Integrated electronic torque monitoring
Geared motors designed for Industry 4.0
TorqueControl4.0

As digitisation advances and with Industry 4.0 on the rise, passive actuators are becoming active components by relaying data that can be used in the machine or system for diagnostics or further processing. This constituted an opportunity for Bauer Gear Motor to expand its geared motor portfolio and respond to new requirements accordingly. Developed under the slogan "Geared Motor Goes Online", TorqueControl4.0 has been combined with a mains-powered geared motor to create an Industry 4.0 component with a range of useful additional functions. Connecting TorqueControl4.0 via IO link enables the geared motor to be integrated into the machine control interface without the need for additional components.

Features
- Direct integration of motors into PLC via IO link
- Quick configuration
- Use of motor as an Industry 4.0 component
- Rapid torque measurement
- Rapid torque release in the event of an overload
- Status and process monitoring
- Soft start and soft stop
- Adaptive load control
- Wear-free switching in the event of frequent switching cycles
- Electronic nameplate

Benefits
- Time saved during commissioning
- Motor as a data mining device
- No additional mechanical overload clutches
- Flexible usage and no maintenance
- Quick restart following overload
- Ability to access load cycle
- Ability to save on infrastructure components, e.g. soft start
- Increase in efficiency under partial load
- No additional interface required
- Rapid, secure access to geared motor data
Rapid, accurate torque measurement

Rapid, accurate current and voltage measurements enable TorqueControl4.0 to display, report and assess torque progression cyclically. As an example, this can be used with the integrated power semiconductors to quickly shut down the system in the event of overload, or to set axes based on the torque. This makes TorqueControl4.0 the equivalent of an overload clutch where the parameters can be set electronically. This also makes it possible to make a precise assessment of the motor in the load spectrum.

Areas of application
- Replaces mechanical overload clutches, e.g. in material handling
- Positioning applications dependent on torque
- Data collection for reproducing and evaluating the load spectrum (data mining)

Start/stop ramp smoothing

Smoothing start/stop ramps enables the force of the initial jolt to be limited. At the same time, the system limits the starting current in the same way as a conventional soft starter.

Areas of application
- Material handling
- Intralogistics
- Starting under load
- Applications sensitive to jolts

Adaptive load control via variable voltage adjustment

Continuous load-point recording enables TorqueControl4.0 to alter the motor’s magnetisation by adjusting the voltage. This increases efficiency in the partial-load range. As a result, efficiency can be significantly increased by up to 25% in applications run primarily in the partial-load range.

Areas of application
- Material handling
- Intralogistics

Specifications

- IP65 enclosure
- Power range: up to 2,2 kW
- Voltage range: 400 – 460 V +/- 10 %
- Working temperature: -25°C to +55°C
- 1 input and 1 output - 24 V
- Connections:
  - 1x power connection via LQ Mechatronik-Systeme - W-TEC 15
  - Customer-specific connections optional
  - 1 x M12 IO link, A-coded
  - Optional 1x M12, A-coded, for additional input/output

Specifications Table

<table>
<thead>
<tr>
<th>Speed [%]</th>
<th>Motor 4 Nm</th>
<th>75 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>10</td>
<td>90</td>
<td>40</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>30</td>
</tr>
<tr>
<td>30</td>
<td>70</td>
<td>20</td>
</tr>
<tr>
<td>40</td>
<td>60</td>
<td>10</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
<td>0</td>
</tr>
</tbody>
</table>

ETA with variable voltage
ETA with constant voltage
ETA improvement
Bauer Gear Motor Facilities

Europe
Germany
Eberhard-Bauer-Straße 37
73734 Esslingen - Germany
+49 711 3518 0

Slovakia
Tovarnícka 49
953 01 Zlate Moravce - Slovakia
+421 37 6926100

United Kingdom
Nat Lane Business Park
Winsford, Cheshire
CW7 3BS - United Kingdom
+44 1606 868600

North America
Middlesex, NJ
1476 Union Ave.
Middlesex, NJ 08846-1968 - USA
+1 732-469-8770

Charlotte, NC
701 Carrier Drive
Charlotte, NC 28216 - USA
+1 704-588-5610

Asia Pacific
China
18 Huan Zhen Road Dabo Industrial Zone - BuShang Village
Shanghai Town - Baokin District
Guangdong Province
518104 Shenzhen City - China
+86 755 27246308

Customer Service
Benelux
Brussel (Anderlecht)
+32 2 5295941

Finland
01510 Vanta
+358 207 189700

France
Brussel (Anderlecht)
+32 2 5295941

Italy
Gragnano di Zocco (Vi)
+39 0444 414392

Russia
Vodokolamskoye sh., 142, bdg 6
Business Center „Ibrik“
125464 Moscow - Russia
+7 495 6420468

The Brands of Altra Motion

Couplings
Ameridrives
www.ameridrives.com

Bibby Turboflex
www.bibbyturboflex.com

Guardian Couplings
www.guardiancouplings.com

Huco
www.huco.com

Lamiflex Couplings
www.lamiflexcouplings.com

Stromag
www.stromag.com

TB Wood’s
www.tbwoods.com

Linear Systems
Thomson
www.thomsonlinear.com

Warner Linear
www.warnerlinear.com

Belted Drives
TB Wood’s
www.tbwoods.com

Geared Cam Limit Switches
Stromag
www.stromag.com

Engineered Bearing Assemblies
Kilian
www.kilianbearings.com

Electric Clutches & Brakes
Matrix
www.matrix-international.com

Stromag
www.stromag.com

Warner Electric
www.warnerelectric.com

Deltran
www.thomsonlinear.com

Heavy Duty Clutches & Brakes
Twiflex
www.twiflex.com

Stromag
www.stromag.com

Svendborg Brakes
www.svendborg-brakes.com

Wichita Clutch
www.wichitACLutch.com

Gearing & Specialty Components
Bauer Gear Motor
www.baugears.com

Boston Gear
www.bostongear.com

Delevan
www.delevan.com

Delroyd Worm Gear
www.delroyd.com

Nuttall Gear
www.nuttallgear.com

Engine Braking Systems
Jacobs Vehicle Systems
www.jacobsvehiclesystems.com

Kollmorgen
www.kollmorgen.com

Portescap
www.portescap.com

Overrunning Clutches
Formsprag Clutch
www.formsprag.com

Marland Clutch
www.marland.com

Stieber
www.stieber clutch.com

Bauer assumes no liability or responsibility for misprints and errors in catalogues, brochures and other printed documentation. Bauer reserves the right to make changes to products without prior notice, including to products that have already been ordered, unless contractual technical specifications are affected by such changes. All trademarks in these publications are the sole and exclusive property of the relevant companies. Bauer and the Bauer logo are trademarks of Bauer Gear Motor GmbH. Images are only illustrative and may differ from the delivered product depending on the configuration ordered. Technical data and specifications are precise at the time of issue and may be subject to change. All rights reserved.

Images: Fotolia, Adobe Stock, Altra and Bauer Archives

www.bauergears.com

P-8402-BGM-EN-A4  03/19