Предохранительные выключатели с отдельным приводом и замком FY

Технические характеристики

По вопросам продаж и поддержки обращайтесь:

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Ангарск (3955)60-70-56
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Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
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Оренбург (3532)37-68-04
Пенза (8412)22-31-16
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FY series safety switches with separate actuator with lock

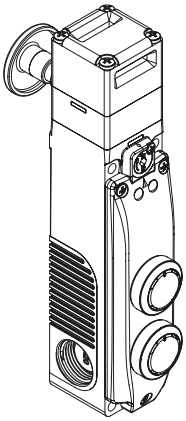
Description

These switches are used on machines where the hazardous conditions remain for a while, even after the machines have been switched off, for example because of mechanical inertia of pulleys, saw disks, parts under pressure or with high temperatures. Thus, the switches can also be used if individual guards are only to be opened under certain conditions.
The versions with solenoid actuated NC contacts are considered interlocks with locking in accordance with ISO 14119, and the product's label is marked with the symbol shown.

Technopolymer housing

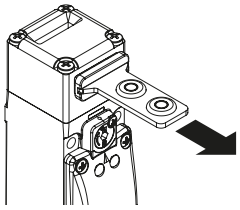
The FY series safety switches have glass fibre reinforced housing made of reinforced technopolymer that is shock-proof, self-extinguishing and very resistant to the extraction force that can be exerted by the actuator.
The new design combines robustness and functionality with a modern aesthetic.

Integrated control devices



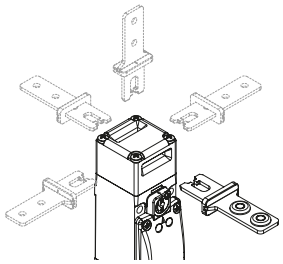
The switch is also available with integrated control devices, allowing up to two devices and related contact blocks, such as buttons, emergency stop buttons, indicator lights or selectors to be mounted.
The result is a compact solution with direct access to control devices without needing to install them separately on the switch panel or in their own housing.
The devices can be illuminated and, thanks to the PUSH-IN spring-operated connections, wiring is quick and intuitive.

Holding force of the locked actuator



The strong interlocking system guarantees a maximum actuator holding force of F_{1max} = 2800 N.

Heads and devices with variable orientation

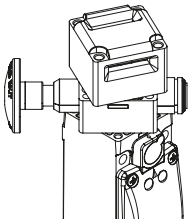


The system can be variably configured by loosening the 4 screws on the head.
The key release device and the release button can also be rotated and secured independently of one another in steps of 90°. The device can thus assume 32 different configurations.

Key release with triangular key

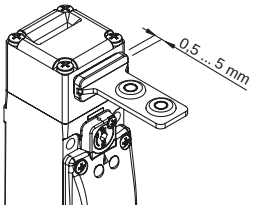
The auxiliary key release is also available with option V73, a variant with triangular key acc. to DIN 22417. This option can be used with installations in which the auxiliary release is to be actuated with a triangular key that is not normally available.
On request, option V70 is also available, with which the auxiliary release returns to the initial position with the aid of a spring.

Non-detachable heads and release devices



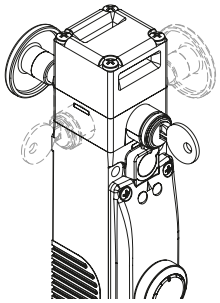
The head and the release device can be rotated but cannot be detached from each other. This makes the switch more secure since the problem of incorrect assembly by the installer cannot occur; in addition, the risk of damage is lower (loss of small parts, penetration of dirt, etc.).

Wide-ranging actuator travel



The actuation head of this switch features a wide range of travel. In this way the guard can oscillate along the direction of insertion (4.5 mm) without causing unwanted machine shutdowns. This wide range of travel is available in all actuators in order to ensure maximum device reliability.

Key release device and escape release button

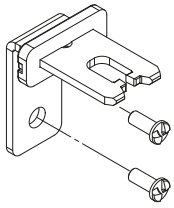


The key release device (auxiliary release) is used to permit unlocking of the actuator only by personnel in possession of the key. The device also functions with no power supply and, once actuated, prevents the guard from being locked.
The escape release button allows actuator release and immediate opening of the guard. Generally used in machines within which an operator could inadvertently become trapped, it faces towards the machine interior, to allow the operator to exit even in the event of a power failure. The button has two stable states and can be freely extended in length with suitable extensions (see accessories).
Both devices can be positioned on the four sides of the switch. As a result, it can be installed both towards the interior and towards the exterior of the machine.

Contact blocks with 4 contacts

Innovative contact block with 4 contacts, available in various contact configurations for monitoring the actuator or the solenoid (patented). The unit is supplied with captive screws and self-lifting clamping plates. Removable finger protection for eyelet terminal.
High-reliability electrical contacts with 4 contact points and double interruption.

Safety screws for actuators



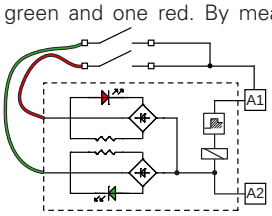
As required by EN ISO 14119, the actuator must be fixed immovably to the guard frame. Pan head safety screws with one-way fitting are available for this purpose. With this screw type, the actuators cannot be removed or tampered by using common tools. See accessories on page 419.

LED display unit, type A

In the version with LED display unit of type A, two green LEDs are switched-on directly by the power supply of the solenoid. Wiring is not necessary.

LED display unit, types B and C

In the version with LED display unit of type B, connection wires from two LEDs are available, one green and one red. By means of suitable connections on the contact block, various operating states of the switch can be displayed externally.

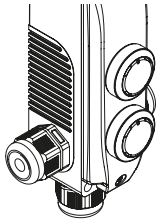


Protection degree IP67

IP67

These devices are designed to be used under the toughest environmental conditions, and they pass the IP67 immersion test acc. to EN 60529. They can therefore be used in all environments where the maximum degree of protection is required for the housing.

Three conduit entries



The switch is provided with three conduit entries in different directions. This allows its application in series connections or in narrow places.

Extended temperature range

-40°C

These devices are also available in a special version suitable for an ambient operating temperature range from -40°C up to +60°C.

They can therefore be used for applications in cold stores, sterilisers, and other equipment operated in very low-temperature environments. The special materials used to produce these versions retain their characteristics even under these conditions, thereby expanding the installation possibilities.

Sealable auxiliary release device

Switches with locked actuator with deactivated solenoid (function principle D) are equipped with an auxiliary release device for the solenoid to simplify installation of the switch and to facilitate entry into the danger zone in the event of a power failure. The auxiliary release device acts on the switch exactly as if the solenoid was energised. As a result, it also actuates the electrical contacts. Can only be actuated with the use of two tools; this ensures adequate protection against tampering. If necessary, it can be sealed using the appropriate hole.

Laser engraving

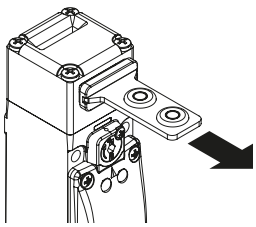
All FY series switches are permanently marked with a special laser system. As a result, the marking remains legible even under extreme operating conditions. Thanks to this system that does not use labels, the loss of plate data is prevented and a greater resistance of the marking is achieved over time.

In the versions with buttons on the cover, the button lenses can be laser-engraved on request so that the desired texts are directly and permanently applied to the lenses.

Access monitoring

These safety switches alone do not provide sufficient personal protection to the operators or maintenance personnel in situations where they completely enter the danger zone, since unintentional closing of a door after entry could cause the machine to re-start. If the re-start release is completely dependent on these switches, a system for preventing this danger must be provided, e.g. a padlockable device for actuator entry locking VF KB2 (page 154) or a safety handle, such as P-KUBE Fast (page 221).

Holding force of the unlocked actuator



The inside of each switch features a device which holds the actuator in its closed position. Ideal for all those applications where several guards are unlocked simultaneously, but only one is actually opened. The device keeps all the unlocked guards in their position with a retaining force of approx. 30 N, stopping any vibrations or gusts of wind from opening them.

LED signalling lights

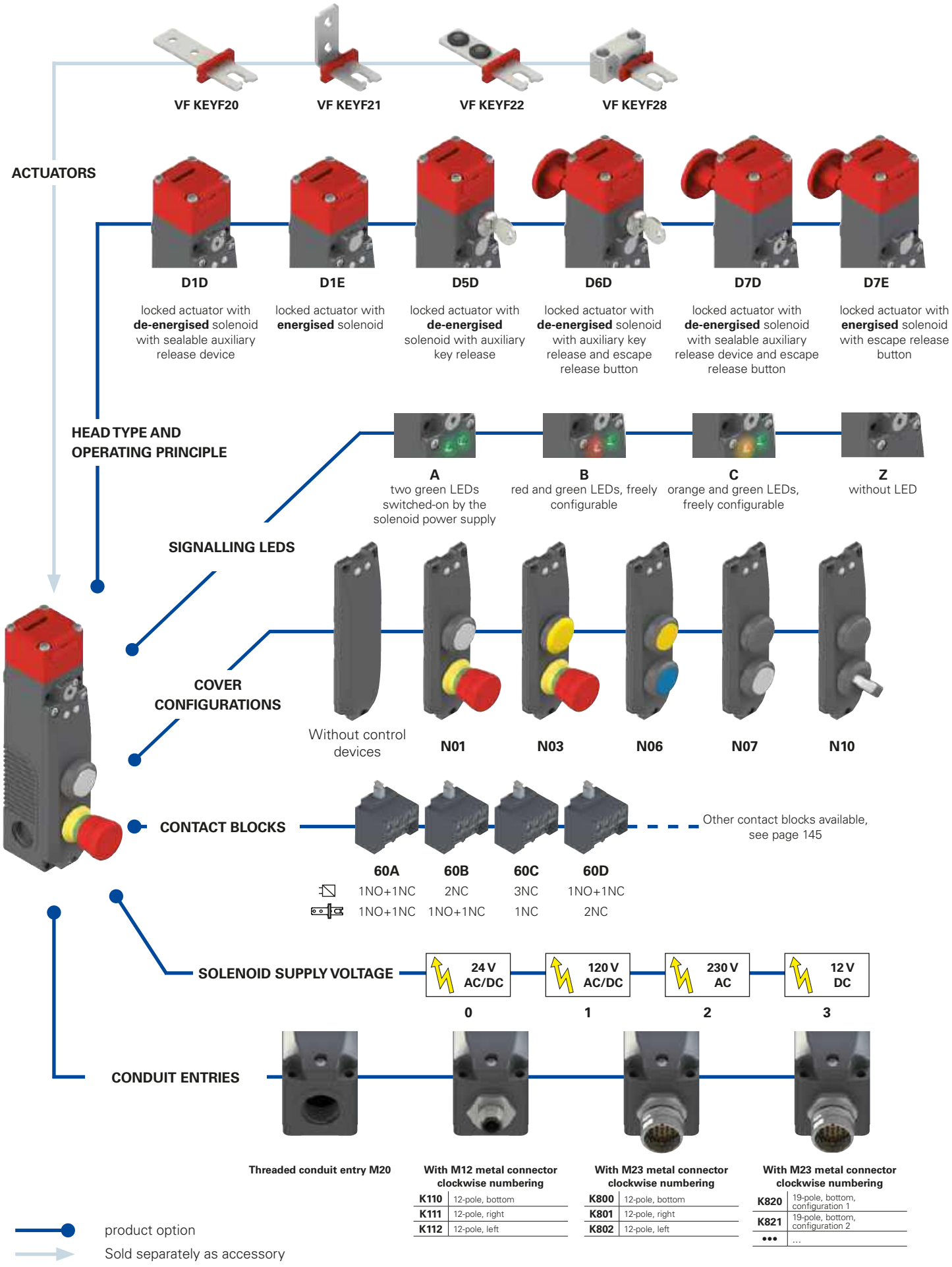
Thanks to the three threaded cable entries, the high luminosity LED signalling lights of the VF SL series can be installed on the switch.

The LED signalling lights can be be easily installed by screwing them on one of the conduit entries not used for electric cables. They can be used for many different purposes: for example, to signal, from a distance, whether the switch has been actuated; whether the guard has closed correctly; or whether the guard is locked or unlocked.

For more information see chapter Accessories, page 419.

FY series safety switches with separate actuator with lock

Selection diagram



Code structure

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

article: **FY 60AD1D0A** — options: **-LP30N01F20GK110T6V34**

Contact blocks

	Contacts activated by the solenoid	Contacts activated by the actuator
60A	1NO+1NC	1NO+1NC
60B	2NC	1NO+1NC
60C	3NC	1NC
60D	1NO+1NC	2NC
60E	1NO+2NC	1NC
60F	1NO+2NC	1NO
60G	2NC	2NC
60H	4NC	/
60I	3NC	1NO
60L	2NO+1NC	1NC
60M	2NO+1NC	1NO
60N	1NO+1NC	2NO
60P	1NC	3NC
60R	2NO+2NC	/
60S	1NC	2NO+1NC
60T	1NC	1NO+2NC
60U	/	4NC
60V	2NC	2NO
60X	1NO	3NC
60Y	1NO	1NO+2NC
61A	/	1NO+3NC
61B	/	2NO+2NC
61C	/	3NO+1NC
61D	1NC	3NO
61E	1NO	2NO+1NC
61G	2NO	1NO+1NC
61H	2NO	2NC
61M	3NO	1NC
61R	1NO+3NC	/
61S	3NO+1NC	/

Note: contact blocks 60U, 61A, 61B, 61C cannot be combined with operating principles D6D, D7D, D7E.

Operating principle

D1D	locked actuator with de-energised solenoid. With sealable auxiliary release device.
D1E	locked actuator with energised solenoid
D5D	locked actuator with de-energised solenoid. With auxiliary key release.
D6D	locked actuator with de-energised solenoid. With auxiliary key release and escape release button.
D7D	locked actuator with de-energised solenoid. With sealable auxiliary release device and escape release button.
D7E	locked actuator with energised solenoid. With escape release button.

Auxiliary release options
(only for articles FY •••D5D••, FY •••D6D••)

	The key can be removed in locked and unlocked actuator position (standard)
V34	The key can be removed only in the locked position of the actuator
V70	Key release with triangular key with spring return (description on page 151)
V73	Key release with triangular key, no spring return (description on page 151)

Ambient temperature

	-25°C … +60°C (standard)
T6	-40°C … +60°C

Pre-installed connectors

	without connector (standard)
K110	M12 metal connector, 12-pole, bottom
K800	M23 metal connector, 12-pole, bottom
K820	M23 metal connector, 19-pole, bottom, configuration 1
...	...

For the complete list of possible combinations please contact our technical department.

Note: The 19-pole M23 connector is only available for versions with integrated control devices and 24 Vdc supply voltage.

Contact type

	silver contacts (standard)
G	silver contacts with 1 µm gold coating

Actuators

	without actuator (standard)
F20	straight actuator VF KEYF20
F21	angled actuator VF KEYF21
F22	actuator with rubber pads VF KEYF22
F28	universal actuator VF KEYF28

Button configurations

N01	configuration 01
N02	configuration 02
N03	configuration 03
...	other configurations on request

Release button length

	for max. 15 mm wall thickness (standard)
LP30	for max. 30 mm wall thickness
LP40	for max. 40 mm wall thickness
LP60	for max. 60 mm wall thickness
LPRG	adjustable, for wall thickness from 60 mm to 500 mm

Signalling LEDs

A	two green LEDs switched-on by the solenoid power supply
B	red and green LEDs, freely configurable
C	orange and green LEDs, freely configurable
Z	without LED

Solenoid supply voltage

0	24 Vac/dc (-10% … +10%)
1	120 Vac/dc (-15% … +10%)
2	230 Vac (-15% … +10%)
3	12 Vdc (-10% … +10%)

FY series safety switches with separate actuator with lock

Main features

- Actuator holding force F_{1max}: 2800 N
- 30 contact blocks with 4 contacts
- Technopolymer housing, three M20 conduit entries
- Protection degrees IP67 and IP69K
- Versions with key release and escape release button
- Versions with integrated control devices
- 4 stainless steel actuators
- Head and release devices, individually turnable and non-detachable
- Signalling LEDs
- Operation with energised or de-energised solenoid

Quality marks:

IMQ approval:	CA02.03808
UL approval:	E131787
CCC approval:	2021000305000103

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing and shock-proof
Head and release device both made of metal, powder-coated and fired in a kiln

Three knock-out threaded conduit entries:	M20x1.5 (standard)
Protection degree:	IP67 acc. to EN 60529 (with cable gland of equal or higher protection degree) IP69K acc. to ISO 20653 (Protect the cables from direct high-pressure and high-temperature jets)
Protection degree with control devices:	IP65 acc. to EN 60529

General data

"Maximum SIL" (SIL CL) up to:	SIL 3 acc. to EN IEC 62061
Performance Level (PL) up to:	PL e acc. to EN ISO 13849-1
Interlock with mechanical lock, coded:	type 2 acc. to EN ISO 14119
Coding level:	low acc. to EN ISO 14119
Safety parameters:	
B_{10D}:	5,000,000 for NC contacts
Mission time:	20 years
Ambient temperature:	-25°C … +60°C (standard) -40°C … +60°C (T6 option)
Max. actuation frequency:	600 operating cycles/hour
Mechanical endurance:	1 million operating cycles
Max. actuation speed:	0.5 m/s
Min. actuation speed:	1 mm/s
Maximum force before breakage F_{1max}:	2800 N acc. to EN ISO 14119
Max. holding force F_{Zh}:	2150 N acc. to EN ISO 14119
Maximum clearance of locked actuator:	4.5 mm
Released actuator extraction force:	30 N
Tightening torques for installation:	see page 441
Wire cross-sections and wire stripping lengths:	see page 464

Solenoid

Duty cycle:	100% ED (continuous operation)
Solenoid consumption:	9 VA

In compliance with standards:
EN 60947-5-1, EN 60947-1, EN 60204-1, EN ISO 14119, EN ISO 12100, EN 60529, EN 61000-6-2, EN 61000-6-3, EN IEC 63000, BG-GS-ET-15, BG-GS-ET-19, UL 508, CSA C22.2 No. 14.

Approvals:
EN 60947-5-1, UL 508, CSA C22.2 No. 14, GB/T14048.5

Compliance with the requirements of:
Machinery Directive 2006/42/EC, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:
IEC 60947-5-1, EN 60947-5-1.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 443 to 454.

Electrical data of the contact block of the switch			Utilization category
without connector	Thermal current (I_{th}):	6 A	Alternating current: AC15 (50÷60 Hz) U_e (V) 120 250 400 I_e (A) 6 5 3 Direct current: DC13 U_e (V) 24 125 250 I_e (A) 3 0.7 0.4
	Rated insulation voltage (U_i):	400 Vac 300 Vdc	
	Rated impulse withstand voltage (U_{imp}):	6 kV	
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	
	Protection against short circuits:	type gG fuse 10 A 500 V	
	Pollution degree:	3	
with M23 connector, 12-pole	Thermal current (I_{th}):	6 A	Alternating current: AC15 (50÷60 Hz) U_e (V) 120 250 I_e (A) 6 5 Direct current: DC13 U_e (V) 24 125 250 I_e (A) 3 0.7 0.4
	Rated insulation voltage (U_i):	250 Vac 300 Vdc	
	Protection against short circuits:	type gG fuse 8 A 500 V	
	Pollution degree:	3	
with M23 connector, 19-pole	Thermal current (I_{th}):	3 A	Alternating current: AC15 (50÷60 Hz) U_e (V) 24 I_e (A) 3 Direct current: DC13 U_e (V) 24 I_e (A) 3
	Rated insulation voltage (U_i):	30 Vac 36 Vdc	
	Protection against short circuits:	type gG fuse 1 A	
	Pollution degree:	3	
with M12 connector, 12-pole	Thermal current (I_{th}):	1.5 A	Alternating current: AC15 (50÷60 Hz) U_e (V) 24 I_e (A) 1.5 Direct current: DC13 U_e (V) 24 I_e (A) 1.5
	Rated insulation voltage (U_i):	30 Vac 36 Vdc	
	Protection against short circuits:	type gG fuse 1.5 A	
	Pollution degree:	3	

Features approved by IMQ

Rated insulation voltage (U_i):	400 Vac
Conventional free air thermal current (I_{th}):	6 A
Protection against short circuits:	type gG fuse 6 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV
Protection degree of the housing:	IP67/IP69K (without auxiliary buttons) IP65 (with auxiliary buttons)
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_e):	400 Vac (50 Hz)
Operating current (I_e):	3 A

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

Positive opening of contacts on all contact blocks: 60A, 60B, 60C, 60D, 60E, 60F, 60G, 60H, 60I, 60L, 60M, 60N, 60P, 60R, 60S, 60T, 60U, 60V, 60X, 60Y, 61A, 61B, 61C, 61D, 61E, 61G, 61H, 61M, 61R, 61S.

In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.

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

Features approved by UL

Electrical Ratings:
Main ratings:
Input with coil 12 Vdc, 24 Vac/dc, 120 Vac/dc, 230Vac
Output Pilot Duty B300, Q300
Overvoltage category II

Secondary ratings:
Output 24 Vac/dc "Class 2" 0.25 A Pilot Duty (Maximum two Actuators, with maximum five contacts, NO or NC or both)

Environmental Ratings:
Enclosure type 1, 4X, 12, 13 for model FY 6xxxxxxx-xxx
Enclosure type 1 for model FY 6xxxxxxx-Nxx

The hub is to be connected to the conduit before the hub is connected to the enclosure.
Value of tightening torque of cover's screws 1.0-1.2 Nm.

Operating principle

The operating principle of these safety switches allows three different operating states:

state A: with inserted and locked actuator
state B: with inserted but not locked actuator
state C: with extracted actuator

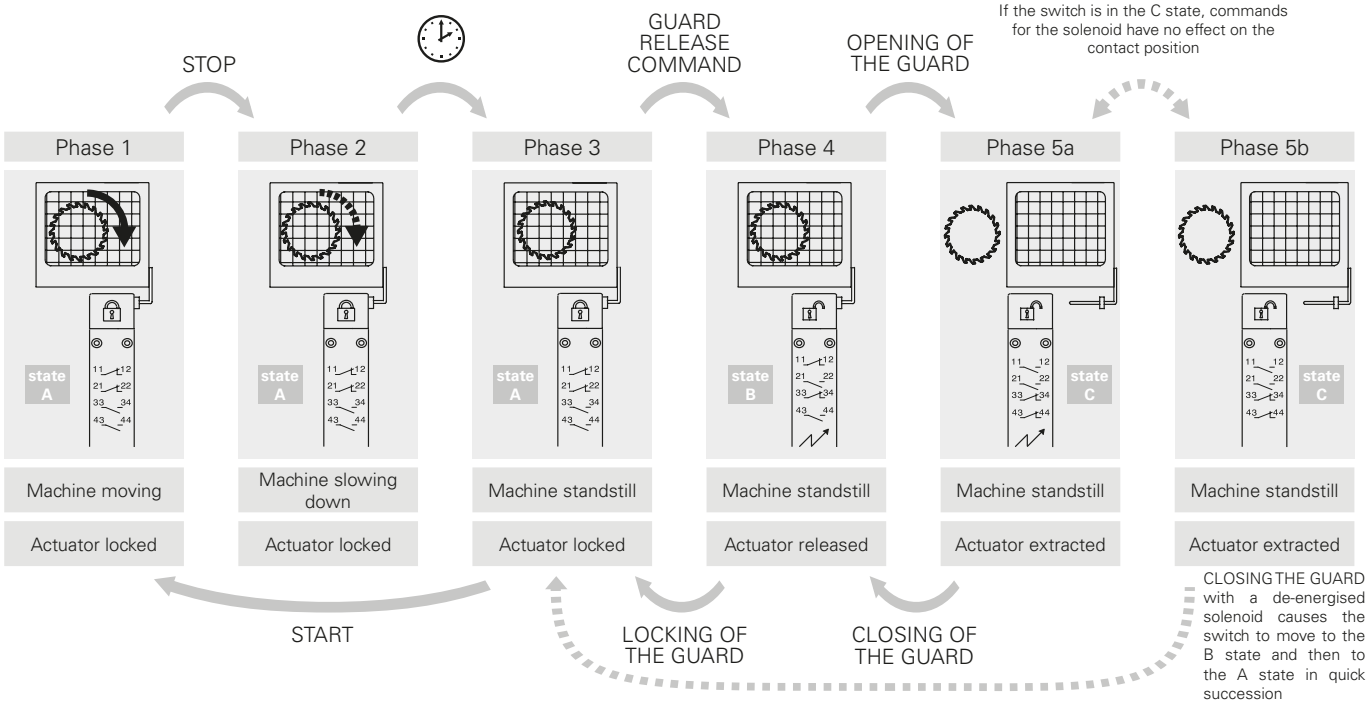
All or some of these states can be monitored by means of electrical NO contacts or NC contacts with positive opening by selecting the appropriate contact blocks. In detail, contact blocks that have electric contacts marked with the symbol of the solenoid ( ) are switched in the transition between the state A and state B, while the electric contacts marked with the symbol of the actuator ( ) are switched between state B and state C.

Operating principle

Select from two operating principles for actuator locking:

- **Operating principle D**: locked actuator with de-energised solenoid. The actuator is released by applying the power supply to the solenoid (see example of the operating phases).
- **Operating principle E**: locked actuator with energised solenoid. The actuator is released by switching off the power supply to the solenoid. This version should only be used under certain conditions, since a power failure at the system will result in the immediate opening of the guard.

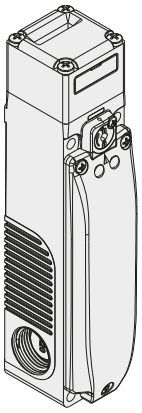
Example: operating phases with FY 60AD1D0A-F21 (switch with operating principle D)

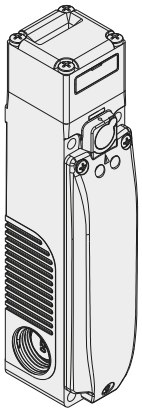


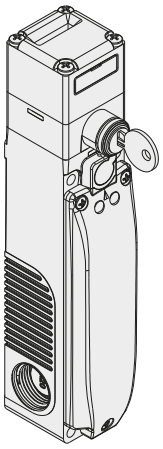
FY series safety switches with separate actuator with lock

Selection table for switches

Contact type
L = slow action







Operating principle		Operating principle D, with sealable auxiliary release device, without actuator				Operating principle E, without actuator				Operating principle D, with key release, without actuator			
Contact block													
60A	L	FY 60AD1D0A		1NO+1NC	1NO+1NC	FY 60AD1E0A		1NO+1NC	1NO+1NC	FY 60AD5D0A		1NO+1NC	1NO+1NC
60B	L	FY 60BD1D0A		2NC	1NO+1NC	FY 60BD1E0A		2NC	1NO+1NC	FY 60BD5D0A		2NC	1NO+1NC
60C	L	FY 60CD1D0A		3NC	1NC	FY 60CD1E0A		3NC	1NC	FY 60CD5D0A		3NC	1NC
60D	L	FY 60DD1D0A		1NO+1NC	2NC	FY 60DD1E0A		1NO+1NC	2NC	FY 60DD5D0A		1NO+1NC	2NC
60E	L	FY 60ED1D0A		1NO+2NC	1NC	FY 60ED1E0A		1NO+2NC	1NC	FY 60ED5D0A		1NO+2NC	1NC
60F	L	FY 60FD1D0A		1NO+2NC	1NO	FY 60FD1E0A		1NO+2NC	1NO	FY 60FD5D0A		1NO+2NC	1NO
60G	L	FY 60GD1D0A		2NC	2NC	FY 60GD1E0A		2NC	2NC	FY 60GD5D0A		2NC	2NC
60H	L	FY 60HD1D0A		4NC	/	FY 60HD1E0A		4NC	/	FY 60HD5D0A		4NC	/
60I	L	FY 60ID1D0A		3NC	1NO	FY 60ID1E0A		3NC	1NO	FY 60ID5D0A		3NC	1NO
60L	L	FY 60LD1D0A		2NO+1NC	1NC	FY 60LD1E0A		2NO+1NC	1NC	FY 60LD5D0A		2NO+1NC	1NC
60M	L	FY 60MD1D0A		2NO+1NC	1NO	FY 60MD1E0A		2NO+1NC	1NO	FY 60MD5D0A		2NO+1NC	1NO
60N	L	FY 60ND1D0A		1NO+1NC	2NO	FY 60ND1E0A		1NO+1NC	2NO	FY 60ND5D0A		1NO+1NC	2NO
60P	L	FY 60PD1D0A		1NC	3NC	FY 60PD1E0A		1NC	3NC	FY 60PD5D0A		1NC	3NC
60R	L	FY 60RD1D0A		2NO+2NC	/	FY 60RD1E0A		2NO+2NC	/	FY 60RD5D0A		2NO+2NC	/
60S	L	FY 60SD1D0A		1NC	2NO+1NC	FY 60SD1E0A		1NC	2NO+1NC	FY 60SD5D0A		1NC	2NO+1NC
60T	L	FY 60TD1D0A		1NC	1NO+2NC	FY 60TD1E0A		1NC	1NO+2NC	FY 60TD5D0A		1NC	1NO+2NC
60U	L	FY 60UD1D0A		/	4NC	FY 60UD1E0A		/	4NC	FY 60UD5D0A		/	4NC
60V	L	FY 60VD1D0A		2NC	2NO	FY 60VD1E0A		2NC	2NO	FY 60VD5D0A		2NC	2NO
60X	L	FY 60XD1D0A		1NO	3NC	FY 60XD1E0A		1NO	3NC	FY 60XD5D0A		1NO	3NC
60Y	L	FY 60YD1D0A		1NO	1NO+2NC	FY 60YD1E0A		1NO	1NO+2NC	FY 60YD5D0A		1NO	1NO+2NC
61A	L	FY 61AD1D0A		/	1NO+3NC	FY 61AD1E0A		/	1NO+3NC	FY 61AD5D0A		/	1NO+3NC
61B	L	FY 61BD1D0A		/	2NO+2NC	FY 61BD1E0A		/	2NO+2NC	FY 61BD5D0A		/	2NO+2NC
61C	L	FY 61CD1D0A		/	3NO+1NC	FY 61CD1E0A		/	3NO+1NC	FY 61CD5D0A		/	3NO+1NC
61D	L	FY 61DD1D0A		1NC	3NO	FY 61DD1E0A		1NC	3NO	FY 61DD5D0A		1NC	3NO
61E	L	FY 61ED1D0A		1NO	2NO+1NC	FY 61ED1E0A		1NO	2NO+1NC	FY 61ED5D0A		1NO	2NO+1NC
61G	L	FY 61GD1D0A		2NO	1NO+1NC	FY 61GD1E0A		2NO	1NO+1NC	FY 61GD5D0A		2NO	1NO+1NC
61H	L	FY 61HD1D0A		2NO	2NC	FY 61HD1E0A		2NO	2NC	FY 61HD5D0A		2NO	2NC
61M	L	FY 61MD1D0A		3NO	1NC	FY 61MD1E0A		3NO	1NC	FY 61MD5D0A		3NO	1NC
61R	L	FY 61RD1D0A		1NO+3NC	/	FY 61RD1E0A		1NO+3NC	/	FY 61RD5D0A		1NO+3NC	/
61S	L	FY 61SD1D0A		3NO+1NC	/	FY 61SD1E0A		3NO+1NC	/	FY 61SD5D0A		3NO+1NC	/
Actuating force		30 N (60 N ⊕)											
Travel diagrams		Page 465											

Legend: ⊕ With positive opening according to EN 60947-5-1, interlock with lock monitoring acc. to EN ISO 14119

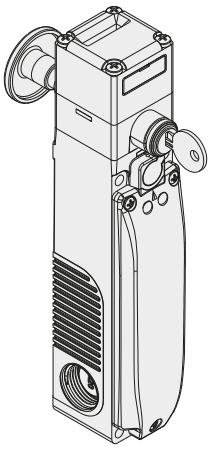
Note: The position of the contacts depending on the switch state can be found on pages 129-130 by replacing codes FG with FY.

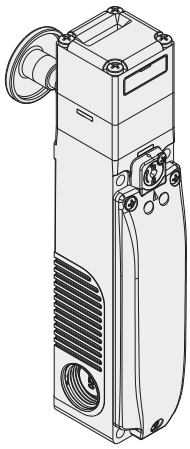
Note: See pages 155-156 for the connection diagrams for M12 and M23 connector contact blocks.

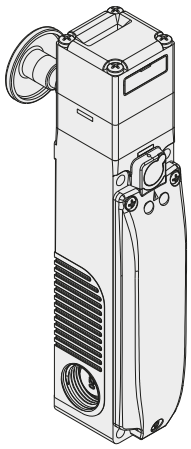
Accessories See page 419

Selection table for switches

Contact type
L = slow action







Operating principle	Operating principle D, with key release, escape release button, without actuator			Operating principle D, with escape release button, without actuator			Operating principle E, with escape release button, without actuator		
Contact block									
60A L	FY 60AD6D0A	1NO+1NC	1NO+1NC	FY 60AD7D0A	1NO+1NC	1NO+1NC	FY 60AD7E0A	1NO+1NC	1NO+1NC
60B L	FY 60BD6D0A	2NC	1NO+1NC	FY 60BD7D0A	2NC	1NO+1NC	FY 60BD7E0A	2NC	1NO+1NC
60C L	FY 60CD6D0A	3NC	1NC	FY 60CD7D0A	3NC	1NC	FY 60CD7E0A	3NC	1NC
60D L	FY 60DD6D0A	1NO+1NC	2NC	FY 60DD7D0A	1NO+1NC	2NC	FY 60DD7E0A	1NO+1NC	2NC
60E L	FY 60ED6D0A	1NO+2NC	1NC	FY 60ED7D0A	1NO+2NC	1NC	FY 60ED7E0A	1NO+2NC	1NC
60F L	FY 60FD6D0A	1NO+2NC	1NO	FY 60FD7D0A	1NO+2NC	1NO	FY 60FD7E0A	1NO+2NC	1NO
60G L	FY 60GD6D0A	2NC	2NC	FY 60GD7D0A	2NC	2NC	FY 60GD7E0A	2NC	2NC
60H L	FY 60HD6D0A	4NC	/	FY 60HD7D0A	4NC	/	FY 60HD7E0A	4NC	/
60I L	FY 60ID6D0A	3NC	1NO	FY 60ID7D0A	3NC	1NO	FY 60ID7E0A	3NC	1NO
60L L	FY 60LD6D0A	2NO+1NC	1NC	FY 60LD7D0A	2NO+1NC	1NC	FY 60LD7E0A	2NO+1NC	1NC
60M L	FY 60MD6D0A	2NO+1NC	1NO	FY 60MD7D0A	2NO+1NC	1NO	FY 60MD7E0A	2NO+1NC	1NO
60N L	FY 60ND6D0A	1NO+1NC	2NO	FY 60ND7D0A	1NO+1NC	2NO	FY 60ND7E0A	1NO+1NC	2NO
60P L	FY 60PD6D0A	1NC	3NC	FY 60PD7D0A	1NC	3NC	FY 60PD7E0A	1NC	3NC
60R L	FY 60RD6D0A	2NO+2NC	/	FY 60RD7D0A	2NO+2NC	/	FY 60RD7E0A	2NO+2NC	/
60S L	FY 60SD6D0A	1NC	2NO+1NC	FY 60SD7D0A	1NC	2NO+1NC	FY 60SD7E0A	1NC	2NO+1NC
60T L	FY 60TD6D0A	1NC	1NO+2NC	FY 60TD7D0A	1NC	1NO+2NC	FY 60TD7E0A	1NC	1NO+2NC
60V L	FY 60VD6D0A	2NC	2NO	FY 60VD7D0A	2NC	2NO	FY 60VD7E0A	2NC	2NO
60X L	FY 60XD6D0A	1NO	3NC	FY 60XD7D0A	1NO	3NC	FY 60XD7E0A	1NO	3NC
60Y L	FY 60YD6D0A	1NO	1NO+2NC	FY 60YD7D0A	1NO	1NO+2NC	FY 60YD7E0A	1NO	1NO+2NC
61D L	FY 61DD6D0A	1NC	3NO	FY 61DD7D0A	1NC	3NO	FY 61DD7E0A	1NC	3NO
61E L	FY 61ED6D0A	1NO	2NO+1NC	FY 61ED7D0A	1NO	2NO+1NC	FY 61ED7E0A	1NO	2NO+1NC
61G L	FY 61GD6D0A	2NO	1NO+1NC	FY 61GD7D0A	2NO	1NO+1NC	FY 61GD7E0A	2NO	1NO+1NC
61H L	FY 61HD6D0A	2NO	2NC	FY 61HD7D0A	2NO	2NC	FY 61HD7E0A	2NO	2NC
61M L	FY 61MD6D0A	3NO	1NC	FY 61MD7D0A	3NO	1NC	FY 61MD7E0A	3NO	1NC
61R L	FY 61RD6D0A	1NO+3NC	/	FY 61RD7D0A	1NO+3NC	/	FY 61RD7E0A	1NO+3NC	/
61S L	FY 61SD6D0A	3NO+1NC	/	FY 61SD7D0A	3NO+1NC	/	FY 61SD7E0A	3NO+1NC	/
Actuating force	30 N (60 N ⊖)								
Travel diagrams	Page 465								

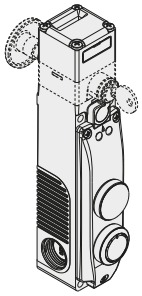
Legend: ⊖ With positive opening according to EN 60947-5-1, interlock with lock monitoring acc. to EN ISO 14119

Note: The position of the contacts depending on the switch state can be found on pages 129-130 by replacing codes FG with FY.

Note: See pages 155-156 for the connection diagrams for M12 and M23 connector contact blocks.

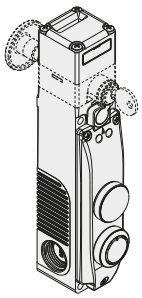
Accessories See page 419

Switch with integrated field-wireable control devices



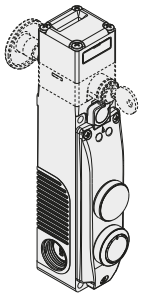
FY 6•••••••-N07

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Illuminated button, spring-return 1NO	white	4 8 LED 3 5



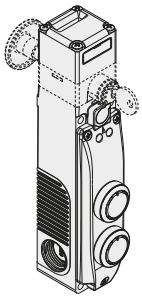
FY 6•••••••-N08

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Illuminated button, spring-return 1NO	blue	4 8 LED 3 5



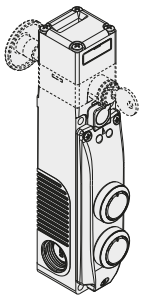
FY 6•••••••-N09

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Spring-return button 1NO	black	4 3



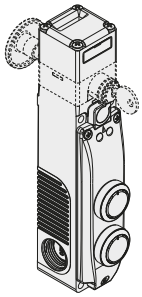
FY 6•••••••-N04

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	white	2 8 LED 1 7
Device 2	Illuminated button, spring-return 1NO	blue	4 8 LED 3 5



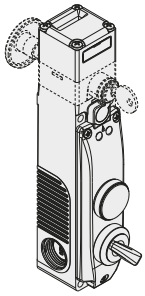
FY 6•••••••-N05

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	white	2 8 LED 1 7
Device 2	Spring-return button 1NO	black	4 3



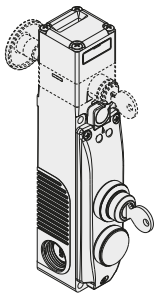
FY 6•••••••-N06

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	yellow	2 8 LED 1 7
Device 2	Illuminated button, spring-return 1NO	blue	4 8 LED 3 5



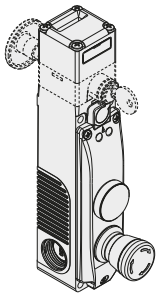
FY 6•••••••-N10

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Selector switch 1NO with two fixed positions	black	4 8 LED 3 5



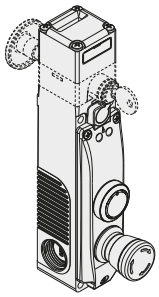
FY 6•••••••-N11

	Description	Colour	Diagram
Device 1	Three-position key selector switch 2NO with return to centre	black	2 6 1 5
Device 2	Closing cap	black	/



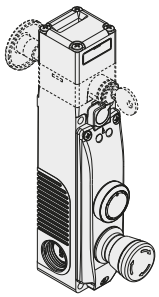
FY 6•••••••-N12

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Emergency stop button with rotary release 2NC	red	4 6 3 5



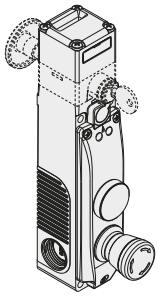
FY 6•••••••-N01

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	white	2 8 LED 1 7
Device 2	Emergency stop button with rotary release 2NC	red	4 6 3 5



FY 6•••••••-N02

	Description	Colour	Diagram
Device 1	Spring-return button 1NO	black	2 1
Device 2	Emergency stop button with rotary release 2NC	red	4 6 3 5

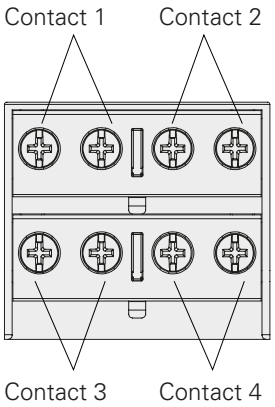


FY 6•••••••-N03

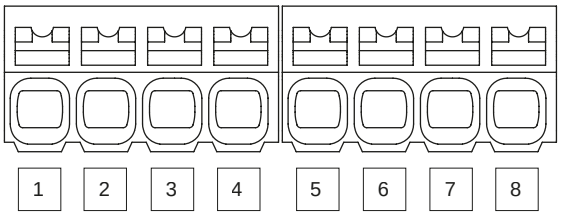
	Description	Colour	Diagram
Device 1	Indicator light	yellow	8 LED 7
Device 2	Emergency stop button with rotary release 2NC	red	4 6 3 5

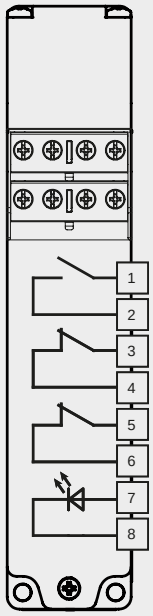
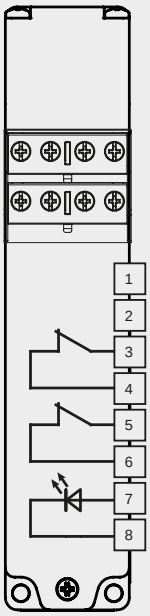
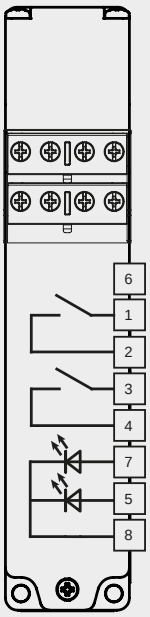
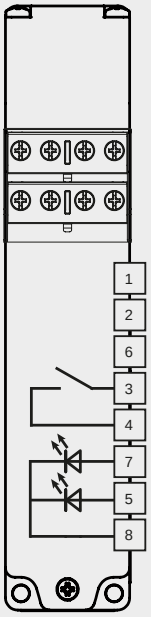
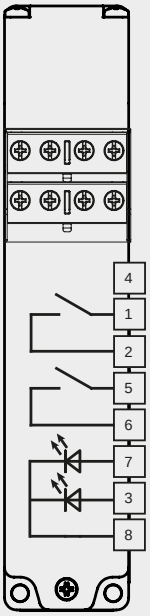
Internal connections (version with integrated control devices to be connected)

Internal terminal strip for switch contact blocks



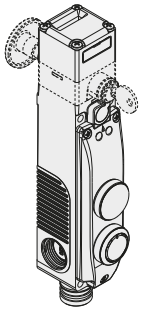
Internal terminal strip on the cover for integrated control devices



FY 6•••••••-N01 FY 6•••••••-N02	FY 6•••••••-N03 FY 6•••••••-N12	FY 6•••••••-N04 FY 6•••••••-N05 FY 6•••••••-N06	FY 6•••••••-N07 FY 6•••••••-N08 FY 6•••••••-N09 FY 6•••••••-N10	FY 6•••••••-N11
				

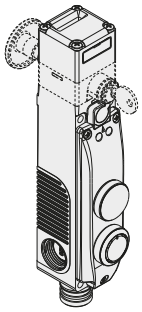
Note: The position of the contacts depending on the switch state can be found on pages 129-130 by replacing codes FG with FY.

Switch with integrated control devices and M23 connector, 19-pole



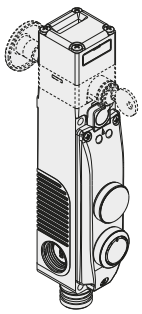
FY 6•••••••-N07K823

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Illuminated button, spring-return 1NO	white	15 19 LED 14 16



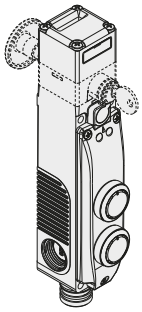
FY 6•••••••-N08K823

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Illuminated button, spring-return 1NO	blue	15 19 LED 14 16



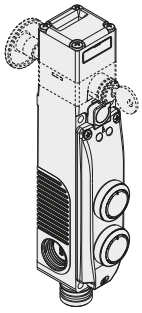
FY 6•••••••-N09K823

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Spring-return button 1NO	black	15 14



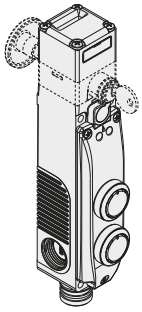
FY 6•••••••-N04K822

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	white	13 19 LED 11 18
Device 2	Illuminated button, spring-return 1NO	blue	15 19 LED 14 16



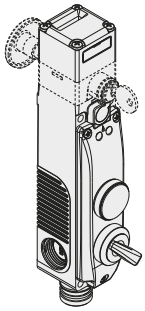
FY 6•••••••-N05K822

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	white	13 19 LED 11 18
Device 2	Spring-return button 1NO	black	15 14



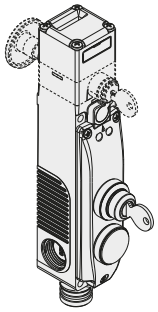
FY 6•••••••-N06K822

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	yellow	13 19 LED 11 18
Device 2	Illuminated button, spring-return 1NO	blue	15 19 LED 14 16



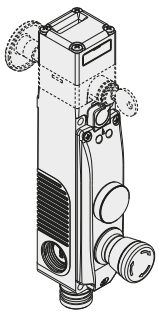
FY 6•••••••-N10K823

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Selector switch 1NO with two fixed positions	black	15 19 LED 14 16



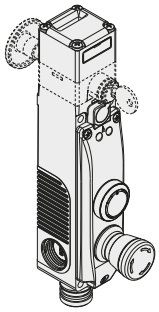
FY 6•••••••-N11K824

	Description	Colour	Diagram
Device 1	Three-position key selector switch 2NO with return to centre	black	13 17 11 16
Device 2	Closing cap	black	/



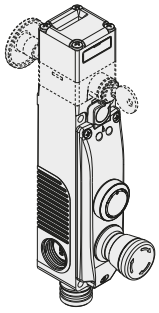
FY 6•••••••-N12K821

	Description	Colour	Diagram
Device 1	Closing cap	black	/
Device 2	Emergency stop button with rotary release 2NC	red	15 17 14 16



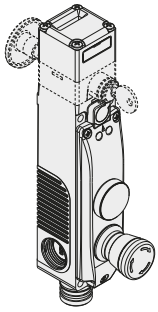
FY 6•••••••-N01K820

	Description	Colour	Diagram
Device 1	Illuminated button, spring-return 1NO	white	13 19 LED 11 18
Device 2	Emergency stop button with rotary release 2NC	red	15 17 14 16



FY 6•••••••-N02K820

	Description	Colour	Diagram
Device 1	Spring-return button 1NO	black	13 11
Device 2	Emergency stop button with rotary release 2NC	red	15 17 14 16

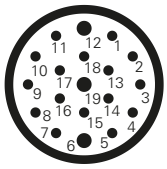


FY 6•••••••-N03K821

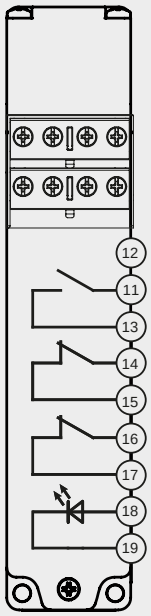
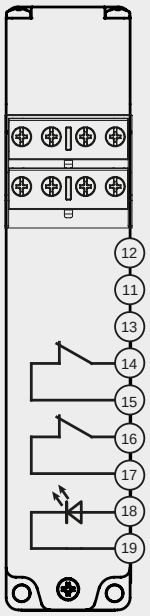
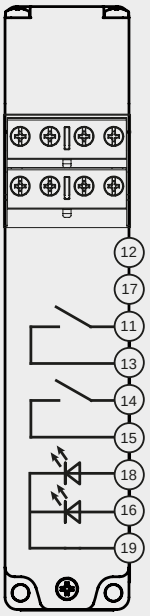
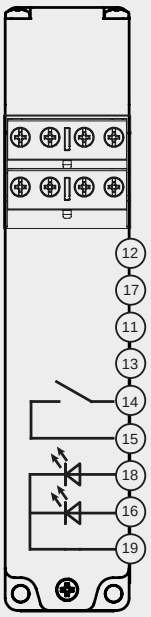
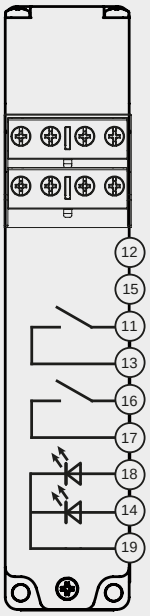
	Description	Colour	Diagram
Device 1	Indicator light	yellow	19 LED 18
Device 2	Emergency stop button with rotary release 2NC	red	15 17 14 16

Internal connections (version with integrated control devices)

M23 connector, 19-pole



To connect the switch contact block to the 19-pole M23 connector, see pin numbers 1 to 10 of the diagrams on page 156.

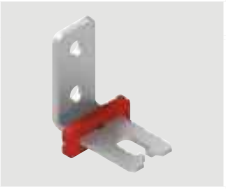
FY 6•••••••-N01K820 FY 6•••••••-N02K820	FY 6•••••••-N03K821 FY 6•••••••-N12K821	FY 6•••••••-N04K822 FY 6•••••••-N05K822 FY 6•••••••-N06K822	FY 6•••••••-N07K823 FY 6•••••••-N08K823 FY 6•••••••-N09K823 FY 6•••••••-N10K823	FY 6•••••••-N11K824
				

Female connectors see page 419

Stainless steel actuators

IMPORTANT: These actuators can be used only with items of the FG and FY series (e.g. FY 60AD1D0A-F20).
Low level of coding acc. to EN ISO 14119.

Article	Description
VF KEYF20	Straight actuator



Article	Description
VF KEYF21	Angled actuator

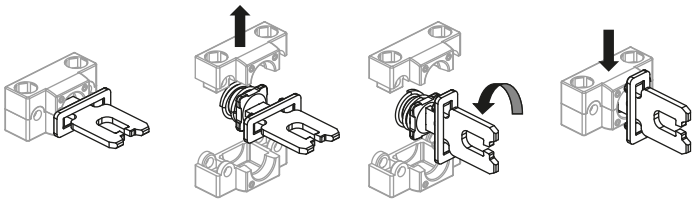
Article	Description
VF KEYF22	Actuator with rubber pads

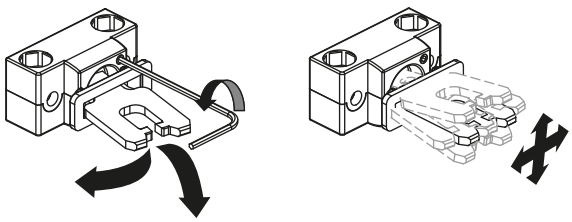
Universal actuator VF KEYF28

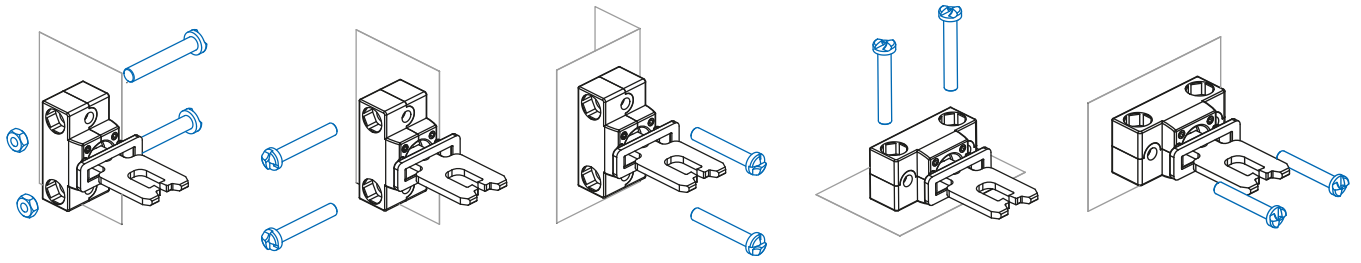
IMPORTANT: These actuators can be used only with items of the FG and FY series (e.g. FY 60AD1D0A-F28).
Low level of coding acc. to EN ISO 14119.

Article	Description
VF KEYF28	Universal actuator

Jointed actuator for guards with poor alignment, adjustable in two dimensions for small doors; can be mounted in various positions.
The metal fixing body has two pairs of bore holes; it is provided for rotating the working plane of the actuator by 90°.

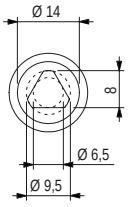






Auxiliary key release with triangular key

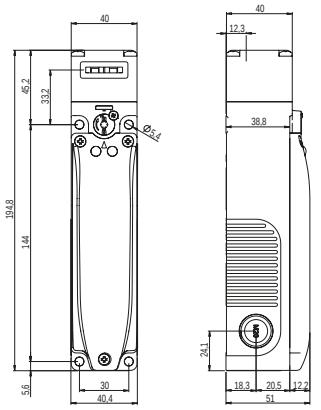
Articles with the V70 and V73 option have an auxiliary key release with a triangular key that meets DIN 22417 standards.
This type of lock can be used in situations where the switch must only be unlocked using the corresponding triangular key, a tool which is not usually available.
There are two versions of the triangular key release: with a spring return (option V70) and without a spring return (option V73).



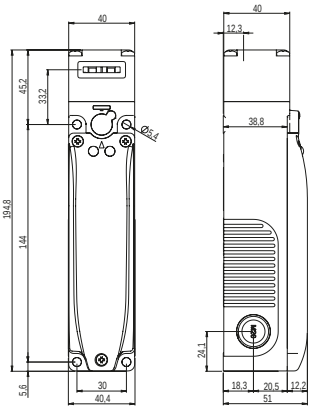
All values in the drawings are in mm

Dimensional drawings

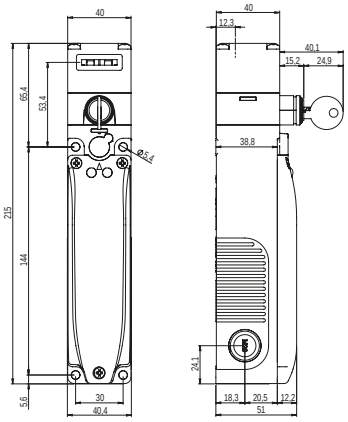
Switch FY 6••D1D••
Operating principle D,
with sealable auxiliary release device



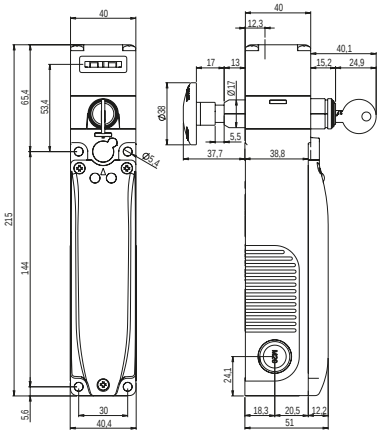
Switch FY 6••D1E••
Operating principle E



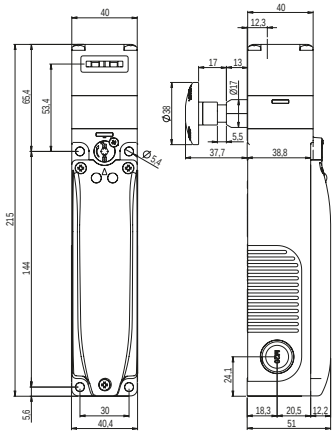
Switch FY 6••D5D••
Operating principle D,
with key release



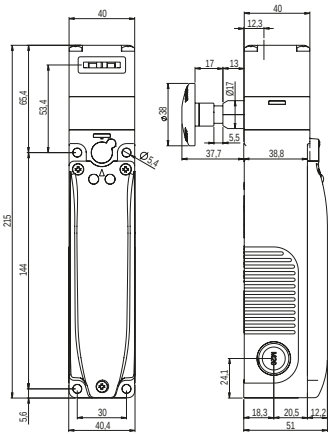
Switch FY 6••D6D••
Operating principle D
with auxiliary key release and escape release button



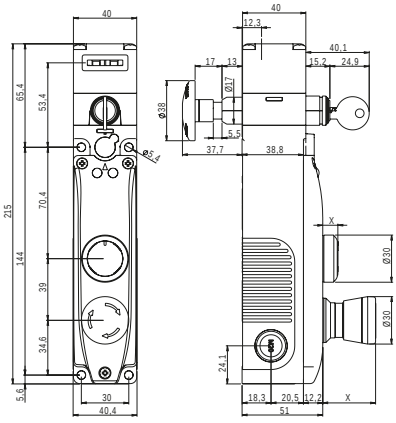
Switch FY 6••D7D••
Operating principle D
with sealable auxiliary release device and escape release button



Switch FY 6••D7E••
Operating principle E,
with escape release button

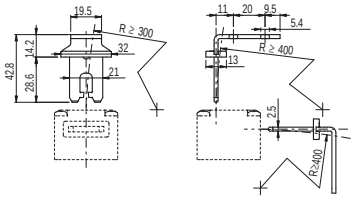


Switch FY 6•••••• with integrated control devices

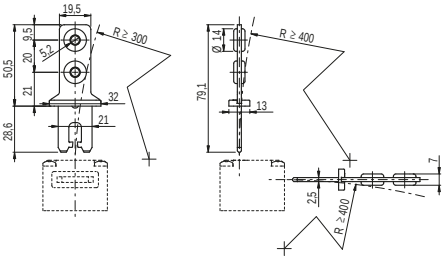


X = see page 153

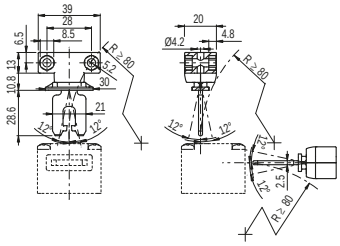
Actuator VF KEYF21



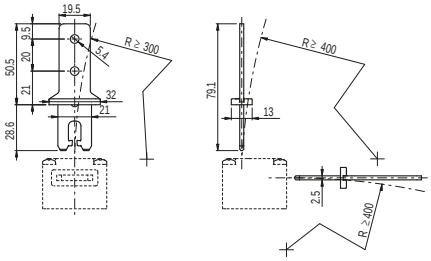
Actuator VF KEYF22



Actuator VF KEYF28



Actuator VF KEYF20



All values in the drawings are in mm

FY series safety switches with separate actuator with lock

Available control devices

	Description	Colour	Spare part number	Combinable with contacts (1)	Protrusion (x) mm
	Illuminated button, spring-return	White Red Green Yellow Blue	VN NG-AC27121 VN NG-AC27123 VN NG-AC27124 VN NG-AC27125 VN NG-AC27126	1NO (1NC) (2NO) (1NO+1NC)	3
	Non-illuminated button, spring-return	Black	VN NG-AC27122	1NO (1NC) (2NO) (1NO+1NC)	3
	Non-laser-markable, illuminated, projecting spring-return push button	Red	VN NG-AC26018	1NO (1NC) (2NO) (1NO+1NC)	6,1
	Indicator light	Red Yellow Green Blue White	VN NG-AC26060 VN NG-AC26061 VN NG-AC26062 VN NG-AC26063 VN NG-AC26064	/	2,7
	Emergency stop button acc. to. EN ISO 13850 Rotary release Push-pull release	 Red Red	 VN NG-AC26052 VN NG-AC26055	2NC	26,4
	Emergency stop button acc. to. EN ISO 13850 for 2NC + 1NO contacts, spring-return(2) Rotary release	 Red	 VN NG-AC26056	2NC + 1NO, spring-return	26,4
	Illuminated emergency stop button acc. to. EN ISO 13850 Rotary release Push-pull release	 Red Red	 VN NG-AC26051 VN NG-AC26054	2NC	26,4
	Simple stop button Rotary release Push-pull release	 Black Black	 VN NG-AC26053 VN NG-AC26057	2NC	26,4
	Illuminated selector switch with handle, with transparent lens for LED 	 Black Black Black Black	 VN NG-AC26033 VN NG-AC26030 VN NG-AC26034 VN NG-AC26031	1NO (1NC) (2NO) (1NO+1NC)	16,8
	Key selector switch, 2 positions 	 Black Black Black	 VN NG-AC26043 VN NG-AC26040 VN NG-AC26041	1NO (1NC) (2NO) (1NO+1NC)	39 (a) 14 (b)
	Closing cap	Black	VN NG-AC26020	/	2,7
	Fixing key	Black	VN NG-AC26080	/	/

Legend: Maintained Spring-return Key extraction position (a) with key (b) without key

(1) The contacts in brackets are on request. Contact our technical department to verify the effective feasibility of the control device unit with the chosen combination of control devices.
(2) The NO contact with spring-return is only activated if the emergency stop button reaches the stop. The signal of the NO contact is captured by analysing the rising edge.

To order buttons with marking:
add the marking code indicated in the tables on pp. 165-168 to the article codes of the General Catalogue HMI 2023-2024.
Example: Black spring-return button with "O" engraving.
VN NG-AC27122 → VN NG-AC27122-L1

Technical data of the control devices

General data

Protection degree:	IP65 acc. to EN 60529
Mechanical endurance:	
Spring-return button:	1 million operating cycles
Emergency stop button:	50,000 operating cycles
Selector switch:	300,000 operating cycles
Key selector switch:	50,000 operating cycles 30,000 operating cycles including removal of the key
Safety parameter B_{10D}:	100,000 (emergency stop button)

Actuating force

Spring-return button:	4 N min	100 N max.
Emergency stop button:	20 N min	100 N max.
Selector switch:	0.1 Nm min	1.5 Nm max.
Key selector switch:	0.1 Nm min	1.3 Nm max.

Contact blocks of the control devices

Material of the contacts:	silver contacts
Contact type:	Self-cleaning contacts with double interruption

Electrical data:

Thermal current I_{th}:	1 A
Rated insulation voltage U_i:	32 Vac/dc
Rated impulse withstand voltage U_{imp}:	1.5 kV
LED supply voltage:	24 Vdc ± 15%
LED supply current:	10 mA per LED

Utilization category of the contact block:
Direct current: DC13

U_e (V)	24
I_e (A)	0.55

Signalling contact with spring return:
Direct current: DC13

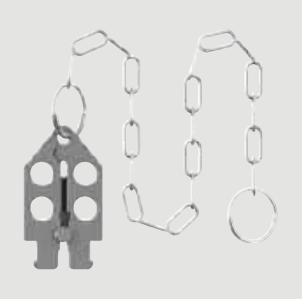
U_e (V)	24
I_e (mA)	10

In compliance with standards:
IEC 60947-5-1, IEC 60947-5-5, EN ISO 13850

⚠ **Installation for safety applications:**
Always connect the safety circuit to the **NC contacts** (normally closed contacts) as stated in standard EN 60947-5-1.

Accessories

Article	Description
VF KB2	Lock out device



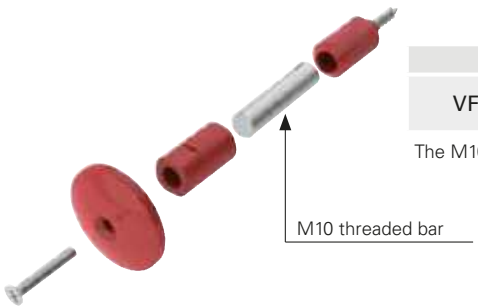
Padlockable lock out device to prevent the actuator entry and the accidental closing of the door behind operators while they are in the danger area.
To be used only with FG and FY series switches (e.g. FY 60AD1D0A). Hole diameter for padlocks: 9 mm.

Article	Description
VF KLA371	Set of two locking keys

Extra copy of the locking keys to be purchased if further keys are needed (standard supply: 2 units).
The keys of all switches have the same code. Other codes on request.

Release button

Article	Description
VF FG-LP15	Technopolymer release button for max. 15 mm wall thickness, supplied with screw
VF FG-LP30	Technopolymer release button for max. 30 mm wall thickness, supplied with screw
VF FG-LP40	Technopolymer release button for max. 40 mm wall thickness, supplied with screw
VF FG-LP60	Metal release button for max. 60 mm wall thickness, supplied with screw

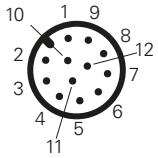


Article	Description
VF FG-LPRG	Metal release button for wall thickness from 60 to 500 mm, supplied with 2 supports and 2 screws, without M10 threaded bar

The M10 bar can be supplied in zinc-plated steel with 1 m length. Article: AC 8512.

Wiring diagram for M12 connectors

M12 connector, 12-pole



Contact block 60A 2NO+2NC		Contact block 60B 1NO+3NC		Contact block 60C 4NC		Contact block 60D 1NO+3NC		Contact block 60E 1NO+3NC		Contact block 60F 2NO+2NC		Contact block 60G 4NC		Contact block 60H 4NC		Contact block 60I 1NO+3NC		Contact block 60L 2NO+2NC	
Contacts	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NC	3-4	NC	3-4	NC	3-4	NO	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NO	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NO	7-8	NC	7-8	NC	7-8	NC	7-8	NO	7-8
NO	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NO	9-10

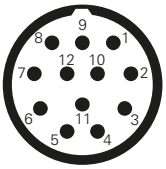
Contact block 60M 3NO+1NC		Contact block 60N 3NO+1NC		Contact block 60P 4NC		Contact block 60R 2NO+2NC		Contact block 60S 2NO+2NC		Contact block 60T 1NO+3NC		Contact block 60U 4NC		Contact block 60V 2NO+2NC		Contact block 60X 1NO+3NC		Contact block 60Y 2NO+2NC	
Contacts	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NO	3-4	NO	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NO	3-4	NC	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NO	7-8	NO	7-8	NC	7-8	NO	7-8	NO	7-8	NC	7-8	NC	7-8	NO	7-8	NC	7-8	NO	7-8
NO	9-10	NO	9-10	NC	9-10	NO	9-10	NO	9-10	NO	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10

Contact block 61A 1NO+3NC		Contact block 61B 2NO+2NC		Contact block 61C 3NO+1NC		Contact block 61D 3NO+1NC		Contact block 61E 3NO+1NC		Contact block 61G 3NO+1NC		Contact block 61H 2NO+2NC		Contact block 61M 3NO+1NC		Contact block 61R 1NO+3NC		Contact block 61S 3NO+1NC	
Contacts	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NC	3-4	NC	3-4	NO	3-4	NO	3-4	NO	3-4	NO	3-4	NC	3-4	NO	3-4	NC	3-4	NO	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NC	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NC	7-8	NO	7-8
NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10

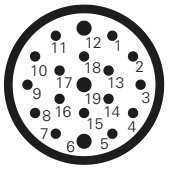
Note: the wires connected to pins 11 and 12 of the M12 connector can be used to activate the LEDs in FY series configurations with freely connectable LEDs.

Wiring diagram for M23 connectors

M23 connector, 12-pole



M23 connector, 19-pole



Refer to the diagrams on page 148 (connector pins 11-19) for the connections of the internal terminal strip of the control devices

Contact block 60A 2NO+2NC		Contact block 60B 1NO+3NC		Contact block 60C 4NC		Contact block 60D 1NO+3NC		Contact block 60E 1NO+3NC		Contact block 60F 2NO+2NC		Contact block 60G 4NC		Contact block 60H 4NC		Contact block 60I 1NO+3NC		Contact block 60L 2NO+2NC	
Contacts	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NC	3-4	NC	3-4	NC	3-4	NO	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NO	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NO	7-8	NC	7-8	NC	7-8	NC	7-8	NO	7-8
NO	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NO	9-10

Contact block 60M 3NO+1NC		Contact block 60N 3NO+1NC		Contact block 60P 4NC		Contact block 60R 2NO+2NC		Contact block 60S 2NO+2NC		Contact block 60T 1NO+3NC		Contact block 60U 4NC		Contact block 60V 2NO+2NC		Contact block 60X 1NO+3NC		Contact block 60Y 2NO+2NC	
Contacts	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NO	3-4	NO	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NO	3-4	NC	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NO	7-8	NO	7-8	NC	7-8	NO	7-8	NO	7-8	NC	7-8	NC	7-8	NO	7-8	NC	7-8	NO	7-8
NO	9-10	NO	9-10	NC	9-10	NO	9-10	NO	9-10	NO	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10

Contact block 61A 1NO+3NC		Contact block 61B 2NO+2NC		Contact block 61C 3NO+1NC		Contact block 61D 3NO+1NC		Contact block 61E 3NO+1NC		Contact block 61G 3NO+1NC		Contact block 61H 2NO+2NC		Contact block 61M 3NO+1NC		Contact block 61R 1NO+3NC		Contact block 61S 3NO+1NC	
Contacts	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**	**Contacts**	**Pin no.**
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NC	3-4	NC	3-4	NO	3-4	NO	3-4	NO	3-4	NO	3-4	NC	3-4	NO	3-4	NC	3-4	NO	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NC	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NC	7-8	NO	7-8
NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10

Note: the wires connected to pins 11 and 12 of the M23 12-pole connector can be used to activate the LEDs in FY series configurations with freely connectable LEDs.

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