

Catalogue



Safety equipments for conveyor belts

MEYLE

... three companies, one service ...

IHM

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Rotation Speed Monitor Type Al-Ni 6

Operation instructions



General

The Al-Ni 6 is for attachment to the shaft end of large machines or motors to monitor their running up, reaching the nominal speed and stopping at braking. Monitoring of conveyor belts is possible by rolling wheels.

The Al-Ni 6 is the successor of the proven Al-Ni 5.

It's dimensions at clutch flange and size have been maintained from it's predecessor and the function principle is compatible. With respect to the lower switching power the Al-Ni 6 is appropriate for monitoring slow-down, revolution and conveyor belts.

As an advantage the Al-Ni 6 features a digital adjustment of the switching speed (r.p.m.) by

code switches. The adjustment range is from 60 r.p.m. up to 6000 r.p.m. (1-100 revolutions per second) in steps of 60 r.p.m. and can be set independently for left and right turning.

Function Principle

When the shaft is turned a stepper motor induces the supply power for the signal processing circuits and the signal voltages for determination of revolution and direction.

When the speed selected by the code switches is reached relay 1 switches at left turning and relay 2 switches at right turning.

Switching Speed

For adjustment of the switching speed the coding switches, two for each turning direction, are to be set by a small screw driver.

The digits 01 to 99 can be adjusted directly, the adjustment 00 is interpreted to 100 revolutions per seconds.

The switching hysteresis is 30 - 60 r.p.m. (0,5 - 1 revolutions per second).

Switching Performance

The switching performance is determined by the contacts of the **bistable** relay. The max. values for voltage, current and switching power (resistive) are given in the following table.

Switching Performance

max. voltage	400V AC	240V DC
max. current	5A	5A

max. switching power 1250VA 150W

Connecting Ports

The connecting ports are suitable for wires up to 2.5 mm². For insertion of the wires the cage clamp must be opened by the by-packed tool or alternatively by pressing with a suitable screw driver from the front or rear side. The connecting port allocation is given in Fig. 2.

Warning

Hazardous voltage may appear at the electrical ports even when the device has stopped. Therefore, the power supply must be switched off prior to opening the device. Entrance of humidity into the opened device must be avoided.

Technical Data

Supply voltage:	Internally generated
Nominal speed range:	60 to 6.000 r.p.m. (1 to 1.00 r.p.s.)
Relay contacts:	2 alternators, for left and right turning
Switching performance:	max. 400V AC, 5A, 1250VA max. 240V DC, 5A, 150W (resistive)

Mechanical Data

Adaptation:	Pin adapter with plugged elastic clutch
Cable entry:	PG 16, for cable \checkmark 7 to 12 mm
Housing material:	Glass fibre reinforced plastic; oil, grease and acid resistant
Housing dimensions:	According to fig. 1
Flange diameter:	120 mm
Shaft bearing:	2 ball bearings
Environmental temperature:	Operating -25°...+70°C Storage -40°...+80°C Transport -40°...+80°C
Enclosure:	IP 65

Procurement Data

Rotation speed monitor Al-Ni 6	Ident.No.: AS999
Elastic clutch	Ident.No.: AS996

Testing and Qualification of the Item

Humidity:	DIN IEC 68-2-30		
	Lower temp.:	+25°C / 97% rel. hum.	
	Upper temp.:	+55°C / 93% rel. hum.	
	Test duration:	6 days	
Vibration:	DIN EN 60 068 -2 -6		
	Frequency:	10 - 150Hz	
	Amplitude:	0,35mm	
	Resp. acceleration:	5g (20 Cycles per axis)	
Shock loads:	DIN EN 60 068 -2 -27		
	Shocktype:	semi-sine	
	Amplitude:	30g	
	Duration:	18ms (3 Shocks per orientation)	
Long term shock loads:		DIN EN 60 068 -2 -29	
	Shocktype:	semi-sine	
	Amplitude:	25g	
	Duration:	6ms (1000 Shocks per orientation)	
Isolation:	DIN / VDE 0435 Part 303		
	Check value:	2kV AC	
Susceptibility:	Conducted susc.:	DIN / EN 50141	10 V
	Radiated susc.:	DIN ENV 50140	10 V/m
	Electrostatic discharge:	DIN EN 61 000-4-8	
		Contact	4 kV
		Air gap	8 kV
	Burst:	DIN EN 61 000-4-4	2 kV
	Surge:	DIN EN 61 000-4-5	
		asymmetrical	4 kV
		symmetrical	2 kV
Emission:	Radiated emission:	DIN EN 55 022	Line B

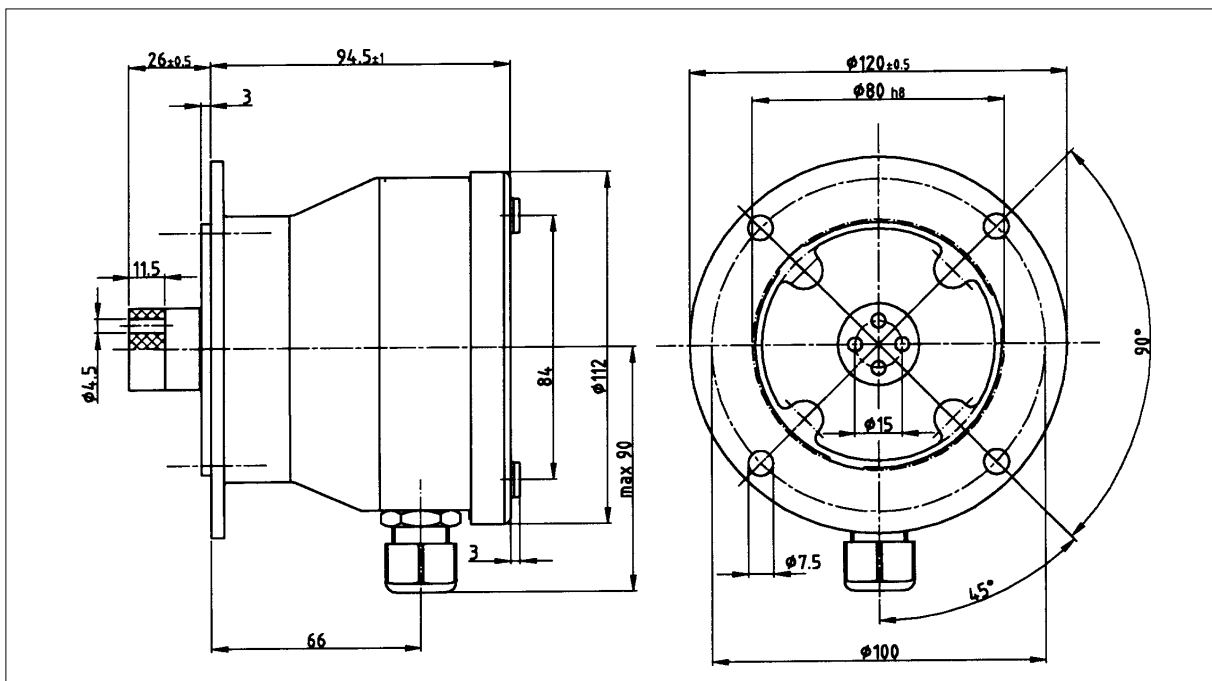
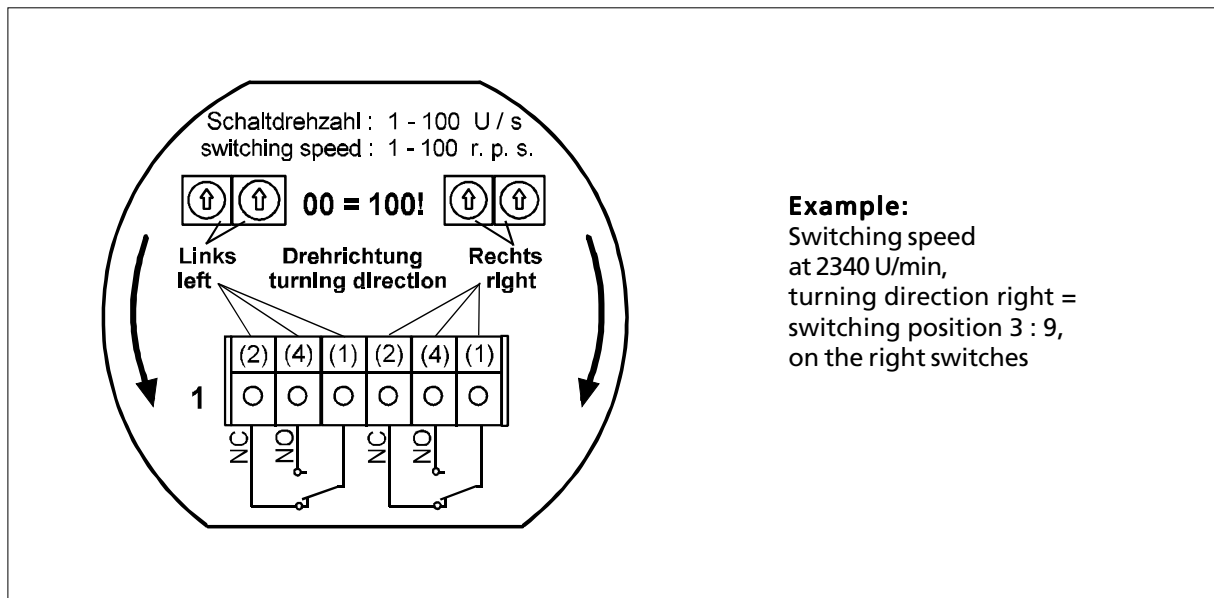


Fig. 1: Dimensions



Example:
Switching speed
at 2340 U/min,
turning direction right =
switching position 3 : 9,
on the right switches

Fig. 2: Function of the code switches and location of the connecting ports

Relation of code switches position and switching speed

Pos.	r.p.s.	r.p.m.	Pos.	r.p.s.	r.p.m.	Pos.	r.p.s.	r.p.m.	Pos.	r.p.s.	r.p.m.	Pos.	r.p.s.	r.p.m.
0 : 1	1	60	2 : 1	21	1260	4 : 1	41	2460	6 : 1	61	3660	8 : 1	81	4860
0 : 2	2	120	2 : 2	22	1320	4 : 2	42	2520	6 : 2	62	3720	8 : 2	82	4920
0 : 3	3	180	2 : 3	23	1380	4 : 3	43	2580	6 : 3	63	3780	8 : 3	83	4980
0 : 4	4	240	2 : 4	24	1440	4 : 4	44	2640	6 : 4	64	3840	8 : 4	84	5040
0 : 5	5	300	2 : 5	25	1500	4 : 5	45	2700	6 : 5	65	3900	8 : 5	85	5100
0 : 6	6	360	2 : 6	26	1560	4 : 6	46	2760	6 : 6	66	3960	8 : 6	86	5160
0 : 7	7	420	2 : 7	27	1620	4 : 7	47	2820	6 : 7	67	4020	8 : 7	87	5220
0 : 8	8	480	2 : 8	28	1680	4 : 8	48	2880	6 : 8	68	4080	8 : 8	88	5280
0 : 9	9	540	2 : 9	29	1740	4 : 9	49	2940	6 : 9	69	4140	8 : 9	89	5340
1 : 0	10	600	3 : 0	30	1800	5 : 0	50	3000	7 : 0	70	4200	9 : 0	90	5400
1 : 1	11	660	3 : 1	31	1860	5 : 1	51	3060	7 : 1	71	4260	9 : 1	91	5460
1 : 2	12	720	3 : 2	32	1920	5 : 2	52	3120	7 : 2	72	4320	9 : 2	92	5520
1 : 3	13	780	3 : 3	33	1980	5 : 3	53	3180	7 : 3	73	4380	9 : 3	93	5580
1 : 4	14	840	3 : 4	34	2040	5 : 4	54	3240	7 : 4	74	4440	9 : 4	94	5640
1 : 5	15	900	3 : 5	35	2100	5 : 5	55	3300	7 : 5	75	4500	9 : 5	95	5700
1 : 6	16	960	3 : 6	36	2160	5 : 6	56	3360	7 : 6	76	4560	9 : 6	96	5760
1 : 7	17	1020	3 : 7	37	2220	5 : 7	57	3420	7 : 7	77	4620	9 : 7	97	5820
1 : 8	18	1080	3 : 8	38	2280	5 : 8	58	3480	7 : 8	78	4680	9 : 8	98	5880
1 : 9	19	1140	3 : 9	39	2340	5 : 9	59	3540	7 : 9	79	4740	9 : 9	99	5940
2 : 0	20	1200	4 : 0	40	2400	6 : 0	60	3600	8 : 0	80	4800	0 : 0	100	6000

Conveyor belt speed monitor Type BWA

Technical Data



Application

Our conveyor belt speed control switch BWA is an electro-mechanical device for electrical monitoring of the speed of any conveyor belt, including the scheduled running-up of belts.

In operation, a roller is pressed against the lower side of the conveyor belt. As the belt transverses, a magnetic field is generated and is dependent on the speed and direction of travel of the conveyor belt. This action results in activating the switching contacts via the inner adjustable spring and lever mechanism. Per rotation direction a single circuit two-way contact is actuated and is adjustable for a given speed range.

Each of these contacts can be individually used to monitor the running-up or running-down speed. The switch bearing is an antifriction bearing allowing for maintenance-free operation. The metal housing of the switch is of type IP 55 (conforming to the German standard).

The following executions are available in order to cater for different requirements:

Switch type BWA has its roller in direct contact to the fixing foot. This version is designed to be installed with the roller in contact with the lower belt adjacent to a support roller. The displacement force is determined by the installation

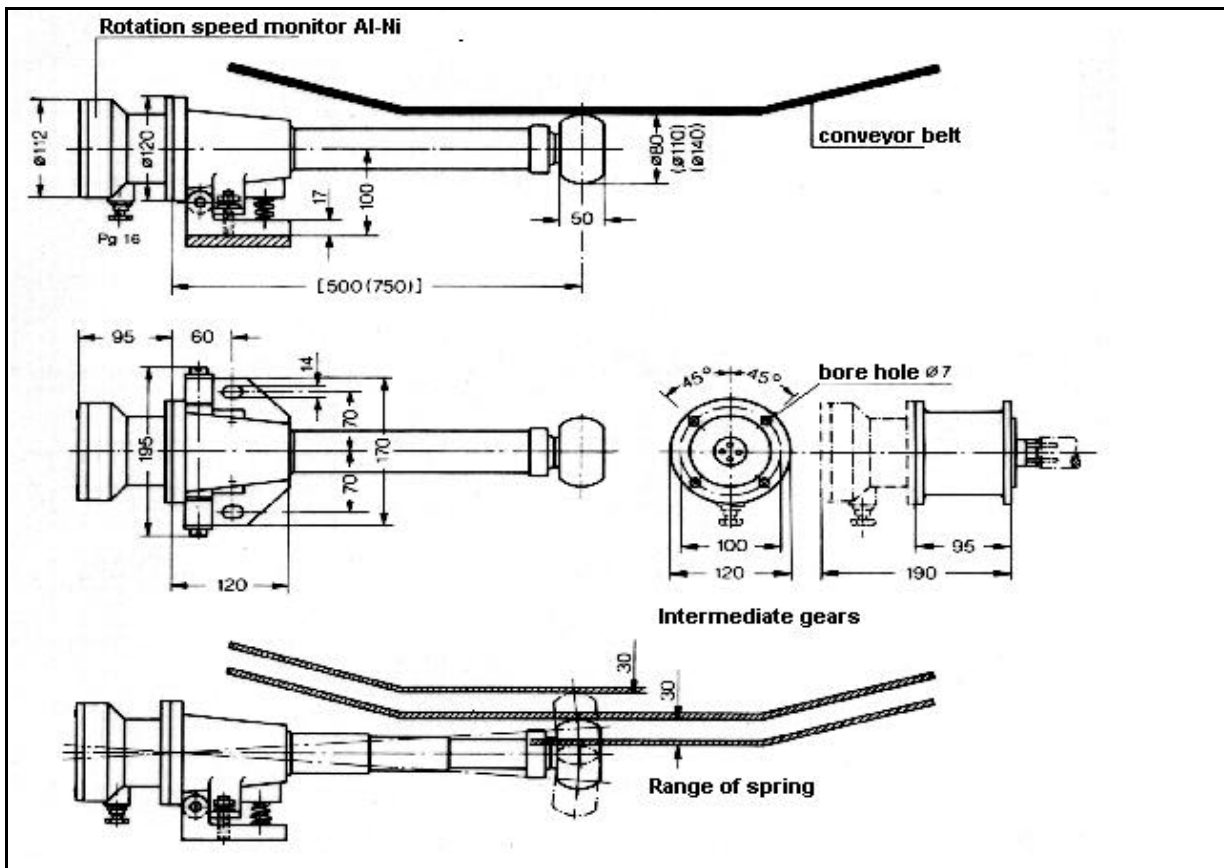
position.

Switch types BWA 500 and BWA 750 are equipped with a movable spring-loaded lever with lengths of 500mm or 700mm. The switch roller is designed to be positioned against the underside of the upper belt with the spring-loaded lever tension. Reliable switch operation is guaranteed even if the belt height deviates by ± 30 mm.

Different roller diameters are available for the above switches to conform to different line speed ranges.

Technical Data

Contacts	1 single circuit two-way per direction
Switch performance	max. 400VAC, 5A 1250VA max. 240VDC, 5A 140W(at ohmic load)
Cable inlet	1 x Pg 16 threaded hole for conduction Ø7-12mm
Fixing	2 holes for M12
Type of enclosure	IP 65 (conforming to the German standard)
Voltage	unnecessary! It is internally generated!
Connection cross-section	max. 2.5 mm ²
Material	roller polyamide lever thick-walled steel tube fixing and bearing housing cast iron wiring space and lid coloured glass fibre reinforced polyester
Colour	Yellow RAL 1004 other colours are optional
Operating temperature	-25°C up to +45°C

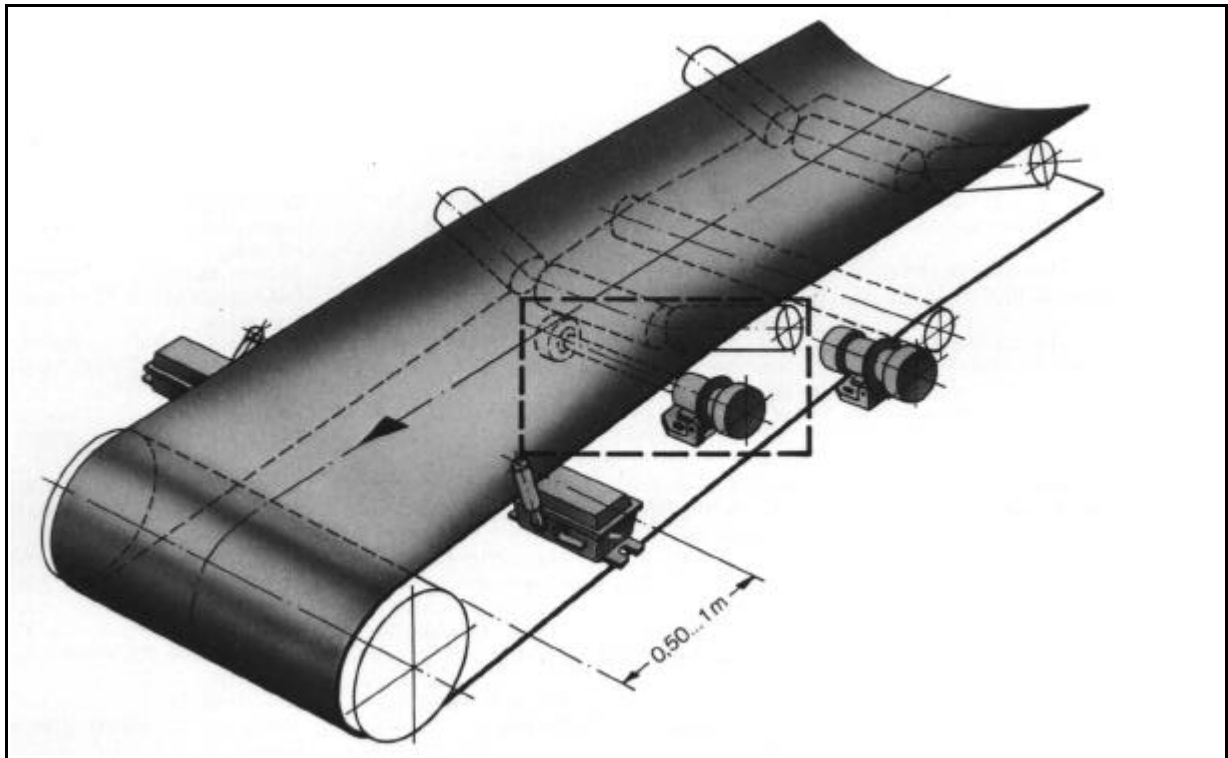


Dimensioned drawings

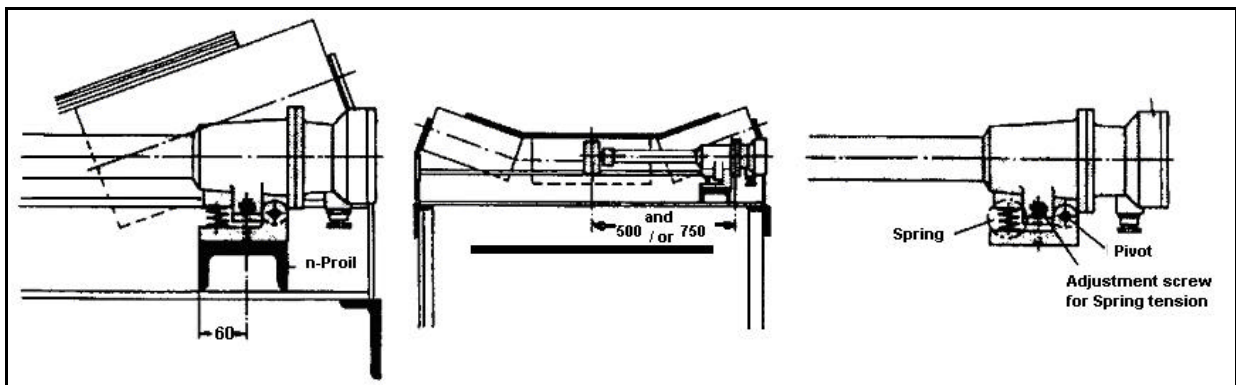
Selection table

Type	Length of lever "L"	Roller Ø "D"	spring
BWA 0/80	145	80	
BWA 0/110	145	100	
BWA 0/140	145	125	
BWA 500/80	500	80	x
BWA 500/110	500	110	x
BWA 500/140	500	140	x
BWA 750/80	750	80	x
BWA 750/110	750	110	x
BWA 750/140	750	140	x

Remark: lower trip speeds of 33% may also be determined whereby the expected exactness reduces to +/- 10%.



Mounting instructions for belt speed monitors of types BWA



Mounting instructions for belt speed monitors of types BWA

06.417/0498 (Subject to alteration)



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Material flow control switch Type MFG M / J

Technical Data



Application

Material flow control switches are provided to be safely installed for the automatic operation of conveying plants. They control the charge height of the conveying belt as well as the interruption of the material flow.

MEYLE material flow control switches MFG are equipped with a dragging sheet leaded over the belt by a joint pipe measuring around 50 cm long. This dragging sheet lies on the conveying belt or on the bulk material due its dead weight. During the transport of bulk material on the belt, the dragging sheet is highly different

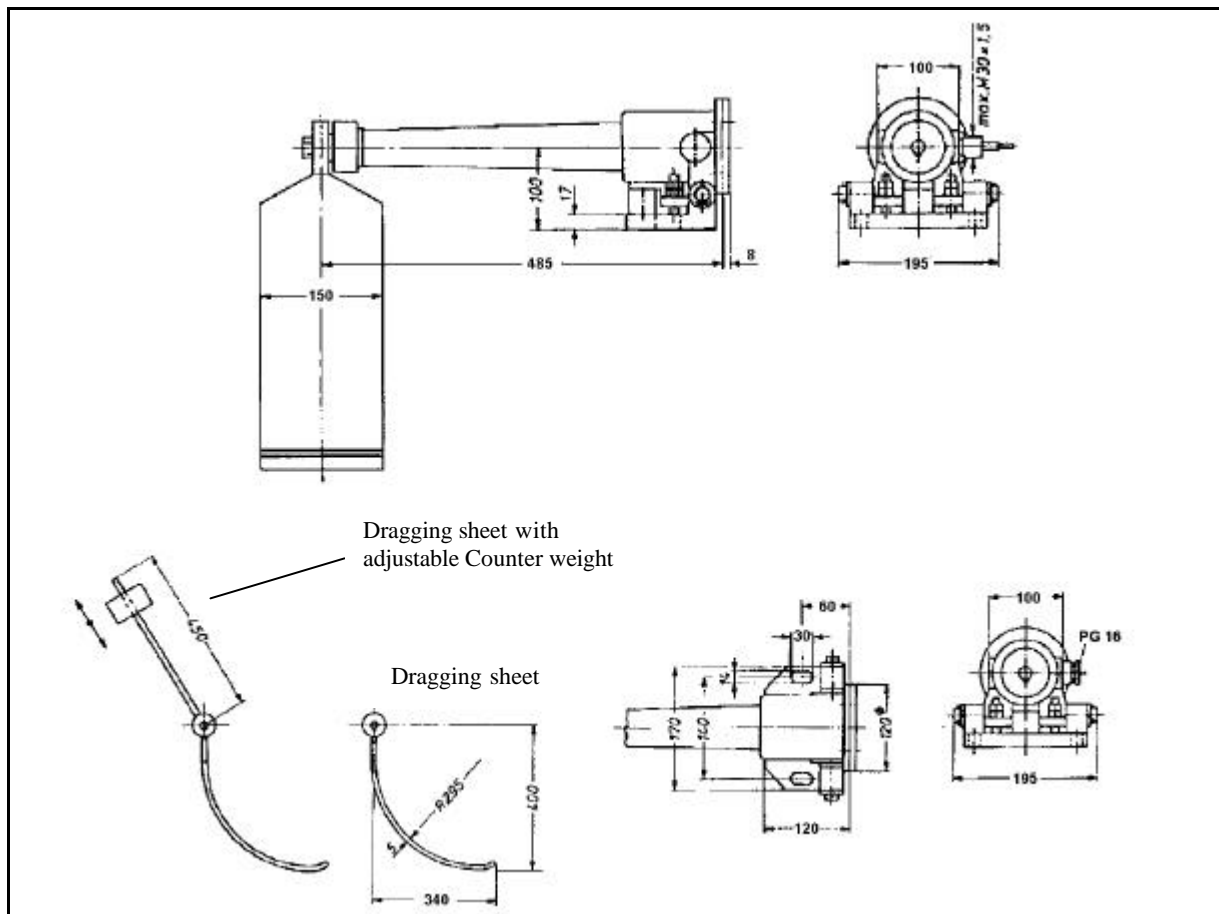
displaced. After having achieved the displacement height being internally adjusted, the change-over effects.

For a reliable, maintenance-free operation, all shafts are ball beared. The solid steel housing with the type of enclosure IP65 enables a high operating field. The dragging sheet is fastened with only one nut and, consequently, easy to be exchanged. It is mountable either for left or right direction of belt motion. Should the dragging sheet be too heavy for your special operation, a version with an adjustable counter weight is available. According to your specification, the material flow control switch is equipped either with

a proximity switch or with a micro switch. Both should be in accordance with the following selection table. The micro switches have the advantage to a direct high switching capacity and the proximity switches are distinguished by free wear and a practically free hysteresis step back.

Technical Data

Design	1 micro switch or 1 proximity switch
Fixing	2 holes for M10-screws
Type of enclosure	IP 65 (conforming to the German standard)
Cable inlet	for micro switch 1 x Pg 16 threaded hole or per adapter 1/2" NPTF (accessory) and for proximity switch brought out cable end
Colour	yellow RAL 1003 or other colours on request
Weight	16.0 kg, with counter weight 18.0 kg
Permissible operating temperature	-25°C up to +45°C



Dimensions of MFG

Selection table

Switch type	Counter weight	Design
MFGM		micro switch
MFGM-G	X	micro switch
MFG J1		proximity switch 24VDC, 2-wire system
MFG J1-G	X	proximity switch 24VDC, 2-wire system
MFG J2		proximity switch 48VDC, 2-wire system
MFG J2-G	X	proximity switch 48VDC, 2-wire system
MFG J3		proximity switch 120VDC, 2-wire system
MFG J3-G	X	proximity switch 120VDC, 2-wire system

Installation and operating instructions

Material flow control switch MFG M/J

Principle: Before any work shall be carried out it has to be checked that the whole line is circuit-free and any specific and general security instruction has been fulfilled.

Material flow control switches of this type are provided to be safely installed for the automatical operation of belt conveyors. They control the charge height of the belt as well as the interruption of the material flow. MEYLE material flow control switches MFG are equipped with a dragging sheet leaded over the belt by a joint pipe measuring around 50 cm long. This dragging sheet lies on the conveying belt or on the bulk material due its dead weight. During the transport of bulk material on the belt, the dragging sheet is highly different displaced. After having achieved the displacement height being internally adjusted, the change-over effects.

For a reliable, maintenance-free operation, all shafts are ball beared. The solid steel housing with the type of enclosure IP65 enables a high operating field. The dragging sheet is fastened with only one nut and, consequently, easy to be exchanged. It is mountable either for left or right direction of belt motion.

Mounting: Put the switch on a plane and stable console, whose plane is parallel to the plane of the belt and approx. 400mm over the height of bulk material being expected. Also adjust the switch in such manner that the blade slides over the middle of the belt area. Fixing of the switch is to be effected with two suitable screws M12 at the wholes 14 x 30 mm.

Mounting of dragging sheet: Push on the dragging sheet on the shaft and secure with nuts of type M8.

Installation: To allow electrical installation open cover by turning the four slitted hexagonal screws. Now a switching element with one NO and one NC is to be found. Functions of the contacts are printed on the switching element. One thread with Pg16-thread is available for cable inlet which is provided with brass cable mount. Wire the contacts and the earthing contact according to the requirements demanded by the line at-site.

Adjustment: Open the lid after loosening the cap screw M6 carry out the adjustment at the switch wafer. Once finished the adjustment tighten screw. Afterwards put on the cover again and tighten screws.

Check: Please check any electrical and mechanical function after completion of installation.

Maintenance: There is no need of any maintenance works for MEYLE material flow control switch due to proven construction and high material quality.

06.417/0498 (Subject to alteration)



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**Rope and Push button actuated
Emergency STOP Switch
Type Lifeline 4**

Technical Data



Cable (Rope) Pull Switches

Lifeline 4



Description

The Lifeline 4 cable/push button operated system can be installed along or around awkward machinery such as conveyors and provide a constant emergency stop access.

The Lifeline 4 is the only device of its kind to incorporate the following features in one unit making it the most versatile cable switch on the market.

1. The positive mode mechanism ensures that the contacts are immediately latched open on actuation and can only be reset by the intentional action of turning the blue reset knob. The design also protects against nuisance tripping and the effects of thermal expansion.
2. A mushroom head emergency stop button is included on the unit to provide E-Stop access even at the extreme ends of the span.
3. The cable status indicator makes the system easy to set up and maintain for spans up to 125 meters.
4. Four sets of contacts are provided: 2 N.C. + 2 N.O., 3 N.C. + 1 N.O., or 4 N.C. contacts.
5. Sealed to IP 66 with rugged construction using die cast alloy and stainless steel to withstand harsh conditions.

Features

- Switches up to 125 meter span
- Universal mounting and operation
- Lid mounted emergency stop button, designed to conform to EN418
- Switch lockout on cable pulled and cable slack
- Cable status indicator on switch lid

Lid mounted E-Stop button

A mushroom head emergency stop button is included on the unit to provide total E-Stop access even at the extreme ends of the span.



Cable status indicator on lid

The cable status indicator makes the system easy to set up and maintain for spans up to 125 meters.



Specifications


Standards	EN60947-5-5, ISO13850, ISOTR 12100, IEC 60947-5-1, EN 418
Approvals	CE marked for all applicable directive, cULus and BG
Safety Contact	2 N.C. or 3 N.C. or 4 N.C. direct opening action
Designation/Utilization Cat.	
A600/AC-15 (Ue)	600V 500V 240V 120V
(Ie)	1.2A 1.4A 3A 6A
N600/DC-13 (Ue)	600V 500V 250V 125V
(Ie)	0.4A 0.55A 1.1A 2.2A
Thermal Current (Ith)	10A
Minimum Current	5V 5mA
Safety Contact Gap	>2 x 2mm (0.078in)
Rtd. Insulation Voltage	(Ui) 500V
Rtd. Impulse withstand Voltage	(Uimp) 2500V
Pollution Degree	3
Max. Actuation Frequency	1 Cycle per sec
Case Material	Heavy duty die cast alloy
Eye Nut Material	Stainless Steel
Emergency Stop & Indicator Material	Acetal
Protection	IP66
Conduit Entry	3 x M20, 3 x 1/2in NPT, quick-disconnect style
Operating Temperature	-25°C to 80°C (-13°F to 176°F)
Operation Force	<125N (300mm deflection; 28.1lb deflection)
Max Cable Span Between Switches	75m (246ft) standard model 75m to 125m extended length model
Fixing	4 x M5
Mounting	Any position
Mechanical Life	1,000,000
Weight	630g (1.38lb)
Colour	Yellow body, Red E-Stop button, Blue reset button

Important: It is recommended that the LRTS (Lifeline Rope Tensioning System) should be used with the Lifeline 4 cable rope switch.

Cable (Rope) Pull Switches

Lifeline 4

Product Selection

Cable Span	Safety Contacts	Auxiliary Contacts	Catalogue Number		
			1/2in NPT Conduit	M20 Conduit	Quick Disconnect
Up to 75m	2 N.C.	2 N.O.	13133	13137	13140
	3 N.C.	1 N.O.	13043	13042	13141
	4 N.C.	—	13135	13139	13142
75 to 125m	2 N.C.	2 N.O.	13155	13153	13163
	3 N.C.	1 N.O.	13152	13150	13164
	4 N.C.	—	13149	13147	13165
	Recommended Standard Cable Connector/Cordset (2m (6.5ft) (see page 15-13).				889M-F12X9AE-2

Accessories

	Description	Catalogue Number
	P. Bolt complete M8 x 1.25 Thread Size 58mm (2.28in) Threaded Length 12mm (0.47in) Dia. Eye 95mm (3.74in) Overall Length	17003
	Tensioner spring 19mm (0.75in) Diameter 210mm (8.27in) Overall Length 50N Force	13078
	Replacement cover	13054
	Replacement cover no E-Stop	17115
	Inside corner pulley	17101
	Outside corner pulley	17102
	Mounting Bracket	17130

Cable (Rope) Pull Switches

Lifeline 4

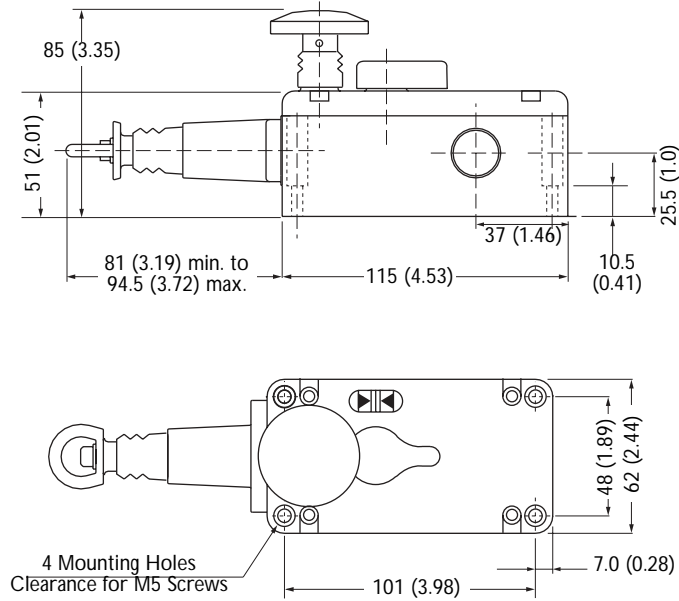
Accessories

	Description	Catalogue Number
	Indicator, M20 Conduit Pilot Light—Amber Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	19001
	Indicator, 1/2in NPT Conduit Pilot Light—Amber Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	19005
	Indicator, M20 Conduit Pilot Light—Amber Lens Bayonet Style Insert Use LED Bulb (Sold Separately)	17124
	Indicator, 1/2in NPT Conduit Pilot Light—Amber Lens Bayonet Style Insert Use LED Bulb (Sold Separately)	17122
	Indicator, M20 Conduit Pilot Light—Red Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	19002
	Indicator, 1/2in NPT Conduit Pilot Light—Red Lens T-3 1/4 Insert Use T-3 1/4 Bulb (Sold Separately)	49007
	Indicator, M20 Conduit Pilot Light— Red Lens Bayonet Style Insert Use LED Bulb (Sold Separately)	17125
	Indicator, 1 / 2 i n NPT Conduit Pilot Light— Red Lens Bayonet Style Insert Use LED Bulb (Sold Separately)	17123
	Bulb, 24V for Conduit Pilot Light 2.8W T-3 1/4 Bulb, Miniature Screw Base	09056
	Bulb, 110V for Conduit Pilot Light 2.6W T-3 1/4 Bulb, Miniature Screw Base	09055
	Bulb, 240V for Conduit Pilot Light 2.75W T-3 1/4 Bulb, Miniature Screw Base	09054
	Red LED Bulb, 24V AC/DC for Conduit Pilot Light Bayonet Style Insert	N157R
	Amber LED Bulb, 24V AC/DC for Conduit Pilot Light Bayonet Style Insert	N157A
	Red LED Bulb, 120V AC for Conduit Pilot Light Bayonet Style Insert	N169R
	Amber LED Bulb, 120 AC for Conduit Pilot Light Bayonet Style Insert	N169A

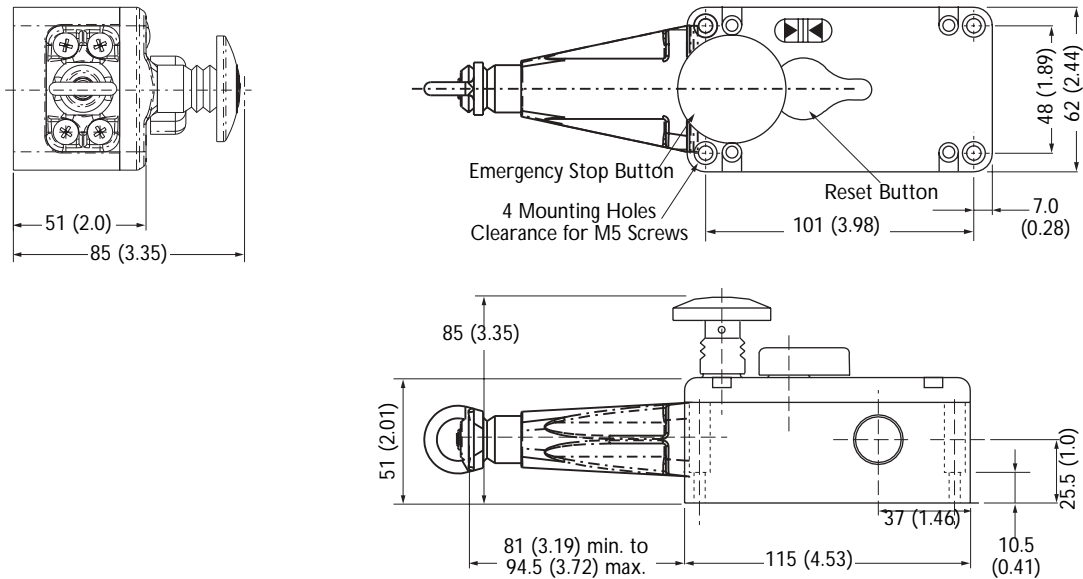
Approximate Dimensions—mm (inches)

Dimensions are not intended to be used for installation purposes.

Standard Model




Extended Length Models (75 to 125m cable span)



Cable (Rope) Pull Switches

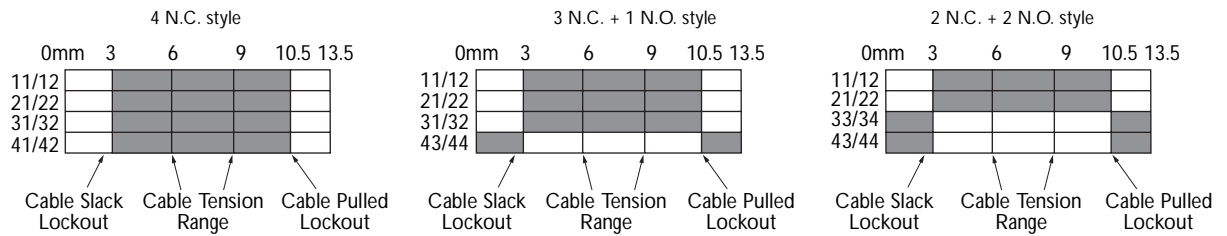
Lifeline 4

Typical Wiring Diagrams

Connector Pinout	4 N.C.		3 N.C. + 1 N.O.		2 N.C. + 2 N.O.		
	Terminal	Contact	Terminal	Contact	Terminal	Contact	
	1	11	11	11	11	N.C.	
	3	12	12	12	12	N.C.	
	4	21	21	21	21	N.C.	
	6	22	22	22	22	N.C.	
	7	31	31	31	33	N.O.	
	8	32	32	32	34	N.O.	
	9	41	43	43	43	N.O.	
	10	42	44	44	44	N.O.	
	12	Ground					

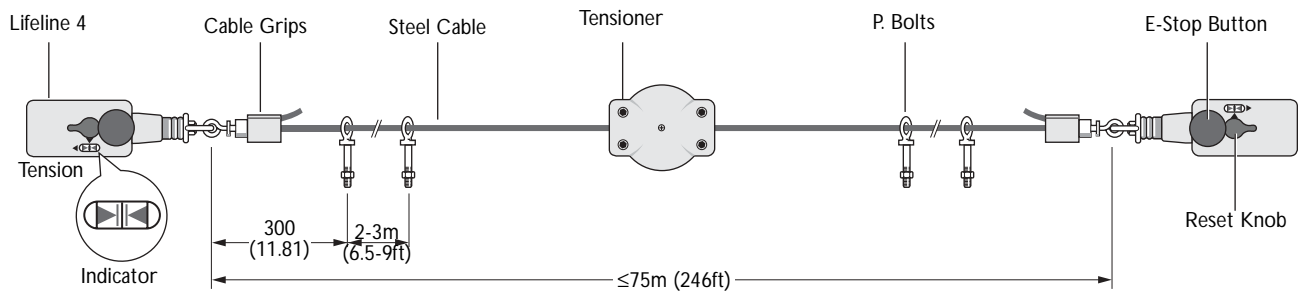
Contact Action

□ Contact Open ■ Contact Closed

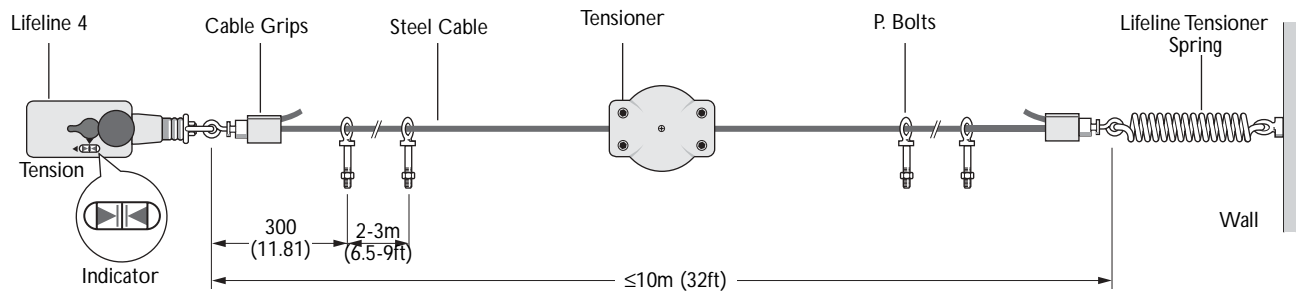


Application Detail—mm (inches)

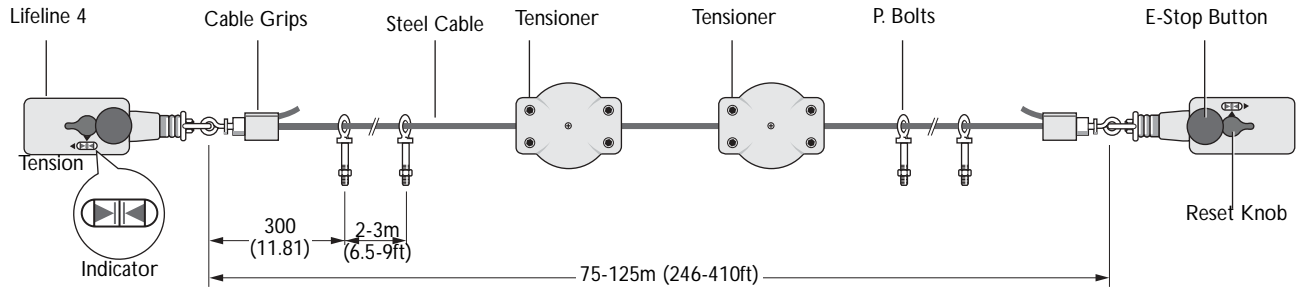
Mounting Specifications



Mounting Specifications with Spring Tensioner



Mounting Specifications for Extended Length Models





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Pull Rope Emergency Switch

Type NSR

VDE approved



Technical Data



Application

According to DIN / VDE 0660 T200 / T210, EN 418, and the general stipulations of the incident prevention order VB610, devices or entire industrial machines and installations must be able to be switched off as quickly as possible by activating an emergency switch-off device in the case of possible danger to persons or damages to machines and installations.

The pull rope emergency switches types NSR (with fork lever) are meeting the standards of DIN / VDE 0660 T200 / T210 and EN418. These switches must be used in control current circuits only. They serve as devices to prevent incidents, injuries and damages to production assets as e.g. conveyor belts in the iron & steel industry, mineral exploitation industry, loading & unloading facilities, chemical industry and mining.

The pull rope emergency switch type NSR including accessories is for installation on the accessible side of conveyor belts or machines. It can be activated at any point of the line surveyed (an advantage over push-button type emergency switch-off is distributed in distances over the line to be monitored) and, depending on the switching logic, deactivate one or more drives or an entire complex, too.

Configuration and Features

The rope switch consists of a weather proof glass fibre reinforced plastic housing (yellow RAL 1004) with enclosure IP65. It is equipped with two holes for leads PG 16 which are plugged for shipping (do not use in operation). The switching mechanism makes the pull rope emergency switch staying operational even in case of broken springs.

Its fail safe features correspond to the EN418 and the recommendations of the trade association: The pull rope emergency switch locks automatically and self driven after activation and can be reset only by the reset lever at the switch. If required, the reset lever can be made lockable as well. The item is available with 1, 2, or 3 switching elements cogently operated by the switching mechanism. Additionally, a signal lamp can be accommodated in the cover.

With the pull rope mounted on both sides of the activation lever a line length of about 100 m (max. 150 m) can be monitored. The switch will be activated automatically by pre-loading via pull springs in case of a rope rupture on one side.

Mode of Operation

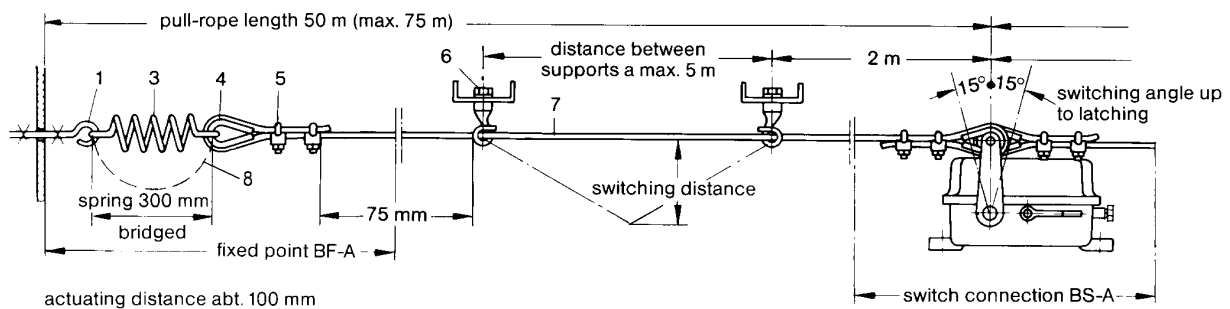
The pull rope emergency switch type NSR 01/02/03 is operated by a 50 m (max. 75 m) pull rope (steel rope, red plastic coated, dia. 5 mm) on each of the two sides. The triggering of the mechanism will be caused by pulling the pull rope.

At an angular deviation from the mid position of about $6^\circ \pm 3^\circ$ (activation force = $35 \text{ N} \pm 5 \text{ N}$) the patented switching mechanism is activated. This mechanism in turn suddenly activates the

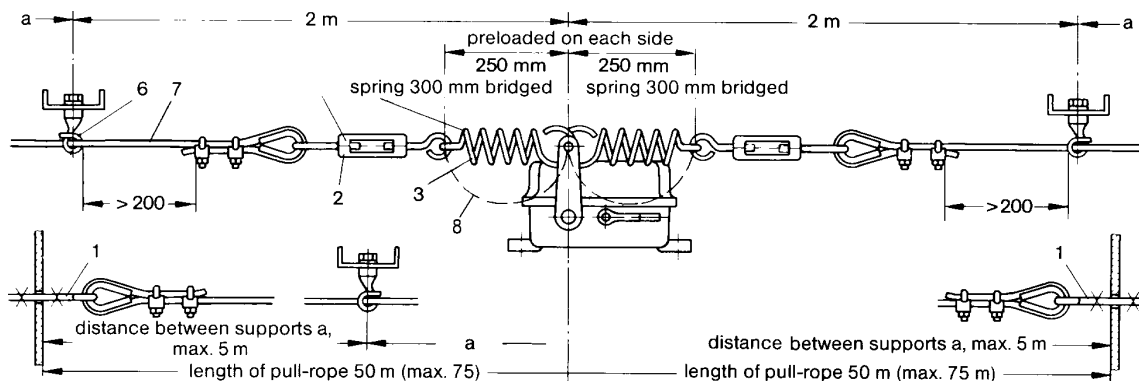
control switches and cogently guides the switch lock into end stop position. The activated (pushed-down) position of the control switches can be unlocked only by the reset lever.

The control switches feature a cogent separation characteristic and correspond to the international safety standard EN418. The NC contact (normally closed) opens the safety chain of the control and effects a switch-off of the subsequent device.

Pull Rope Arrangement, Version A



Pull Rope Arrangement, Version B



Accessoires:


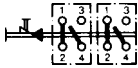

1 eye screw M6x60	4 rope eye 3/16"	7 pull rope: steel rope with red PVC sheathing	
2 turnbuckle M6x110	5 rope clamp 3/16"	diameter	5mm
3 spring RZ 168	6 wire loop M 8 x 80	weight	0,039 kg/m
	with bolt	tensile strength	1600 N/mm ²
	8 spring bridge	rope elongation	0,012 mm/m °C

To ensure a safe switch-off when the rope is ruptured, both springs (3) must be pre-loaded to an extent, that the distance between the eyes amounts at least to 250 mm and the activation lever is in mid position:

a) Rough adjustment at the rope end, b) refinement at the turnbuckle.

distance between supports a [m]	2	2,5	3	3,5	4	5
switching distance s [mm] ca.	280	310	340	360	390	430

Technical Data

Type	NSR 01	NSR 02	NSR 03
Circuit connection			
Switching units	1 x S 826 e	2 x S 826 e	3 x S 826 e
Switching performance		400 V ~ $\cos \varphi = 1/0,4$ 230 V ~ $\cos \varphi = 1/0,4$ 80 V - $\tau = 0$ ms 24 V - $\tau = 0$ ms	3 A / 2 A 3,7 A / 2,1 A 4,4 A 10 A 0,5 x 10 ⁶ switchings 0,5 x 10 ⁶ switchings 0,5 x 10 ⁶ switchings 0,5 x 10 ⁶ switchings
Duration current I_{th2}		10 A	
Switching capability for VDE-classification AC 15		1A / 230 V	
Switching capability for VDE-classification DC 13		0,5 A / 110 V	
Switching contact material		hard silver (gold plated switching contacts available for low voltage operation)	
Switching contact gap		1,6 mm	
Mechanical durability (switching element)		1 x 10 ⁷ switchings	
Activation velocity		≥ 0,5 mm/s	
Dimensioned nominal insulation voltage		400 V	
Insulation class		VDE 0110 C	
Connecting Ports		0,75 to max. 2,5 mm _c	
Short cut protection required (fuse)		10 A	
Specifications met		DIN VDE 0660, Part 200 and 210, i.e. IEC 947-5-1 VDE 0110 UVV - VBG 10 EN 418, IEC 529	
Application		Devices and controls to VDE 0100 and 0113	
Housing		GFK (Glass fibre reinforced plastic), resistant against water solutions of salts, acids, and alkalines, alcohol and solvents.	
Colour		Housing: yellow, RAL 1004 Operation and reset lever: red, RAL 3000	
Weight		1kg approx.	
Enclosure (according to DIN 40050)		IP 65	
Installation orientation		Preferably upright, i.e. activation lever up	
Mechanical durability of device		1 x 10 ⁵ switchings	
Attachment to the operation lever		Bolt, ř 8mm stainless	
Cable routing		Threaded holes, 2 x PG16	
Ground connection		in housing	
Permissible environment temperature		Storage -40°C...+85°C Operation -40°C...+85°C Transport -40°C...+85°C	
Switching angle		6° ±3°	
Activation angle		15° +3°	
Activation force		35 N ±5 N	
Switching principle		Snap switch with activation cam, cogently separated	
max. equipment		3 circuit openers and 3 circuit closers (with signal lamp max. 3 circuit openers and 2 circuit closers)	
Signal lamp (Option)		24, 42-220 V B15D max. 5 W	
Special accessory		Gold plated switching contacts (low voltage operation)	
Exchange with predecessor NSR 11/12/13		By adapter plate the NSR 11/12/13 can be mounted on the attachment flanges with the holes arrangement of the predecessor NSR 11/12/13	

Safety Instructions

- The plugs are only for dirt protection, they are not for use in operation
- PG-screwings must be sealed with an o-ring against the housing
- PG-screwings which are not in use must be closed by a plug and sealing
- The inner cabling must be routed in a way that a single wire cannot fall into the mechanical arrangement in case of a becoming loose. This is preferably achieved by cable binders holding together all single wire.

The following must be inspected periodically during operation of a pull rope type emergency switch-off device:

- Safe attachment of the emergency switch-off device
- Tightness of the switch cover
- Cleanliness of device (wire, rope, marking) for easy recognition
- Damage freedom of wire or rope from wear, corrosion, or impact
- Sufficient tightness of wire or rope
- Absence of signs for damage (cracks, corrosion, deformation) at switch
- Damage freedom and tightness of rope attachment devices
- Proper and safe attachment of pre-loading springs

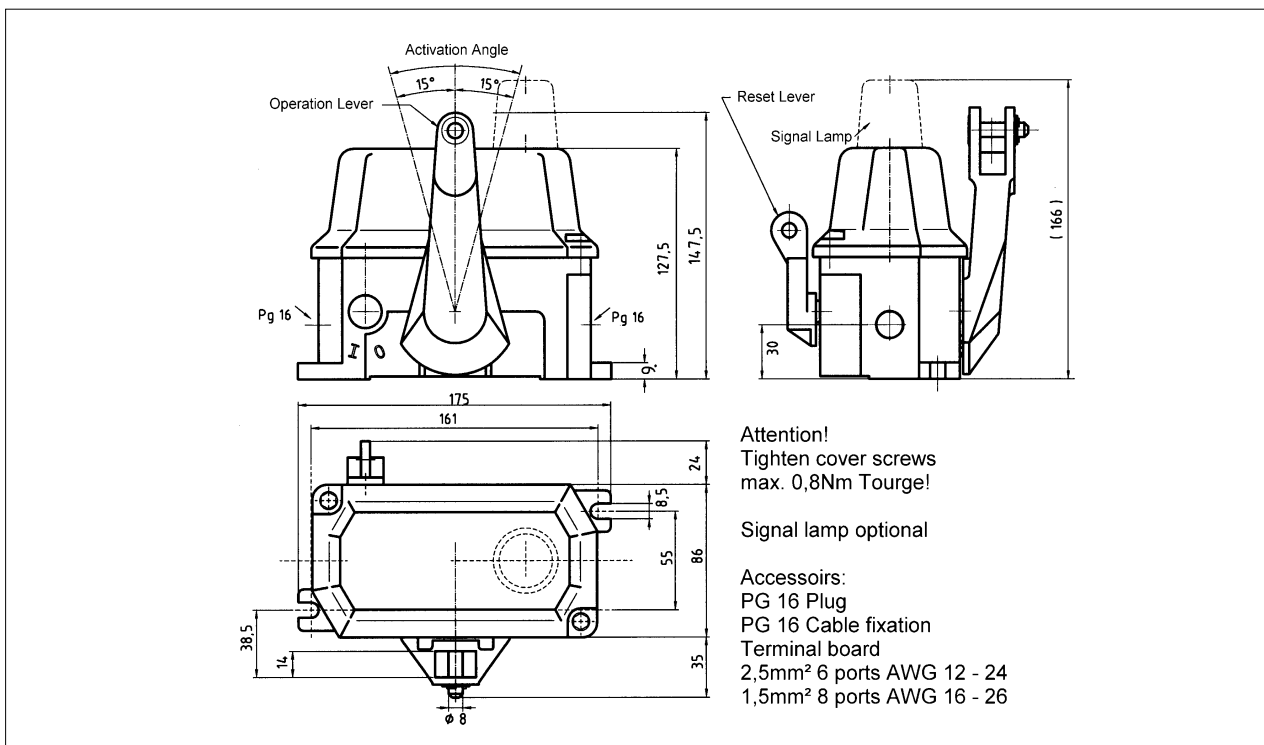
- Damage freedom and cleanliness of guidance loops
- Cleanliness and release of rope supporting wheels
- Absence of foreign particles in influences collected at the device which could obstruct activation parts
- Absence of obstacles near the wire or rope

Periodical Check for proper Function

The proper function of the emergency switch-off device is checked during stopping the machine by the device or by observing the device during standstill of the machine:

- Easy movability of wire or rope through the guidance loops
- Easy movability of the activation parts and all parts transmitting the movement to the switch
- Safe locking of the activation lever in the off-position
- Activation lever must not release easily
- Sufficient strength and tightness of pre-loading springs for reliable emergency switch off in case of wire or rope rupture

In case of anomalies detected during inspection, these are immediately to be solved or the item concerned is to be replaced for further investigation.



Dimensions NSR

Pull-rope Emergency Switch SN VDE-approved

Technical Data



Pull-rope Emergency Switch Type SN

- Double-sided actuation for up to 50 m rope each
- Up to 4 contacts NO and 4 contacts NC
- Interlocking in actuated position with manual reset only
- Snap action safety contacts with forced-opening system
- Meet any new European Security Standard
- Certified according to VDE -0660/200
- Reliable operation by high rope tension and large actuation travel
- 2 cable inlets with PG 16 or ½"NPTF threads
- Type of enclosure IP 65
- Version with CSA (Canadian Standard Association) approval.

Rope-operated emergency switches are used to give personal and process safety of conveyors or other enlarged machines or lines

and to stop them from any point. Pulling on the rope actuates the switch and effects emergency stop demand.

Rope-operated emergency switches type SN are for double-sided rope mountings. Pulling on one of the ropes actuates the switch via a snap action and interlocks. Simultaneously with the actuation of the switch interlocking is being effected. Switch position and pulling direction is indicated by the position of the locked switch lever. Even if there should be a spring break within the switch or the contacting areas should be baked together the installed forced opening system effects a secure opening of the circuits. Release/reset of the switch's interlocking can only be performed manually and having direct access to the switch assembly – there is no remote reset possible.

The switch can be supplied with up to four single-circuit two-way contacts or with up to four contacts NO and four contacts NC.

All switching contacts are commutated simultaneously, independent of the direction from which the switch has been actuated. These switches are designed to be installed in between two ropes. The maximum rope lengths supported by the switches should not exceed 50m for each rope. Malfunctions of rope operation and unwanted stops caused by vibrations or thermal tensions within the length of the ropes, or other unwanted physical influences, are extremely unlikely due to the large rope travel and the large tension (>40 N) necessary for switching.

The standard for automatic emergency stop due to rope break, DIN EN 418 paragraph 4.5.2, is fulfilled when used with two preload springs RZ168 available out of our accessory programme.

The material of the switch housing is coloured glas fibred reinforced polyester. Stability of the polyester enclosure is comparable to that of cast iron housing. Polyester, however, is not so brittle and thus more resitant against

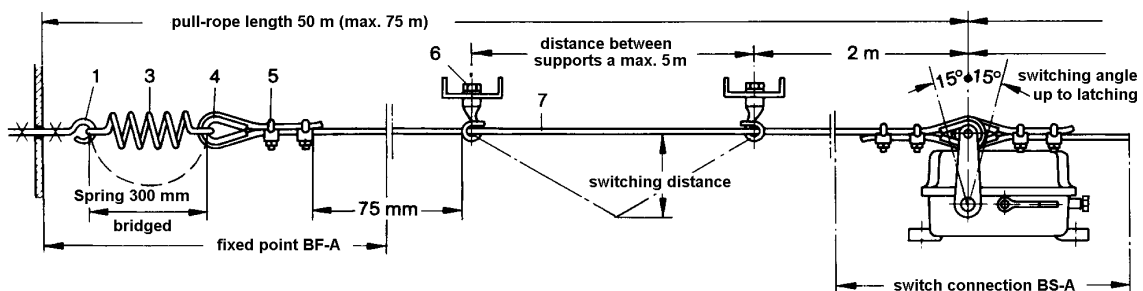
shock. It is dust- and waterproof housing (IP65).

The switches are guaranteed for an extended working life: The use of sealing rings protecting all ducts out of the housing, shafts made of stainless VA-Steel, screws made of stainless VA-steel, loss protected housing cover screws.....

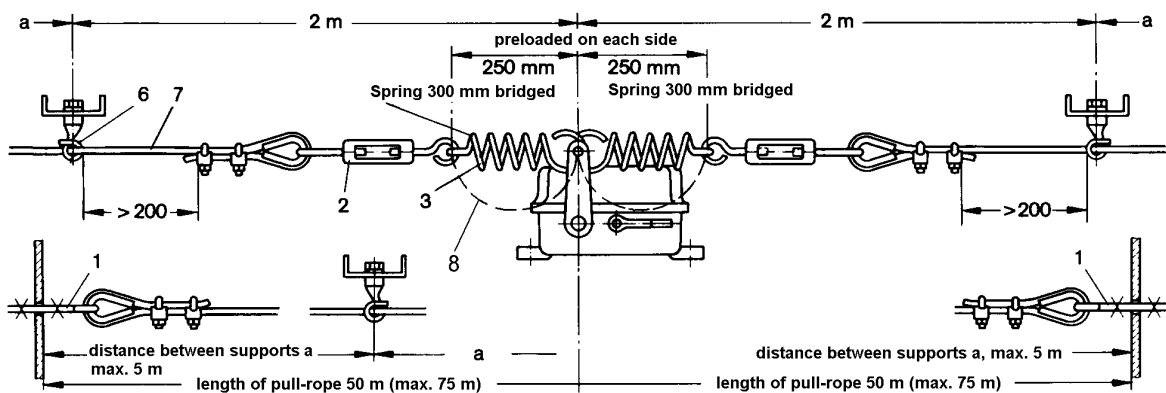
Variations

- 8-digit clamp with complete internal wiring for easyest installation of your electrical wiring
- Pull-off dislocking lever
- Installation of a signal lamp
- Version with approval by the Canadian Standard Association
- EEX and SCH protected and approved versions

Pull Rope Arrangement, Version A



Pull-rope Arrangement, Version B VDE 0113, DIN EN 418



Accessoires:

- 1 eye screw M6x60
- 2 turnbuckle M6x110
- 3 spring RZ168
- 4 rope eye 3/16"

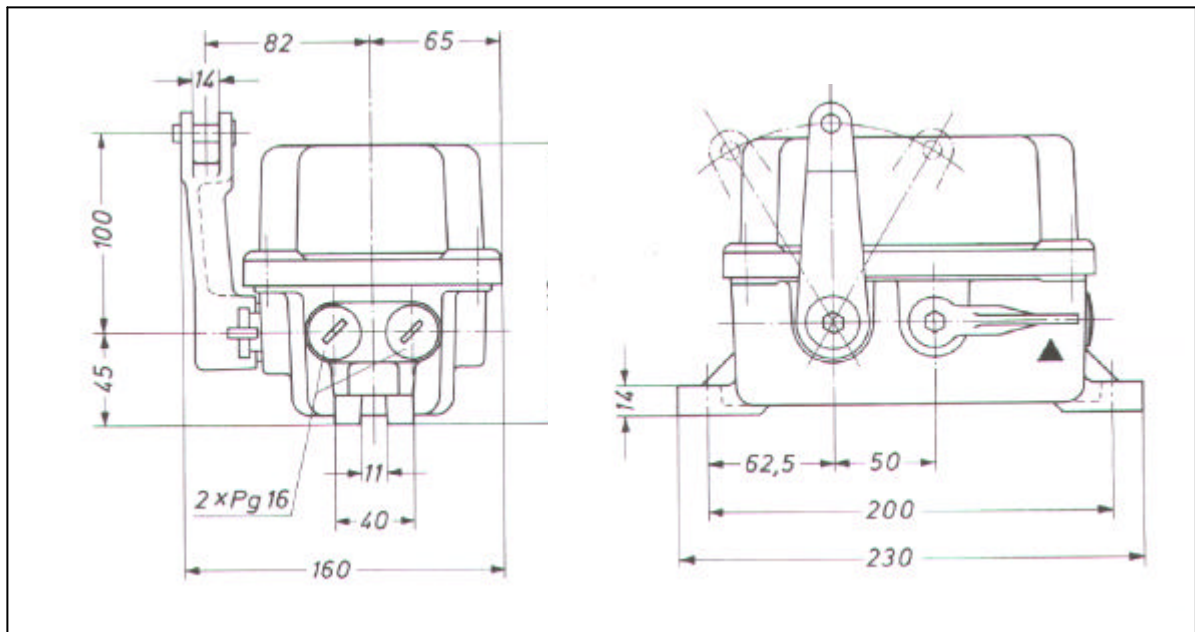
- 5 rope clamp 3/16"
- 6 wire loop M8x80 with bolt
- 7 pull rope: steel rope with red PVC sheathing
- 8.spring bridge

Technical Data:

Certification	VDE 0660, part 200, reg.no 5136
Conforms to standards	IEC 947-5-1/EN 60947-5-1/DIN EN 292/UVV-VBG10 DIN EN 418 if equipped with two preload springs
Rope travel	42 mm
Rope tension for actuation	40 N
Cable inlet	2 x PG 16 threaded hole Or per adapter (accessory) ½" NPTF
Type of enclosure	IP 65
Housing material	Glass fibre reinforced polyester housing
Housing colour	Yellow RAL 1004 or red RAL 3000
Weight	2,3 kg
Fixing	2 long holes for M10-screws
Operating temperature	-40°C up to +85°C

Selection table

Switch type	Contacts		alternating switch	Rating	Remarks
	NO	NC			
SN 1-1	1	1		230 VAC, 1 A	Rubbing contacts selfcleaning designed for low current
SN 1-2	2	2		230 VAC, 1 A	
SN 1-3	3	3		230 VAC, 1 A	
SN 1-4	4	4		230 VAC, 1 A	
SN 2-1			1	230 VAC, 8 A	Single circuit 2way cont
SN 2-2			2	230 VAC, 8 A	Single circuit 2way cont
SN 2-3			3	230 VAC, 8 A	Single circuit 2way cont
SN 2-4			4	230 VAC, 8 A	Single circuit 2way cont

Dimensions:

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Signal Combination Type SK with pull-rope emergency switch, horn and warning light

Technical Data



Uses

Present day trade unions and trade associations demand stricter measures for prevention of accidents on which technical supervisory bodies base their regulations also.

One of these safety measures is the installation of emergency pull-rope switches, which have proven their value in the prevention of damage in numerous conveyor belt systems, in metallurgical plants, in the mineral industries, in transshipment installations, in the chemical industry and open cast mining.

AEG supplies this type of emergency switching as a signal combination type SK, designed to meet the needs of extended conveyor systems. These signal combinations are installed at the accessible side of conveyor belt systems or on the machines.

They can, as opposed to emergency – off mushroom type buttons mounted at set intervals, be activated at any point along a specified run and, depending on connection, disconnect single drives or combinations of drives or even the system as a whole. The switch released is identified by means of audio and visual signals.

Design

The signal combination type SK comprises:

- pull-rope emergency switch
- flashing light
- horn
- terminal box

Partial equipment (e. g. horn or flashing light only) can be supplied. These items can also be supplied for various voltages. The terminal boxes are designed to accommodate connection of other local equipment. Cable inlet is from below.

Partial equipment (e. g. horn or flashing light only) can be supplied. These items can also be supplied for various voltages. The terminal boxes are designed to accommodate connection of other local equipment. Cable inlet is from below.

The main functional element of the signal combination type SK is the pull-rope emergency switch type NSR with a switch mechanism constructed in such a way as to remain functional even in the event of a defective retracting spring.

In order to prevent detracton from functional security through soiling, this retracting spring is located inside the housing. Furthermore, the emergency switch is, in keeping with trade association recommendations, provided with

an effective latching device when the switch is actuated. This latching device can be locally released with an attached or separate lever. The equipment is fitted with two switch elements with the possibility of extension by one more. Self lubricating sinter bearings ensure almost complete freedom from maintenance. The rope, attached at both sides of the lever, protects a stretch of up to 100 metres. By making use of a rope breaking device, the switch is actuated automatically in the event of a one-sided lopping of the pull-rope. A modified version type NSRi is

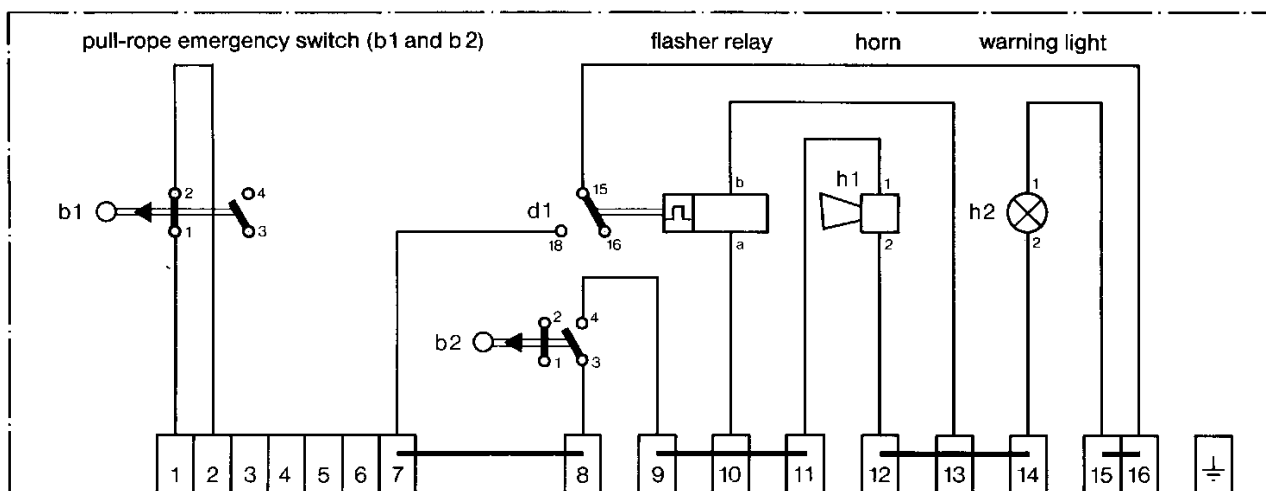
also available for use in intrinsically safe electrical circuits. This switch type is provided with a Namur initiator instead of the mechanical switch element.

Mode of operation

By pulling the rope, the switch lever of the pull-rope emergency switch is dislocated and the switch element is actuated. The n.c. contact of the element opens the safety chain of the control, thereby effecting the switch-off of the conveyor belt drive. At the same time, the warning light and the horn go into action, thus providing identification of

the switch-off location even at some distance. The latching device which is being activated by the switch lever dislocation keeps the switch mechanism in the off-position.

Latching can be released, depending on the respective operational regulations, by means of a fixed or separate release lever. The switch elements are fitted with snap-action contacts and a compulsory opening system and are therefore in keeping with international regulations.



Terminal diagram

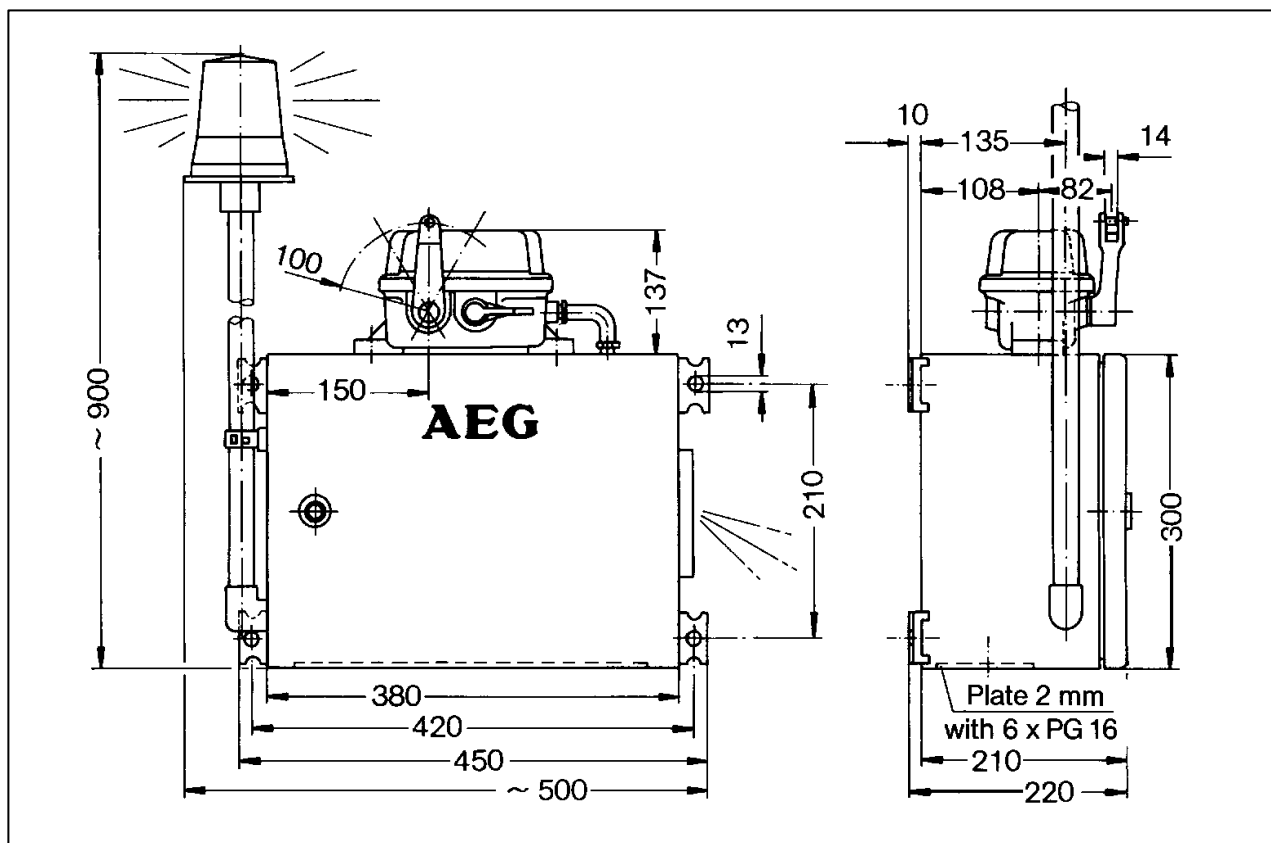

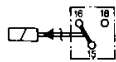


Table 1 Technical Data of Signal Combination Type SK

Equipment	pull-rope emergency switch	warning light	horn	terminal box	flasher relay
Housing	polyester resin – moulded with fibre glass	thermoplast impact-proof cap macrolon orange	thermoplast impact-proof	sheet metal	–
Finish	red RAL 3000	grey/orange	grey	grey	–
Rated voltage	–	various voltages bulb max. 25 W	220 V AC, 50 Hz 110 V AC, 50 Hz	–	220 V 50 ÷ 60 Hz 110 – 127 V, 50 ÷ 60 Hz
Switching capacity of the microswitches	at 380 V AC ... 5 A at 220 V AC ... 8 A at 80 V DC ... 3 A at 60 V DC ... 4 A at 24 V DC ... 9 A	–	–	–	– pulse and rest time 0.5 s 2,1 W; contacts: 1 change-over
Sound level	–	–	110 dB (A)	–	–
Connection		–	–	terminal strip 16-pole, for 4 mm ² solid wire, 2.5 mm ² strands	
Protection	IP 65	IP 54	IP 54	IP 53	
Adm. temperature range	– 20 °C up to + 50 °C				
Weight	Signal combination incl. equipment approx. ca. 18 kg				

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Alarm signal post Type SM With pull-rope emergency switch, horn and flashing light

Technical Data



Application

The trade co-operative associations of today demand sharper measures for prevention of accidents, which are also used as guidelines by the technical supervisory bodies.

One such safety measures is the installation of pull-rope emergency switches. They have proved themselves an effective means of accident prevention on innumerable conveyor belt systems, in iron and steel works, in the quarrying and earth moving industries, in trans-shipment facilities, the chemical industry and open pit mining. For extended conveyor systems

In particular, such pull-rope emergency switches can be supplied as alarm signal post type **SM**. This alarm signal post is installed on the approach side of conveyor belt systems or machines and - apposed to the Emergency-OFF push buttons located at certain intervals - it can be operated at any point along the length of a section and, depending on the system, can disconnect single or multiple drives or even the total plant as a whole. The actuated switch is identifiable by way of the visual and audible signals.

Design

The alarm signal post type **SM** consist of

- pull-rope emergency switch
- flashing light
- horn
- terminal box

Use of part of the equipment (i.e. only horn or only flashing light) is possible. Flashing lights and horns are also available for different voltages.

The terminal box is of ample size to enable other local devices to be connected to the terminals. The connection leads enter the terminal box from below.

The central functional element of the alarm signal post type SM is the pull-rope emergency switch NSR or SN; the switch mechanism is constructed in a manner which ensures that it remains functionable even if the retraction spring is broken. In order to prevent loss of functional safety as a result of soiling, the retraction spring is located inside the housing.

The pull-rope emergency switch is - accordance with trade association recommendations - fitted with a locking mechanism which becomes effective when the switch is operated. Unlocking can be undertaken locally by means of a release lever, which is firmly attached. The device comes with

two switching elements; provision is made for extension by a further switch element. Selflubricating sinter bearings ensure almost complete freedom from maintenance work. The pull-rope - attached at both sides of the switch lever - protects a length of up to 100m. The use of a rope break safety device ensures that the switch is automatically actuated in the event of a one sided cutting of the pull-rope.

Mode of operation

The switch lever of the pull-rope emergency switch is reflected by pulling the rope and the switching element is actuated. The NO-contact of the element opens the safety chain of the controls and

thereby effects switching-off the conveyor belt drive and, at the same time, the flashing light and the horn are activated. The location of the switch-off can thus be identified by signals, which can be seen and/or from a distance.

The locking device, which comes into play upon deflection of the switch lever, holds the switch mechanism in the OFF-position. The locking device can be released by the firmly attached component lever, depending on the respective works regulations.

The built-in switch elements have snap-contacts and a compulsory opening system and thus meet international safety regulations..

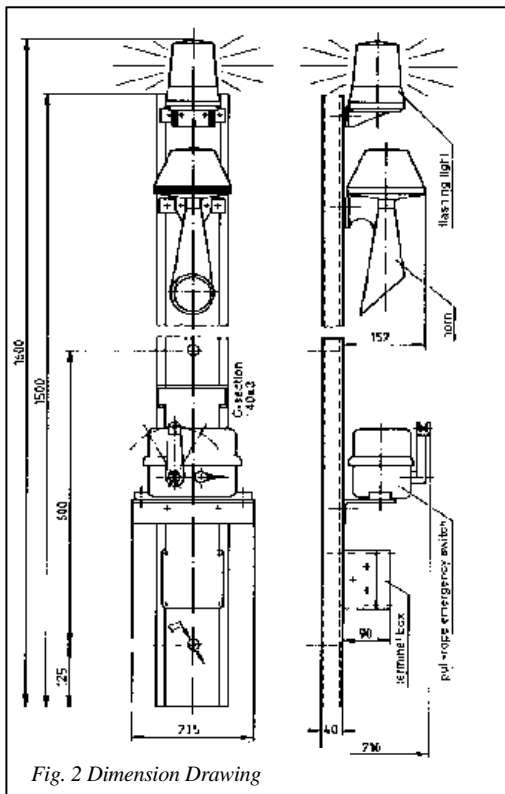


Fig. 2 Dimension Drawing

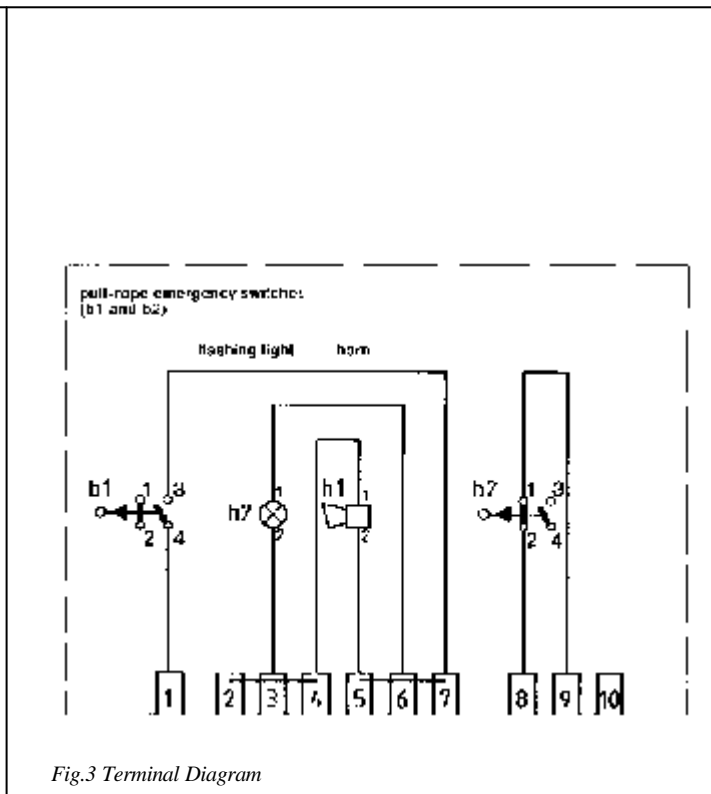

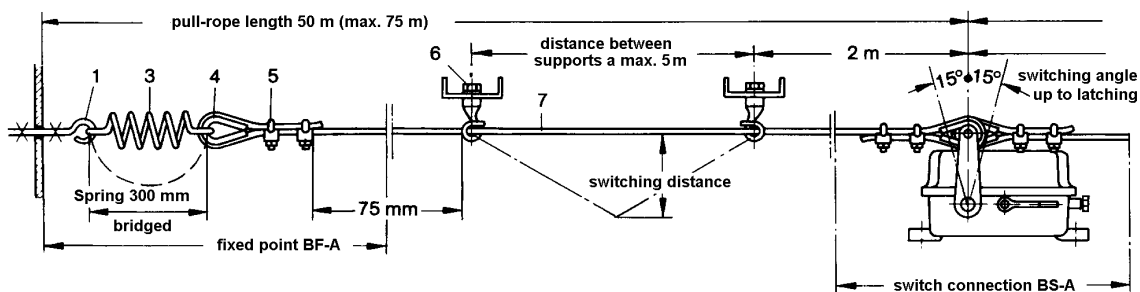


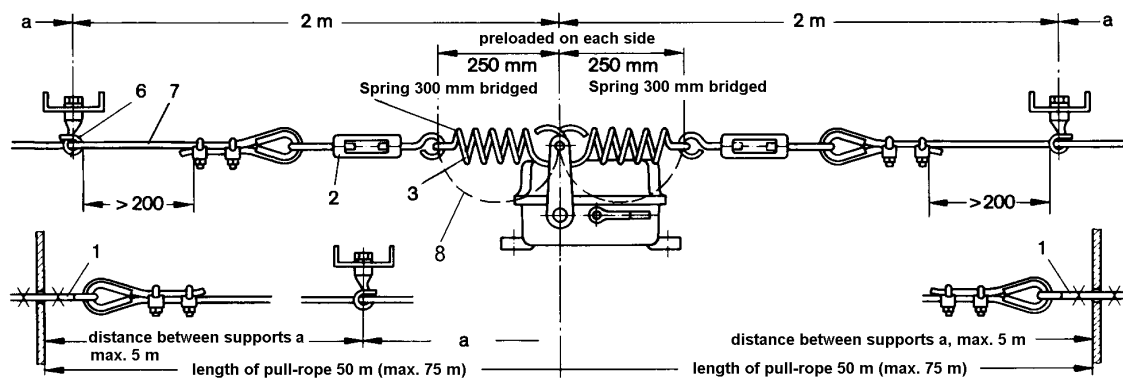
Fig.3 Terminal Diagram

Technical data					
Device	Pull-rope emergency switch	Flashing light	Horn	Terminal box	Alarm signal post
Housing	glass-fibre reinforced polyester PP6	thermoplastic (ABS), shock res., cover macrolon orange	thermoplastic (ABS), shock resistant	polyester 122x120x91 mm	C-section 140x40x15x3mm L=1500mm
Colour	yellow RAL1004	light grey	light grey	grey	galvanized
Rating voltage		220 VAC, 50Hz	220 VAC, 50Hz		
Microswitch rating	380VAC .. 5A 220VAC .. 8A 80VDC .. 3A 24VDC .. 9A	flashes: energy .. 5W sec. frequency approx. 60-90 pulse/min.			
Sound level	-	-	110 db(A)	-	
Circuit connection		-	-	10 terminals	
Enclosure in accordance with DIN 40050	JP 65	JP 54	JP 55	JP 65	
Interference suppression in accordance with VDE regulation 0875				interference level normal (N)	
weight	2,5kg	0,4 kg	1kg		
weight of alarm signal post including device	16,2kg				

Pull Rope Arrangement, Version A



Pull-rope Arrangement, Version B VDE 0113, DIN EN 418



Accessoires:

- 1 eye screw M6x60
- 2 turnbuckle M6x110
- 3 spring RZ168
- 4 rope eye 3/16"

- 5 rope clamp 3/16"
- 6 wire loop M8x80 with bolt
- 7 pull rope: steel rope with red PVC sheathing
- 8.spring bridge

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Off-Track Belt Switches Type BSR and Type BSO VDE-approved

Technical Data



Application

The straight run of troughed conveyor belts is a decisive factor in safe, economic operation. In spite of several mechanical precautions, external influences caused by local conditions may effect the belt's straight running.

The most frequent causes for slant running are

- soiling of the support rollers and tail belt drums
- off-center material loading

If such or similar situations occur, the conveyor belt concerned and the supply belts are to be switched off to prevent damage, destruction, spillage of material, erroneous discharge, and the resulting expensive consequences.

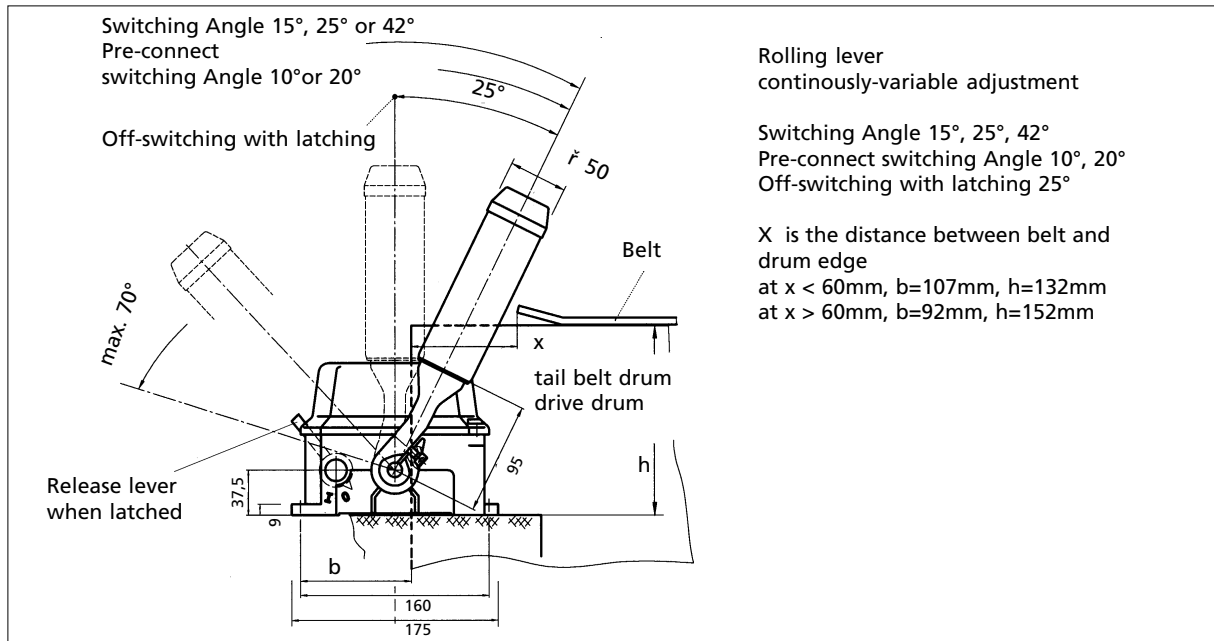
Configuration and features

Operating mechanism and switching elements of the switches type BSO and BSR are accommodated in a sturdy, glass-fiber reinforced plastic housing, enclosure IP 65, which meets heavy duty requirements in any respect.

It is equipped with two holes for leads PG16 which are plugged for shipping (plugs not for use in operation). The switching mechanism makes the off-track belt switch staying operational even in case of broken springs.

The off-track belt switch type BSO is provided with a switch mechanism **without** latch, the type BSR **with** an effective latch when being operated.

The release cam lever snaps into the latches only when the switching position is reached. It can be released only locally with a tight mounted release lever.



Arrangement of the off-track belt switch on the conveyor system

The off-track belt switch type BSO 0.. is available with max. three switching elements, while at the type BSR 0.. the status of the latching is indicated by an additional switching element.

At the types BSO.. +V and BSR.. +V max. two switches are dedicated to connecting at a rolling lever deflection of 15°, 25°, and 42° and one switch is dedicated to a pre-connecting at a lever deflection of 10° or 20°. The switching angles are selected by removal of the corresponding cams on the cam discs at all types of BSO and BSR.

The max. rolling lever movability (deflection) amounts to 70° to both sides.

The items in fact do not require any maintenance by the patented switching mechanism. If required, the items are available with a signal lamp integrated into the cover.

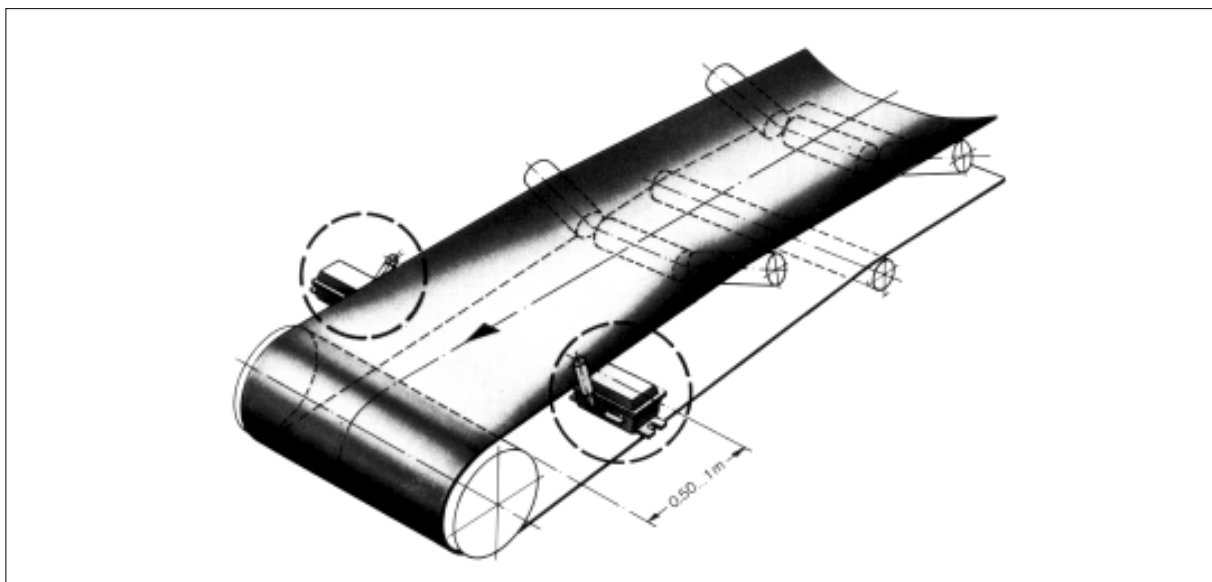
Mode of Operation

Off-track belt switches of types BSO 0.. and BSR 0.. are mounted on both sides of the conveyor belt close to the drive drum and the tail belt drum. Very long conveyor belts require further off-track belt switches.

The type BSR prohibits an unintended, automatic re-starting because it must locally be released.


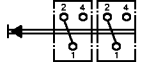
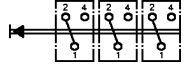
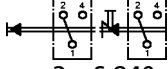
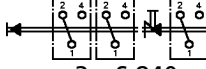
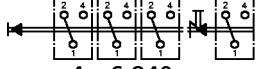
Both types ensure a high switching safety. The switching elements used have pre-loaded spring contacts and cogent-opening system and, by this, meet international standards.

The switching elements are appropriate to solve switching problems and to control optical or acoustical reporting devices as well.



Mounting example BSR / BSO

Technical Data

Type BSO	BSO 01	BSO 02 BSO 01 +V	BSO 03 BSO 02 +V
Connection			
Switching elements	1 x S 840	2 x S 840	3 x S 840
Type BSR	BSR 01	BSR 02 BSR 01 +V	BSR 03 BSR 02 +V
Connection			
Switching elements	2 x S 840	3 x S 840	4 x S 840
Duration current	230V/6A (at Ohm charge)		
Isolation	2,5 KV/3 (VDE 0110)		
Switching contact durability	3 x 10 ⁵ switchings; switching frequency 150/h		
Switching contact gap	0,75 to max. 1,5mm _c		
Short cut protection required (fuse)	6 A		
VDE-Classification	AC 11		
Specifications met	EN 60 947-5-1 (DIN VDE 0660 T200) EN 60 947-5-1 / A1 (DIN VDE 0660 T200 / A1)		
Application	Devices and controls to VDE 0100 and 0113		
Housing	GFK (Glass fibre reinforced plastic), resistant against water solutions of salts, acids, and alkalines, alcohol and solvent		
Colour	Housing: yellow, RAL 1004 Reset lever: red, RAL 3000		
Weight	1,8 kg approx		
Enclosure (according to DIN 40050)	IP 65		
Installation orientation	Preferably upright, i.e. activation lever up		
Mechanical duration	1 x 10 ⁵ Switchings (according to DIN 46 247 part 2, version 4, point 3, section 4.21 and DIN 41 636 part 1, point 6.9)		
Cable routing	threaded holes, 2 x PG16		
Ground connection	in housing		
Permissible environment temperature	Storage	-40°C...+85°C	
	Operation	-40°C...+85°C	
	Transport	-40°C...+85°C	
Max. equipment	3 alternating switches (BSO) 4 alternating switches (BSR)		
Signal lamp (Option)	12, 24, 60, 220V max. 5 W		
Exchange with predecessor	By adapter plate the BSR 0... / BSO 0... can be mounted on the attachment flange with the holes arrangement of the predecessor BSR... / BSO...		

Safety Instructions

- The plugs are only for dirt protection, they are not for use in operation
- PG-screwings must be sealed with an sealing against the housing
- PG-screwings witch are not in use must be closed by a plug and sealing
- The inner cabeling must be routed in a way that a single wire cannot fall into the mechanical arrangement in case of a becoming loose. This is preferably achieved by cable binders holding together all single wire

The following must be inspected periodically during operation of an off-track belt switch:

- Safe attachment of the off-track belt switch
- Cleanliness of item and freedom from belt loading material and similar particles
- Absence of signs of damages like cracks, corrosion, deformation

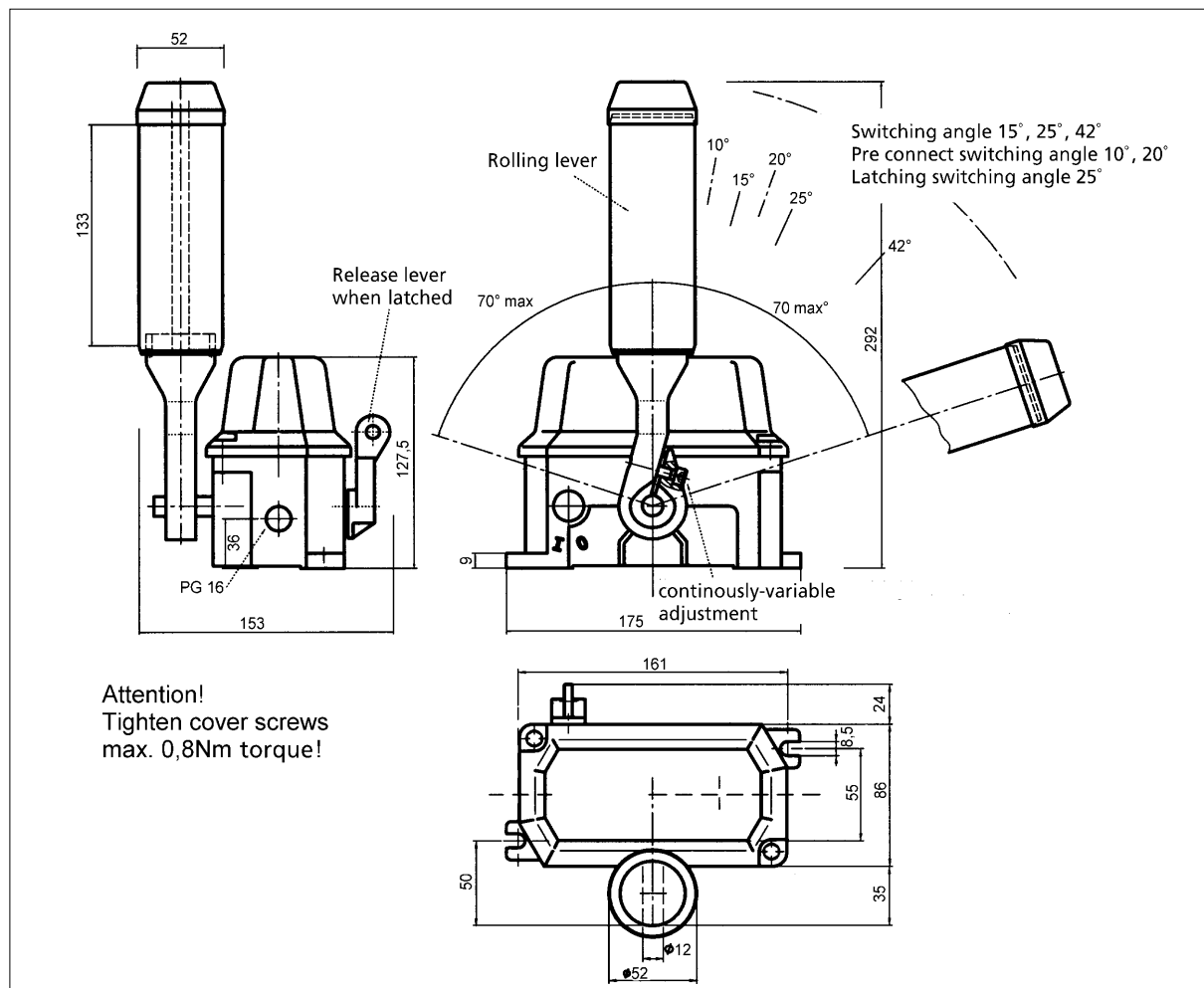
- Absence of foreign particles in influences collected at the device which could obstruct activation parts
- Absence of obstacles near the roller lever

Periodical Check for proper Function

The proper function of the off-track belt switch is checked during stopping the conveyor belt by the device or by observing the device during standstill of the conveyor belt:

- Easy movement of rolling lever and movement from transmitting parts
- Reliable selflatching of rolling lever in Off-Position
- Release of rolling lever not too easy

In case of anomalies detected during inspection, these are immediately to be solved or the item concerned is to be replaced for further investigation.



Dimension BSO / BSR

06.417/0498 (Subject to alteration)

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Off-Track Belt Switches Typ FSR und FSO VDE-tested

Technical Data



Application

The straight run of troughed conveyor belts is a decisive factor in safe, economic operation. In spite of several mechanical precautions, external influences caused by local conditions, may effect the belts straight running.

The most frequent causes are

- soiling of the support rollers and tail belt drums
- off-center material loading.

If such or similar situations occur, the conveyor belt concerned and the supply belts are to be switched off to prevent

- damage
- destruction
- spillage of material
- erroneous discharge

and the result possibly expensive consequences

Off-Track Belt Swithes Typ FSR/FSO with latching

Design

Operation mechanism and switching elements of the switches FSO and FSR are accomodated in a sturdy, glass-fiber reinforced plastic housing, enclosure IP 65, Which meets in every aspect heavy duty requirements.

Two threaded bushes for cable glands PG16 are provided for lead-in. The switching mechanism is designed in such a way that the track-off belt switch remains operational even with a damaged retraction spring. In order to prevent loss of functional safety as a result of soiling, the retraction spring has been placed inside the housing

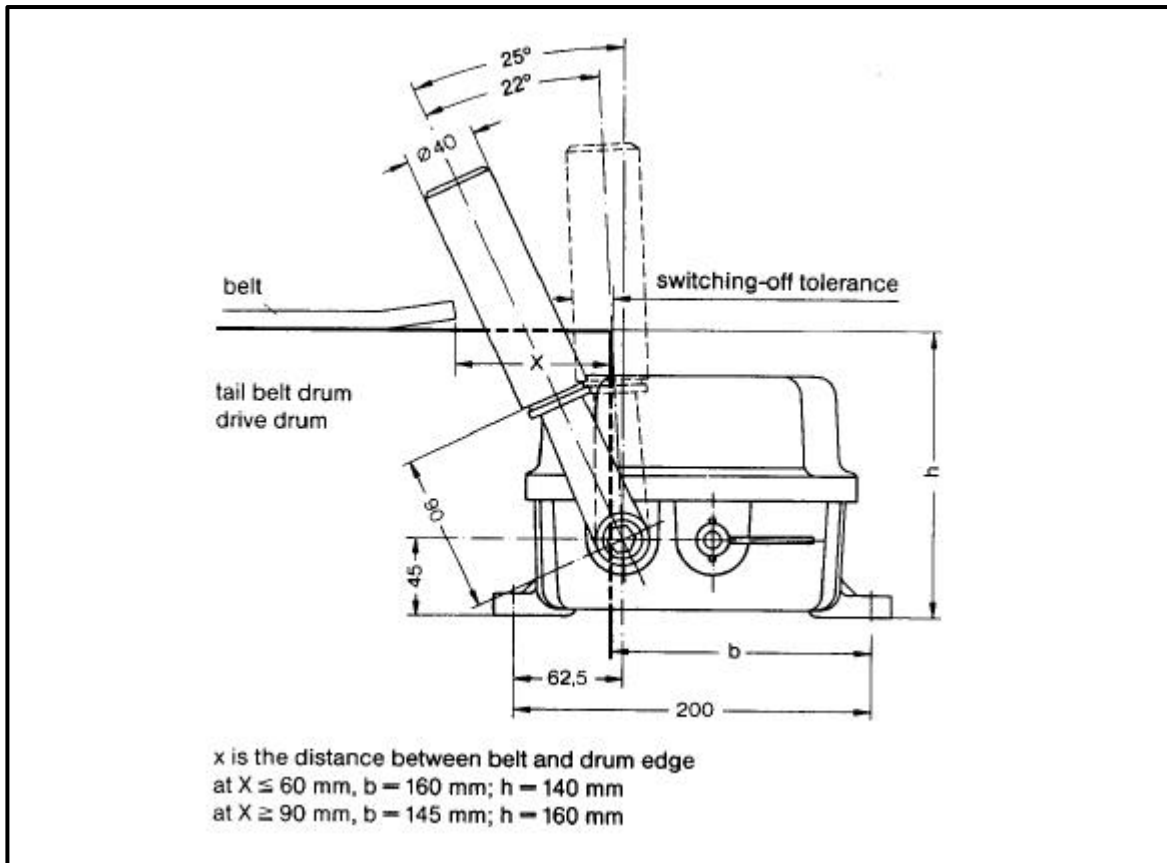
The off-track belt switch FSO is provided with a switch mechanism **without** latch, the type FSR **with** an effective latch when being operated.

The release cam lever only latches when the switching position is reached. With constant movement of the roller

Lever by the belt, mechanical wear and tear is thus avoided. Unlatching can take place locally by an incorporated or separately supplied release lever.

The off-track belt switches of the types FSO and FSR are available with two or three switching elements respectively. In the case of the the switches FSO 2/1+V, two switching elements for the limit switching-off with a lever deflection of 12°-15° are provided for.

The robust, long roller lever is equipped with ball bearings and suitable for deflection of 75° on both sides. The devices nearly do not need any maintenance.



Arrangement of the off-track belt swithes on the conveyor system

Functioning

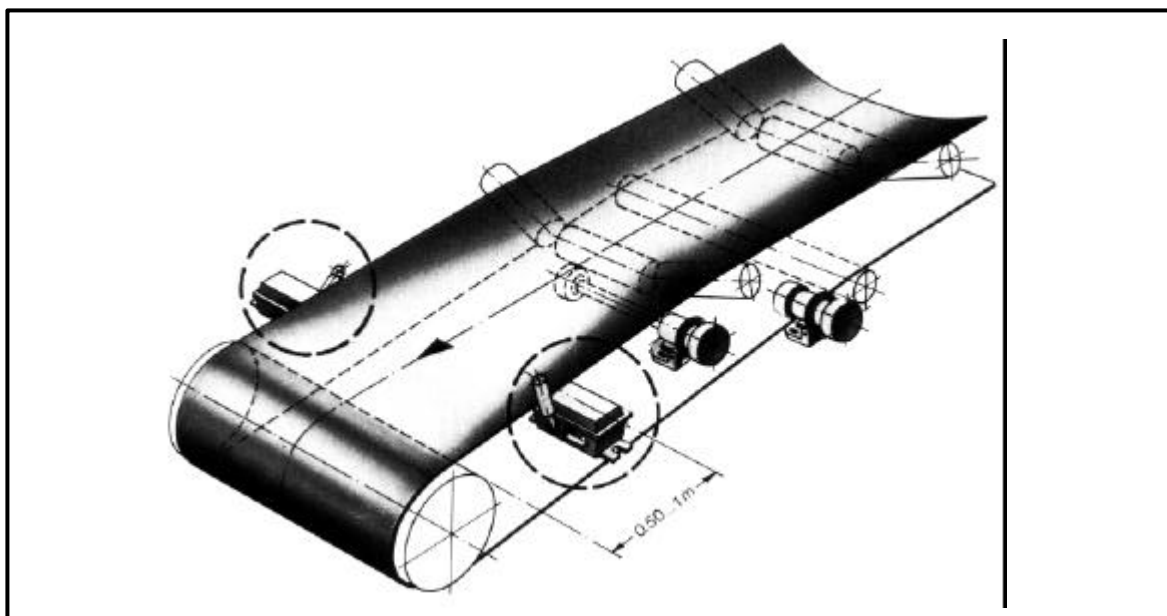
Off-track belt switches FSO and FSR are monted on both sides of the belt near to the tail belt and drive drums. In the case of extremely long belts, further switches should be provided for according to further sources of danger expected.

Utilization of the type FSR does not allow for

Unintentional, automatic switching-on, since local release is required.







Both types ensure a high degree of switching reliability. The built-in switching elements are equipped with snap contacts and compulsory break system and thus comply with international regulations. With tree swit

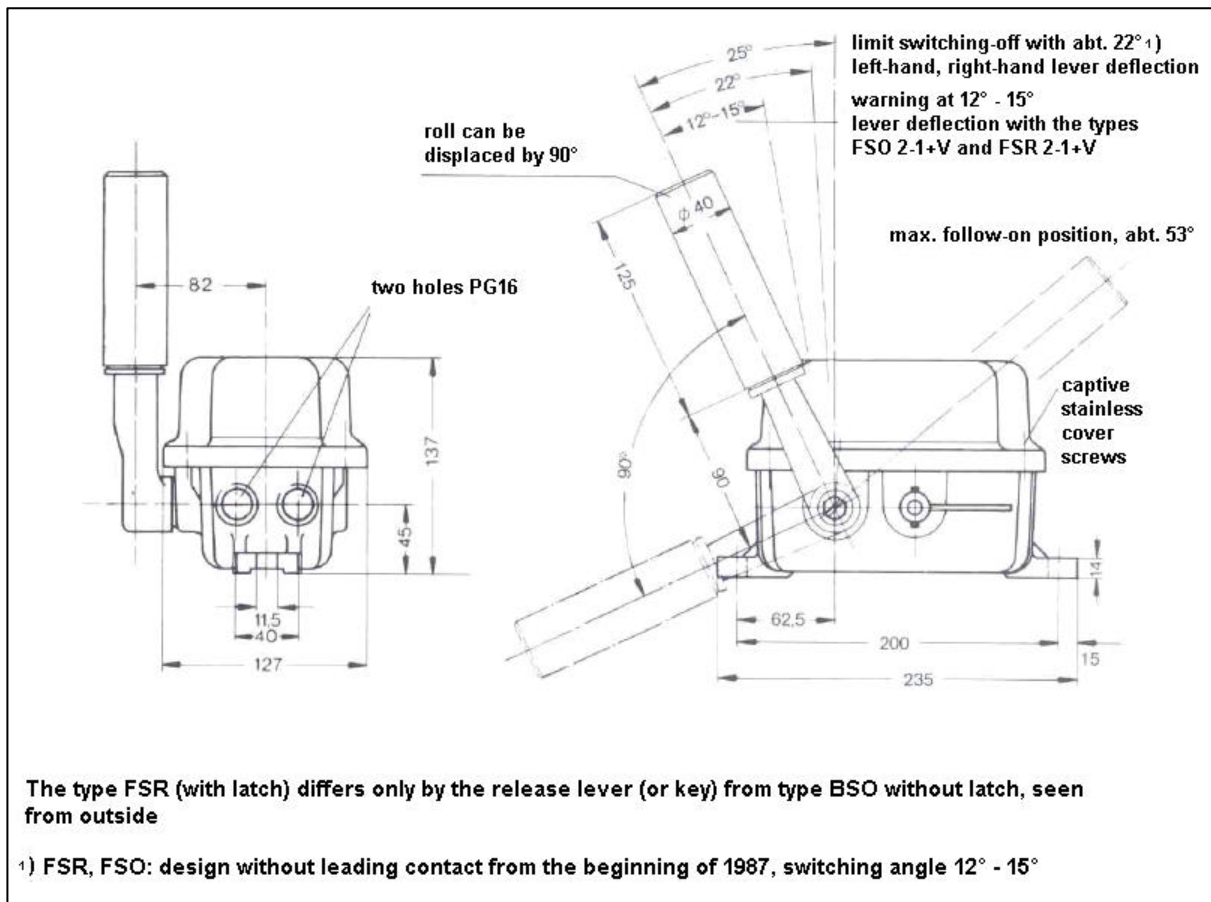
ching tasks can be solved and additional audio or visual control faciities can be triggered.



Co-ordination of the off-track belt switch with the other safety devices

Technical Data

Type	FSO 2-1	FSR 2-1	FSO 3-1 FSO 2-1+V	FSR 3-1 FSR 2-1+V
Latch mechanism	non	with	with	with
Connection				
CSA design			type 3SE3020-1A 300V WS; 40-60 Hz; I = 10A	
Switching-elements	type (std. design)	S 800a	S 800a	S 800a
	rupturing capacity	380V WS; 50/60 Hz; 220V WS; 50/60 Hz;	cos φ = 1/0.8; I = 6A/4A cos φ = 1/0.8; I = 9A/7A	80V DL; τ = 0/5ms; 60V DL; τ = 0/5ms; 24V DL; τ = 0/5ms;
Pilot lamp	lamp power 5W max. mandatory!			
Line connection	2 wires 1 to 2.5 mm			
Adm. ambient temperature	- 35°C to + 80°C			
Resistant to humidity	up to 96% relative humidity			
Weight abt.	3kg	3kg	3kg	3kg
Material/colour of housing	IP 65	IP 65	IP 65	IP 65
glass-fiber reinforced plastics / yellow RAL 1004				



06.424/0698 (Subject to alteration)



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Off-Track Belt Switches with Ex - protected contacts Type FSR-EML und FSO-EML

According to the ATEX-guideline - for use in zone 21 and 1

Technical Data



Off-Track Belt Swithes Typ FSR-EML with latching

Application

The straight run of troughed conveyor belts is a decisive factor in safe, economic operation. In spite of several mechanical precautions, external influences caused by local conditions, may effect the belts straight running.

The most frequent causes are

- soiling of the support rollers and tail belt drums
- off-center material loading.

If such or similar situations occur, the conveyor belt concernd and the supply belts are to be switched off to prevent

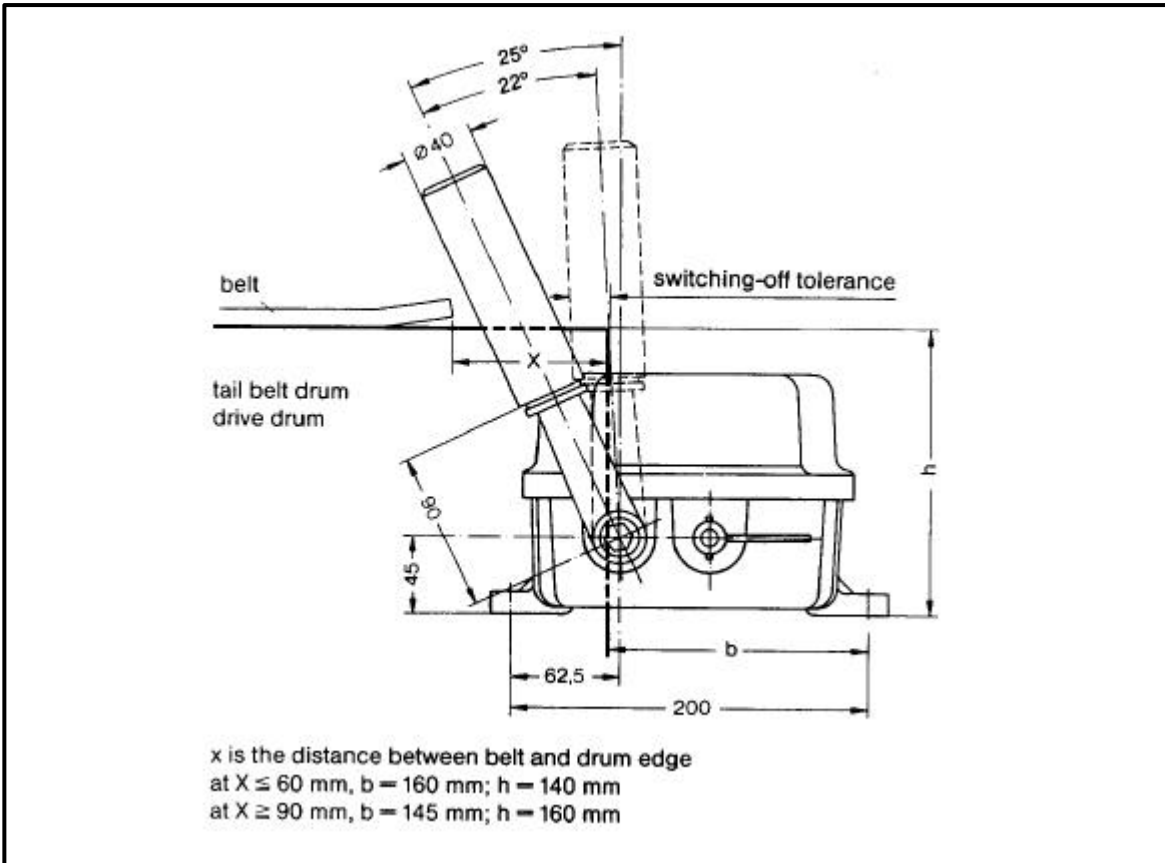
- damage
- destruction
- spillage of material
- erroneous discharge

and the result possibly expensive consequences .

Design

The equipment of these switches with EX-protected and approved contacts qualifies them for use in explosive areas zone 21 as well as zone 1 according to the ATEX-guideline. The design of these misalignment switches considerates heavy duty service. Housings made of grey cast iron or of most stable, impact resistant, thick-walled and strongly oxydating atmospheres resistant fibre glass reinforced polyester as well as the roller levers made of stainless steel, are the best guarantees for long years of reliable service. Both housings are IP66 protected (water- and dust proof). These misalignment switches should be installed pairwise, left and right of the conveyor. In case that the conveying belt misalign from the given track, one roller lever of these switch pair will be touched by the edge of the belt and displaced against the resetting force of an switch-internal spin. Actuation of the contacts is being effected in

snap-action characteristic if the lever is displaced 7cm out of the neutral position. The maximum displacement angle of the roller lever is 75°. Optional is a 2- stage switch, first stage for signalling and the second stage for cut off. Signalling happens at a displacement of 4cm, cut off at 7cm. In case that the value of misalignment is reduced reset happens automatically. A further version provides latching in main contacts actuated position. Stepless adjustable space between the roller lever and the edge of the belt by stepless adjusting of the lever on the switch shaft facilitates installation. The contact surfaces are made of silver or are gold plated optional. For low tensions and smallest currents the gold contacts are recommended. 1 or 2 cables, standard 5m long each, fix welded to the contacts, are for electrical connection either in EX-free or EX-protected atmospheres.



Arrangement of the off-track belt switches on the conveyor system

Functioning

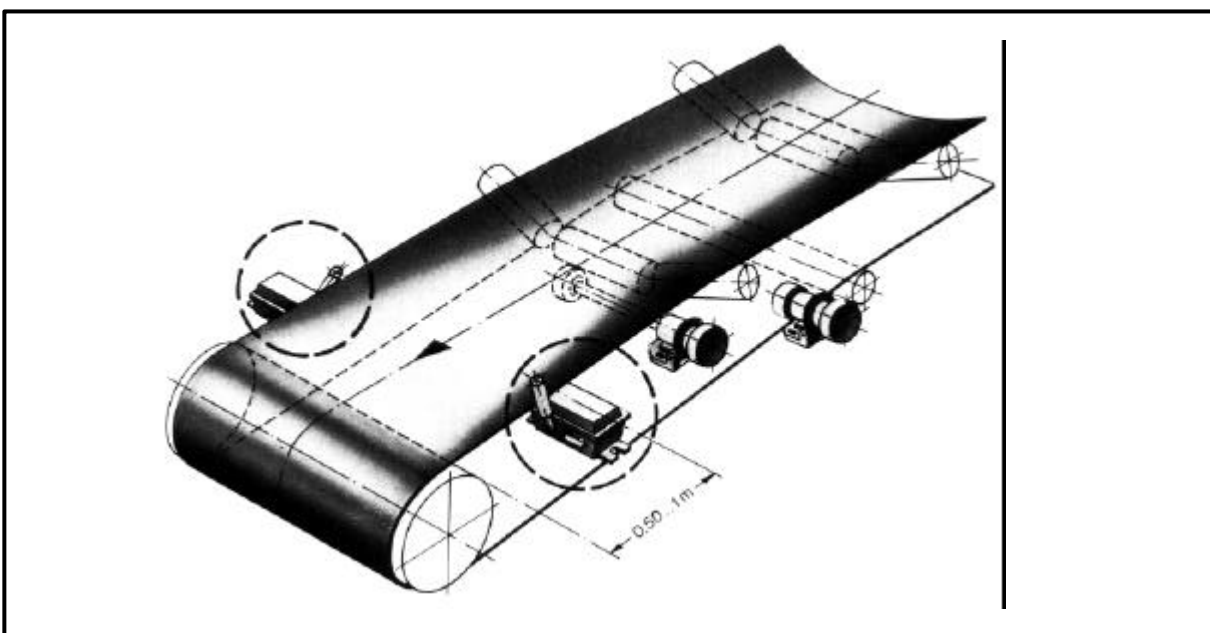
Off-track belt switches FSO-EML and FSR-EML are mounted on both sides of the belt near to the tail belt and drive drums. In the case of extremely long belts, further switches should be provided for according to further sources of danger expected.

Utilization of the type FSR-EML does

not allow for unintentional, automatic switching-on, since local release is required.

Both types ensure a high degree of switching reliability. The built-in switching elements are equipped with

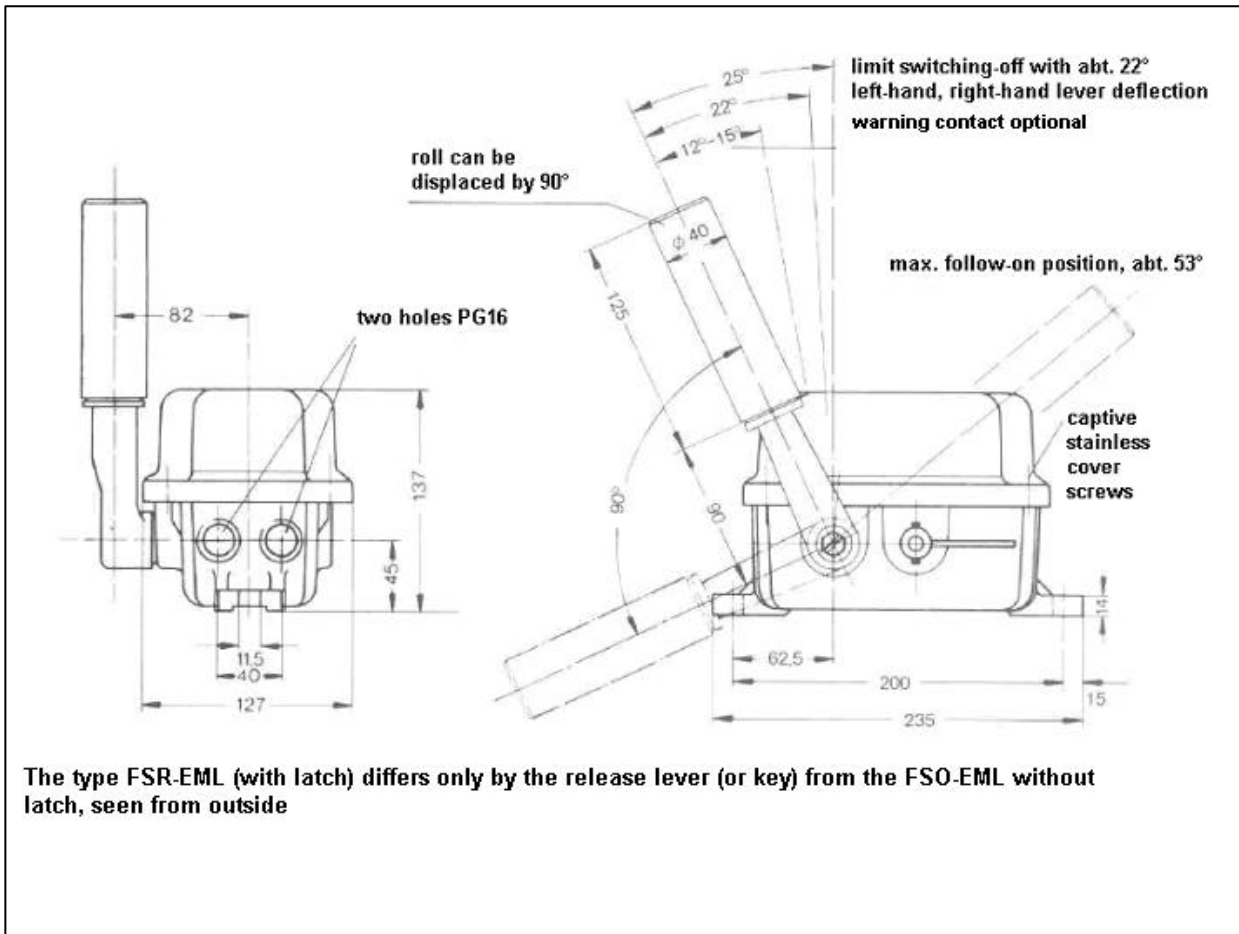
snap contacts and compulsory break system and thus comply with international regulations. With tree switching tasks can be solved and additional audio or visual control facilities can be triggered.



Co-ordination of the off-track belt switch with the other safety devices

Technical Data

Conformity	ATEX / EN 60 947 / VDE 0168 / EN 60204
Certification of contacts approved for zone	EEx d II C T6, II 2 G, II 2 D T80 °C 21 as well as 1
Off-track for main contacts	7cm
Off-track for warning contacts	4cm
Max. displacement	75°
Roller lever	stainless steel, stepless adjustable, double stainless steel ball beared, 50mm diameter for low rotation speed and high lifetime
Switching capacity	silver contacts: ohmic 230 VAC 5 A / 30 VAC 7 A cos phi 0,6 250VAC 3A / 30 VAC 5 A
	gold plated: min 5V / max 30V
Utilisation category	min 4 mA / max 400 mA max 0,12 VA
Connection cable	AC-15 2A 400V, DC-13 0,15A 250V
Housing material	1 or 2 cables, each 5m a) Fibre glass reinforced polyester b) grey cast iron
Weight	a) 2,0 kg b) 5,6 kg
Housing colour	yellow or red
Protection	IP 66
Fixing	2 holes for M10-screws
Operating temperature	-40°C up to +85 °C





Lever Limit Switch HE-...- Z

Technical Data



- Up to 4 contacts NC and 4 contacts NO
- Snap action safety contacts with forced-opening system
- 2 cable ducts Pg16
- Available with impact resistant glass fibre reinforced polyester, optional cast iron enclosure
- Type of enclosure IP 65
- EEX protected version available
- Version with CSA (Canadian Standard Association) approval
- Automatic latching in actuated position with manual reset

Lever Limit Switches are designed for signalling or cutting off at reached positions of linear or swiveling movements.

MEYLE Lever Limit Switches of these types are equipped with an actuation lever which is pressed through an internal spring in its neutral position. When the roller of this actuation lever is moved against a cam or an actuation bar, the actuation lever is displaced from its neutral position to one of the both possible sides (left or right) against the force of the internal spring. At an displacement angle of 30° the commutation will happen in snap-action characteristic with a forced opening of the NC-contacts. When leaving the area of cam or actuation bar, the lever is turned back to its

neutral position through the force of the internal spring and resetting happens with snap action (except for version „R“. At this point the actuation lever will be latched in actuated position automatically. Release of this latching only manually direct at the switch).

These switches can be equipped with up to 4 switching elements. Each switching element consists of one contact NC and one contact NO. They are actuated either simultaneously independent on the direction of displacement of the lever or they are actuated depending on the direction (see „selection table“). Commutation is being effected at a displacement angle of 30°. The maximum displacement angle of roller lever is 75°.

The lever can be mounted in 4 positions on the shaft. The roller of the actuation lever is made of polyamide and is sleeve-bearred on a stainless steel axle.

The housing of this switch is made either of coloured, glass fibre reinforced polyester or of cast iron (code „M“). Stability of the polyester enclosure is comparable to that of cast iron enclosures. Polyester, however, is not so brittle and thus more resistant against shocks. Both are dust- and waterproof housings (conforming to IP65).

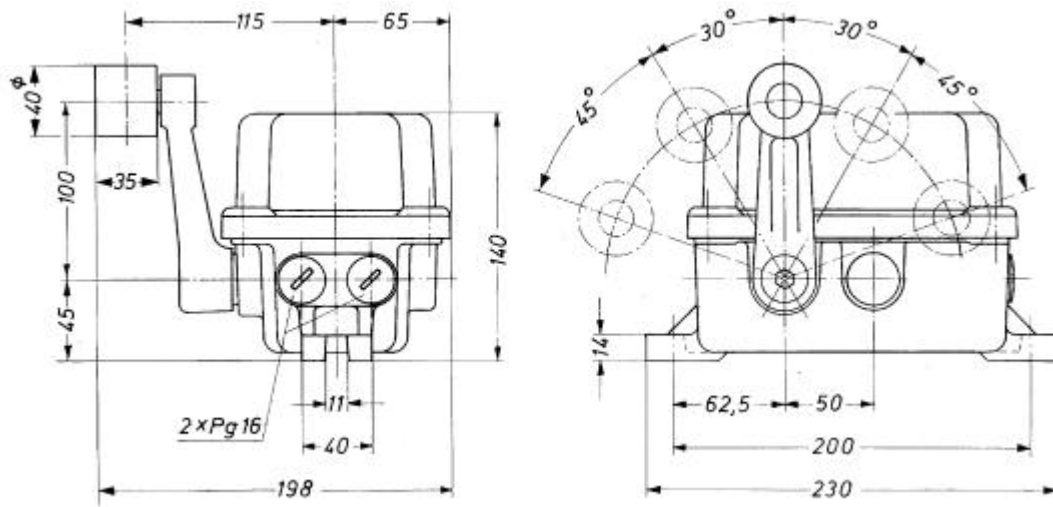
The switches are guaranteed for an extended working life: The use of sealing rings protecting all ducts out of the housing, shafts made of stainless VA-steel, screws made of stainless VA-steel, loss-protected lid screws.

Variations

- Pull-off release lever
- CSA-approval (separate data sheet)
- EEX and SCH protected version (separate data sheet)
- For easier installation of the electrical wiring a 8-digit clamp with internal wiring can be provided
- Pre-contacts for prewarning at displacement angle of roller lever of 15°

Technical Data

Conforms to standards	EN 60 947-5-1 / EN 60954 / DIN EN 292
Switch angle	30°
Max. lever displacement	75°
Height of actuation bar	min. 20mm, max. 65mm
Life	electrical 5x10 ⁵ operations, mechanical 5x10 ⁵ operations
Switching capacity	400VAC 6A / 230VAC 8A / 24VDC 10A / 80VDC 3A
Cable ducts	2 x Pg 16 threaded hole
Type of protection	IP65
Housing material	Glass fibre reinforced polyester (HE....), cast iron (HEM....)
Housing color	yellow RAL 1003 or red RAL 3000
Weight	2.3 kg (HE-10x-Z), 5.9 kg (HEM-10x-Z)
Fixing	2 long holes for M10-screws
Operating temperature	-40°C up to +85°C



Selection table (there are more variations possible!)

Glass fibre reinforced polyester housing

Typ	number of switching elements actuated...		latching	
	depending on direction	left only		right only
HEE 161-Z	1		no	
HEER 161-Z	1		yes	
HE 162-Z	2		no	
HER 162-Z	2		yes	
HE 163-Z	3		no	
HER 163-Z	3		yes	
HE 164-Z	4		no	
HER 164-Z	4		yes	
HE 162-Z2		1	1	no
HE 164-Z2		2	2	no

Cast iron housing as mentioned above, but use code „M“, e.g. HEM 161-Z.

Interlock Bypass Switch Type ESP for Operational Monitoring of Drives

Technical Data



Application

Interlock bypass switches of type ESP made are used to monitor semiautomatic or fully-automatic, proper mechanical operation of conveyor belts for cargo and bulk material systems arranged in series as well as of drives.

They ensure operation by their application in circuitries for interlocking of all drives, successive connection of drives opposite to the conveying direction and disconnection of all feeding drives of a driving chain upon failure of one drive.

For maintenance and repair work, the interlock bypass units moreover enable the removal of one drive from a driving chain.

By means of a corresponding circuit connections excessive piling and resulting damages of conveyor belts are avoided.

In addition to the application in conveyor systems, interlock bypass switches may be used for all drives, the operation of which requires a mutual interlocking.

Design and Construction

The sturdy compact casing of aluminum dry-casting with yellow plastic coating (RAL 1004) meets IP 65 enclosure and is capable of withstanding all conditions of rough operation.

To avoid contact contamination or corrosion with opened cover, a deck switch is used. The switch knob is recessed in a triply lockable protective collar. The shaft with claw coupling connected to the knob is supported in a ball bearing with sealing in the cover and is arranged asymmetrically. Hence, the cover has to be attached inevitably.

To ensure correct engagement, the cover must be closed or opened resp. in the 0 position of the switch only. For single and reversing drives, merely one switch with different switch functions is installed. Two threaded bores, one PG 16 and one PG 21 - closed by pegs are provided for the cable lead-in. There is one earthing screw inside and one outside the casing.

Function

Following a detailed survey on the various modes of the interlock bypass switches of types ESP 1 and 2.

V interlocked operation (locked position)

In position "V", the resp. drive can be switched on and off centrally only. There is a forced interlocking of all drives.

0 zero position (locked position)

In position "0", the drive is taken out of the forced interlocking and neither can be switched-on automatically nor manually.

E released operation (locked position)

Position "E" enables switching to I On for maintenance and repair operation.

I On (non-locking position)

If an individual drive shall be switched-on temporarily e.g. for maintenance or repair, the switch knob standing in position "E" is to be pushed towards I "On". This switch position is non-locking. A locking design is possible, too.

In case of the interlock bypass switch of type ESP 2 for reversing drives, the modes listed above are available twice as you can see from the switch functions.

Technical Data

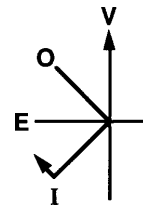
Designation

Interlock bypass switch with deck switch

Type	ESP 1	ESP 2
Deck switch with self-cleaning contacts	P10BC01.548	P10BC01.549
switching capacity	10 A at 230 V	
switching angle	45°	
Dimensions (L x W x H)	120 x 122 x 91/140 mm	
Cable entries	1 x Pg16 and 1 x Pg21	
Weight	1.7 kg	1.8 kg
Surface protection	plastic coating, yellow (RAL 1006)	
Permissible environment temperature	-25°C to +55°C	

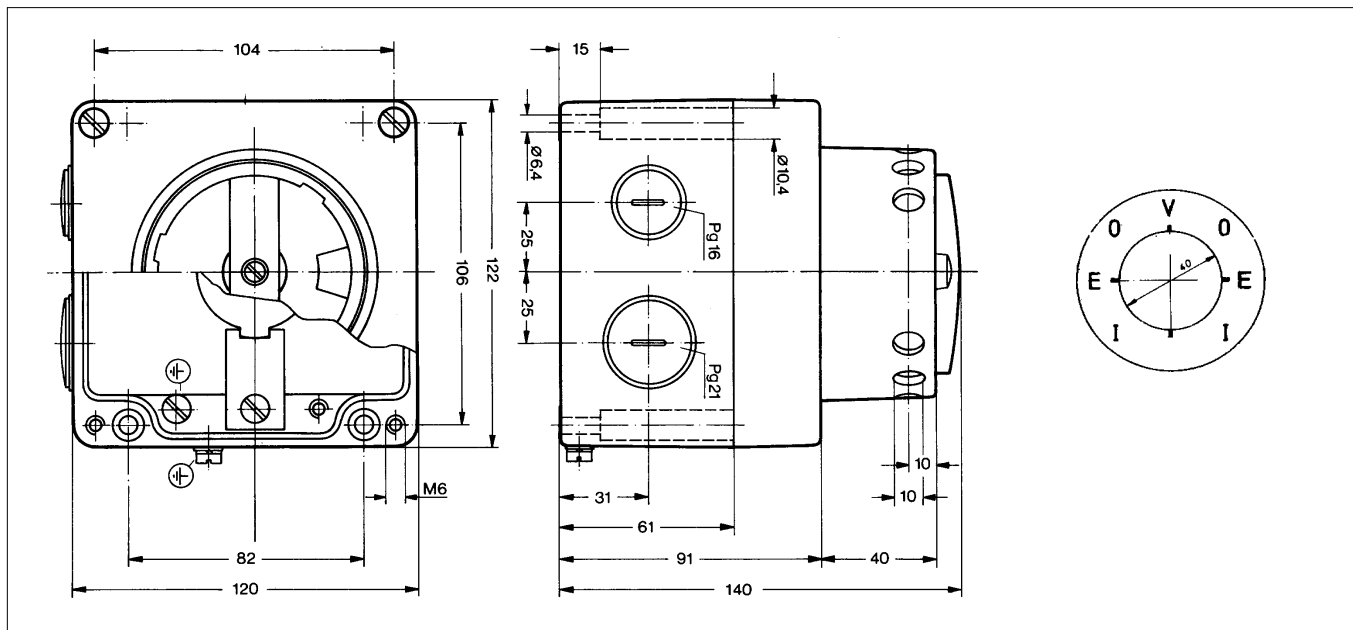
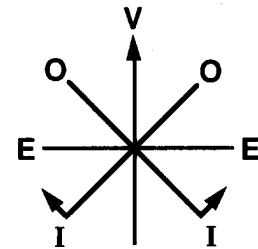
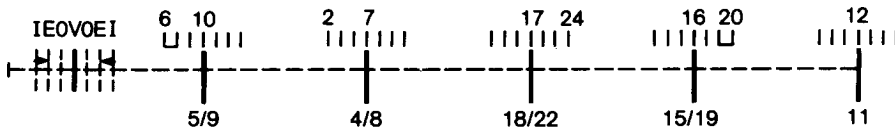
Switch Functions of Interlock Bypass Switches of Types ESP 1 and ESP 2

Single drive ESP 1



Reversing drive ESP 2

left right



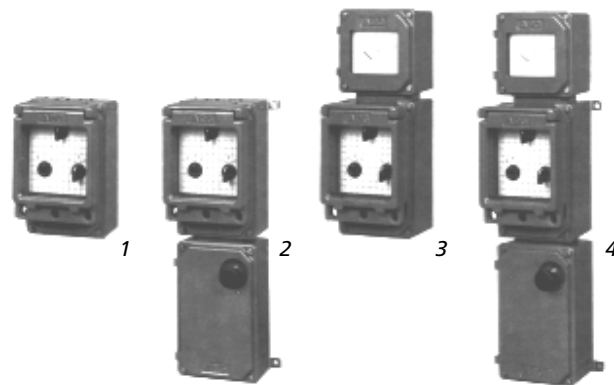
06.501/052002 (Subject to alteration)



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Unlocking Devices Type EGN for the Supervisory Control of Drives

Technical Data



Application

Unlocking devices type EGN from AEG are used for controlling the semiautomatic or fully automatic operation of in series connected conveyor belts for cargo and bulk material transport.

The devices serve for guaranteeing the operation for

- the reciprocal interlocking of all drives
- the starting of the drives one after the other against the conveying direction
- the switching-off of all drives of a driving chain if one drive fails.

When maintenance and repair work is carried out, the unlocking devices furthermore allow for - disconnecting a drive from a drive chain.

This helps to avoid with corresponding connection spillage and thus damage to the conveyor belts.

Design

The housings of sturdy design coated with synthetic resin comply with all requirements of rough service and satisfy the enclosure IP 65. For single operation, a switch with the settings interlocked - O - unlocked as well as an off/ on switch are installed in the intermediate cover. To prevent unauthorized operation of the switches, the hinged cover with safety glassing can be closed by three padlocks. Furthermore, the interlocking and unlocking switch additionally can be equipped with a removable toggle (DBGM registered).

For the reversing drive, additionally a selector switch for the sense of rotation with the settings left - O - right is installed.

The types EGN2, EGN3 are equipped with 13 screw terminals, the types EGN2/3K with 20, from which max. 8 or 15 resp. are used. Therefore, additional terminal boxes for connecting further local units will not be required in most cases.

Picture: Unlocking devices of the types (left to right)

1 EGN3 with three cam switches

2 EGN3K+N with three cam switches and terminal box with emergency-off

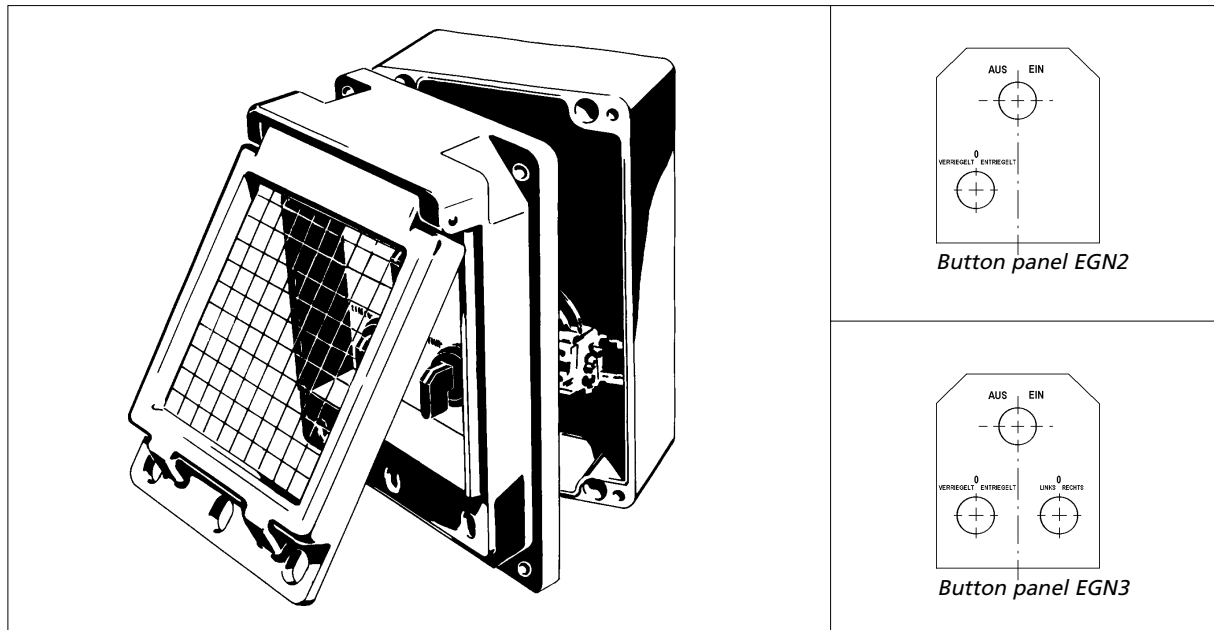
3 EGN3M with three cam switches and instrument box with measuring apparatus

4 EGN3KM+N with three cam switches, terminal box with emergency-off and instrument box with measuring apparatus.

With type EGN and EGN.M, two threaded holes PG16 are provided for on the housing bottom as inlets for the leads, and with the type EGN.K and EGN.KM, the terminal box bottom is equipped with three threaded holes PG16 and one threaded hole PG21, each closed by a blind plug.

Cam switches are provided for as switches for the unlocking devices. The switch supports are

made of high quality, hardly inflammable and non tracking insulating material. Operational safety and reliable contacting properties, even at small voltages, are guaranteed by high contact pressure and double break silver nickel contacts. The unlocking devices are available in many different types. On page 4, the most important types are represented. Page 5 shows the available standard connections. On request, also special connections are carried out.



EGN - Basic unit in open condition

Functioning

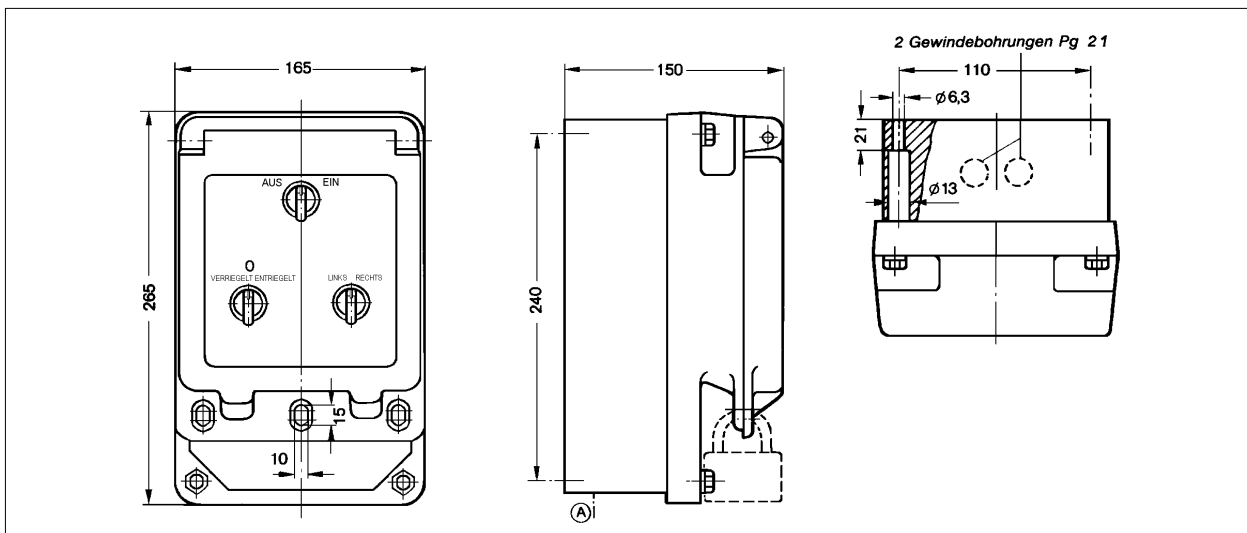
The following tables describe the functioning of the unlocking devices for the different services.

Functioning of the Unlocking Devices with Single Operation

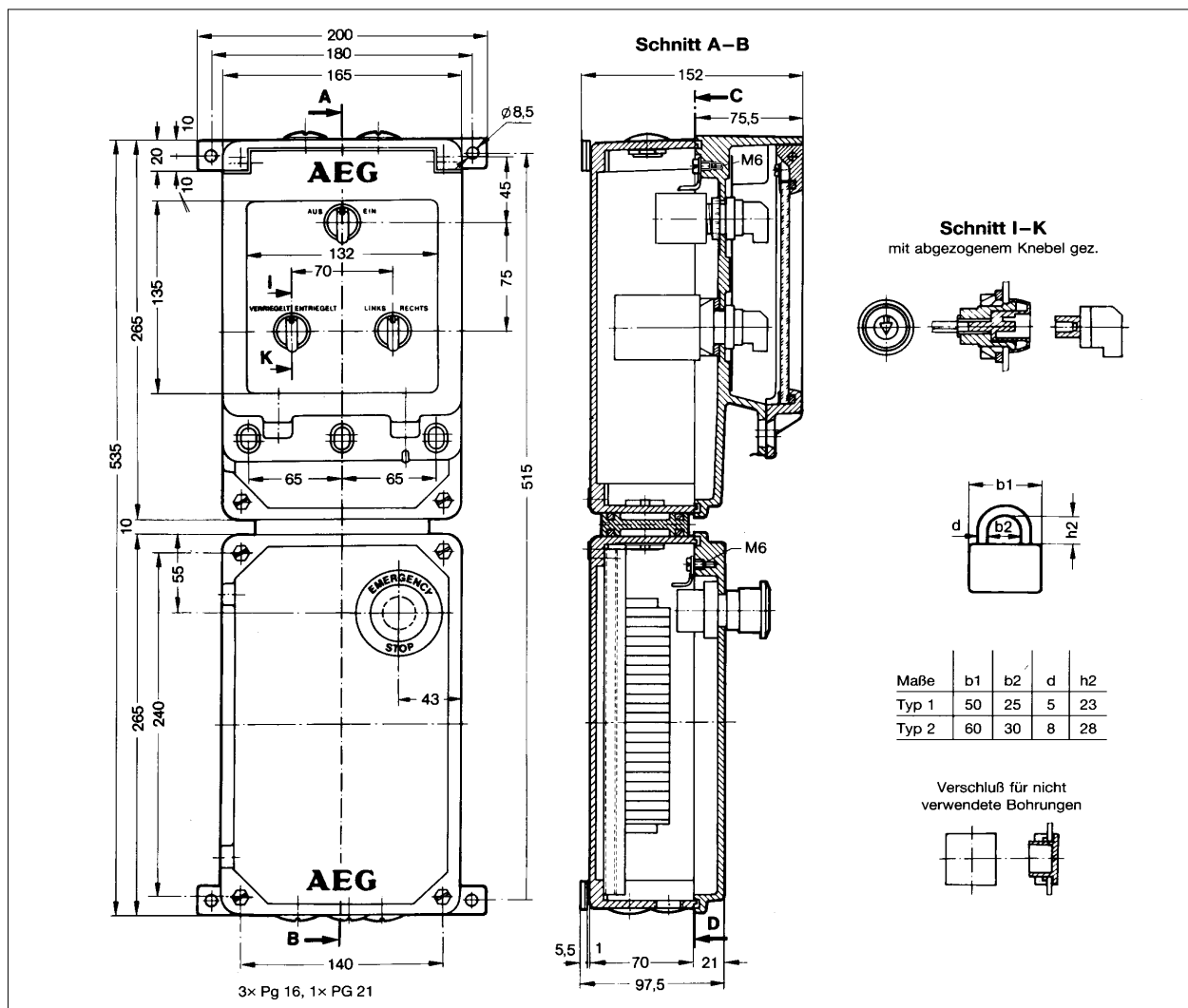
Operating as interlocking and unlocking switch	Functioning
V interlocked operation (switching position engaged)	In the "V" position, the corresponding drive can only be centrally connected and disconnected, with a compulsory interlocking of all drives
O zero position (switching position engaged)	In the "0" position, the drive is disconnected from the compulsory interlocking and cannot be connected neither automatically nor manually
E unlocking operation (switching position engaged)	The "E" position allows for switching the On/Off switch for the maintenance and repair operation.
Operating as On/Off switch	Functioning
On	If a single drive shall be connected for a short time to carry out maintenance or repair work, the switch lever set to "center" has to be put to "On". This switching position can be obtained by sensing or snapping.
Central position	With normal operation
Off	In this switching position, the drive is disconnected independent of interlocking and unlocking switch. This switching position can be obtained by sensing or snapping.

Functioning of the Right/Left Switch in the Case of Reversing Drives

Operation		Functioning
Right	(switching position engaged)	Right-hand running of the drive
0	(switching position engaged)	Drive disconnected
LeH	(switching position engaged)	Left-hand running of the drive

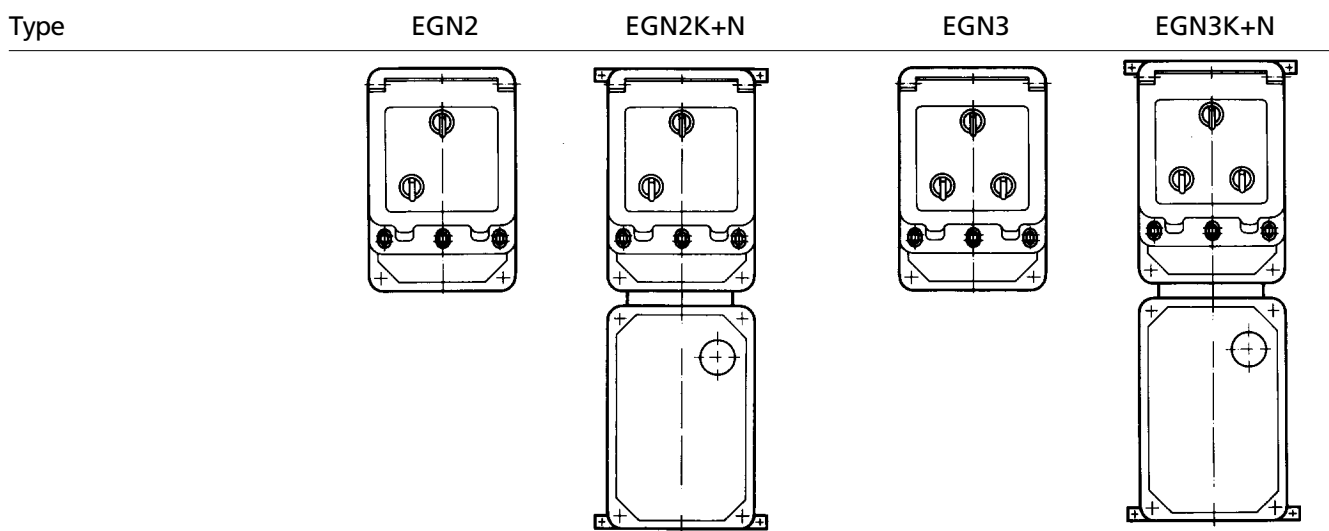


Dimension sketch of unlocking device type EGN, with cam switches



Dimensiones sketch of combined unlocking device type EGN.K+N with cam switch

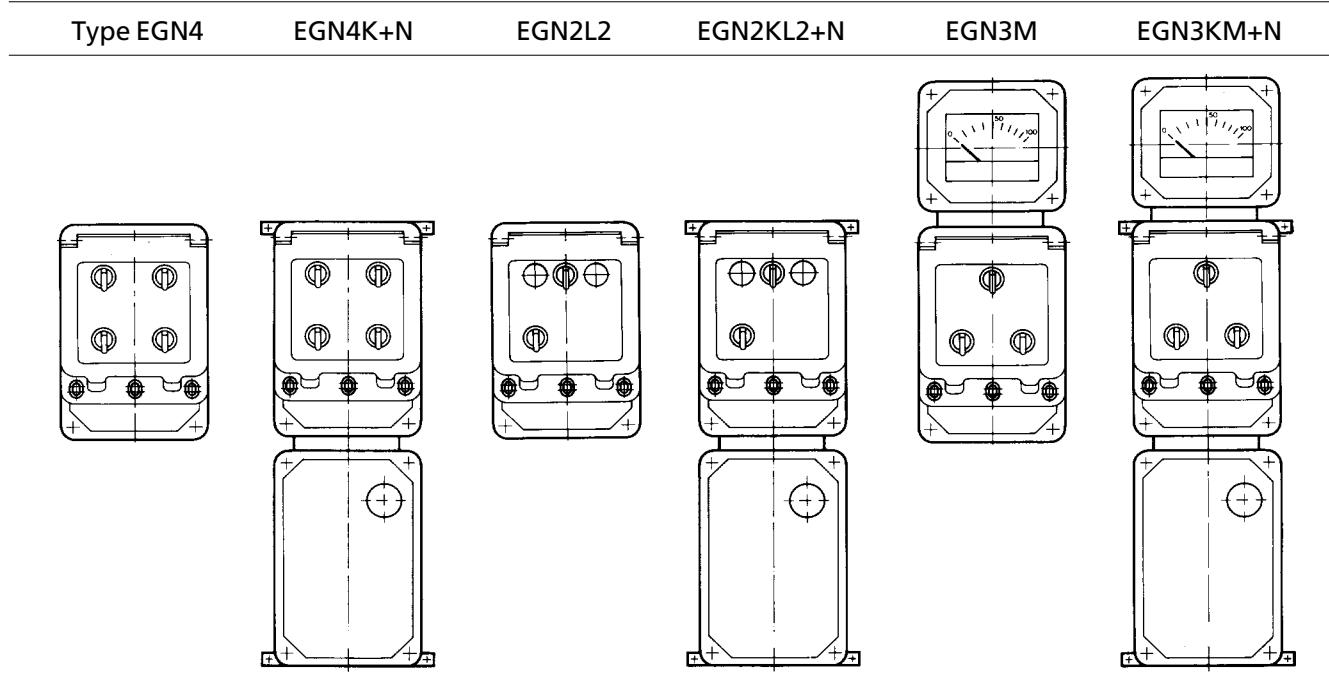
Technical Data of Standard Unlocking Devices Type EGN2/3 and EGN2/3K+N with Cam SwitchType

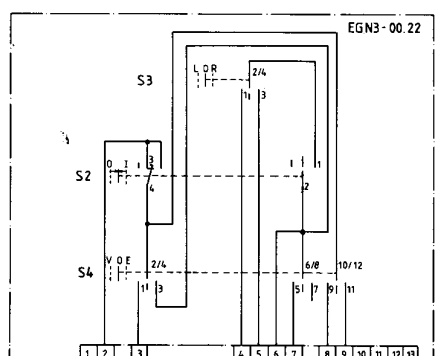
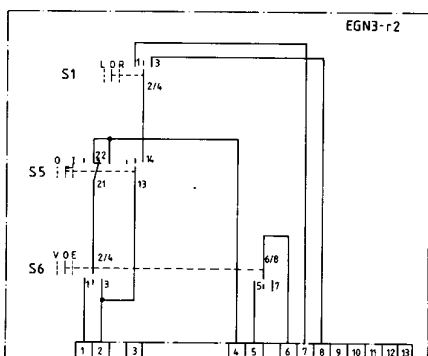
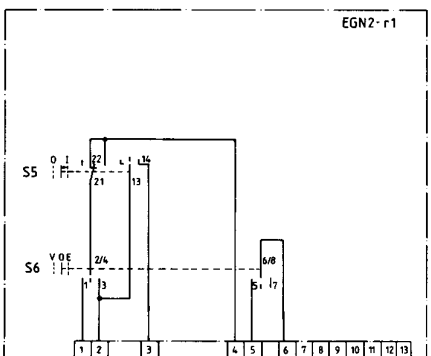
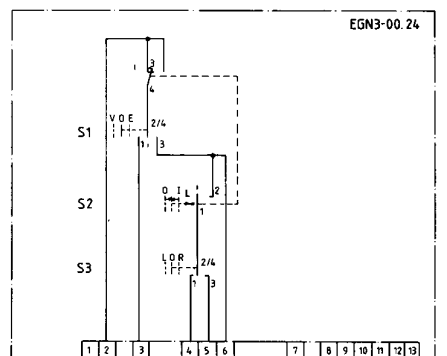
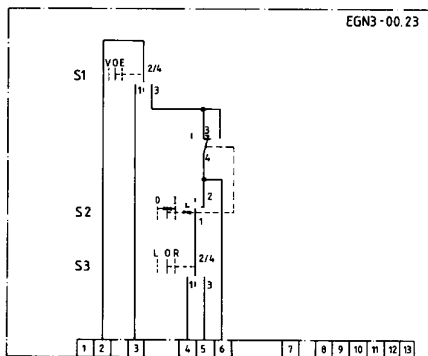
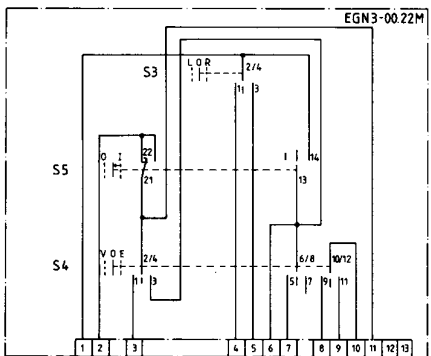
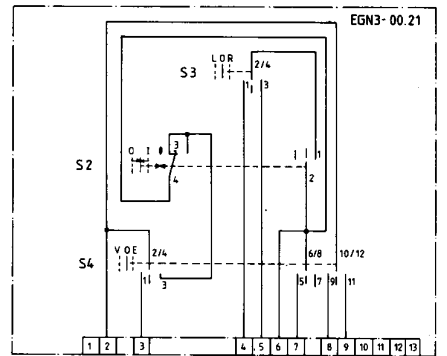
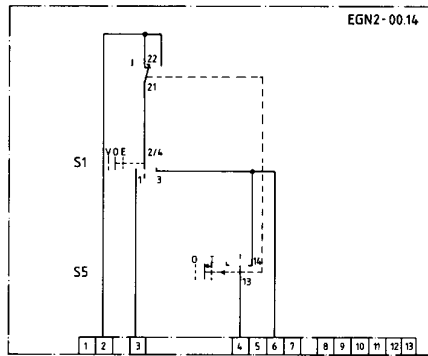
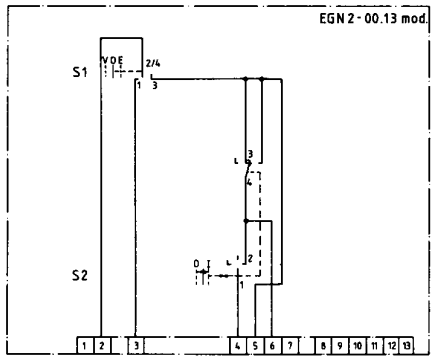
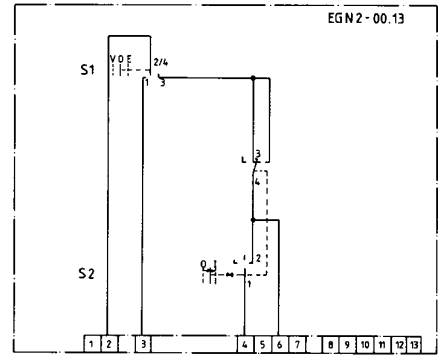
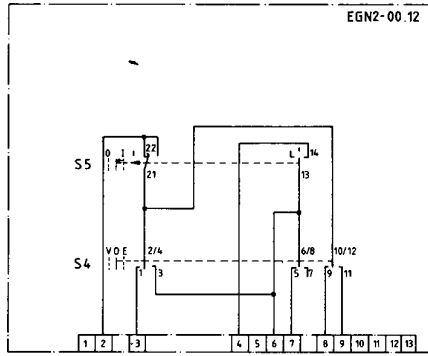
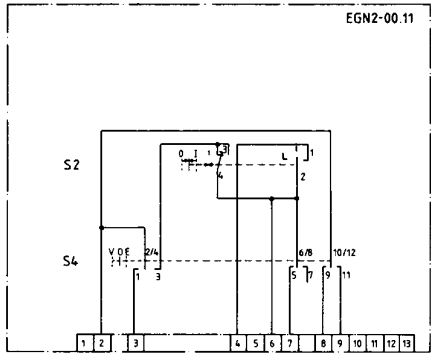


Standard connections see below (special connections on request)

Cam switches	number	1, 2, or 3 (4 on request)
	switching angle	45°
	rupturing capacity	10 A with 220 V, 50 Hz; 8 A with 380 V, 50 Hz
Lamps		1 to 3
Measuring		see special types
Line connections		EGN. = 13 terminals; 2.5 mm, EGN.K = 20 terminals; 2.5 mm,
Weights / Dimensions		EGN2 = 4.4 kg 165 x 265 x 150 EGN2K+N = 7.5 kg 165 x 540 x 100/150 EGN3 = 4.5 kg 165 x 265 x 150 EGN3K+N = 7.6kg 165 x 540 x 100/150
Adm. temperature range		- 25 °C to + 70 °C
Housing material		Al Si 12
Surface protection		pulverized, yellow RAL 1006
Enclosure		IP 65 (by using key-switches IP54)

Examples hr Special Types of Unlocking Devices on Request

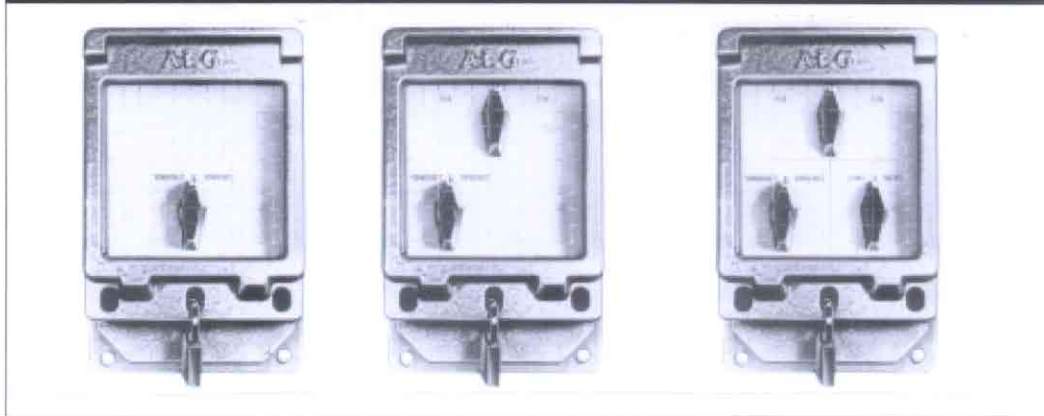






Unlocking Devices Type EGP for the Supervisory Control of Drives

Technical Data



Application

Unlocking devices type EGP from AEG are used for controlling the semiautomatic or fully automatic operation of in series connected conveyor belts for cargo and bulk material transport.

The devices serve for guaranteeing the operation for

- the reciprocal interlocking of all drives
- the starting of the drives one after the other against the conveying direction
- the switching-off of all drives of a driving chain if one drive fails.

When maintenance and repair work is carried out, the unlocking devices furthermore allow for - disconnecting a drive from a drive chain.

This helps to avoid with corresponding connection spillage and thus damage to the conveyor belts.

Design

The housings of sturdy design coated with synthetic resin comply with all requirements of rough service and satisfy the enclosure IP 65. For single operation, a switch with the settings interlocked - 0 - unlocked as well as an off/ on switch are installed in the intermediate cover. To prevent unauthorized operation of the switches, the hinged cover with safety glassing can be closed by three padlocks.

For the reversing drive, additionally a selector switch for the sense of rotation with the settings left - 0 - right is installed.

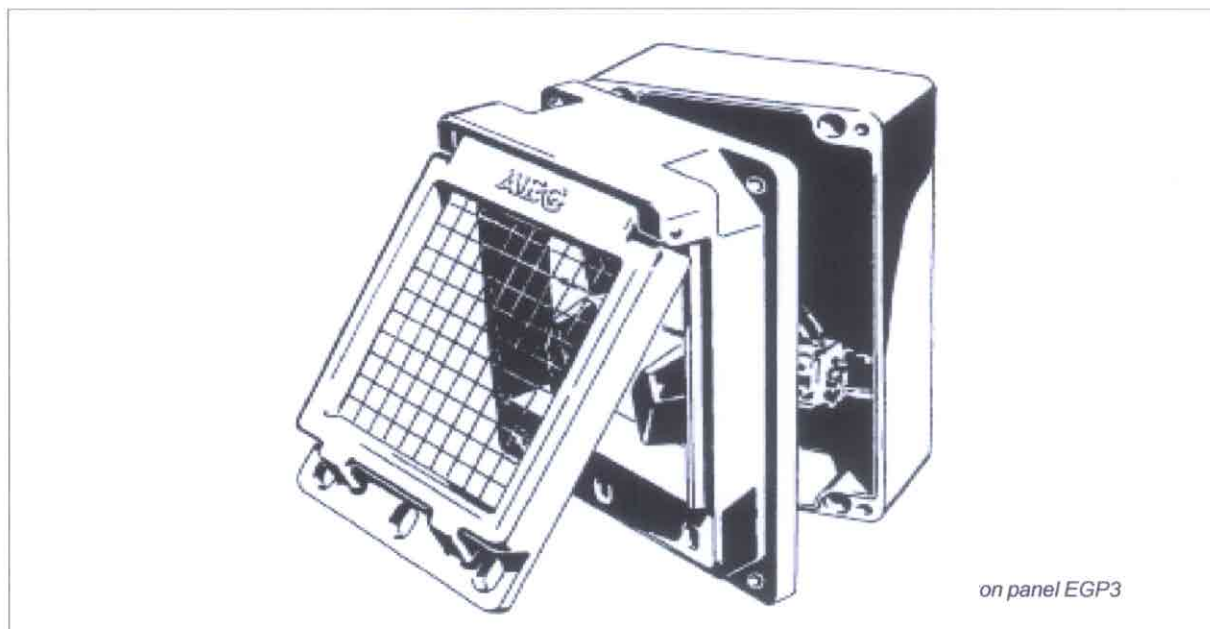
The types EGP2 and EGP3 are equipped with 13 screw terminals, from which max. 8 are used. Therefore, additional terminal boxes for connecting further local units will not be required in most cases.

With type EGP, two threaded holes PG16 are provided for on the housing bottom as inlets for the leads, each closed by a blind plug.

Deck switches are provided for as switches for the unlocking devices. The unlocking devices are available in many different types. Page shows the available standard connections. On request, also special connections are carried out.

Functioning

The following tables describe the functioning of the unlocking devices for the different services.



EGP-Unit in open condition

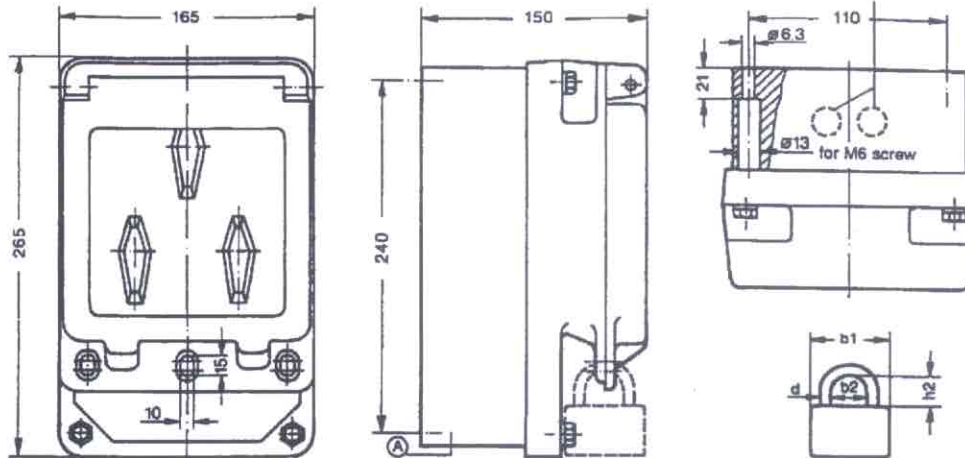
on panel EGP3

Functioning of the Unlocking Devices with Single Operation

Operating as interlocking and unlocking switch	Functioning
V interlocked operation (switching position engaged)	In the "V" position, the corresponding drive can only be centrally connected and disconnected, with a compulsory interlocking of all drives
O zero position (switching position engaged)	In the "O" position, the drive is disconnected from the compulsory interlocking and cannot be connected neither automatically nor manually
E unlocking operation (switching position engaged)	The "E" position allows for switching the On/Off switch for the maintenance and repair operation.
Operating as On/Off switch	Functioning
On	If a single drive shall be connected for a short time to carry out maintenance or repair work, the switch lever set to "center" has to be put to "On". This switching position can be obtained by sensing or snapping.
Central position	With normal operation
Off	In this switching position, the drive is disconnected independent of interlocking and unlocking switch. This switching position can be obtained by sensing or snapping.

Functioning of the Right/Left Switch in the Case of Reversing Drives

Operation		Functioning
Right	(switching position engaged)	Right-hand running of the drive
0	(switching position engaged)	Drive disconnected
Left	(switching position engaged)	Left-hand running of the drive

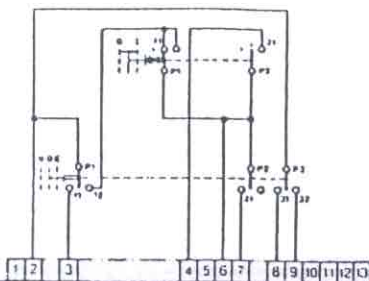


tapping hole size	maximum possible PG holes					
	Pg 11	Pg 13,5	Pg 16	Pg 21	Pg 29	Pg 36
Number, side A	6	6	5	2	1	1
dimensions	maximum possible padlocks					
	b1	b2	d	h2		
	Type 1	50	25	7	23	
Type 2	60	30	8	28		

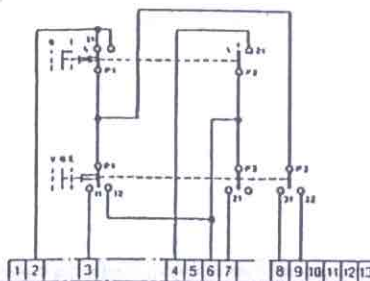
Dimension sketch of unlocking device type EGP, with deck switches

	EGP 2-	EGP 3-	EGP 4-	EGP 1 L3- EGP 2 L3-	EGP 1 M1- EGP 2 M1-
Structure					
Standard connections	00.11 00.12 00.13 00.13mod 00.14 r1	00.21 00.22 00.22M 00.23 00.24 r2	by demand	by demand	by demand
Special connections	on request				
Deck switches	number 2	3	4	1 or 2	1 or 2
	switching angel 45°	45°	45°	45°	45°
	rupturing capacity 10A with 220V, 50Hz; 8A with 380V, 50Hz				
Lamps	-	-	-	1-3	-
Measuring	-	-	-	-	1
Line connection	13 terminals 2,5mm ² , max. 20 terminals				
Adm. temperature range	-25°C to +70°C				
Enclosure	IP65				
Dimensions	265 x 165 x 150				
Weights	4,7kg				
Housing material	AL Si 12				
Surface protection	yellow epoxy resin coating (RAL 1004)				

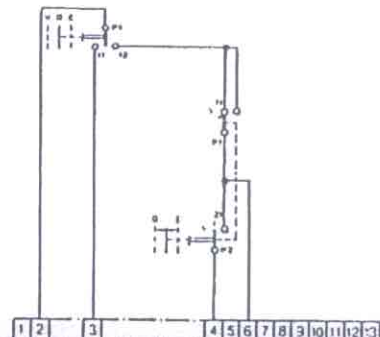
EGP2-00.11



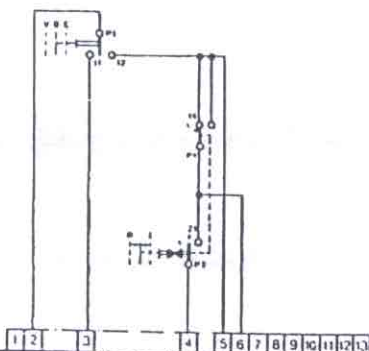
EGP2-00.12



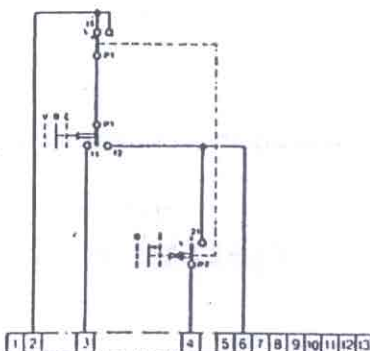
EGP2-00.13



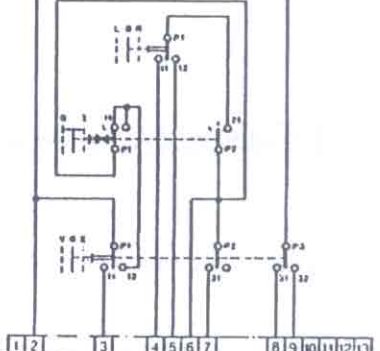
EGP2-00.13mod.



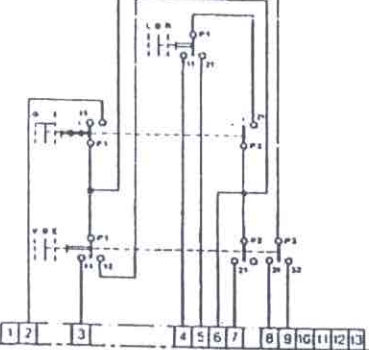
EGP2-00.14



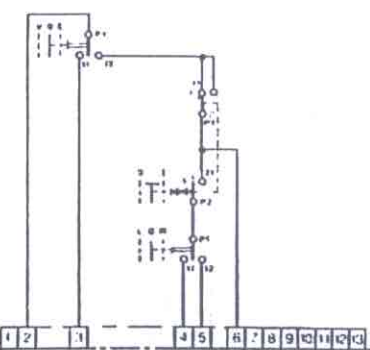
EGP3-00.21



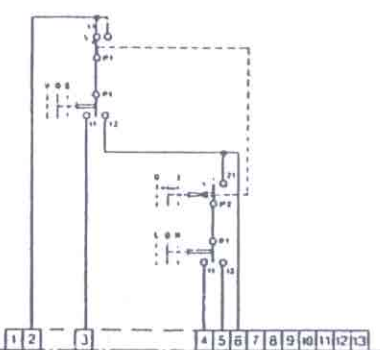
EGP3-00.22



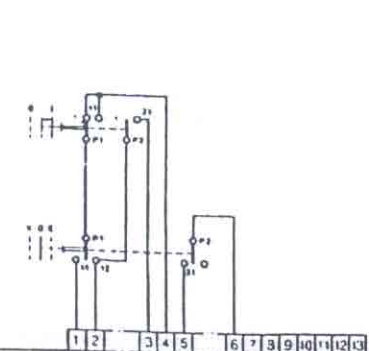
EGP3-00.23



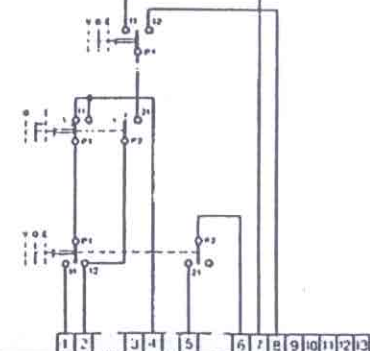
EGP3-00.24



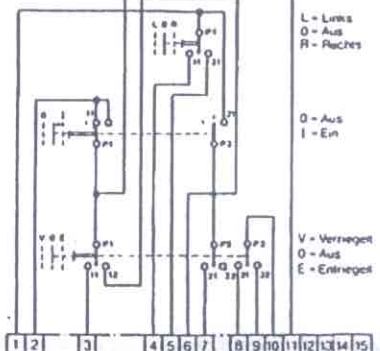
EGP2-r1



EGP3-r2



EGP3-00.22M



L - Links
O - Aus
R - Rechts

O - Aus
I - Ein

V - Verriegelt
O - Aus
E - Entriegelt

Available switch layouts

06.424/0698 (Subject to alteration)

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08.335/0894e



Optical & acoustic

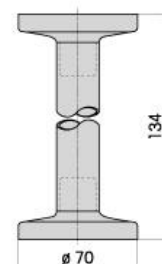
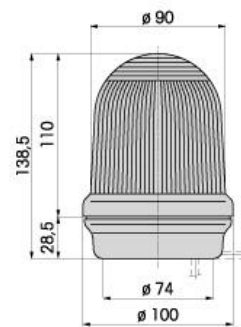
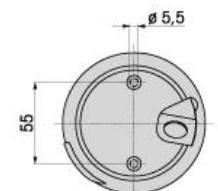
Signal Devices

Warning Beacons Type 826

Modern design
Removal of the dome only possible with tools
Simple mounting
High protection rating IP 65 - suitable for indoor and outdoor use

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	100 mm x 138.5 mm
Housing:	ASB/PC
Dome :	Polycarbonate transparent
Fixing:	Base mounting, bracket mounting, tube mounting (Base 975 840 90 must be ordered twice for base mounting once as socket for beacon and once as base)
Socket:	B 15 d, BA 15 s
PERMANENT LIGHT	826
Connection:	Screw free clamp mechanism 1.5 mm ² Cable diameter 7 - 11 mm Contact protection according to VDE
Operating voltage:	max. 250 V für B 15 d; max. 50 V für B 15 s
Bulb:	max. 15 W
Duty cycle:	100% ED max 15 W 50% ED max. 25 W
Socket:	B 15d or B 15s
BLINKING LIGHT	827
Connection:	Screwable connection with wire protection 0.5 mm ² - 2.5 mm ² Cable diameter 7 - 11 mm Contact protection according to VDE
Operating voltage:	24 V =~, 115 V ~, 230 V ~
Bulb:	max. 25 W
Blink frequency:	1,5 Hz
Starting current:	at 24 V= 3 A at 115 V 600 mA at 230 V 350 mA
Socket:	B 15 d
FLASHING LIGHT	828
Connection:	Screwable connection with wire protection 0.5 mm ² - 2.5 mm ² Cable diameter 7 - 11 mm Contact protection according to VDE
Flash frequency:	c. 1 Hz
Flash energy:	5 Ws
Life duration:	4 x 10 Mio. flashes
Operationg voltage:	12 V =, 24 V =, 115 V ~, 230 V ~
Current consumption:	< 500 mA at 12 V = 300 mA at 24 V = 65 mA at 115 V ~ 150 mA bei 230 V ~
Protection Class:	IP65



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Double Flash Beacon Type 837

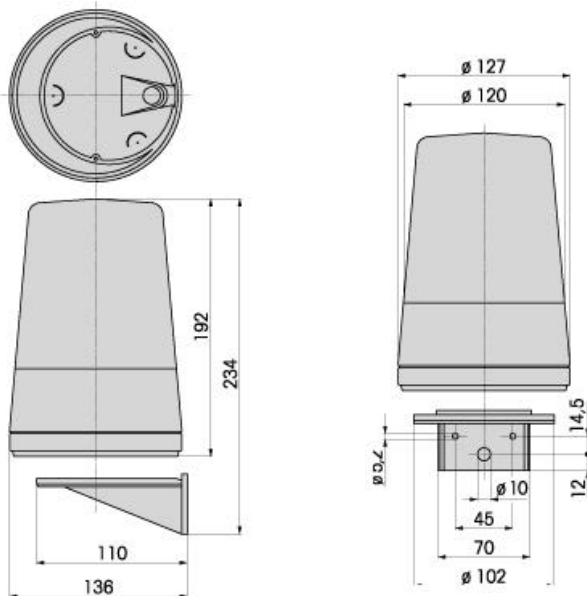
High intensity
Two consecutive flashes are fired in quick succession

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	127 mm x 192 mm
Cap :	Polycarbonate, transparent;
Fixing :	Base mounting, Bracket mounting (Accessories)
Housing :	ABS, high impact, grey;
Terminal :	Screwable connectoin DS 1.5 mm ² cable entry: rubber squeeze grommet Ø 5 - 7 mm;
Duty cycle:	100 % (4 x 1 Mio. flashes);
Flash frequency:	ca. 1 Hz;
Flash power:	15 Ws
Protection Class:	IP 44



Dimensions:

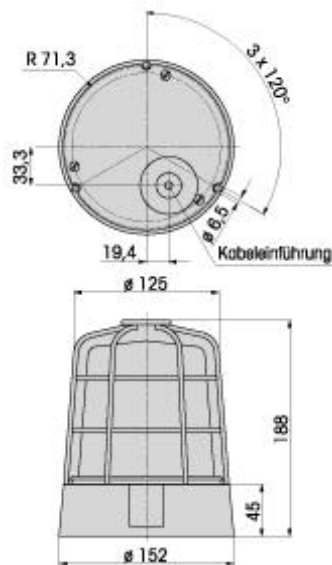


Double Flash Beacon Type 839

Robust aluminium housing including wire guard
Saltwater-proof
High flash power from two consecutive flashes
High protection rating IP 65

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	152 mm x 188 mm
Dome:	Polycarbonate, transparent;
Fixing :	Base mounting;
Housing :	Black lacquered aluminium, with integral wire guard;
Terminal :	Screwable connectoin DS 1.5 mm ² cable entry: rubber squeeze grommet Ø 5 - 7 mm;
Duty cycle:	100 % (4 x 1 Mio. flashes);
Flash frequency:	ca. 1Hz;
Flash energy:	
Protection Class:	IP65

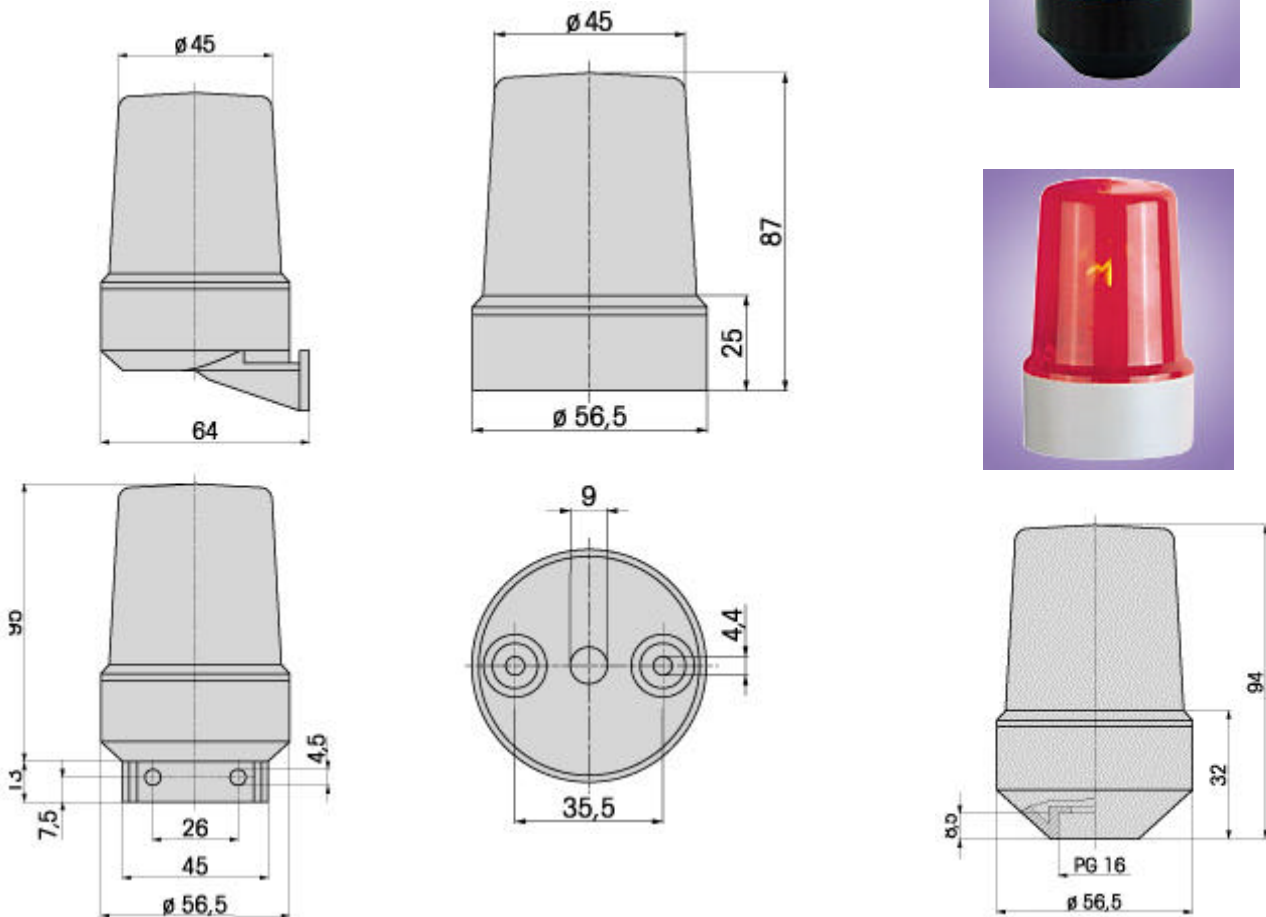


Warning Beacons Type 850/851/852

Available with grey or black housing
Suitable for indoor and outdoor use

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	56,5 mm x 88 mm
Cap :	Polycarbonate, transparent;
Fixing :	850: Base mounting 851: Bracket mounting 852: Tube mounting;
Housing :	ABS, high impact, grey or black;
Socket :	B 15 d max. 7 Watt; E 14 on request;
Terminals :	Screwable connection, Contact protection according to VDE;
Others :	Bulb not included in assembly;
Protection Class:	IP54

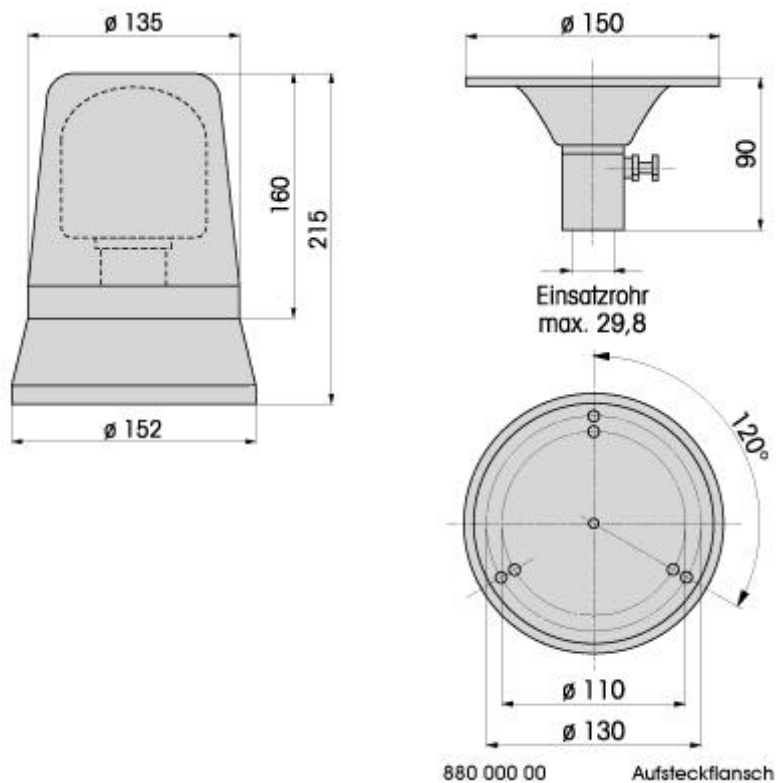


Roating Mirror Beacon Type 880

High intensity optical signal with halogen lamp
Authorized for use on vehicles (24 V)

TECHNICAL SPECIFICATION

Dimensions (Diameter x Height):	152 mm x 215 mm
Dome:	Plexiglass (PMMA);
Fixing :	Base mounting, bracket mounting, tube mounting;
Housing :	Thermoplastic with injected metal base and PVC gasket;
Others :	Halogen lamp H1 included in assembly;
Mirror rotation speed :	approx. 170 r.p.m.;
Protection Class:	IP54

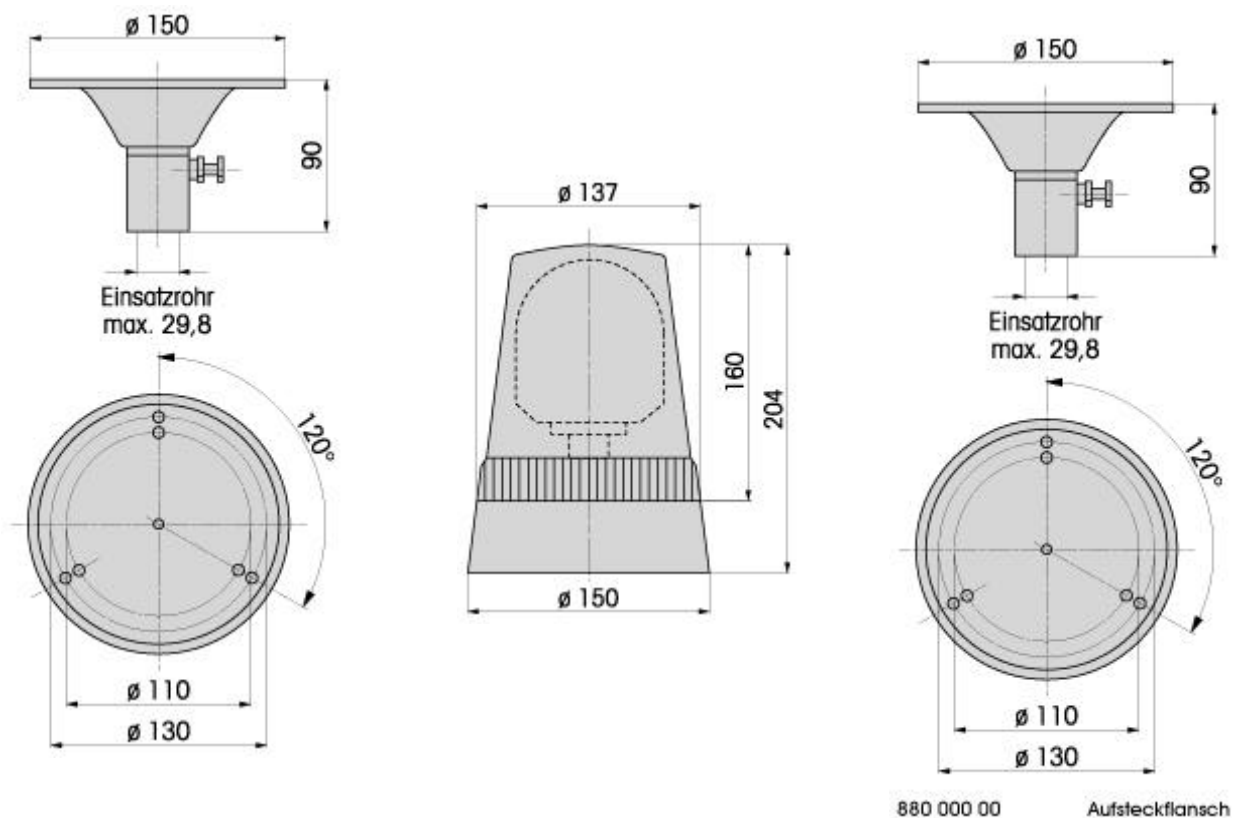


Rotating Mirror Beacon Type 881

Low-priced rotating mirror beacon
Suitable for indoor and outdoor use

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	150 mm x 204 mm
Dome:	Polycarbonate, transparent;
Fixing :	Base mounting, bracket mounting, tube mounting
Housing :	ABS, high impact, black;
Others :	Bulb included in assembly; Mirror rotation rate ca. 170 r.p.m.
Protection Class:	IP54

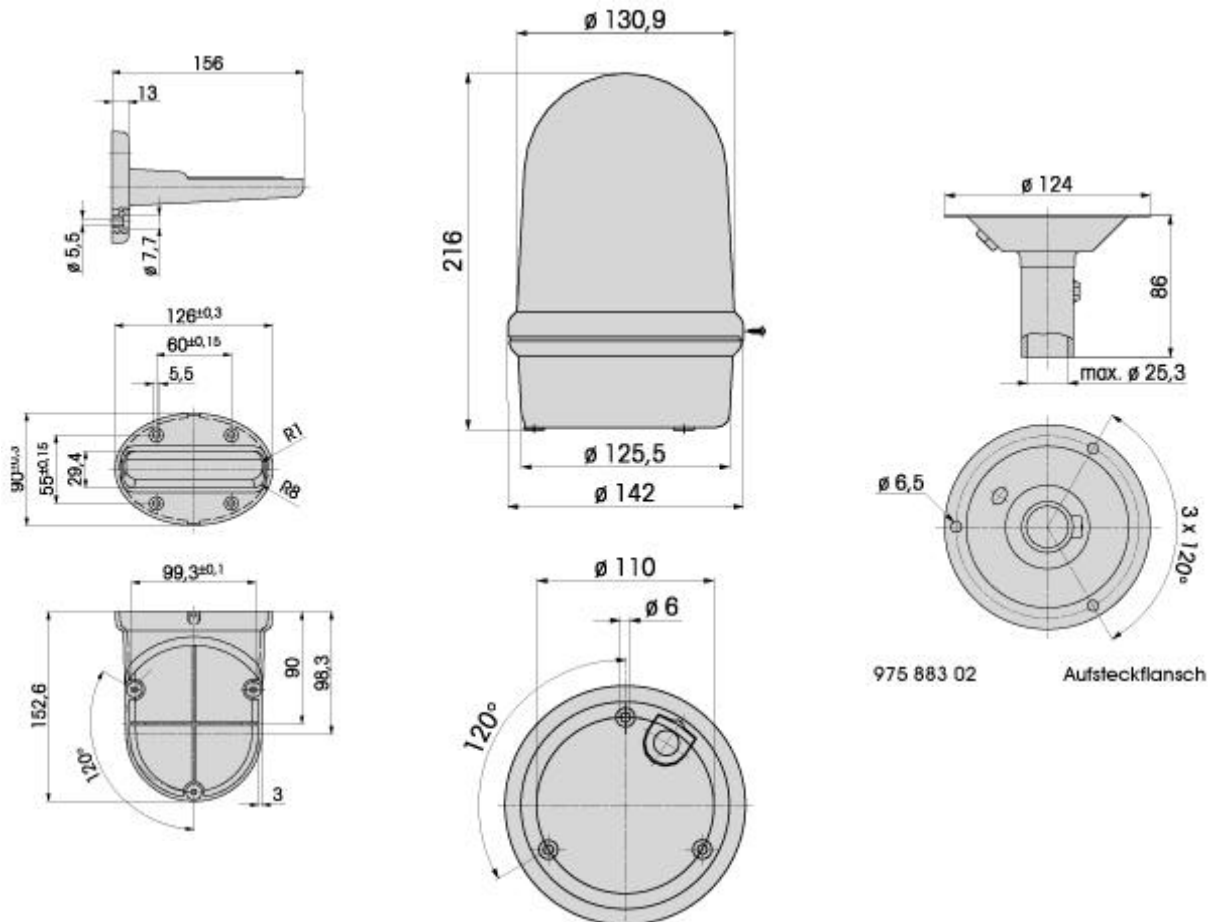


Roating Mirror Beacon Type 883

New series with modern design
 High protection rating IP 65
 High impact resistance to 20 Joules
 High signalling effect due to optimised reflector
 Extreme durability thanks to low wear wheel and disc drive
 Can be mounted as required
 Mounting and connection without the need to disassemble the mechanism

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	142 mm x 216 mm
Dome:	Polycarbonate, transparent, high impact;
Fixing :	Base, bracket or tube mounting
Housing :	ABS/PC, high impact, black;
Terminal :	Screwable connectoin DS 2.5 mm ² Cable diameter 7 - 11 mm Contact protection according to VDE
Duty cycle:	100 %
Others :	Bulb included in assembly;
Drive :	Wheel and disc drive, motor in gravity entre
Installation positions:	as required;
Halogen lamp:	GY 6.35 35 W 12 V/24 V
Mirror rotation speed:	180 r.p.m.;
Service life of drive:	> 5.000 h;
Protection Class:	IP65



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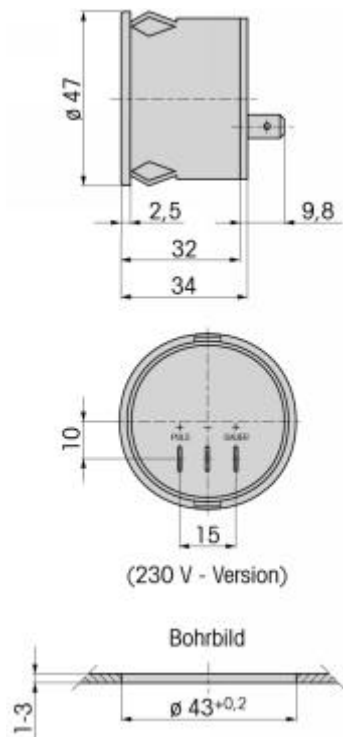
Meyer Industrie-Electronic GmbH
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Electronic Installation Buzzer Type 117

Very loud installation buzzer
Continuous or pulse tone
Speedy mounting with snap-in-fixing

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	47 mm x 43,8 mm
Fixing :	Installation mounting for 43 mm Ø; (R= 1,25"), with snap-in-fixing for base thickness 1 - 3 mm.;
Housing :	ABS, high impact, grey;
Terminal :	Spades 6.3 x 0.8 mm; Finger proof model according to VBG 4; when used with insulated spades;
Current consumption:	20mA
Duty cycle:	100 %;
Audio frequency:	2400 Hz;
Tone type:	Continuous tone and pulsating tone, ca. 1 Hz, adjustable via plug-in terminal;
Protection Class:	IP30

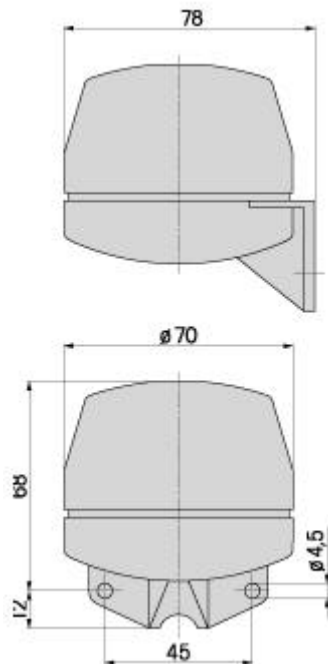


Signal Horn Type 482

Very loud small horn for indoor and outdoor mounting
Also available with low current consumption for use as lift alarm

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	70 mm x 80 mm
Fixing :	Bracket mounting, Sound outlet facing downwards
Housing :	ABS, high impact, grey;
Terminal :	Screwable connection with wire protection, 1mm ² – 1.5 mm ² fine strand, 1,0 mm ² – 2.5 mm ² single wire, cable entry up to ø 9 mm
Duty cycle:	100 %;
Mounting :	Sound outlet facing downwards;
Protection Class:	IP33

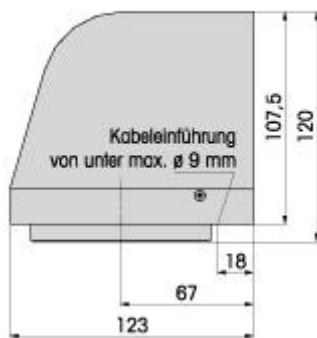
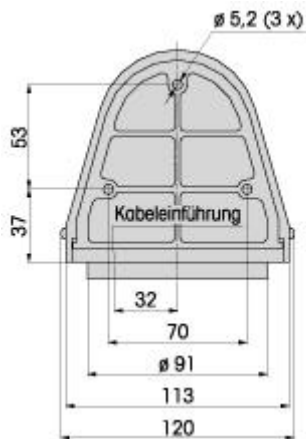


Signal Horn Type 558

Particularly loud, big horn for indoor and outdoor mounting

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	123 mm x 113 mm x 120 mm
Housing :	ABS, high impact, grey;
Terminal :	Screwable connection max. 2.5 mm ² , cable entry up to \varnothing 9 mm
Duty cycle:	100 %;
Mounting :	Sound outlet facing downwards
Protection Class:	IP43

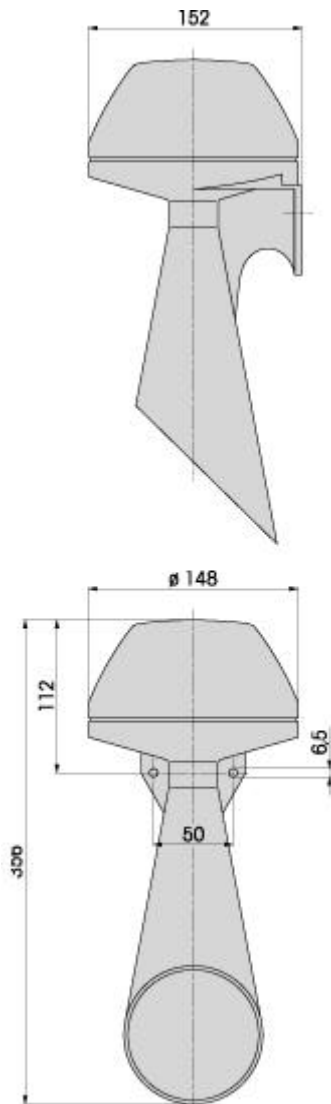


Signal Horn Type 570

Very loud large horn for indoor and outdoor mounting

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	152 mm x 148 mm x 356 mm
Fixing :	Bracket mounting, Sound outlet facing downwards
Housing :	ABS, high impact, grey;
Terminal :	Screwable connection max. 2.5 mm ² / cable installation, rubber squeeze grommet 7 - 10 mm;
Duty cycle:	100 %;
Mounting :	Sound outlet facing downwards;
Protection Class:	IP55

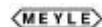
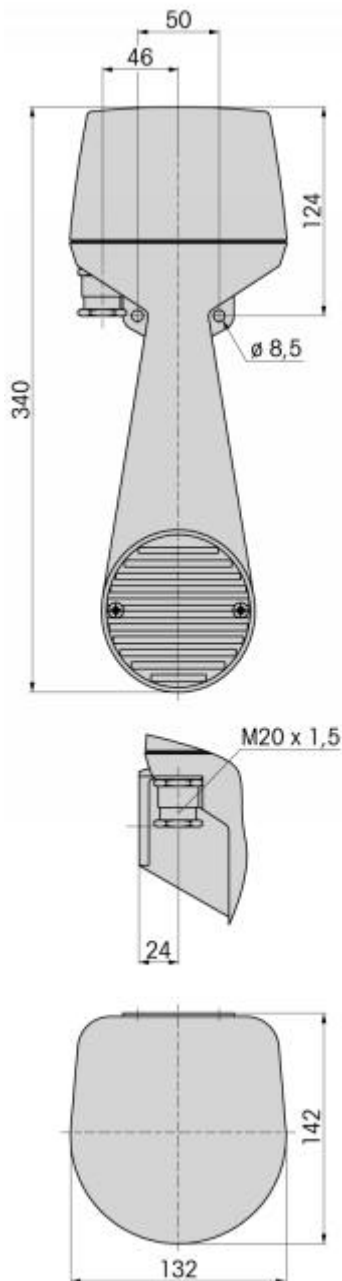


Signal Horn Type 571

Very loud, big horn
Suitable for maritime applications
Corrosion-proof aluminium housing

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	142 mm x 132 mm x 340 mm
Fixing :	Bracket mounting, Sound outlet facing downwards
Housing :	Aluminium alloy, corrosion proof;
Terminal :	Screw clamp 2.5 mm ² ; cable installation PG 16;
Duty cycle:	100 %;
Mounting :	Sound outlet facing downwards
Protection Class:	IP55



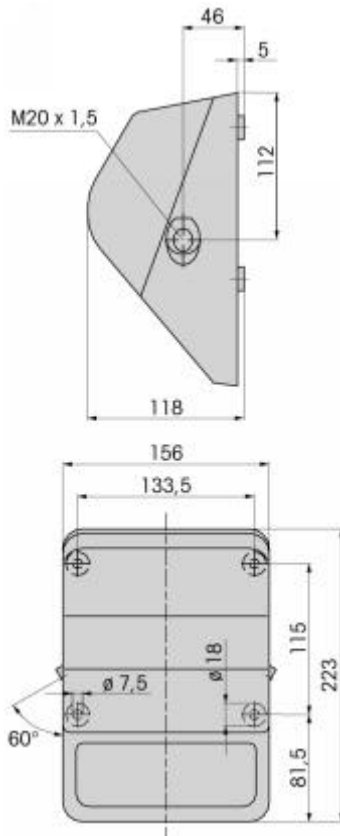
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Signal Horn Type 572

Particularly loud, big horn
High protection rating IP 65

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	223 mm x 156 mm x 118 mm
Housing :	Aluminium, grey enamel;
Terminal :	Screwable connection max. 2,5 mm ² . Cable gland at side, M 20 x 1,5
Duty cycle:	100 %;
Mounting :	Sound outlet facing downwards;
Top :	ABS, high impact, grey;
Protection Class:	IP65

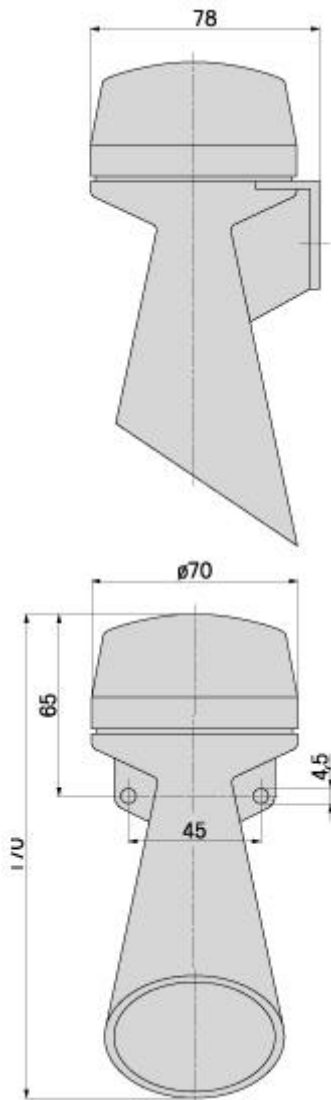


Signal Horn Type 582

Very loud small horn with trumpet
Suitable for indoor and outdoor mounting

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	70 mm x 170 mm x 78 mm
Fixing :	Bracket mounting, Sound outlet facing downwards
Housing :	ABS, high impact, grey;
Terminal :	Screwable connection with wire protection, 1mm ² – 1.5 mm ² fine strand, 1,0 mm ² – 2.5 mm ² single wire ,cable entry up to ø 9 mm
Duty cycle:	100 %;
Mounting :	Sound outlet facing downwards;
Protection Class:	IP33



06.424/0698 (Subject to alteration)



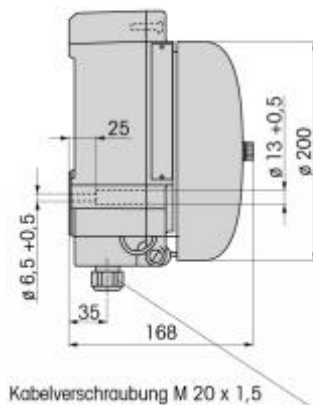
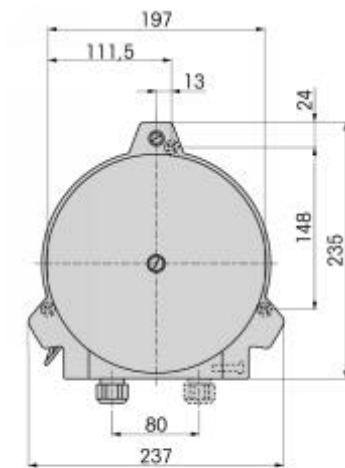
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49525 Lengerich
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Fax (+ 49 54 81) 93 85 - 12
EMail: sales@meyle.de

EEx-Alarm Bell Type 790

Particularly loud ring for hazardous areas
Exceptionally robust construction

TECHNICAL SPECIFICATIONS

Dimensions (Diameter x Height):	237 mm x 168 mm
Housing :	Salt water-proof aluminium inner housing, outer housing high quality; polyurethane;
Terminal :	PG 16;
Duty cycle:	100 %;
Explosion protection:	EEx de II CT 6; PTB 01 ATEX 1056;
Protection Class :	IP66



Motors and Drives from 5 Watt to 1000 kW

- Servomotors
- Gears
- Geared motors
- Servo inverter
- Frequency inverter



Encoder and Length Measuring Systems

- Incremental Encoder
- Absolute Encoder
- (single-/multiturn)
- Profibus Encoder
- CAN-Bus Encoder
- Interbus Encoder
- Length Measuring Systems
- Heavy Duty Encoder
- Hollow Shaft Encoder with inside diameter 6–60 mm



Counting and Controlling

- Totalizing Counters
- Preset Counters
- Position Indicators
- Timers/Time Relays
- Tachometers
- Pneumatic Timers
- Process Controllers



Sensors for all Applications

- Opto-electronic sensors
- Contrast scanners
- Colour sensors
- Distance sensors
- Safety light curtain
- Light grid
- Laser scanner
- Safety switches
- Proximity switches





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