ComInTec®
Safety in Power Transmission

FLOHR
INDUSTRIETECHNIK GMBH

# TORQUE LIMITER FOR GEARBOXES

## up to 2,800 Nm and 65 mm bore diameters

ED. 07/2021 Rev.01

- Download catalogue
- Download instruction sheets
- Download 3D and 2D cad model

.../PR

# .../PR - torque limiter for gearboxes: introduction

- Safety coupling made in steel fully turned, spacer made in aluminium fully turned for IEC-B5 motors
- Standard treatment of phosphating on torque limiter.
- Compact solution.
- Model available for IEC motors and gearboxes.
- Protection in both directions.
- Instant disengagement upon overload.
- Fast and simple calibration using our “H” dimension procedure.

ON REQUEST

- Device calibrated and ready to use.
- Friction rings available in various materials and performance to suit specific needs.
- Free rotation blacklash free balls model according to ATEX conformity.
- Various anti-corrosive surface treatments available.

Safety coupling to be mounted between the motor and gearbox with flanged B5 spacer. Available in sliding (DF/TAC/PR-V) and disengage versions (DSS/F/SG/PR-V or DSS/SG/RF/PR-V). The location of the limiter between the motor and gearbox requires a smaller size of device with also reduces costs.

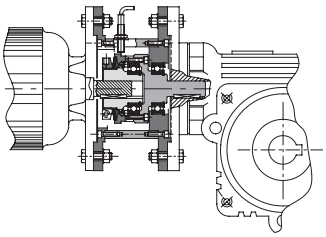
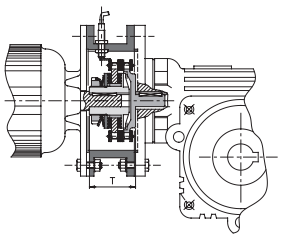
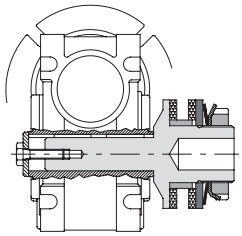


## MAIN APPLICATION

- Conveyor.
- Packaging machines.
- Wrapping machines.
- Motorized systems of handling and positioning.

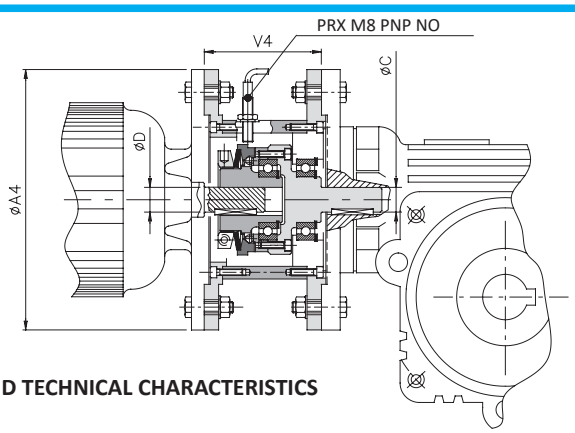
## ADVANTAGES AND BENEFITS

- Simplicity and sensitivity compared to gearbox integrated solutions.
- Protect the motor-gearbox from accidental collisions or impacts from the products being processed.
- Greatly reduces production downtime in case of overload.
- Absorb static torques without disengaging (friction model).

| | | | |
|---|---|---|---|
|  | **DSS/F/SG/PR-V:** Backlash free balls model to fit between motor and gearbox.<br><br>**DSS/SG/RF/PR-V:** Free rotation blacklash free balls model according to ATEX 2014/4G/UE conformity.<br>**II 2G Ex II B T5 Gb -15 °C ≤ Ta ≤ + 80 °C** | From 2 - 1,300 Nm of torque<br>65 mm max. bore / shaft | Pag. 53 |
|  | **DF/TAC/PR-V:** Friction model chain coupling version to fit between motor and gearbox. | From 1 to 1,650 Nm of torque<br>55 mm max. bore / shaft | Pag. 54 |
|  | **DF/PR:** Friction model to assemble directly into the output of the hollow shaft gearbox. | From 1 to 2,800 Nm of torque<br>65 mm max. bore<br>55 mm max. shaft | Pag. 55 |

# DSS/F/SG/PR-V and DSS/SG/RF/PR-V- backlash free balls model for gearboxes (input shaft): technical data

- Balls solution, torsional backlash free, maintenance free.
- Instant disengagement between driving part and driven part in the event of overload.
- Available with single point (360°) engagement or free rotation according to ATEX conformity **(DSS/SG/RF/PR-V).**
- Complete solution with connecting flanges in aluminum for IEC-B5 motors.
- Inductive sensor integrated for monitoring the overload.
- Torque range: 2-1,300 Nm; bore/shaft max ø48 mm.




version DSS/SG/RF/PR-V
II 2G Ex II B T5 Gb -15°C ≤ Ta ≤ +80°C

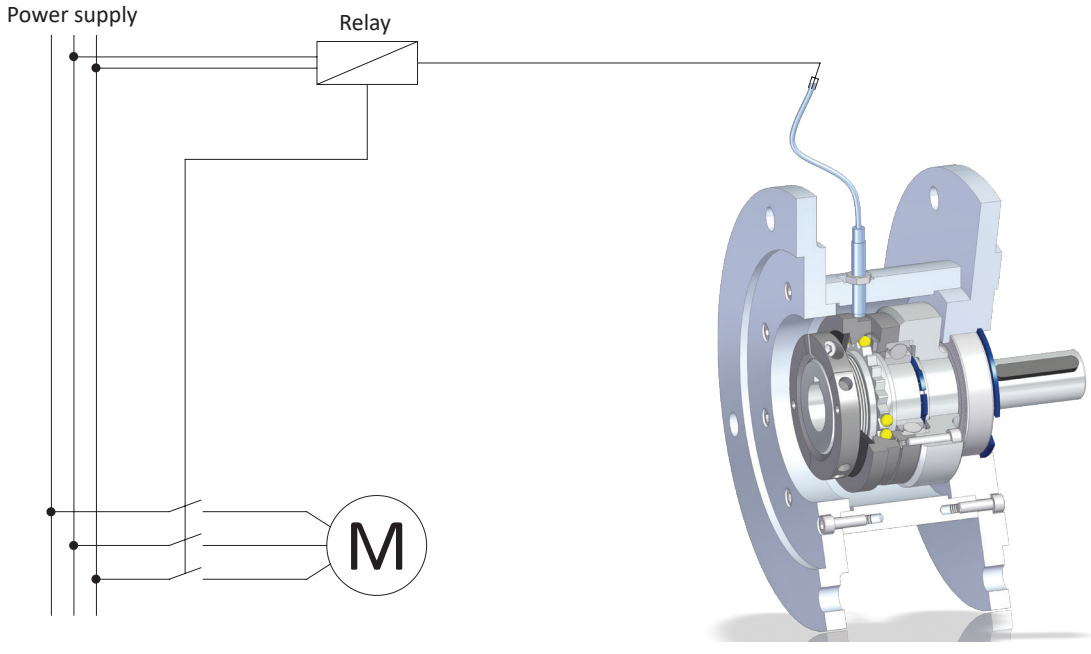
## DIMENSIONS AND TECHNICAL CHARACTERISTICS

| | T.L. size | D H7 C h7 | Motor IEC | A4 **B5 Flange** | Model: **DSS/F/SG/PR-V** Torque *[Nm]* T1 | T2 | T3 | T4 | V4 | Max speed *[Rpm]* | Weight *[Kg]* | Model: DSS/SG/RF/PR-V Torque *[Nm]* T1 | T2 | T3 | T4 | V4 | Max speed *[Rpm]* | Weight *[Kg]* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 00.47 | 11 | 63 | 140 | 2-5,6 | 5,3-12 | - | 11-24 | 52,5 | 4000 | 3,5 | - | | | | | | |
| | | 14 | 71 | 160 | | | | | 55 | | 4,2 | - | | | | | | |
| | 0.63 | 19 | 80 | 200 | 5-14 | 12-28 | 24-50 | - | 78 | 4000 | 8 | 5-14 | 10-30 | 20-50 | - | 86 | 4000 | 8 |
| | 1.80 | 24 | 90 | 200 | 9-28 | 18-60 | 40-100 | - | 90 | 3000 | 9 | 9-30 | 20-70 | 30-100 | - | 99 | 4000 | 10 |
| | 2.96 | 28 | 100-112 | 250 | 20-45 | 42-95 | - | 85-200 | 110 | 2500 | 17 | 20-54 | 40-95 | - | 80-200 | 121 | 4000 | 18,5 |
| ▲ | 3.116 | 38 | 132 | 300 | 35-100 | 75-200 | - | 195-415 | 110 | 2000 | 24 | 50-95 | 90-185 | - | 180-400 | 140 | 4000 | 29,5 |
| ▲ | 4.138 | 42 | 160 | 350 | 75-190 | 140-345 | - | 245-720* | 126 | 1850* | 33,5 | 70-190 | 125-345 | - | 300-720 | 148 | 3000 | 37,5 |
| ▲ | | 48 | 180 | | | | | | | | 36 | | | | | | | 40 |
| ▲ | 5.172 | 55 | 200 | 400 | - | | | | | | | 120-350 | 230-670 | - | 500-1300 | 192 | 3000 | 70 |
| ▲ | | 60 | 225 | 450 | | | | | | | | | | | | 192 | | 80 |
| ▲ | | 65 | 250-280 | 550 | | | | | | | | | | | | 194 | | 110 |

* For calibrations over 350 Nm the maximum speed is reduced to 1200 Rpm

▲ On request

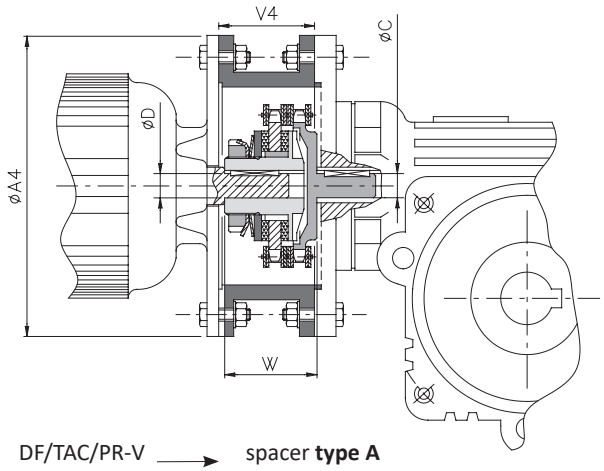
## FITTING EXAMPLE



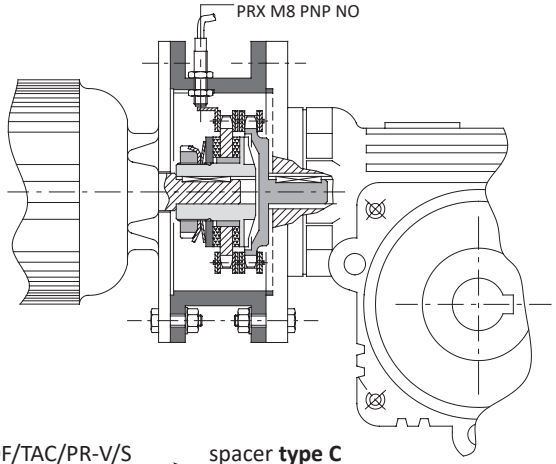

*Wiring diagram of the sensor **PRX** for intervention signalling on model **DSS/F/SG/PR -V***

# DF/TAC/PR-V - friction model with chain coupling for gearboxes (input shaft): technical data

- Compact and economic solution.
- Sliding of the driving part to overcome the torque calibration without disconnecting the transmission.
- Silent intervention and vibration-free.
- Complete solution with connecting flanges in aluminum for IEC B5 motors.
- Possibility of integration of an inductive sensor for monitoring the overload (DF/TAC/PR-V/S).
- Torque range: 1-1,650 Nm; bore/shaft max: ø55 mm.




DF/TAC/PR-V (without sensor) → spacer **type A** (with inspection)



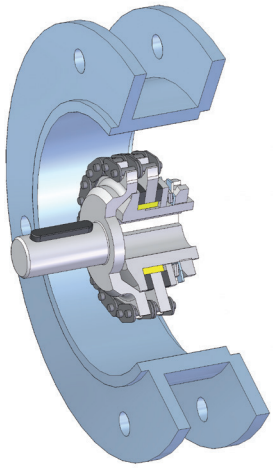

DF/TAC/PR-V/S (with sensor) → spacer **type C** (with inspection)

## DIMENSIONS AND TECHNICAL CHARACTERISTICS

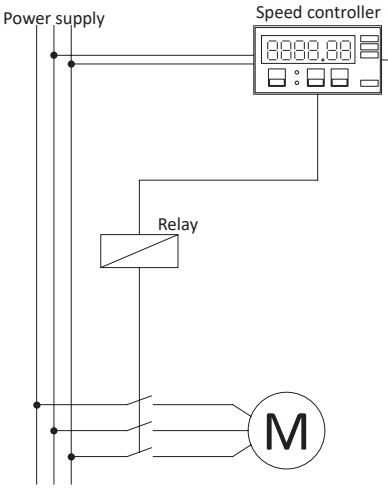
| T.L. size | D H7 C h7 | Motor IEC | A4 **B5 Flange** | Torque *[Nm]* | | | | V4 | W | Max speed *[Rpm]* | Weight *[Kg]* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | T0 | T1 | T2 | T3 | | | | limiters | *spacer* |
| **00.38** | 11 | 63a | 140 | - | 1 - 14 | 4 - 22 | 15 - 34 | 43 | 43 | 5000 | 0,6 | 0,5 |
| | 14 * | 71a | 160 | | | | | | | | | 0,6 |
| **0.50** | 19 | 80a | 200 | 2 - 12 | 9 - 42 | 25 - 70 | 46 - 90 | 45,5 | 45 | 3800 | 1 | 1 |
| | 24 * | 90S | | | | | | 55,5 | | | 0,9 | 1,5 |
| **1.70** | 28 | 100La - 112M | 250 | 4 – 20 | 15 – 80 | 30 – 150 | 80 – 230 | 66 | 64 | 2800 | 2,6 | 2,2 |
| **2.90** | 38 | 132M | 300 | 12 – 85 | 55 – 160 | 95 – 290 | 175 – 450 | 83,5 | 72 | 2200 | 3,8 | 2,9 |
| **3.115** | 42 | 160L | ▲350 | 65 – 265 | 130 – 380 | 200 – 700 | 290 – 950 | 121 | 104 | 1800 | 10,2 | 5,8 |
| | 48 | 180L | | | | | | | | | 10,4 | 5,8 |
| **4.140** | 55 | 200L | ▲400 | - | 95 – 700 | 200 - 1300 | 280 – 1650 | 122 | 104 | 1500 | 18 | 16,5 |

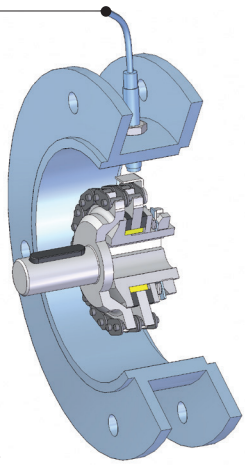
▲ On request

## FITTING EXAMPLES



*Model* **DF/TAC/PR-V** *for mounting between motor and gearbox complete with spacer type A and inspection.*



*Wiring diagram of the sensor PRX to intervention signaling on model* ***DF/TAC/PR-V/S****.*

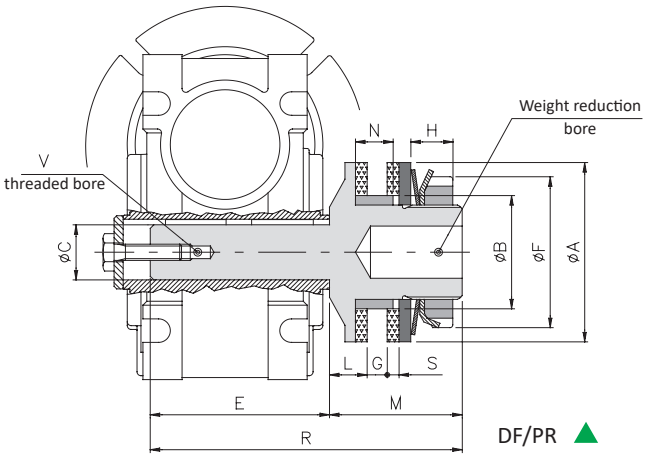
## NOTES

- D H7 *: reduced keyway on torque limiter.

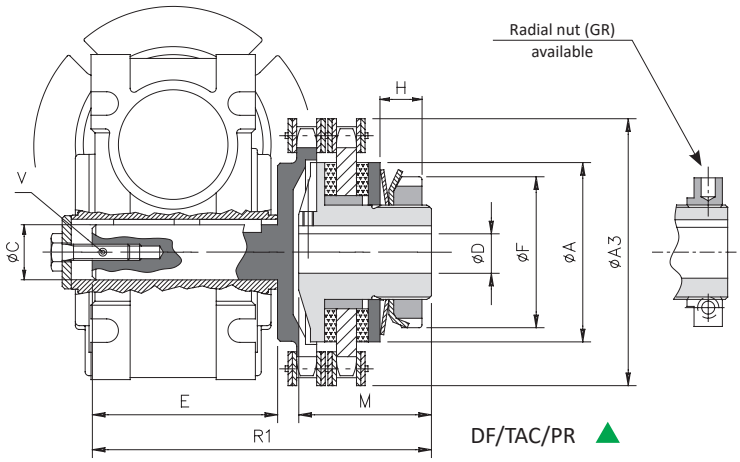
# DF/PR and DF/TAC/PR - friction model for gearboxes (output shaft): technical data

## ON REQUEST MODEL

- Possibility of friction rings with different performance for specific needs.
- Specifically designed for installation on hollow output shaft gearboxes.
- Available complete with transmission component fully turned and fitted.
- Available with radial nut (.../GR) statically balanced.
- Model for gearboxes with a chain coupling, suitable for connections of coaxial shafts (DF/TAC/PR).
- Torque range: 1-2,600 Nm; max shaft: ø55 mm; max bore: ø65 mm.




DF/PR ▲




DF/TAC/PR ▲

## DIMENSIONS

| Size | A3 | A | B h7 | C h7 | D H7 max | E | F | G min | G max | L | M | N | R | R1 | S | V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **00.38** | 57 | 38 | 24 | 11 | 12 | 48 | 32 | 2,5 | 5 | 8 | 33 | 8 | 81 | 91 | 2,5 | M4x10 |
| **0.50** | 75 | 50 | 36 | 14 | 20 | 53 | 44 | 3,5 | 6 | 10 | 35 | 10 | 88 | 98 | 3 | M5x13 |
| **1.70** | 101 | 70 | 45 | 18 | 25 | 62 | 63 | 5 | 10 | 15 | 55 | 15 | 117 | 126 | 4 | M6x16 |
| | | | | 19 | | 78 | | | | | | | 133 | 142 | | |
| | | | | 24 | | 90 | | | | | | | 145 | 154 | | |
| | | | | 25 | | 80 | | | | | | | 135 | 144 | | |
| **2.90** | 126 | 90 | 60 | 25 | 38 | 90 | 82 | 7 | 12 | 16 | 60 | 17 | 150 | 164 | 4 | M8x20 |
| | | | | 28 | | 110 | | | | | | | 170 | 182 | | |
| **3.115** | 159 | 115 | 72 | 32 | 45 | 120 | 104 | 9 | 16 | 18 | 70 | 21 | 190 | 212 | 4 | M10x25 |
| | | | | 35 | | 118 | | | | | | | 188 | 210 | | |
| | | | | 38 | | 138 | | | | | | | 208 | 230 | | |
| **4.140** | 184 | 140 | 85 | 42 | 55 | 152 | 130 | 13 | 19 | 20 | 80 | 25 | 232 | 258 | 5 | M12x32 |
| | | | | 45 | | 163 | | | | | | | 243 | 269 | | |
| | | | | 48 | | 178 | | | | | | | 258 | 284 | | |
| **5.170** | 215 | 170 | 98 | 50 | 65 | 167 | 158 | 15 | 22 | 22,5 | 95 | 28 | 262 | 286 | 5 | M16x40 |
| | | | | 55 | | 202 | | | | | | | 303 | 327 | | |

## TECHNICAL CHARACTERISTICS

| Size | Torque *[Nm]* | | | | Max speed *[Rpm]* | | Weight *[Kg]* | |
|---|---|---|---|---|---|---|---|---|
| | T0 | T1 | T2 | T3 | DF/PR | DF/TAC/PR | DF/PR | DF/TAC/PR |
| **00.38** | - | 1 - 14 | 4 - 22 | 15 - 34 | 10000 | 5000 | 0,2 | 0,6 |
| **0.50** | 2 - 12 | 9 - 42 | 25 - 70 | 46 - 90 | 7600 | 3800 | 0,4 | 1,0 |
| **1.70** | 4 – 20 | 15 – 80 | 30 – 150 | 80 – 230 | 5450 | 2800 | 1,2 | 2,8 |
| **2.90** | 12 – 85 | 55 – 160 | 95 – 290 | 175 – 450 | 4250 | 2200 | 2,2 | 5,7 |
| **3.115** | 65 – 265 | 130 – 380 | 200 – 700 | 290 – 950 | 3350 | 1800 | 3,9 | 10,7 |
| **4.140** | - | 95 – 700 | 200 - 1300 | 280 – 1650 | 2750 | 1500 | 7,3 | 19,3 |
| **5.170** | - | 100 - 950 | 600 - 1900 | 800 - 2800 | 2250 | 1300 | 12,1 | 29,8 |

## NOTES

▲ On request

- Weight refer to the torque limiter pilot bore.

# .../PR - torque limiter for gearboxes: additional information

## ORDER EXAMPLE

| TORQUE LIMITER FOR GEARBOXES | | | | | + | DRIVE ELEMENT (ref. to DF/PR) |
|---|---|---|---|---|---|---|
| Size | Model | Spacer | Shaft / Bore | Torque/Springs | | Description |
| **0.50** | **DF/TAC/PR-V** | **with type A spacer** | **ø28 h7/H7** | **20 Nm** | | **Simple plate wheel 3/8" x 7/32" Z=22** |

| Size |
|---|
| da 00.38 a 5.170 |
| da 00.47 a 4.138 |

| Model |
|---|
| DSS/F/SG/PR-V |
| DSS/SG/RF/PR-V (ATEX) |
| ● DF/TAC/PR-V |
| ● DF/TAC/PR-V/S |
| DF/PR |

| ● Spacer (ref. to TAC/PR-V) |
|---|
| Type A |

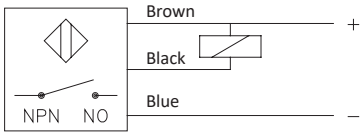
| Springs |
|---|
| T0 |
| T1 |
| T2 |
| T3 |
| T4 |

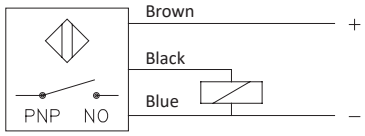
● DF/TAC/PR-V model is supply combined with the corresponding spacer (type A)
DF/TAC/PR-V/S model is supply combined with the corresponding spacer (type C), complete with inductive proximity sensor (PRX).

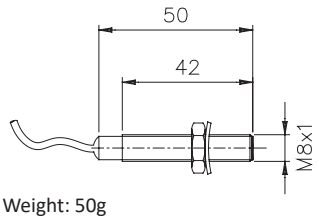


# PRX - inductive proximity sensor: technical data

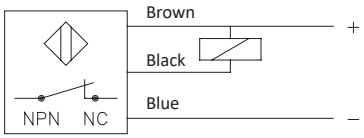
- Standard version: Stainless steel cover with protection level IP67 DIN 40050.
- Electric contact: 7 ÷ 30 Vdc. - Frequency: 4 KHz; Absorption ≤ 10 mA (Max 200mA).
- Operation temperature range from -25°C to + 70°C
- Output: NPN (N.O.-N.C.) – PNP (N.O.-N.C.).
- Operating distance: max 1,5 mm.
- Cable length: 2 m (3x0,2).

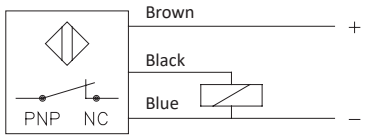


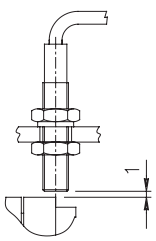




Weight: 50g




## PRX-EX - ATEX proximity induced sensor

- Housing in nickel-plated brass with IP67 - DIN 40050 protection clearance.
- Voltage 8.2 Vdc (1K0hm).
- Operating temperature from -25°C to +60°C.
- Intervention distance: max 1 mm.
- Cable length: 3 meters (2x0.25).