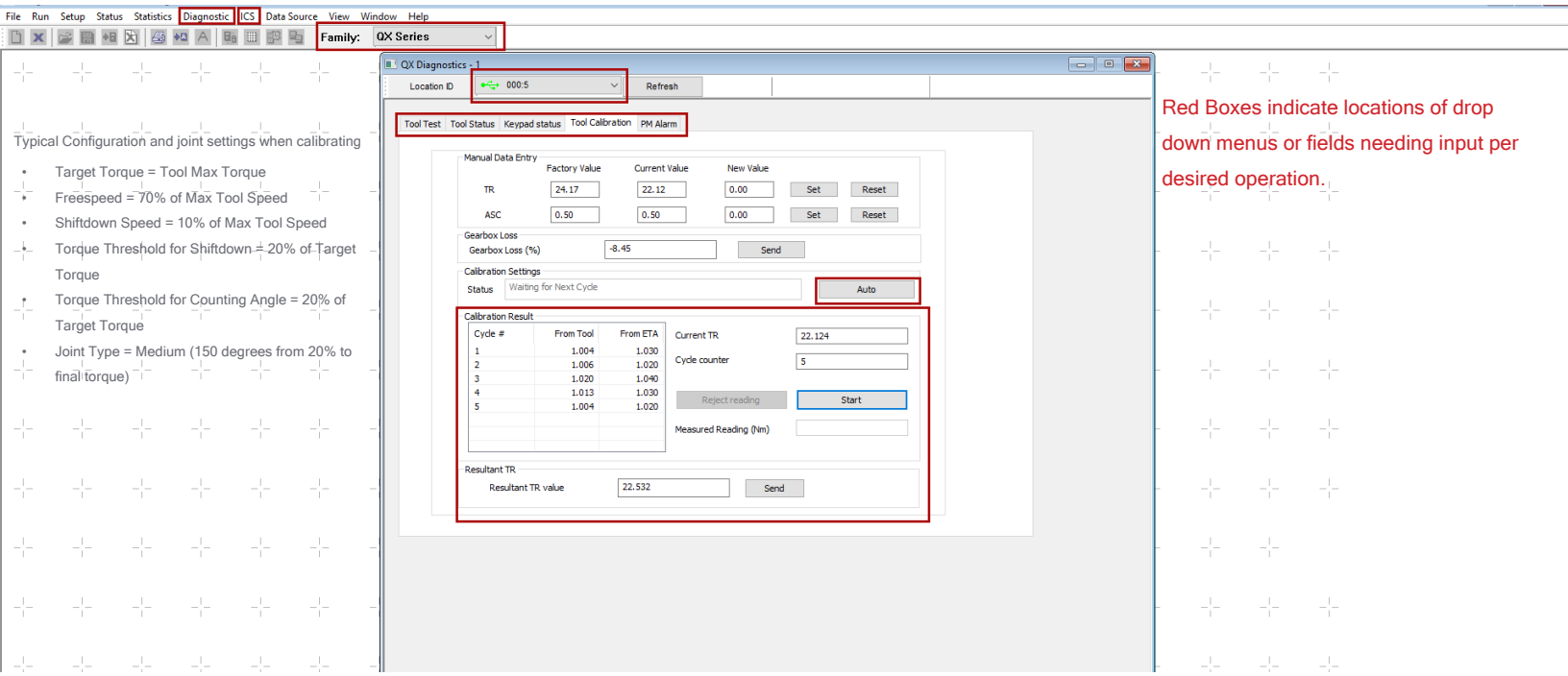

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