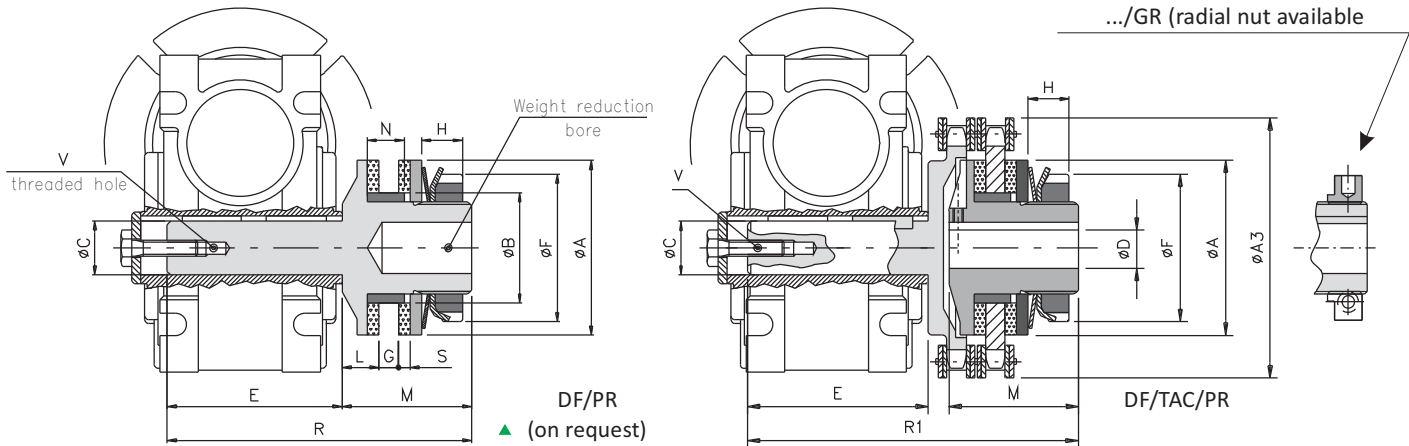


## .../PR - .../TAC/PR (versions for gearboxes): technical data

- Friction rings available in various materials and performance to suit specific needs.
- More simple and higher sensitivity than in gearbox integrated solutions.
- Specifically for assembly with hollow shafts with model.
- Model for gearboxes with chain coupling, suitable for an in-line shafts connection.
- Available with radial nut (.../GR) statically balanced.
- Torque range: 1 – 2600 Nm; maximum shaft:  $\phi 55$  mm; max bore:  $\phi 65$  mm.



### DIMENSIONS AND TECHNICAL DETAILS

Size	A3	A	B h7	C h7	DH7		E	F	G		L	M	N	R	R1	S	V
					Pilot bore	Max			min.	max.							
00.38	38	38	24	11	-	12	48	32	2,5	5	8	33	8	81	91	2,5	M4x10
0.50	50	50	36	14	-	20	53	44	3,5	6	10	35	10	88	98	3	M5x13
1.70	70	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	90	90	60	25	-	38	90	82	7	12	16	60	17	150	164	4	M8x20
				28			110							170	184		
3.115	115	115	72	32	18	45	120	105	9	16	18	70	21	190	212	4	M10x25
				35			118							188	210		
				38			138							208	230		
4.140	140	140	85	42	24	55	152	130	13	19	20	80	25	232	258	5	M12x32
				45			163							243	269		
				48			178							258	284		
5.170	170	170	98	50	28	65	167	158	15	22	22,5	95	28	262	286	5	M16x40
				55			208							303	327		



Size	Torque [Nm]	Max speed [Rpm]		Weight [Kg]	
		DF/PR	DF/TAC/PR	DF/PR	DF/TAC/PR
00.38	1 - 34	10000	5000	0,2	0,6
0.50	2 - 100	7600	3800	0,4	1,0
1.70	6 - 210	5450	2800	1,2	2,8
2.90	13 - 450	4250	2200	2,2	5,7
3.115	26 - 950	3350	1800	3,9	10,7
4.140	80 - 1200	2750	1500	7,3	19,3
5.170	160 - 2600	2250	1300	12,1	29,8

### NOTES

- ⊗ Technical details: weights are relevant to the torque limiter with pilot bore (DF/PR – DF/TAC/PR).

# FRICITION TORQUE LIMITER "DF": additional information

## TORQUE TRANSMISSION

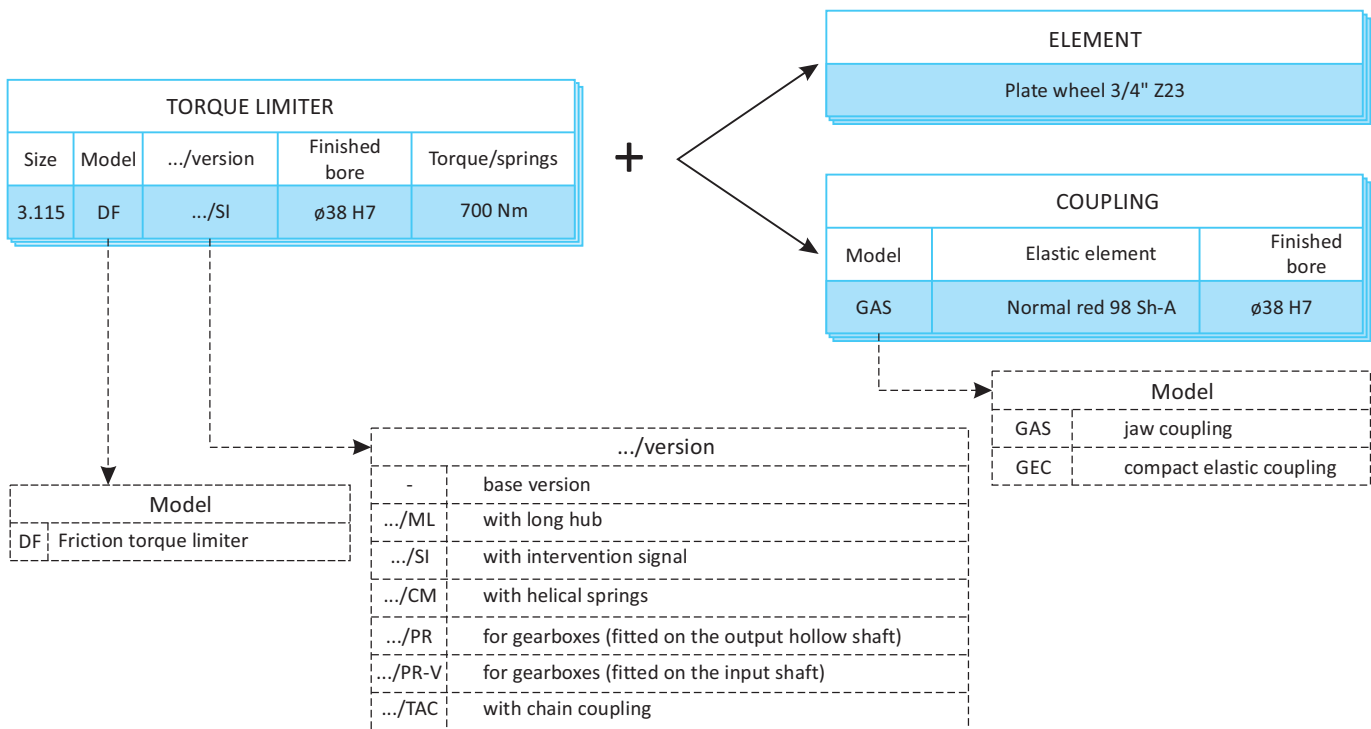
Torque transmission [Nm] relevant to the springs configuration									
Size	A1S1 )	A2S2 )	A3S3 )	A1M1 )	A1G1 )	A2G2 )	A3G3 )	ST 	SQ 
00.25	1 - 8	2 - 12	2 - 20						
00.38	1 - 14	8 - 22	15 - 34						
0.50	2 - 12				4 - 40	17 - 70	23 - 100	1,5 - 9	
1.70	6 - 18			9 - 35	19 - 60	34 - 120	60 - 210	2 - 34	2 - 60
2.90				13 - 105	74 - 140	90 - 280	185 - 450	5 - 56	3 - 70
3.115	26 - 100 *			65 - 280	120 - 360	207 - 700	210 - 950	10 - 130	25 - 160
4.140	80 - 140 *			100 - 240 *	180 - 550	260 - 950	390 - 1200		
5.170					160 - 700	300 - 1450	1000 - 2600		

Size	A4M1 (())	A4G1 (())	A4G2 (())						
6.205	300 - 1200	500 - 2400	1000 - 4800						
7.240	500 - 2000	1000 - 4000	2000 - 8000						
8.300	800 - 3500	1500 - 7000	3000 - 14000						
9.340	1000 - 4500	2000 - 9000	4000 - 18000						
10.400	1500 - 5000	3000 - 11000	5000 - 23000						

\* Until stocks are finished

## ORDER EXAMPLE



# FRICION TORQUE LIMITER "DF": additional information

## PLATE WHEELS

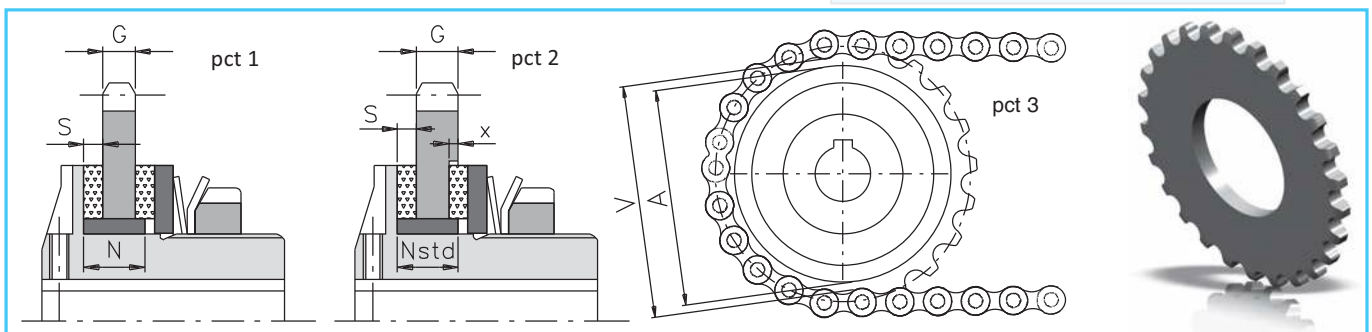
The driving part selected (plate wheels, pulleys, gears, and so on) to be incorporated into the friction torque limiter, must adhere to predetermined characteristics (ex. the surface in contact to the friction rings with roughness  $Ra=0,8 : 1,6$ ) to ensure good performance. In the table below, there are standard plate wheels in ComInTec's production (supplied already grounded) which can be assembled on the torque limiter; **and the minimum chain passage "V" (see picture 3)**, necessary for the correct sizing of the plate wheel to avoid contact between the chain and outside diameter of the limiter. It is possible to assemble various types of plate wheels, but the surfaces must be machined, and the chain passage cannot be smaller than this value. Another aspect to take into consideration to ensure the dimension of the assembly is correct, is the element thickness and its relevant bush "N" (see picture 1). We suggest to obtain a quote "N" equal to  $[S + G + 1]$ . Comparing "N" value obtained, to the  $N_{std}$  indicated on the table, which corresponds to the standard length of the bushes, you can have: "N" < " $N_{std}$ " (picture 1 - ex.A) → reduce the bush width to quote "N".

"N" > " $N_{std}$ " (picture 2 - exB) → machine the driving part at a diameter of "A+1" and a depth equal to "x" ( $N - N_{std}$ ).

Example "A" (see picture 1)  
 1.70 with plate wheel #7  
 $G = 7 \text{ mm}$   
 $S = 4 \text{ mm}$   
 $N = S + G + 1 = 4 + 7 + 1 = 12$   
 $N_{std} = 15$   
 Reduce the bush width to 12 mm.

Example "B" (see picture 2)  
 1.70 with plate wheel #13  
 $G = 13 \text{ mm}$   
 $S = 4 \text{ mm}$   
 $N = S + G + 1 = 4 + 13 + 1 = 18$   
 $N_{std} = 15$   
 Machine  $\varnothing 71$  with depth (value "x"= $18-15=3$ )

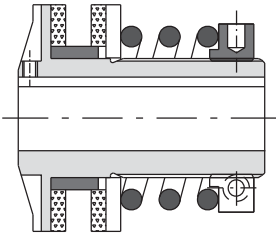
where:  
 $p$  = pitch [in]  
 $G$  = thickness of the ground element  
 $Z$  = teeth number  
 $dp$  = pitch diameter  
 $S$  = thickness of the friction ring  
 $N_{std}$  = thickness of the standard bush  
 $N$  = thickness of the calculated bush ( $S+G+1$ )  
 $A$  = outside diameter of the torque limiter  
 $V$  = inside diameter of the chain  
 $x$  = depth of the machining ( $N - N_{std}$ )



Size	P [in]	G [mm]	Z	dp [mm]	S [mm]	N Std [mm]	A [mm]	V [mm]	Code for single plate wheel		
									DF DSF/TF/AP	DF/SI DSF/TF/AP/SI	EDF/F
00.25	3/8"	5,1	12	36,80	2	5,5	25	28	580419851P05	-	-
00.38	3/8"	5,1	16	48,82	2,5	8	38	41	580406900P05	-	580406951P05
			20	60,89					580406400P05	-	580406451P05
0.50	3/8"	5,1	22	66,93	3	10	50	53	580406500P05	-	580406551P05
			22	66,93					580403700P05	580407700P20	580403751P05
1.70	1/2" x 5/16"	7,0	22	89,24	4	15	70	73	580404200P05	-	-
			19	96,45					580404700P05	-	-
2.90	1/2" x 5/16"	7,0	26	105,36	4	17	90	94	580404700P05	-	-
			18	109,71					580440100P05	580442100P20	580440151P05
3.115	3/4"	10,9	23	139,9	4	21	115	119	580404900P05	-	-
			17	138,22					580440200P05	580442200P20	580440200P05
4.140	3/4"	10,9	28	170,13	5	25	140	144	580405500P05	-	-
			20	162,38					580440300P05	580442300P20	580440351P05
5.170	1"	16,0	24	194,59	5	28	170	175	580440400P05	580442400P20	-
			20	202,98					580417200P05	-	-
▲ 6.205	1" 1/4	18,3	26	263,40	5	32	205	210	580406200P05	580407600P20	-
▲ 7.240	1" 1/4	18,3	28	283,56	5	35	240	245	580406300P05	580407700P20	-
▲ 8.300	1" 1/2	23,8	28	340,27	6	40	300	306	580407000P05	580407300P20	-
▲ 9.340	1" 1/2	23,8	32	388,69	6	40	340	355	580407100P05	580407400P20	-
▲ 10.400	1" 1/2	23,8	36	437,16	6	42	400	403	580407200P05	580407500P20	-

▲ On request

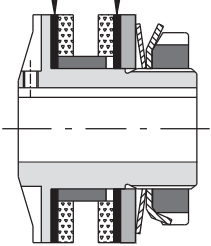
## VERSIONS ON REQUEST



### .../CM: minimum torque version

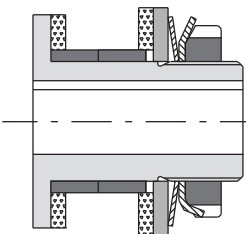
Helical springs execution, for a higher torque range and consequently, a finer adjustment on calibration is possible

STAINLESS STEEL discs



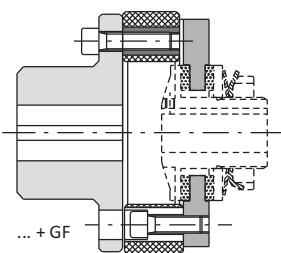
### .../EA: rust resistant

Rust resistant execution, with stainless steel rings, galvanized for application in wet environments.

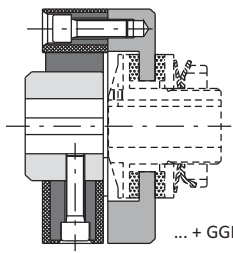


### .../MFR: reduced flange hub version

Reduced flange hub execution, to assemble elements with reduced diameters. Available with two or three bushes version.



... + GF

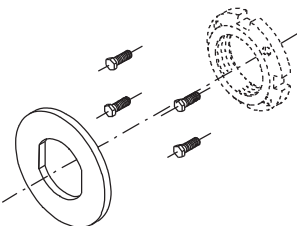


... + GGF

### DF + GF: with flexible coupling

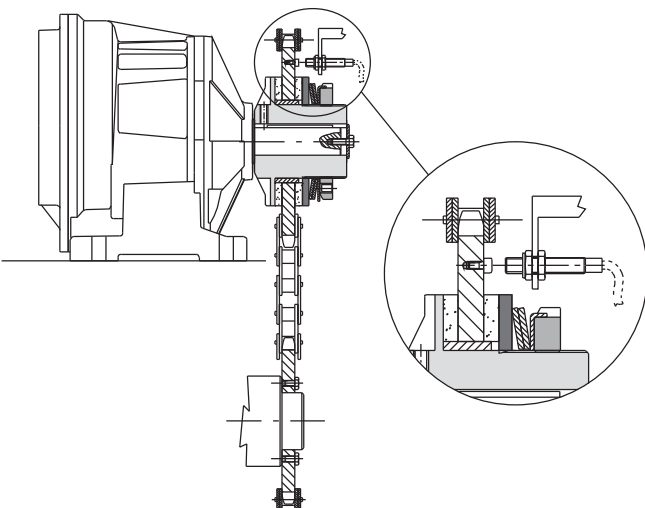
### DF + GGF: with highly flexible coupling

Models suitable for an in-line shafts connection and also able to accommodate high misalignments.



### GT/DR KIT: kit for double registration matching to the nut with notches GT

Torque adjustment system by double registration (flange plus hexagonal head-screws) for high sensitivity and precision on calibration, also with belleville washers.



### .../MS: overload detection version

Our suggestion to increase the life of the friction rings and to maintain the torque limiter efficiency is (it is possible and advised) to stop the machine immediately, on the first slip caused by an overload. This is possible by using one proximity inductive sensor, which registers any speed anomaly, as indicated in the picture.








# "DF" FRICTION TORQUE LIMITER: introduction



- Simple and economic friction torque limiter.
- Suitable for dusty conditions without need of timing between gearbox and output.
- Silent overload without vibration.
- Protection in both rotation directions.
- Asbestos-free friction discs.
- Simple and precise torque setting by adjusting the locking ring.
- The innovative setting by the "H" dimension allows for immediate calibration.

### ON REQUEST

- Complete with transmission gear, fully turned and mounted (plate wheel, pulley, gear).
- Different types of friction discs for specific applications.
- Possibility of connections with bore and keyway, locking assembly or other locking systems.
- Anti-corrosive surface treatments for special requirements.

	DF: Basic model for parallel shaft transmission, with plate wheels, gear pairs or pulleys.	from 1 to 23000 Nm max. bore $\varnothing$ 140 mm	Page 5
	DF/SI: signaling on overload and automatic re-engaging possible.	from 3 to 23000 Nm max. bore $\varnothing$ 140 mm	Page 6
	DF/TAC: in-line shaft connection, simple and economic.	from 1 to 23000 Nm max. bore $\varnothing$ 140 mm	Page 7
	... + GAS: in-line shaft connection with elastic coupling with high misalignments.	from 1 to 7200 Nm max bore $\varnothing$ 110 mm	Page 8
	... + GEC: in-line shaft connection with compact elastic coupling.	from 1 to 800 Nm max bore $\varnothing$ 160 mm	Page 8
	DF/PR: designed for the application on the slow speed shaft of a worm-gearbox.	from 1 to 2600 Nm max. bore $\varnothing$ 55 mm	Page 9
	DF/TAC/PR-V: designed for application on the high speed shaft of a worm-gearbox.	from 1 to 1200 Nm max. shaft - bore $\varnothing$ 55 mm	Page 10

## MAIN APPLICATIONS

- Forming machines.
- Conveyors.
- Automotive.
- Agricultural machines, woodworking machines.

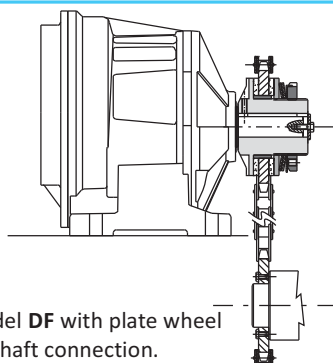
## ADVANTAGES AND BENEFITS

- Protects the motor-gearbox in case of accidental collision.
- Protects the film of wrapping machines in case of higher tension.
- Absorbs static torques without disengaging.
- Protects the gear in case of short product jam.

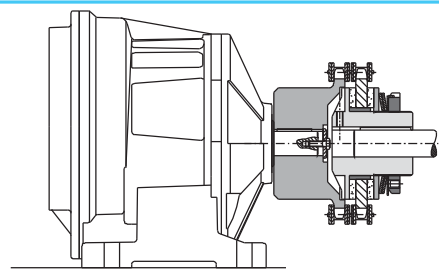
## FRICTION RINGS

- **STD (standard)**: friction rings used for the torque values indicated in the catalogue. Optimum performance ratio torque / life.
- ▲ ○ **LD (long life)**: same performance in torque respect std friction rings life greater than 5 times.
- ▲ ○ **LDX (extra long life)**: life greater than 150 times respect standard friction rings, but performance in torque reduce of 70%.
- ▲ On request

## APPLICATION EXAMPLES



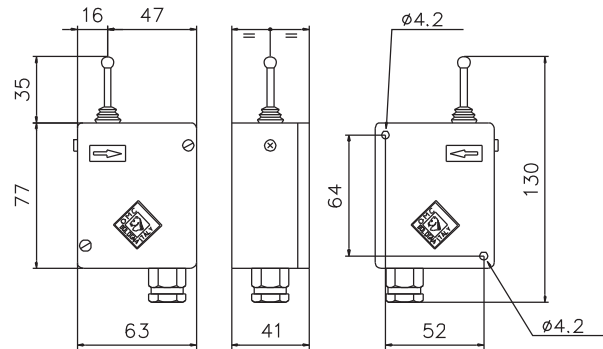
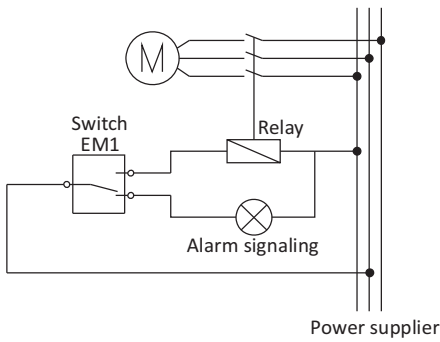
Friction Model DF with plate wheel for parallel shaft connection.



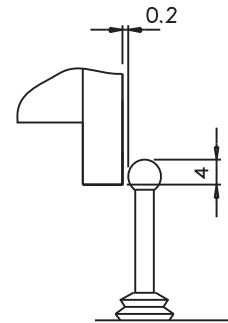
Friction Model with chain coupling DF/TAC for in-line shafts connection.

# ELECTROMECHANICAL SWITCH "EM1"

- Die-cast aluminium box with rotection level **IP57** DIN 40050.
- Adjustment of the lever end position possible.
- Operation temperature range from  $-10^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ .
- Three different options of voltage input: 15A-250VCA; 5A-24VCC; 0,2A-250VCC.
- 1 or 2 contacts available.
- Initial stroke 0,5 mm, Extra stroke:  $4 \div 8$  mm depending on setting (possible in a range of 6 mm).

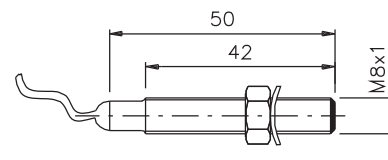
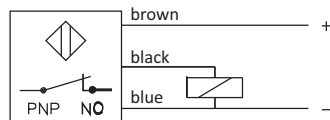
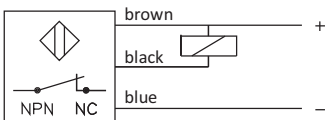
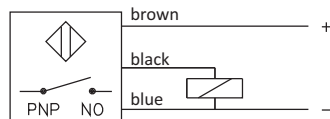
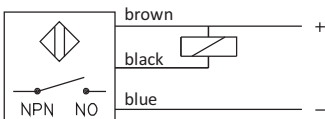


Weight: 350g



## PROXIMITY SENSOR "PRX"

- Standard version: Brass cover with protection level **IP67** DIN 40050.
- Electric contact:  $5 \div 24$  VdC.
- Frequency: 2000 Hz.
- Output: NPN (N.O.-N.C.) – PNP (N.O.-N.C.).
- Operating distance: max 1 mm.
- Cable length: 2 m (3x0,2).



Weight: 50g

