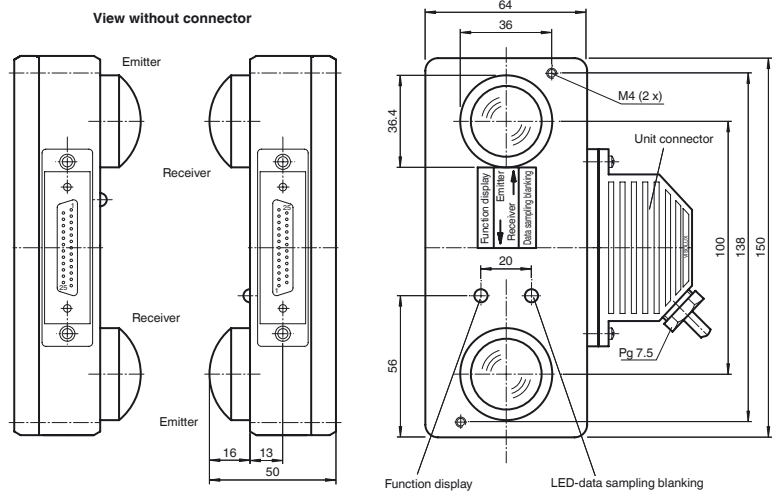## Model Number

DAD30/35

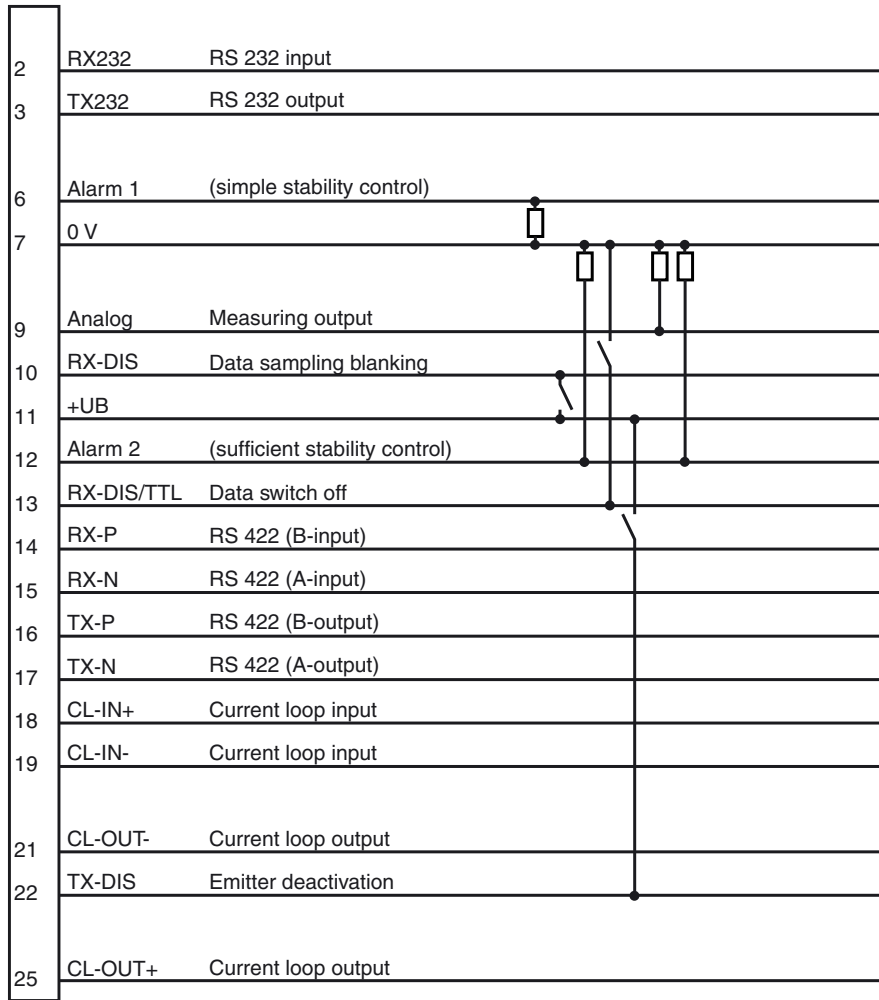Optical data coupler

Features

- Compact, flat aluminum housing
- 3 interfaces in a device can be selected via DIP switches
- Infrared light
- Mating connector with protective cover included delivery

Dimensions

View without connector

Emitter
Receiver
Receiver
Emitter

16 · 13
50

64
36
36.4
M4 (2 x)
Unit connector
Function display
Emitter
Receiver
Data sampling blanking
100
138
150
20
56
Pg 7.5
Function display
LED-data sampling blanking

PEPPERL+FUCHS 1

Release date: 2019-09-18 15:51 · Date of issue: 2019-09-18 · 418447_eng.xml

Electrical connection

Option:

Pin	Signal	Description
2	RX232	RS 232 input
3	TX232	RS 232 output
6	Alarm 1	(simple stability control)
7	0 V	
9	Analog	Measuring output
10	RX-DIS	Data sampling blanking
11	+UB	
12	Alarm 2	(sufficient stability control)
13	RX-DIS/TTL	Data switch off
14	RX-P	RS 422 (B-input)
15	RX-N	RS 422 (A-input)
16	TX-P	RS 422 (B-output)
17	TX-N	RS 422 (A-output)
18	CL-IN+	Current loop input
19	CL-IN-	Current loop input
21	CL-OUT-	Current loop output
22	TX-DIS	Emitter deactivation
25	CL-OUT+	Current loop output

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

2

PEPPERL+FUCHS

Technical data

General specifications

Effective detection range	0 ... 100 m
Threshold detection range	150 m
Light source	IRED
Light type	modulated infrared light
Alignment aid	with function display
Transmission mode	FSK
Response delay	40 µs
Diameter of the light spot	1800 mm at a distance of 100 m
Angle of divergence	Emitter: 1 ° Receiver: 5 °
Ambient light limit	30000 Lux

Indicators/operating means

Function indicator	LED red: switch point LED green: sufficient stability control
Control elements	8-fold DIP-switch for selection of transmission frequency and interface

Electrical specifications

Operating voltage	U_B	24 V DC ± 25 %
No-load supply current	I_0	200 mA
Data sampling blanking		Input for incoming data blanking with +24 V DC
Data rate		0 ... 19.2 kBit/s
Operation frequency		F1 = 83 kHz F2 = 118 kHz

Interface

Interface type	RS 232, RS 422, CL20 mA active/passive switchable

Output

Pre-fault indication output	2 PNP-outputs, short-circuit protected, 30 V DC 0.1 A activated for single or sufficient stability control
Measurement output	+1.8 ... 5.8 V DC, max. 10 mA, simple stability control: 2.5 V triple stability control: 4.2 V

Conformity

Product standard	EN 60947-5-2

Ambient conditions

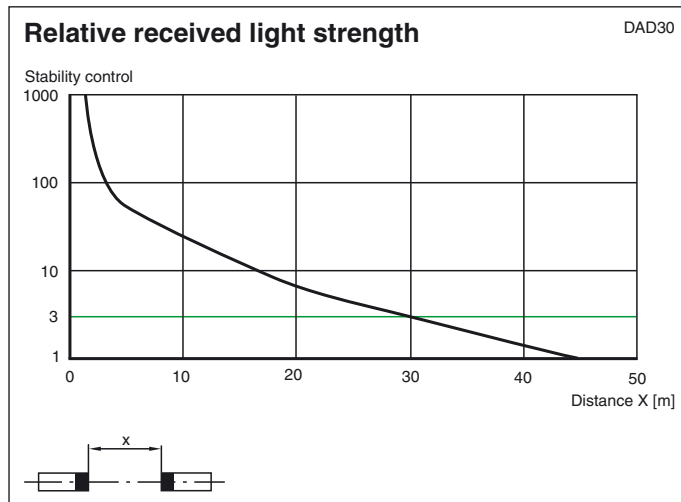|	
Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-20 ... 75 °C (-4 ... 167 °F)

Mechanical specifications

Degree of protection	IP65
Connection	25-pin Sub-D connector
Material	
Housing	Aluminum
Optical face	plastic lens
Mass	500 g

Approvals and certificates

Approvals	CE

Curves/Diagrams

Characteristic response curve DAD30

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Relative received light strength — DAD30
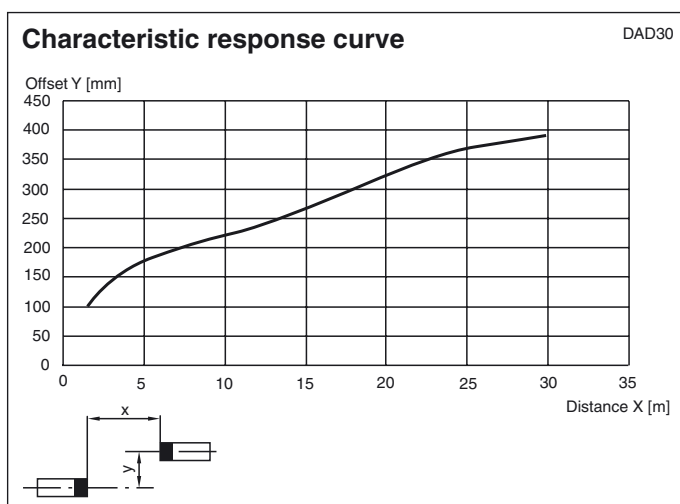
Function

The DAD 30 is a device for serial data transfer for data rates up to 19.2 kBaud and ranges up to 100 m. The device can also be used without problems for data rates and effective operating distances below these values. The transmission is protocol-free. If two full-duplex routes are to be installed in parallel, infrared should be selected for one route and visible emitter light for the other.

Data transfer

In order to avoid mutual interference of the two transfer channels, emitter and receiver of a device are operated at different centre frequencies F1/F2. The frequency is adjusted with the S1 DIP switch..

S1:   ON = emitter F1, receiver F2
             OFF = emitter F2, receiver F1

LED functional display / functional reserve

A two-color LED is used as the functional and alignment control. It is lit and red if the level of the received signal is assured for a simple transfer. If the LED is lit and green, sufficient functional reserve is present. The indicator is independent of the data transfer.

Interface

The DAD30 contains a standard interface module for serial transfer. The data lines have to be connected to the corresponding pins of the connector according to the desired interface. All output interfaces are controlled at the same time. To select the input interface, the appropriate DIP switch S4-S6 should be moved to the ON position.
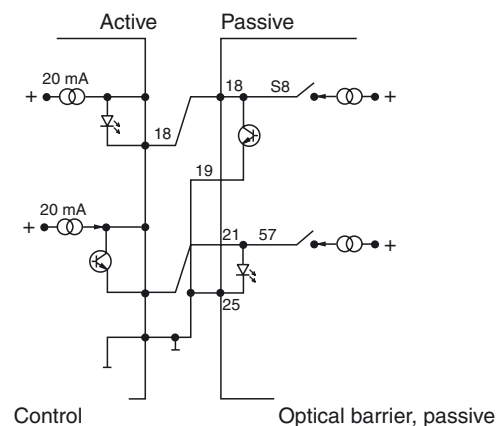
20-mA electrical circuit (CL)

S4:   ON = data in, 20 mA current loop

Serial interface with defined current level (Low = 0 mA, High = 20 mA) and for connection to an opposite station. It transfers data on lines over lengths of up to 1 km. With the DAD 30, the 20 mA interfaces can be operated in either active or passive mode.
For the selection the DIP switches S7 and S8 are used.

The interface, that feeds the current is designated as active. Only one of the two communication partners can be active (optical data coupler or control system). By means of the DIP-switches S7 and S8 the DAD 30 can be operated with active as well as with passive CL 20 mA interface. It is also possible to operate one interface in the active mode and the other one in the passive mode.

Example:

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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S7: ON = input interface active, 20 mA current loop
OFF= input interface passive

S8: ON = output interface active, 20 mA current loop
OFF= output interface passive

RS 422

S5: ON = data in, RS 422

Serial voltage interface, suited for rapid transmission over great distances (up to 1.5 km). The logical states can be defined by comparing voltages.

RS 232

S6: ON = data in, RS 232

Serial voltage interface (one or two data lines) with the normal levels in the PC periphery (low = 3 to 15V, high = -3 V to -15 V), in reference to a common ground. It is designed for distances of up to 20 m in range and connection to an opposite station.

Caution! Only one of the switches S4–S6 should be turned on!

With either one S2 or S3 switch, it is possible to invert data signals for special applications.

S2 ON = input signal of the emitter, inverted
OFF = input signal of the emitter, not inverted

S3 ON = output signal of the receiver, inverted
OFF = output signal of the receiver, not inverted

When the light beam is interrupted, the light beam switch on the receiver side goes into pause status. This status is logically high for non-inverted data lines, in other words for the RS 232 – 3 V ... 15 V interface, for the RS 422 interface, the difference in level is under 3 V (A $\leq$ B) and for the CL-interface a conducting 20 mA electrical circuit.
All previously defined switching positions can be set with the programming switch (S1-S8), which is located on the print. The programming switch is visible on the print after the housing cover has been removed.

Data blanking receiver

An additional input is available for blanking the received data. This input must be wired with high level (+24 V) to activate blanking. Blanked status is indicated by a red LED.

Connector bar:

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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