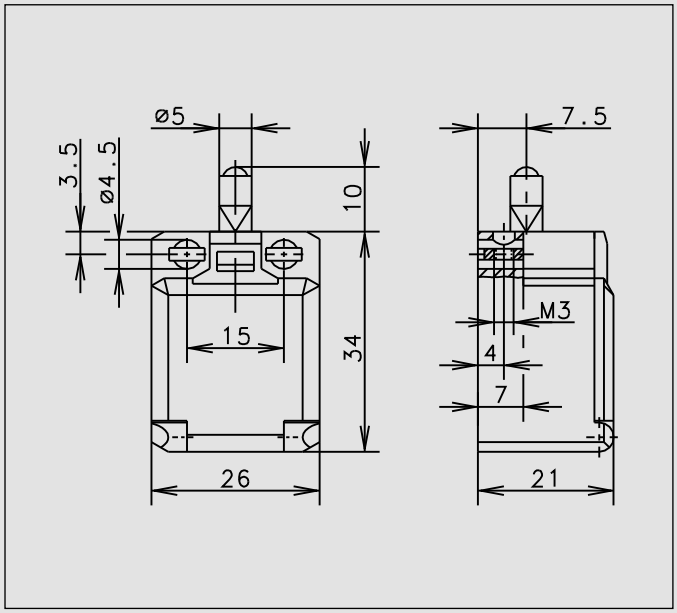
C2



Recommended use

Ideal for safety applications and position monitoring in confined spaces.

Product advantages

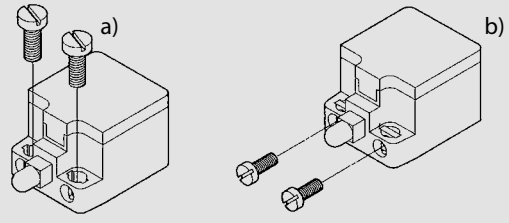
- Miniature switch for safety applications
- Two-channel safety monitoring possible
- With captive snap-on cover
- Small hysteresis in snap action system

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC, 2 NO
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact)

Mounting

- Also suitable for front mounting (depending on type)



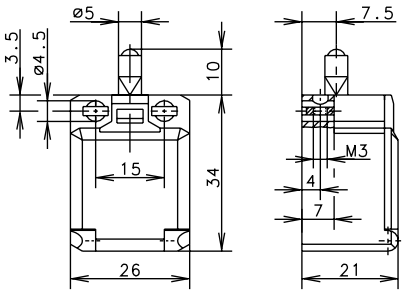
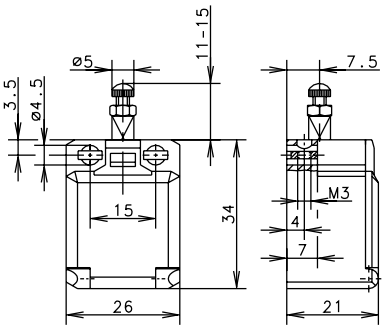
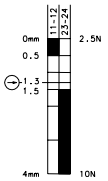
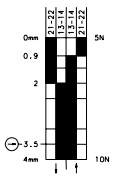
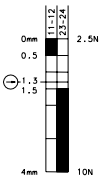
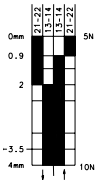
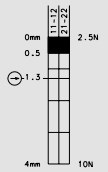
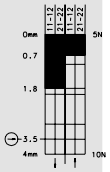
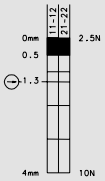
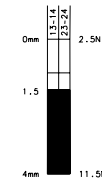
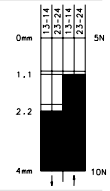
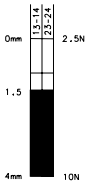
- a) 2 round holes for M4 screws
- b) 2 Integrated nuts for front mounting for M3 screws (depending on type)

Installation advantages

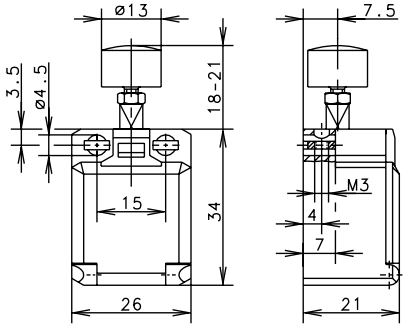
- Snap-on cover can be released with screwdriver
- Cover opening range 180° (cover can also be detached from hinge)
- Cover protects switching element during installation
- Screw connections with self-lifting clamping plates
- Cover transparent for adjustment and visual inspection
- Easy-action cover lock (close and press)

Technical data

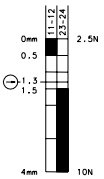
Electrical data		
Rated insulation voltage	U_i max.	240 V AC
Conventional thermal current	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilisation category	U_e/I_e	AC-15, U_e/I_e 240 V/3 A
Short-circuit protection		Fuse 6 A gL/gG
Protection class		II, Insulated
Mechanical data		
Enclosure material		Thermoplastic, glass fibre-reinforced (UL 94-V0)
Ambient temperature		–30 °C to +80 °C
Mechanical service life		3 x 10^6 switching cycles
B10d		6 Mio.
Switching frequency		≤ 100/min
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm^2 or Stranded wire with ferrule 0.5 – 1.5 mm^2
Cable entry		Rectangle 8.5 x 3.5 mm
Protection class		IP20 conforming to EN 60529; DIN VDE 0470 T1
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

	W	ST
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6008101001** C2-U1Z  **6008351002** C2-SU1Z 	**6008104025** C2-U1Z ST  **6008354026** C2-SU1Z ST 
2 NC contacts	**6008801003** C2-A2Z  **6008851004** C2-SA2Z 	**6008804027** C2-A2Z ST 
2 NC contacts	**6008801005** C2-E2  **6008851006** C2-SE2 	**6008804029** C2-E2 ST 
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: –	**Replacement actuator: –**
	Special features / variants (on request)	**Special features / variants** ● Actuator length adjustable with adjusting screw

K

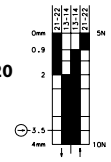


Slow-action

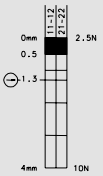


6008107019
C2-U1Z K

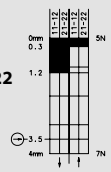
Snap-action



6008357020
C2-SU1Z K



6008807021
C2-A2Z K



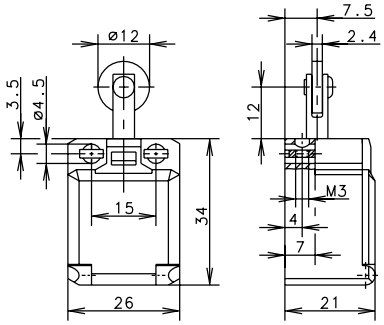
6008857022
C2-SA2Z K

Replacement actuator: –

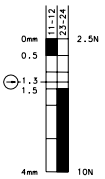
Special features / variants

- Button actuator, for manual operation

R

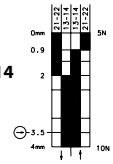


Slow-action

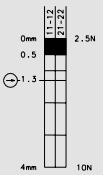


6008116013
C2-U1Z R

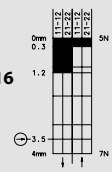
Snap-action



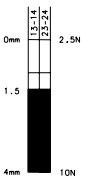
6008366014
C2-SU1Z R



6008816015
C2-A2Z R



6008866016
C2-SA2Z R



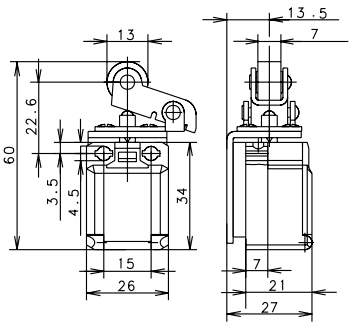
6008816017
C2-E2 R

Replacement actuator: –

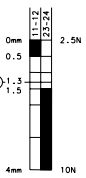
Special features / variants
(on request)

- Also available with roller turned by 90°

O.M.

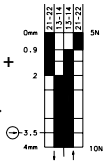


Slow-action

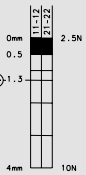


6008101007 +
3910190259
C2-U1Z O.M.

Snap-action



6008351008 +
3910190259
C2-SU1Z O.M.

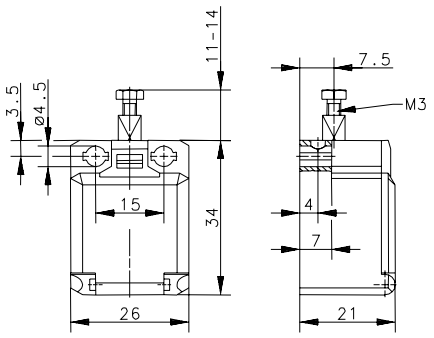


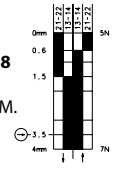
6008801009 +
3910190259
C2-A2Z O.M.

Replacement actuator: 3910190259

Special features / variants
(on request)

BISTABLE O.M.



Switching operation	Slow-action	Snap-action	
1 NC / 1 NO contact		**6108351008** C2-SU1Z BISTABLE O.M. 	
2 NC contacts			
2 NO contacts			
1 NC / 1 NO contact Overlapping			

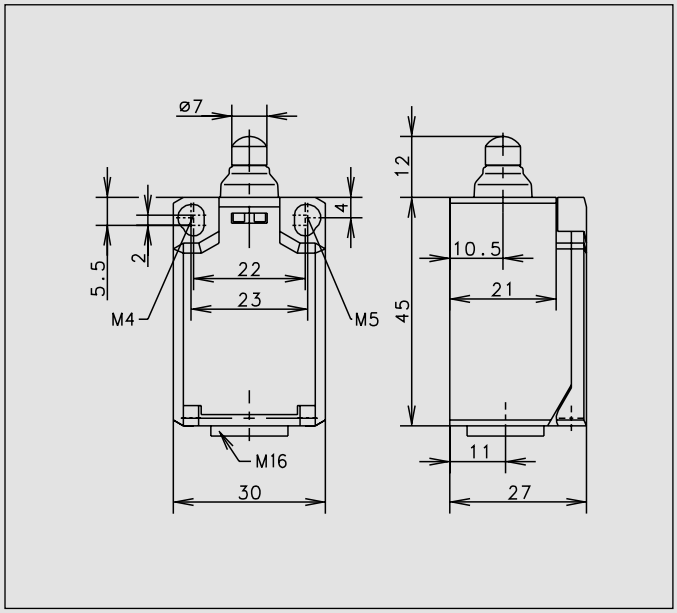
Approvals

Replacement actuator: –

Special features / variants

- Bistable characteristics, actuator must be returned to initial position by external actuation (pulling)
- Actuator length adjustable with M3 adjusting screw

Ti2



Recommended use

Ideal for safety applications and position monitoring in confined spaces with high protection class IP 65.

Product advantages

- Compact IP 65 switch for safety applications
- Optimised size while retaining tried-and-tested connection system
- Two-channel safety monitoring possible
- With captive snap-on cover
- 2 mm contact opening width of slow-action system conforming to EN 81-1 for lift construction
- Mall hysteresis in snap action system
- Actuator can be repositioned by 4 x 90°

Options

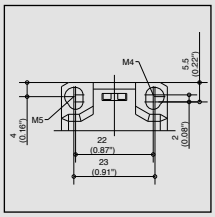
- Available with M12 connector
- AS interface variants available
- Preassembled with customer-specific cables and connectors on request

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC, 2 NO
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated change-over contact)

Mounting

- Mounting dimensions conforming to DIN EN 50047
- 2 slots for adjustment with M4 screws (distance between centres 22 mm)



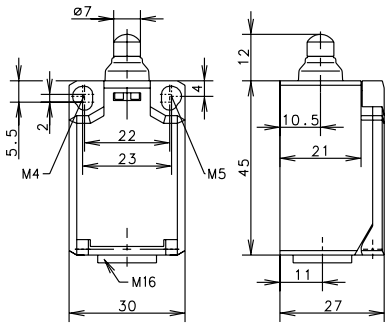
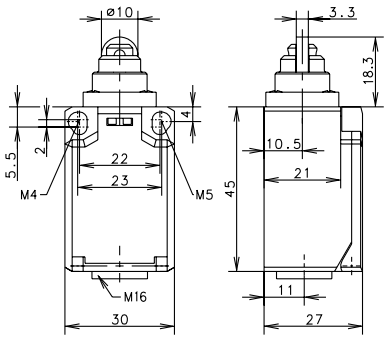
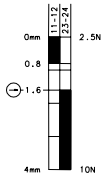
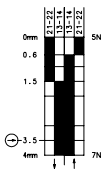
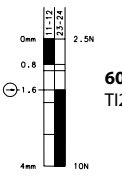
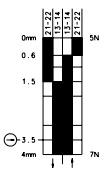
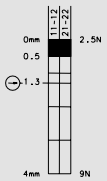
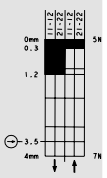
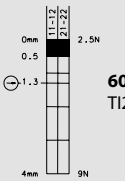
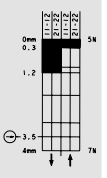
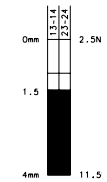
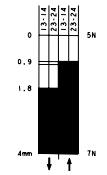
- Fixed positioning for safety applications with two M5 screws (distance between centres 23 mm)

Installation advantages

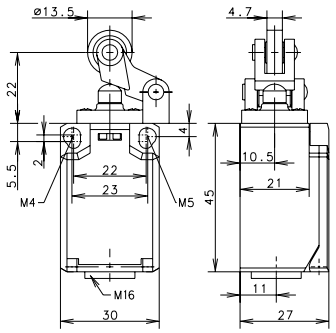
- Snap-on cover can be released with screwdriver
- Cover protects switching element during installation
- Screw connections with self-lifting clamping plates
- Cover transparent for adjustment and visual inspection
- Easy-action cover lock (close and press)

Technical data

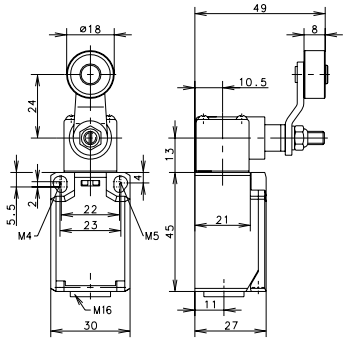
Electrical data		
Rated insulation voltage	U_i max.	240 V AC
Conventional thermal current	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilisation category	U_e/I_e	AC-15, U_e/I_e 240 V/3 A; DC-13, U_e/I_e 240 V/0,27 A
Short-circuit protection		Fuse 6 A gL/gG
Protection class		II, Insulated
Mechanical data		
Enclosure material		Thermoplastic, glass fibre-reinforced (UL 94-V0)
Ambient temperature		–30 °C to +80 °C
Mechanical service life		3 x 10^6 switching cycles
B10d		6 Mio.
Switching frequency		≤ 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm² or Stranded wire with ferrule 0.5 – 1.5 mm²
Cable entry		1 x M16 x 1,5
Protection class		IP65 conforming to EN 60529; DIN VDE 0470 T1
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

	W (Form B)	RIW (Form C)
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6088103001** TI2-U1Z W  **6088153002** TI2-SU1Z W 	**6088117007** TI2-U1Z RIW  **6088167008** TI2-SU1Z RIW 
2 NC contacts	**6088803003** TI2-A2Z W  **6088853004** TI2-SA2Z W 	**6088817009** TI2-A2Z RIW  **6088867010** TI2-SA2Z RIW 
2 NO contacts	**6088803005** TI2-E2 W 	**6088867012** TI2-SE2 RIW 
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: –	**Replacement actuator: –**
	Special features / variants (on request) ● Available with increased switching force	**Special features / variants** (on request) ● Available with increased switching force ● Available with different actuating directions ● Cannot be turned by user

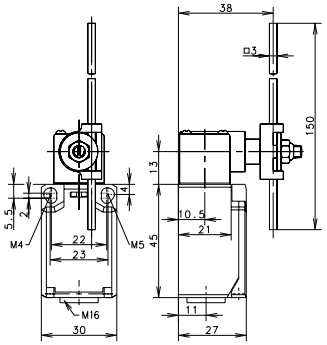
HW (Form E)



AH (Form A)



AD



Slow-action	Snap-action
6088121015 TI2-U1Z HW	**6088171016** TI2-SU1Z HW
6088821017 TI2-A2Z HW	**6088871018** TI2-SA2Z HW
	6088871020 TI2-SE2 HW

Slow-action	Snap-action
6088135021 TI2-U1Z AH	**6088185022** TI2-SU1Z AH
6088835023 TI2-A2Z AH	**6088885024** TI2-SA2Z AH

Slow-action	Snap-action
6088137027 TI2-U1 AD	**6088187028** TI2-SU1 AD
6088837029 TI2-A2 AD	**6088887030** TI2-SA2 AD
	6088887032 TI2-SE2 AD

Replacement actuator: 3918190681

Special features / variants
(on request)

- Available with different actuating directions
- With steel roller
- Various roller diameters

Replacement actuator: 3918351166

Special features / variants
(on request)

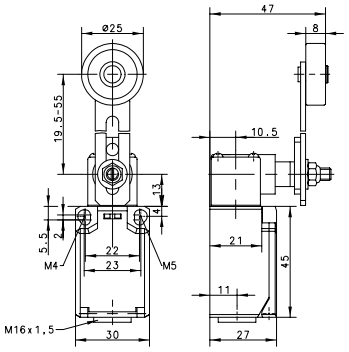
- Available with different actuating directions
- With steel roller
- Various roller diameters
- Cranked or straight lever
- Various lever lengths
- With roller over switch

Replacement actuator: 3918370986

Special features / variants
(on request)

- Available with different actuating directions
- With various actuator lengths
- Available with increased switching force

AV



Switching operation	Slow-action	Snap-action
1 NC / 1 NO contact	**6088136033** TI2-U1 AV	**6088186034** TI2-SU1 AV
2 NC contacts		**6088886036** TI2-SA2 AV
2 NO contacts	**6088836037** TI2-E2 AV	**6088886038** TI2-SE2 AV
1 NC / 1 NO contact Overlapping		

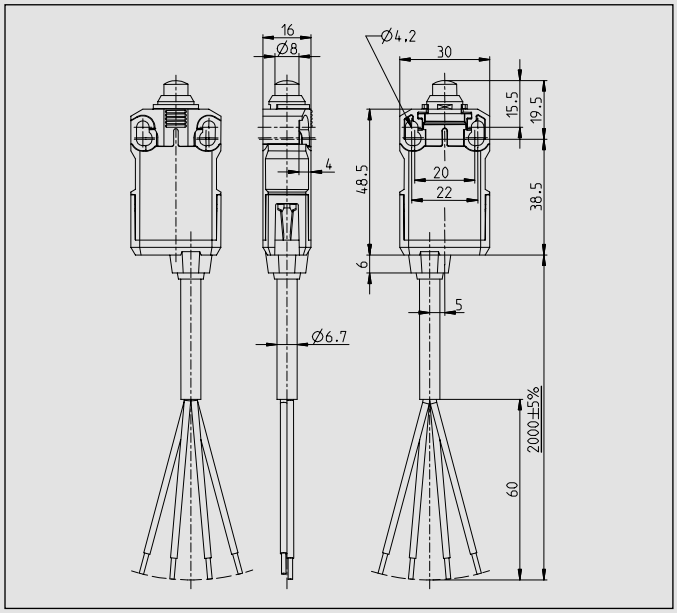
Approvals

Replacement actuator: 3918360984

Special features / variants
(on request)

- Available with different actuating directions
- Various roller diameters
- Various lever lengths
- With roller over switch

IF



Recommended use

Most limit switches soon come up against their limits in applications involving confined spaces and wherever high protection classes are required, not with the IF switch from BERNSTEIN. With its slim design and full IP 67 protection they are simply ideal for position monitoring and end position shutdown in safety applications.

Product advantages

- Slim line design
- With 2 m fixed cable or AMP4 connector
- High quality plastic enclosure
- Metal actuator and mounting clip
- Small hysteresis in snap action system
- Actuator can be repositioned by 4 x 90°
- Compact IP 67 switch for safety applications
- Two-channel safety monitoring possible

Installation advantages

Flexibility is key in practical applications: And it is precisely here that IF switches from BERNSTEIN are a real asset. They have a modular design that makes them extremely flexible in installation and use Minimum stockkeeping: The approach direction can be quickly and easily changed by installation technician.

Options

- Various cable lengths available on request
- Can be preassembled with customised connectors on request
- Other cable lengths available on request

Design layout

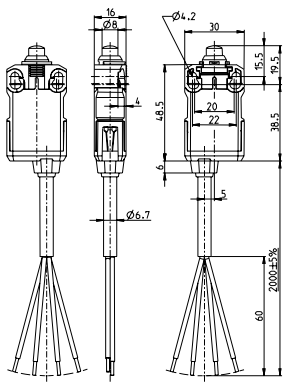
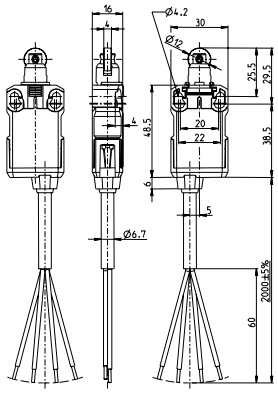
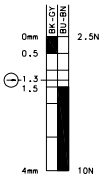
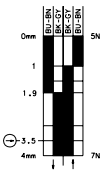
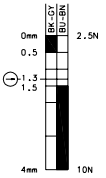
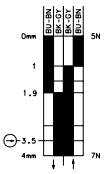
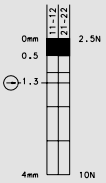
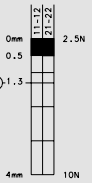
- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC, 2 NO
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact)

Mounting

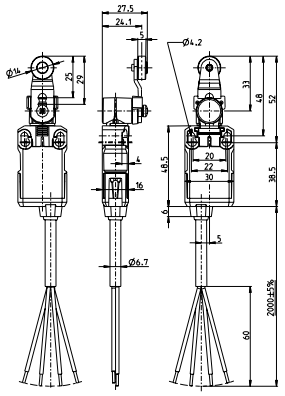
- Two M4 screws for adjustment with slots
- Two M5 screws for safety applications; front mounting depending on type

Technical data

Electrical data		
Rated insulation voltage	U_i max.	240 V AC
Conventional thermal current	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilisation category		AC-15, U_e/I_e 240 V/3 A
Short-circuit protection		Fuse 6 A gL/gG
Protection class		II, Insulated
Mechanical data		
Enclosure material		PA6 (glass fibre-reinforced)
Ambient temperature		–25 °C to +70 °C (Connection cable installed)
Mechanical service life		3 x 10^6 switching cycles
B10d		6 Mio.
Switching frequency		≤ 30/min.
Type of connection		Cable 4 x 0.75 mm²
Protection class		IP67 conforming to EN 60529; DIN VDE 0470 T1
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

	IW	RIW
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6089102001** IF-U1Z IW  **6089152006** IF-SU1Z IW 	**6089117002** IF-U1Z RIW  **6089167007** IF-SU1Z RIW 
2 NC contacts	**6089802011** IF-A2Z IW 	**6089817012** IF-A2Z RIW 
2 NO contacts		
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: –	**Replacement actuator: –**
	Special features / variants (on request)	**Special features / variants** ● Actuator can be turned in steps of 90°

AH



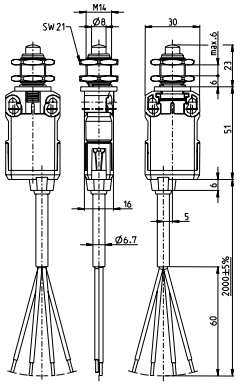
Slow-action	Snap-action
6089135003 IF-U1Z AH	**6089185008** IF-SU1Z AH
6089835013 IF-A2Z AH	**6089885041** IF-SA2Z AH

Replacement actuator: –

Special features / variants

- Actuator can be turned in steps of 90°

IWF



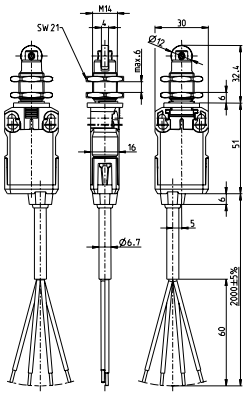
Slow-action	Snap-action
6089102004 IF-U1Z IWF	**6089152009** IF-SU1Z IWF
6089802014 IF-A2Z IWF	**6089852043** IF-SA2Z IWF

Replacement actuator: –

Special features / variants

- Front mounting

RIWF

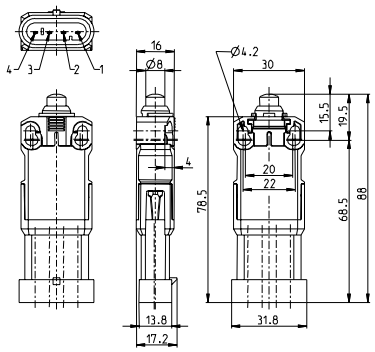
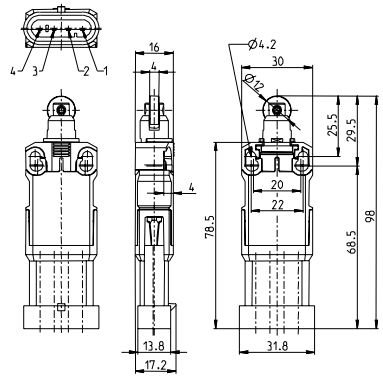
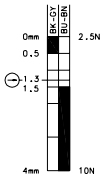
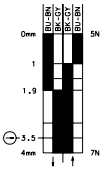
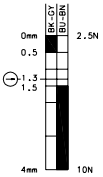
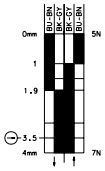
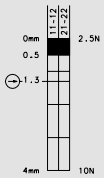
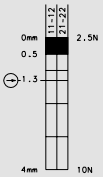


Slow-action	Snap-action
6089117005 IF-U1Z RIWF	**6089167010** IF-SU1Z RIWF
6089817015 IF-A2Z RIWF	

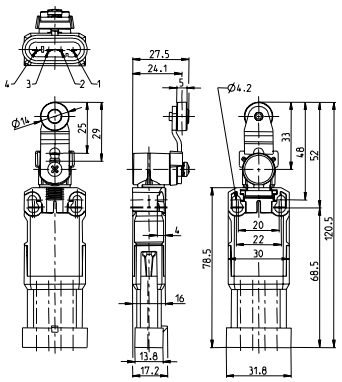
Replacement actuator: –

Special features / variants

- Front mounting
- Actuator can be turned in steps of 90°

	IW AMP4	RIW AMP4
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6089102016** IF-U1Z IW AMP4  **6089152021** IF-SU1Z IW AMP4 	**6089117017** IF-U1Z RIW AMP4  **6089167022** IF-SU1Z RIW AMP4 
2 NC contacts	**6089802026** IF-A2Z IW AMP4 	**6089817027** IF-A2Z RIW AMP4 
2 NO contacts		
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: –	**Replacement actuator: –**
	Special features / variants (on request)	**Special features / variants** ● Actuator can be turned in steps of 90

AH AMP4



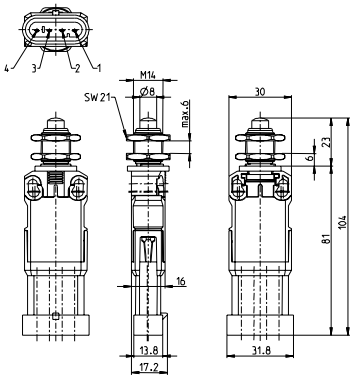
Slow-action	Snap-action
6089135018 IF-U1Z AH AMP4	**6089185023** IF-SU1Z AH AMP4
6089835028 IF-A2Z AH AMP4	

Replacement actuator: –

Special features / variants

- Actuator can be turned in steps of 90

IWF AMP4



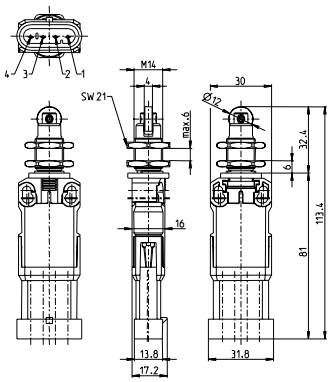
Slow-action	Snap-action
6089102019 IF-U1Z IWF AMP4	**6089152024** IF-SU1Z IWF AMP4
6089802029 IF-A2Z IWF AMP4	

Replacement actuator: –

Special features / variants

- Front mounting

RIWF AMP4



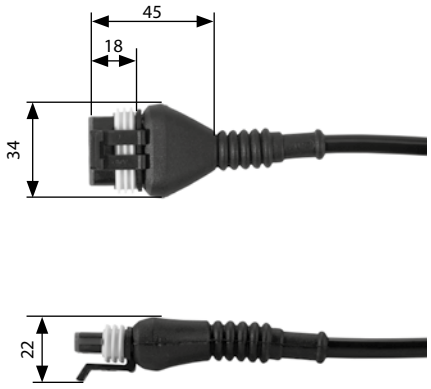
Slow-action	Snap-action
6089117020 IF-U1Z RIWF AMP4	**6089167025** IF-SU1Z RIWF AMP4
6089817030 IF-A2Z RIWF AMP4	

Replacement actuator: –

Special features / variants

- Front mounting
- Actuator can be turned in steps of 90

AMP Connection cable



Switching operation

1 NC / 1 NO contact

Cable length 3.5 m:
3251204309
AN-KAB.IF 3.5M AMP4

Cable length 5 m:
3251204281
AN-KAB.IF 5M AMP4

2 NC contacts

Cable
UL-CSA-S03VV2-F4x0.75 black n. UL2517, CSA C22.2/210.2 and n. VDE 0281 part 12 n. HAR 21.12 S1

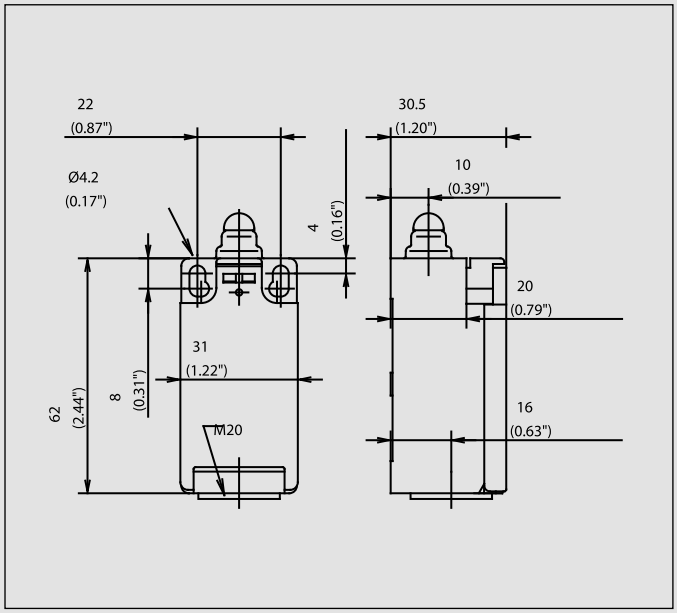
2 NO contacts

Pin assignment
1-GY, 2-BU, 3-BN, 4-BK

1 NC / 1 NO contact Overlapping

Approvals

I88



Recommended use

Thanks to its standard dimensions as well as its wide range of contacts and actuators, this switch can be used on safety facilities and for position monitoring in virtually any industrial application.

Product advantages

- Standard switch conforming to DIN EN 50047
- Standard actuator conforming to DIN EN 50047 (see page 16)
- Protection class IP 65 to VDE 0470 T1
- Enclosure and cover PA 6, self-extinguishing (UL-94-V0)
- Actuator can be repositioned by 4 x 90°
- Cable entry M20 x 1.5
- Connection designation conforming to DIN EN 50013

Options

- Available with M12 connector
- AS interface variants available
- Cable entry M16 x 1.5

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC, 2 NO, overlapping contacts
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact)
- Latching function on request

Mounting

- Two M4 screws (distance between centres 22 mm), adjustment with slots
- Two M5 screws for safety applications without additional fixing element (Fig. 1)
- Additionally secured by guide plate for lateral approach forces (Fig. 2 and page 69)
- Front mounting (depending on type, Fig. 3)

Installation advantages

- Snap-on cover can be released with screwdriver
- Cover opening range 135° (cover can also be detached from hinge)
- Cover protects switching element during installation
- Screw connections with self-lifting clamping plates
- Easy-action cover lock (close and press)
- Cover additionally secured with screw

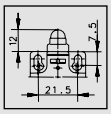


Fig. 1

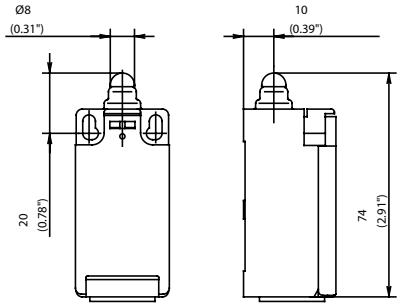
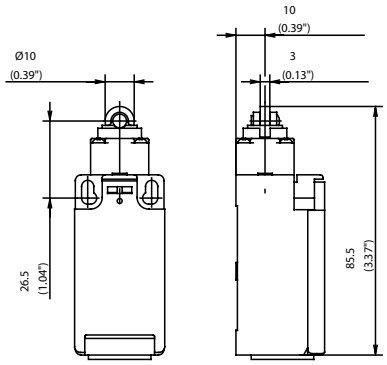
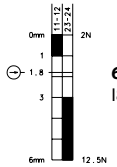
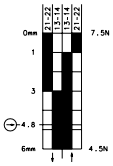
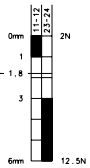
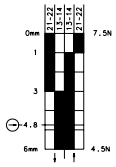
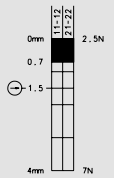
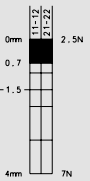
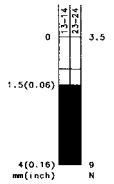
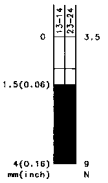
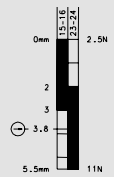

Fig. 2


Fig. 3

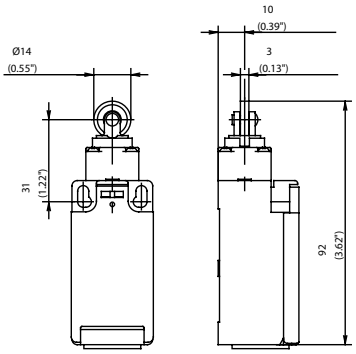
Technical data

Electrical data		
Rated insulation voltage	U_i max.	250 V AC
Conventional thermal current (up to) ①	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilisation category (up to) ①		AC-15, U_e/I_e 240 V/3 A
Short-circuit protection (up to) ①		Fuse 10 A gL/gG
Protection class		II, Insulated
Mechanical data		
Enclosure material		Thermoplastic, glass fibre-reinforced (UL 94-V0)
Ambient temperature		–30 °C to +80 °C
Mechanical service life (up to) ①		10 x 10^6 switching cycles
B10d (up to) ①		20 Mio.
Switching frequency		≤ 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm^2 or Stranded wire with ferrule 0.5 – 1.5 mm^2
Cable entry		1 x M20 x 1,5
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

① Depending on switching system. See Table on Pages 70 – 73.

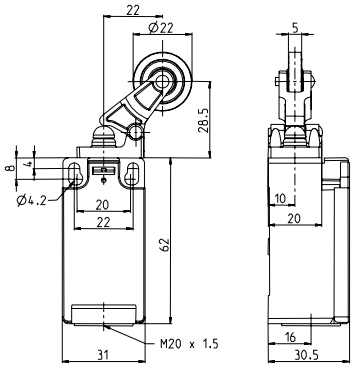
	W (Form B)	RIWK (Form C)
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6086103008** I88-U1Z W  **6086153012** I88-SU1Z W 	**6086117017** I88-U1Z RIWK  **6086167018** I88-SU1Z RIWK 
2 NC contacts	**6086803013** I88-A2Z W 	**6086817087** I88-A2Z RIWK 
2 NO contacts	**6086803014** I88-E2 W 	**6086817071** I88-E2 RIWK 
1 NC / 1 NO contact Overlapping	**6086303011** I88-UV1Z W 	
Approvals		
	Replacement actuator: –	**Replacement actuator: 3918161672**
	Special features / variants (on request) ● Available with black enclosure ● With latching function and following contacts: 2 NC / 1 NO contact 1 NC / 2 NO contact ● Both with and without overlap	**Special features / variants** (on request) ● Available with black enclosure ● With latching function ● With steel roller and following contacts: 2 NC / 1 NO contact 1 NC / 2 NO contact ● Both with overlap

RIWL



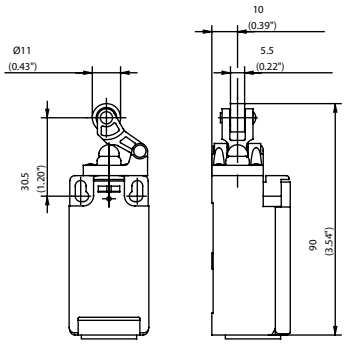
Slow-action	Snap-action
6086117050 I88-U1Z RIWL	**6086167051** I88-SU1Z RIWL
6086817072 I88-A2Z RIWL	
6086817069 I88-E2 RIWL	

KNW RO22



Slow-action	Snap-action
6186127112 I88-U1Z KNW RO22	**6086177053** I88-SU1Z KNW RO22
6186827246 I88-A2Z KNW RO22	

HW RO11 (Form E)



Slow-action	Snap-action
6086121021 I88-U1Z HW RO11	**6086171022** I88-SU1Z HW RO11
6086821099 I88-A2Z HW RO11	
6086821068 I88-E2 HW RO11	
6086321100 I88-UV1Z HW RO11	

Replacement actuator: 3918161673

Special features / variants
(on request)

- Available with black enclosure
- With latching function
- Available with different actuating directions
- With steel roller

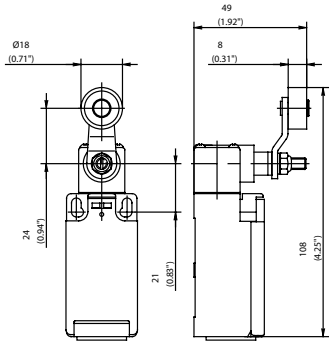
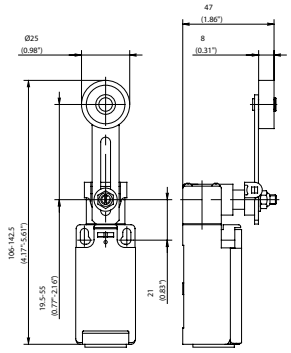
Replacement actuator: 3918252223

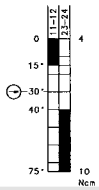
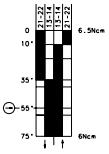
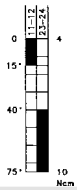
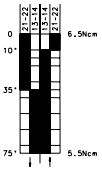
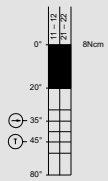
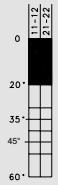
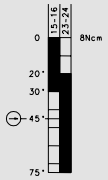
Special features / variants
(on request)

Replacement actuator: 3918191547

Special features / variants
(on request)

- Available with black enclosure
- With steel roller
- Various roller diameters

	AH (Form A)	AV
		

Switching operation	Slow-action	Snap-action	Slow-action	Snap-action
1 NC / 1 NO contact	**6086135033** I88-U1Z AH 	**6086185034** I88-SU1Z AH 	**6086136037** I88-U1 AV 	**6086186038** I88-SU1 AV 
2 NC contacts	**6086835059** I88-A2Z AH 		**6086836131** I88-A2 AV 	
2 NO contacts				
1 NC / 1 NO contact Overlapping	**6186335628** I88-UV1Z AH 			
Approvals				

Replacement actuator: 3918351166

Replacement actuator: 3918360984

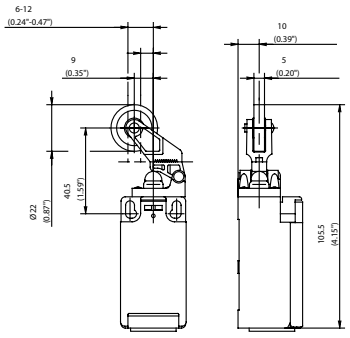
Special features / variants
(on request)

- Available with black enclosure
- Available with different actuating directions
- With steel roller
- Various roller diameters
- Cranked or straight lever
- Various lever lengths

Special features / variants
(on request)

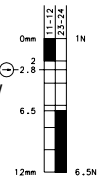
- Available with black enclosure
- Various actuating directions
- Various roller diameters
- Cranked or straight lever
- Various lever lengths
- With roller over switch

DGHW RO22



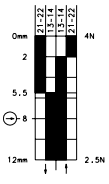
Slow-action

6086121029
I88-U1Z DGHW RO22

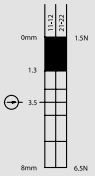


Snap-action

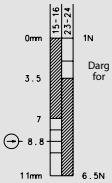
6086171030
I88-SU1Z DGHW RO22



6086821120
I88-A2Z DGHW RO22



6186321244
I88-UV1Z DGHW RO22

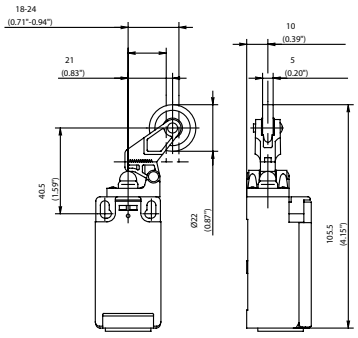


Replacement actuator: 3918211529

Special features / variants
(on request)

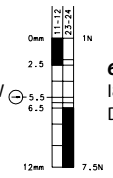
- Available with black enclosure
- Available with different actuating directions
- Various roller diameters

DGKW RO22



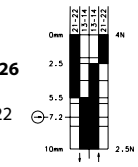
Slow-action

6086127025
I88-U1Z DGKW RO22



Snap-action

6086177026
I88-SU1Z DGKW RO22

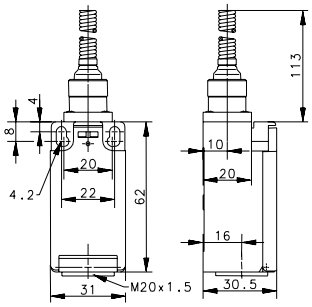


Replacement actuator: 3918271528

Special features / variants
(on request)

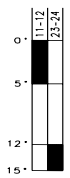
- With latching function
- Various roller diameters and with following contacts:
  2 NC / 1 NO contact
  1 NC / 2 NO contact
  Both with overlap

FF



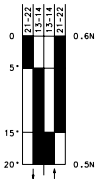
Slow-action

6186140217
I88-U1 FF



Snap-action

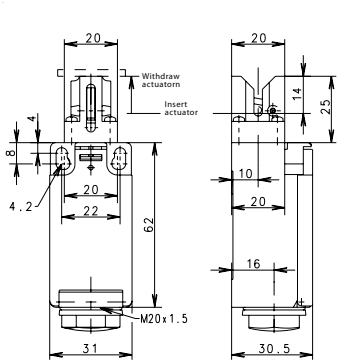
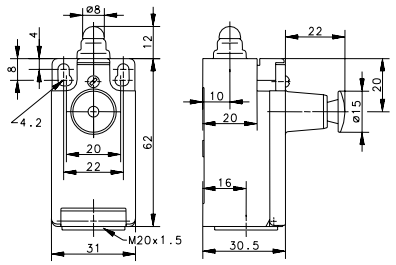
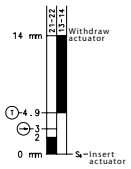
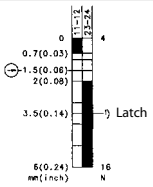
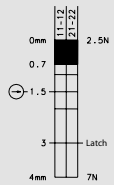
6086190078
I88-SU1 FF



Replacement actuator: 3918401031

Special features / variants
(on request)

- Available with black enclosure
- Various spring lengths
- Different spring versions or spring rod

	KS	W RAST
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action**
1 NC / 1 NO contact	**6116819140** I88-U1Z KS 	**6186103005** I88-U1Z W RAST 
2 NC contacts		**6186803155** I88-A2Z W RAST 
2 NO contacts		
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: –	**Replacement actuator: –**
	Special features / variants (on request)	**Special features / variants** (on request)

SGS

The SGS is a bistable safety switch with remote release facility. Once switched, the SGS remains in this position until it is manually reset at the plunger or via an external button. A built-in solenoid actuator controls the release action. In its rugged plastic housing, it represents an economically priced alternative to the BERNSTEIN GC Series with remote release.

The SGS can be used wherever an intentional (manual or electrical) reset function is required:

- In lift construction
- In door and gate systems
- In wind power stations
- Wherever safety is of prime importance

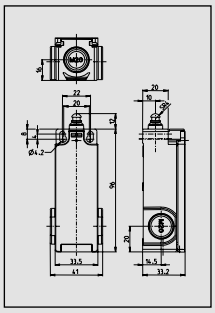
By correspondingly checking the NC contacts with positive opening action, an evaluator circuit is able to disconnect the power supply to a drive controller and shut down the machine.

SGS applications include

- Lift pre-switching (speed limiter)
- Monitoring of emergency release function
- Machine construction applications where specific reset after operation is required
- Use in areas difficult to access
- Remote monitoring and reset over large distances

Features:

- Plunger indicates switch status
- Plunger groove for manual reset
- 2 versions: 230 V AC and 24 V DC
- Reset via built-in solenoid actuator
- 3 cable outlets M20 x 1.5
- Switching functions: 2 NC contacts
- TÜV EN 81 approval
- Other actuators from the standard range on request



Technical data

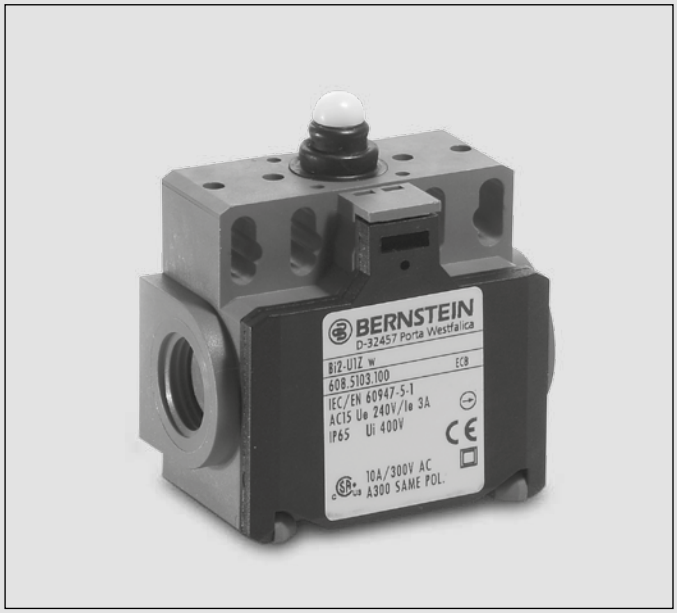
Electrical data		
Protection class		II, Insulated
Switching elements		
Rated insulation voltage	U_i	250 V AC
Thermal current	I_{the}	10 A
Utilisation category		AC-15, U_e /I_e 240 V / 3 A DC-13, U_e /I_e 250 V / 0.27 A
Minimum switching voltage		24 V
Minimum switching current		5 mA
Positive opening	⊖	conforming IEC/EN 60947-5-1, Addendum K
Short-circuit protection		Fuse 4 A gL/gG
Electromagnet		Without free-wheeling diode
Thermal class		B (130 °C)
Rated operating voltage	U_e	24 V DC / 230 V AC (depending on type)
Rated operating current	I_e	2.3 A / 0.23 A AC
Duty factor	ED	3 %
Minimum ON time	T_i	0.2 s
Maximum ON time	T_e	0.5 s
Minimum OFF time	T_p	17 s
Mechanical data		
Enclosure		Glass fibre-reinforced thermoplastic, self-extinguishing
Cover		Glass fibre-reinforced thermoplastic, self-extinguishing
Actuation		Plunger (thermoplastic)
Approach speed	V_{max}	0.5 $^m/_s$
Ambient temperature		–25 °C bis +50 °C
Contact type		2 NC contacts (Zb) / NC contacts, 1NO contacts (Zb)
Switching principle		Snap action system, bistable
Mechanical service life		5 x 10^4 switching cycles
B10d		0,1 Mio.
Bolt		2 x M4 / 2 x M5 for safety applications
Type of connection Switching element		Screw connections
Conductor cross sections		Single-wire 0.5 ... 1.5 mm²
Type of connection Electromagnet		2 x butt connector similar to DIN 46341 (crushing zone 0,5 – 1,5 mm²)
Cable entry		3x M20x1,5
Installation position		Any
Contact opening		4 x >2 mm
Protection class		IP65 conforming to IEC/EN 60529
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1 DIN EN 81-1		

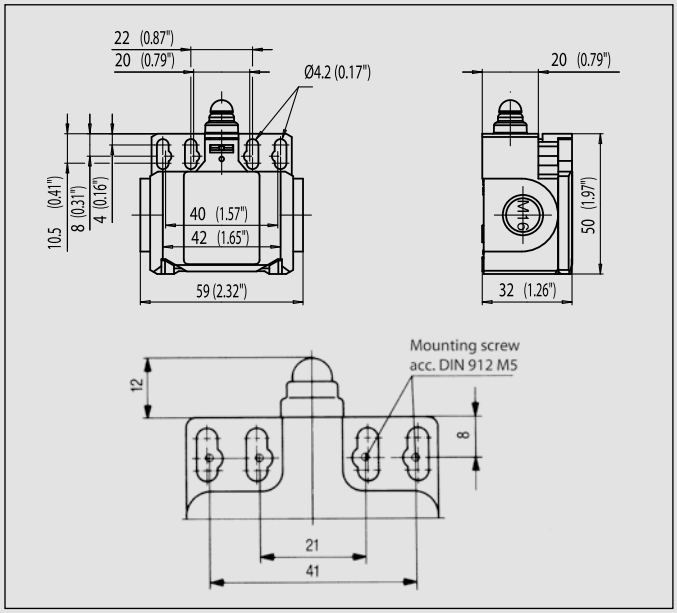
Product selection

Supply voltage reset 24 Volt				
Switching operation	**Actuating force 3 N**		**Actuating force 6 N**	
1NC / 1NO	–	–	–	–
2NC	6010853002	SGS-SA2Z W F3 24 V	6010853001	SGS-SA2Z W F6 24 V

Supply voltage reset 230 Volt				
Switching operation	**Actuating force 3 N**		**Actuating force 6 N**	
1NC / 1NO	–	–	6010153027	SGS-SU1Z W F6 230 V
2NC	6010853004	SGS-SA2Z W F3 230 V	6010853003	SGS-SA2Z W F6 230 V

Bi2





Recommended use

Thanks to its two cable entries, this switch is ideal for use in series-connected monitoring facilities.

Product advantages

- Protection class IP 65 to VDE 0470 T1
- Enclosure and cover PA 6, self-extinguishing (UL-94 V0)
- Actuator can be repositioned by 4 x 90°
- Cable entry 2x M16 x 1.5
- Connection designation conforming to DIN EN 50013

Options

- Available with M12 connector
- AS interface variants available
- Preassembled with customer-specific cables and connectors on request

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact9

Mounting

- Two M4 adjustment slots (distance between centres 22 mm)
- Two M4 adjustment slots (distance between centres 42 mm)
- Two M5 holes (distance between centre 21 mm) for safety applications
- Two M5 holes (distance between centre 41 mm) for safety applications without additional securing element
- Front mounting

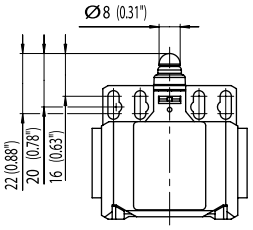
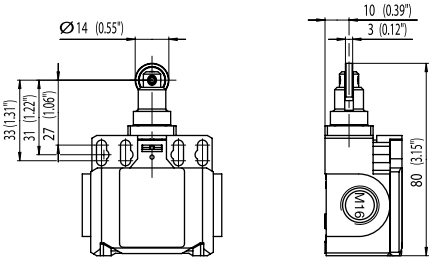
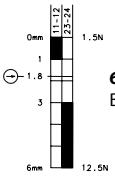
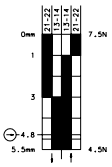
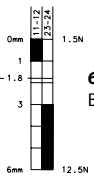
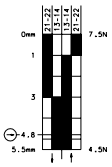
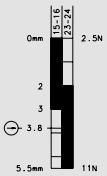
Installation advantages

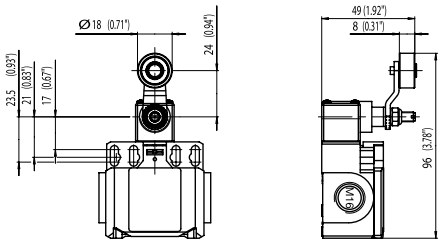
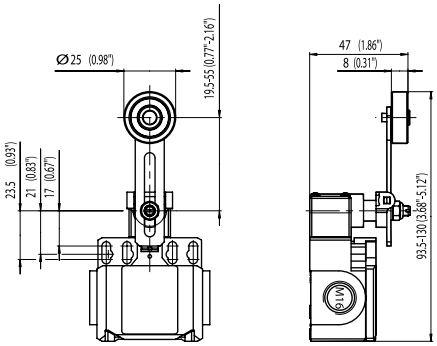
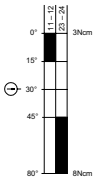
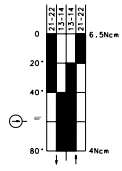
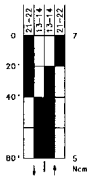
- Cover opening range 135° (cover can also be detached from hinge)
- Screw connections with self-lifting clamping plates
- Easy-action cover lock (close and press)
- Cover additionally secured with screw
- 2 cable entries for through-wiring

Technical data

Electrical data		
Rated insulation voltage	U_i max.	400 V AC
Conventional thermal current ①	I_{the}	10 A
Rated operating voltage	U_e max.	240 V AC
Utilisation category		AC15, U_e/I_e 240 V/3 A
Short-circuit protection (up to) ①		Fuse 10 A gL/gG
Protection class		II, Insulated
Mechanical data		
Enclosure material		Thermoplastic, glass fibre-reinforced
Ambient temperature		–30 °C to +80 °C
Mechanical service life (up to) ①		10 x 10^6 switching cycles
B10d (up to) ①		20 Mio.
Switching frequency		≤ 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm^2 or Stranded wire with ferrule 0.5 – 1.5 mm^2
Cable entry		2 x M16 x 1,5
Protection class		IP 65 conforming to EN 60529; DIN VDE 0470 T1
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

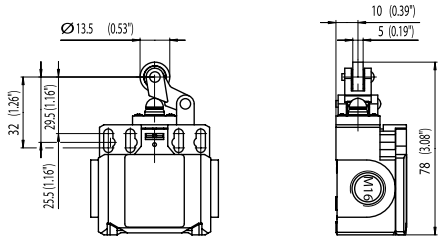
① Depending on switching system. See Table on Pages 70 – 73.

	W	RIW
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6085103100** BI2-U1Z W  **6085153107** BI2-SU1Z W 	**6085117101** BI2-U1Z RIW  **6085167108** BI2-SU1Z RIW 
2 NC contacts	**6085803116** BI2-A2Z W 	
2 NO contacts		
1 NC / 1 NO contact Overlapping	**6085303115** BI2-UV1Z W 	
Approvals		
	Replacement actuator: –	**Replacement actuator: –**
	Special features / variants (on request)	**Special features / variants** (on request) ● With steel roller

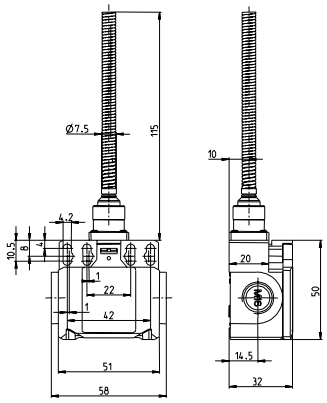
	AH	AV
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6085135104** BI2-U1Z AH  **6085185111** BI2-SU1Z AH 	**6085186112** BI2-SU1 AV 
2 NC contacts		
2 NO contacts		
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: 3918351166	**Replacement actuator: 3918360984**
	Special features / variants (on request)	**Special features / variants** (on request)

- Available with different actuating directions
- With steel roller
- Various roller diameters
- Cranked or straight lever
- Various lever lengths

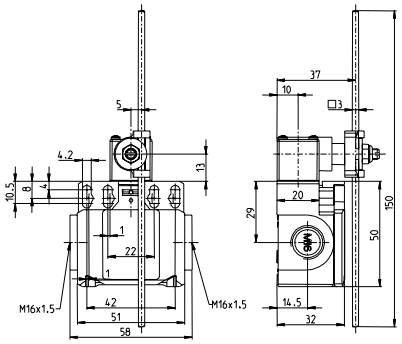
HW RO13.5



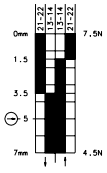
FF



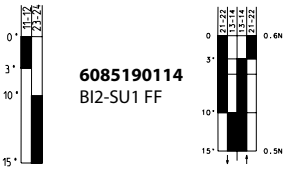
AD



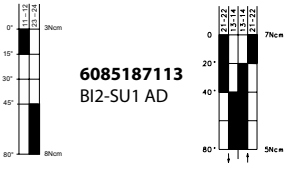
Slow-action	Snap-action
	6085171109 BI2-SU1Z HW RO13.5



Slow-action	Snap-action
6185140104 BI2-U1 FF	**6085190114** BI2-SU1 FF



Slow-action	Snap-action
6085137106 BI2-U1 AD	**6085187113** BI2-SU1 AD



Replacement actuator: 3918190681

Special features / variants
(on request)

Replacement actuator: 3918401031

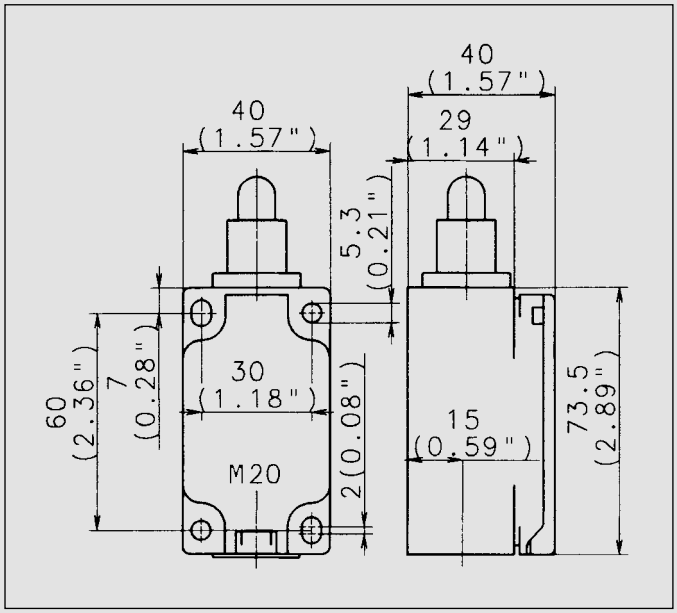
Special features / variants
(on request)

- Available with different spring lengths
- Spring rod
- Various spring versions

Replacement actuator: 3918370986

Special features / variants
(on request)

ENK



Recommended use

Thanks to its design and its metal actuator, the ENK limit switch is particularly suitable for applications requiring a sturdy safety switch made of plastic.

Product advantages

- Standard switch conforming to DIN EN 50041
- Standard actuator conforming to DIN EN 50041 (see page 16)
- Protection class IP 65 to VDE 0470 T1
- Enclosure and cover PA 6, (UL-94-V0)
- Actuator can be repositioned by 4 x 90°
- Cable entry M20 x 1.5
- Connection designation conforming to DIN EN 50013
- Metal actuators for high loads

Options

- Available with M12 connector
- AS interface variants available
- Preassembled with customer-specific cables and connectors on request

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC, 3 NC, overlapping contacts
- Latching function on request
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact)

Mounting

- 2 adjustment slots for M5 screws
- 2 holes for M5 mounting screws in safety applications

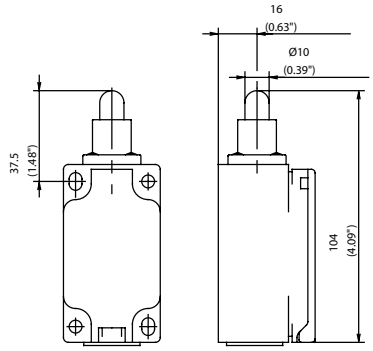
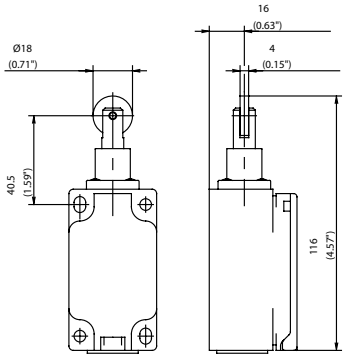
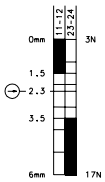
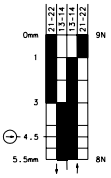
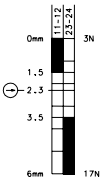
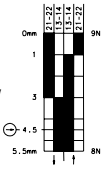
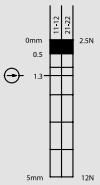
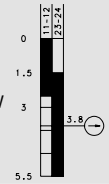
Installation advantages

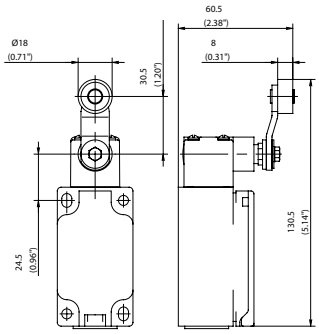
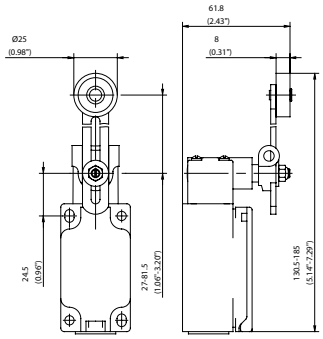
- Snap-on cover can be released with screwdriver
- Cover opening range 150° (cover can also be detached from hinge)
- Cover protects switching element during installation
- Screw connections with self-lifting clamping plates
- Easy-action cover lock (close and press

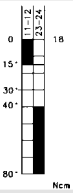
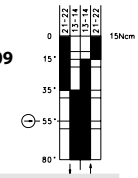
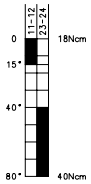
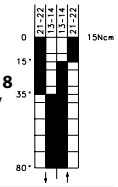
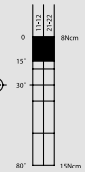
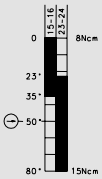
Technical data

Electrical data		
Rated insulation voltage	U_i max.	400 V AC
Conventional thermal current (up to) ①	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilisation category		AC-15, U_e/I_e 240 V/3 A
Short-circuit protection (up to) ①		Fuse 10 A gL/gG
Protection class		II, Insulated
Mechanical data		
Enclosure material		Thermoplastic, glass fibre-reinforced
Ambient temperature		–30 °C to +80 °C
Mechanical service life (up to) ①		10 x 10^6 switching cycles
B10d (up to) ①		20 Mio.
Switching frequency		≤ 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm^2 or Stranded wire with ferrule 0.5 – 1.5 mm^2
Cable entry		1 x M20 x 1.5 ≈ 0.15 kg
Protection class		IP 65 onforming to EN 60529; DIN VDE 0470 T1
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

① Depending on switching system. See Table on Pages 70 – 73.

	IW (Form B)	RIW (Form C)
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6081102001** ENK-U1Z IW  **6081152007** ENK-SU1Z IW 	**6081117002** ENK-U1Z RIW  **6081167008** ENK-SU1Z RIW 
2 NC contacts		**6081817281** ENK-A2Z RIW 
2 NO contacts		
1 NC / 1 NO contact Overlapping		**6081317307** ENK-UV1Z RIW 
Approvals		
	Replacement actuator: 3918020660	**Replacement actuator: 3918170661**
	Special features / variants (on request) ● Available with black enclosure and following contacts: 3 NC contacts	**Special features / variants** (on request) ● Available for high temperature range and following contacts: 3 NC contacts

	AHS-V (Form A)	AV
		

Switching operation	Slow-action	Snap-action	Slow-action	Snap-action
1 NC / 1 NO contact	**6081135003** ENK-U1Z AHS-V 	**6081185009** ENK-SU1Z AHS-V 	**6081136012** ENK-U1 AV 	**6081186018** ENK-SU1 AV 
2 NC contacts	**6081835323** ENK-A2Z AHS-V 			
2 NO contacts				
1 NC / 1 NO contact Overlapping	**6081335006** ENK-UV1Z AHS-V 			
Approvals				

Replacement actuator: 3918350737

Replacement actuator: 3918360738

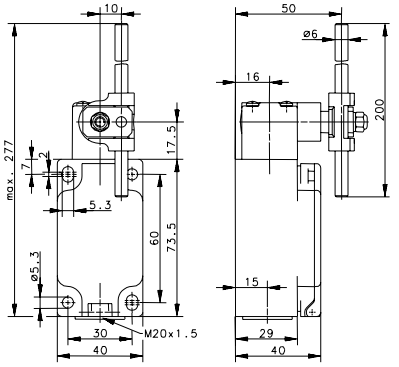
Special features / variants
(on request)

- Available with black enclosure
- With 50 mm diameter rubber roller and following contacts: 3 NC contacts

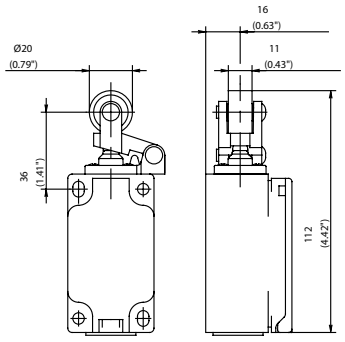
Special features / variants
(on request)

- Available with different lever lengths and roller diameters
- With 50 mm diameter rubber roller
- With roller over switch

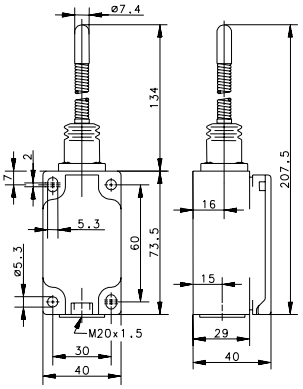
AD (Form D)



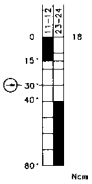
HW RO20

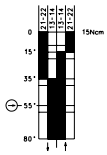


FF

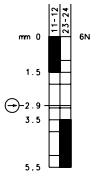


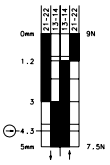
Slow-action	Snap-action
6081137011 ENK-U1 AD	**6081187017** ENK-SU1 AD



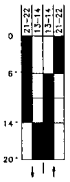


Slow-action	Snap-action
6081121095 ENK-U1Z HW RO20	**6081171096** ENK-SU1Z HW RO20





Slow-action	Snap-action
	6081190045 ENK-SU1 FF



Replacement actuator: 3918370739

Replacement actuator: 3918200906

Replacement actuator: 3918400662

Special features / variants
(on request)

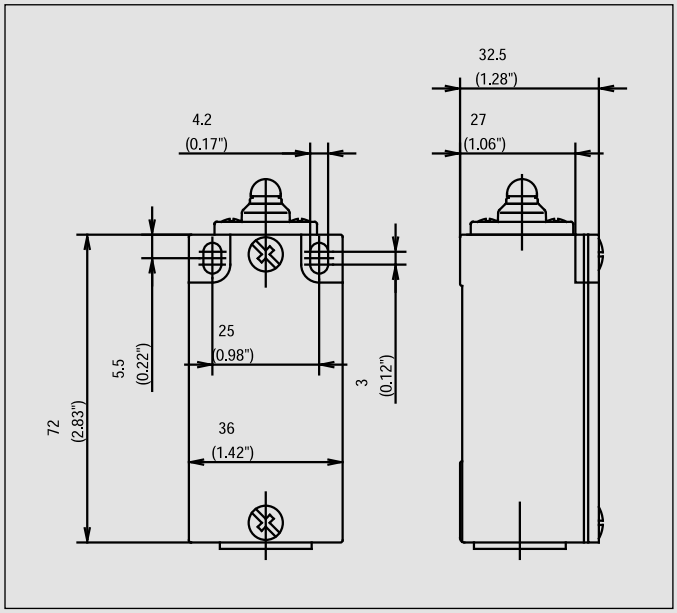
- Available with various actuator directions and actuator lengths

Special features / variants
(on request)

- Available with black enclosure and various roller diameters

Special features / variants
(on request)

GC



Recommended use

Thanks to its compact design, this metal-enclosed switch is ideally suited for virtually all safety and position monitoring applications.

Product advantages

- Protection class IP 65 to VDE 0470 T1
- Enclosure: Aluminium pressure die-casting
- Cover: Sheet aluminium
- Actuator can be repositioned by 4 x 90°
- Cable entry M20 x 1.5
- Connection designation conforming to DIN EN 50013
- Metal actuators for high loads
- Graduated adjustment of AH lever
- Selectable direction-dependent contact-making of AH actuator (basic setting: contact-making both sides)

Options

- AS interface versions on request
- Preassembled with customer-specific cables and connectors on request

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC / 2 NO, 2 NC, overlapping contacts
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact)
- Latching function on request

Mounting

- 2 adjustment slots for M4 screws (for safety applications with blind hole for ø 4.0 mm fitted pin in enclosure base or enclosure with holes for M5)

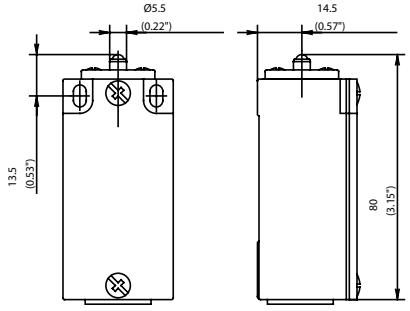
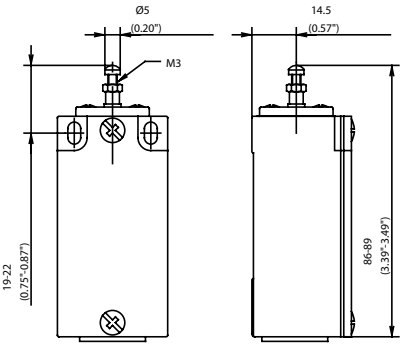
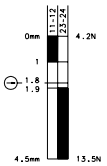
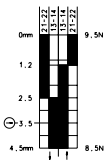
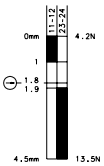
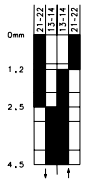
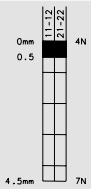
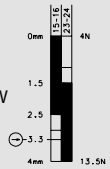
Installation advantages

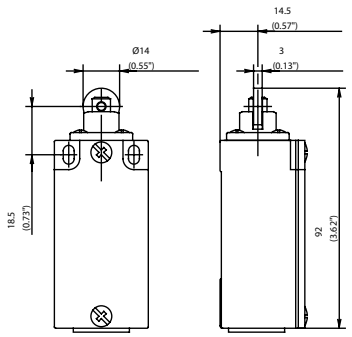
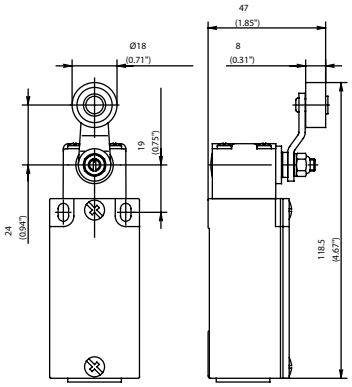
- Screw connections with self-lifting clamping plates
- Captive cover screws
- Easy-to-change switching system thanks to snap-in retainer
- Finely adjustable switching point with adjusting screw

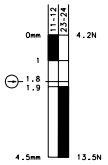
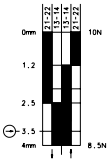
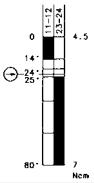
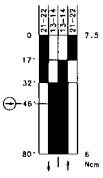
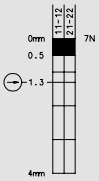
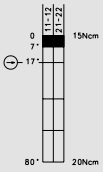
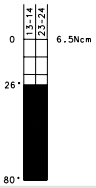
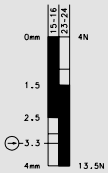
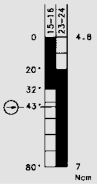
Technical data

Electrical data		
Rated insulation voltage (up to) ①	U_i max.	400 V AC
Conventional thermal current (up to ①	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilization category (up to) ①		AC-15, U_e/I_e 240 V/3 A
Short-circuit protection (up to) ①		Fuse 10 A gL/gG
Protection class		I
Mechanical data		
Enclosure material		Aluminium pressure die-casting
Ambient temperature		–30 °C to + 80 °C
Mechanical service life (up to) ①		10 x 10^6 switching cycles
B10d (up to) ①		20 Mill.
Switching frequency		≤ 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm^2 or Stranded wire with ferrule 0.5 – 1.5 mm^2
Cable entry		1 x M20 x 1.5
Protection class		IP 65 conforming to IEC/EN 60529
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

① Depending on switching system. See Table on Pages 70 – 73.

	IW	STIW
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6021102001** GC-U1Z IW  **6021352620** GC-SU1Z IW 	**6021105015** GC-U1Z STIW  **6021155017** GC-SU1Z STIW 
2 NC contacts	**6021802189** GC-A2Z IW 	
2 NO contacts		
1 NC / 1 NO contact Overlapping		**6021305016** GC-UV1Z STIW 
Approvals		
	Replacement actuator: 3912030546	**Replacement actuator: 3912050523**
	Special features / variants (on request)	**Special features / variants** ● Actuator length adjustable with adjusting screw

	RIW	AH
		

Switching operation	Slow-action	Snap-action	Slow-action	Snap-action
1 NC / 1 NO contact	**6021117029** GC-U1Z RIW 	**6021367626** GC-SU1Z RIW 	**6021135102** GC-U1Z AH 	**6021385634** GC-SU1Z AH 
2 NC contacts	**6021817172** GC-A2Z RIW 		**6121835833** GC-A2Z AHS See separate datasheet 	
2 NO contacts			**6021835160** GC-E2 AH 	
1 NC / 1 NO contact Overlapping	**6021317030** GC-UV1Z RIW 		**6021335133** GC-UV1Z AH 	
Approvals				

Replacement actuator: 3912170518

Replacement actuator: 3912350722

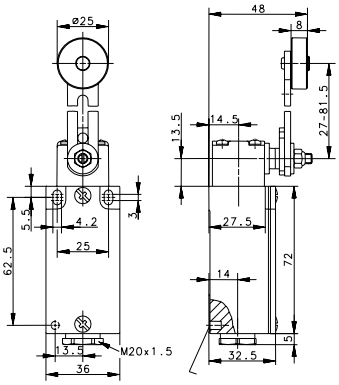
Special features / variants
(on request)

- Available for high temperature range and following contacts:
  2 NC / 1 NO contact
  2 NC / 2 NO contact
  (larger enclosure)

Special features / variants
(on request)

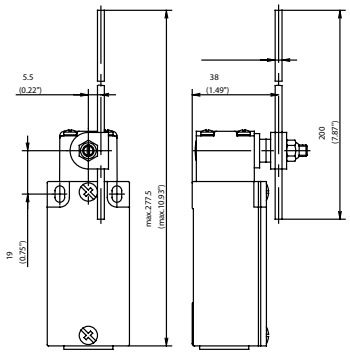
- Available with various roller diameters, cranked or straight lever and with various lever lengths
- With roller over switch and with following contacts:
  2 NC / 2 NO contact
  (larger enclosure)

AV



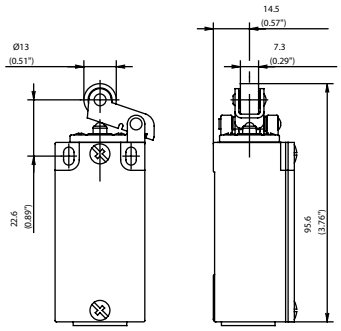
Slow-action	Snap-action
6021136104 GC-U1 AV	**6021186118** GC-SU1 AV

AD



Slow-action	Snap-action
6021137103 GC-U1 AD	**6021187125** GC-SU1 AD

HIW



Slow-action	Snap-action
6021120057 GC-U1Z HIW	**6021370629** GC-SU1Z HIW
6021820175 GC-A2Z HIW	
6021820157 GC-E2 HIW	
6021320058 GC-UV1Z HIW	

Replacement actuator: 3912360723

Special features / variants
(on request)

- Various roller diameters
- Different lever lengths
- With roller over switch and with following contacts:
  2 NC / 2 NO contact

Replacement actuator: 3912370724

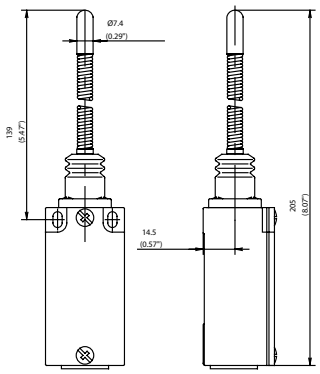
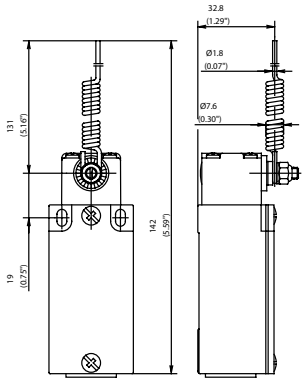
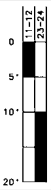
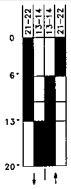
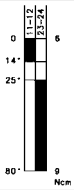
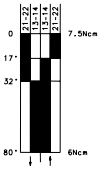
Special features / variants
(on request)

- Available with various actuator lengths and actuator directions
- With following contacts:
  2 NC / 1 NO with overlap
  (larger enclosure)

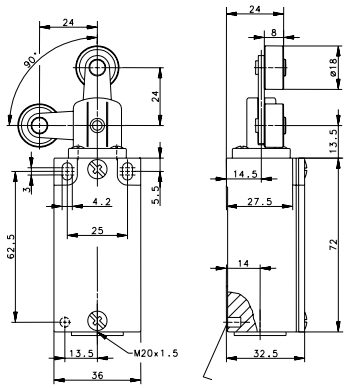
Replacement actuator: 3912200552

Special features / variants
(on request)

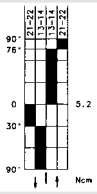
- Available with different actuating directions
- Available with steel roller
- With following contacts:
  2 NC / 2 NO contact
  1 NC / 2 NO with overlap
  (larger enclosure)

	FF	AF
		
Switching operation	**Slow-action** / **Snap-action**	**Slow-action** / **Snap-action**
1 NC / 1 NO contact	**6021140476** GC-U1 FF  **6021190100** GC-SU1 FF 	**6021139106** GC-U1 AF  **6021189128** GC-SU1 AF 
2 NC contacts		
2 NO contacts		
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: 3912400510	**Replacement actuator: 3912390725**
	Special features / variants (on request) ● Different spring lengths ● Different spring versions or spring rod	**Special features / variants** (on request) ● Available with various actuator lengths and actuator directions

DR



Slow-action **Snap-action**

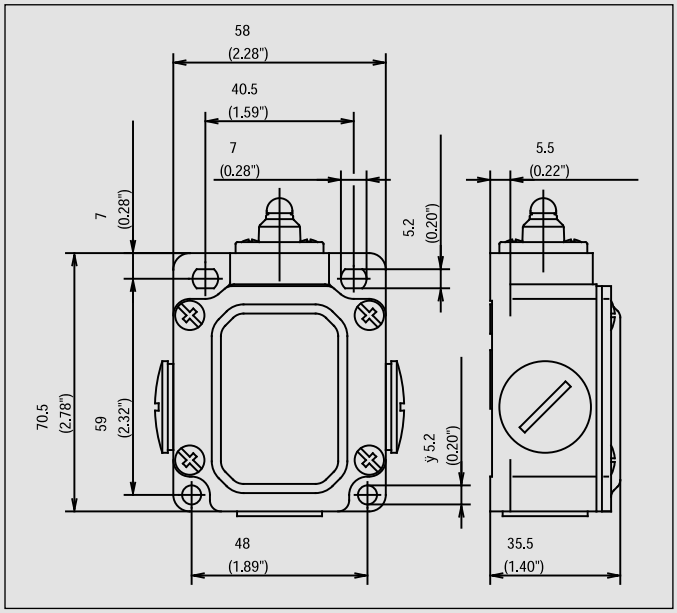


6021191099
GC-SU1Z DR

Replacement actuator: 3912410593

Special features / variants
(on request)

SN2



Recommended use

With its three cable entries and spacious connection area, the SN2 limit switch is the optimum solution for through-wiring or even branching off electrical circuits.

Product advantages

- Protection class IP 65 to VDE 0470 T1
- Enclosure: Aluminium pressure die-casting
- Cover: Sheet aluminium
- Actuator can be repositioned by 4 x 90°
- Cable entry 3x M20 x 1.5
- Connection designation conforming to DIN EN 50013
- Metal actuators for high loads
- Graduated adjustment of AH lever
- Selectable direction-dependent contact-making of AH actuator (basic setting: contact-making both sides)

Options

- AS interface versions on request
- Preassembled with customer-specific cables and connectors on request

Design layout

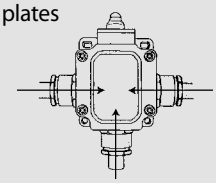
- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact)
- Latching function on request

Mounting

- 2 adjustment slots for M5 screws
- 2 addition holes for M5 mounting screws in safety applications

Installation advantages

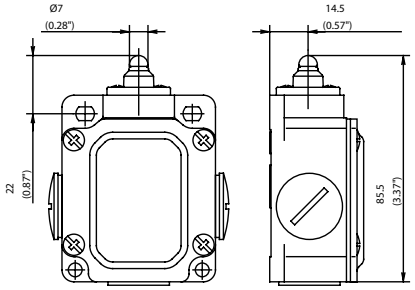
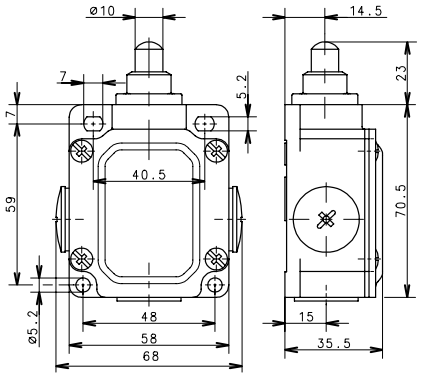
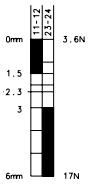
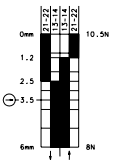
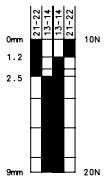
- 3 cable entries for through-wiring
- Generously dimensioned connection space
- Screw connections with self-lifting clamping plates
- Easy-to-change switching system thanks to snap-in retainer
- Finely adjustable switching point with adjusting screw

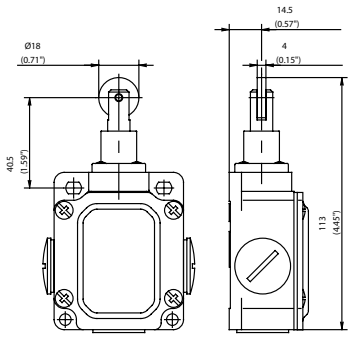
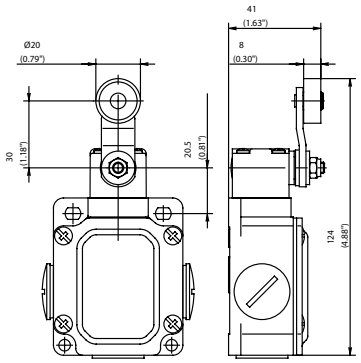
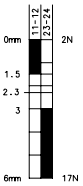
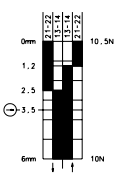
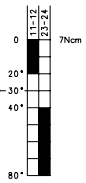
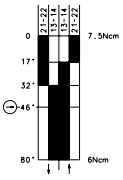


Technical data

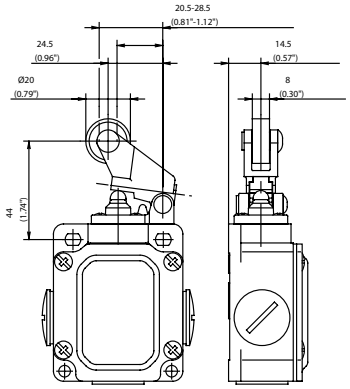
Electrical data		
Rated insulation voltage	U_i max.	400 V AC
Conventional thermal current	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilization category		AC-15, A300, U_e/I_e 240 V/3 A
Short-circuit protection (up to) ①		Fuse 10 A gL/gG
Protection class		I
Mechanical data		
Enclosure material		Aluminium pressure die-casting
Ambient temperature		–30 °C to + 80 °C
Mechanical service life		10 x 10^6 switching cycles
B10d (up to) ①		20 Mill.
Switching frequency		max. 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm^2 or Stranded wire with ferrule 0.5 – 1.5 mm^2
Cable entry		3 x M20 x 1.5
Protection class		IP 65 conforming to EN 60529, DIN VDE 0470 T1
Standards		
conforming to EN 60947-1; EN 60947-5-1		

① Depending on switching system. See Table on Pages 70 – 73.

	W	LIW
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6033103023** SN2-U1Z W  **6033353016** SN2-SU1Z W 	**6033194022** SN2-SU1 LIW 
2 NC contacts		
2 NO contacts		
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: 3913030537	**Replacement actuator: 3912440536**
	Special features / variants (on request)	**Special features / variants** ● Telescopic plunger, particularly long actuation travel of 9 mm

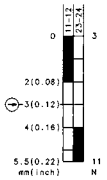
	RIW	AHS
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6033117025** SN2-U1Z RIW  **6033367017** SN2-SU1Z RIW 	**6033135002** SN2-U1Z AHS  **6033385018** SN2-SU1Z AHS 
2 NC contacts		
2 NO contacts		
1 NC / 1 NO contact Overlapping		
Approvals		
	Replacement actuator: 3918170587	**Replacement actuator: 3913351913**
	Special features / variants (on request) ● Available with different actuating directions ● With latching function	**Special features / variants** (on request) ● Available with different actuating directions

DGHW



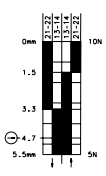
Slow-action

6033121005
SN2-U1Z
DGHW



Snap-action

6033371004
SN2-SU1Z
DGHW

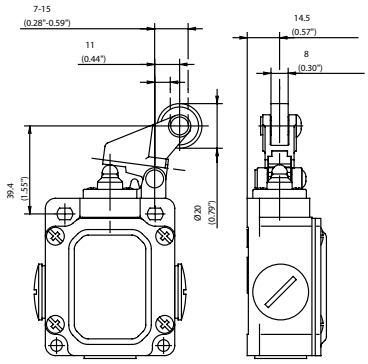


Replacement actuator: **3918211656**

Special features / variants
(on request)

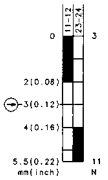
- Available with different actuating directions

DGKW



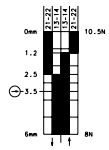
Slow-action

6033127010
SN2-U1Z
DGKW



Snap-action

6033377011
SN2-SU1Z
DGKW

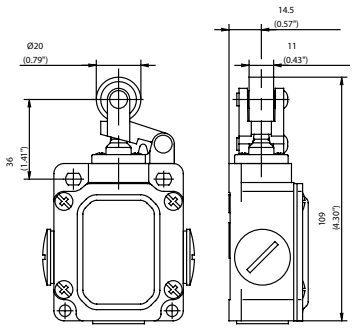


Replacement actuator: **3918271655**

Special features / variants
(on request)

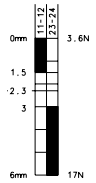
- Available with different actuating directions

HW



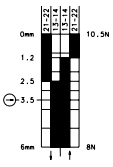
Slow-action

6033121007
SN2-U1Z HW



Snap-action

6033371006
SN2-SU1Z HW

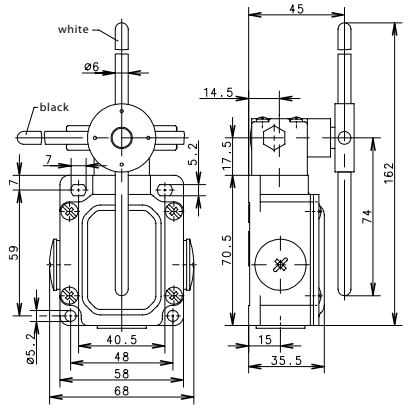


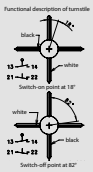
Replacement actuator: **3913210553**

Special features / variants
(on request)

- Available with different actuating directions

AD4K



Switching operation	Slow-action	Snap-action
1 NC / 1 NO contact		
2 NC contacts	**6133887022** SN2-SA2Z AD4K	
2 NO contacts		
1 NC / 1 NO contact Overlapping		

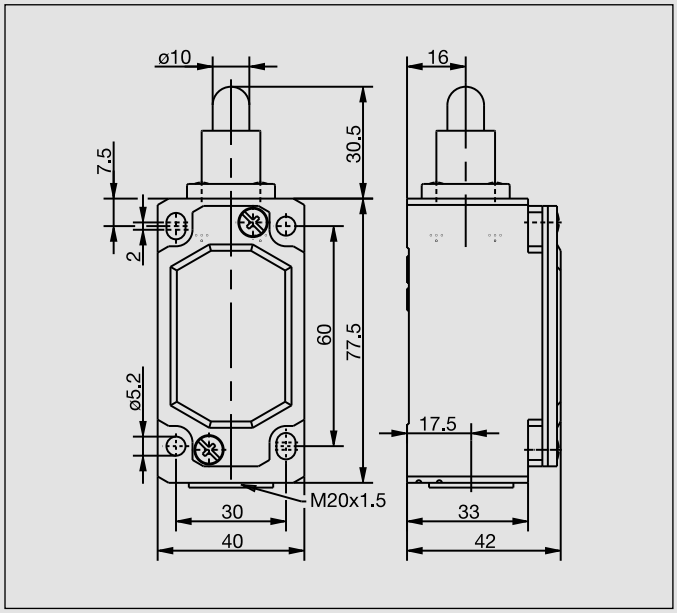
Approvals

Replacement actuator: 3913371712
without screws, without seals

3992000042
accessory bag (40 screws, 10 seals)

Special features / variants
(on request)

ENM2



Recommended use

With its standard enclosure, the ENM2 limit switch can be used universally in all industrial and safety applications.

Product advantages

- Standard switch conforming to DIN EN 50041
- Standard actuator conforming to DIN EN 50041 (see page 16)
- Protection class IP 65 to VDE 0470 T1
- Enclosure: Aluminium pressure die-casting
- Cover: Sheet aluminium
- Actuator can be repositioned by 4 x 90°
- Cable entry M20 x 1.5
- Connection designation conforming to DIN EN 50013
- Metal actuators for high loads

Options

- AS interface versions on request
- Preassembled with customer-specific cables and connectors on request

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC, overlapping contacts
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Type: Zb (galvanically isolated changeover contact)

Mounting

- Two M5 adjustment screws with slots
- Two M5 screws for safety applications without additional securing element

Installation advantages

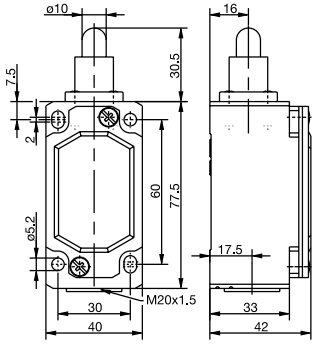
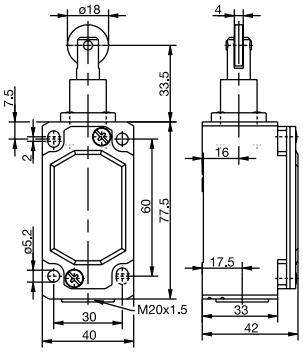
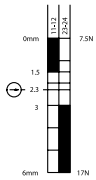
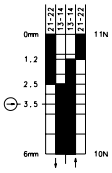
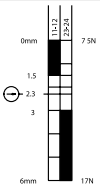
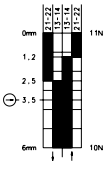
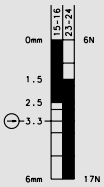
- Screw connections with self-lifting clamping plates
- Easy-to-change switching system thanks to snap-in retainer (depending on type)
- Finely adjustable switching point with adjusting screw
- Captive cover screws
- Enlarged connection space
- Earthing surface on same level as switching system

Technical data

Electrical data		
Rated insulation voltage (up to) ①	U_i max.	400 V AC
Conventional thermal current (up to) ①	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilization category (up to) ①		A300, AC-15, U_e/I_e 240 V/3 A
Short-circuit protection (up to) ①		Fuse 10 A gL/gG
Protection class		I
Mechanical data		
Enclosure material		Aluminium pressure die-casting
Ambient temperature		–30 °C to + 80 °C
Mechanical service life (up to) ①		10 x 10^6 switching cycles
B10d (up to) ①		20 Mill.
Switching frequency		≤ 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm² or Stranded wire with ferrule 0.5 – 1.5 mm²
Cable entry		1 x M20 x 1.5
Protection class		IP 65 conforming to IEC/EN 60529
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

① Depending on switching system. See Table on Pages 70 – 73.

ENM2

	IW (Form B)	RIW (Form C)
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6087102001** ENM2-U1Z IW  **6087352002** ENM2-SU1Z IW 	**6087117004** ENM2-U1Z RIW  **6087367005** ENM2-SU1Z RIW 
2 NC contacts	**6087802003** ENM2-A2Z IW 	**6087817006** ENM2-A2Z RIW 
2 NO contacts		
1 NC / 1 NO contact Overlapping	**6087302027** ENM2-UV1Z IW 	
Approvals		

Replacement actuator: 3918020584

Special features / variants
(on request)

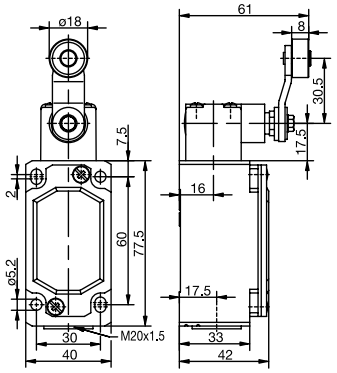
- Also available with following contacts:
  2 NC /1 NO with overlap
  1 NC /2 NO with overlap

Replacement actuator: 3918170587

Special features / variants
(on request)

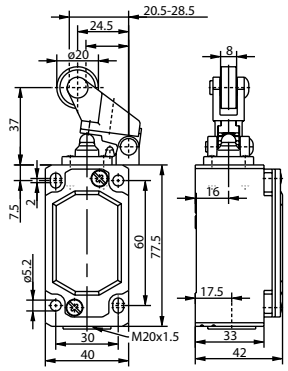
- Available with different actuating directions
- High temperature range
- Various roller diameters
- Also available with following contacts:
  2 NC / 1 NO with overlap
  1 NC / 2 NO with overlap

AHS-V (Form A)



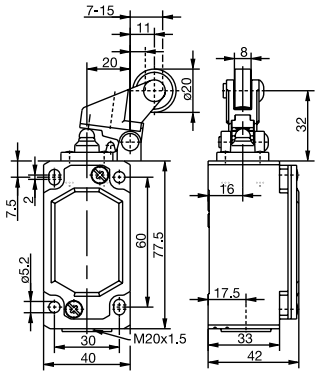
Slow-action	Snap-action
6087135013 ENM2-U1Z AHS-V	**6087385014** ENM2-SU1Z AHS-V
6087835015 ENM2-A2Z AHS-V	

DGHW RO20



Slow-action	Snap-action
6087121007 ENM2-U1Z DGHW RO20	**6087371008** ENM2-SU1Z DGHW RO20
6087821009 ENM2-A2Z DGHW RO20	

DGKW RO20



Slow-action	Snap-action
6087127010 ENM2-U1Z DGKW RO20	**6087377011** ENM2-SU1Z DGKW RO20

Replacement actuator: 3918350729

Replacement actuator: 3918211656

Replacement actuator: 3918271655

Special features / variants
(on request)

- Available with different actuating directions

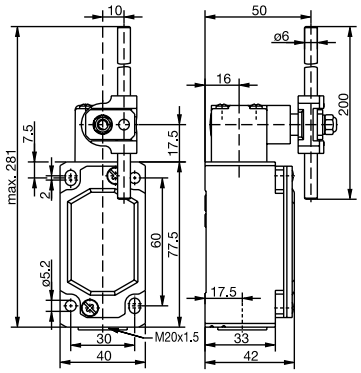
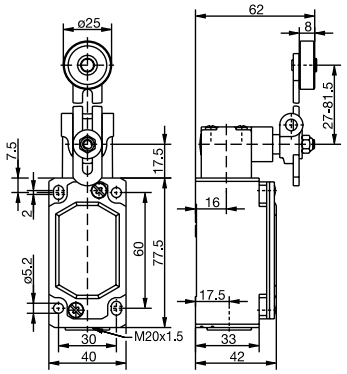
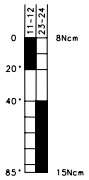
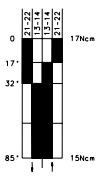
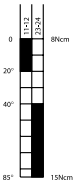
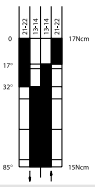
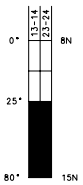
Special features / variants
(on request)

- Available with different actuating directions

Special features / variants
(on request)

- Available with different actuating directions

ENM2

	AD (Form D)	AV
		
Switching operation	**Slow-action** **Snap-action**	**Slow-action** **Snap-action**
1 NC / 1 NO contact	**6087137018** ENM2-U1 AD  **6087387019** ENM2-SU1 AD 	**6087136016** ENM2-U1 AV  **6087386017** ENM2-SU1 AV 
2 NC contacts		
2 NO contacts		**6187836060** ENM2-E2 AV 
1 NC / 1 NO contact Overlapping		
Approvals		

Replacement actuator: 3918370731

Special features / variants
(on request)

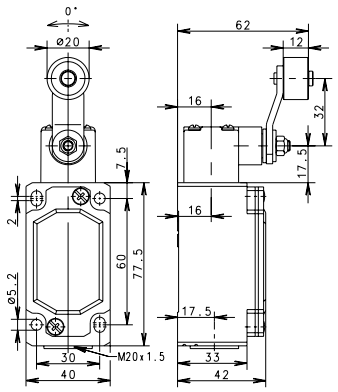
- Available with various actuator lengths and actuator directions

Replacement actuator: 3918360730

Special features / variants
(on request)

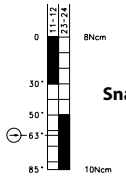
- Available with different actuating directions
- Various roller diameters
- Different lever lengths
- With roller over switch

AHZ



Slow-action

6087135030
ENM2-U1Z
AHZ



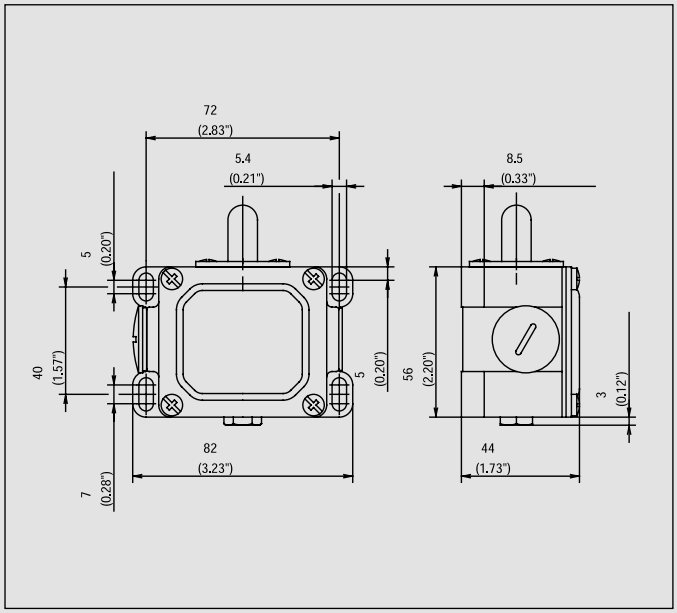
Snap-action

Replacement actuator: –

Special features / variants

- Positively opening action, forward and return AHZ
- For special safety applications, the positive opening action of the normally-closed contacts takes place both in forward (moving in one direction) as well as in return (moving back to home position) direction
- For personal protection applications movement of the roller must be restrained in a guide block in both directions

D



Recommended use

Heavy duty enclosure for harsh operating conditions with particularly tough design of actuator and switching systems.

Product advantages

- Protection class IP 65 to VDE 0470 T1
- Enclosure: Aluminium pressure die-casting
- Cover: Sheet aluminium
- Actuator can be repositioned by 4 x 90° (depending on type)
- Cable entries 2x M20 x 1.5
- Connection designation conforming to DIN EN 50013
- Sturdy contacts
- Hard wearing guide bushes

Options

- AS interface versions on request
- Preassembled with customer-specific cables and connectors on request

Design layout

- Slow-action and snap-action contacts
- Versions: 1 NC / 1NO, 2 NC, 2 NO, 3 NC, 3 NO, overlapping contacts
- All NC contacts with ⊖ in the circuit diagram are positively opening contacts
- Latching function on request

Mounting

- 4 slots for M5 screws

Installation advantages

- 2 cable entries for through-wiring
- Generously dimensioned connection space
- Captive cover screws

Technical data

Electrical data		
Rated insulation voltage	U_i max.	400 V AC
Conventional thermal current (up to) ①	I_{the}	10 A
Rated operating voltage	U_e max.	240 V
Utilization category		AC-15, U_e/I_e 240 V/3 A
Short-circuit protection (up to) ①		Fuse 10 A gL/gG
Protection class		I
Mechanical data		
Enclosure material		Aluminium pressure die-casting
Ambient temperature		–30 °C to + 80 °C
Mechanical service life		10 x 10^6 switching cycles
B10d		20 Mill.
Switching frequency		≤ 100/min.
Type of connection		Screw connections
Conductor cross sections		Single-wire 0.5 – 1.5 mm² or Stranded wire with ferrule 0.5 – 1.5 mm²
Cable entry		2 x M20 x 1.5
Protection class		IP 65 conforming to IEC/EN 60529
Standards		
VDE 0660 T100, DIN EN 60947-1, IEC 60947-1 VDE 0660 T200, DIN EN 60947-5-1, IEC 60947-5-1		

① Depending on switching system. See Table on Pages 70 – 73.