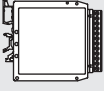
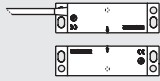



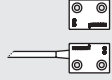





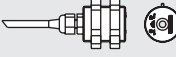




## Selection table for non-contact safety system CMS-E-AR/CMS-E-DR

Evaluation units	Connection	Design	Read head contact assembly	Assured switch-on distance $S_{on}$ [mm]	Assured switch-off distance $S_{off}$ [mm]	Number of read heads	Category according to EN 954-1		Read head	Actuator
							CMS-E-AR	CMS-E-DR		
CMS-E-AR CMS-E-DR  Page 8 - 11	Hard-wired encapsulated connection cable on the read head	Design A  Page 14		6	18	1 ... 2	3	2	CMS-R-AXD...	CMS-M-AB
				18	34				CMS-R-AXE...	CMS-M-AG
				9 For contact status indication and LED: 7	23 For contact status indication and LED: 15	3 ... 30	2	1	CMS-R-AXR...	CMS-M-AI
				6	18				CMS-R-AXF...	CMS-M-AB
		Design B  Page 16		6	17	1 ... 2	3	2	CMS-R-BXO...	CMS-M-BH
				6	17	3 ... 30	2	1	CMS-R-BXP...	
		Design C M25  Page 18		7	16	1 ... 2	3	2	CMS-R-CXA...	CMS-M-CA
				7	16	3 ... 30	2	1	CMS-R-CXB...	
		Design E M30  Page 20		7	16	1 ... 2	3	2	CMS-R-EXL...	CMS-M-EF
				7	16	3 ... 30	2	1	CMS-R-EXN...	

## Evaluation unit CMS-E-AR



- ▶ 2 read heads can be connected (NO contacts wired in parallel, category 3 according to EN 954-1)
- ▶ 30 read heads can be connected (NO contacts wired in series, category 2 according to EN 954-1)



### Functional description

The CMS-E-AR evaluation unit is used to monitor category 2 or 3 safety guards in accordance with EN 954-1.

### Read heads

The evaluation unit CMS-E-AR is suitable for the direct connection of up to 30 read heads.

### Category according to EN 954-1

- ▶ Category 2 with 3 ... 30 read heads connected (NO contacts wired in series)
- ▶ Category 3 with 1 ... 2 read heads connected (NO contacts wired in parallel)

### LED displays

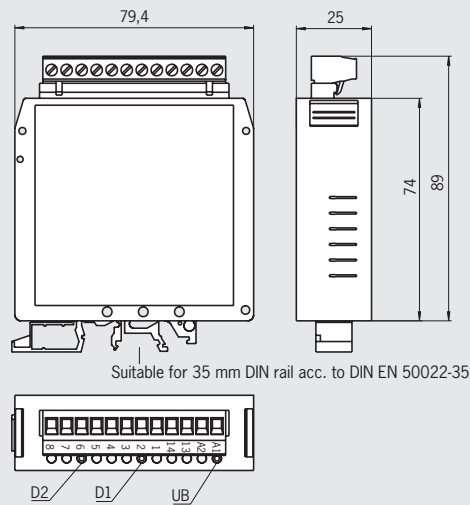
Actuator \ LED	$U_B$ Operating voltage green	D1 green	D2 green
Channel 1 in the operating distance	●	●	
Channel 2 in the operating distance	●		●

### Evaluation unit CMS-E-AR

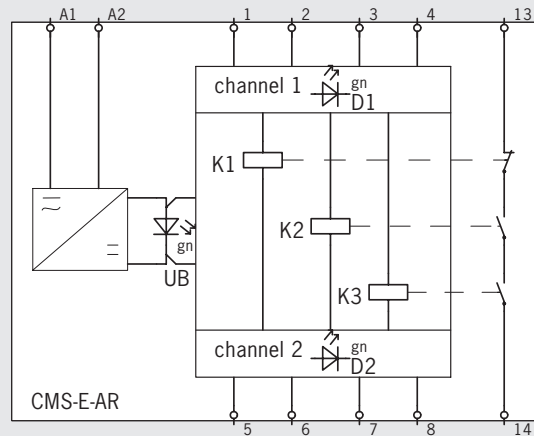
Cat.  
2

Cat.  
3

### Dimension drawing



### Block diagram



### Ordering table

Evaluation unit	Scope of delivery	Order No. / Item
CMS-E-AR	Evaluation unit One 3-pole jumper One 4-pole jumper	085 536 CMS-E-AR

## Technical data evaluation unit CMS-E-AR

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Polyamide PA6.6			
Dimensions	89 x 79.4 x 25			mm
Weight	0.13			kg
Ambient temperature	0	-	+50	°C
Storage temperature	-25	-	+70	°C
Degree of protection according to EN 60529	Terminals IP 20 / housing IP 40			
Degree of contamination	2			
Installation	DIN rail 35 mm according to EN 50022-35			
Number of read heads	1 ... 30 serial <sup>1)</sup> / 2 parallel			
Connection type	Plug-in connection terminals			
Operating voltage $U_b$	24 ±10% <sup>2)</sup>			V AC/DC
Internal fuse (operating voltage) (automatically resetting fuse PTC)	0.75			A
Switching voltage U	-	-	250	V AC
Current consumption	-	70	-	mA
Switching current I at 24 V	-	-	3	A
Switching current I at 24 V	2	-	-	mA
Breaking capacity P	-	-	750	VA
External contact fuse (safety circuit)	3 A gG			
Safety contacts	1			
Utilization category to EN 60947-5-1		$I_e$ <sup>3)</sup>	$U_e$ <sup>3)</sup>	
	AC-1	3 A	250 V	
	AC-15	0.9 A	250 V	
	DC-13	1.8 A	24 V	
Switching load acc. to UL Class 2	Input: 24 V AC/DC Output: 30 V AC / 24 V DC			
Category according to EN 954-1	2 <sup>4)</sup>		3 <sup>5)</sup>	
Classification according to EN 60947-5-3	PDF-T		PDF-S	
Rated insulation voltage $U_i$	250			V
Vibration resistance	According to EN 60947-5-2			
Mechanical operating cycles relays	10 x 10 <sup>6</sup>			
EMC compliance	According to EN 60947-5-3			

1) For 3 m cable lengths. The number depends on the cable length.

2) All the electrical connections must either be isolated from the mains supply by a safety transformer according to EN 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent isolation measures.

3)  $I_e$  = max. switching current max. per contact,  $U_e$  = switching voltage

4) Safety category 2 in the case of read heads with reed contacts wired in series. Machine control system is responsible for checking the safety function at suitable intervals.

5) Category 3 in the case of read heads with reed contacts wired in parallel.

## Evaluation unit CMS-E-DR



- ▶ 2 read heads can be connected (NO contacts wired in parallel, category 2 according to EN 954-1)
- ▶ 30 read heads can be connected (NO contacts wired in series, category 1 according to EN 954-1)



### Functional description

The CMS-E-DR evaluation unit is used to monitor safety category 1 or 2 safety guards in accordance with EN 954-1.

### Read heads

The evaluation unit CMS-E-DR is suitable for the direct connection of up to 30 read heads.

### Category according to EN 954-1

- ▶ Category 1 with 3 ... 30 read heads connected (NO contacts wired in series)
- ▶ Category 2 with 1 ... 2 read heads connected (NO contacts wired in parallel)

### LED displays

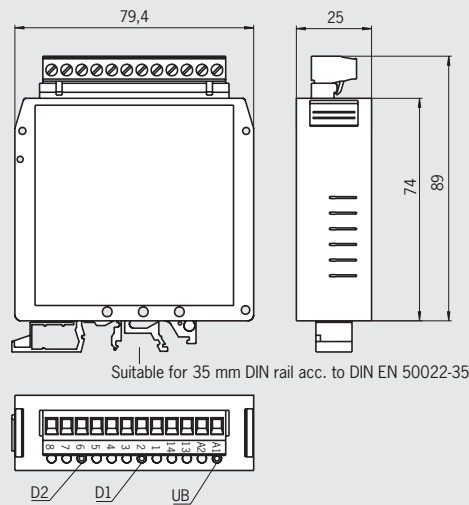
Actuator \ LED	$U_B$ Operating voltage green	D1 green	D2 green
Channel 1 in the operating distance	●	●	
Channel 2 in the operating distance	●		●

### Evaluation unit CMS-E-DR

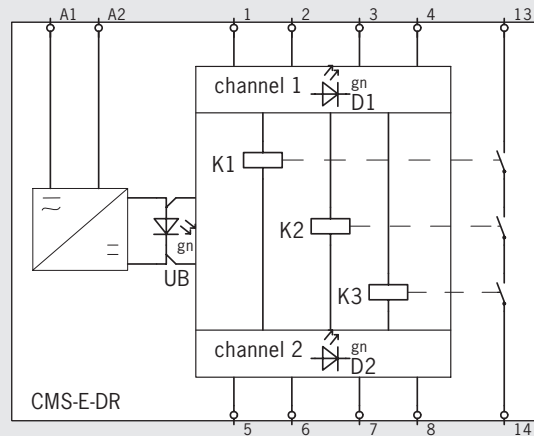
Cat.  
1

Cat.  
2

### Dimension drawing



### Block diagram



### Ordering table

Evaluation unit	Scope of delivery	Order No. / Item
CMS-E-DR	Evaluation unit One 3-pole jumper One 4-pole jumper	<b>099 163</b> CMS-E-DR

## Technical data evaluation unit CMS-E-DR

Parameter	Value			Unit
	min.	typ.	max.	
Housing material	Polyamide PA6.6			
Dimensions	89 x 79.4 x 25			mm
Weight	0.115			kg
Ambient temperature	0	-	+50	°C
Storage temperature	-25	-	+70	°C
Degree of protection according to EN 60529	Terminals IP 20 / housing IP 40			
Degree of contamination	2			
Installation	DIN rail 35 mm according to EN 50022-35			
Number of read heads	1 ... 30 serial <sup>1)</sup> / 2 parallel			
Connection type	Plug-in connection terminals			
Operating voltage $U_b$	24 ±10% <sup>2)</sup>			V AC/DC
Internal fuse (operating voltage) (automatically resetting fuse PTC)	0.75			A
Switching voltage U	-	-	250	V AC
Current consumption	-	45	-	mA
Switching current I at 24 V	-	-	4	A
Switching current I at 24 V	13	-	-	mA
Breaking capacity P	-	-	1.000	VA
External contact fuse (safety circuit)	4 A gG			
Safety contacts	1			
Utilization category to EN 60947-5-1		$I_e$ <sup>3)</sup>	$U_e$ <sup>3)</sup>	
	AC-1	4 A	250 V	
	AC-1	4 A	24 V	
	AC-15	1 A	250 V	
	AC-15	1 A	24 V	
	DC-13	4 A	24 V	
Switching load acc. to UL Class 2	Input: 24 V AC/DC Output: 30 V AC / 24 V DC			
Category according to EN 954-1	1 <sup>4)</sup>		2 <sup>5)</sup>	
Classification according to EN 60947-5-3	PDF-D		PDF-T	
Rated insulation voltage $U_i$	250			V
Vibration resistance	According to EN 60947-5-2			
Mechanical operating cycles relays	10 x 10 <sup>6</sup>			
EMC compliance	According to EN 60947-5-3			

1) For 3 m cable lengths. The number depends on the cable length.

2) All the electrical connections must either be isolated from the mains supply by a safety transformer according to EN 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent isolation measures.

3)  $I_e$  = max. switching current max. per contact,  $U_e$  = switching voltage

4) Category 1 in the case of read heads with reed contacts wired in series.

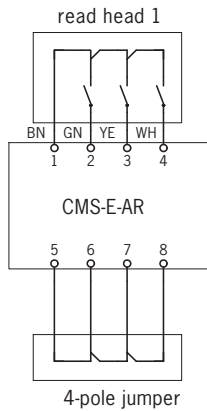
5) Category 2 in the case of read heads with reed contacts wired in parallel. Machine control system is responsible for checking the safety function at suitable intervals.

## Connection examples evaluation unit CMS-E-AR

### Connection example 1

- ▶ One read head on one evaluation unit CMS-E-AR
- ▶ Read head 1: reed contacts wired in parallel

Cat. 3

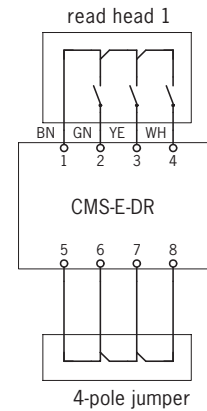


## Connection examples evaluation unit CMS-E-DR

### Connection example 4

- ▶ One read head on one evaluation unit CMS-E-DR
- ▶ Read head 1: reed contacts wired in parallel

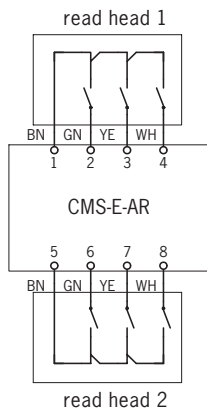
Cat. 2



### Connection example 2

- ▶ Two read heads on one evaluation unit CMS-E-AR
- ▶ Read head 1 and 2: reed contacts wired in parallel

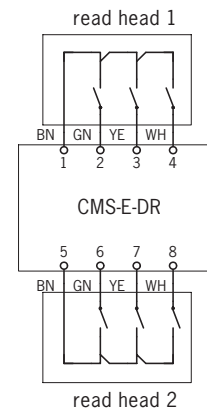
Cat. 3



### Connection example 5

- ▶ Two read heads on one evaluation unit CMS-E-DR
- ▶ Read head 1 and 2: reed contacts wired in parallel

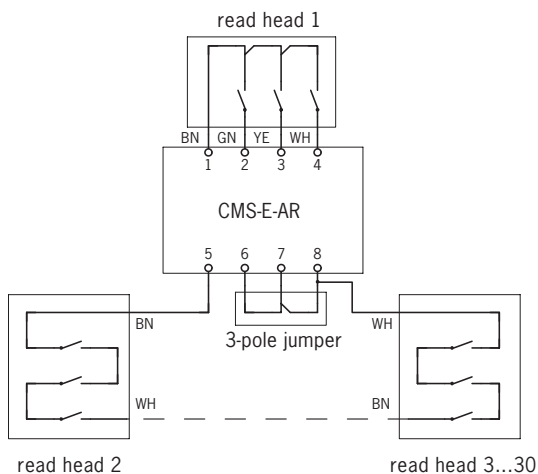
Cat. 2



### Connection example 3

- ▶ More than two read heads (max. of 30) on one evaluation unit CMS-E-AR
- ▶ Read head 1: reed contacts wired in parallel; read head 2 ... n: reed contacts wired in series

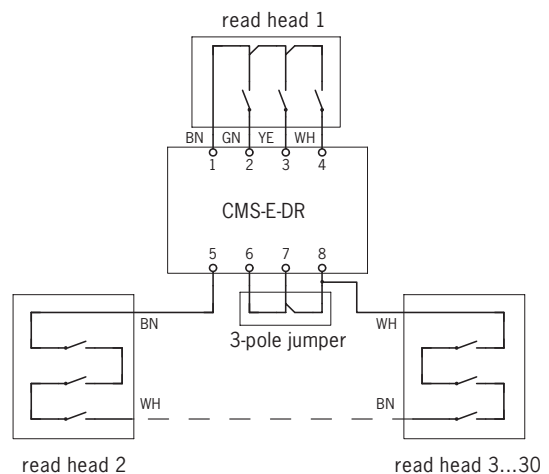
Cat. 2



### Connection example 6

- ▶ More than two read heads (max. of 30) on one evaluation unit CMS-E-DR
- ▶ Read head 1: reed contacts wired in parallel; read head 2 ... n: reed contacts wired in series

Cat. 1



## Notes

The following applies to all the illustrations:  
Evaluation unit electrically isolated, actuator not in the operating distance.