

Streamlined production management solutions that meet the demands of your operation

Cleco® Software Solutions is a scalable software suite that equips you with critical production data and application management tools allowing you to make informed decisions and take the corrective actions quickly.



Tightening Parameter Server (TPS)

TPS is a central application management system that enables customers to effectively and efficiently manage their tightening applications from a central location while providing real-time change management.



TorqueNet

Information and fastening process data meets the industry-specific regulation requirements of safety-critical applications while accurately archiving for easy access.



Dashboard

Empowers with the ability to explore data through customized views.

DASHBOARD
add-on module
connecting with
TorqueNet

Software Solutions Overview



Production Benefits with the Cleco Software Solutions



Data Management

- Streamline enforcement of access, provisioning, and lifecycle management of parameters
- Provide complete and unified control over content, modification, users and security
- Provides easy access to collected production data via web browser



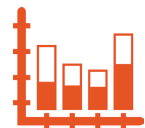
Production Optimization

- Remote management allows you to push changes to production from the software versus having to physically walk or go to the production line
- Convenient monitoring for use and location of all applications enables you to easily identify which tightening parameters are used in a given location



Error Prevention

- User-specific views in the dashboard provide meaningful data analysis that is relevant and actionable
- Change management capabilities provide ultimate control over authorizing changes prior enabling in production



Quality Assurance

- Application archiving & rollback capabilities save application revisions so they can easily be reinstated into production
- Visibility & traceability features allow you to review who, what, why and when a change was implemented

Tightening Parameter Server (TPS) is a Central Application Management System



Tightening Parameter Server:



Central Application Management



Expanded Application Storage



Parameter Usage Monitors



Real-time Change Management



Back-up, Compare and Restore Capabilities

Cleco TPS allows you to have full control of tightening applications used across a plant, or over multiple plants, effectively minimizing the opportunities for costly errors

Highlight an application to view additional application details

The screenshot displays the 'ADMINISTRATION' tab of the Cleco TPS interface. On the left, there is a sidebar with 'ACTIONS' (Pull App from Controller, Push App to Controller, Retire Application) and 'Show Applications' (Latest Revisions, All Revisions). The main area shows a table of applications with columns: Global#, Application Name, Revision#, Status, and Date. Application 41, 'IWRSEQ30CW10NM', is highlighted. Below the table, there are tabs for 'Stage Parameter: 1' through 'Stage Parameter: 6'. The 'Stage Parameter: 1' tab is active, showing a 'Parameter Set' table with values for Sequence, Marking time, Start Delay Time, Start pulse suppression, Fastening time, Speed (1/min), and Threshold Torque (Nm).

| Global# | Application Name | Revision# | Status | Date |
|---------|----------------------|-----------|----------------|---------------------|
| 3 | 2 Nm | 4 | Released | 02.12.2016 13:53:00 |
| 4 | 180 Deg | 1 | Retired | 06.12.2016 14:43:49 |
| 61 | Umlaut | 1 | In Development | 16.01.2017 14:46:58 |
| 17 | <>%&<>%& | 1 | Released | 16.01.2017 14:54:33 |
| 50 | PWLiveWire | 1 | Released | 24.01.2017 13:41:55 |
| 41 | IWRSEQ30CW10NM | 1 | Released | 01.02.2017 15:04:34 |
| 100 | RDLZ_IG01App01 | 1 | In Development | 06.05.2017 13:40:15 |
| 101 | 6-stage wo ENT | 1 | Released | 07.03.2017 14:00:55 |
| 102 | 6-stage with ENT | 1 | Released | 07.03.2017 14:02:11 |
| 104 | Seq50 with 98 degree | 1 | In Development | 21.03.2017 09:29:01 |

| Stage Parameter: 1 | |
|--------------------------|------|
| Sequence: | 30 |
| Marking time: | 0 |
| Start Delay Time: | 0 |
| Start pulse suppression: | 0 |
| Fastening time: | 4000 |
| Speed (1/min): | 0 |
| Threshold Torque (Nm): | 6,00 |

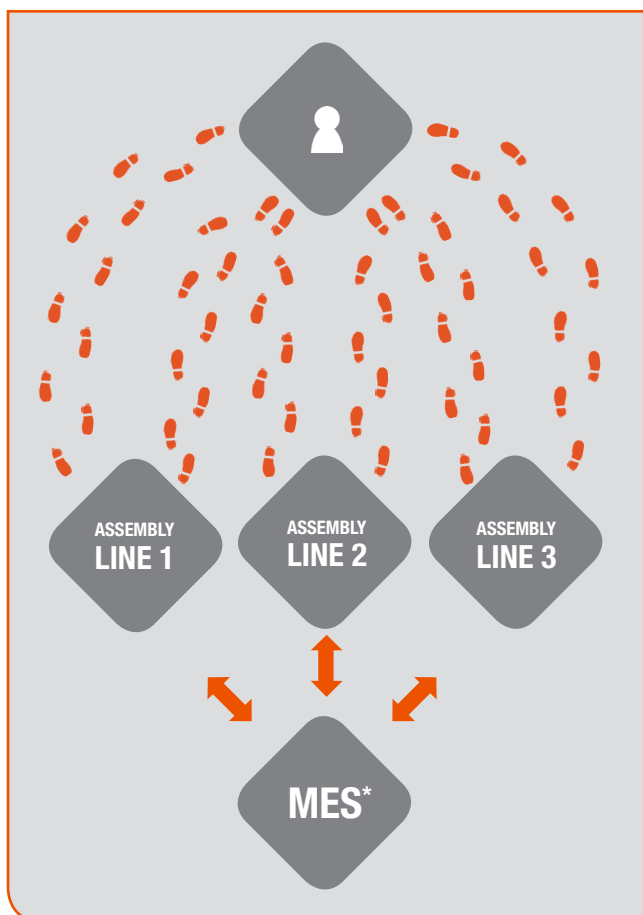
Select the relevant action to create/modify/release/retire an application

Click through each stage to view advanced details of the application

Tightening Parameter Solutions Overview

Traditional Application Management (without TPS)

Traditional production management requires application changes to be made physically at the controller on the production floor. When making changes in multiple production locations there are many opportunities for costly errors and inconsistencies.



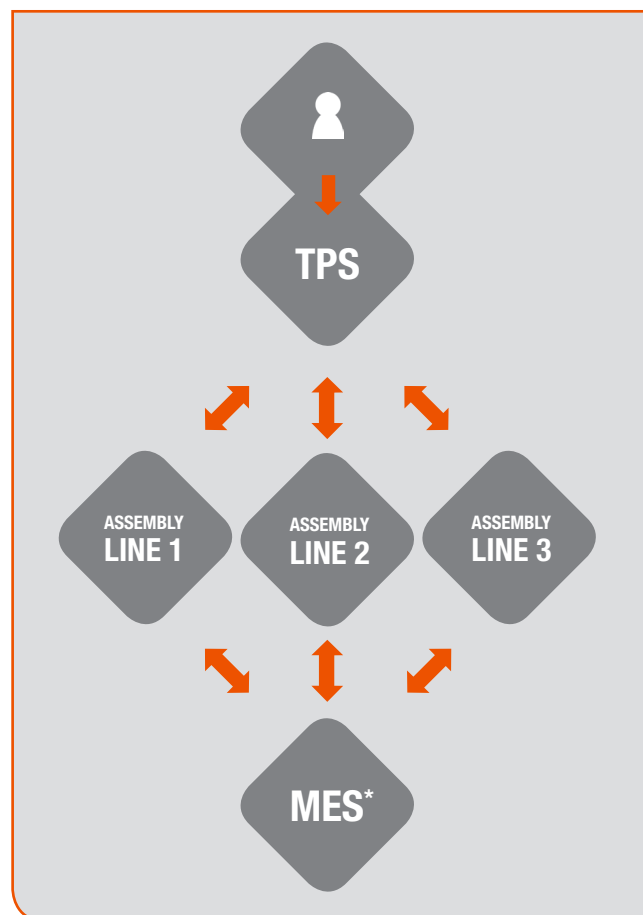
Traditional application management requires assembly lines to be manually updated

- 1) Engineer determines that an application change is required
- 2) Engineer walks to Assembly Line station
- 3) Engineer updates existing application parameters (at station)
- 4) Engineers test changes locally (at station)
- 5) Engineer saves changes and walks away from Assembly Line station
- 6) MES sends a "tool enable" command and application number to controller
- 7) Controller/Tool runs application and sends results back to MES

Steps 1-7 are repeated for each assembly line as changes are required

Streamlined Application Management (with TPS)

TPS provides engineers the ability to create and validate changes in a test environment prior to releasing into production. The **Tightening Parameter Server** enables controllers to have virtually limitless number of applications stored while ensuring the correct application is being used at any given time.



Streamlined application management enables applications to be updated through an automated process

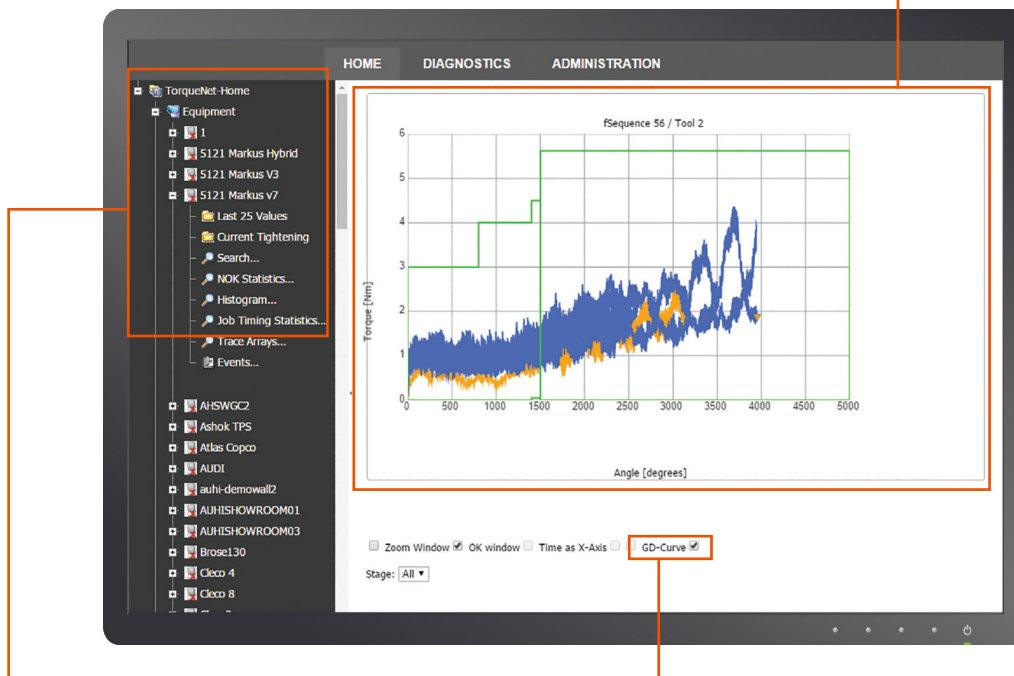
- 1) Engineer determines that an application change is required
- 2) Engineer makes change, tests and promotes change to "released status" in lab
- 3) TPS sends updated application revisions to all connected production controllers
- 4) MES sends a "tool enable" command and application number to controller from TPS
- 5) Controller/Tool runs application and sends results back to MES

TorqueNet is a Data Acquisition and Archiving System



TorqueNet solves all of your data collection and analysis needs by making your local plant floor data visible anywhere using your internet browser. All data is sent to a single location making critical production information accessible to all users working with the tightening process on the assembly line.

Visualize trends in rundown information by viewing trace overlays



All equipment connected to TorqueNet is sorted in left hand navigation

Set a master curve to view trends against a known good trace



Event Monitor & Email Service



Supports all Torque Units



Competitor Data Collection



Tightening Traces



Tool Maintenance Advisory
Preventative Maintenance

| TORQUENET 4.0 OPTIONS | Standard | Professional | Enterprise |
|--|----------|--------------|------------|
| Data Collection | ✓ | ✓ | ✓ |
| Result Queries | ✓ | ✓ | ✓ |
| NOK % Monitor | ✓ | ✓ | ✓ |
| Trace / Trace Overlay | ✓ | ✓ | ✓ |
| Easy Search Function | ✓ | ✓ | ✓ |
| Maintenance Advisory | | ✓ | ✓ |
| Process Statistics (Histograms and Curve Arrays) | | ✓ | ✓ |
| Event Monitor & Email Notifications | | ✓ | ✓ |
| TPS Link | | ✓ | ✓ |
| Parameter Change History | | | ✓ |
| Tool History | | | ✓ |

TorqueNet & Dashboard Overview

Dashboard add-on Module Enhances the Value of existing TorqueNet Data



Cleco Dashboard improves analysis speed and performance while allowing you to dive deeper into data that is critical to your operation. User specific views enables quick navigation, identification of trends and issues, and transformation of data into actionable information.

Upgrade the analysis power of TorqueNet by adding a new interface where you can:



Use pre-defined or standard views



Share data with people to make decisions/take action



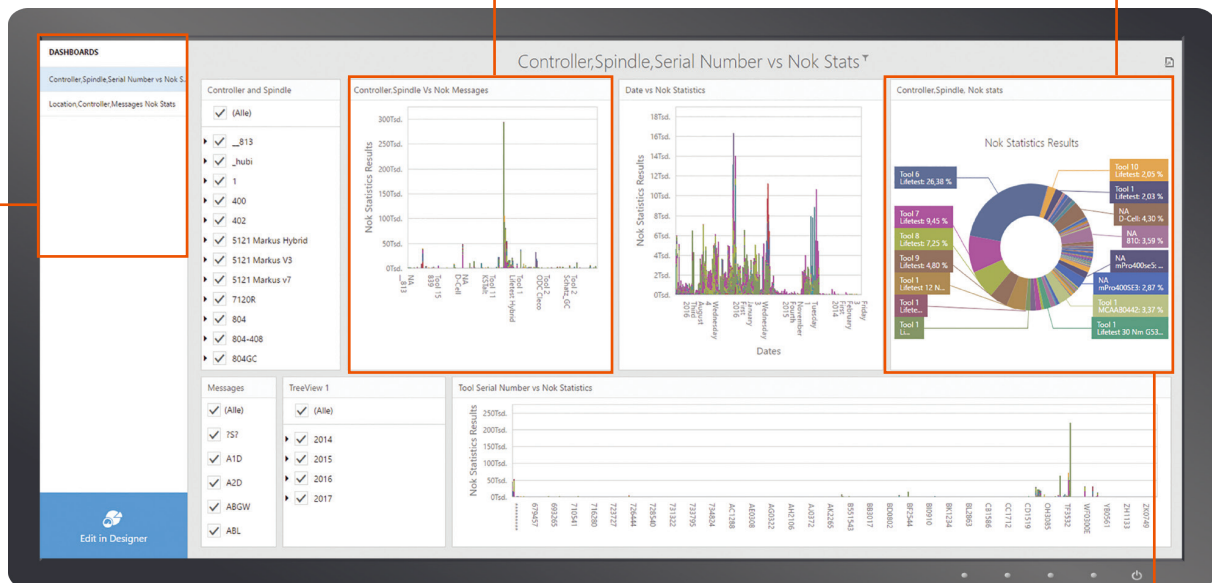
Create customized views



Stay engaged with the production process by creating your own KPI's

Data can be shared with people to make decisions/take action

Set KPI's to stay engaged with the production process



Choose template view or create your own!

Create custom widgets by selecting the data to be viewed and the type of chart to show it in

Software Products

All software products come with a permanent license duration

| PART NUMBER | Description | Price Method |
|--------------|---|--------------------|
| S168171-ST-4 | TorqueNet Standard | Per Spindle / Tool |
| S168171-PR-4 | TorqueNet Professional | Per Spindle / Tool |
| S168171-NT-4 | TorqueNet Enterprise | Per Spindle / Tool |
| S168689-ST-1 | Tightening Parameter Server | Per Spindle / Tool |
| S168703-ST-1 | Dashboard Manager | Per Spindle / Tool |
| S168171-SP-4 | TorqueNet Upgrade Standard to Pro | Per Spindle / Tool |
| S168171-SE-4 | TorqueNet Upgrade Standard to Enterprise | Per Spindle / Tool |
| S168171-PE-4 | TorqueNet Upgrade Pro to Enterprise | Per Spindle / Tool |
| S168696-ST-1 | Open Protocol Data Collector - TorqueNet Add-on | Per Spindle / Tool |

Support Packages

Maintenance and Support Products include:

| PART NUMBER | Description | Price Method | Expiration |
|--------------|---|-----------------------------|------------|
| S168171-MA-0 | TorqueNet Support Agreement* | Per Server & Spindle / Tool | 1 Year |
| S168689-MA-0 | Tightening Parameter Server Support Agreement | Per Server & Spindle / Tool | 1 Year |
| S168703-MA-0 | Dashboard Mgr. Support Agreement | Per Server & Spindle / Tool | 1 Year |

*TorqueNet Support Agreement

With the Support Agreement you ensure the functionality and support in all matters relating to the use and operation as well as in case of error.

- Online / phone support Monday to Friday 8:00-17:00h CEST (public holidays are not included)
- Exclusive standby number with priority switching
- Creation of failure reports
- Provision of SW updates (Service releases)
- Performing SW updates (via remote services)
- Reaction Time max. 2 hours

System Requirements

Physical Memory | **4GB Minimum**

Virtual Memory | **8GB Minimum**

Disk Space | **30GB Minimum****

Processor | **1.2GHZ Minimum**
(Dual Processor Recommended)

Operating System | **2008R2-2016**
Windows 7 / 10

Database | **Oracle / MS SQL**

**Additional disk space may be required depending on total number of spindles

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