

Torque Tool Ethernet Device Driver Help

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Torque Tool Ethernet Device Driver Help

Help version 1.015

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Overview

The Torque Tool Ethernet Device Driver was designed specifically for use with 32 bit OPC Server products running on Intel microprocessor based computers. For operating system (OS) requirements, refer to the OPC Server Help documentation.

The driver was designed to work with all devices supporting the Torque Tool Open Protocol.

Device Setup

Supported Devices

The Torque Tool Ethernet Driver is designed to work with any device that supports the Torque Tool Open Protocol. The driver has been tested with the following equipment:

Stanley QA Alpha Controller
Atlas Copco Power Focus

Maximum Number of Channels and Devices

The Torque Tool Ethernet Device Driver supports a maximum of 100 channels and 1024 devices.

See Also: [Communications Parameters](#) and [Settings](#).

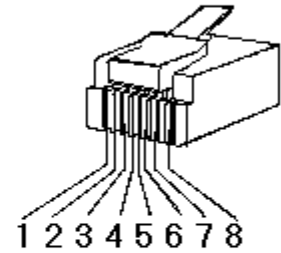
Cable Diagrams

Patch Cable (Straight Through)

TD + 1	OR/WHT	OR/WHT	1	TD +
TD - 2	OR	OR	2	TD -
RD + 3	GRN/WHT	GRN/WHT	3	RD +
4	BLU	BLU	4	
5	BLU/WHT	BLU/WHT	5	
RD - 6	GRN	GRN	6	RD -
7	BRN/WHT	BRN/WHT	7	
8	BRN	BRN	8	

RJ45 RJ45

10 BaseT



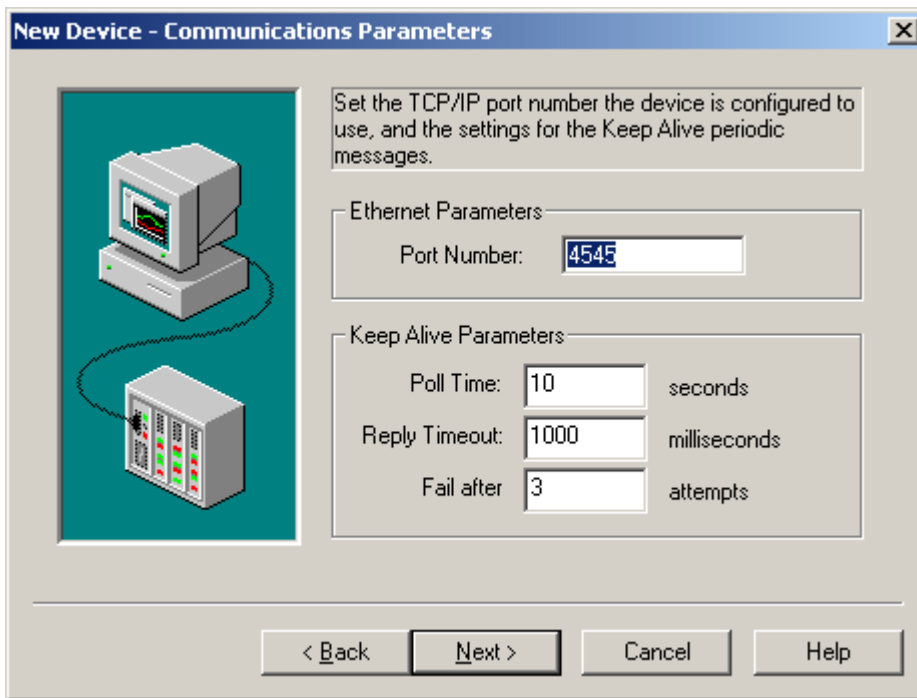
Crossover Cable

TD + 1	OR/WHT	GRN/WHT	1	TD +
TD - 2	OR	GRN	2	TD -
RD + 3	GRN/WHT	OR/WHT	3	RD +
4	BLU	BLU	4	
5	BLU/WHT	BLU/WHT	5	
RD - 6	GRN	OR	6	RD -
7	BRN/WHT	BRN/WHT	7	
8	BRN	BRN	8	

RJ45 RJ45

8-pin RJ45

Communications Parameters



Ethernet Parameters

Port Number: Enter the port number for the driver to use when connecting to this device. Valid port numbers are 0 to 65535. The default is 4545.

Keep Alive Parameters

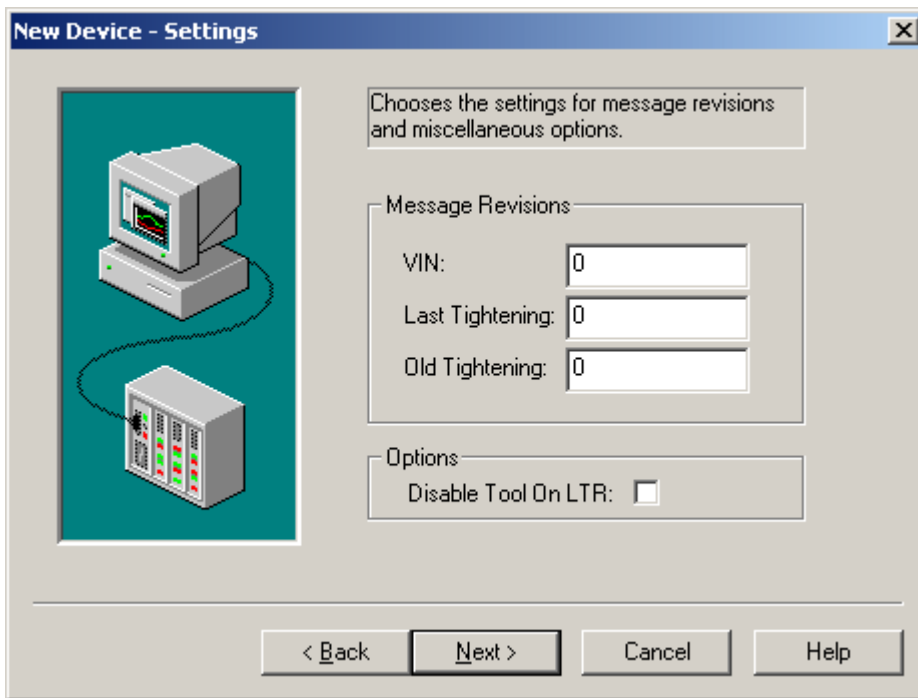
Poll Time: Enter amount of time, in seconds, of inactivity before the driver sends a keep alive message to the device. The valid range is 1 to 15. The default is 10 seconds.

Caution: If the Keep Alive interval is set to a value greater than 10 seconds, the driver may post "Device Not Responding" messages to the Event Log. This is due to the device closing the connection.

Reply Timeout: Enter amount of time, in milliseconds, that the driver should wait for a response from a keep alive message. The valid range is 100 to 30000. The default is 1000 milliseconds (1 second).

Fail After: Enter number of times the driver should attempt to send a keep alive message before considering it to be failed. The valid range is 1 to 10. The default is 3 attempts.

Settings



Message Revisions

The Message Revisions settings is used to request different revisions of messages from the device. To request a specific message revision, enter the message revision number for that message. If the device does not support revisions, enter 0.

VIN: Revision number for the Vehicle Identification Number messages. Currently supported: 1,2

Last Tightening: Revision number for the Last Tightening Results messages. Currently supported: 1..5, and 999 for low-bandwidth version.

Old Tightening: Revision number for the Old Tightening Results messages. Currently supported: 1..4

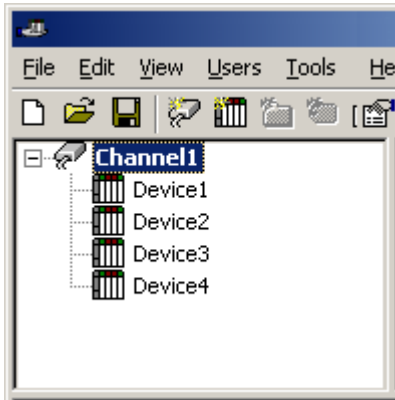
Miscellaneous Options

Disable Tool On LTR: If this option is enabled, the driver will disable the tool whenever a Last Tightening Results message is received. This is used to ensure that no LTR data is overwritten before the system has time to process it. The default is disabled.

Optimizing Torque Tool Ethernet Communications

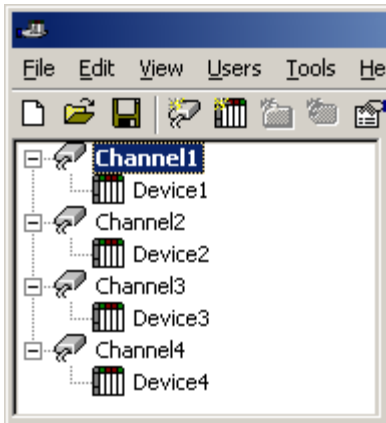
The Torque Tool Ethernet driver has been designed to provide the best performance with the least amount of impact on the system's overall performance. While the Torque Tool Ethernet driver is fast, there are a couple of guidelines that can be used in order to control and optimize the application and gain maximum performance.

Our server refers to communications protocols like Torque Tool Ethernet as a channel. Each channel defined in the application represents a separate path of execution in the server. Once a channel has been defined, a series of devices must then be defined under that channel. Each of these devices represents a single Torque Tool controller from which data will be collected. While this approach to defining the application will provide a high level of performance, it won't take full advantage of the Torque Tool Ethernet driver or the network. An example of how the application may appear when configured using a single channel is shown below.



Each device appears under a single Torque Tool Ethernet channel. In this configuration, the driver must move from one device to the next as quickly as possible in order to gather information at an effective rate. As more devices are added or more information is requested from a single device, the overall update rate begins to suffer.

If the Torque Tool Ethernet driver could only define one single channel, then the example shown above would be the only option available; however, the Torque Tool Ethernet driver can define up to 100 channels. Using multiple channels distributes the data collection workload by simultaneously issuing multiple requests to the network. An example of how the same application may appear when configured using multiple channels to improve performance is shown below.



Each device has now been defined under its own channel. In this new configuration, a single path of execution is dedicated to the task of gathering data from each device. If the application has 100 or fewer devices, it can be optimized exactly how it is shown here.

The performance will improve even if the application has more than 100 devices. While 100 or fewer devices may be ideal, the application will still benefit from additional channels. Although by spreading the device load across all channels will cause the server to move from device to device again, it can now do so with far less devices to process on a single channel.

Note: Some devices support only one Ethernet connection. For these devices, only one channel and device should be configured.

Data Types Description

The Torque Tool Ethernet Driver supports the following data types.

Data Type	Description
Boolean	Single bit
Word	Unsigned 16 bit integer
Short*	Signed 16 bit integer
DWord	Unsigned 32 bit integer
Long*	Signed 32 bit integer
String	ASCII text string
Float	32 bit floating point value
Double*	64 bit floating point value

*These types are not used natively but are supported through conversion.

Note: Each tag used in the driver has a fixed data type. Therefore, it is recommended that users allow the driver to use the default data type for the point.

Address Descriptions

Addresses in the Torque Tool Ethernet Driver are specified by the name of the item to be addressed, optionally followed by a bit or index number, as follows:

ITEMNAME[.BIT/INDEX]

The **ITEMNAME** is the name of the item which will be addressed.

The **BIT/INDEX** is the bit number for items using bit fields, or index for arrayed items. The bit/index is only used for certain address items.

Important: Bits are 0-based, with 0 being the LSB. Array indices are 1-based, with 1 being the first item.

Each set of commands has one or more items available for addressing. Select a link from the list below for descriptions of the command sets and available items.

[Parameter Set Numbers](#)

[Parameter Set Data](#)

[Parameter Set Selected](#)

[Job Info](#)

[Tool Data](#)

[VIN](#)

[Last Tightening Results](#)

[Old Tightening Results](#)

[Alarm](#)

[Time](#)

[Flash](#)

[Identifiers](#)

Unsolicited Data

Some of the command sets are sent unsolicited by the device. These command sets will not have data available until the device sends the data to the driver. All unsolicited command sets have a NEWDATA item which will be set to 1 when new data arrives. The user may then clear this flag back to 0 by writing any value to it.

Message Revisions

Some commands have multiple message revisions which hardware may support. Some items are only available for certain message revisions. These items have been marked as being available in a certain message revision. For example, an item marked with (Rev 2) is only available in message revision 2 or later. Some messages also have a low-bandwidth version available, and will be marked appropriately.

Command Set: Parameter Set Numbers

The Parameter Set Numbers command set is used to retrieve the list of parameter set numbers from the device.

Item	Data Type	Access	Description	Data Range
PSN_COUNT	Word	Read Only	The number of parameter sets in the list.	0-999
PSN_ID	Word Array	Read Only	The parameter set ID. The array size is defined by the PSN_COUNT. This item requires an array index (1-999).	0-999

Command Set: Parameter Set Data

The Parameter Set Data command set is used to retrieve data for a specific command set. The data is retrieved on demand. To retrieve data for a command set, write the command set number to the PSD_ID item.

Item	Data Type	Access	Description	Data Range
------	-----------	--------	-------------	------------

PSD_ID	Word	Read/Write	The parameter set ID. Write the ID of the desired parameter set to this item in order to retrieve the data for that parameter set.	0-999
PSD_NAME	String	Read Only	The name of the parameter set.	25 characters
PSD_DIR	Word	Read Only	Rotation direction. 1=Clockwise, 2=Counterclockwise	1-2
PSD_BSIZE	Word	Read Only	Batch size	0-99
PSD_TMIN	Float	Read Only	Torque minimum limit	0-9999.99
PSD_TMAX	Float	Read Only	Torque maximum limit	0-9999.99
PSD_TTARG	Float	Read Only	Torque final target value	0-9999.99
PSD_AMIN	Word	Read Only	Angle minimum value in degrees	0-99999
PSD_AMAX	Word	Read Only	Angle maximum value in degrees	0-99999
PSD_ATARG	Word	Read Only	Target angle in degrees	0-99999

Command Set: Parameter Set Selected

The Parameter Set Data command set is used to select a particular command set, to notify the user when a new command set has been selected, and to control certain batch parameters.

Item	Data Type	Access	Description	Data Range
PSET_NUMBER	Word	Read/Write	ID number of the last parameter set selected. Users may also write a parameter set number to this item to select a parameter set.	0-999
PSET_LASTCHANGE	String	Read Only	Time of last change in PSet setting.	19 characters
PSET_NEWDATA	Boolean	Read/Write	New data flag. Set to 1 when new data arrives. Write a 0 to this flag to clear it.	0-1
PSET_BSIZE	String	Write Only	Use this item to set the batch size for a particular parameter set. The format of the string is: PSETNUM=BATCHSIZE Where PSETNUM is the parameter set number, and BATCHSIZE is the desired batch size. For example, to set the batch size to 20 for parameter set 3, Users would write 3=20 to this tag.	PSet: 0-999 Batch Size: 0-99
PSET_RESETBC	Word	Write Only	Writing a parameter set number to this item will reset the batch counter for that parameter set.	0-999

Command Set: Job Info

The Job Info command set is used to receive data on the selected job, to allow the user to select a different job, and to control job execution.

Item	Data Type	Access	Description	Data Range
JOB_JOBNUM	Word	Read/Write	The selected job number. Users may write a job number to this item to select a different job.	0-99
JOB_STATUS	Word	Read Only	Job batch status.	0-2

			0 = job batch not completed 1 = job batch OK 2 = job batch NOK	
JOB_BMODE	Word	Read Only	Job batch mode.	0-1
			0 = only the OK bolts are counted 1 = both the OK and the NOK bolts are counted	
JOB_BSIZE	Word	Read Only	Job batch size	0-9999
JOB_BCOUNT	Word	Read Only	Job batch counter	0-9999
JOB_TIME	String	Read Only	Timestamp for the job info	19 characters
JOB_NEWDATA	Boolean	Read/Write	New data flag. Set to 1 when new data arrives. Write a 0 to this flag to clear it.	0-1
JOB_RESTART	Word	Write Only	Write a job number to this item to restart that job.	0-99
JOB_ABORT	Boolean	Write Only	Write any value to this item to abort the current job.	N/A

Command Set: Tool Data

The Tool Data command set is used to receive data for the connected tool, and to enable/disable the tool.

Item	Data Type	Access	Description	Data Range
TOOLDATA_TSERIAL	String	Read Only	Tool serial number.	14 characters
TOOLDATA_NT	DWord	Read Only	Tool number of tightening.	0-4294967295
TOOLDATA_LCD	String	Read Only	Last calibration date.	19 characters
TOOLDATA_CSERIAL	String	Read Only	Controller serial number.	10 characters
TOOL_ENABLE	Boolean	Write Only	Write a 0 to disable the tool or a 1 to enable the tool.	0-1

Command Set: VIN

The VIN command set is used to receive data about the VIN (Vehicle ID Number).

Item	Data Type	Access	Description	Data Range
VIN_VIN	String	Read/Write	Vehicle ID Number. Write a VIN to this field to send it to the controller.	25 characters
VIN_VIN2	String	Read Only	(Rev 2) Identifier result part 3	25 characters
VIN_VIN3	String	Read Only	(Rev 2) Identifier result part 3	25 characters
VIN_VIN4	String	Read Only	(Rev 2) Identifier result part 3	25 characters
VIN_NEWDATA	Boolean	Read/Write	New data flag. Set to 1 when new data arrives. Write a 0 to this flag to clear it.	0-1

Command Set: Last Tightening Results

The Last Tightening Results command set is used to receive data for the last tightening.

Item	Data Type	Access	Description	Data Range
LTR_CELL_ID	Word	Read Only	Cell ID	0-9999
LTR_CHAN_ID	Word	Read Only	Channel ID	0-99
LTR_TC_NAME	String	Read Only	Torque controller name	25 characters
LTR_VIN	String	Read Only	*Vehicle ID number	25 characters
LTR_JOB	Word	Read Only	*Job number	0-99 (Rev 1)

				0-9999 (Rev 2+)
LTR_PSET	Word	Read Only	*PSet number	0-999
LTR_BATCH_SIZE	Word	Read Only	*Batch size	0-9999
LTR_BATCH_COUNTER	Word	Read Only	*Batch counter	0-9999
LTR_TIGHT_STATUS	Word	Read Only	*Tightening status. 0=NOK, 1=OK	0-1
LTR_TORQUE_STATUS	Word	Read Only	*Torque Status. 0=Low, 1=OK, 2=High	0-2
LTR_ANGLE_STATUS	Word	Read Only	*Angle Status. 0=Low, 1=OK, 2=High	0-2
LTR_TORQUE_MIN	Float	Read Only	Torque minimum limit	0-9999.99
LTR_TORQUE_MAX	Float	Read Only	Torque maximum limit	0-9999.99
LTR_TORQUE_TARGET	Float	Read Only	Torque final target	0-9999.99
LTR_TORQUE_VALUE	Float	Read Only	*Torque value	0-9999.99
LTR_ANGLE_MIN	DWord	Read Only	Angle minimum value, in degrees.	0-99999
LTR_ANGLE_MAX	DWord	Read Only	Angle maximum value, in degrees.	0-99999
LTR_ANGLE_TARGET	DWord	Read Only	Target angle value, in degrees.	0-99999
LTR_ANGLE_VALUE	DWord	Read Only	*Turning angle value, in degrees.	0-99999
LTR_TIMESTAMP	String	Read Only	*Time stamp	19 characters
LTR_CHANGETIME	String	Read Only	*Last change in PSet settings	19 characters
LTR_BATCH_STATUS	Word	Read Only	*Batch status. 0=NOK, 1=OK, 2=Batch not used.	0-2
LTR_ID	DWord	Read/ Write**	*Tighting ID	0-4294967295
LTR_STRATEGY	Word	Read Only	(Rev 2) Strategy 1 = Torque control 2 = Torque control / angle monitoring 3 = Torque control / angle control AND 4 = Angle control / torque monitoring 5 = DS control 6 = DS control torque monitoring 7 = Reverse angle 8 = Reverse torque 9 = Click wrench 10 = Rotate spindle forward 11 = Torque control angle control OR 12 = Rotate spindle reverse 99 = No strategy	0-99
LTR_STRAT_OPT	Boolean	Read Only	(Rev 2) Strategy options. This item requires a bit number (0-15) Bit 0 = Torque Bit 1 = Angle Bit 2 = Batch Bit 3 = PVT Monitoring Bit 4 = PVT Compensate Bit 5 = Selftap Bit 6 = Rundown Bit 7 = CM Bit 8 = DS control Bit 9 = Click Wrench Bit 10 = RBW Monitoring	0-1
LTR_RDA_STATUS	Word	Read Only	(Rev 2) Rundown angle status. 0=NOK, 1=OK, 2=High.	0-2
LTR_CMON_STATUS	Word	Read Only	(Rev 2) Current monitoring status. 0=NOK, 1=OK, 2=High.	0-2

LTR_ST_STATUS	Word	Read Only	(Rev 2) Selftap status. 0=NOK, 1=OK, 2=High.	0-2
LTR_PTM_STATUS	Word	Read Only	(Rev 2) Prevail torque monitoring status. 0=NOK, 1=OK, 2=High.	0-2
LTR_PTC_STATUS	Word	Read Only	(Rev 2) Prevail torque compensate status. 0=NOK, 1=OK, 2=High.	0-2
LTR_TERR_STATUS	Boolean	Read Only	(Rev 2) Tightening error status. This item requires a bit number (0-31) Bit 0 Rundown angle max shut off Bit 1 Rundown angle min shut off Bit 2 Torque max shut off Bit 3 Angle max shut off Bit 4 Selftap torque max shut off Bit 5 Selftap torque min shut off Bit 6 Prevail torque max shut off Bit 7 Prevail torque min shut off Bit 8 Prevail torque compensate overflow Bit 9 Current monitoring max shut off Bit 10 Post view torque min torque shut off Bit 11 Post view torque max torque shut off Bit 12 Post view torque Angle too small Bit 13 Trigger Lost Bit 14 Torque Less Than Target Bit 15 Tool Hot Bit 16 Multistage Abort Bit 17 Rehit Bit 18 DS Measure Failed Bit 19 Current Limit Reached Bit 20 EndTime out Shutoff Bit 21 Remove fastener limit exceeded Bit 22 Disable drive	0-1
LTR_RDA_MIN	DWord	Read Only	(Rev 2) Rundown angle minimum value, in degrees.	0-99999
LTR_RDA_MAX	DWord	Read Only	(Rev 2) Rundown angle maximum value, in degrees.	0-99999
LTR_RDA_VALUE	DWord	Read Only	(Rev 2) Rundown angle value reached, in degrees.	0-99999
LTR_CM_MIN	Word	Read Only	(Rev 2) Current monitoring minimum limit.	0-999
LTR_CM_MAX	Word	Read Only	(Rev 2) Current monitoring maximum limit.	0-999
LTR_CM_VALUE	Word	Read Only	(Rev 2) Current monitoring value in percent.	0-999
LTR_ST_MIN	Float	Read Only	(Rev 2) Selftap minimum limit.	0-9999.99
LTR_ST_MAX	Float	Read Only	(Rev 2) Selftap maximum limit.	0-9999.99
LTR_ST_TORQUE	Float	Read Only	(Rev 2) Selftap torque.	0-9999.99
LTR_PTM_MIN	Float	Read Only	(Rev 2) Prevail torque monitoring minimum limit.	0-9999.99
LTR_PTM_MAX	Float	Read Only	(Rev 2) Prevail torque monitoring maximum limit.	0-9999.99

LTR_PT	Float	Read Only	(Rev 2) Prevail torque value.	0-9999.99
LTR_JOB_SEQ_NUM	Word	Read Only	(Rev 2) Job sequence number.	0-65535
LTR_STID	Word	Read Only	(Rev 2) Synch tightening ID.	0-65535
LTR_SERIAL_NUM	String	Read Only	(Rev 2) Tool serial number.	14 characters
LTR_PSET_NAME	String	Read Only	(Rev 3) Parameter set name.	25 characters
LTR_UNITS	Word	Read Only	(Rev 3) Torque value units. 1 = Nm 2 = Lbf.ft 3 = Lbf.In 4 = Kpm	1-4
LTR_RESULT_TYPE	Word	Read Only	(Rev 3) Result type. 1 = tightening 2 = loosening 3 = Batch Increment 4 = Batch decrement 5 = Bypass pset result 6 = Abort job result 7 = sync tightening	1-7
LTR_IDR2	String	Read Only	(Rev 4) Identifier result part 2.	25 characters
LTR_IDR3	String	Read Only	(Rev 4) Identifier result part 3.	25 characters
LTR_IDR4	String	Read Only	(Rev 4) Identifier result part 4.	25 characters
LTR_CUSTOM_ERR	String	Read Only	(Rev 5) Customer tightening error code.	4 characters
LTR_NEWDATA	Boolean	Read/Write	New data flag. Set to 1 when new data arrives. Write a 0 to this flag to clear it.	0-1

*These items are available in the low-bandwidth (revision 999) message.

**Writing any value to the Tightening ID will set the value in the driver to 0. This will not have any effect on the hardware.

Command Set: Old Tightening Results

The Old Tightening Results command set is used to retrieve data for an old tightening. To retrieve the data for a tightening, write the tightening ID to the OTR_ID field.

Item	Data Type	Access	Description	Data Range
OTR_ID	DWord	Read/Write	Tightening ID. Write the tightening ID to this item to retrieve data for that tightening. Writing 0 will retrieve the last tightening results.	0-4294967295
OTR_VIN	String	Read Only	Vehicle ID number	25 characters
OTR_PSET	Word	Read Only	PSet number	0-999
OTR_BCOUNT	Word	Read Only	Batch counter	0-9999
OTR_TIGHTSTAT	Word	Read Only	Tightening status. 0=NOK, 1=OK	0-1
OTR_TORQSTAT	Word	Read Only	Torque Status. 0=Low, 1=OK, 2=High	0-2
OTR_ANGSTAT	Word	Read Only	Angle Status. 0=Low, 1=OK, 2=High	0-2
OTR_TORQUE	Float	Read Only	Torque value	0-9999.99
OTR_ANGLE	DWord	Read Only	Turning angle value, in degrees.	0-99999
OTR_TIME	String	Read Only	Time stamp	19 characters
OTR_BATSTAT	Word	Read Only	Batch status. 0=NOK, 1=OK, 2=Batch not used.	0-2
OTR_JOBNUM	Word	Read Only	(Rev 2) Job number	0-9999
OTR_STRATEGY	Word	Read Only	(Rev 2) Strategy	0-99

			1 = Torque control 2 = Torque control / angle monitoring 3 = Torque control / angle control AND 4 = Angle control / torque monitoring 5 = DS control 6 = DS control torque monitoring 7 = Reverse angle 8 = Reverse torque 9 = Click wrench 10 = Rotate spindle forward 11 = Torque control angle control OR 12 = Rotate spindle reverse 99 = No strategy	
OTR_STROPT	Boolean	Read Only	(Rev 2) Strategy options. This item requires a bit number (0-15) Bit 0 = Torque Bit 1 = Angle Bit 2 = Batch Bit 3 = PVT Monitoring Bit 4 = PVT Compensate Bit 5 = Selftap Bit 6 = Rundown Bit 7 = CM Bit 8 = DS control Bit 9 = Click Wrench Bit 10 = RBW Monitoring	0-1
OTR_BSIZE	Word	Read Only	(Rev 2) Batch size	0-9999
OTR_RASTAT	Word	Read Only	(Rev 2) Rundown angle status. 0=NOK, 1=OK, 2=High.	0-2
OTR_CMSTAT	Word	Read Only	(Rev 2) Current monitoring status. 0=NOK, 1=OK, 2=High.	0-2
OTR_STSTAT	Word	Read Only	(Rev 2) Selftap status. 0=NOK, 1=OK, 2=High.	0-2
OTR_PTMSTAT	Word	Read Only	(Rev 2) Prevail torque monitoring status. 0=NOK, 1=OK, 2=High.	0-2
OTR_PTCSTAT	Word	Read Only	(Rev 2) Prevail torque compensate status. 0=NOK, 1=OK, 2=High.	0-2
OTR_TERRSTAT	Boolean	Read Only	(Rev 2) Tightening error status. This item requires a bit number (0-31) Bit 0 Rundown angle max shut off Bit 1 Rundown angle min shut off Bit 2 Torque max shut off Bit 3 Angle max shut off Bit 4 Selftap torque max shut off Bit 5 Selftap torque min shut off Bit 6 Prevail torque max shut off Bit 7 Prevail torque min shut off Bit 8 Prevail torque compensate overflow Bit 9 Current monitoring max shut off Bit 10 Post view torque min torque shut off Bit 11 Post view torque max torque	0-1

			shut off Bit 12 Post view torque Angle too small Bit 13 Trigger Lost Bit 14 Torque Less Than Target Bit 15 Tool Hot Bit 16 Multistage Abort Bit 17 Rehit Bit 18 DS Measure Failed Bit 19 Current Limit Reached Bit 20 EndTime out Shutoff Bit 21 Remove fastener limit exceeded Bit 22 Disable drive	
OTR_RANGLE	DWord	Read Only	(Rev 2) Rundown angle value reached, in degrees.	0-99999
OTR_CMVALUE	Word	Read Only	(Rev 2) Current monitoring value in percent.	0-999
OTR_STORQUE	Float	Read Only	(Rev 2) Selftap torque.	0-9999.99
OTR_PTORQUE	Float	Read Only	(Rev 2) Prevail torque value.	0-9999.99
OTR_JOBSEQ	Word	Read Only	(Rev 2) Job sequence number.	0-65535
OTR_STID	Word	Read Only	(Rev 2) Synch tightening ID.	0-65535
OTR_SERIAL	String	Read Only	(Rev 2) Tool serial number.	14 characters
OTR_TVUNIT	Word	Read Only	(Rev 3) Torque value units. 1 = Nm 2 = Lbf.ft 3 = Lbf.In 4 = Kpm	1-4
OTR_RTYPE	Word	Read Only	(Rev 3) Result type. 1 = tightening 2 = loosening 3 = Batch Increment 4 = Batch decrement 5 = Bypass pset result 6 = Abort job result 7 = sync tightening	1-7
OTR_ID2	String	Read Only	(Rev 4) Identifier result part 2.	25 characters
OTR_ID3	String	Read Only	(Rev 4) Identifier result part 3.	25 characters
OTR_ID4	String	Read Only	(Rev 4) Identifier result part 4.	25 characters

Command Set: Alarm

The Alarm command set is used to receive alarm data.

Item	Data Type	Access	Description	Data Range
ALARM_STATUS	Boolean	Read Only	*0 if no alarm is active, 1 if an alarm is currently active	0-1
ALARM_ERROR	String	Read Only	Error code.	4 characters
ALARM_C_READY	Boolean	Read Only	Controller ready status. 1=OK, 0=NOK	0-1
ALARM_T_READY	Boolean	Read Only	Tool ready status. 1=OK, 0=NOK	0-1
ALARM_TIME	String	Read Only	Timestamp	19 characters
ALARM_NEWDATA	Boolean	Read/Write	New data flag. Set to 1 when new data arrives. Write a 0 to this flag to clear it.	0-1

*The ALARM_STATUS flag is may not be available, depending on the type of alarm message received.

Command Set: Time

The Time command set is used to read the controller's time and to synchronize it with the PC.

Item	Data Type	Access	Description	Data Range
TIME	String	Read Only	Current time in the controller.	19 characters
TIME_SYNC	Boolean	Write Only	Write any value to this item to set the controller's time to the current PC time.	N/A

Command Set: Flash

The Flash command set is used to read cause the tool's green light to flash.

Item	Data Type	Access	Description	Data Range
FLASH	Boolean	Write Only	Write any value to this item to cause the green light on the tool to flash until an operator pushes the tool trigger.	N/A

Command Set: Identifiers

The Identifiers command set is used to manage the multiple identifiers in the controller.

Item	Data Type	Access	Description	Data Range
ID_DOWNLOAD	String	Write Only	Write the identifier(s) to this item to send the identifiers to the controller.	100 characters
ID_BYPASS	Boolean	Write Only	Write any value to this item in order to bypass the next identifier expected in the work order.	N/A
ID_RESET	Boolean	Write Only	Write any value to this item in order to reset the latest identifier or bypassed identifier in the work order.	N/A
ID_RESETALL	Boolean	Write Only	Write any value to this item in order to reset all identifiers in the work order.	N/A
MID_TYPE	Word Array	Read Only	*Identifier type number	1-4
MID_IN_ORDER	Boolean Array	Read Only	*Included in work order. 0=No, 1=Yes	0-1
MID_STATUS	Word Array	Read Only	*Status in work order. 0 = Not accepted 1 = Accepted 2 = Bypassed 3 = Reset	0-3
MID_ID	String Array	Read Only	*Identifier	25 characters
MID_NEWDATA	Boolean	Read/Write	New data flag. Set to 1 when new data arrives. Write a 0 to this flag to clear it.	

*These items require an array index (1..4)

Error Descriptions

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation Errors

[Device address '<address>' contains a syntax error](#)

[Address '<address>' is out of range for the specified device or register](#)

[Data Type '<type>' is not valid for device address '<address>'](#)

[Device address '<address>' is Read Only](#)

[Array size is out of range for address '<address>'](#)

[Array support is not available for the specified address: '<address>'](#)

Ethernet Errors

[Winsock initialization failed \(OS Error = <error code>\)](#)

[Winsock shut down failed \(OS Error = <error code>\)](#)

[Winsock V1.1 or higher must be installed to use the Torque Tool Ethernet device driver](#)

[Unable to bind to adapter: '<adapter name>'. Connect failed](#)

Run-Time Errors

[Unable to write to '<address>' on device '<device name>'](#)

[Unable to read tag '<tag name>': Device '<device name>' encountered a parsing error](#)

[Unable to write tag '<tag name>': Device '<device name>' encountered a parsing error](#)

[Unable to read tag '<tag name>': Device '<device name>' received an error response \(Error <error code>\)](#)

[Unable to write tag '<tag name>': Device '<device name>' received an error response \(Error <error code>\)](#)

[Device '<device name>' is not responding](#)

[Device '<device name>' failed to connect](#)

[Unable to write tag '<tag name>': Device '<device name>' received invalid data for write](#)

[Error Codes](#)

Address Validation Error Messages

The following error/warning messages may be generated. Click on the link for a description of the message.

Address Validation

[Device address '<address>' contains a syntax error](#)

[Address '<address>' is out of range for the specified device or register](#)

[Data Type '<type>' is not valid for device address '<address>'](#)

[Device address '<address>' is Read Only](#)

[Array size is out of range for address '<address>'](#)

[Array support is not available for the specified address: '<address>'](#)

Device address '<address>' contains a syntax error

Error Type:

Warning

Possible Cause:

An invalid tag address has been specified in a dynamic request.

Solution:

Re-enter the address in the client application.

Address '<address>' is out of range for the specified device or register

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically references a location that is beyond the range of supported locations for the device.

Solution:

Verify the address is correct; if it is not, re-enter it in the client application.

Data Type '<type>' is not valid for device address '<address>'

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically has been assigned an invalid data type.

Solution:

Modify the requested data type in the client application.

Device address '<address>' is Read Only

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically has a requested access mode that is not compatible with what the device supports for that address.

Solution:

Change the access mode in the client application.

Array size is out of range for address '<address>'

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically is requesting an array size that is too large for the address type or block size of the driver.

Solution:

Re-enter the address in the client application to specify a smaller value for the array or a different starting point.

Array support is not available for the specified address: '<address>'

Error Type:

Warning

Possible Cause:

A tag address that has been specified statically contains an array reference for an address type that doesn't support arrays.

Solution:

Re-enter the address in the client application to remove the array reference or correct the address type.

Ethernet Errors

The following error/warning messages may be generated. Click on the link for a description of the message.

Ethernet Errors

[Winsock initialization failed \(OS Error = <error code>\)](#)

[Winsock shut down failed \(OS Error = <error code>\)](#)

[Winsock V1.1 or higher must be installed to use the Torque Tool Ethernet device driver](#)

[Unable to bind to adapter: '<adapter name>'. Connect failed](#)

Winsock Initialization Failed (OS Error = <error>)

Error Type:

Fatal

OS Error	Indication	Possible Solution
10091	Indicates that the underlying network subsystem is not ready for network communication.	Wait a few seconds and restart the driver.
10067	Limit on the number of tasks supported by the Windows Sockets implementation has been reached.	Close one or more applications that may be using Winsock and restart the driver.

Winsock Shut Down Failed (OS Error = <error>)

Error Type:

Informational

Indicates that Winsock encountered a problem when shutting down.

Winsock V1.1 or higher must be installed to use the Torque Tool Ethernet device driver

Error Type:

Fatal

Possible Cause:

The version number of the Winsock DLL found on the system is less than 1.1.

Solution:

Upgrade Winsock to version 1.1 or higher.

Unable to bind to adapter: '<adapter name>'. Connect failed

Error Type:

Fatal

Possible Cause:

The specified adapter is not working properly or is not installed correctly.

Solution:

Make sure the correct Ethernet adapter is chosen, and verify that it is functioning properly.

Run-Time Errors

The following error/warning messages may be generated. Click on the link for a description of the message.

Run-Time Errors

[Unable to write to '<address>' on device '<device name>'](#)

[Unable to read tag '<tag name>': Device '<device name>' encountered a parsing error](#)

[Unable to write tag '<tag name>': Device '<device name>' encountered a parsing error](#)

[Unable to read tag '<tag name>': Device '<device name>' received an error response \(Error <error code>\)](#)

[Unable to write tag '<tag name>': Device '<device name>' received an error response \(Error <error code>\)](#)

[Device '<device name>' is not responding](#)

[Device '<device name>' failed to connect](#)

[Unable to write tag '<tag name>': Device '<device name>' received invalid data for write](#)

[Error Codes](#)

Unable to write to '<address>' on device '<device name>'

Error Type:

Serious

Possible Cause:

1. The named device may not be connected to the network.
2. The named device may have been assigned an incorrect Network ID.
3. The named device is not responding to write requests.
4. The device does not support the requested command set.

Solution:

1. Check the hardware network connections.
2. Verify that the Network ID given to the named device matches that of the actual device.

Unable to read tag '<tag name>': Device '<device name>' encountered a parsing error

Error Type:

Serious

Possible Cause:

1. The device supports a different command set version than standard.
2. Line noise has corrupted the packet.

Solution:

Use channel diagnostics to verify that the received packet is in the correct format.

Unable to write tag '<tag name>': Device '<device name>' encountered a parsing error

Error Type:

Serious

Possible Cause:

1. The device supports a different command set version than standard.
2. Line noise has corrupted the packet.

Solution:

Use channel diagnostics to verify that the received packet is in the correct format.

Unable to read tag '<tag name>': Device '<device name>' received an error response (Error <error code>)

Error Type:

Serious

Possible Cause:

1. The device does not support the specified command set.
2. One or more parameters sent to the device are out of range.
3. The device is not in the proper state to execute the command.

Solution:

Look up the error code.

See Also:

[Error Codes](#)

Unable to write tag '<tag name>': Device '<device name>' received an error response (Error <error code>)

Error Type:

Serious

Possible Cause:

1. The device does not support the specified command set.
2. One or more parameters sent to the device are out of range.
3. The device is not in the proper state to execute the command.

Solution:

Look up the error code.

See Also:

[Error Codes](#)

Device '<device name>' is not responding

Error Type:

Serious

Possible Cause:

1. The device does not support the specified command set.
2. The connection to the device failed.
3. The device is offline.
4. The device cannot answer the request within the allotted time.

Solution:

1. Verify that the device is online.
2. Verify that the connection to the device is still valid.
3. Increase the timeout value to allow the device more time to respond.

Device '<device name>' failed to connect

Error Type:

Serious

Possible Cause:

1. The device is offline
2. The IP address entered for the device is incorrect.

Solution:

1. Verify that the device is online.
2. Verify that the IP address entered for the device is correct.

Unable to write tag '<tag name>': Device '<device name>' received invalid data for write

Error Type:

Warning

Possible Cause:

The data that was written to a tag was not in the proper format.

Solution:

View the information for the named tag to learn the proper format for data writes.

Error Codes

Error Code	Description
01	Invalid data
02	Pset number not present
03	Pset can not be set
04	Pset not running
06	VIN upload subscription already exists
07	VIN upload subscription does not exist
08	VIN input source not granted
09	Last tightening result subscription already exists
10	Last tightening result subscription does not exist
11	Alarm subscription already exists
12	Alarm subscription does not exist
13	Parameter set selection subscription already exists
14	Parameter set selection subscription does not exist
15	Tightening Id requested not found
16	Connection rejected protocol busy
17	Job number not present
18	Job info subscription already exists
19	Job info subscription does not exist
20	Job can not be set
21	Job not running
22	Spindle exceeds limits
23	Spindle off line
30	Controller is not a sync Master
31	Multi spindle status subscription already exists
32	Multi spindle status subscription does not exist
33	Multi spindle result subscription already exists
34	Multi spindle result subscription does not exist
40	Job line control info subscription already exists
41	Job line control info subscription does not exist
42	Identifier input source not granted
43	Multiple identifiers work order subscription already exists
44	Multiple identifiers work order subscription does not exist
50	Status "external monitored inputs" subscription already exists
51	Status "external monitored inputs" subscription does not exist
52	IO device not connected
53	Faulty IO device number
58	No alarm present
59	Tool currently in use
60	No histogram available
80	Reserved
81	Reserved
82	Automatic/manual mode subscribe already exists
83	Automatic/manual mode subscribe does not exist
95	Reject request, PowerMACS is in manual mode
96	Client already connected

97	MID revision unsupported
98	Controller internal request timeout
99	Unknown MID

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