

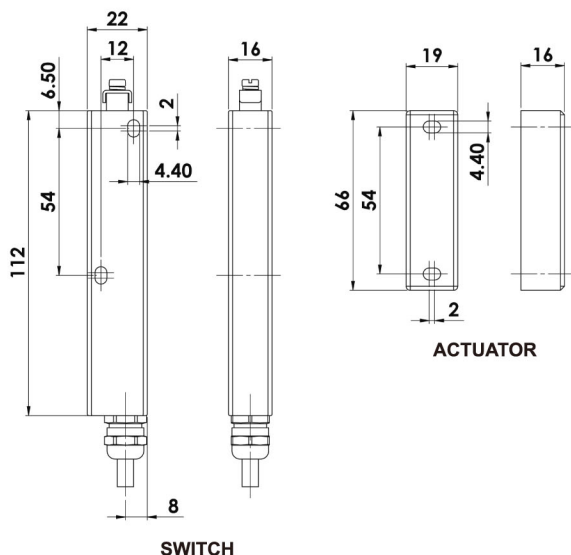
Explosion Proof Non Contact Safety Interlock Switches



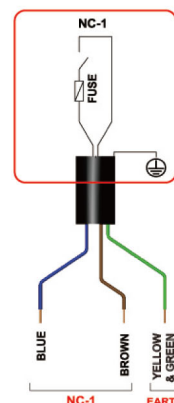
II 2G Ex mb IIC T6 Gb

II 2D Ex mb IIIC T80 Db IP67*

Zones 1, 21, 2, 22 Gas and Dust



CM1-Ex

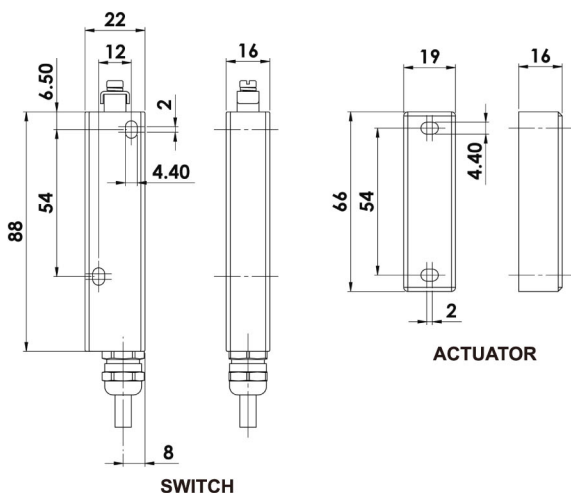


Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) NC
901101	CM1-Ex	S / Steel	5M	1NC	230V.ac / 24Vdc 2A. Max. Internally Fused
901102	CM1-Ex	S / Steel	10M	1NC	

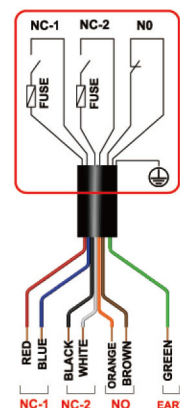
II 2G Ex mb IIC T6 Gb

II 2D Ex mb IIIC T80 Db IP67*

Zones 1, 21, 2, 22 Gas and Dust



CM2-Ex



Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) NC	Electrical Rating Normally Open Circuits (Actuator Present) NO
902103	CM2-Ex	S / Steel	5M	1NC	230V.ac / 24Vdc 1A. Max. Internally Fused	
902104	CM2-Ex	S / Steel	10M	1NC		
902105	CM2-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally Fused	230V.ac / 24Vdc 200mA. Max.
902106	CM2-Ex	S / Steel	10M	2NC 1NO		

* Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67

Explosion Proof Non Contact Safety Interlock Switches



II 2G Ex mb IIC T6 Gb

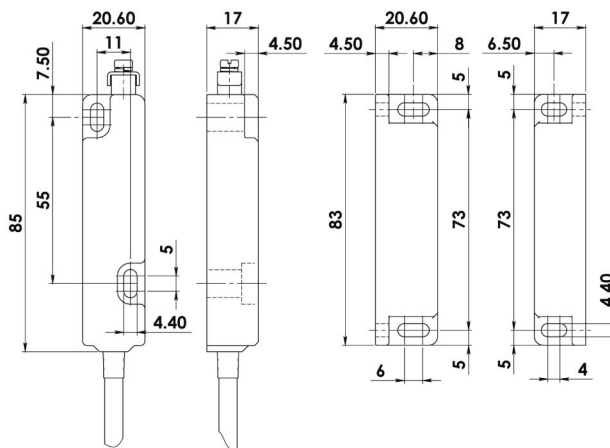


II 2D Ex mb IIIC T80 Db IP67*

Zones 1, 21, 2, 22 Gas and Dust



CM3-Ex



SWITCH

ACTUATOR

Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) NC	Electrical Rating Normally Open Circuits (Actuator Present) NO
903101	CM3-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally Fused	230V.ac / 24Vdc 200mA. Max.
903102	CM3-Ex	S / Steel	10M	2NC 1NO		

Technical and Safety Specification :

Standards IEC/EN 60079-0 IEC/EN 60079-18
EN1088 IEC 947-5-3 EN 60204-1
ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d 3.3 x 10⁶ operations at 100mA load
EN 954-1 up to Category 4 with Safety Relay
ISO 13849-1 up to PLe depending upon system architecture
EN 62061 up to SIL3 depending upon system architecture
Safety Data - Annual Usage 8 cycles per hour / 24 hours per day / 365 days
PFHd 2.52 x 10⁻⁸
Proof Test Interval (Life) 47 years
MTTFd 470 years

Contact release time <2ms
Initial contact resistance <500 milliohm
Minimum switched current 10V. dc 1mA
Insulation Resistance 100 Mohms
Recommended setting gap 5mm
Switching Distance: Sao 10mm Close
(Target to target) Sar 22mm Open
Approach speed 200mm/m. to 1000mm/s.
Temperature Range -20 / +80C. (or +60C at 2A)
Enclosure Protection IP67
Shock Resistance IEC 68-2-27 11ms 30g
Vibration Resistance IEC 68-2-6 10-55 Hz. 1mm
Cable Type 6mm O.D.
Mounting Position Any
Approval Body BASEEFA UK

*** Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67**

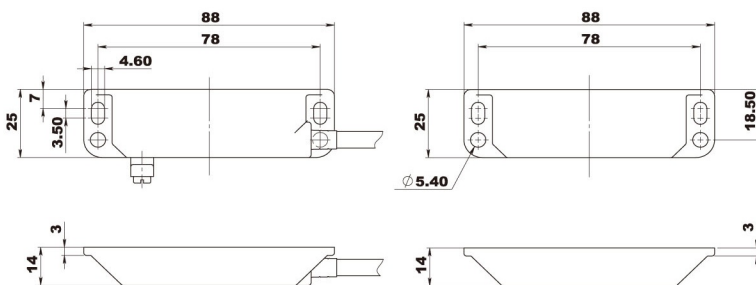
Explosion Proof Non Contact Safety Interlock Switches



II 2G Ex mb IIC T6 Gb

II 2D Ex mb IIIC T80 Db IP67*

Zones 1, 21, 2, 22 Gas and Dust

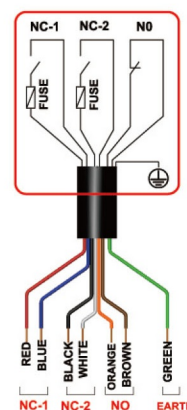


SWITCH

ACTUATOR

LM-Ex

Sales Number	Type Zones 1,21,2,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator Present) Red/Blue NC1 White/Black NC2	Electrical Rating Normally Open Circuits (Actuator Present) Orange/Brown NO
					230V.ac / 24Vdc 0.6A. Max. Internally Fused	230V.ac / 24Vdc 200mA. Max.
904101	LM-Ex	S / Steel	5M	2NC 1NO		
904102	LM-Ex	S / Steel	10M	2NC 1NO		



* Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67

Technical and Safety Specification :

Standards	IEC/EN 60079-0 IEC/EN 60079-18 EN1088 IEC 947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d EN 954-1	3.3 x 10 ⁶ operations at 100mA load up to Category 4 with Safety Relay
ISO 13849-1 EN 62061	up to PLe depending upon system architecture up to SIL3 depending upon system architecture
Safety Data - Annual Usage PFHd	8 cycles per hour / 24 hours per day / 365 days 2.52 x 10 ⁻⁸
Proof Test Interval (Life) MTTFd	47 years 470 years

Contact release time	<2ms
Initial contact resistance	<500 milliohm
Minimum switched current	10V. dc 1mA
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance: (Target to target)	Sao 10mm Close Sar 22mm Open
Approach speed	200mm/m. to 1000mm/s.
Temperature Range	-20 / +80C. (or +60C at 2A)
Enclosure Protection	IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	6mm O.D.
Mounting Position	Any
Approval Body	BASEEFA UK

Explosion Proof Non Contact Safety Interlock Switches



II IG Ex ma IIC T6 Ga



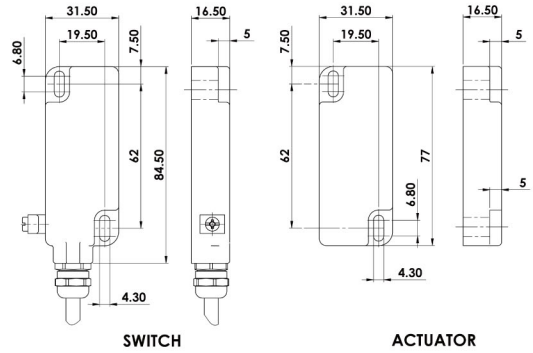
II ID Ex ma IIIC T80 Da IP67*

Zones 0,20,1,21,2,22 Gas and Dust

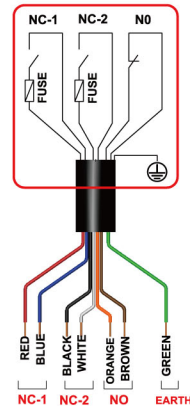


WM1-Ex

Stainless Steel housing - Supplied fitted with Stainless Steel Flexible conduit



Sales Number	Type Zones	Body Housing	Cable / Conduit Length	Circuits	Electrical Rating	Electrical Rating
					Normally Closed Circuits (Actuator present)	Normally Open Circuit (Actuator present)
900101	WM1-Ex	S / Steel	5M	2NC 1NO	Red/Blue NC1 White/Black NC2	Orange/Brown NO
900102	WM1-Ex	S / Steel	10M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max. Internally fused	230V.ac / 24Vdc 200mA. Max.



II 2G Ex mb IIC T6 Gb

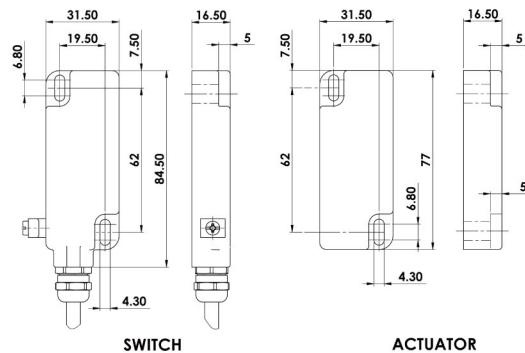


II 2D Ex mb IIIC T80 Db IP67*

Zones 1, 21, 2, 22 Gas and Dust

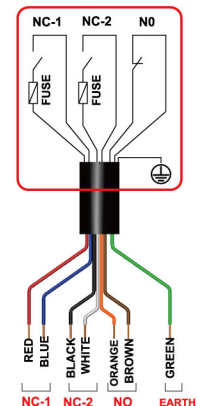


Stainless Steel



WM2-Ex

Sales Number	Type Zones	Body Housing	Cable Length	Circuits	Electrical Rating	Electrical Rating
					Normally Closed Circuits (Actuator present)	Normally Open Circuit (Actuator present)
900201	WM2-Ex	S / Steel	5M	2NC 1NO	Red/Blue NC1 White/Black NC2	Orange/Brown NO
900202	WM2-Ex	S / Steel	10M	2NC 1NO	230V.ac / 24Vdc 2A. Max. Internally fused	230V.ac / 24Vdc 200mA. Max.



* Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67

Explosion Proof Non Contact Safety Interlock Switches

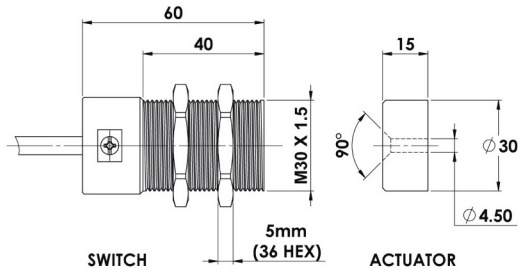


II 2G Ex mb IIC T6 Gb



II 2D Ex mb IIIC T80 Db IP67*

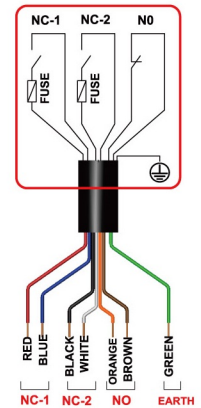
Zones 1, 21, 2, 22 Gas and Dust



RM-Ex

Stainless Steel 316 M30 x 1.5mm threaded body

Sales Number	Type Zones 1,2,21,22	Body Housing	Cable Length 6mm O/D	Circuits	Electrical Rating Normally Closed Circuits (Actuator present)		Electrical Rating Normally Open Circuit (Actuator present)	
					Red/Blue White/Black	NC NC	Orange/Brown	NO
905101	RM-Ex	S / Steel	5M	2NC 1NO	230V.ac / 24Vdc 0.6A. Max.		230V.ac / 24Vdc 200mA. Max.	
905102	RM-Ex	S / Steel	10M	2NC 1NO	Internally fused			



Technical and Safety Specification :

Standards	IEC/EN 60079-0 IEC/EN 60079-18 EN1088 IEC 947-5-3 EN 60204-1 ISO 13849-1 EN62061 EN 954-1 UL508
Safety Classification and Reliability Data:	
Mechanical Reliability B10d	3.3 x 10 ⁶ operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PLe depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	2.52 x 10 ⁻⁸
Proof Test Interval (Life)	47 years
MTTFd	470 years

Contact release time	<2ms
Initial contact resistance	<500 milliohm
Minimum switched current	10V. dc 1mA
Insulation Resistance	100 Mohms
Recommended setting gap	5mm
Switching Distance:	Sao 10mm Close
(Target to target)	Sar 22mm Open
Approach speed	200mm/m. to 1000mm/s.
Temperature Range	-20 / +80C. (or +60C at 2A)
Enclosure Protection	IP67
Shock Resistance	IEC 68-2-27 11ms 30g
Vibration Resistance	IEC 68-2-6 10-55 Hz. 1mm
Cable Type	6mm O.D.
Mounting Position	Any
Approval Body	BASEEFA UK

*** Product is fully encapsulated which is considered to provide Ingress Protection to at least IP67**

Explosion Proof Emergency Stop Switches



(P) versions include button protection shroud and padlock holes for lock off.



ESL-SS(P)-Ex

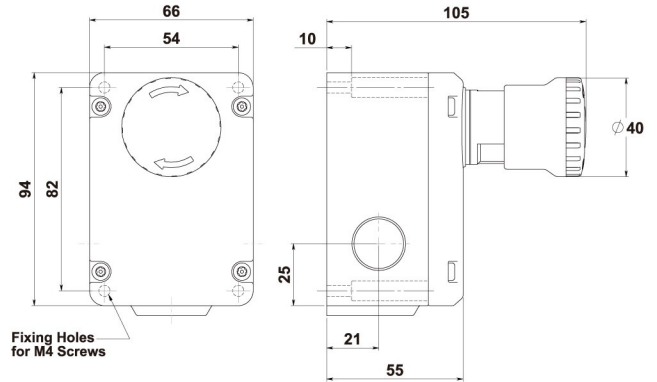


ESL-SS-Ex

Zones 1 and 2

Zones 21 and 22

Gas and Dust IP67



Sales Number	Type	Contacts
232015	ESL-SS(P)-Ex	1NC 1NO
232016	ESL-SS(P)-Ex	2NC
232030	ESL-SS(P)-Ex	2NC 2NO
232007	ESL-SS-Ex	1NC 1NO
232008	ESL-SS-Ex	2NC
232029	ESL-SS-Ex	2NC 2NO

All switches are pre-wired with 3m. length of cabling through the cable glands as shown. Other lengths and cable exits available upon request.

Exd IIC T6 (-20 ≤ Ta ≤ +60C) Gb

Ex tb IIC T85C (-20 ≤ Ta ≤ +60C) Db

Standards: IEC/EN 60079-0 IEC/EN 60079-1
EN1088 IEC 60947-5-1 EN 60204-1
ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d 1.5 x 10⁶ operations at 100mA load
EN 954-1 up to Category 4 with Safety Relay
ISO 13849-1 up to PLe depending upon system architecture
EN 62061 up to SIL3 depending upon system architecture
Safety Data - Annual Usage 8 cycles per hour / 24 hours per day / 365 days
PFHd <1.0 x 10⁻⁷
Proof Test Interval (Life) 21 years
MTTFd 214 years

Enclosure Protection IP69K IP67
Operating Temperature -20C +60C.
Vibration IEC 68-2-6, 10-55Hz+1Hz, Excursion: 0.35mm, 1 octave/min
Classification Exd IIC T6 (-20 ≤ Ta ≤ +60C) Gb
Ex tb IIC T85C (-20 ≤ Ta ≤ +60C) Db
Rated Voltage 250V a.c
Rated Current 2 Pole 4A.ac 4 Pole 2.5A.ac
Cable length 3m.

Explosion Proof Emergency Stop Switches



Exd IIC T6 (-20 ≤ Ta ≤ +60C) Gb



Ex tb IIIC T85C (-20 ≤ Ta ≤ +60C) Db

Zone 1, 2, 21, 22 environments. (Gas and Dust)



GLES-Ex



GLES-SS-Ex

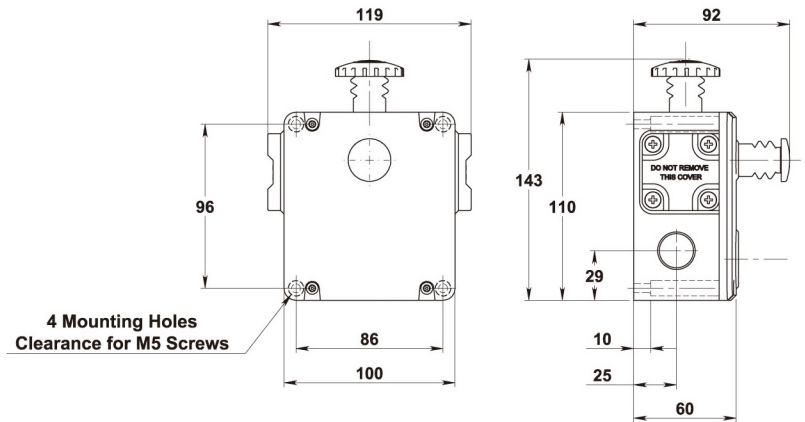
Sales Number	Type	Contacts
146003	GLES-Ex	1NC 1NO
146004	GLES-Ex	3NC 1NO
146005	GLES-Ex	2NC
146006	GLES-Ex	2NC 2NO
147003	GLES-SS-Ex	1NC 1NO
147004	GLES-SS-Ex	3NC 1NO
147005	GLES-SS-Ex	2NC
147006	GLES-SS-Ex	2NC 2NO

All switches are pre-wired with 3m. length of cabling through the cable glands as shown. Other lengths and cable exits available upon request.

Zones 1 and 2

Zones 21 and 22

Gas and Dust IP67



All Dimensions in mm

**HEAVY DUTY
EMERGENCY STOP**

Standards: IEC/EN 60079-0 IEC/EN 60079-1
EN1088 IEC 60947-5-1 EN 60204-1
ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d 1.5 x 10⁶ operations at 100mA load
EN 954-1 up to Category 4 with Safety Relay
ISO 13849-1 up to PLE depending upon system architecture
EN 62061 up to SIL3 depending upon system architecture
Safety Data - Annual Usage 8 cycles per hour / 24 hours per day / 365 days
PFHd <1.0 x 10⁻⁷
Proof Test Interval (Life) 21 years
MTTFd 214 years

Enclosure Protection IP69K IP67
Operating Temperature -20C +60C.
Vibration IEC 68-2-6, 10-55Hz+1Hz,
Excursion: 0.35mm, 1 octave/min
Classification Exd IIC T6 (-20 ≤ Ta ≤ +60C) Gb
Ex tb IIIC T85C (-20 ≤ Ta ≤ +60C) Db
Rated Voltage 250V a.c
Rated Current 2 Pole 4A.ac 4 Pole 2.5A.ac
Cable length 3m.

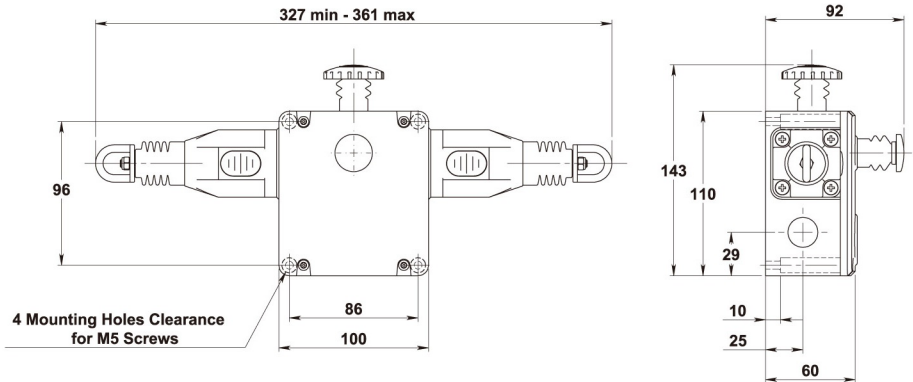
Explosion Proof Emergency Stop Switches

Rope Pull Emergency Stop Switches

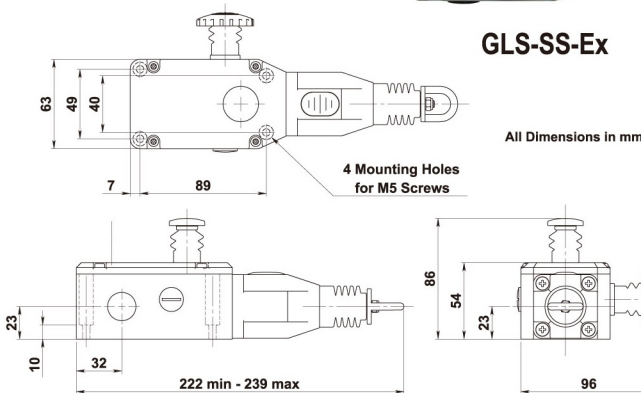
Zones 1 and 2

Zones 21 and 22

Gas and Dust IP67



All switches are pre-wired with 3m. length of cabling through the cable glands as shown. Other lengths and cable exits available upon request.



Standards: IEC/EN 60079-0 IEC/EN 60079-1
EN1088 IEC 60947-5-1 EN 60204-1
ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d	1.5 x 10 ⁶ operations at 100mA load
EN 954-1	up to Category 4 with Safety Relay
ISO 13849-1	up to PL _e depending upon system architecture
EN 62061	up to SIL3 depending upon system architecture
Safety Data - Annual Usage	8 cycles per hour / 24 hours per day / 365 days
PFHd	<1,0 x 10 ⁻⁷
Proof Test Interval (Life)	21 years
MTTFd	214 years

Sales Number	Type	Contacts
141003	GLHD-Ex	1NC 1NO
141014	GLHD-Ex	3NC 1NO
141017	GLHD-Ex	2NC
141018	GLHD-Ex	2NC 2NO
141007	GLHL-Ex	1NC 1NO
141015	GLHL-Ex	3NC 1NO
141019	GLHL-Ex	2NC
141020	GLHL-Ex	2NC 2NO
141011	GLHR-Ex	1NC 1NO
141016	GLHR-Ex	3NC 1NO
141021	GLHR-Ex	2NC
141022	GLHR-Ex	2NC 2NO
145003	GLHD-SS-Ex	1NC 1NO
145014	GLHD-SS-Ex	3NC 1NO
145017	GLHD-SS-Ex	2NC
145018	GLHD-SS-Ex	2NC 2NO
145007	GLHL-SS-Ex	1NC 1NO
145015	GLHL-SS-Ex	3NC 1NO
145019	GLHL-SS-Ex	2NC
145020	GLHL-SS-Ex	2NC 2NO
145011	GLHR-SS-Ex	1NC 1NO
145016	GLHR-SS-Ex	3NC 1NO
145021	GLHR-SS-Ex	2NC
145022	GLHR-SS-Ex	2NC 2NO
142025	GLS-Ex	1NC 1NO
142028	GLS-Ex	2NC
142030	GLS-Ex	2NC 2NO
144025	GLS-SS-Ex	1NC 1NO
144026	GLS-SS-Ex	2NC
144030	GLS-SS-Ex	2NC 2NO

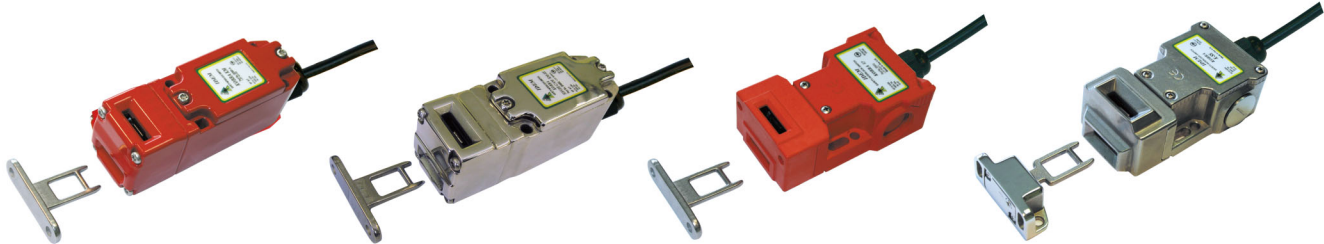
Enclosure Protection	IP69K IP67
Operating Temperature	-20C +60C.
Vibration	IEC 68-2-6, 10-55Hz+1Hz,
Classification	Excursion: 0.35mm, 1 octave/min Exd IIC T6 (-20≤Ta≤+60C) Gb Ex tb IIIC T85C (-20≤Ta≤+60C) Db
Rated Voltage	250V a.c
Rated Current	2 Pole 4A.ac 4 Pole 2.5A.ac
Cable length	3m.

Kobra - Explosion Proof Tongue Interlock Switches



Tongue Interlock Switches for use in Hazardous Areas.
ATEX approved contact blocks. Gas and Dust (Zones 1, 2, 21, 22)

Functional Safety up to PLe ISO13849-1
IP69K suitable for harsh environments



Tongue Interlock Safety Switches for use in Hazardous Areas – positively operated ATEX Certified contact blocks.
For use in hazardous areas IECEx and ATEX EExd IIC T6. (Gas and Dust).
These switches conform to harmonized standards IEC/EN 60079-0 and IEC/EN 60079-1.
Suitable for European Zones 1, 2, and 21, 22. Designed for Petro-chemical and food applications where explosive atmospheres are present.

- Exd IIC T6 (-20 ≤ Ta ≤ +60C) Gb
- Ex tb IIIC T85C (-20 ≤ Ta ≤ +60C) Db

Application:

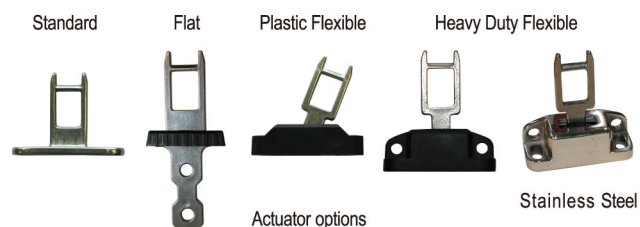
IDEM ATEX approved Tongue operated Safety Interlock switches are designed to fit to the leading edge of sliding, hinged or lift off machine guards to provide positively operated switching contacts and provide a tamper resistant, not easily defeatable key mechanism. They are designed to provide robust position interlock detection for moving guards within areas which have an explosion risk atmosphere. Depending upon the risk assessment for the application, they can be used independently to provide positive interlocking to IEC 60947-5-1 or they can be used in combination with any dual channel safety monitoring relays to provide functional safety up to PLe ISO 13849-1 or SIL3 EN62061.

Operation:

The switch is rigidly mounted to the frame of the guard or machine. The actuator is fitted to the moving part (frame) of the guard and is aligned to the switch entry aperture. The actuator profile is designed to match a cam mechanism within the switch head and provides a positively operated not easily defeatable interlock switch. When the actuator is inserted into the switch the safety contacts close and allow the machine start circuit to be enabled. When the actuator is withdrawn from the switch the safety contacts are positively opened and the machine circuit is broken. The internal contact blocks are robust, fully encapsulated and pre-wired.

Features:

- High Power Switching up to 230V.ac 4A.
- 1NC 1NO or 2NC or 2NC 2NO
- High tolerance to guard misalignment
- Enclosure Protected to IP67 and IP69K
- Conformance to IEC 60947-5-1 Positively operated
- Rotatable heads to give up to 8 actuator entry positions
- Resistant to high temperature hosing and detergent washdown
- Choice of actuators to suit mounting conditions and alignment
- 2 enclosure shapes are available providing Plastic, Die cast painted or Stainless Steel
- High temperature stability up to 60C.
- Resistance to many organic and inorganic chemicals

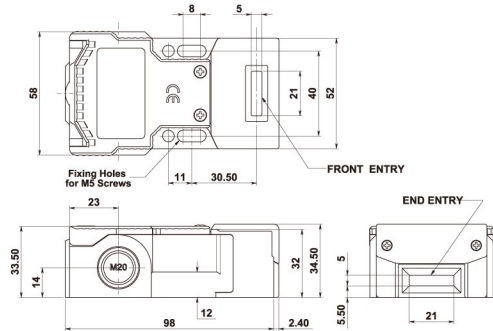


Kobra - Explosion Proof Tongue Interlock Switches

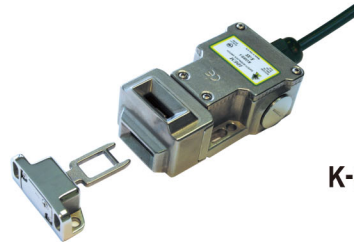


KP-Ex

Polyester Housing
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67

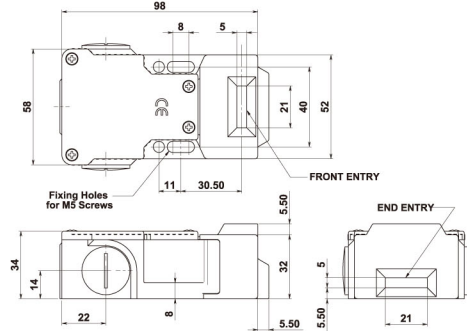


Sales Number	Type	Pre-wired	Contacts
200016	Kobra KP-Ex	3m. 4 core	1NC 1NO
200019	Kobra KP-Ex	3m. 4 core	2NC
200026	Kobra KP-Ex	3m. 8 core	2NC 2NO
Stainless Steel Head Version Add SS to Sales Part Number			



K-SS-Ex

Stainless Steel 316 Housing
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67



Sales Number	Type	Pre-wired	Contacts
208016	Kobra K-SS-Ex	3m. 4 core	1NC 1NO
208019	Kobra K-SS-Ex	3m. 4 core	2NC
208026	Kobra K-SS-Ex	3m. 8 core	2NC 2NO

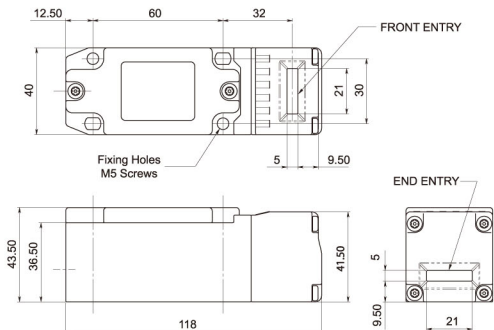
Add Actuator code to part number:

A-Standard, F-Flat, PF-Plastic Flexible, HF-Heavy Flexible, HFH-Heavy Flexible Stainless Steel



KM-Ex

Die Cast Housing (Painted Red)
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67

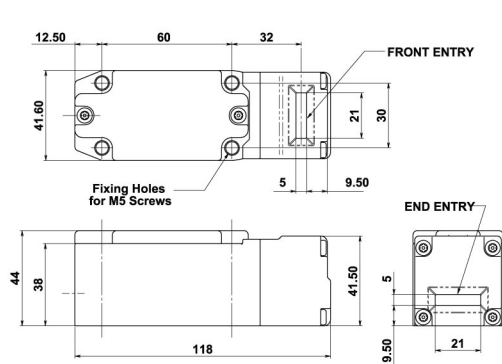


Sales Number	Type	Pre-wired	Contacts
203016	Kobra KM-Ex	3m. 4 core	1NC 1NO
203019	Kobra KM-Ex	3m. 4 core	2NC
203026	Kobra KM-Ex	3m. 8 core	2NC 2NO
Stainless Steel Head Version Add SS to Sales Part Number			



KM-SS-Ex

Stainless Steel 316 Housing
Zones 1 and 2 Zones 21 and 22 Gas and Dust IP67



Sales Number	Type	Pre-wired	Contacts
204016	Kobra KM-SS-Ex	3m. 4 core	1NC 1NO
204019	Kobra KM-SS-Ex	3m. 4 core	2NC
204026	Kobra KM-SS-Ex	3m. 8 core	2NC 2NO

Add Actuator code to part number:

A-Standard, F-Flat, PF-Plastic Flexible, HF-Heavy Flexible, HFH-Heavy Flexible Stainless Steel

Standards IEC/EN 60079-0 IEC/EN 60079-1
EN1088 IEC 60947-5-1 EN 60204-1
ISO 13849-1 EN62061 EN 954-1 UL508

Safety Classification and Reliability Data:

Mechanical Reliability B10d 2.5 x 10⁶ operations at 100mA load
EN 954-1 up to Category 4 with Safety Relay
ISO 13849-1 up to PLe depending upon system architecture
EN 62061 up to SIL3 depending upon system architecture
Safety Data - Annual Usage 8 cycles per hour / 24 hours per day / 365 days
PFHd 3.44 x 10⁻⁸
Proof Test Interval (Life) 35 years
MTTFd 356 years

Travel for Positive Opening 8mm
Actuator entry minimum radius 175mm Standard
Enclosure Protection IP69K IP67
Operating Temperature -20C +60C.
Vibration IEC 68-2-6, 10-55Hz+1Hz,
Excursion: 0.35mm, 1 octave/min
Classification Exd IIC T6 (-20≤Ta≤+60C) Gb
Ex tb IIIC T85C (-20≤Ta≤+60C) Db
Rated Voltage 250V a.c
Rated Current 2 Pole 4A.ac 4 Pole 2.5A.ac
Cable length 3m.