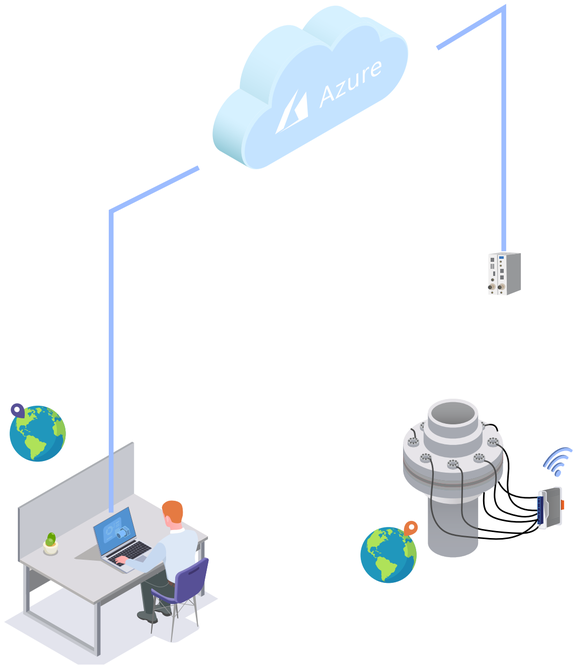
Different Load-Sensing Solution read-out offerings

Features/Solution	Check *via handheld display*	Local monitoring *via tablet or laptop*	Wired remote monitoring *via Portal or API*
Reading	✓	✓	✓
Saving (log)	–	✓	✓
Wired connection (from LST/LSF)	✓	–	✓
Wireless connection (from LST/LSF)	–	✓	–
Local (on-site) monitoring	✓	✓	✓
Remote (off-site) monitoring	–	–	✓

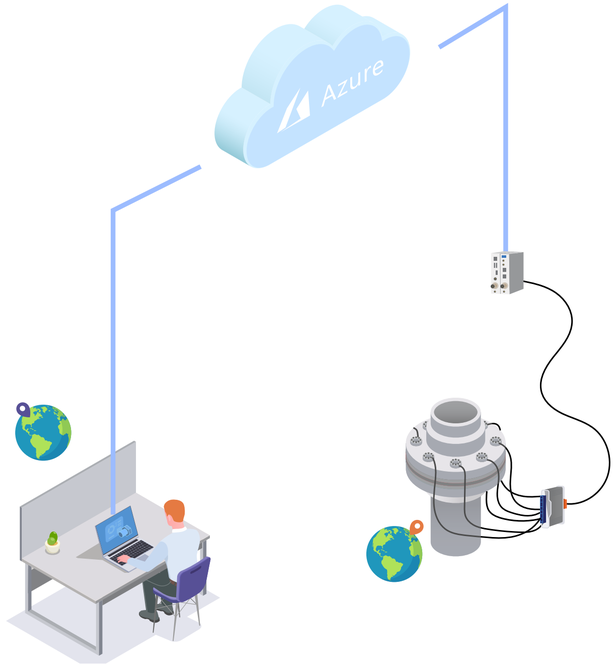
The difference between *remote* and *local* monitoring, and *wired* and *wireless*

LOCAL WIRED

LOCAL WIRELESS



REMOTE WIRELESS



REMOTE WIRED

Load-Sensing Solution variants

LST and LSF

Benefits of using the LST:

- Mechanical tensioning on the active side
- Minimize stress of engaged threads

Benefits of using the LSF:

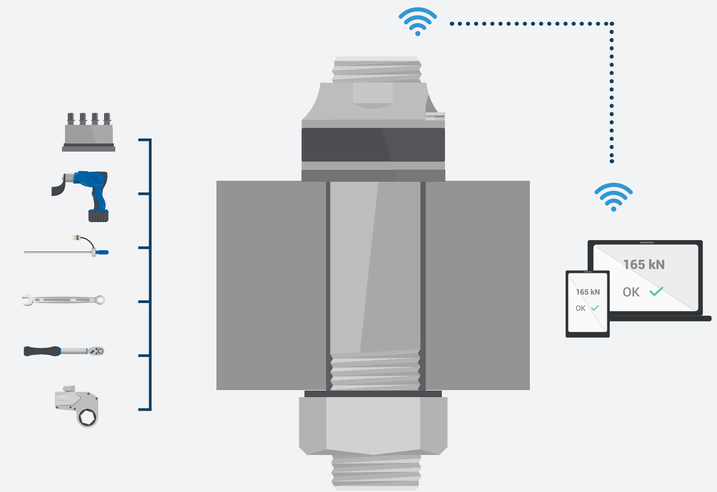
- As a reactive nut where the active side can be torqued or tensioned
- Minimize stress of enaged threads

Additional details

MT or CY version (for LST); SX8 or SX12 version (for LSF)
Standard sizes are M36 - M100*
Machine-grooved
Sensors mounted in the groove
Sensors covered by ring in Delrin® material
IP67 classed connector in the nuthouse

SUPERBOLT LSF AS A COUNTER NUT ON THE REACTIVE SIDE

Can be used in conjuction with any type of bolting method!



Read-out options

Check

Use case
Local wired monitoring

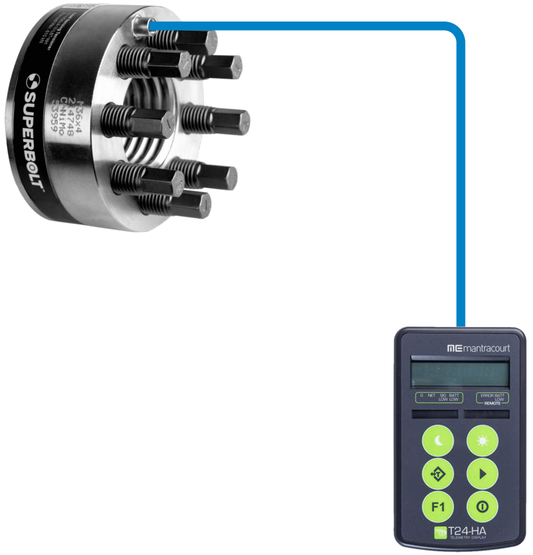
The handheld display is connected to the LST/LSF to which a cable with an integrated memory (TEDS), containing the calibration file, is connected. Thereby the preload is visualized directly without any need of uploading a calibration file prior to the measurement; it is pure plug & play.

The handheld display is only connected while measuring the preload. Then it is disconnected and re-used for measurement on another LST/LSF.

Parts in the solution:

Handheld display (PSD) with cable compatible with TEDS cable on LST/LSF

TEDS cable



Read-out options

Local monitoring

Local monitoring ruggedized tablet

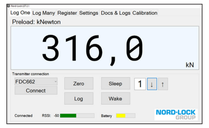
Local but wireless monitoring of preload with possibility to save the log file locally and with option to send up the log file to the cloud from the tablet via mobile data. The T24 transmitter is only connected while measuring the preload. Then it is disconnected and re-used for measurement on another LST/LSF.

Parts in the solution:

T24 Transmitter

Windows tablet with a T24 receiver

Hard case with cut-out foam



Load-Sensing Solutions Program

Note This is a complete solution with a Transmitter, one Receiver and a ruggedized tablet. All parts nicely stored in a hard case.
The option to send the log file to the cloud is currently under development.

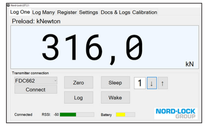
Local monitoring laptop

Local but wireless monitoring of preload with possibility to save the log file locally and with option to send up the log file to the cloud from the laptop via mobile data. The T24 transmitter is only connected while measuring the preload. Then it is disconnected and re-used for measurement on another LST/LSF.

Parts in the solution:

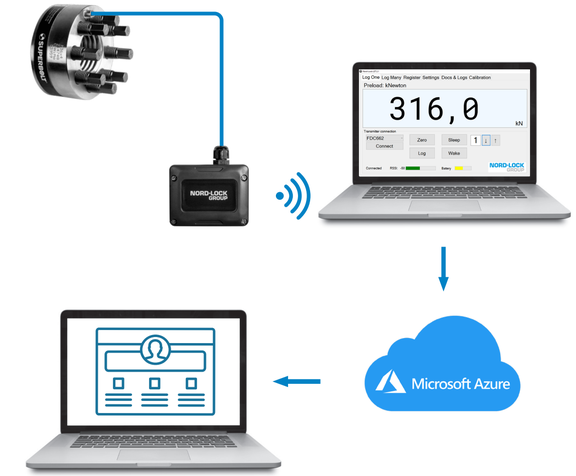
T24 Transmitter

T24 Receiver as an USB dongle



Load-Sensing Solutions Program

Note The laptop to which the Receiver (USB dongle) needs to be connected is not included in our offering; this is something the customer needs to arrange themselves. The installation of the program is something the customer needs to do.
The option to send the log file to the cloud is currently under development.



Read-out options

Wired remote monitoring

Use case

This solution consists of a wired connection from the LST/LSF to a so-called Q.bloxx module which has input for a total of eight LSTs/LSFs. This Q.bloxx module is then connected to a so-called Q.station that works as a Gateway, in the sense that it gathers the sensor data and sends it further (wired or wireless). The Q.station has in total 16 input channels to which the Q.bloxx modules can be connected. So this means that for each Q.station, 128 LSTs/LSFs can be connected (8 LSTs/LSFs per Q.bloxx times 16 input channels per Q station = 128 LSTs/LSFs per Q station). Last part of this solution are the Nord-Lock APIs that the customer can integrate to in order to access the data, or access it directly on the Nord-Lock Portal via a customer login.

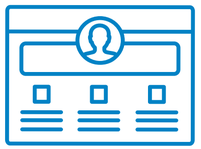
Parts in the solution:

Q.station-X B

Q.bloxx_X A116 (8 ch)

Cable for 8 channels

Azure service



Nord-Lock Portal or Nord-Lock API

Mobile network (if neither ethernet nor WiFi can be used)