MAK - Non-Contact Magnetic Safety System

Magnetic controllers for safety functions

BERNSTEIN offers magnetic controllers for safety functions that fulfill performance level PLd according to EN 13849-1 and SIL 3 according to EN 61508 or EN 62061.

A safety system consists of the safety magnetic controllers and a coded transducer unit.

The anti-tamper security of the transducer unit is achieved by variable coding of the actuator magnets and magnetic switches.

Depending on the type of device, one or two coded transducer units (magnetic switch with corresponding magnet) of type:

- MAK-4236
- MAK-5236
- MAK-5336

can be connected to and monitored by the safety magnetic controllers.

The safety magnetic controller processes the NC or NO contact signals coming from the coded magnetic switches. Thereby, it is possible to detect the opening of the safety guard (door, hatch, protective hood etc.) and to turn off the safety output. Thanks to the redundant evaluation, the magnetic controller is switched to the “safe state” should a fault or manipulation occur, or if the time difference is exceeded between the NC contact signal and the NO contact signal. An LED indicates that the safety magnetic controller is in the “safe state”.

To ensure fault detection of the switch-off device, the MÜZ-102 offers the possibility to connect a return circuit. The system additionally features a NC contact for signaling purposes.

- Redundancy by NO and NC contacts
- Manipulation safety by coding
- Monitoring of the return circuit (depending on device type)

MAK-4236-x with magnet TK-42-CD

MAK-5236-x with magnet TK-52-CD / 2

MAK-5336-x with magnet TK-43-CD

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MUZ - Non-Contact Magnetic Switch Controllers

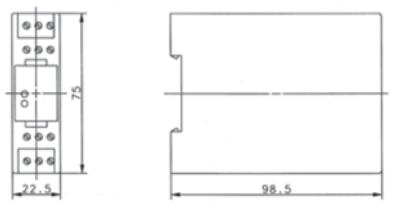
- EN ISO 13849-1 Performance Level PL d
- EN 61508 and EN 62061 SIL 3
- EN 60947-5-3 Single fault security S
- TÜV certified

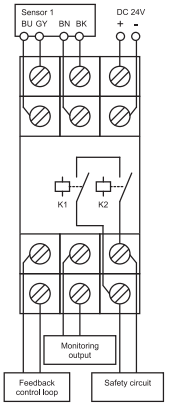
Coded transducer units for magnetic switches

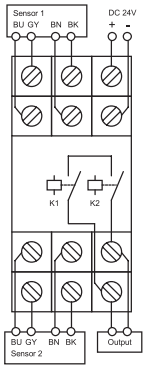
Type designation		MÜZ-102/D24-FL-DA	MÜZ-202/D24-FL
Article number		**639.2701.306**	**639.2702.307**
Max. number of connect-able transducer units		1	2
Safety output, NO contact		☒	☒
Feedback circuit		☒	–
Data output (NC contact)		☒	–
Technical data			
Operating voltage		24 V DC	24 V DC
Operating current		60 mA	60 mA
Switching capacity, safety output			
Switching voltage	max	AC 250 V	AC 250 V
Switching current	max	8 A	8 A
Switching power	max	1700 VA	1700 VA
LED: Hazard status/switching status		☒/–	☒/–
LED: Supply voltage/ON		☒	–
Relay: Positive-action/standard		☒/–	☒/–
Ambient conditions			
Temperature range	min/max	0 °C/+55 °C	0 °C/+55 °C
		32 °F/+131 °F	32 °F/+131 °F
Protection class (to IEC 529, EN 60529)		IP20	IP20
Enclosure material		PC	PC
Mounting system (DIN 50022)		TS 35	TS 35
Type of connection: Terminal block		max. 2.5 mm²	max. 2.5 mm²

Type designation
Article number
Cable length
Type designation
Article number
Cable length
Type designation
Article number
Cable length
Type designation
Article number
Cable length

Ambient conditions	
Temperature range	min/max
Protection class (to IEC 529, EN 60529)	
Enclosure material	
Sensing distance	S on min
	S on max
Actuating magnet	
Type designation	
Article number	
Use: safety magnetic controller	
Article number	







All dimensions in mm

Other types available on request.

Drawing dimensions in mm

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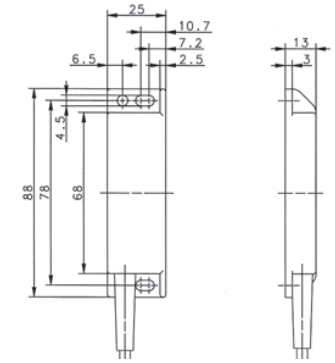
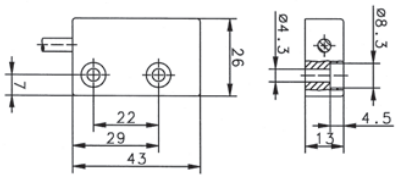
MAK - Non-Contact Magnetic Switches

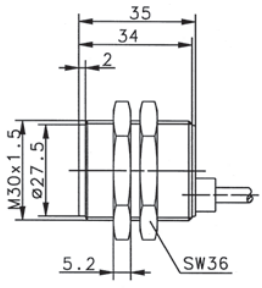
Switch					
Standard Version	New UL Version	Standard Version	New UL Version	Standard Version	New UL Version
MAK-4236-3	MAK-4236-BCD-3	MAK-5236-3	MAK-5236-BCD-3	MAK-5336-3	MAK-5336-BCD-3
649.0642.315	**649.0642.315**	**649.0652.316**	**649.0652.327**	**649.0653.317**	**649.0653.323**
3 m PVC cable	3 m PVC cable	3 m PVC cable	3 m PVC cable	3 m PVC cable	3 m PVC cable
MAK-4236-6	MAK-4236-BCD-6	MAK-5236-6	MAK-5236-BCD-6	MAK-5336-6	MAK-5336-BCD-6
649.0642.302	**649.0642.319**	**649.0652.307**	**649.0652.328**	**649.0653.311**	**649.0653.324**
6 m PVC cable	6 m PVC cable	6 m PVC cable	6 m PVC cable	6 m PVC cable	6 m PVC cable
MAK-4236-9	MAK-4236-BCD-9	MAK-5236-9	MAK-5236-BCD-9	MAK-5336-9	MAK-5336-BCD-9
649.0642.303	**649.0642.320**	**649.0652.308**	**649.0652.329**	**649.0653.312**	**649.0653.325**
9 m PVC cable	9 m PVC cable	9 m PVC cable	9 m PVC cable	9 m PVC cable	9 m PVC cable
MAK-4236-STK	MAK-4236-BCD-M8	MAK-5236-STK	MAK-5236-BCD-M8	MAK-5336-STK	MAK-5336-BCD-M12
649.0642.305	**649.0642.321**	**649.0652.309**	**649.0652.322**	**649.0653.313**	**649.0653.326**
4-pin connector	4-pin connector	4-pin connector	4-pin connector	4-pin connector	4-pin connector

Actuator and Safety Controller Sold Seperately

–5 °C/+70 °C	–5 °C/+70 °C	–5 °C/+70 °C	–5 °C/+70 °C	–5 °C/+70 °C	–5 °C/+70 °C
+23 °F/+158 °F	+23 °F/+158 °F	+23 °F/+158 °F	+23 °F/+158 °F	+23 °F/+158 °F	+23 °F/+158 °F
IP67	IP67	IP67	IP67	IP67	IP67
PA 6.6	PA 6.6	PBT	PBT	PA 6.6	PA 6.6
4 mm	4 mm	3 mm	3 mm	3 mm	3 mm
14 mm	14 mm	14 mm	14 mm	14 mm	14 mm
Actuator					
TK-42-CD	TK-42-CD	TK-52-CD/2	TK-52-CD/2	TK-43-CD	TK-43-CD
640.2042.310	**640.2042.310**	**640.2052.311**	**640.2052.311**	**640.2043.312**	**640.2043.312**
Safety Controllers					
639.2701.306	**639.2701.306**	**639.2701.306**	**639.2701.306**	**639.2701.306**	**639.2701.306**
639.2702.307	**639.2702.307**	**639.2702.307**	**639.2702.307**	**639.2702.307**	**639.2702.307**







Drawing dimensions in mm