

The new absolute Ethernet encoders.
More communicative. More compact.

OptoTurn[®] EAL580



Maximum space for your constructions.

With the new *OptoTurn*® EAL580 family, Baumer is taking the next logical step in the development of high-performing Ethernet encoders. Here the focus was not only on an extremely compact and cost-effective design, but also on the use of the latest communication technologies.

For all-optical single- and multiturn position feedback, Baumer relies on field-proven *OptoTurn*® technology which besides ultimate precision also excels with maximum immunity against magnetic fields. This way, *OptoTurn*® EAL580 offers the high quality standard that our customers have been experiencing for many years.



Uncompromisingly compact

Saves installation space

As the Ethernet encoder with the smallest installation depth in the 58 mm class, the compact design of the *OptoTurn*® EAL580 not only makes it particularly cost-effective, it also offers maximum space for your construction – especially where space is limited.

Lean cabling

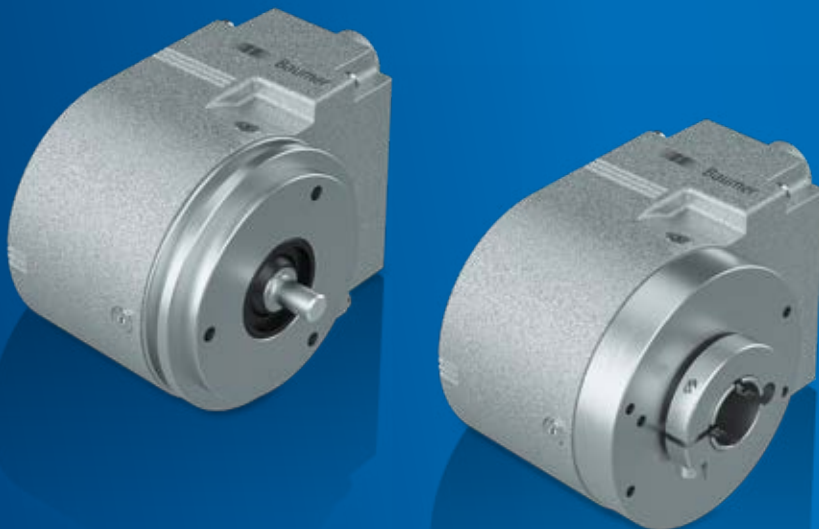
Thanks to the uniquely compact radial connector outlet, the connecting wiring of the *OptoTurn*® EAL580 is also space-saving. Tight and trouble-prone bending radii are thus a thing of the past.

Cost-effective connection technology

OptoTurn® EAL580 does not require angled connectors which allows you space-saving equipment design and in series production will save you the additional costs of angled compared to straight connectors.

All the flexibility you need for installation

Benefit from all the freedom you need for the installation. The *OptoTurn*® EAL580 is the only compact Ethernet encoder with a continuous hollow shaft and with a clamping ring on the A or B side. This allows optimum integration in your drive train and saves you time-consuming additional constructions.



Ready for Industry 4.0 and IIoT.

Open, scalable and non-interacting

The *OptoTurn*® EAL580 is the first encoder on the market to support Profinet and the OPC UA communication standard. This platform-independent and scalable approach has an open architecture which can easily be adapted to future requirements. This guarantees secure, reliable and manufacturer-neutral data exchange between many different systems. And you as a user are from now on ready for Industry 4.0 and for the industrial Internet of Things (IIoT).

The exchange of data between the *OptoTurn*® EAL580 and continuous applications through OPC UA has no influence on the control program. It is completely non-interacting and can work independently from the PLC, for example through an OPC UA compatible Profinet gateway.

High investment protection

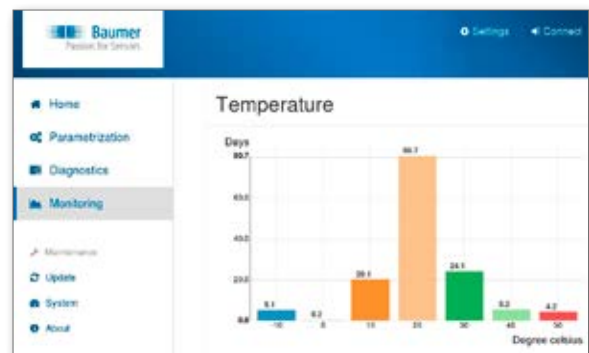
With *OptoTurn*® EAL580, your equipment is ready today for the ideas of tomorrow. You are open to all options of today and the future by vendor-neutral OPC UA standard. This way, your investments in the automation environment are optimally protected.

Unlimited application possibilities

Evaluation of device and diagnostic data linked with additional information opens up virtually unlimited application fields:

- Process optimization
- Improved equipment productivity
- Effective planning of on-site service
- Preventive maintenance

It is up to you as a user to determine the degree of data security and confidentiality, perfectly supported by Baumer and the opportunities provided by OPC UA.



OptoTurn® EAL580 – more communicative and compact

Our service commitment – your advantages at a glance

- Compact design allows use in applications with very cramped installation space
- Cutting-edge bus technologies minimize downtime in the event of servicing
- Ready for the future thanks to a vendor-neutral, reliable and secure information flow between different systems
- Our statistical process controls, high process capability as well as automated final inspections ensure you will be provided with extremely long-life encoders
- This means to our customers: precise, reliable and top quality products at cost-efficient prices

For maximum plant availability.

Simple device integration – all common Ethernet interfaces

The *OptoTurn*® EAL580 offers the highest variance of Ethernet interfaces. Whether a new development or redesign of machines and plants, the compact *OptoTurn*® EAL580 always fits.



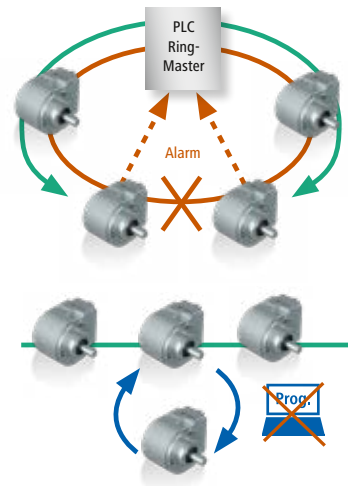
Extensive range of functions

- Standard round axis function for all interfaces for simpler PLC programming and increased process reliability during operation.
- Integrated diagnostics in the rotary encoder for preventive maintenance by acquisition e.g. of temperature and operating hours.



Profinet – for maximum availability

- Increased machine and plant availability through Media Redundancy Protocol (MRP): In the event of line or switch failure in ring topology, the system continues to run fault-free. Only a warning message appears.
- No pre-configuration before device replacement due to Link Layer Discovery Protocol (LLDP): In hard use, even the best devices can fail once. To enable a time-saving replacement, the *OptoTurn*® EAL580 uses neighborhood recognition via LLDP. The same devices can be replaced at any time without pre-configuration.
- Support of real-time (RT) and isochronous real-time (IRT) operating modes: The *OptoTurn*® EAL580 always works according to the requirements of the application.



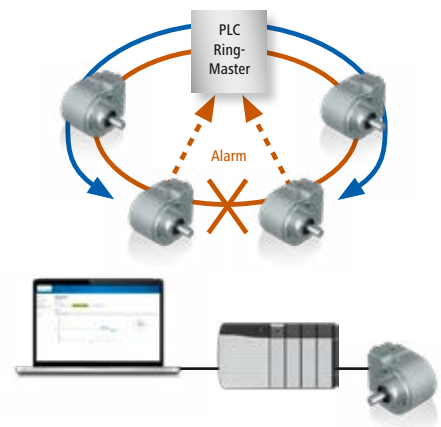
EtherCAT – for extremely fast and precise applications

- Simple and intuitive commissioning: The device address is conveniently assigned using the TwinCAT commissioning software. Firmware updates of the encoder are also controlled via the protocol file access over EtherCAT (FoE).
- Minimum cycle time (62.5 µs) and low jitter: For demanding applications and high-precision control of the machine in real-time.
- Support of the operating modes Free Run, Synchronous Mode and Distributed Clocks. The *OptoTurn*® EAL580 always adapts to the requirements of the respective application. Regardless of whether the values are freely determined or provided in a highly synchronous manner.



EtherNet/IP – for universal data access

- Increased plant availability through Device Level Ring (DLR): In the case of an interruption in a plant network in ring topology, the *OptoTurn*® EAL580 ensures that the encoder data are still sent to the control.
- Integrated web server for process data access from the office network via control to the rotary encoder: Storage and analysis on any server or in the cloud. Access management and the highest security are ensured by the control system.



Cost-effective and flexible.

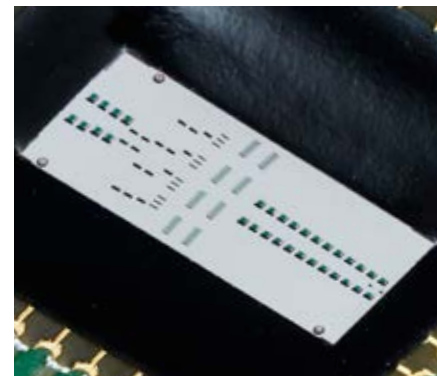
The *OptoTurn*® EAL580 series is based on a sophisticated modular system integrating the latest components. Together with the maximum possible number of identical parts, in terms of cost efficiency it allows an unrivalled large number of product variants for most versatile applications. Further it ensures maximum flexibility in connection and installation technology as well as in parameterization.

You as the user will benefit from maximum investment safety to be optimally prepared for future developments in automation technology.



Precise and reliable.

The innovative optical sensing technology of *OptoTurn*® EAL580 ensures very high precision and consistently high signal quality throughout the entire temperature range. The devices operate on an optimized monolithic OptoASIC with high integration density which is specifically designed for use in precision encoders. The accurate code disk ensures reliable measurement results without interpolation errors. This not only ensures maximum process safety for your application, but in addition you will benefit from optimized NTF values thanks to the limited number of components. Thanks to all-optical multiturn sensing, the *OptoTurn*® EAL580 encoders are also absolutely immune against strong magnetic fields.



Consistent quality

Consistent quality management, from requirement through development to production and the entire supply chain, are the main focus of the Baumer quality management system.

- Advanced quality management, with product, process, FMEA and supplier qualification
- Quality plan with first pass yield evaluation, internal and external audits
- Certification of our factories in accordance with ISO9001, ISO14001 and BS OHSAS 18001
- Production with Lean Six Sigma methods
- ppm measurements for continuously measuring quality in the field



OptoTurn® EAL580 product overview.



Product family	EAL580-SC		EAL580-SY		EAL580-B		EAL580-T	
Interface								
- Profinet	■							
- EtherCAT	■							
- EtherNet/IP	■							
- Powerlink ¹⁾	■ ¹⁾							
Sensing method								
	Optical							
Size (flange)								
	ø 58 mm							
Voltage supply								
	10 ... 30 VDC							
Shaft type								
- Solid shaft	ø 10 mm		ø 6 mm		-	-	-	-
- Blind hollow shaft	-	-	-	-	ø 12-14 mm		-	-
- Through hollow shaft	-	-	-	-	-	-	ø 12-14 mm, clamping ring on flange or housing	
Steps per turn								
	≤ 8192/ 13 bit	≤ 262 144/ 18 bit	≤ 8192/ 13 bit	≤ 262 144/ 18 bit	≤ 8192/ 13 bit	≤ 262 144/ 18 bit	≤ 8192/ 13 bit	≤ 262 144/ 18 bit
Number of turns								
	≤ 65 536/ 16 bit	≤ 8192/ 13 bit	≤ 65 536/ 16 bit	≤ 8192/ 13 bit	≤ 65 536/ 16 bit	≤ 8192/ 13 bit	≤ 65 536/ 16 bit	≤ 8192/ 13 bit
Absolute accuracy								
	± 0.025°	± 0.01°	± 0.025°	± 0.01°	± 0.025°	± 0.01°	± 0.025°	± 0.01°

¹⁾ On request

For more information about our *OptoTurn*® EAL580 series go to:
www.baumer.com/EAL580

Find your local partner: www.baumer.com/worldwide



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