

# CDH582M\*8192/65536 EPN NTS 10H7 + FS3

OrderNo.:CDH582M-00011

[Click Here](mailto:customer@tr-electronic.com) for a Quote - [customer@tr-electronic.com](mailto:customer@tr-electronic.com)



Stock photo



## Advantages

- \_ Fast start-up, FSU
- \_ Isochronous applications, IRT
- \_ Media-Redundancy Protocol, MRP
- \_ PNO Encoder Profile, CL 3/4
- \_ Preset "on the fly"
- \_ Salt-resistant
- \_ Shared Device
- \_ SIL3, PLe

## Technical data for CDH582M-00011

|                    |  |
|--------------------|--|
| NO.OF STEPS/REV    | 8.192,000  |
| NO. OF REVOLUTIONS | 65.536,000   |
| INTERFACE          | PROFINET/PROFISAFE   |
| SUPPLY VOLTAGE     | 10-30VDC   |
| POWER DISSIPATION  | < 3W   |
| CONNECTOR TYPE     | 1X4P.M12-CONNECTOR (A-COD)<br>2X4P.M12-FEMALE (D-COD)  |
| CONNECTOR-POSITION | RADIAL   |
| MATING PLUG        | NO   |
| FLANGE TYPE        | SLOT FOR PIN D4  |
| SHAFT TYPE         | 10H7 HOLLOW SHAFT  |
| STANDARD           | EN 61508<br>EN 62061 / EN ISO 13849  |
| SAFETY             | CDH582MD+FS03 EPN SIL3/PLe   |
| TEMPERATURE RANGE  | -25+85°C   |
| PROTECTION Class   | IP54   |
| OPTIONS ENC        | CONFORMANCE CLASS C<br>IEC 61158 / IEC 61784-1<br>Legacy-Profil<br>MOMENT SUPPORT PIN/GROOVE |

Subject to change.

# CDH582M\*8192/65536 EPN NTS 10H7 + FS3

Order-#: CDH582M-00011  
30.4.2020 / 010102158201020202

## Technical data for CDH582M-00011 continuation

|                  |                          |
|------------------|--------------------------|
|                  | PN Spec. 2.3             |
|                  | PNO-PROFILE              |
|                  | PRESET VIA BUS           |
|                  | PROFIsafe-Profile V2.4   |
|                  | PROFIsafe-Profile V2.6.1 |
|                  | TR-Profil                |
|                  | VELOCITY                 |
| PINOUT NO.       | TR-ECE-TI-DGB-0323       |
| DRAWING NO.      | 04-CDH582M-M0001         |
| VERSIONNO        | 000                      |
| DOCUMENTATION NO | DOKUMENTE                |
| EL:              | AL:N                     |
| ECCN:            | ECCN:N                   |
| UL-APPROVALS     | USA+CANADA               |

## General data for K-CDH58\_2FS-PN-1

|                                |                              |
|--------------------------------|------------------------------|
| Nominal voltage                |                              |
| - Specific value               | 24 VDC                       |
| - Limit values, min/max        | 10/30 VDC                    |
| Nominal current, typically     |                              |
| - Specific value               | 110 mA                       |
| - Specific value               | 130 mA with second interface |
| - Condition                    | unloaded                     |
| Supply                         |                              |
| - SELV/PELV                    | IEC 60364-4-41               |
| - In case of UL / CSA approval | according to NEC Class 2     |
| Device design                  |                              |
| - Type                         | Multi-Turn                   |
| - Redundant scanning system    | yes, double                  |
| - Design                       | optical/magnetic             |
| Total resolution               | <= 29 Bit                    |
| Number of steps per revolution | <= 8192 = 13 bit resolution  |
| Number of revolutions          | <= 65536                     |
| Accuracy (functional)          | 12 Bit, Single-Turn; 0.087 ° |
| PROFINET IO - Interface        |                              |
| - PROFINET IO – Device         | IEC 61158, IEC 61784-1       |

Subject to change.

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Order-#: CDH582M-00011  
30.4.2020 / 010102158201020202

## General data for K-CDH58\_2FS-PN-1 continuation

|                                  |                                |
|----------------------------------|--------------------------------|
| - Physical Layer                 | Fast Ethernet, ISO/IEC 8802-3  |
| - PROFINET-Specification         | V2.3                           |
| - Conformance Class              | B, C                           |
| - Real-Time-Classes              | Class 1, 2 (RT), Class 3 (IRT) |
| - PROFI-safe-Profile             | No. 3.192b                     |
| - PROFI-safe-Profile             | PROFI-safe V2.4 (BP)           |
| - PROFI-safe-Profile             | PROFI-safe V2.6.1 (XP)         |
| - Media Redundancy Protocol, MRP | yes, is supported              |
| - PNO Encoder-Profile            | Class 3 and 4, V4.2            |
| - Fast Start-Up (FSU)            | 3-times faster start-up        |
| SSI - Interface                  |                                |
| - Equipment                      | Optional interface             |
| - SSI-Clock input                | RS-422; 2-wire                 |
| - SSI-Data output                | RS-422, 2-wire                 |
| - SSI-Clock frequency            | <= 1MHz                        |
| - SSI-Mono time, typically       | 15 µs, 20 µs, 50 µs, 500 µs    |
| - Protocol, TR-specific          | Function information + CRC     |
| - Output code                    | Binary, Gray                   |
| - Number of data bits            | 8...29                         |
| - Type of parametrization        | programmable                   |
| Incremental - Interface          |                                |
| - Equipment                      | Optional interface             |
| - Signal form                    | Square wave                    |
| - Signal form, alternative       | SIN / COS                      |
| - Incremental signals, square    | K1± K2±                        |
| - Incremental signals, SIN/COS   | SIN± COS±, 1 V <sub>ss</sub>   |
| - Impulses, square wave          | 1024...5120, in steps of 1024  |
| - Impulses, SIN/COS              | 1024 □                         |
| - Output driver, TTL             | RS-422, 5 VDC                  |
| - Output driver, HTL             | Push-Pull, Supply Voltage      |
| - Type of parametrization        | programmable                   |
| Transmission rate                |                                |
| - Specific value                 | 100 MBit/s                     |
| Cycle time                       | >= 1000 µs (IRT/RT)            |
| - Not safety related             | 0.5 ms                         |
| - Safety related                 | 3 ms                           |
| Parameter/Function, changeable   | Integration time               |
|                                  | Preset parameter               |

Subject to change.

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## General data for K-CDH58\_2FS-PN-1 continuation

|                                 |                               |
|---------------------------------|-------------------------------|
|                                 | Scaling parameter             |
|                                 | Monitoring window             |
|                                 | Counting direction            |
|                                 | Velocity parameter            |
| Type of parametrization         | programmable                  |
| Programming - Tool              | Fieldbus-Device               |
|                                 | TCI Device Tool               |
| Functional safety               |                               |
| - Safety principle              | Redundance with cross compare |
| - SIL-Standardization           | DIN EN 61508 / DIN EN 62061   |
| - SIL-Standardization           | DIN EN 61800-5-2              |
| - SIL-Level                     | SIL3 / SIL CL 3               |
| - PL-Standardization            | DIN EN ISO 13849              |
| - Performance-Level (PL)        | PLe / Cat. 4                  |
| - Service life                  | 20 Years                      |
| - PFH                           | 1.00E-9 1/h                   |
| - PFDav, T = 20 a               | 8.50E-5                       |
| - MTTFd                         | 170 a, high                   |
| - DCavg                         | 98 %, high/middle             |
| - Mode                          | High demand, continuous       |
| - Proof-Test-Interval           | T1 = 20 Years                 |
| - Accuracy (safety)             | 8 Bit, Single-Turn; 1.406 °   |
| Safety functions                |                               |
| - DIN EN 61800-5-2              | SLP (safely-limited position) |
| - DIN EN 61800-5-2              | SDI (safe direction)          |
| - DIN EN 61800-5-2              | SCA (safe cam)                |
| - DIN EN 61800-5-2              | SS1 (safe stop 1)             |
| - DIN EN 61800-5-2              | SS2 (safe stop 2)             |
| - DIN EN 61800-5-2              | SOS (safe operating stop)     |
| - DIN EN 61800-5-2              | SLS (safely-limited speed)    |
| - DIN EN 61800-5-2              | SSR (safe speed range)        |
| - DIN EN 61800-5-2              | SSM (safe speed monitor)      |
| Internal process safety time    |                               |
| - Profisafe instances: , Times: | 2, DAT <= 14 ms, WCDD <= 7 ms |
| - Profisafe instances: , Times: | 4, DAT <= 18 ms, WCDD <= 8 ms |
| Maximum Speed, mechanically     | <= 6000 1/min                 |
| Shaft load, axial/radial        | Own mass                      |
| Bearing life time               | >= 3.9E+10 revolutions        |

Subject to change.

# CDH582M\*8192/65536 EPN NTS 10H7 + FS3

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## General data for K-CDH58\_2FS-PN-1 continuation

|                               |                                       |
|-------------------------------|---------------------------------------|
| Bearing life time - Parameter |                                       |
| - Speed                       | 3000 1/min                            |
| - Operating temperature       | 60 °C                                 |
| Shaft type                    |                                       |
| - Shaft diameter [mm]         | 8                                     |
| - Shaft diameter [mm]         | 10                                    |
| - Shaft diameter [mm]         | 12                                    |
| - Shaft diameter [mm]         | 14                                    |
| - Shaft diameter [mm]         | 15                                    |
| - Shaft forming               | Parallel key/Groove                   |
| Angular acceleration          | $\leq 10E+4 \text{ rad/s}^2$          |
| Moment of inertia, worst-case | $\leq 9.5E-6 \text{ kg m}^2$          |
|                               | at shaft diameter 10 mm               |
|                               | depending from shaft forming          |
| Start-up torque, worst-case   | $\leq 3.7 \text{ Ncm}$                |
|                               | at shaft diameter 10 mm               |
|                               | depending from shaft forming          |
| Concentricity tolerance       | $\pm 0.3 \text{ mm}$ (static, radial) |
| Mass, typically               | 0.3...0.5 kg                          |
| Isolation voltage             | 500 V                                 |

## Environmental data

|                          |                                    |
|--------------------------|------------------------------------|
| Vibration                | DIN EN 60068-2-6                   |
| - Specific value         | $\leq 100 \text{ m/s}^2$           |
| - Sine                   | 50...2000 Hz                       |
| Shock                    | DIN EN 60068-2-27                  |
| - Specific value         | $\leq 1000 \text{ m/s}^2$          |
| - Half sine              | 11 ms                              |
| Immunity to disturbance  | DIN EN 61000-6-2                   |
| Transient emissions      | DIN EN 61000-6-3                   |
| Working temperature      |                                    |
| - Standard               | -25...+85 °C                       |
| - Derating               | $T_w = -0.002 * n + 85 \text{ °C}$ |
| Storage temperature, dry | -40...+90 °C                       |
| Relative humidity        | 98 %, non condensing               |

Subject to change.

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30.4.2020 / 010102158201020202

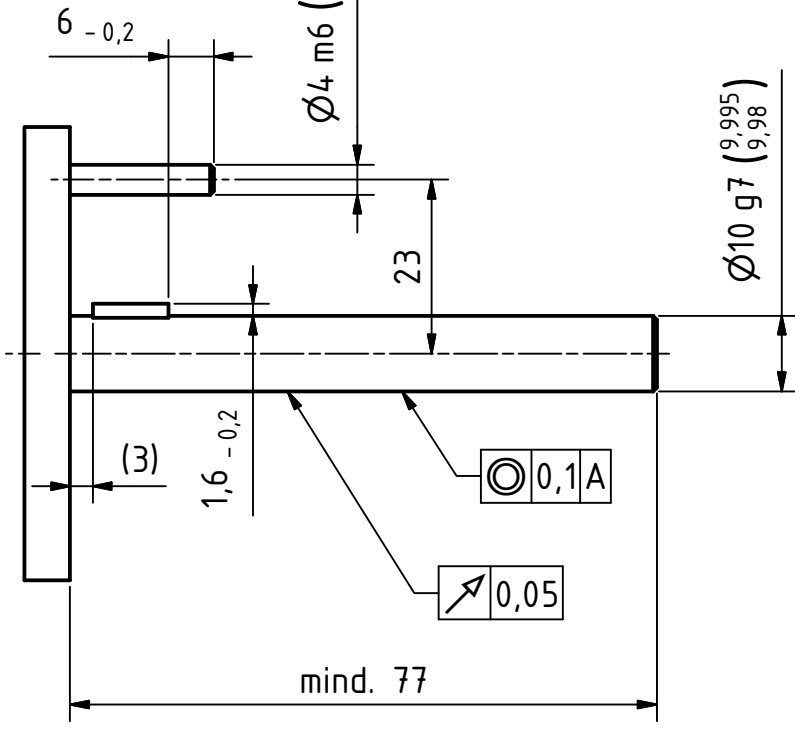
## Environmental data continuation

|                           |                       |
|---------------------------|-----------------------|
| Protection class          |                       |
| - Standard                | IP54                  |
| Resistance                |                       |
| - against salt (seawater) | DIN EN IEC 60068-2-52 |
| - Test method             | Test method 1         |
| - excluded are            | Attachment parts      |

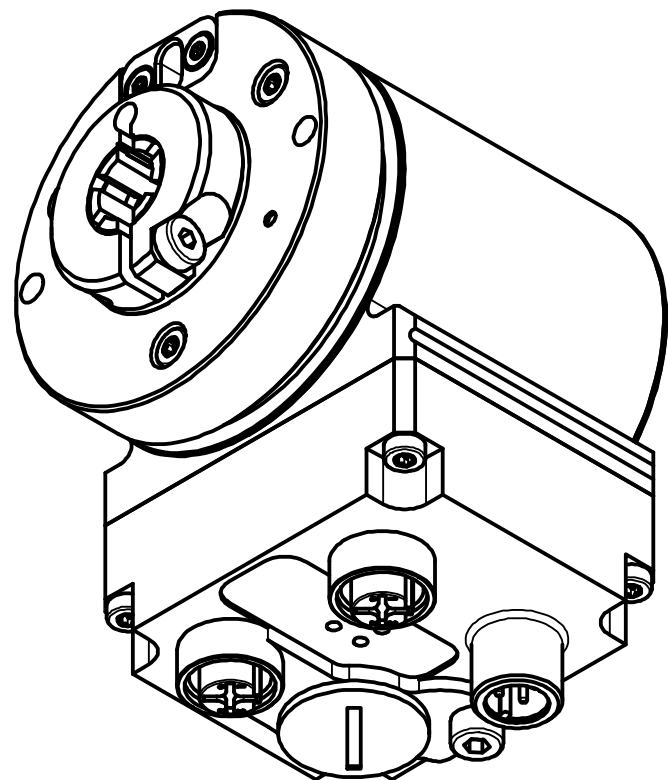
Subject to change.

Anforderung an Kundenwelle  
requirements for the customer shaft

Passfeder DIN 6885-A 3x3x10  
parallel key DIN 6885-A 3x3x10



A Geberanbau  
encoder mounting



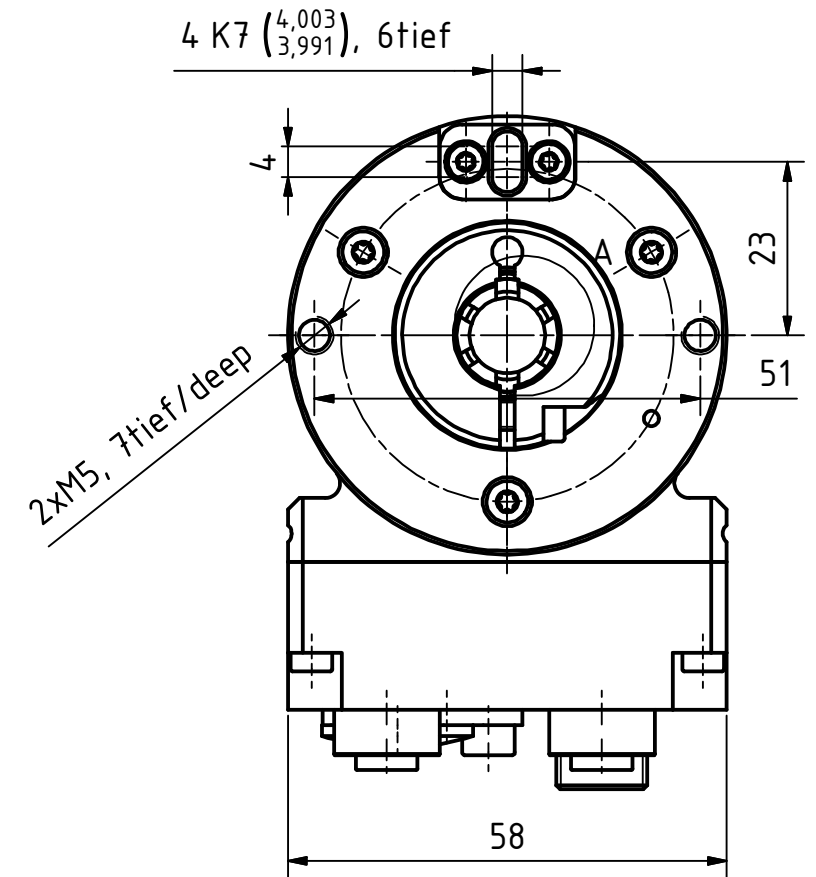
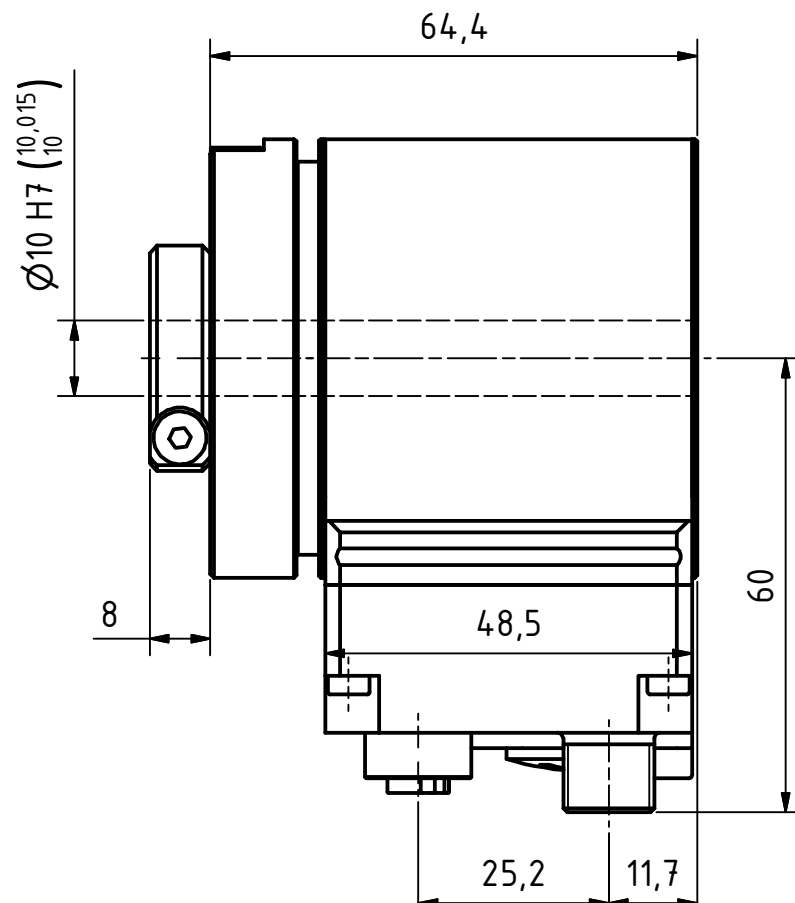
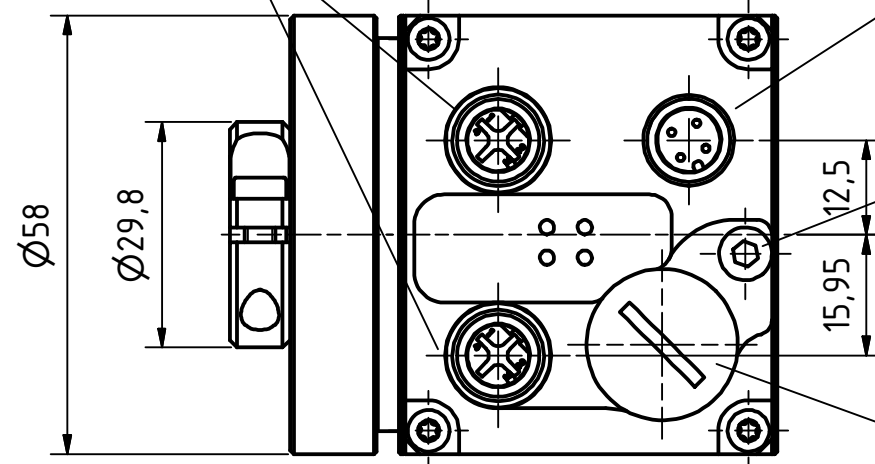
2x4pol. M12-Stecker, d-codiert (Buchse)  
2x4pin. M12-connector, d-coded (female)

4pol. M12-Stecker (Spannungsversorgung)  
4pin. M12-male-connector (Supply voltage)


Gewinde M4 für  
Potentialausgleich  
thread m4 for  
potential equalisation

Verschlussstopfen M16x1.5  
dummy plug M16x1.5

Nut DIN6885



Artikel-Nr. und Steckerbelegung: siehe Datenblatt  
Article-No. and pin connections: see data sheet

|   |  |  |              |
|---|--|--|--------------|
|  TR-Electronic GmbH<br>Eglisshalde 6<br>D-78647 Trossingen<br>phone +49 7425 228.0<br>www.tr-electronic.de | Maßstab 1:1 DIN A3   |  | Projekt-Nr.: |
|   | Zeichnungs-Nr. nur für diese Ausführung gültig<br>Drawing-No. only for this type valid |  |              |
|   | Datum  | Name   |              |
|   | Erstellt 02.05.2018  | FLAIG  |              |
|   | Bearb. 30.07.2019  | FLAIG  |              |
|   | Gepr. 31.07.2019   | NEMECZ   |              |
|   | Norm   |  |              |
| 3   | Kundenwelle  | 30.07.19   | Flaig        |
| 2   | Steckerausrichtung   | 15.08.18   | Flaig        |
| 1   | Kundenwelle  | 02.07.18   | Flaig        |
| Zustf.  | Änderungen   | Datum  | Name         |
|   |  | www.tr-electronic.de<br>DXF+Info:<br>info@tr-electronic.de |              |
| Zeichnungs-NR./Drawing-No.:   |  |  | Blatt        |
| 04-CDH582M-M0001  |  |  | 1            |
|   |  |  | 1 Bl.        |

## Steckerbelegung / Pin assignment

### CD\_-582 PROFINET / PROFIsafe

|  |  |   |
|--|--|---|
| <p>axialer Steckerabgang /<br/><i>axial connector outlet</i></p> | <p>radialer Steckerabgang /<br/><i>radial connector outlet</i></p> | <p><b>A</b> Potentialausgleich /<br/><i>Potential equalisation</i></p> <p><b>B</b> PROFIsafe-Zieladresse /<br/><i>PROFIsafe destination address</i><br/>- Valid addresses = 1 – 255</p> <p>Rücksetzen auf Werkseinstellungen /<br/><i>Reset to factory settings</i><br/>- Set SW1 / SW2 = 0x00<br/>- 3 Sek. warten<br/>- Set SW2 / SW1 = 0x52<br/>- Wait 3s -&gt; LED green 2 Hz<br/>- Set SW1 / SW2 = 0x00</p> |
|--|--|---|

| X1 | Flanschstecker / <i>Male socket</i> (M12x1-4 pol. A-coded) |  |  | Steckseite<br><i>Mating Face</i> |  |
|----|--|--|--|----------------------------------|--|
| 1  | 10 – 30 V DC   | Encoder-Versorgungsspannung /<br><i>Encoder-Supply Voltage</i> |  |                                  |  |
| 2  | -  | N.C.   |  |                                  |  |
| 3  | 0 V  | Encoder-Versorgungsspannung /<br><i>Encoder-Supply Voltage</i> |  |                                  |  |
| 4  | -  | N.C.   |  |                                  |  |

| X2 = PORT 1 | Flanschdose / <i>Female socket</i> (M12x1-4 pol. D-coded) |                 |                            | Steckseite<br><i>Mating Face</i> |  |
|-------------|---|-----------------|----------------------------|----------------------------------|--|
| 1           | TxD+  | Sendedaten +    | <i>Transmission Data +</i> |                                  |  |
| 2           | RxD+  | Empfangsdaten + | <i>Receive Data +</i>      |                                  |  |
| 3           | TxD-  | Sendedaten -    | <i>Transmission Data -</i> |                                  |  |
| 4           | RxD-  | Empfangsdaten - | <i>Receive Data -</i>      |                                  |  |

| X3 = PORT 2 | Flanschdose / <i>Female socket</i> (M12x1-4 pol. D-coded) |                 |                            | Steckseite<br><i>Mating Face</i> |  |
|-------------|---|-----------------|----------------------------|----------------------------------|--|
| 1           | TxD+  | Sendedaten +    | <i>Transmission Data +</i> |                                  |  |
| 2           | RxD+  | Empfangsdaten + | <i>Receive Data +</i>      |                                  |  |
| 3           | TxD-  | Sendedaten -    | <i>Transmission Data -</i> |                                  |  |
| 4           | RxD-  | Empfangsdaten - | <i>Receive Data -</i>      |                                  |  |



Die Schirmung ist großflächig auf das Gegensteckergehäuse aufzulegen!  
Empfehlung: Potentialausgleich [A] großflächig mit dem Erdungsanschluss verbinden. /

*The shielding is to be connected with large surface on the mating connector housing!  
Recommendation: Connect the potential equalisation [A] to the grounding connection across a sufficiently sized surface.*



Betriebsanleitung beachten! - Observe User Manual!

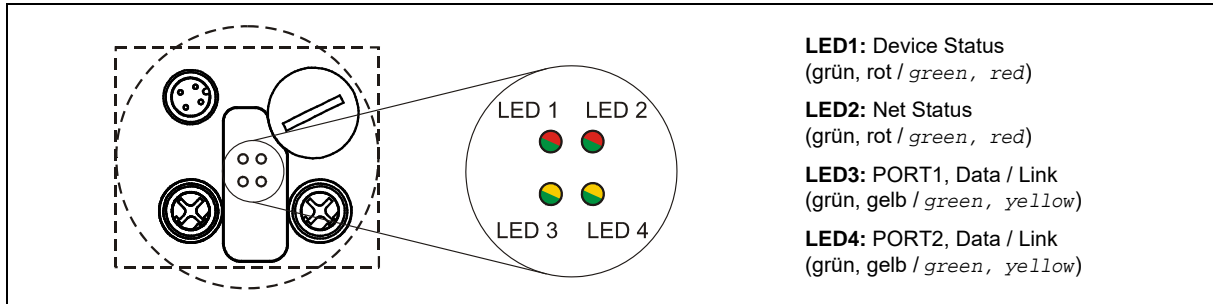


Änderungen vorbehalten / Subject to change



## Steckerbelegung / Pin assignment

### Status-LEDs

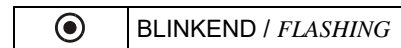
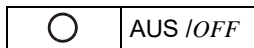
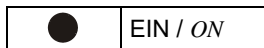


**LED1:** Device Status  
(grün, rot / *green, red*)

**LED2:** Net Status  
(grün, rot / *green, red*)

**LED3:** PORT1, Data / Link  
(grün, gelb / *green, yellow*)

**LED4:** PORT2, Data / Link  
(grün, gelb / *green, yellow*)



### LED1, Device Status

| grün / <i>green</i> |   |
|---------------------|---|
|                     | Versorgung fehlt, Hardwarefehler / <i>No supply voltage, hardware error</i>                     |
|                     | Betriebsbereit / <i>Operational</i>   |
|                     | Re-Integration gefordert / <i>Re-integration required</i>                                       |
| rot / <i>red</i>    |   |
|                     | System- oder Sicherheitsfehler / <i>System or safety relevant error</i>                         |
|                     | Warnungen, Parameter- oder F-Parameterfehler / <i>Warnings, Parameter- or F-Parameter error</i> |

### LED2, Net Status

| grün / <i>green</i> |   |
|---------------------|---|
|                     | Versorgung fehlt, Hardwarefehler / <i>No supply voltage, hardware error</i> |
|                     | Datenaustausch / <i>Data exchange</i>                                       |
| rot / <i>red</i>    |   |
|                     | Keine Verbindung zum IO-Controller / <i>No link to the IO-Controller</i>    |

### LED3 / LED4, PORT1 / PORT2 - Link/Data LEDs

| grün / <i>green</i>  |   |
|----------------------|---|
|                      | keine Ethernet-Verbindung hergestellt / <i>No ethernet connection established</i> |
|                      | Ethernet-Verbindung hergestellt / <i>Ethernet connection established</i>          |
| gelb / <i>yellow</i> |   |
|                      | Datenaustausch aktiv / <i>data exchange active</i>                                |

Bestellangaben zum Ethernet Steckverbinder, passend zur Flanschdose M12x1-4 pol. D-kodiert /  
*Order numbers for the Ethernet connector, suitably for the D-coded female socket M12x1-4 pol.*

| Hersteller / <i>Manufacturer</i> | Bezeichnung / <i>Name</i>       | Art-No.:       |
|----------------------------------|---------------------------------|----------------|
| Binder                           | Series 825                      | 99 3729 810 04 |
| Phoenix Contact                  | SACC-M12MSD-4CON-PG 7-SH (PG 7) | 15 21 25 8     |
| Phoenix Contact                  | SACC-M12MSD-4CON-PG 9-SH (PG 9) | 15 21 26 1     |
| Harting                          | HARAX <sup>®</sup> M12-L        | 21 03 281 1405 |

Betriebsanleitung beachten! - Observe User Manual!

Änderungen vorbehalten / Subject to change