

Evaluation unit for non-contact read head CES, CEM or CET



- ▶ Evaluation unit for direct connection of a CES read head
- ▶ Connection of a CEM solenoid
- ▶ LED diagnostic displays
- ▶ Connection of CET guard locking



Connection of a read head CES

The CES series read head can be connected to the evaluation unit using an M12 plug connector. The read head is not included with the evaluation unit.

Connection of a read head CEM or CET

The read heads are connected using two M12 plug connectors. Connection cables with M12 plug connectors are required for the evaluation unit, and connection cables with M8 plug connectors are needed for the read head. Connection cables and read head are not included with the evaluation unit.

Versions

Unicode: Only the actuator that undergoes a teach-in operation in the device is recognized.

Multicode: All EUCHNER actuators are recognized without a teach-in operation.

Actuator

An actuator with programmed code to suit the read head selected is needed.

AS-Interface inputs

- ▶ **D0 - D3** Input IN for read head

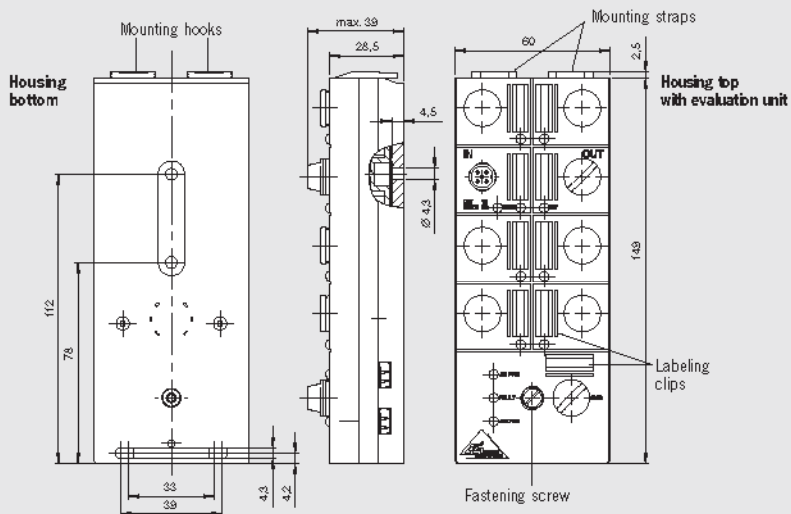
Evaluation is performed via a safety monitor.

AS-Interface outputs

- ▶ **D0** OUT output to control CEM or CET

Evaluation unit CES-A-1B-01B-AS1

Dimension drawings



For accessories, refer to page 24/25 and the catalog of Non-Contact Safety Switches

Ordering table

Series	Version	Type	Housing	Order No./item
CES	F Unicode	01B 1 read head Switch-on distance 15 mm	IP 65 Field unit	094 230 CES-AF1B-01B-AS1
	V Multicode	01B 1 read head Switch-on distance 15 mm	IP 65 Field unit	096 631 CES-A-V1B-01B-AS1

Evaluation unit for non-contact read head CES, CEM or CET



- ▶ Evaluation unit for connection of up to four CES read heads
- ▶ LED diagnostic displays



Read head connection

The CES series read head can be connected to the evaluation unit using an M12 plug connector. The read heads are not included with the evaluation unit.

Connection of a read heads CEM or CET

An additional standard AS-Interface module with outputs (DO) is required for connection of these read heads.

Version

Unicode: Only the actuator that undergoes a teach-in operation in the device is recognized.

Actuator

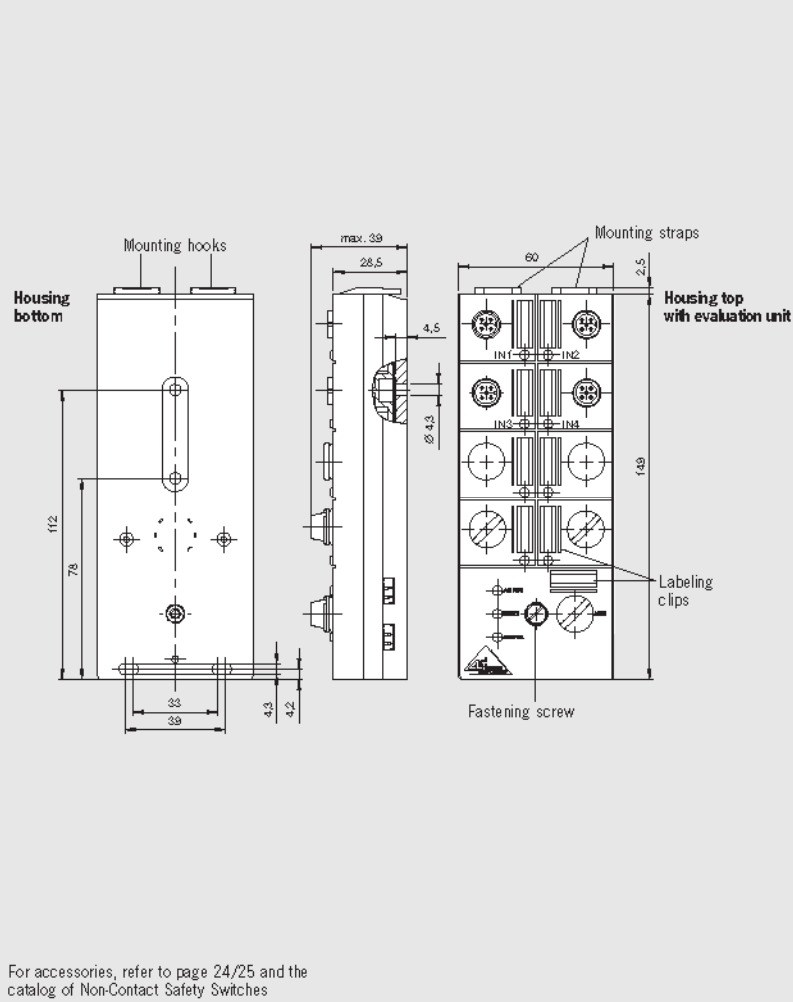
An actuator with programmed code to suit the read head selected is needed.

AS-Interface inputs

- ▶ **D0 - D3** Input IN for CED read head
- Evaluation is performed via a safety monitor.

Evaluation unit CES-A-F1B-04B-AS1

Dimension drawings



For accessories, refer to page 24/25 and the catalog of Non-Contact Safety Switches

Ordering table

Version	Version	Type	Housing	Order No./item
CES	F Unicode	04B 4 read heads Switch-on distance 15 mm	IP 65 Field unit	097 660 CES-AF1B-04B-AS1



CES...non-contact safety switches



Evaluation unit		
Parameter	Value	Unit
Housing material	Plastic	
Category according to EN 954-1:1997	4	
Classification according to EN 60947-5-3:2000	PDF-M	
Ambient temperature	0 ... +50 °C	
Weight	approx. 0.4	kg
Operating voltage	DC 24 V +10% -15%	
Current consumption, max. (through auxiliary power)	Power supply unit with electrical isolation (IEC 61558-2-6:1998) 600	mA

CES-A-.1B-01B-AS1				
Parameter	Value			Unit
Times				
Max. time delay from state change	180			ms
Risk time ¹⁾	180			ms
Difference time (of the two dependent AS-Interface inputs)	120			ms
Ready delay	3			s
Distances ²⁾	min.	typ.	max.	
Safe switch-off distance S _{ar}	-	-	32	mm
Cable length l	-	-	25	m
Switch-on distance S _{ao}	10	17	-	mm
Switching hysteresis	0.5	2	-	mm

CES-A-.1B-01B-AS1				
Parameter	Value			Unit
Connection				
AS-Interface and auxiliary power	Ribbon cable AS-i			
Read heads	M12 plug connector			
Degree of protection according to IEC 60529	IP 67 ³⁾			
EMC protection requirements	Acc. to EN 50295 (AS-Interface standard)			
AS-Interface data				
Acc. to AS-Interface Specification 2.1	EA code: 7		ID code: B	
Operating voltage AS-Interface	22.5 ... 31.5			V DC
Total current consumption, max.	100			mA
Valid AS-Interface addresses	1 - 31			
AS-Interface inputs	In accordance with AS-Interface Safety at Work			
CES input IN	D0 ... D3			
Dwell time min.	0.5			s
AS-Interface outputs				
Current consumption, max.	600			mA
OUT output	DO			

- 1) According to EN 60947-5-3:2000
- 2) With evaluation unit CES-A-F1B-01B-AS1 in conjunction with read head CES-A-LNA...AS1 or CES-A-LNA-SC and actuator CES-A-BBA on surface mounting of the read head and the actuator. If installed flush, the switching distance changes as a function of the installation depth and the safety guard material.
- 3) Screwed tight with the related plug connector

CES-A-F1B-04B-AS1

Parameter	Value			Unit
Times				
Time-delay from state change ¹⁾				
- 4 activated actuators	450			ms
- 3 activated actuators	370			ms
- 2 activated actuators	290			ms
- 1 activated actuator	210			ms
Difference time (of the two dependent AS-Interface inputs)	400 (with 4 monitored read heads)			ms
Ready delay	12			s
Distances²⁾	min.	typ.	max.	
Safe switch-off distance S_{ar}	-	-	32	mm
Cable length l	-	-	25	m
Switch-on distance S_{ao}	10	15	-	mm
Switching hysteresis	0.5	2	-	mm

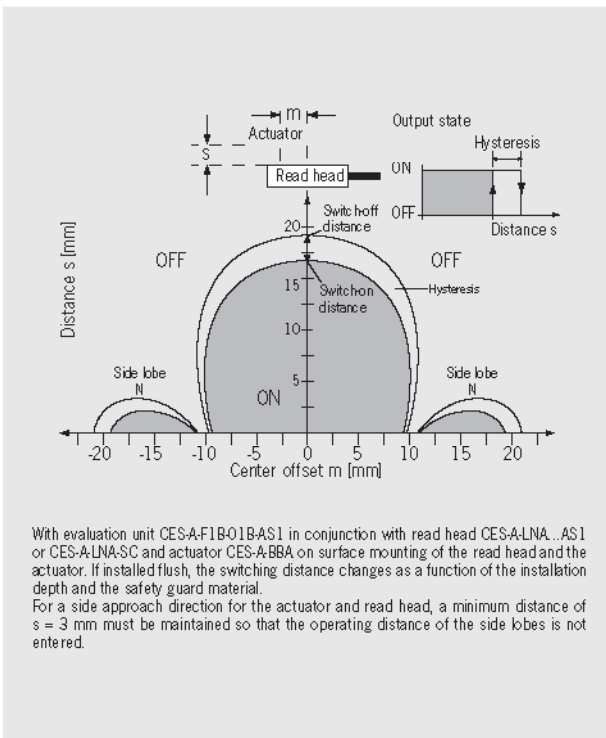
CES-A-F1B-04B-AS1



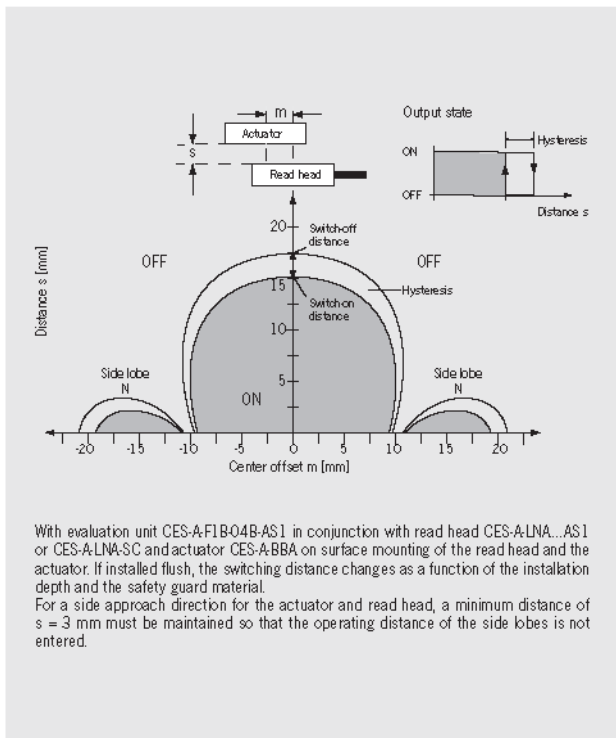
Parameter	Value			Unit
Connection				
AS-Interface and auxiliary power	Ribbon cable AS-i			
Read heads	M12 plug connector			
Degree of protection according to IEC 60529	IP 67 ³⁾			
EMC protection requirements	Acc. to EN 50295 (AS-Interface standard)			
AS-Interface data				
Acc. to AS-Interface Specification 3.0	EA code: 0		ID code: B	
Operating voltage AS-Interface	22.5 ... 31.5			V DC
Total current consumption, max.	1.30			mA
Valid AS-Interface addresses	1 - 31			
AS-Interface inputs	In accordance with AS-Interface Safety at Work			
CES inputs IN1 ... IN4 (all inputs safe)	D0 ... D3			
Status signals of CES inputs IN1 ... IN4	P0 ... P3			
Dwell time min.	0.5			s

- 1) Corresponds to the risk time according to EN 60947-5-3. This is the maximum switch-off delay for the safety outputs following removal of the actuator.
- 2) With evaluation unit CES-A-F1B-04B-AS1 in conjunction with read head CES-A-LNA...AS1 or CES-A-LNA-SC and actuator CES-A-BBA on surface mounting of the read head and the actuator. If installed flush, the switching distance changes as a function of the installation depth and the safety guard material.
- 3) Screwed tight with the related plug connector

Typical operating distance CES-A-1B-01B-AS1



Typical operating distance CES-A-F1B-04B-AS1



Accessories

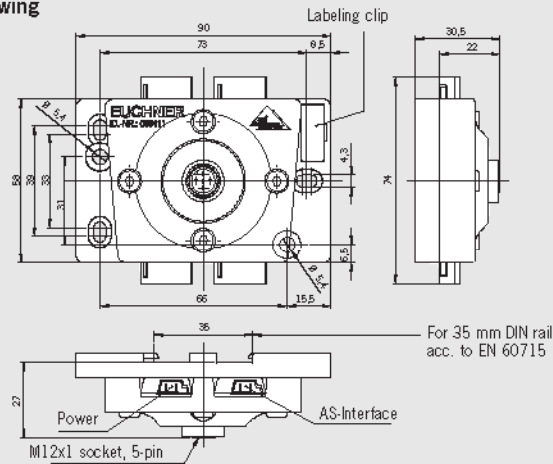
▶ Passive bus coupling module BCM-A-P1...



For connection of components with integrated AS-interface and M12 plug connector to the AS-interface ribbon cables. Both the bus and auxiliary power are converted from the ribbon cable to an M12 socket. The coupling module is suitable for safety components and for standard components. It is particularly suitable for EUCHNER safety switches with guard locking.

Passive bus coupling module BCM-A-P1...

Dimension drawing



Ordering table

Version	Connections	Order No./item
BCM-A-P1	AS ribbon cable, auxiliary power ribbon cable M12-socket	089 411 BCM-A-P1-SEM4-1
	Connection cable M12 with straight plug connectors, length 1 m PUR	089 420 Connection cable M12

Accessories for CES...AS1 evaluation units

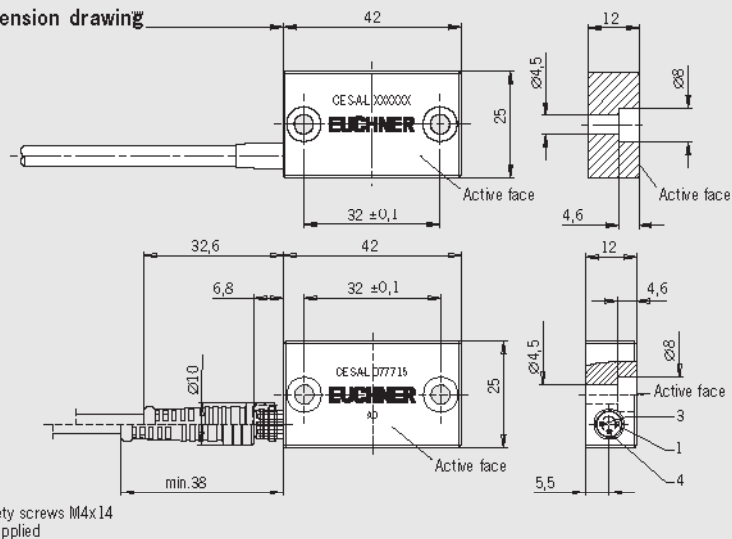
▶ Read head CES-A-LNA...



The read heads CES are suitable for connection directly to the evaluation units CES-A-F1B... or CES-A-V1B....

Read head CES-A-LNA...

Dimension drawing



Ordering table

Version	Connection	Length	Order No./item
Read head CES-A-LNA	Connection cable PVC	1 m	094 031 CES-A-LNA-01V-AS1
		2 m	094 032 CES-A-LNA-02V-AS1
	Plug connector M8	-	077 715 CES-A-LNA-SC

Accessories for CES...AS1 evaluation units

Connecting cables with M8 and M12 plug connectors are available for connection of the CES-LNA... read head and the CEM and CET read heads.

Ordering table

Version	Cable	Length	Order No./item
Cable for read heads CES, CEM, CET with M8 plug connector	PUR	2 m	095 005 LIYC11Y2X0.25X2000M12M-M8F
		5 m	095 357 LIYC11Y2X0.25X5000M12M-M8F
		10 m	099 167 LIYC11Y2X0.25X10000M12M-M8F
		30 m	099 168 LIYC11Y2X0.25X30000M12M-M8F
Cable for controlling CEM or CET guard locking	PUR	2 m	100 817 C-M08F04-04X025PV02.0-M12M05
		5 m	100 818 C-M08F04-04X025PV05.0-M12M05

Accessories and software for monitors SFM, SMO, GMO and GMOx

The software is required for programming the EUCHNER safety monitors. All safety monitors can be programmed with the same software. A Windows ®-equipped PC is required. All Safety at Work manuals in various languages are included on the CD.

A cable set SFM or the cable SMO-GMO is required to connect the PC. The cable set SFM includes a transfer cable for direct read-out from monitor to monitor.

Additional memory cards can be ordered for the monitors SMO and the gateway monitors GMO.

Plug-in connections with screw terminals and cage pull spring are available.

Ordering table

Version	Suitability	Order No./item
AsiMon Configuration software	Foll all AS interfaces Safety at Work safety monitors	088 053 AsiMon SW
Cable set SFM	For all monitors SFM...	087 299 Cable set SFM
Connection set Cage-pull clamps SMO, GMO and GMOx	For monitors SMO and Gateway monitors GMO	100 256 ZMO-ZB-KK8-M
Cable SMO and GMO	For monitors SMO and Gateway monitors GMO	100 437 ZMO-ZB-PGK
1 memory card	For monitors SMO and Gateway monitors GMO	100 875 ZMO-ZB-M1
10 memory cards	For monitors SMO and Gateway monitors GMO	100 438 ZMO-ZB-M10
1 memory card	For monitors SMOx and Gateway monitors GMOx	103 580 ZMO-ZB-MB1

Bus coupling module BCM



BCM-A-P1-SEM4-1

Parameter	Value	Unit
Housing material	Reinforced thermoplastic	
Degree of protection according to IEC 529 (mating connector inserted)	IP 67 on single insertion of the cable	
Ambient temperature	-20...+ 70	°C
Installation position	Any	
Weight	approx. 60	g
Voltage max.	36	V DC
Current max.	4	A
AS-Interface to power insulation voltage	200	V
Installation	Screw mounting (2 x M6)	
Connection		
AS-Interface and auxiliary power	Ribbon cable AS-i	
Line 1	AS-Interface bus ribbon cable (AS-Interface +, AS-Interface -)	
Line 2	Power ribbon cable (+24 V, 0 V)	
safety switch	M12 socket	
Degree of protection according to IEC 529 (mating connector inserted)	IP 67 on single insertion of the cable	