Absolute rotary encoder CD_582+FS for Ethernet/IP CIPsafety

Functional safety – as small as 58 mm

EtherNet/IP™ CIP Safety™

Safety
Integrated

CD_582+FS – functional safety in standard industrial form factor

CDH 582+FS
radial connection

CDV 582+FS
axial connection

Technology

_ Efficient design

Everything the application needs – reduce to the max.

_ Certified according to DIN EN 62061 (SIL) and 61508 (PL) by TÜV NRW

CD_582+FS are developed and certified according the two leading standards for devices providing integrated safety. Most application standards refer to these basic standards and thus CD_582+FS fits into these applications.

_ safety validated process data

CD582+FS provides safety evaluated process data as absolute position values for connected F-Hosts. The safety protected data channel completely supports the concept of integrated safety. Received and verified input data may be used in a functional safe applications without addl. plausibility check.

EtherNet/IP™ CIP Safety™

TÜVRheinland® FS
Functional Safety
Type Approved

_ **SIL2/PLd, cat3;**
  SIL3/PLe, cat4

SIL 2 or SIL 3 – use the same mechanical and electronical features with precise the safety level your application needs.

_ **architecture according category 4**
  "two encoders in one"

CD_58+FS was designed with category 4 architecture in focus. That means that you can replace existing solutions with two separate encoders on a common shaft by this one-piece-solution.

Mechanics

_ **Mounting space**
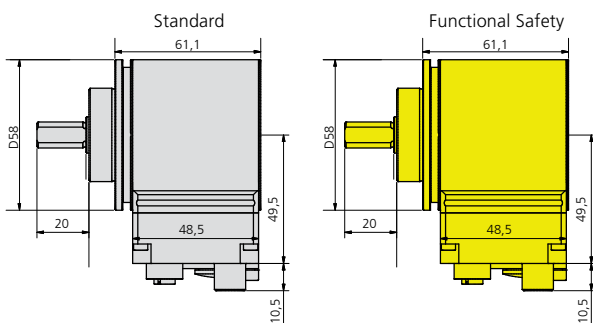
CD582+FS uses the same installation space as standard encoders in size 58mm would use. Installation situation can be used as before.

Standard
61,1
D58
20
48,5
49,5
10,5

Functional Safety
61,1
D58
20
48,5
49,5
10,5

_ **Robust magnetic/optic multiturn**
  rotary encoder CD_582M+FS

13 bit resolution within one revolution (singleturn)
16 bit revolutions (multiturn)

_ **rugged double magnetic multiturn**
  rotary encoder CD_582MM+FS

13 bit resolution within one revolution (singleturn)
16 bit revolutions (multiturn)

Solid shaft

Blind shaft

Hollow shaft

C_ _582 – the next generation:
Standard form factor with so many possibilities

_Solid shaft, clamping flange
  Slip-on hollow shaft up to 15 mm
  Hollow-through-shaft up to 15 mm

Safety integrated multiturn rotary encoders are available with solid shaft, blind shaft and hollow through shaft up to 15 mm. Plenty of available flange geomeries adapt the encoders perfect into the specific application.

_Shafts with form closure

Solid shaft, blind shaft or hollow shafts are connected by form closure (keyway) to the driving shaft.
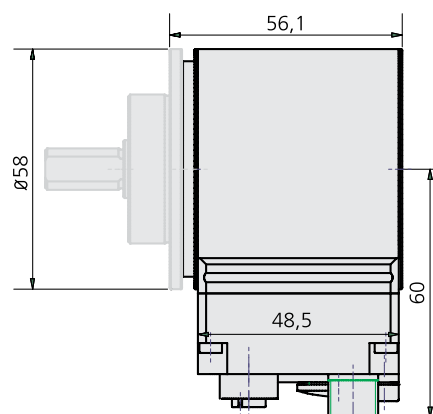

_Connectors axial or radial

Mounting space is valuable. Do not let cabling interfere with other parts and components. For solid and slip-on shafts (blind shaft), you can choose between connectors axial (at the side opposite to the shaft) or radial (at the side of the encoder housing).

Connectors axial
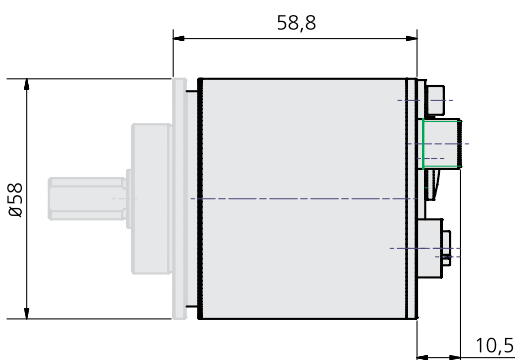
Connectors radial

_ protective bearing

CD_582+FS can be equipped with a rugged bearing unit. This bearing unit handle big forces on the shaft. Application with driving chains or belts are possible.

Interface

_ Parameterizable gearbox

Fractional gearbox parameters (numerator / denominator) for almost any reproduction of gearbox factors. Also for exact detection of closed rotary axes.

_ Easy installation with open configuration options

TR absolute rotary encoders fulfill the standards of the respective user organizations for parameterization. Users can thus navigate the standard parameters without difficulty. The free configuration also offers easy access to all functions which are available in addition to the standard functions.

_ Speed output with adjustable averaging

The time base for the speed evaluation can be freely set within a range of one millisecond to one second and can also be scaled in any units.

_ Alarms and diagnostics

How's about my machine? To know that at any time is one of the core aspects of industry 4.0. Be it capacity utilisation or upcoming services: C_ _582 provides all necessary alarms and diagnostic messages for long term machine and plant surveillance.

_ Latest communication standards for Industry 4.0

The new C_ _582 generation of industrial standard rotary encoders is rigorously equipped with state-of-the-art chip families.

_ Reset switch

CD_582+FS is equipped with a hardware reset switch. This resets the encoder to delivery state (factory settings) without the use of an enginerring system or programming device.

CD_582+FS – EtherNet/IP / CIP Safety

EtherNet/IP / CIP Safety

_SNCT Device Applet

Windows application for setting and saving the encoder parameters via Ethernet / IP. The user has the option of evaluating operating data, evaluating detailed diagnostic information and carrying out firmware updates.

_CIP Encoder Device Profile 0x22

The CD_582 + FS EIP encoders meet the established protocol standard for absolute encoders from ODVA.

_32 bit data words

Full resolution in a single telegram – the full bandwith for position or speed value can be transmitted in a single data word with 32 bit payload.

_ Secondary interface: _INK
_SIN / COS
_SSI

For local speed monitoring and position control or secondary surveillance systems, addl. interface can provide either incremental (square), sine/cosine or absolute SSI position values.

_Hybrid Device

The CD_582 + FS EIP connects to the safety-related control as a safe device using the CIP safety protocol. At the same time, the encoder value can also be read via the non-safe channel, e.g. can be read out by further controls.

_Direct readout of the two encoder channels by bus

For non secured applications, the two detection channels can be read out directly via PROFINET IO. With this technology, you can realize installations with high availability.

_The CIP Networks Library
- Volume 7 - CIP Safety,
Ed. 2.16

CD_582 + FS EIP complies with the current CIP safety standard version 2.16 and thus fits seamlessly into the latest safety architecture.

_ACD: Address Collision Detection

CD_582 + FS EIP recognizes duplicate network addresses and thus enables the user to quickly identify incorrect configurations during setup.

_DHCP

Ethernet / IP uses mechanisms of TCP / IP for network communication, including DHCP, to distribute the network addresses when a system is started.

_DLR: Device Level Ring

One ring for reliability. The Ethernet/IP interface of the CD_582M+FS supports the innovative Device Level Ring Protocol DLR. Normally Ethernet/IP only supports a linear/tree structure. A redundant connection is not primarily provided as standard. DLR significantly increases availability with one simple device! Branches are connected to a ring with an additional line from the last node to the next switch. The appropriately configured nodes detect this. One of the nodes now disconnects this ring, by "ignoring" the second connection. If a connection fails (due to cable breakage or failure of a node), the nodes detect this and attempt to find another way to the rest of the system. The previously opened connection is now closed and all nodes are reconnected to the network.

Configuration

Safety

_SIL 3 / PLe / Kat 4

Highest achievable safety level for components.

_SIL 2 / PLd / Kat 3

Adapted version for lower safety requirements.

Detection

_ optical / magnetic detection

13 bit resolution within one revolution (singleturn)

_magnetic / magnetic detection

13 bit resolution within one revolution (singleturn)
16 bit revolutions (multiturn)

Shaft type

_solid shaft: 10, 12, 14 mm with keyway

Connectors at the side of the encoder or at the back side.

_blind shaft: 10, 12, 14, 15 mm with partial keyway

Connectors at the side of the encoder or at the back side.

_hollow shaft: 10, 12, 14, 15 mm with partial keyway

Connectors at the back side of the encoder.

Additional interfaces

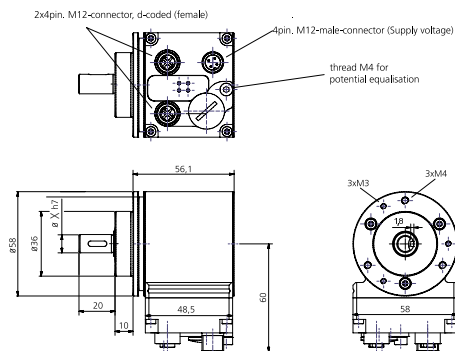**+ INC –** digital incremental signal
+ SIN/COS – sin/cos incremental signal
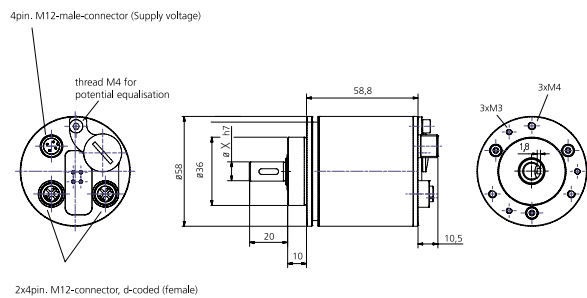**+ SSI –** SSI absolute signal

Dimensional Drawings

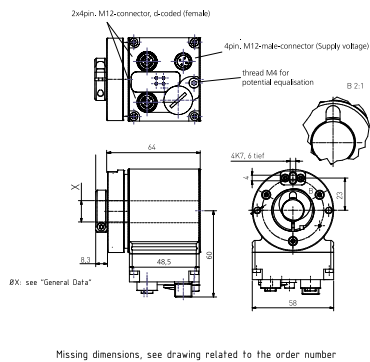## CDV582+FS RADIAL
Absolue-Encoder CDV582M+FS, CDV582MM+FS

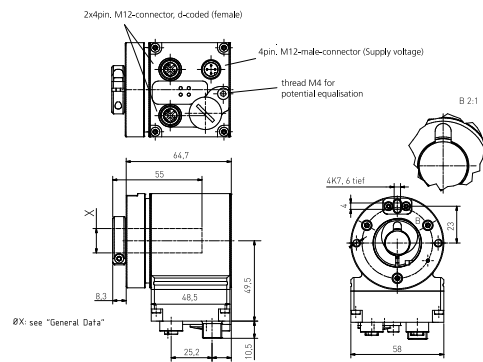
CDV582+FS AXIAL
Absolue-Encoder CDV582M+FS, CDV582MM+FS

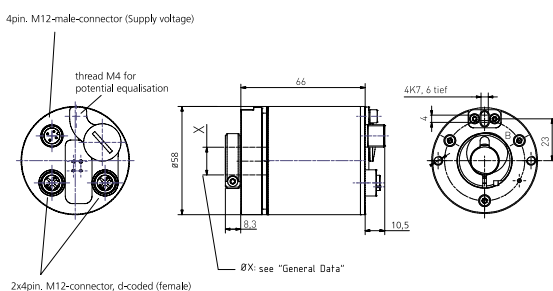## CDH582+FS RADIAL
Absolue-Encoder CDH582M+FS, CDH582MM+FS

CDS582+FS RADIAL
Absolue-Encoder CDS582M+FS, CDS582MM+FS

CDS582+FS AXIAL
Absolue-Encoder CDS582M+FS, CDS582MM+FS

We will help you to select the most suitable products from the complete TR range. Please contact us (info@tr-electronic.de).

TR-Electronic – your partner in automation

Rotary encoders

Absolute encoder, incremental rotary encoder, wire-actuated encoder

Rotary encoders with optical and magnetic scanning function register the precise position in a wide variety of applications and industries.
In medical engineering, miniature versions ensure correct positioning while SIL3-approved absolute rotary encoders provide the necessary safety. We offer not only high-quality rotary encoders (from Ø 22 to 160 mm) for almost any application but also comprehensive accessories.

Linear encoders

Linear absolute measuring systems, laser displacement measurement

Linear encoders register linear motions in machines, tools and systems according to specific requirements using different technologies.
Linear encoders allow measuring distances of max. 20 m almost without any wear. This value is max. 240 m for laser measuring systems. Machines and systems can be precisely controlled to reach their desired positions.

Motion

Compact actuating and positioning drives

Intelligent encoTRive drives are available with the current field bus systems, such as PROFIBUS, PROFINET and CANopen, within a power range of up to 300 watts. The drives are configured to meet customer requirements and can be freely combined with precision gear, holding brake and I/O.
Values of up to 4,350 rpm and powerful 200 Nm are available to cope with demanding applications.

Components

Industrial PC, field bus I/O, PLC, HMI controller

Industrial PCs are available in numerous variants and offer customized calculation power for PC-assisted automation. Programmable logic controllers (PLC) are the traditional means for automation. HMI controllers establish the interface to the user. Field bus nodes, I/O modules and cam controllers complete the range of automation components.

Automation

Consulting and implementation for new machines and retrofit

You want to set up a largely automated new machine or retrofit and modernize your existing machine with automation systems? Then you just need our extensive expert knowledge and the more than 20 years of our experience.

Unidor

Blanking and forming, systems, controls and sensors

Trendsetting blanking and forming technology for more than 30 years. We are your reliable partner in the world of blanking and pressing and can prove this with thousands of machines which we have successfully installed all over the world. Sensors, controls and systems ensure optimal results in machines, tools and retrofit projects.
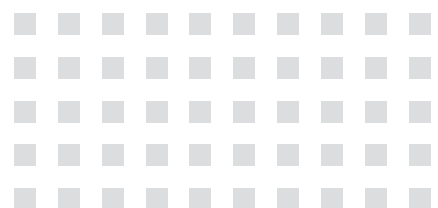
photo background: ©kras99/Fotolia.com

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