

CES-FD-AP-U-01-USI-119865 (Order no. 119865)

Field evaluation unit CES-FD-AP-....

- ▶ Connection of a CES/CKS read head
- ▶ Evaluation of signals in the field
- ▶ Connection to the ET200s and ET200pro
- ▶ Familiar EUCHNER AP interface
- ▶ Unicode



Short circuit monitoring

The switch generates its own clock signal on the output lines FO1A/FO1B. Pay attention to this aspect when connecting to control systems and relays.

Category according to EN ISO 13849-1

Due to two redundantly designed semiconductor outputs (safety outputs) with internal monitoring suitable for:

- ▶ Category 4 / PL e according to EN ISO 13849-1

Important: To achieve the stated category according to EN ISO 13849-1, both safety outputs (FO1A and FO1B) must always be evaluated.

LED indicator

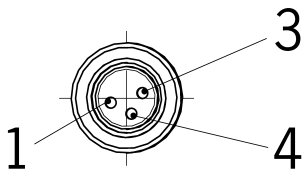
STATE Status LED

DIA Diagnostics LED

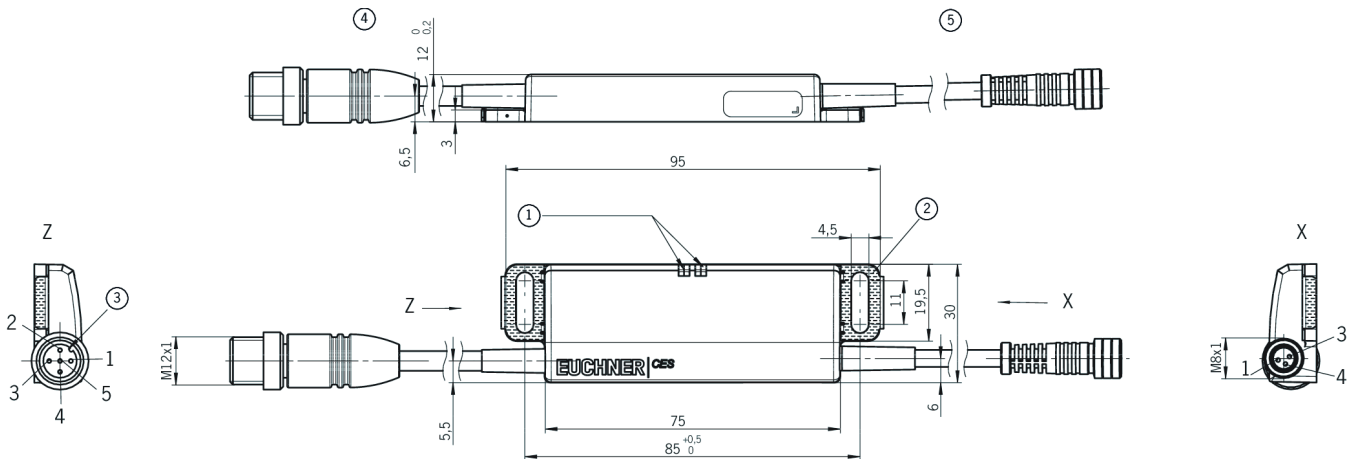
Connection for control system

Plug connector (view of connection side)	Pin	Designation	Function	Connecting cable conductor coloring
	1	UB	Power supply, DC 24 V	BN
	2	FO1A	Safety output, channel 1	WH
	3	0 V	Ground, DC 0 V	BU
	4	FO1B	Safety output, channel 2	BK
	5	-	n.c.	GY

Connection for read head

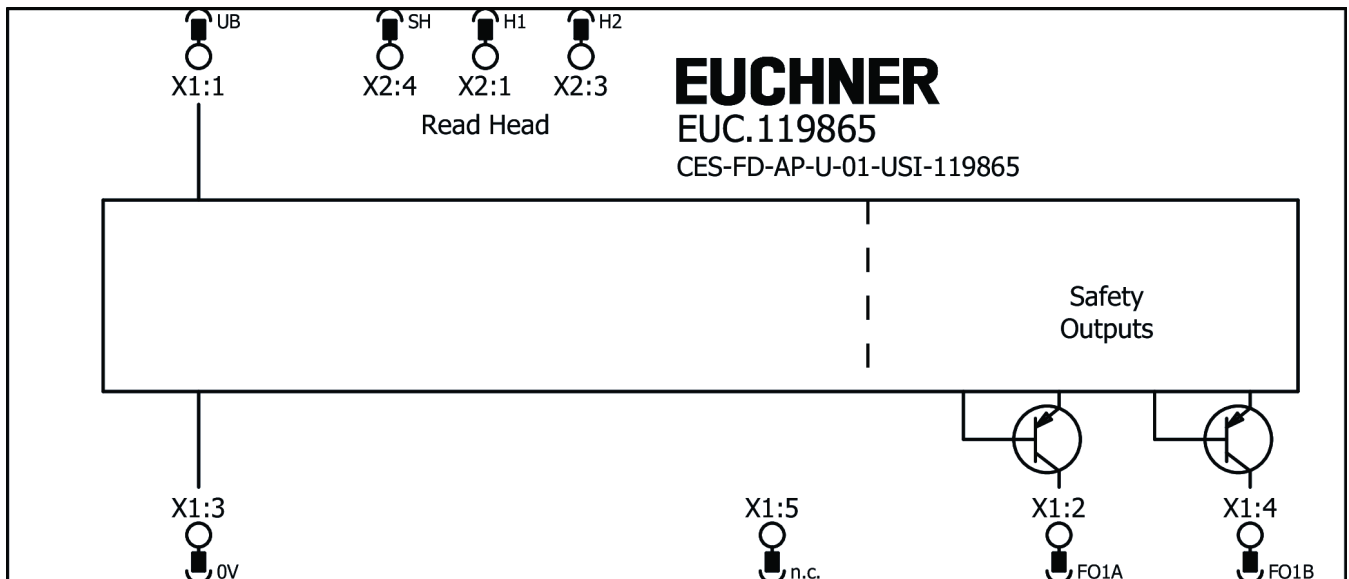
Plug connector (view of connection side)	Pin	Designation	Function	Connecting cable conductor coloring
	1	H1	Data line	BN
	3	H2	Data line	WH
	4	SH	Shield	-

Dimensional drawings



- 1 LED status indication
- 2 Fastening lug with reinforcement plate
- 3 Coding lug
- 4 Cable length 1000 millimeters
- 5 Cable length 200 millimeters

Connection examples



Technical data

Approvals



Workspace

Repeat accuracy R	
	according to EN 60947-5-2 <= 10

Electrical connection values

Fuse	
external (operating voltage)	0.25 ... 8 A
Rated insulation voltage U_i	75 V
Rated impulse voltage U_{imp}	1.5 kV
Operating voltage DC	
UB (PELV, see operating instructions) (reverse polarity protected, regulated, residual ripple < 5%)	24 V DC -15% ... +15% (The device tolerates voltage interruptions in the operating voltage, e.g. test pulses, of up to 5 ms. These voltage interruptions are also output on the safety outputs.)
Turn-on time	
Safety outputs	max. 400 ms
EMC protection requirements	Acc. to EN IEC 60947-5-3
Risk time according to EN 60947-5-3	max. 260 ms
Safety class	III
Current consumption	max. 45 mA
Degree of contamination (external, according to EN 60947-1)	3
Safety outputs F01A / F01B	
Output type	Semiconductor outputs, p-switching, short circuit-proof

Output voltage	
HIGH U(F01A) / U(F01B)	UB-1.5V ... UB V DC (Values at a switching current of 50 mA without taking into account the cable lengths.)
LOW U(F01A) / U(F01B)	0 ... 1 V DC
rated conditional short-circuit current	100 A
Discrepancy time	max. 10 ms
Utilization category	
DC-13	24 V 150 mA (Caution: outputs must be protected with a free-wheeling diode in case of inductive loads.)
Off-state current I _r	max. 0.25 mA
Switching current	
per safety output	1 ... 150 mA
Test pulse duration	max. 0.3 ms (Applies to a load with C ≤ 30 nF and R ≤ 20 kohm)
Test pulse interval	min. 100 ms

Mechanical values and environment

Connection type	Connecting cable PUR with plug connector M12, 5-pin; pin 5 not used
Tightening torque	max. 1 Nm
Ready delay	1 s
Installation orientation	any
Switching frequency	max. 1 Hz
Shock and vibration resistance	Acc. to EN IEC 60947-5-3
Degree of protection	IP65/IP67
Cable ambient temperature (dynamic)	-5 ... +65 °C
Cable ambient temperature (static)	-20 ... +65 °C
Material	
Housing	Plastic, PBT

Characteristic values according to EN ISO 13849-1 and EN IEC 62061

	PL	Maximum SIL	PFH _D	Category	Mission time
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Monitoring of the guard position	PL e	-	4.5×10^{-9}	4	20 y
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Miscellaneous

Notices for UL approval	Operation only with UL Class 2 power supply or equivalent measures
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In combination with read head CES-A-LMN-SC and actuator CES-A-BMB

Switch-on distance	5 mm (with read head CES-A-LMN-SC and actuator CES-A-BMB)
Secured switch-off distance s_{ar}	max. 10 mm (with read head CES-A-LMN-SC and actuator CES-A-BMB)
Secured switching distance s_{ao}	min. 3.4 mm (with read head CES-A-LMN-SC and actuator CES-A-BMB)
Switching hysteresis	0.05 ... 0.2 mm (with read head CES-A-LMN-SC and actuator CES-A-BMB)

Downloads

All documentation for this material can be found on our website:

<https://www.euchner.de/en-us/a/119865/?#downloads-tab>

Ordering data

Ordernumber	119865
Item designation	CES-FD-AP-U-01-USI-119865
Gross weight	0,156kg
Customs tariff number	85365019000
ECLASS	27-27-24-03 Safety-related transponder switch

Accessories

CES read heads

Read head CES-A-LMN-SC, M8 plug connector



077790

CES-A-LMN-SC

- ▶ Cylindrical design M12
- ▶ M8 plug connector

CKS

Electronic-Key adapter CKS, round design



171792

CKS-A-LA1-SC-171792

- ▶ Key adapter with integrated CES read head
- ▶ Mechanical detent mechanism for inserted key
- ▶ LED indicator when key detected
- ▶ Simple connection via M8 plug connector(s)
- ▶ Mounting; assembly at the front; mounting cut-out Ø 22.5 mm

Key adapter CKS



113130

CKS-A-L1B-SC-113130

- ▶ Key adapter with integrated CES read head
- ▶ Simple connection via plug connector M8
- ▶ Front cover: red
- ▶ High degree of protection IP67
- ▶ LED indicator

Connection material

Connecting cable with 2 plug connectors M12, 5-pin, 10 m



100181

C-M12F05-05X034PV10,0-M12M05-100181

- ▶ M12 female plug to M12 plug connector, 5-pin
- ▶ Straight female plug and plug connector
- ▶ PVC cable
- ▶ Cable length 10 m

Connecting cable with 2 plug connectors M12, 5-pin, 20 m



100182

C-M12F05-05X034PV20,0-M12M05-100182

- ▶ M12 female plug to M12 plug connector, 5-pin
- ▶ Straight female plug and plug connector
- ▶ PVC cable
- ▶ Cable length 20 m

Connecting cable with 2 plug connectors M12, 5-pin, 5 m



100180

C-M12F05-05X034PV05,0-M12M05-100180

- ▶ M12 female plug to M12 plug connector, 5-pin
- ▶ Straight female plug and plug connector
- ▶ PVC cable
- ▶ Cable length 5 m

Connecting cable with straight plug connector M12, 5-pin, 10 m



100184

C-M12F05-05X034PV10,0-MA-100184

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PVC cable
- ▶ Cable length 10 m
- ▶ With flying lead



113640

C-M12F05-05X034PU10,0-MA-113640

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PUR cable
- ▶ Cable length 10 m
- ▶ With flying lead

Connecting cable with straight plug connector M12, 5-pin, 20 m



100185

C-M12F05-05X034PV20,0-MA-100185

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PVC cable
- ▶ Cable length 20 m
- ▶ With flying lead



113682

C-M12F05-05X034PU20,0-MA-113682

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PUR cable
- ▶ Cable length 20 m
- ▶ With flying lead

Connecting cable with straight plug connector M12, 5-pin, 30 m



122784

C-M12F05-05X034PU30,0-MA-122784

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PUR cable
- ▶ Cable length 30 m
- ▶ With flying lead

Connecting cable with straight plug connector M12, 5-pin, 5 m



100183

C-M12F05-05X034PV05,0-MA-100183

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PVC cable
- ▶ Cable length 5 m
- ▶ With flying lead



113620

C-M12F05-05X034PU05,0-MA-113620

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PUR cable
- ▶ Cable length 5 m
- ▶ With flying lead

Connecting cable with straight plug connector M12, 5-pin, 50 m



156064

C-M12F05-05X034PV50,0-MA-156064

- ▶ M12 female plug, 5-pin
- ▶ Straight plug connector
- ▶ PVC cable
- ▶ Cable length 50 m
- ▶ With flying lead

Extension for read head, with plug connector M8, 3-pin, 0.4m



115464

C-M08M03-02X025PU0,4-M08F03-115464

- ▶ Extension cable with M8 plug connector, 3-pin
- ▶ Straight plug connector
- ▶ PUR cable
- ▶ Cable length 0.4 m

Mounting accessories

Safety screws M4 x 14, large head

086232

M4X14-NIRO/V100

- ▶ Safety screws M4 x 14 (large head)
- ▶ Packaging unit 100 pieces