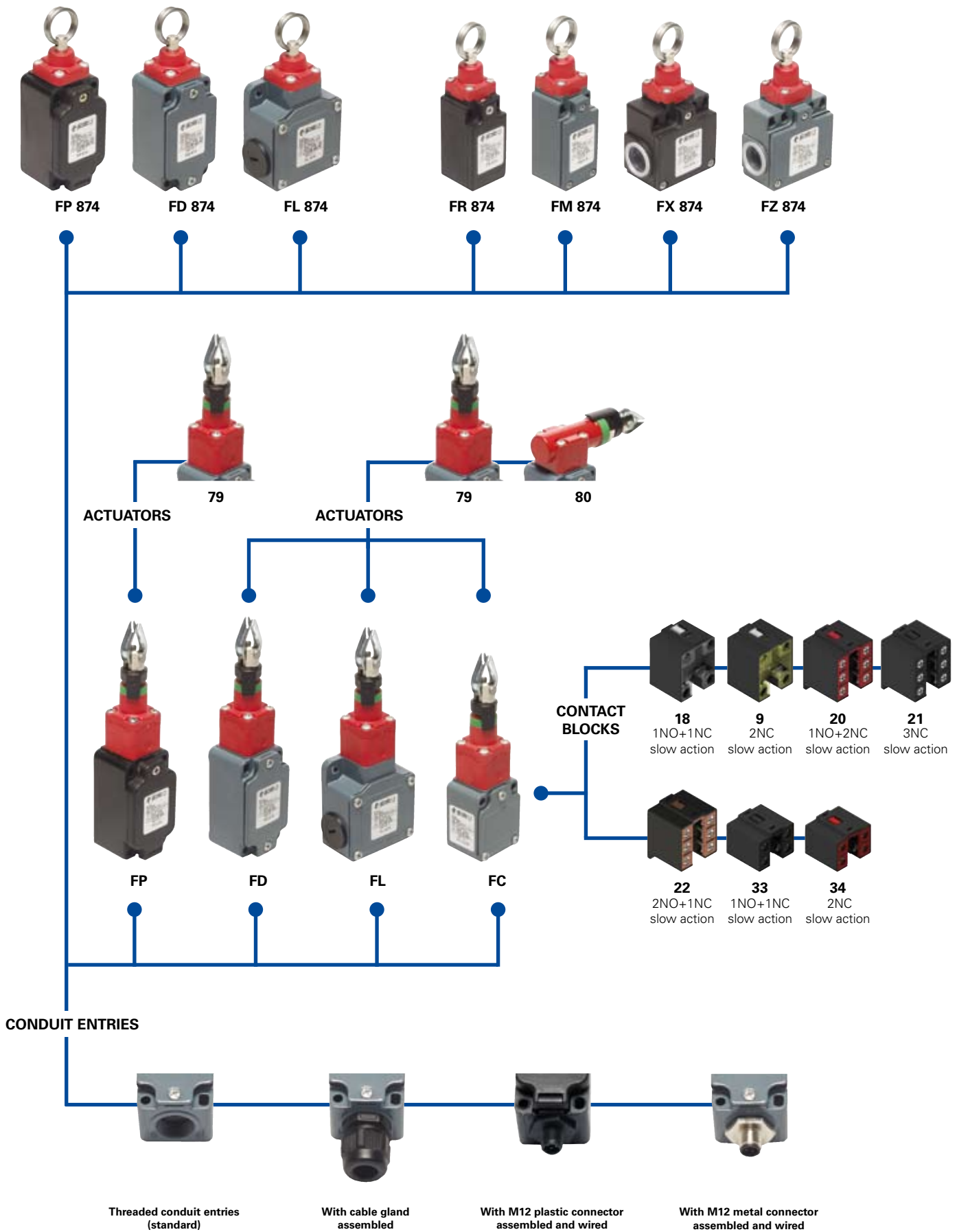


Selection diagram



—●— product option  
 —▶— accessory sold separately



Code structure

Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

article options  
**FD 1879-E7GM2K50**

Housing

- FD** metal housing, one conduit entry
- FL** metal housing, three conduit entries
- FP** polymer housing, one conduit entry

Contact blocks

- 18** 1NO+1NC, slow action
- 9** 2NC, slow action
- 20** 1NO+2NC, slow action
- 21** 3NC, slow action
- 22** 2NO+1NC, slow action
- 33** 1NO+1NC, slow action
- 34** 2NC, slow action

Actuating head

- 79** longitudinal head
- 80** transversal head (only for FD-FL housing)

Actuating force

- standard
- E7** initial 20 N...final 40 N (only for head 79)
- E9** initial 13 N...final 75 N (only for head 80)

Preinstalled cable gland or connectors

- no cable gland or connector (standard)
- K21** with assembled cable gland suitable for Ø 6 to Ø 12 mm cables range
- ...
- K50** with assembled 5 poles M12 metal connector
- ...

For the complete list of all combinations, please contact our technical office.

Threaded conduit entry

- PG 13,5 (standard)
- M2** M20x1,5

Contacts type

- silver contacts (standard)
- G** silver contacts gold plated 1 µm

article options  
**FC 3379-E7GM1K22**

Housing

- FC** metal housing, one conduit entry

Contact blocks

- 33** 1NO+1NC, slow action
- 34** 2NC, slow action

Actuating head

- 79** longitudinal head
- 80** transversal head

Actuating force

- standard
- E7** initial 20 N...final 40 N (only for head 79)
- E9** initial 13 N...final 75 N (only for head 80)

Preinstalled cable gland

- no cable gland (standard)
- K22** with assembled cable gland suitable for Ø 5 to Ø 10 mm cables range
- K26** with assembled cable gland suitable for Ø 3 to Ø 7 mm cables range

Threaded conduit entry

- PG 11 (standard)
- M1** M16x1,5

Contacts type

- silver contacts (standard)
- G** silver contacts gold plated 1 µm

article options  
**FD 874-E7M2K50**

Housing

- FD** metal housing, one conduit entry
- FL** metal housing, three conduit entries
- FP** polymer housing, one conduit entry
- FR** polymer housing, one conduit entry
- FM** metal housing, one conduit entry
- FX** polymer housing, two conduit entries
- FZ** metal housing, two conduit entries

Contact blocks

- 8** 1NC, slow action

Actuating force

- standard
- E7** initial 20 N...final 40 N

Preinstalled cable gland or connectors

- no cable gland or connector (standard)
- K21** with assembled cable gland suitable for Ø 6 to Ø 12 mm cables range
- ...
- K50** with assembled 5 poles M12 metal connector
- ...

For the complete list of all combinations, please contact our technical office.

Threaded conduit entry

- PG 13,5 (standard)
- A** PG 11 (only for FR-FX housing)
- M1** M16x1,5 (only for FR-FX housing)
- M2** M20x1,5



### Main data

- Metal or polymer housing, from one to three conduit entries
- Protection degree IP67
- 7 contact blocks available
- Transversal head or longitudinal head versions
- M12 assembled connector versions
- Silver contacts gold plated versions
- Several accessories available

### Markings and quality marks:



Approval IMQ:	EG605 (FD-FLFC series) EG606 (FP series) EG610 (FR-FX-FK series) EG609 (FM-FZ series)
Approval UL:	E131787
Approval CCC:	2007010305230000 (FD-FLFC series) 2007010305230014 (FP series) 2007010305230013 (FR-FX-FK series) 2007010305229998 (FM-FZ series)
Approval ECU:	1010151
Approval GOST:	POCC IT.AB24.B04512

### Technical data

#### Housing

Housing type FP, FR and FX made of glass-reinforced polymer, self-extinguishing, shock-proof thermoplastic  $\square$   
Housing type FD, FL, FC, FM and FZ made of metal, coated with baked epoxy powder.

FD, FP, FC, FR and FM series one conduit entry

FX and FZ series two conduit entries

FL series three conduit entries

Protection degree:

IP67 according to EN 60529 with cable gland having equal or higher protection degree

#### General data

For safety applications up to SIL 3 / PL e

Safety parameters:

see page 7/34

Ambient temperature:

from -25°C to +80°C

Version for operation in ambient temperature from -40°C to +80°C on request

Max actuation frequency:

1 operation cycles / 6 s

Mechanical endurance:

1 million of operations cycles<sup>1</sup>

Max actuating speed:

0,5 m/s

Min. actuating speed:

1 mm/s

Driving torque for installation:

see pages 7/1-7/12

(1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by EN 60947-5-1 standard..

#### Cross section of the conductors (flexible copper wire)

Contact blocks 20, 21, 22, 33, 34:	min.	1 x 0,34 mm <sup>2</sup>	(1 x AWG 22)
	max.	2 x 1,5 mm <sup>2</sup>	(2 x AWG 16)
Contact blocks 18, 8, 9:	min.	1 x 0,5 mm <sup>2</sup>	(1 x AWG 20)
	max.	2 x 2,5 mm <sup>2</sup>	(2 x AWG 14)

#### In conformity with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, IEC 60204-1, EN 60204-1, EN 1088, EN ISO 12100-1, EN ISO 12100-2, IEC 60529, EN 60529, NFC 63-140, VDE 0660-200, VDE 0113.

#### Approvals:

IEC 60947-5-1, UL 508, GB14048.5-2001.

#### In conformity with requirements requested by:

Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and Electromagnetic Compatibility 2004/108/EC.

#### Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1, VDE 0660-206.

**⚠ If not expressly indicated in this chapter, for the right installation and the correct utilization of all articles see requirements indicated from page 7/1 to page 7/12.**

#### Electrical data

#### Utilization categories

without connector	Thermal current (I <sub>th</sub> ):	10 A	Alternate current: AC15 (50...60 Hz)			
	Rated insulation voltage (U <sub>i</sub> ):	500 Vac 600 Vdc	U <sub>e</sub> (V)	250	400	500
		400 Vac 500 Vdc (contact blocks 20, 21, 22, 33, 34)	I <sub>e</sub> (A)	6	4	1
	Rated impulse withstand voltage (U <sub>imp</sub> ):	6 kV	Direct current: DC13			
		4 kV (contact blocks 20, 21, 22, 33, 34)	U <sub>e</sub> (V)	24	125	250
Conditional short circuit current:	1000 A according to EN 60947-5-1	I <sub>e</sub> (A)	6	1,1	0,4	
Protection against short circuits:	fuse 10 A 500 V type aM					
Pollution degree:	3					

with 4 or 5 poles M12 connector	Thermal current (I <sub>th</sub> ):	4 A	Alternate current: AC15 (50...60 Hz)			
	Rated insulation voltage (U <sub>i</sub> ):	250 Vac 300 Vdc	U <sub>e</sub> (V)	24	120	250
		Protection against short circuits:	fuse 4 A 500 V type gG	I <sub>e</sub> (A)	4	4
	Pollution degrees:	3	Direct current: DC13			
			U <sub>e</sub> (V)	24	125	250
I <sub>e</sub> (A)	4	1,1	0,4			

with 8 poles M12 connector	Thermal current (I <sub>th</sub> ):	2 A	Alternate current: AC15 (50...60 Hz)			
	Rated insulation voltage (U <sub>i</sub> ):	30 Vac 36 Vdc	U <sub>e</sub> (V)	24		
		Protection against short circuits:	fuse 2 A 500 V type gG	I <sub>e</sub> (A)	2	
	Pollution degrees:	3	Direct current: DC13			
			U <sub>e</sub> (V)	24		
I <sub>e</sub> (A)	2					

## Description

These rope operated safety switches are installed on machines or conveyor belts, to activate the simple stop of the machine on every hand intervention on the rope, from any point.

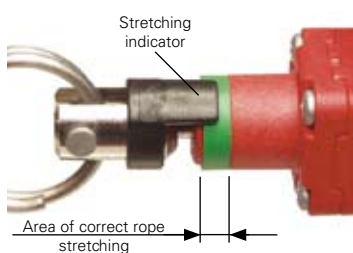
Provided with **self-control function**, they constantly check their correct working operation, signalling with the opening of the contacts an eventual loosening or breaking of the rope.

## Rotating heads



Removing the four fastening screws, in all switches, it is possible to rotate the head in 90° steps.

## Rope regulation point indicator



The switches (head 79 and 80) are provided with a green ring that shows the area of the correct stretching of the rope. The installer has only to stretch the rope until the black indicator will be in the middle of the green area. If a traction (or loosening) of the rope it is high enough to permit the black indicator to go outside

the correct stretching area, there will be the opening of the safety contacts.

## Data type approved by IMQ, CCC and EZU

Rated insulation voltage (Ui): 500 Vac  
400 Vac (for contact blocks 20, 21, 22, 33, 34)

Thermal current (Ith): 10 A

Protection against short circuits: fuse 10 A 500 V type aM

Rated impulse withstand voltage ( $U_{imp}$ ): 6 kV  
4 kV (for contact blocks 20, 21, 22, 33, 34)

Protection degree: IP67

MV terminals (screw clamps)

Pollution degrees 3

Utilization category: AC15

Operation voltage (Ue): 400 Vac (50 Hz)

Operation current (Ie): 3 A

Forms of the contact element: Zb, Y+Y, Y+Y+X, Y+Y+Y, Y+X+X

Positive opening of contacts on contact block 18, 8, 9, 20, 21, 22, 33, 34

In conformity with standards: EN 60947-1, EN 60947-5-1+ A1:2009, fundamental requirements of the Low Voltage Directive 2006/95/CE.

Please contact our technical service for the list of approved products.

## Data type approved by UL

Utilization categories Q300 (69 VA, 125-250 Vdc)  
A600 (720 VA, 120-600 Vac)

Data of the housing type 1, 4X "indoor use only"; 12, 13

For all contact blocks use 60 or 75 °C copper (Cu) conductor and wire size No. 12-14 AWG. Terminal tightening torque of 7,1 lb in (0.8 Nm).

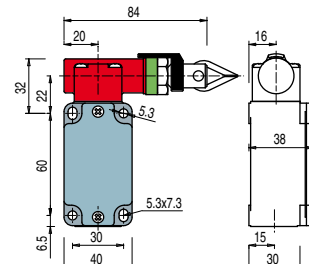
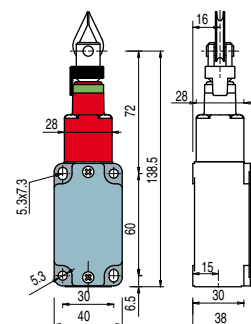
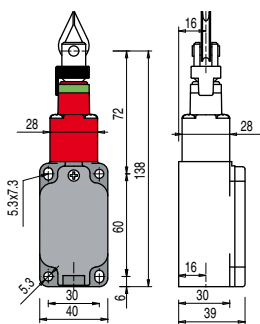
In conformity with standard: UL 508

Please contact our technical service for the list of approved products.

Dimensional drawings

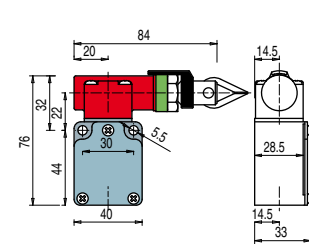
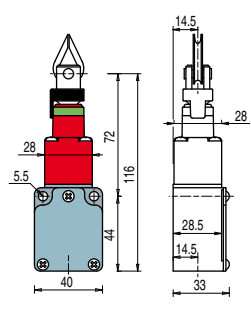
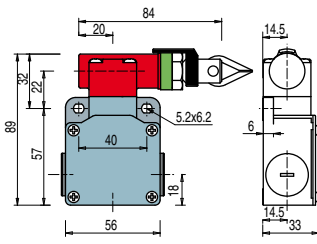
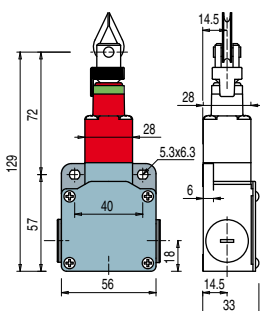
Contacts type:

**L** = slow action



Contact blocks

18	<b>L</b>	<b>FP 1879</b>	➔	1NO+1NC	<b>FD 1879</b>	➔	1NO+1NC	<b>FD 1880</b>	➔	1NO+1NC
9	<b>L</b>	<b>FP 979</b>	➔	2NC	<b>FD 979</b>	➔	2NC	<b>FD 980</b>	➔	2NC
20	<b>L</b>	<b>FP 2079</b>	➔	1NO+2NC	<b>FD 2079</b>	➔	1NO+2NC	<b>FD 2080</b>	➔	1NO+2NC
21	<b>L</b>	<b>FP 2179</b>	➔	3NC	<b>FD 2179</b>	➔	3NC	<b>FD 2180</b>	➔	3NC
22	<b>L</b>	<b>FP 2279</b>	➔	2NO+1NC	<b>FD 2279</b>	➔	2NO+1NC	<b>FD 2280</b>	➔	2NO+1NC
33	<b>L</b>	<b>FP 3379</b>	➔	1NO+1NC	<b>FD 3379</b>	➔	1NO+1NC	<b>FD 3380</b>	➔	1NO+1NC
34	<b>L</b>	<b>FP 3479</b>	➔	2NC	<b>FD 3479</b>	➔	2NC	<b>FD 3480</b>	➔	2NC
Min. force		Initial 63 N...Final 83 N (90 N ➔)			Initial 63 N...Final 83 N (90 N ➔)			Initial 147 N...Final 235 N (250 N ➔)		
Travel diagrams		page 4/132 - group 1			page 4/132 - group 1			page 4/132 - group 2		

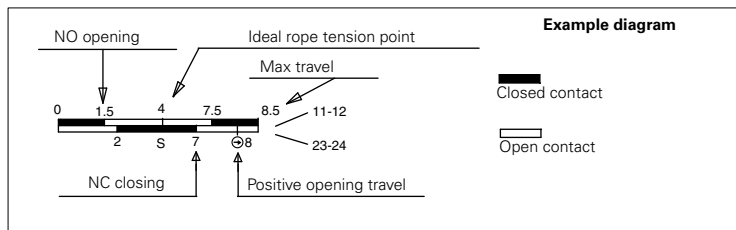


Contact blocks

18	<b>L</b>	<b>FL 1879</b>	➔	1NO+1NC	<b>FL 1880</b>	➔	1NO+1NC	<b>FC 3379</b>	➔	1NO+1NC
9	<b>L</b>	<b>FL 979</b>	➔	2NC	<b>FL 980</b>	➔	2NC	<b>FC 3479</b>	➔	2NC
20	<b>L</b>	<b>FL 2079</b>	➔	1NO+2NC	<b>FL 2080</b>	➔	1NO+2NC	<b>FC 3380</b>	➔	1NO+1NC
21	<b>L</b>	<b>FL 2179</b>	➔	3NC	<b>FL 2180</b>	➔	3NC	<b>FC 3480</b>	➔	2NC
22	<b>L</b>	<b>FL 2279</b>	➔	2NO+1NC	<b>FL 2280</b>	➔	2NO+1NC			
33	<b>L</b>	<b>FL 3379</b>	➔	1NO+1NC	<b>FL 3380</b>	➔	1NO+1NC			
34	<b>L</b>	<b>FL 3479</b>	➔	2NC	<b>FL 3480</b>	➔	2NC			
Min. force		Initial 63 N...Final 83 N (90 N ➔)			Initial 147 N...Final 235 N (250 N ➔)			Initial 63 N...Final 83 N (90 N ➔)		
Travel diagrams		page 4/132 - group 1			page 4/132 - group 2			page 4/132 - group 1		

How to read travel diagrams

All measures in the diagrams are in mm



IMPORTANT:

In safety applications it is necessary to activate the switch at least up to the positive opening point indicated in the diagrams with the symbol ➔. Operate the switch at least with the positive opening force, indicated between brackets, below each article, next the value of minimum force.

Accessories See page 6/1

All measures in the drawings are in mm



Contacts type:  
**L** = slow action

Contact blocks	<b>FP 874</b>	<b>FD 874</b>	<b>FL 874</b>	
Min. force	Initial 63 N...Final 83 N (90 N )	Initial 63 N...Final 83 N (90 N )	Initial 63 N...Final 83 N (90 N )	
Travel diagrams	page 4/132 - group 3	page 4/132 - group 3	page 4/132 - group 3	

Contact blocks	<b>FR 874</b>	<b>FM 874</b>	<b>FX 874</b>	<b>FZ 874</b>
Min. force	Initial 63 N...Final 83 N (90 N )	Initial 63 N...Final 83 N (90 N )	Initial 63 N...Final 83 N (90 N )	Initial 63 N...Final 83 N (90 N )
Travel diagrams	page 4/132 - group 3	page 4/132 - group 3	page 4/132 - group 3	page 4/132 - group 3

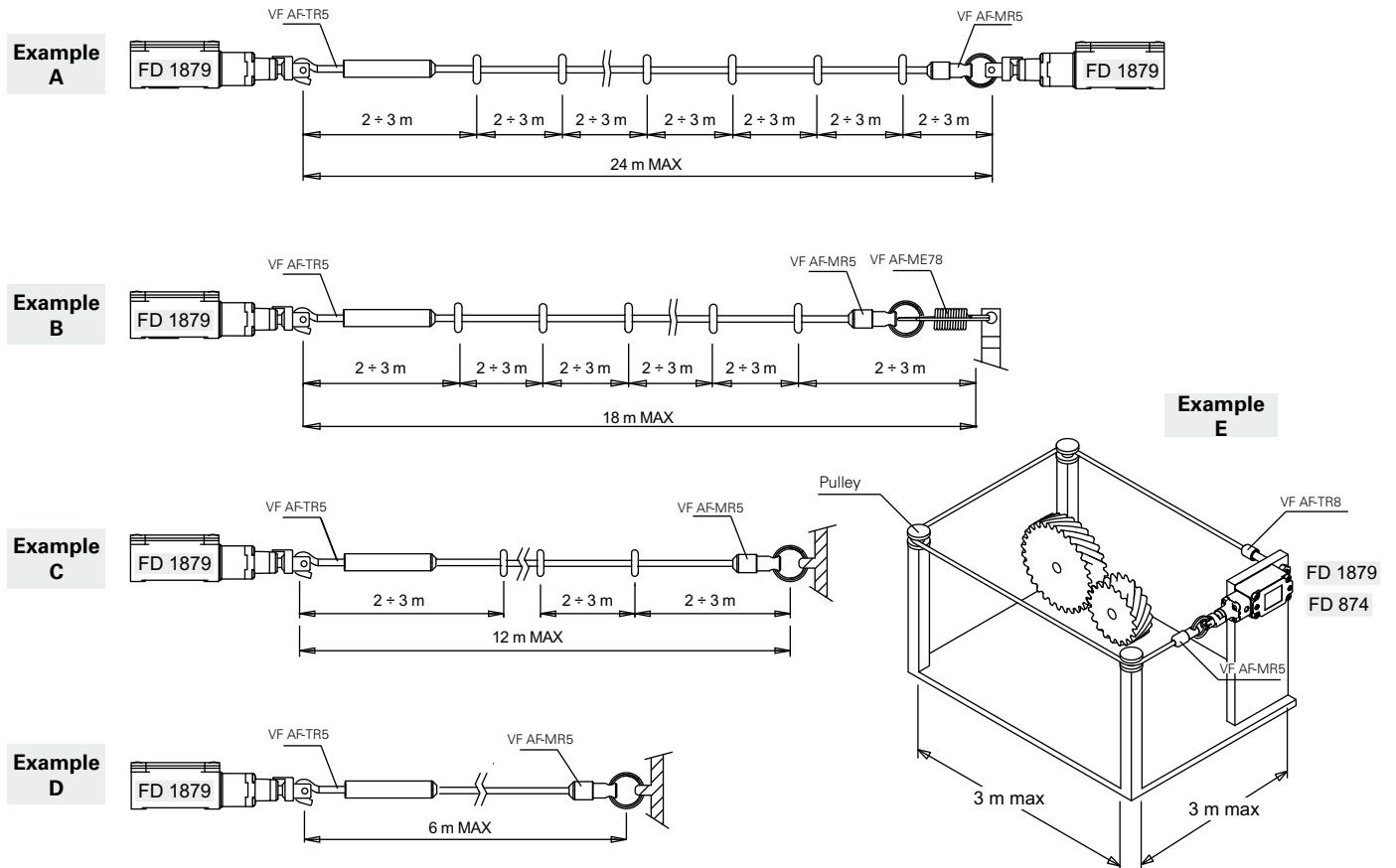
**Travel diagrams table**

Contact blocks	Group 1	Group 2	Group 3
18 1NO+1NC			
8 1NC			
9 2NC			
20 1NO+2NC			
21 3NC			
22 2NO+1NC			
33 1NC+1NO			
34 2NC			

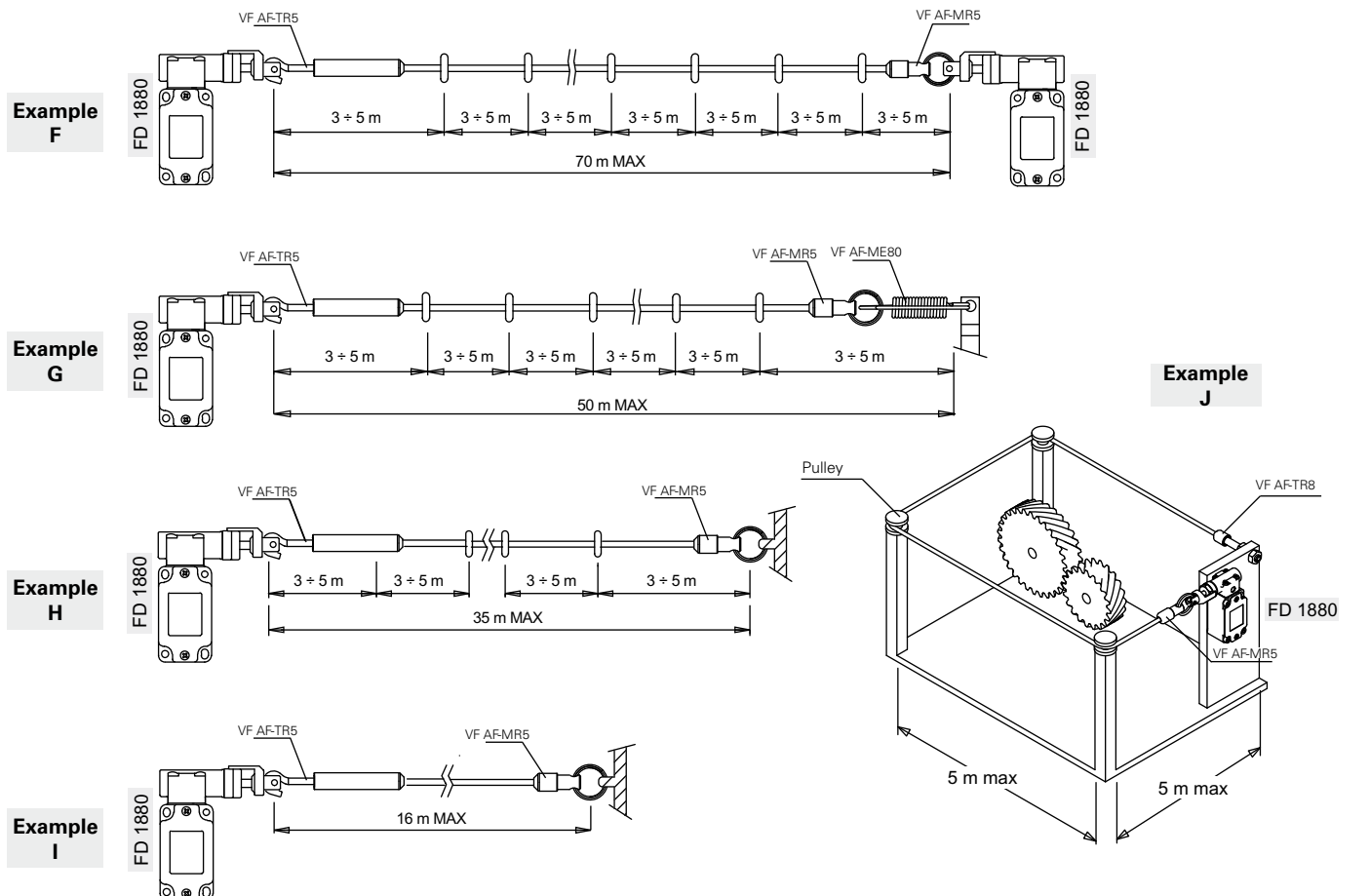
In the rest position (with rope correctly tightened) the two contacts of **contact block 8** are both closed and **11 21** are activated respectively by actuating or loosening the rope. In order to use this contact block for safety applications is necessary to connect the two contacts in series. For this reason in wiring diagrams the **contact block 8** is indicated as 1NC, whereas in travel diagrams are indicated both contacts.

Items with code on the **green** background are available in stock

Application examples and max rope length for switches with longitudinal heads

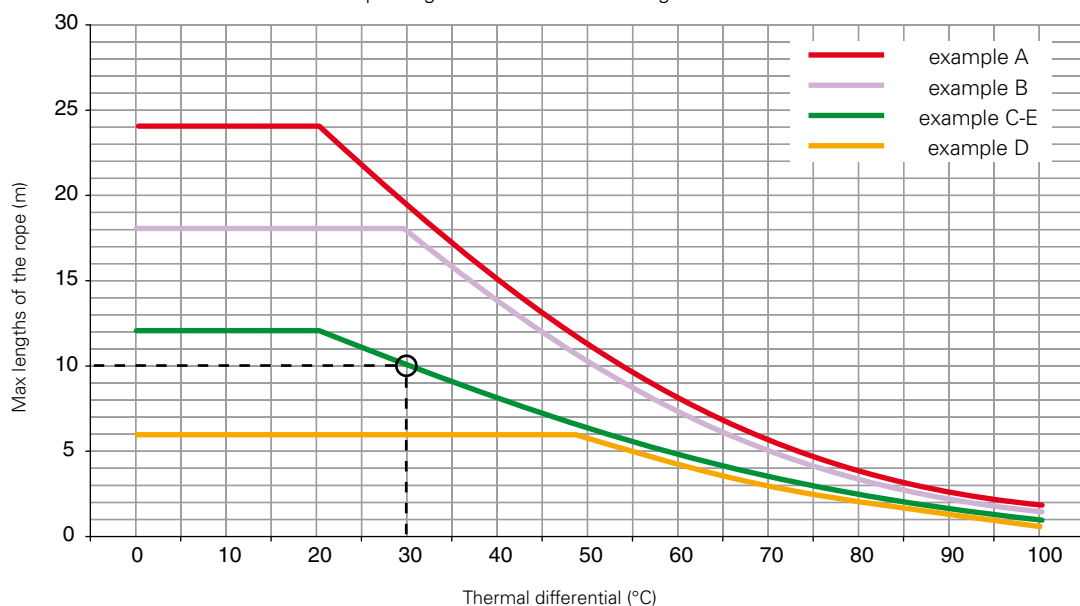


Application examples and max rope length for switches with transversal heads



## Max rope length

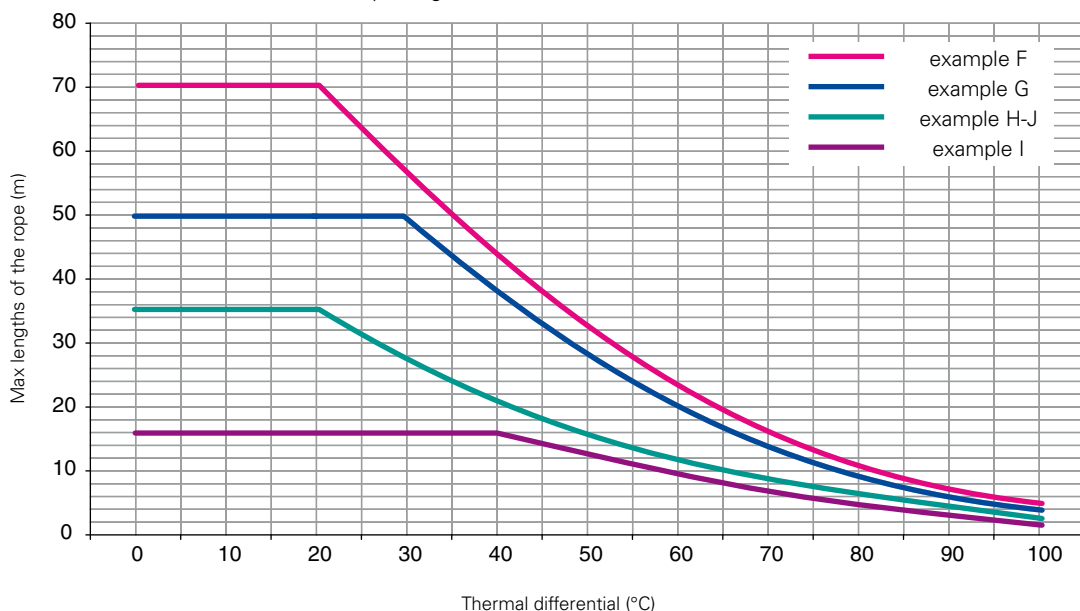
Max rope length for switches with longitudinal heads



In the diagram, the suggested max. rope lengths with regard to changes of temperature (thermal differential) to which the switch is expected to be exposed in the working area are indicated.

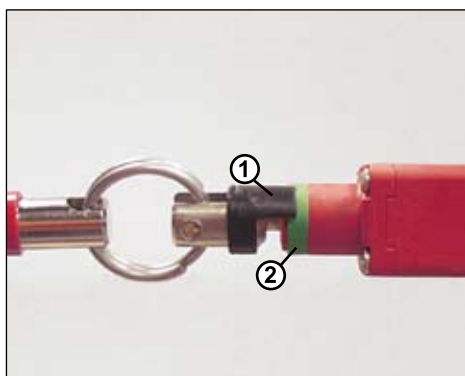
For instance, for an example C installation which expects a thermal differential of 30°C, a max rope length of 10 meters is suggested.

Max rope length for switches with transversal heads



Important: The above data are guaranteed only using original rope and accessories. See page 4/135.

## Adjusting of intervention point



**For switches with head 79 and 80:** Stretch the rope connected to the switch, until the end of the indicator (1) reaches about the middle of the green ring (2).



**For switches with head 74:** stretch the rope connected to the switch till the thimble will be at about 4 mm from the head.