



CMC Driver for Open Protocol Torque Tools

The CMC Driver for Open Protocol Torque Tools provides LabVIEW programming and simulation support for torque tools that can communicate over Open Protocol. It is part of the CMC Driver Framework Torque Tools product family and includes a license to the CMC Open Protocol API.



- Automate *Your Assembly Process*
- Simulate *When Hardware is not Available*
- Customize *Your Torque Applications*
- Swap Tools *Whenever Necessary*
- No Changes *To Code for New Tools*

FUNCTIONALITY

- ✓ Torque Tool Simulation
- ✓ Functional Example
- ✓ Communication Start/Stop
- ✓ Communication Keep-Alive
- ✓ Enable/Disable Tool
- ✓ Subscribe to Tightening Results
- ✓ Subscribe to Linking Group Info
- ✓ IO Device Status
- ✓ Application Selection
- ✓ Multi-Spindle Results
- ✓ Error Reporting
- ✓ Many Related Functions

SUPPORTED HARDWARE

Any Torque Tool that supports
 Open Protocol: Atlas Copco Industrial
 Technique AB 9836441501 1.4 rev6.

TESTED HARDWARE

- ✓ Cleco mPro mPro400GC
- ✓ Cleco mPro mPro400GC(D)
- ✓ Desoutter CVI3 Vision
- ✓ Atlas Copco Power Focus 6000

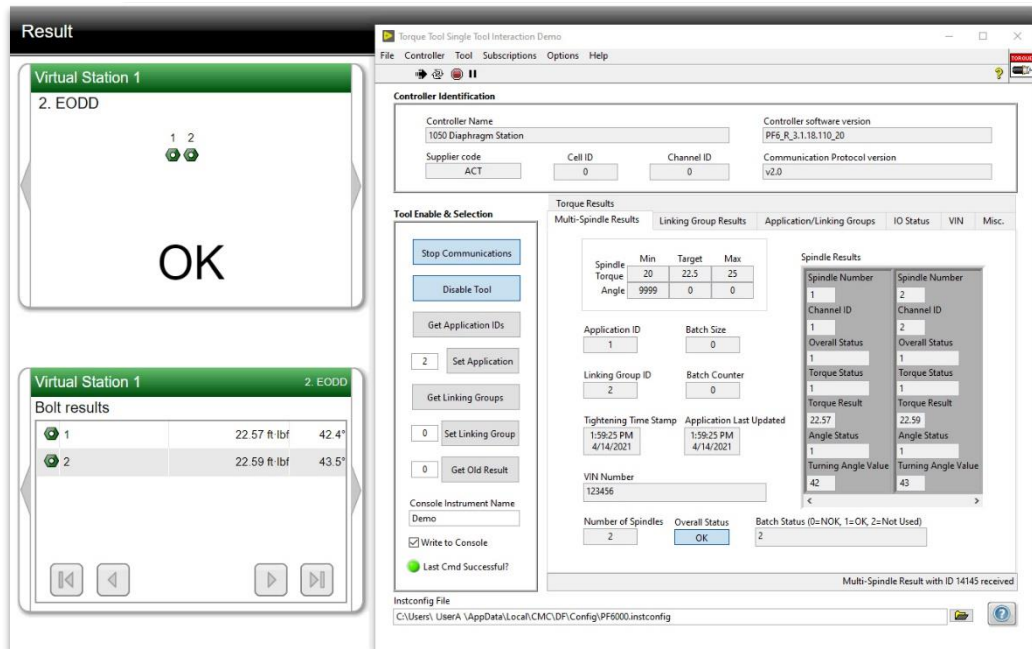


Figure 1. CMC Torque Tools Shipping Example Side-by-Side with Atlas Copco Virtual Station Results.

Full-Featured Example

Use the included full-featured, open source example to get up and running fast. Create your instrument configuration and immediately begin subscribing to torque results. View the code to get immediate insight into how to implement the same functionality in your own programs.

Torque Tools Simulation

The CMC Driver for Open Protocol Torque Tools includes a generic torque tool simulator that can be used to test and verify code without hardware connected. This enables you to develop while waiting for hardware to become available.

- Generates randomized torque results within your parameters
- Multi-spindle and standard torque results
- Application selection and retrieval
- Enable/disable tool
- Subscribe/unsubscribe to torque results
- Set/get linking groups
- Error condition reporting (i.e. attempting to select an Application that does not exist, etc.)
- View raw simulated communication strings

SUPPORTED MIDS

MID Name	MID #	Rev
Communication Start	0001	1
Communication Start Acknowledge	0002	1,2,3
Communication Stop	0003	1
Command Error	0004	1
Command Accepted	0005	1
Application Number Upload Request	0010	1
Application Numbers Upload Reply	0011	1
Application "Selected" Subscribe	0014	1
Application Selected	0015	1
Application Selected Acknowledge	0016	1
Application "Selected" Unsubscribe	0017	1
Select Application	0018	1
Linking Group Numbers Upload Request	0030	1
Linking Group Numbers Upload Reply	0031	1,2
Linking Group Data Upload Request	0032	1
Linking Group Data Upload Reply	0033	1,2,3
Linking Group Info/Selected Subscribe	0034	1
Linking Group/Selected Info	0035	1
Linking Group Info/Selected Acknowledge	0036	1
Linking Group Info/Selected Unsubscribe	0037	1
Select Linking Group	0038	1,2
Linking Group Restart	0039	1,2

MID Name	MID #	Rev
Tool Data Upload Request	0040	1
Tool Data Upload	0041	1,2
Disable Tool	0042	1
Enable Tool	0043	1
Vehicle ID Number Upload Subscribe	0051	1
Vehicle ID Number Upload	0052	1
Vehicle ID Number Upload Unsubscribe	0054	1
Last Tightening Result Data Subscribe	0060	1
Last Tightening Result Data Upload Reply	0061	1,2,3,4,5,6,40,41,42,500,998,999
Last Tightening Result Data Acknowledge	0062	1
Last Tightening Result Data Unsubscribe	0063	1
Old Tightening Result Upload Request	0064	1,2,3,4,5,6
Set Time in Torque Controller	0082	1
Multi-spindle result subscribe	0100	1
Multi-spindle result	0101	1
Multi-spindle result acknowledge	0102	1
Multi-spindle result unsubscribe	0103	1
VIN Download Request	0150	1
IO Device Status Request	0214	1
IO Device Status Reply	0215	1,2
Keep-Alive Message	9999	1