

## ATEX Approved Products



# Products, industrial branches and end user



## Industrial branches

- Chemical industry
- Petrochemical industry
- Medical and pharmaceutical technology
- Pharmaceutical industry
- Food industry
- Disposal and recycling industry
- Wood-working

## End user

- Ex-protected plant operators
- Ex-protected plant manufacturers
- Planers and constructing engineer
- Ex-protected systems manufacturers



## ATEX - General Information

EX versions of the many of the standard BERNSTEIN switches with ATEX approval are also available for applications involving potentially gas and dust explosive atmospheres.

Approvals for gas "ii G" in accordance with DIN EN 60079-XX



Approvals for dust "ii D" in accordance with DIN EN 61241-XX

**Make use of our Ex protection expertise for your applications.**

### What is ATEX?

ATEX = Atmosphère explosive. The European Directive 94/4/EC governs the production and the circulation of devices and components for explosive atmospheres in the European Union. The IEC Standards harmonized throughout the EU stipulate that ATEX products approved by a certification authority can be used anywhere throughout the EU.

In most aspects the certification authorities of non-European countries such as North America, Russia etc. closely follow ATEX-relevant standards so that various approvals can be acquired worldwide based on an ATEX approval. Corresponding national approvals are available on request.

### Where are devices with ATEX approval used?

The fields of application for Ex-protected switches include mixing and processing machines in bakeries (flour dust explosion), processing machines in the food industry where spices are mixed (spice dust explosion), sewer manholes, pump stations and sewage treatment plant (explosive gases "fermentation/digester gas"), waste disposal and recycling industry (various sources of dust and gas explosion), automotive industry and wherever paints and lacquers are used (painting booth) in addition to the classic explosion-hazard branches of industry such as the chemical, petrochemical, pharmaceutical industries as well as the coal, gas and oil-producing and processing industries. Mobile equipment and systems such as vacuum cleaners, stacker lift trucks, fans etc. that are used in the above fields of application must exhibit a corresponding ATEX approval. ATEX products are therefore a part of our everyday lives..

### Who is responsible for what in Ex applications?

The device or component manufacturer must obtain a type approval certificate (ATEX approval) for these devices and components. The machine manufacturer can acquire his system approval based on these approvals and the declaration of conformity.

The manufacturer of a machine or system that is used in Ex applications must obtain a corresponding system approval for the machines it markets. The entire system must be taken into consideration both from a mechanical as well as from an electrical aspect.

In accordance with the ATEX Operator Directive 1999/92/EC (ATEX137), the operator of technical facilities shall be responsible for avoiding or restricting the formation of explosive atmospheres (primary explosion protection), avoiding effective ignition sources (secondary or design explosion protection) and restricting the effect of an explosion to a safe level (tertiary explosion protection). An explosion protection document describing the implemented measures and hazard assessments is to be compiled.

In addition to foot switches and cable pull switches, our current ATEX-certified product range also includes various standard limit switches, limit switches and miniature limit switches.

Customer-specific individual approvals or approvals for switches and components from the BERNSTEIN range not yet certified are available on request.



## ATEX



### Terminal boxes and empty enclosures

Only materials that correspond to the temperature range T6 required for Ex enclosures are used in these enclosures and components. The minimum type of protection rating of all enclosures and screw connections is IP 64, other protection classes available on request. The latching devices on the enclosures are available as captive screw connections. Various CA versions are available with flange plates. All built-in components must conform to the relevant approvals.

### Momentary contact, cable pull and foot switches

An Ex d-certified switching element lies at the core of these Ex-approved switches. It is mounted in the switch enclosures. The mechanical actuator and its installation are certified separately.

The approval of additional actuators and switch enclosures from other series is possible on request.

All switches and momentary contact switches feature one NO contact and one NC contact.

### Magnetic switches, Namur sensors










The protection against flammable energies is realised by encapsulation. The magnetic switches and Namur sensors are fitted at the factory with up to 7 m long connection cable. The cable is permanently connected to the enclosure and is part of the approval.

All sensors are certified for a maximum ambient temperature of +60 °C.

## ATEX-approved products for potentially explosive atmospheres

- **Ex e, Ex ia** and **Ex e/ia** terminal boxes made from polyester and aluminium
- **Ex d** limit switches, rope pull switches and foot switches
- **Ex mb/Ex tD** magnetic switches

# Explosion protection at a glance

	II2G	Ex	ia	IIC	T6	TÜV	2008	ATEX	1234	-
Type approval to RAL 94/9/EC	Application	Explosion protection	Protection class	Device group	Temperature class	Inspection authority	Year	As per Directive 94/9/EC	Consecutive number	Additional conditions
<b>Types of protection for gas-explosion hazardous areas</b>										
Symbol	Type of protection									Standard
	Ex "d"	Flameproof encapsulation Switching devices, motors, transformers etc. IEC60079-1								IEC60079-1
	Ex "p"	Pressurised encapsulation Control cabinets px = Use in Zone 1, 2 py = Use in Zone 1, 2 pz = Use in Zone 2								IEC60079-2
	Ex "q"	Powder-filled encapsulation Transformers, capacitors								IEC60079-5
	Ex "o"	Oil immersion encapsulation Transformers, load resistors								IEC60079-6
	Ex "e"	Increased safety Terminal boxes, control cabinets, enclosures for installing devices of other protection class								IEC60079-7
	Ex "i"	Intrinsically safe Terminal boxes, control cabinets, sensors, measurement and control equipment ia = Use in Zone 0, 1, 2 ib = Use in Zone 1, 2								IEC60079-11
		Intrinsically safe systems								IEC60079-25
	Ex "n"	Non sparking Systems that, due to their design, cannot spark								IEC60079-15
	Ex "m"	Encapsulation Command and signalling devices, sensors, display/indicator devices ma = Use in Zone 0,1,2 mb = Use in Zone 1,2								IEC60079-18
		Ex "op"	Optical radiation op is = Intrinsically safe optical radiation op pr = Protected optical radiation op sh = Shutdown optical radiation							
<b>IP Protection Classes</b>										
IP 1st digit	Contact	Foreign bodies		IP 2nd digit	Water	Max. permissible surface temperature		Temperature classes for gases		
0	No protection	No protection		0	No protection					
1	Large body parts	Solid object > 50 mm		1	Water dripping vertically					
2	Finger	Solid object > 12.5 mm		2	Water dripping at angle up to 15°	450°	T1			
3	Tool > 2.5 mm	Solid object > 2.5 mm		3	Water sprayed at an angle up to 60°	300°	T2			
4	Tool > 1 mm	Solid object > 1 mm		4	Spayed water 360°	200°	T3			
5	Complete protection	Dust accumulation		5	Hose water 360°	135°	T4			
6	Complete protection	Dust infiltration		6	Strong hose water 360°	100°	T5			
				7	Temporary submersion	85°	T6			
				8	Submersion	<b>Explosion groups for gases</b>				
<b>Device group I Mining</b>						Group	Typical gas	Ignition energy		
I M1	Safety provided by 2 safety measures, 2 faults					I	Methane	280 µJ		
I M2	Shutdown on occurrence of explosive atmosphere					IIA	Propane	> 180 µJ		
<b>Equipment group II, all hazardous areas except mining</b>						IIB	Ethylene	60...180 µJ		
II 1	Zone 0	Zone 20	Safety provided by 2 safety measures, 2 faults			IIC	Hydrogen	< 60 µJ		
II 2	Zone 1	Zone 21	Safety in the event of frequent equipment malfunctions, 1 fault							
II 3	Zone 2	Zone 22	Safety in trouble-free operation							
<b>Zone categories, device group II</b>						-	No restriction			
Hazard			Gas as per IEC		Dust as per IEC		X	Special conditions		
permanent or frequent			zone 0		zone 20					
occasional			zone 1		zone 21					
rare, temporary			zone 2		zone 22		U	Component certification, parts certification		
no longer than 30 min per year										

# Aluminium and Polyester Blank enclosures CA, CP, CPS



## ATEX-U certified standard enclosures

BERNSTEIN CA enclosures have been tested by an internationally recognised and certified inspection authority and certified through type approval testing for use in areas with potentially explosive dust and gas atmospheres. Used as terminal and control enclosures, the aluminium pressure die-cast and glass-fibre reinforced polyester enclosures are designed to accept corresponding mechanical and electrical equipment. The enclosures come with operating instructions, type identification plate, EU Type Approval Certificate and CE Declaration of Conformity. Either an EPDM or silicone seal can be used. The enclosures can be fitted at the factory with external hinges.

## Technical Data

- **Protection class** IP 66 to IEC 60529 (special seal)
- **Identification**
  - ⊕ II 2G Ex e IIC Gb
  - ⊕ II 2D Ex tD A21 IP 65 (CA)
  - ⊕ II 1D Ex ta IIIC Da IP 66
- **Impact strength**
  - > 7 joules (CA)
  - up to CP-230 4 joules
  - as from CP-240 > 7 joules
- **Operating temperature** -55 °C to +100 °C (special seal)
- **CA**
  - Enclosure colour: RAL 7001 (silver grey)
  - Powder-coating corrosion protection
- **CP/CPS**
  - Enclosure colour: RAL 7000 (squirrel grey) CP
  - RAL 9005 (jet black) CPS
- **UV resistance**

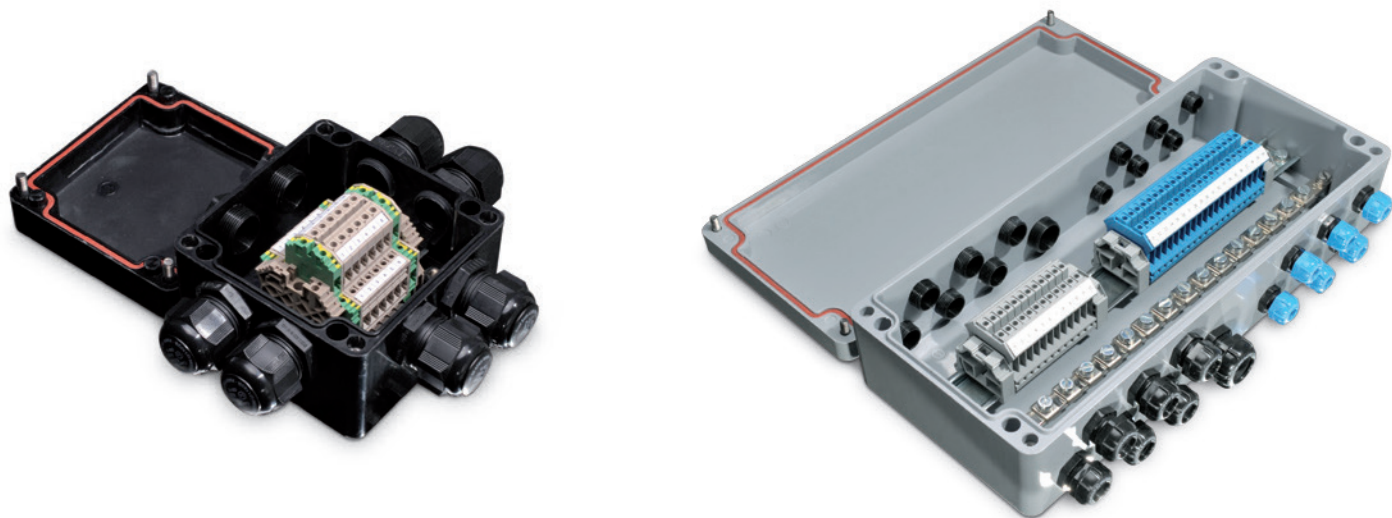
# Ordering data Blank enclosures

## CA, CP, CPS

Type	External dimension mm (Inches) L x W x H		Art.No. with silicone seal	Art.No. with EPDM seal
<b>Aluminum Enclosures</b>				
CA-060	58 x 64 x 36	(2.3" x 2.5" x 1.4")	1064005000	1064000000
CA-080	98 x 64 x 36	(3.9" x 2.5" x 1.4")	1084005000	1084000000
CA-100	150 x 64 x 36	(5.9" x 2.5" x 1.4")	1104005000	1104000000
CA-130	75 x 80 x 57	(3.0" x 3.1" x 2.2")	1134005000	1134000000
CA-150	125 x 80 x 57	(4.9" x 3.1" x 2.2")	1154005000	1154000000
CA-170	175 x 89 x 57	(6.9" x 3.5" x 2.2")	1174005000	1174000000
CA-190	250 x 80 x 57	(9.8" x 3.1" x 2.2")	1194005000	1194000000
CA-210	122 x 122 x 80	(4.8" x 4.8" x 3.1")	1214005000	1214000000
CA-215	122 x 122 x 90	(4.8" x 4.8" x 3.5")	1214005050	1214000050
CA-220	122 x 122 x 80	(4.8" x 4.8" x 3.1")	1224005000	1224000000
CA-230	220 x 122 x 80	(8.7" x 4.8" x 3.1")	1234005000	1234000000
CA-235	220 x 122 x 90	(8.7" x 3.8" x 3.5")	1234005050	1234000050
CA-240	220 x 122 x 80	(8.7" x 4.8" x 3.1")	1244005000	1244000000
CA-250	360 x 122 x 80	(14.2" x 4.8" x 3.1")	1254005000	1254000000
CA-270	160 x 160 x 90	(6.3" x 6.3" x 3.5")	1274005000	1274000000
CA-280	160 x 160 x 90	(6.3" x 6.3" x 3.5")	1284005000	1284000000
CA-290	260 x 160 x 90	(10.2" x 6.3" x 3.5")	1294005000	1294000000
CA-300	260 x 160 x 90	(10.2" x 6.3" x 3.5")	1304005000	1304000000
CA-310	360 x 160 x 90	(14.2" x 6.3" x 3.5")	1314005000	1314000000
CA-330	560 x 160 x 90	(22" x 6.3" x 3.5")	1334005000	1334000000
CA-350	200 x 230 x 110	(7.9" x 9.1" x 4.3")	1354005000	1354000000
CA-360	200 x 230 x 180	(7.9" x 9.1" x 7.1")	1364005000	1364000000
CA-370	280 x 230 x 110	(11" x 9.1" x 4.3")	1374005000	1374000000
CA-380	330 x 230 x 110	(13" x 9.1" x 4.3")	1384005000	1384000000
CA-390	330 x 230 x 180	(13" x 9.1" x 7.1")	1394005000	1394000000
CA-400	400 x 230 x 110	(15.7" x 9.1" x 4.3")	1404005000	1404000000
CA-420	600 x 230 x 110	(23.6" x 9.1" x 4.3")	1424005000	1424000000
CA-450	402,5 x 310 x 110	(15.8" x 12.2" x 4.3")	1454005000	1454000000
CA-460	402,5 x 310 x 180	(15.8" x 12.2" x 7.1")	1464005000	1464000000
CA-470	600 x 310 x 110	(23.6" x 12.2" x 4.3")	1474005000	1474000000
CA-480	600 x 310 x 180	(23.6" x 12.2" x 7.1")	1484005000	1484000000
<b>Polyester Enclosures (Grey)</b>				
CP-140	80 x 75 x 55	(3.1" x 3.0" x 2.2")	4144005000	4144000000
CP-145	80 x 75 x 75	(3.1" x 3.0" x 3.0")	4144005050	4144000050
CP-150	110 x 75 x 55	(4.3" x 3.0" x 2.2")	4154005000	4154000000
CP-155	110 x 75 x 75	(4.3" x 3.0" x 3.0")	4154005050	4154000050
CP-170	160 x 75 x 55	(6.3" x 3.0" x 2.2")	4174005000	4174000000
CP-175	160 x 75 x 75	(6.3" x 3.0" x 3.0")	4174005050	4174000050
CP-190	190 x 75 x 55	(7.5" x 3.0" x 2.2")	4194005000	4194000000
CP-195	190 x 75 x 75	(7.5" x 3.0" x 3.0")	4194005050	4194000050
CP-220	122 x 120 x 90	(4.8" x 4.7" x 3.5")	4224005000	4224000000
CP-240	220 x 120 x 90	(8.7" x 4.7" x 3.5")	4244005000	4244000000
CP-280	160 x 160 x 90	(6.3" x 6.3" x 3.5")	4284005000	4284000000
CP-300	260 x 160 x 90	(10.2" x 6.3" x 3.5")	4304005000	4304000000
CP-320	360 x 160 x 90	(14.2" x 6.3" x 3.5")	4324005000	4324000000
CP-330	560 x 160 x 90	(22.0" x 6.3" x 3.5")	4334005000	4334000000
CP-370	255 x 250 x 120	(10" x 9.8" x 4.7")	4374005000	4374000000
CP-400	400 x 250 x 120	(15.7" x 9.8" x 4.7")	4404005000	4404000000
CP-450	400 x 405 x 120	(15.7" x 15.9" x 4.7")	4454005000	4454000000
CP-460	400 x 405 x 165	(15.7" x 15.9" x 6.5")	4464005000	4464000000
<b>Polyester Enclosures (Black)</b>				
CPS-140	80 x 75 x 55	(3.1" x 3.0" x 2.2")	5144005000	5144000000
CPS-145	80 x 75 x 75	(3.1" x 3.0" x 3.0")	5144005050	5144000050
CPS-150	110 x 75 x 55	(4.3" x 3.0" x 2.2")	5154005000	5154000000
CPS-155	110 x 75 x 75	(4.3" x 3.0" x 3.0")	5154005050	5154000050
CPS-170	160 x 75 x 55	(6.3" x 3.0" x 2.2")	5174005050	5174000050
CPS-175	160 x 75 x 75	(6.3" x 3.0" x 3.0")	5174005050	5174000050
CPS-190	190 x 75 x 55	(7.5" x 3.0" x 2.2")	5194005000	5194000000
CPS-195	190 x 75 x 75	(7.5" x 3.0" x 3.0")	5194005050	5194000050
CPS-220	122 x 120 x 90	(4.8" x 4.7" x 3.5")	5224005000	5224000000
CPS-240	220 x 120 x 90	(8.7" x 4.7" x 3.5")	5244005000	5244000000
CPS-280	160 x 160 x 90	(6.3" x 6.3" x 3.5")	5284005000	5284000000
CPS-300	260 x 160 x 90	(10.2" x 6.3" x 3.5")	5304005000	5304000000
CPS-320	360 x 160 x 90	(14.2" x 6.3" x 3.5")	5324005000	5324000000
CPS-330	560 x 160 x 90	(22.0" x 6.3" x 3.5")	5334005000	5334000000
CPS-370	255 x 250 x 120	(10" x 9.8" x 4.7")	5374005000	5374000000
CPS-400	400 x 250 x 120	(15.7" x 9.8" x 4.7")	5404005000	5404000000
CPS-450	400 x 405 x 120	(15.7" x 15.9" x 4.7")	5454005000	5454000000
CPS-460	400 x 405 x 165	(15.7" x 15.9" x 6.5")	5464005000	5464000000

## Aluminium and polyester terminal enclosures

The ATEX standard housings of the CA and CP series are designed as fully machined and assembled connection and wiring housings for use in **zones 1, 2 and 22**. They are machined and assembled according to the customer's needs and wishes. A combination of terminals and cable glands of various manufacturers is possible.



All common connecting terminals and cable glands can be combined.

- Screw terminals
- Direct push in terminals
- Wire piercing clamps
- Quick connect push terminals
- Single screw-type metal or plastic glands
- Multiple screw-type metal or plastic glands
- Special screw type glands for ribbon cables

The housings are designed in **enhanced safety and intrinsic safety protection** types or a combination of both.

A protection type up to IP 66 in accordance with ISO 60529 is possible depending on the seal. The operating temperature ranges from  $-55\text{ }^{\circ}\text{C}$  to  $+80\text{ }^{\circ}\text{C}$  depending on the version.

All sizes of the empty housings are available as **assembled** housings. Either an earthing rail or an earthing clamp is used as an earth connection.



## Accessories

### Cable gland, plastic M12-M63



Serie ECDEP  
(Standard)

- -20 °C to +80 °C, PA6
- IP 66/68, Ex e and Ex i

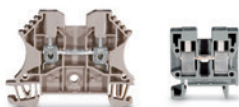
### Cable glands, metal M12-M63



Serie EURO-Top X  
(Standard)

- -20 °C to +80 °C, MS
- IP 66/68, Ex e

### Screw terminals



TS15 (Standard)  
TS35 (Standard)

- MBK 2,5 / AKZ 2,5
- UT 2,5 / WDU 2,5

### Mounting plates



galvanised steel  
laminated paper

- as from CP-370/CA
- up to CP-320

### External mounting brackets



for mounting without  
opening the covers

- stainless steel

### Mounting rails



TS-35  
TS-15

- as from CA-210/CP-220
- up to CA-190/CP-195

### Earthing bars



as option  
to PE terminals

- solid CU earthing
- as from CA-210/CP-220

# Monitor housings for zone 2/22

To enable the use of controllers and operating units in explosive areas of **zones 2 and 22**, monitor and controller housings of the CC-4000 series, CC-800 series and the CA and CP series with customised assemblies can be used.



## Zone 22

For operation in **zone 22** (Dust 3D) the housings are designed to ensure explosion protection type tc (pro-texction by housing). The basic preconditions for this are:

- Enclosure and suspension system **protection class IP 6x**
- All add-on parts with **type examination certificates or rather CE declaration of conformity for zone 22**
- **Max. permissible surface temperature +80 °C**
- The **assembly** of all externally accessible parts at BERNSTEIN AG
- Issuing of a **manufacturer declaration / CE declaration of conformity** for the complete housing by BERNSTEIN AG
- Documentation and monitored production by **ATEX-QA**

## Zone 2

For operation in **zone 2** (Gas 3G) the housings are designed to ensure explosion protection type Ex nA (non-sparking device) and/or Ex i (intrinsic safety). The basic preconditions for this are:

- Enclosure and suspension system **protection class min. IP 54**
- All add-on and built-in parts with **type examination certificates or CE declaration of conformity for zone 2**

## Sensors for potentially explosive atmospheres

BERNSTEIN offers a wide range of sensors for monitoring and controlling machines in areas with a risk of explosion. They include magnetic switches with reed contact, inductive NAMUR sensors and inductive sensors with switching output. The range of BERNSTEIN include many designs and sizes.



### Technical Data Magnetic Switches

- Operating voltage range max. 250 V DC
- Output current max. 1 A
- Ambient temperature -20 °C to +60 °C
- Protection class IP 66
- Cable 3 x 0,75 mm<sup>2</sup>
- Red, PA enclosure
- Suitable for **zones 1, 2, 21, 22 (2G/2D)**

# Technical Data Sensors

Type	Article number ATEX	Sensor type
MAK-1513-LEX-3	6316315001	Magnetic switch
MAK-1513-LEX-1	6316315308	Magnetic switch
MAK-1513-LEX-7	6316315344	Magnetic switch
MAK-1513-LEX-10	6316315654	Magnetic switch
KIB-M05EA/001-2G	6521699002	NAMUR sensor M5 flush
KIB-M08EA/1,5-2G	6521601003	NAMUR sensor M8 flush
KIB-M12EA/002-2G	6521624004	NAMUR sensor M12 flush
KIB-M18EA/005-2G	6521626005	NAMUR sensor M18 flush
KIB-M30EA/010-2G	6521699006	NAMUR sensor M30 flush
KIN-M08EA/002-2G	6521601007	NAMUR sensor M8 non-flush
KIN-M12EA/004-2G	6521625008	NAMUR sensor M12 non-flush
KIN-M18EA/008-2G	6521627001	NAMUR sensor M18 non-flush
KIB-M12PS/002-KL2D	6522903009	Inductive sensor M12 flush
KIN-M12PS/004-KL2D	6522904010	Inductive sensor M12 non-flush
KIB-M12PS/002-KLS12D	6522943011	Inductive Sensor M12 flush
KIN-M12PS/002-KLS12D	6522944012	Inductive sensor M12 non-flush
KIB-M18PS/005-KL2D	6522905013	Inductive sensor M18 flush
KIN-M18PS/008-KL2D	6522906014	Inductive sensor M18 non-flush
KIB-M18PS/005-KLS12D	6522905015	Inductive sensor M18 flush
KIN-M18PS/008-KLS12D	6522906016	Inductive sensor M18 non-flush
KIB-M30PS/010-KL2D	6522907017	Inductive sensor M30 flush
KIN-M30PS/015-KL2D	6522908018	Inductive sensor M30 non-flush
KIB-M30PS/010-KLS12D	6522907019	Inductive sensor M30 flush
KIN-M30PS/015-KLS12D	6522908020	Inductive sensor M30 non-flush

## Technical Data NAMUR Sensors

- Operating voltage range max. 30 V DC
- NAMUR output
- Ambient temperature -25 °C to +60 °C
- Protection class IP 67
- Cable from 2 x 0,14 mm<sup>2</sup> up to 2 x 0,5 mm<sup>2</sup>
- Metal enclosure from M5 up to M30
- Suitable for **zones 2, 22 (3G/3D)**

## Technical Data Inductive Sensors

- Operating voltage range 10–25 V DC
- Output current < 200 mA
- PNP switching output
- Ambient temperature -25 °C to +70 °C
- Protection class IP 67
- Cable connection
- Metal enclosure from M12 up to M30
- Suitable for **zones 2, 22 (3G/3D)**

# Electromechanical Switches for potentially explosive atmospheres



An Ex d-certified snap-action switch lies at the core of the Ex-approved switches. This switch with protection class **flameproof encapsulation** can be used in **zones 1 and 2**.

The snap-action switch has two galvanically isolated contacts, one NC contact and one NO contact. It is designed for use as a mechanically protected built-in switch in housings, control and monitoring devices. It is available with different actuators for this purpose.

The switch insert is also used in various switch housings with different actuating devices.

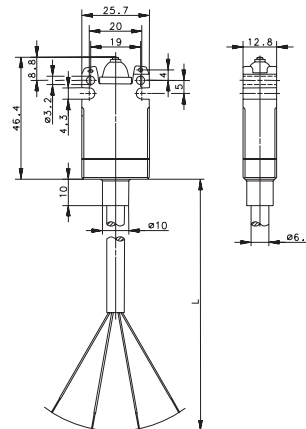
For potentially explosive atmospheres, BERNSTEIN proposes the **ENM2** and **GC** series as position switches, the **F** series as foot switches and the **SD** series as rope pull switches.

However, the **SI2** and **SN3** series as rope pull switches and belt alignment switches are also possible for the use in **zones 21 and 22**.

# Snap-action Switch

## EEX-SU1...

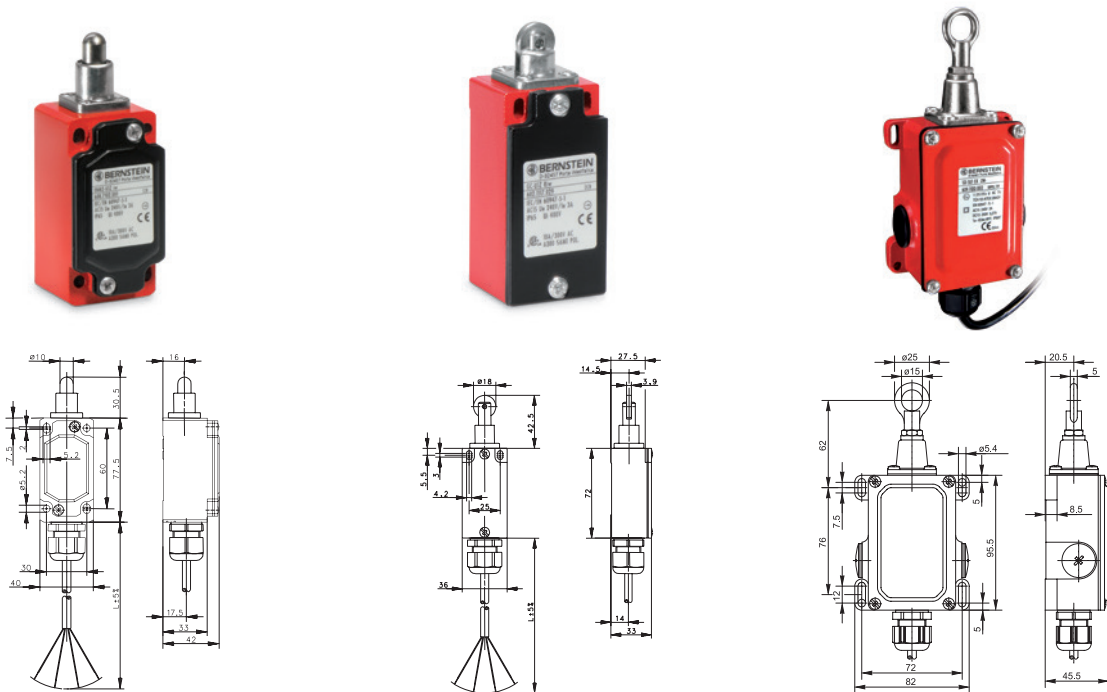
Type	Article number	Type of switch
EEX-SU1Z W-2M-	6090153002	Version with plunger 2 m cable
EEX-SU1Z W-9M-	6090153005	Version with plunger 9 m cable
EEX-SU1Z RH-2M-	6090148022	Version with roller lever 2 m cable
EEX-SU1Z RH-5M-	6090148024	Version with roller lever 5 m cable
EEX-SU1Z RH-9M-	6090148025	Version with roller lever 9 m cable
EEX-SU1Z RHL-2M-	6090149027	Version with roller lever lang 2 m cable
EEX-SU1Z RHL-5M-	6090149029	Version with roller lever lang 5 m cable
EEX-SU1Z UH-2M-	6090146012	Version with extended stroke lever 2 m cable
EEX-SU1Z UH-5M-	6090146014	Version with extended stroke lever 5 m cable
EEX-SU1Z FH-2M-	6090145007	Version with flat lever 2 m cable
EEX-SU1Z FH-9M-	6090145010	Version with flat lever 9 m cable



### Technical Data EEX-SU1Z

- Certification Ex II 2G Ex d IIC T6
- Rated insulation voltage 250 V
- Rated operating voltage 230 V AC
- Conventional thermal current 5 A
- Utilization category / switching capacity  
AC 15 240 V / 3 A  
DC 13 250 V / 0,27 A
- Mechanical switching frequency max. 120 / min.
- Mechanical service life  
2 x 10<sup>6</sup> switching cycles
- 1 NC / 1 NO
- B10d: 4 million
- Suitable for **zones 1, 2 (2G)**
- Admissible ambient temperature -20 °C to +60 °C
- Protection class IP 66 according to IEC 60529
- PEI enclosure

# Position Switch series ENM2 and GC, Rope Pull Switch SD



## Types ENM2 and GC

- Standard switch conforming to DIN EN 50041
- Standard actuator conforming to DIN EN 50041, Type A, B, C, D
- Protection class IP 66 to VDE 0470 T1
- Aluminium pressure die-casting enclosure
- Sheet aluminium cover
- Actuator can be repositioned by 4 x 90°
- Cable entry M20 x 1.5
- Metal actuators for high loads

# Ordering data

## ENM2, GC and SD

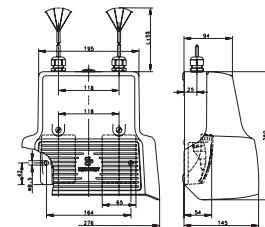
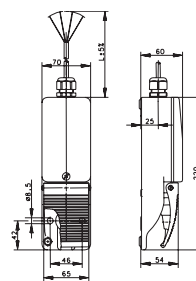
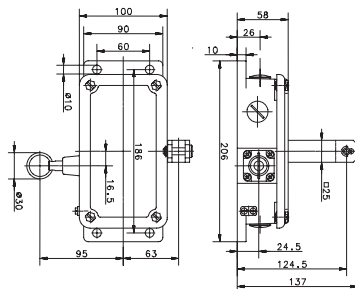
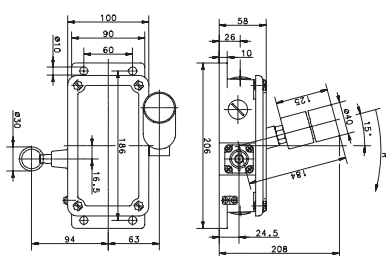
Type	Article number	Type of switch
ENM2-SU1Z EX IW -2M-	6097152052	Version with plunger 2 m cable
ENM2-SU1Z EX IW -5M-	6097152054	Version with plunger 5 m Cable
ENM2-SU1Z EX IW -9M-	6097152055	Version with plunger 9 m Cable
ENM2-SU1Z EX HW -2M-	6097171072	Version with lever 2 m cable
ENM2-SU1Z EX HW -5M-	6097171074	Version with lever 5 m cable
ENM2-SU1Z EX HW -9M-	6097171075	Version with lever 9 m cable
ENM2-SU1Z EX RIW -2M-	6097167062	Version with roller 2 m cable
ENM2-SU1Z EX RIW -5M-	6097167064	Version with roller 5 m cable
ENM2-SU1Z EX RIW -9M-	6097167065	Version with roller 9 m Cable
ENM2-SU1Z EX AHT -2M-	6097185082	Version with spindle-mounted lever 2 m cable
ENM2-SU1Z EX AHT -5M-	6097185084	Version with spindle-mounted lever 5 m cable
ENM2-SU1Z EX AHT -9M-	6097185085	Version with spindle-mounted lever 9 m cable
ENM2-SU1Z EX AD -2M-	6097187092	Version with spindle-mounted lever Draht 2 m cable
ENM2-SU1Z EX AD -5M-	6097187094	Version with spindle-mounted lever Draht 5 m cable
ENM2-SU1Z EX AD -9M-	6097187095	Version with spindle-mounted lever Draht 9 m cable
ENM2-SU1Z EX FF -2M-	6097190097	Version with spring feeler 2 m cable
ENM2-SU1Z EX FF -5M-	6097190099	Version with spring feeler 5 m cable
ENM2-SU1Z EX FF -9M-	6097190100	Version with spring feeler 9 m cable
GC-SU1Z EX IW -2M-	6092152002	Version with plunger 2 m cable
GC-SU1Z EX IW -5M-	6092152004	Version with plunger 5 m cable
GC-SU1Z EX IW -9M-	6092152005	Version with plunger 9 m cable
GC-SU1Z EX HW -5M-	6092171024	Version with lever 5 m cable
GC-SU1Z EX HW -9M-	6092171025	Version with lever 9 m cable
GC-SU1Z EX RIW -2M-	6092167012	Version with roller 2 m cable
GC-SU1Z EX RIW -9M-	6092167015	Version with roller 5 m cable
GC-SU1Z EX AHW -2M-	6092185032	Version with spindle-mounted lever 2 m cable
GC-SU1Z EX AHW -5M-	6092185034	Version with spindle-mounted lever 5 m cable
GC-SU1Z EX AHW -9M-	6092185035	Version with spindle-mounted lever 9 m cable
SD-SU1 EX -2M-	6091100002	Version with 2 m cable
SD-SU1 EX -5M-	6091100004	Version with 5 m cable
SD-SU1 EX -9M-	6091100005	Version with 9 m cable

### Technical Data ENM2, GC and SD

- Identification Ex II 2G Ex d IIC T6
- Rated insulation voltage 250 V
- Rated operating voltage 230 V AC
- Conventional thermal current 5 A
- Utilization category / switching capacity:  
AC 15 240 V / 3 A  
DC 13 250 V / 0,27 A
- Mechanical switching frequency max. 50 / min.
- Mechanical service life  
2 x10<sup>6</sup> switching cycles
- 1 NC / 1 NO
- B10d: 4 million
- Suitable for **zones 1, 2 (2G)**
- Admissible ambient temperature -20 °C to +60 °C
- Protection class IP 66 according to IEC 60529
- Aluminium pressure die-casting enclosure



# Foot Switch series F, Rope Pull Switch and Belt Alignment Switch series SI2



## Belt alignment switch

In conveyor belt applications, the safety switch prevents conveyor belts from being damaged or being destroyed as the result of the belt running off track. When the roller lever is deflected by a conveyor belt running off track the safety contacts in the switch engage, thus shutting down the conveyor belt.

Only after eliminating the cause of the malfunction can the system be restarted by means of the pull release (key ring).

## Rope pull switch

BERNSTEIN double-spanned cable pull switches Si2 are also used in emergency stop applications. When the cable is pulled the switching lever is deflected in the corresponding direction and the system shut down. These rope pull switches can be used in applications with high temperature fluctuations and long cable spans. With their sturdy enclosure, these switches are perfect for harsh environments. Two cables spanned in opposite directions are attached to the switching device. The counter springs are secured to the wall at the ends of the cables. Provided the change in temperature is the same at all points along the cable, the springs will effectively compensate for the change in cable length.

## Footswitch

BERNSTEIN offers you a wide range of foot switches to meet exacting requirements in industrial applications. They can be optionally equipped with an aluminium cover panel or a protective hood (UN) and have the protection class IP 66. The ambient temperature can reach from  $-30^{\circ}\text{C}$  up to  $+60^{\circ}\text{C}$ . The mounting holes make it possible to anchor the foot switch to the floor. Each foot switch is equipped with four rubber feet to prevent it slipping. The separators on multi-pedal foot switches prevent several pedals being inadvertently operated simultaneously (version without separators available on request). Type F1–F3 foot pedals are made from a thermoplastic material.

## Ordering data

Type	Article number	Type of switch
F1-SU1Z EX UN-2M-	6096197017	Foot switch 1 pedal with protective hood 2 m cable
F1-SU1Z EX UN-5M-	6096197019	Foot switch 1 pedal with protective hood 5 m cable
F1-SU1Z EX -5M-	6096198014	Foot switch 1 pedal without protective hood 5 m cable
F2-SU1Z EX UN-5M-	6096197029	Foot switch 2 pedals with protective hood 5 m cable
F1-SU1Z EX -2M-	6096198022	Foot switch 2 Pedale without protective hood 2 m cable
SI2-U2Z AW EXD	6091295025	Belt alignment switch
SI2-U2Z AK EXD	6091288024	Rope pull switch

### Technical Data SI2 series

- Identification Ex II 3D Ex tD A22 IP65 T80°C
- Rated insulation voltage 400 V
- Rated operating voltage 240 V AC
- Conventional thermal current 10 A
- Utilization category /switching capacity:  
AC 15 240 V / 3 A
- Mechanical switching frequency max. 10 / min.
- Mechanical service life  
2 x 10<sup>6</sup> switching cycles
- 2 NC / 2 NO
- B10d: 4 million
- Suitable for **zones 22 (3D)**
- Admissible ambient temperature -20 °C to +60 °C
- Protection class IP 65 according to IEC 60529
- Metal enclosure

### Technical data foot switches

- Identification Ex II 2G Ex d IIC T6
- Rated insulation voltage: 250 V
- Rated operating voltage 230 V AC
- Conventional thermal current 5 A
- Utilization category /switching capacity:  
AC 15 240 V / 3 A  
DC 13 250 V / 0,27 A
- Mechanical switching frequency max. 50 / min.
- Mechanical service life  
2 x 10<sup>6</sup> switching cycles
- 1 NC / 1 NO
- B10d: 4 million
- Suitable for **zones 1, 2 (2G)**
- Admissible ambient temperature -20 °C to +60 °C
- Protection class IP 66 according to IEC 60529
- Aluminium pressure die-casting enclosure