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Технические характеристики

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Optical data coupler

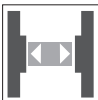
Wherever communication with shelf operation devices (RBG), transport wagons, automated transport systems (FTS), or electric hanging conveyors (EHB) is required, optical data couplers are useful. They provide a friction-free connection over large distances of up to 240 m. The variety of interfaces available is also a plus. That is, we offer you solutions for standard interfaces like RS232, RS422, and current loops, as well as for current industry fieldbus systems like PROFIBUS and INTERBUS.

Our photoelectric sensors for parallel data transmission are especially well suited for application in automated transport systems or electric hanging conveyors. They serve to transmit status signals in parallel, thus implementing problem-free communication with docking stations without interruptible contacts or radio connections.

Common to all the devices are both robust construction and truly simple alignment. Modern connection technology with plugs for the fieldbus or spring terminals for point-to-point connections are another important feature.

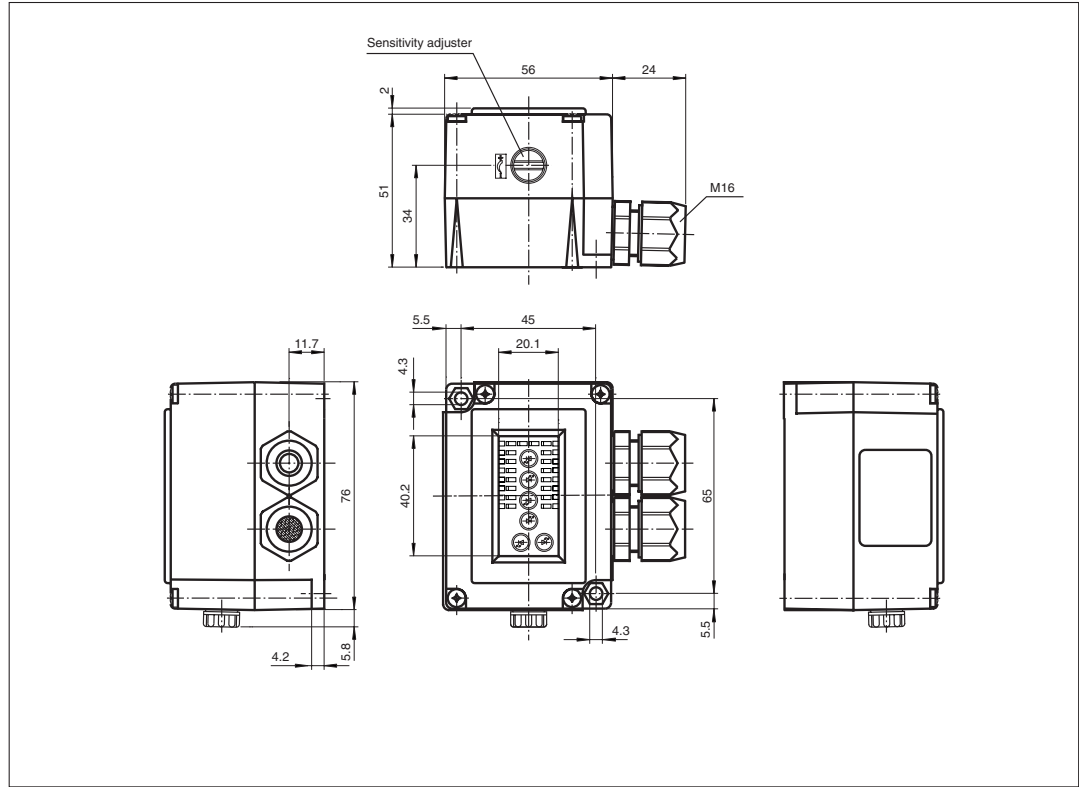
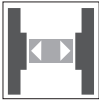
Particularly noteworthy is the new TVT (Telegram Verification Technology) in optical data coupler LS610 and LS611 for Profibus. Even after the beam is broken, the bus restarts without problems. Furthermore, identical devices of the series LS611 can now communicate with each other without additional hardware or parameterization. Thus, the inconvenience of having to use two different devices with different working frequencies is a thing of the past.

Type	Interface	Detection distance	Page
DAD15	8 Bit parallel	2.50 m/5 m	438
DAD30	RS 232 + RS 422 + Current Loop	20 m/45 m/150 m	440
LS230-DA	RS 232 + RS 422 + Current Loop	230 m/340 m/450 m	442
LS610-DA	PROFIBUS, INTERBUS	140 m/260 m	444
LS611	PROFIBUS	200 m/350 m	448

Miniature sensors		Optical data coupler		DAD15-8P-...			
		2500 mm		Features			
				• 8 bit parallel data transfer • Very large angle of divergence • Cascadable • Connection with spring-loaded terminals • Protection degree IP67			
Rectangular housing							
Cylindrical housing							
Fibre optic devices							
DAD15-8P-...							
Fork type sensors	Technical data			Ordering code:			
				DAD15-8P	DAD15-8P-NPN	DAD15-8P/35	DAD15-8P-NPN/35
Contrast sensors, Color sensors	Effective detection range	0 ... 1500 mm		◆	◆		
		0 ... 2500 mm				◆	◆
	Threshold detection range	2500 mm		◆	◆		
		5000 mm				◆	◆
	Light type	infrared, modulated light		◆	◆	◆	◆
Vision systems	Light source	IRET		◆	◆	◆	◆
	Diameter of the light spot	approx. 1000 mm at 1.5 m		◆	◆		
		approx. 500 mm at 1.5 m				◆	◆
	Angle of divergence	± 20 °		◆	◆		
		± 8 °				◆	◆
	Cycle time	35 ms		◆	◆	◆	◆
	Ambient light limit	5000 Lux		◆	◆	◆	◆
	Approvals	CE		◆	◆	◆	◆
	Data flow display	Inputs: 8 LEDs green Outputs: 8 LEDs red		◆	◆	◆	◆
	Sensors for hazardous areas	Operating elements	sensitivity adjuster		◆	◆	◆
Operating elements		Operating mode switch 4: Behaviour when beam is broken Switches 1+2: Address		◆	◆	◆	◆
Operating display		LED green		◆	◆	◆	◆
Operating voltage		10 ... 30 V DC			◆		◆
		10 ... 60 V DC		◆		◆	
Light grids	No-load supply current	40 mA		◆	◆	◆	◆
	Data rate	225 Bit/s		◆	◆	◆	◆
	Data sampling blanking	Enable input emitter deactivation		◆	◆	◆	◆
	Interface type	8 bit parallel, bidirectional 10 inputs, npn ; 10 outputs, npn			◆		◆
		8 bit parallel, bidirectional 10 inputs, pnp , 10 outputs, pnp		◆		◆	
Optical data coupler	Switching voltage	max. 30 V DC			◆		◆
		max. 60 V DC		◆		◆	
	Switching current	max. 200 mA per channel , short-circuit proof , total ≤ 800 mA		◆	◆	◆	◆
	Standards	EN 60947-5-2		◆	◆	◆	◆
	Ambient temperature	-20 ... 60 °C (253 ... 333 K)		◆	◆	◆	◆
Distance measurement	Storage temperature	-20 ... 75 °C (253 ... 348 K)		◆	◆	◆	◆
	Protection degree	IP67		◆	◆	◆	◆
	Connection	2 M16-screwed connections, spring-loaded terminals in the terminal space		◆	◆	◆	◆
	Housing	Terluran, black		◆	◆	◆	◆
	Optical face	glass		◆	◆	◆	◆
Accessories	Mass	170 g		◆	◆	◆	◆

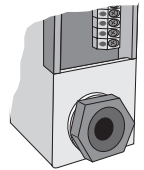
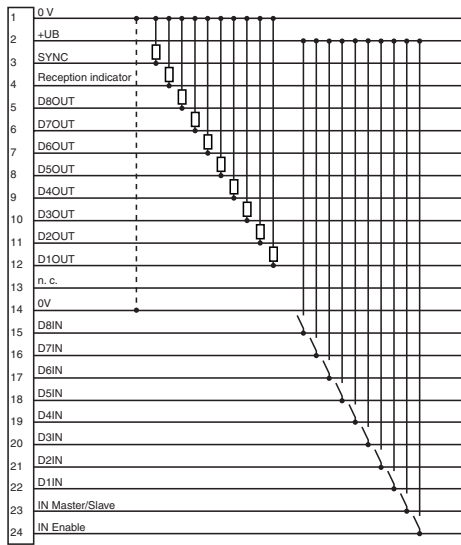
Dimensions

DAD15-8P-...



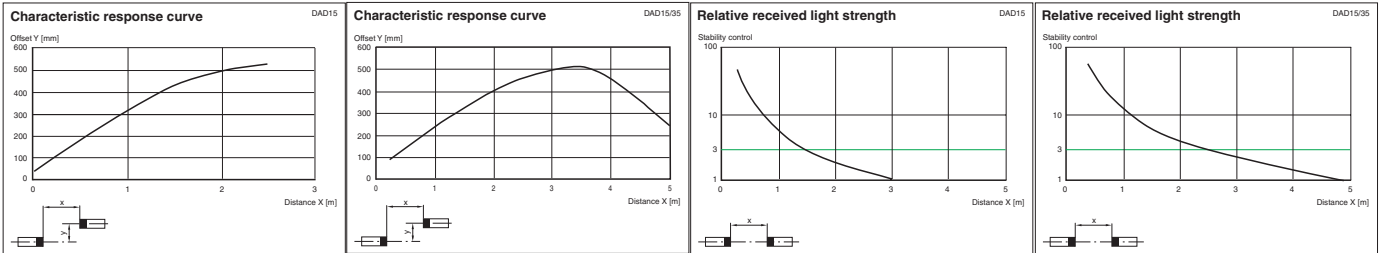
Electrical connection

Connection type



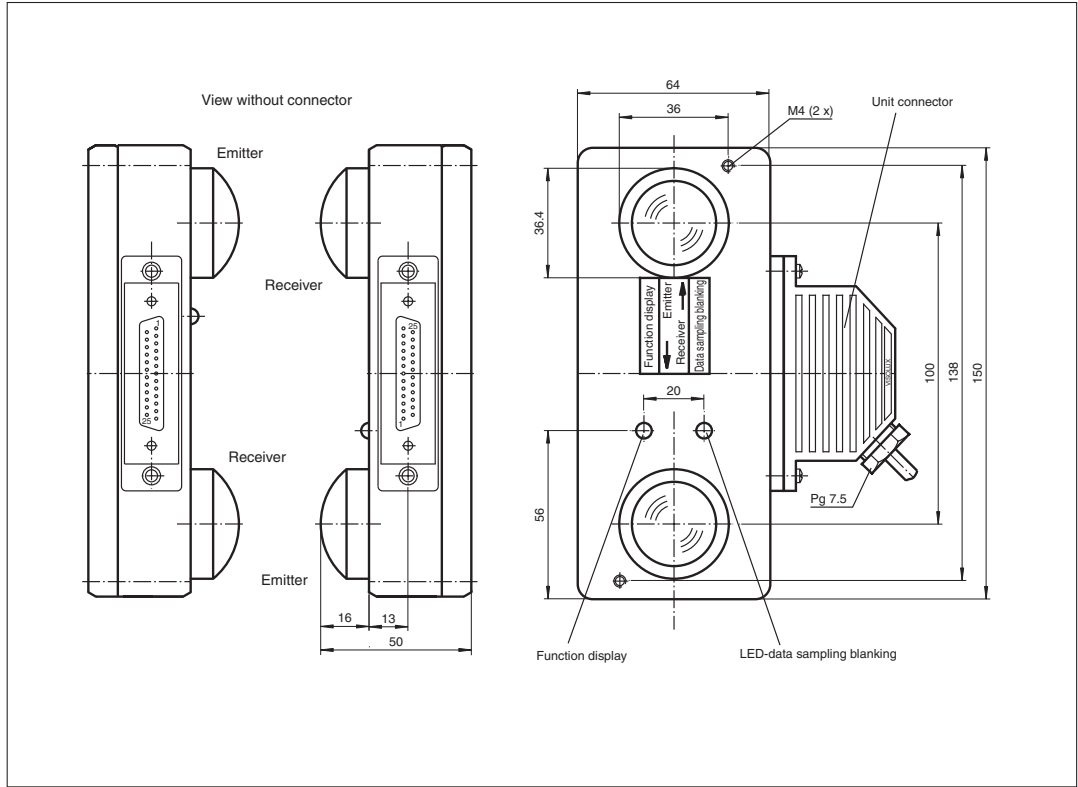
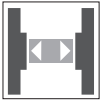
terminal compartment

Diagrams



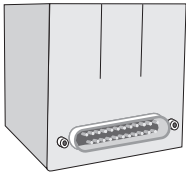
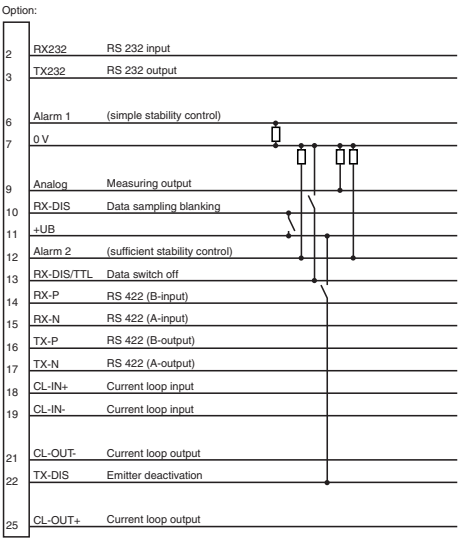
Miniature sensors
Rectangular housing
Cylindrical housing
Fibre optic devices
Fork type sensors
Contrast sensors, Color sensors
Vision systems
Sensors for hazardous areas
Light grids
Optical data coupler
Distance measurement
Accessories

Miniature sensors		Optical data coupler		DAD30-...	
			45 m		Features • Compact, flat aluminium housing • 3 interfaces in a device can be selected via DIP switches • Mating connector with protective cover included delivery
Rectangular housing					
Cylindrical housing					
Fibre optic devices					
DAD30-...					
Fork type sensors	Technical data		Ordering code:		
			DAD30	DAD30-W	DAD30-RT
Contrast sensors, Color sensors	Effective detection range				
Vision systems	Threshold detection range				
Sensors for hazardous areas	Alignment aid				
Light grids	Light type				
Optical data coupler	Light source				
Distance measurement	Diameter of the light spot				
Accessories	Angle of divergence				
	Transmission mode				
	Response delay				
	Ambient light limit				
	Approvals				
	Function display				
	Operating elements				
	Operating voltage				
	No-load supply current				
	Data rate				
	Data sampling blanking				
	Interface type				
	Output of the pre-fault indication				
	Measurement output				
	Standards				
	Ambient temperature				
	Storage temperature				
	Protection degree				
	Connection				
	Housing				
	Optical face				
	Mass				



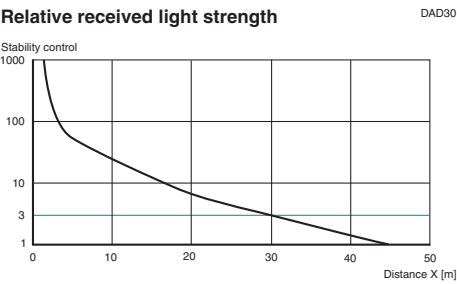
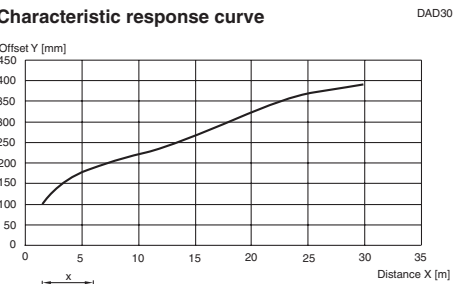
Electrical connection

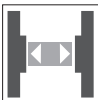
Connection type

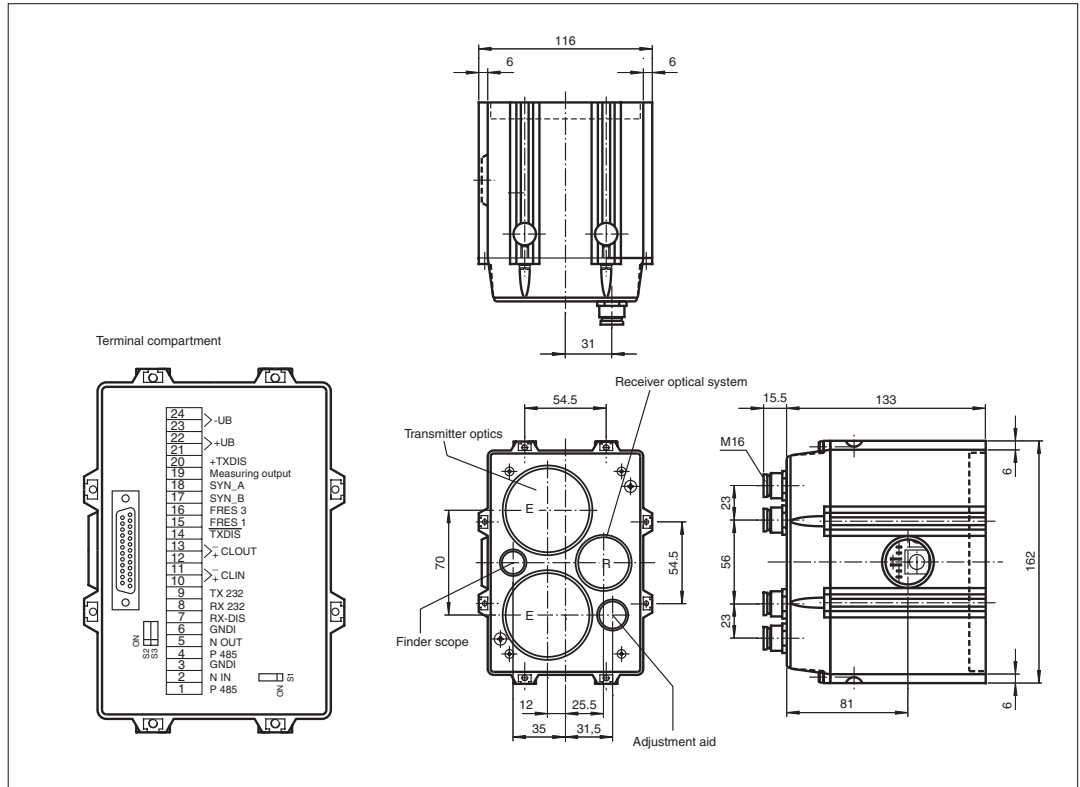


SUB-D connector

Diagrams



Miniature sensors		Optical data coupler		LS230-DA-...		
	340 m		Features			
			• 3 interfaces in a device can be selected via DIP switches - RS 232 - RS 422 - CL			
			• High detection ranges achievable			
Rectangular housing			• Easy adjustment by integrated alignment LED and finder scope			
Cylindrical housing			• Band display for signal strength			
Fibre optic devices			• Sturdy aluminium housing			
LS230-DA-...						
Fork type sensors	Technical data			Ordering code:		
				LS230-DA	LS230-DA-GUF	LS230-DA-RT
Contrast sensors, Color sensors	Effective detection range	0 ... 180 m				◆
		0 ... 230 m		◆	◆	
	Threshold detection range	230 m				◆
		340 m		◆	◆	
Vision systems	Alignment aid	Telescopic sight, frontal red LED flashing, off with Signal > sufficient stability control		◆	◆	◆
	Light type	infrared, modulated light		◆	◆	
		red				◆
	Light source	IRED		◆	◆	
Sensors for hazardous areas		LED				◆
	Diameter of the light spot	6300 mm at a distance of 350 m				◆
		8000 mm at a distance of 230 m		◆	◆	
	Angle of divergence	emitter 2 ° , receiver 5 °		◆	◆	◆
Light grids	Transmission mode	FSK		◆	◆	◆
	Response delay	40 µs		◆	◆	◆
	Ambient light limit	3000 Lux		◆	◆	◆
	Approvals	CE		◆	◆	◆
Optical data coupler	Function display	LED band display 3-colour, LED red: single switching point LEDs yellow, 4-stage: sufficient switching point LED green: 3-fold switching point		◆	◆	◆
	Data flow display	LED green: emitter LED yellow: receiver		◆	◆	◆
	Operating elements	8-fold DIP-switch for selection of transmission frequency and interface in the terminal compartment		◆	◆	◆
	Operating voltage	24 V DC ± 25 %		◆	◆	◆
Distance measurement	No-load supply current	max. 1000 mA			◆	
		250 mA		◆		◆
	Data rate	0 ... 19.2 kBit/s		◆	◆	◆
	Data sampling blanking	emitter deactivation for +U _B , emitter deactivation TTL-compatible, receiver deactivation TTL-compatible		◆	◆	◆
Accessories	Interface type	RS 232, RS 422, CL20 mA active/passive switchable		◆	◆	◆
	Output of the pre-fault indication	2 pnp-outputs, short-circuit proof, 30 V DC 0.1 A activated for single or sufficient stability control		◆	◆	◆
	Measurement output	2.5 ... 6 V DC, max. 10 mA , single stability control 3.5 V , sufficient stability control 5 V		◆	◆	◆
	Standards	EN 60947-5-2		◆	◆	◆
Distance measurement	Ambient temperature	-20 ... 50 °C (253 ... 323 K)		◆		◆
		-30 ... 50 °C (243 ... 323 K) with heated housing			◆	
	Storage temperature	-20 ... 75 °C (253 ... 348 K)		◆	◆	◆
	Protection degree	IP65		◆	◆	◆
Accessories	Connection	4 x M16 cable glands , spring terminals in the terminal compartment		◆	◆	◆
	Housing	aluminium		◆	◆	◆
	Optical face	Plastic lenses, glass windows		◆	◆	◆
	Mass	1600 g		◆	◆	◆

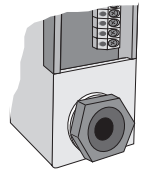


Electrical connection

Connection type

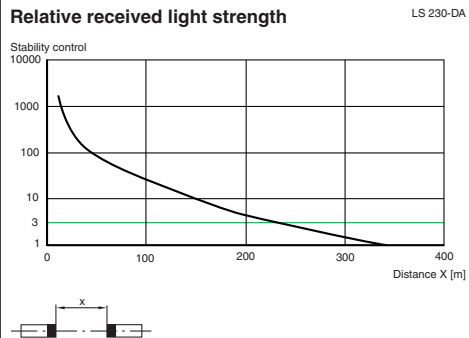
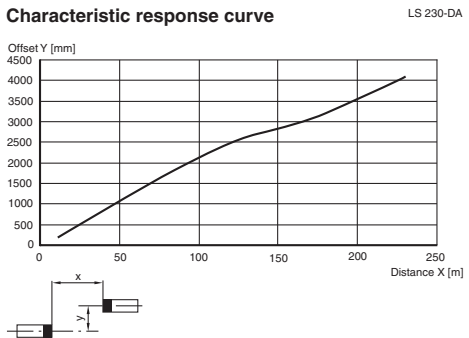
Option:

1	RX-P	RS 422 data+ (B-input)
2	RX-N	RS 422 data- (A-input)
3	GNDI	Data ground, insulated
4	TX-P	RS 422 data+ (B-output)
5	TX-N	RS 422 data- (A-output)
6	GNDI	
7	RX-DIS	Disable TTL
8	RX232	RS 232 input
9	TX232	RS 232 output
10	CL-IN+	20 mA input
11	CL-IN-	20 mA input
12	CL-OUT+	20 mA output
13	CL-OUT-	20 mA output
14	TX-DIS+	Emitter deactivation TTL
15	Alarm 1	(single stability control)
16	Alarm 2	(sufficient stability control)
17		
18		
19	Analog	Measuring output 2.5 V ... 6 V
20	TX-DIS	Emitter deactivation
21	+UB	
22	+UB	
23	0 V	
24	0 V	

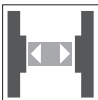


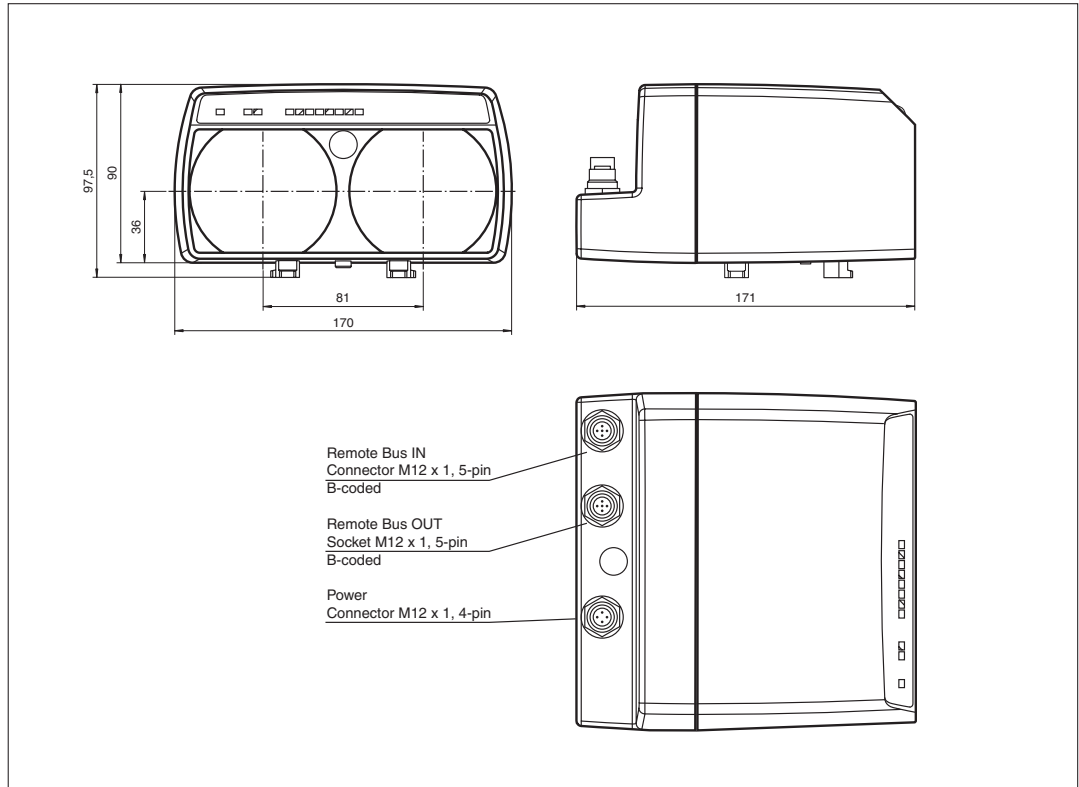
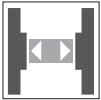
terminal compartment

Diagrams



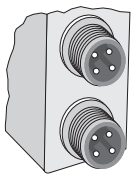
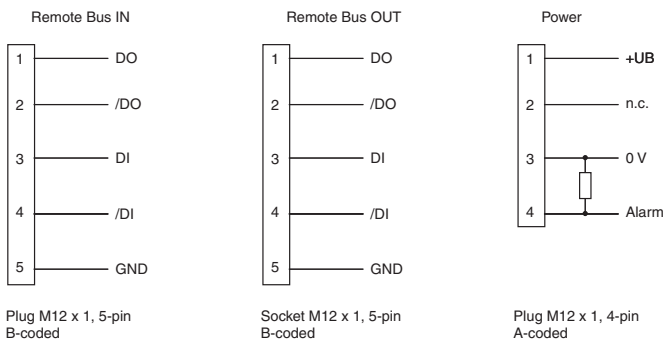
Miniature sensors
Rectangular housing
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Fibre optic devices
Fork type sensors
Contrast sensors, Color sensors
Vision systems
Sensors for hazardous areas
Light grids
Optical data coupler
Distance measurement
Accessories

Miniature sensors		Optical data coupler		LS610-DA-IBS/...						
Rectangular housing				Features						
				• Devices for INTERBUS • Plug connection for fast mounting • No parameterisation • Usable up to detection range 0 • Line indicator for signal strength • Version for low temperature applications						
				LS610-DA-IBS/F1/146 LS610-DA-IBS/F2/146						
Cylindrical housing										
Fibre optic devices										
LS610-DA-IBS/...										
Fork type sensors	Technical data									
Contrast sensors, Color sensors	Effective detection range		0 ... 120 m		Ordering code:		LS610-DA-IBS/F1	LS610-DA-IBS/F2	LS610-DA-IBS/F1/35	LS610-DA-IBS/F1/146
			0 ... 240 m				◆	◆		
	Threshold detection range		140 m				◆	◆		
			260 m						◆	◆
	Light type		infrared, modulated light				◆	◆	◆	◆
Vision systems	Diameter of the light spot		2 m at a distance of 100 m				◆	◆	◆	◆
	Angle of divergence		1.1 °				◆	◆	◆	◆
	Ambient light limit		> 10000 Lux				◆	◆	◆	◆
	Approvals		CE				◆	◆	◆	◆
	Function display		alignment aid: frontal red LED, flashing Signal strength (8 LED: Red, yellow, green)				◆	◆	◆	◆
Sensors for hazardous areas	Data flow display		LED green: emitter LED yellow: receiver				◆	◆	◆	◆
	Operating voltage		18 ... 30 V DC				◆	◆	◆	◆
	No-load supply current		200 mA				◆	◆	◆	◆
	Data rate		0 ... 2 MBit/s				◆	◆	◆	◆
	Interface type		RS 422 , electrically isolated				◆	◆	◆	◆
Light grids	Output of the pre-fault indication		1 pnp (switches if there is sufficient stability control) short-circuit proof, max. 200 mA				◆	◆	◆	◆
	Standards		EN 60947-5-2 , CE , EN 61000-6-2				◆	◆	◆	◆
	Ambient temperature		-10 ... 50 °C (263 ... 323 K)				◆	◆	◆	
			-30 ... 50 °C (243 ... 323 K) , For use in dry coldness						◆	◆
	Storage temperature		-20 ... 70 °C (253 ... 343 K)				◆	◆	◆	
Optical data coupler			-30 ... 70 °C (243 ... 343 K)						◆	◆
	Protection degree		IP65				◆	◆	◆	◆
	Connection		M12x1 connector, 4-pin, standard (supply) , M12x1 connector, 5-pin, B-coded (Remote Bus In) , M12x1 socket, 5-pin, B-coded (Remote Bus Out)				◆	◆	◆	◆
	Housing		ABS / PC				◆	◆	◆	◆
	Optical face		plastic				◆	◆	◆	◆
Distance measurement	Mass		700 g				◆	◆	◆	◆
Accessories										



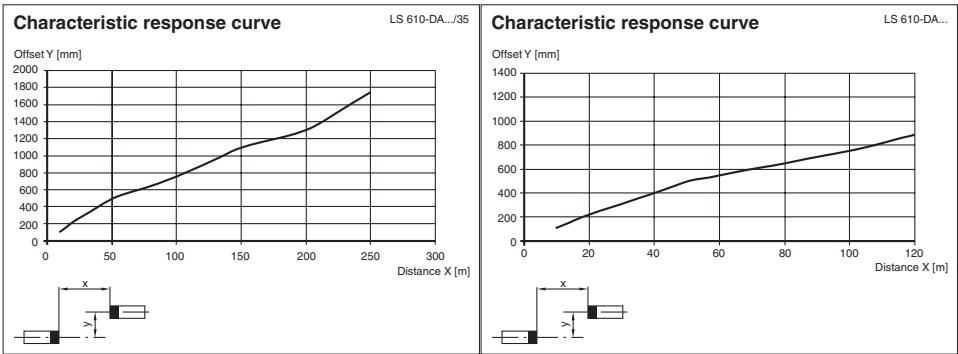
Electrical connection

Connection type

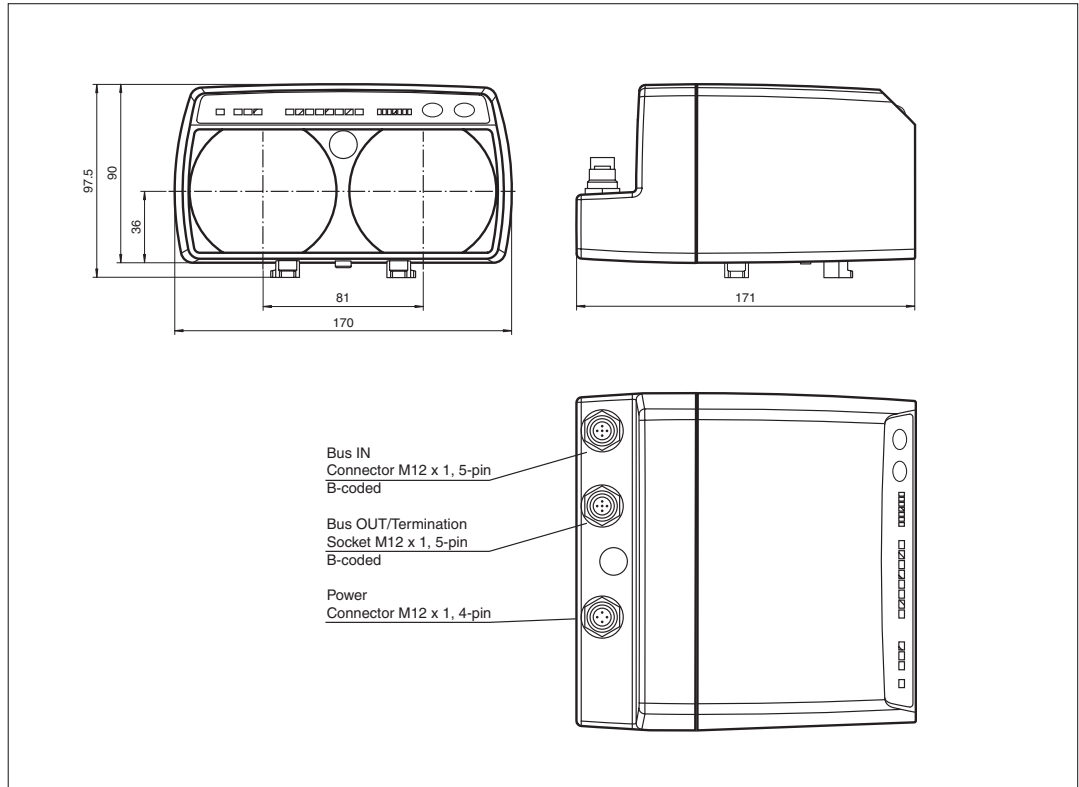
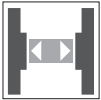


connectors M12

Diagrams

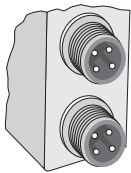
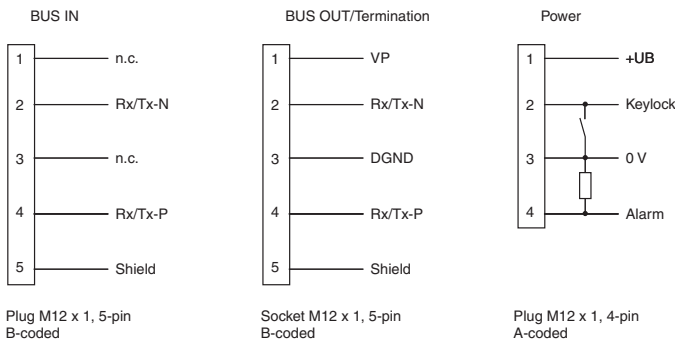


Miniature sensors		260 m		Optical data coupler												LS610-DA-P/...																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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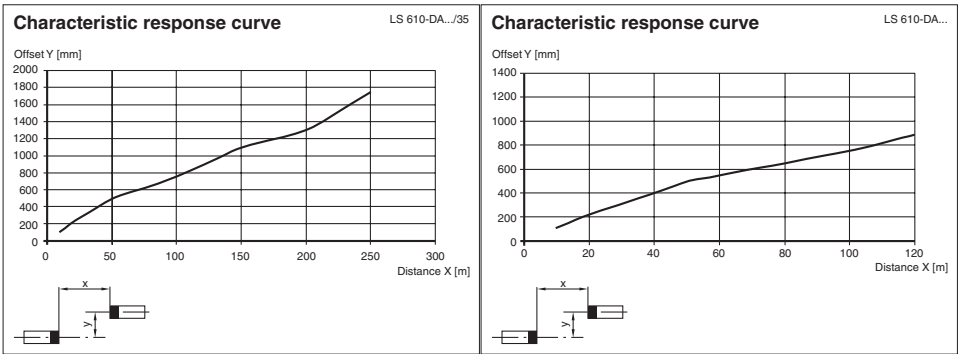
Electrical connection

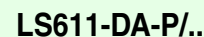
Connection type



connectors M12

Diagrams





C€



- **Devices for PROFIBUS**
- **identical units data communication with identical units**
- **Problem-free light beam interruption due to TVT (Telegram Verification Technology)**
- **Plug connection for fast mounting**
- **Simple parameterisation without opening of the device**
- **Usable up to detection range 0**
- **Line indicator for signal strength**

LS611-DA-P/..

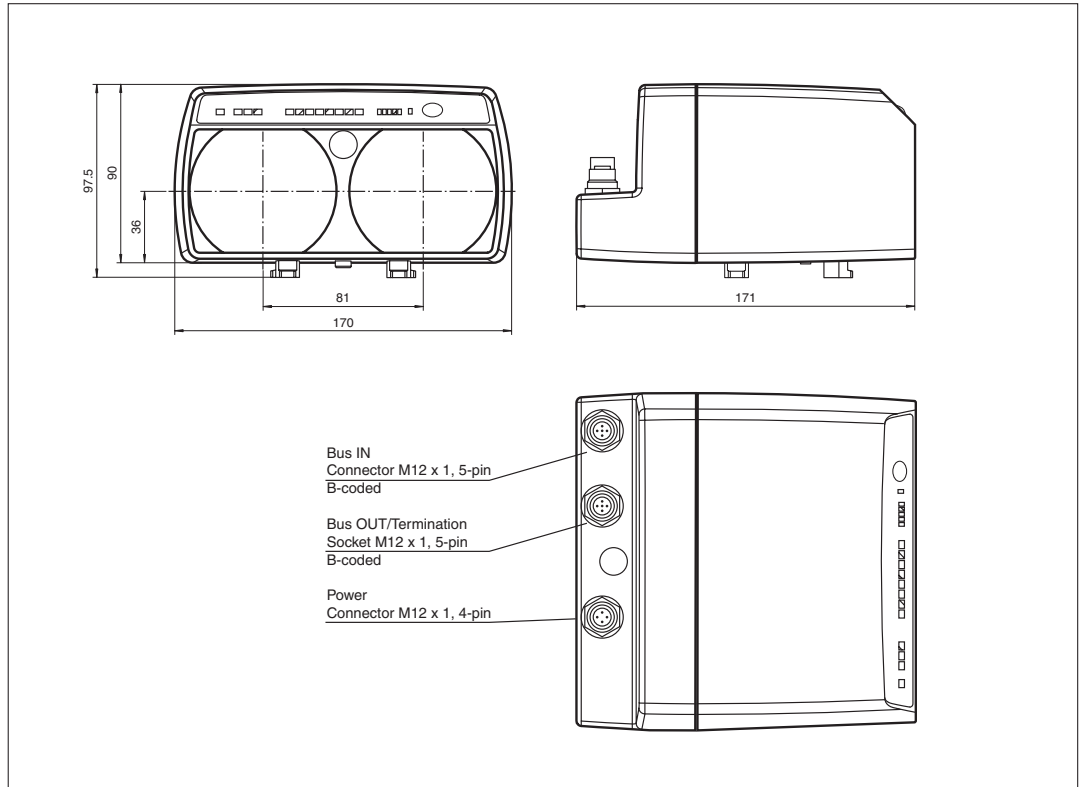
Technical data

Ordering code:

LS611-DA-P

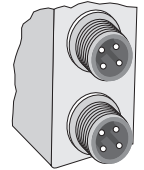
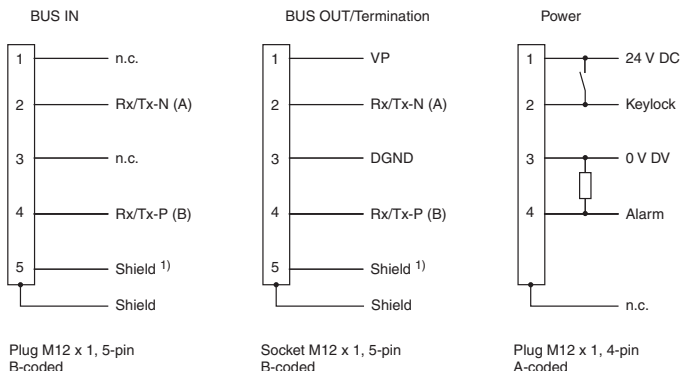
LS611-DA-P/35

Effective detection range	0 ... 150 m	◆	◆
	0 ... 300 m		◆
Threshold detection range	200 m	◆	
	350 m		◆
Light type	infrared, modulated light	◆	◆
Diameter of the light spot	2 m at a distance of 100 m	◆	◆
Angle of divergence	1.2 °	◆	
Ambient light limit	> 10000 Lux	◆	◆
Approvals	CE	◆	◆
Function display	alignment aid: frontal red LED, flashing Signal strength (8 LED: Red, yellow, green) Baud rate , C1CP (collision protection)	◆	◆
Data flow display	LED green: emitter LED yellow: receiver LED red: faulty telegram	◆	◆
Operating voltage	18 ... 30 V DC	◆	◆
Data rate	93.75/187.5/500/1500 kBit/s , adjustable	◆	◆
Operating current	200 mA	◆	
Interface type	PROFIBUS DP-V0,-V1,-V2; FMS; MPI; FMS-DP mixed mode; galvanically isolated	◆	◆
Output of the pre-fault indication	1 pnp (switches if there is sufficient stability control) short-circuit proof, max. 200 mA	◆	◆
Function input	Tastatursperre, Digital-Eingang (current sinking), gesperrt mit ON	◆	◆
Standards	EN 60947-5-2 , CE , EN 61000-6-2	◆	
Ambient temperature	-10 ... 50 °C (263 ... 323 K)	◆	◆
Storage temperature	-20 ... 70 °C (253 ... 343 K)	◆	◆
Protection degree	IP65	◆	◆
Connection	M12x1 connector, 4-pin, standard (supply) , M12x1 connector, 5-pin, B-coded (Bus In) , M12x1 socket, 5-pin, B-coded (Bus Out/Termination)	◆	◆
Housing	ABS / PC	◆	◆
Optical face	plastic	◆	◆
Mass	700 g	◆	◆



Electrical connection

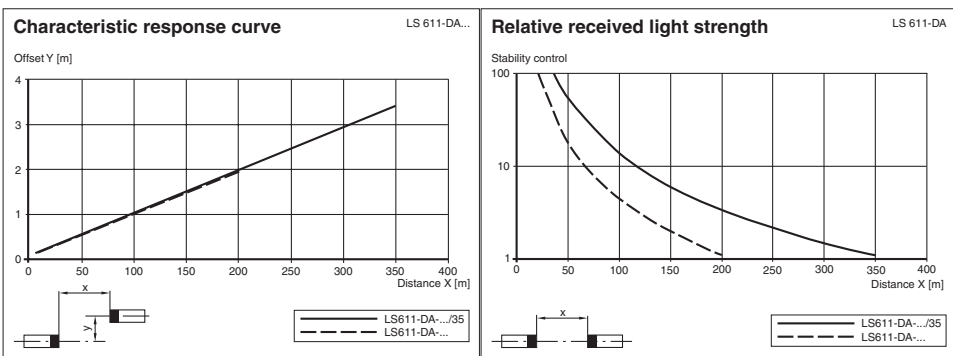
Connection type



connectors M12

¹⁾ According to the "PROFIBUS Mounting Recommendations", the connection of the screen with Pin 5 is not recommended. If necessary, this type connection should be chosen if the contact of the screen cannot be established by screwing it to the plug housing.

Diagrams



Miniature sensors
Rectangular housing
Cylindrical housing
Fibre optic devices
Fork type sensors
Contrast sensors, Color sensors
Vision systems
Sensors for hazardous areas
Light grids
Optical data coupler
Distance measurement
Accessories

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