



Singleturn absolute encoder

PVS58

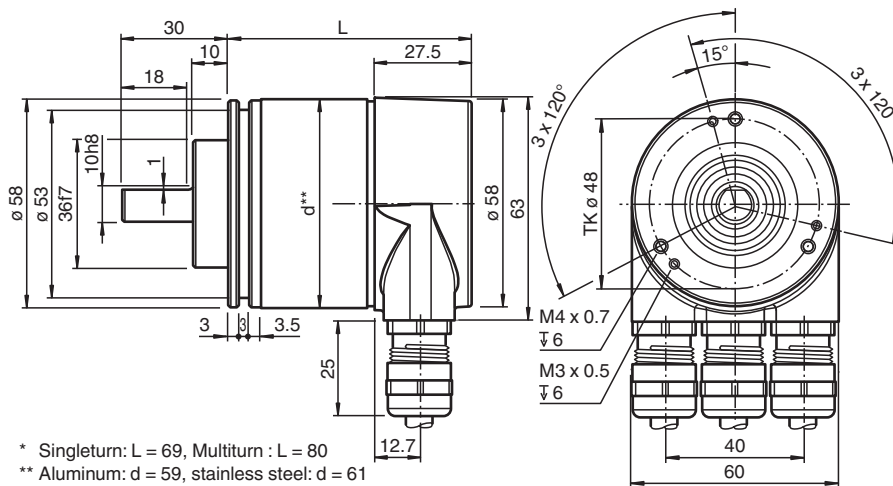
- Industrial standard housing Ø58 mm
- PROFIBUS interface
- 16 Bit singleturn
- Speed transfer
- Extended scaling functions
- Programmable limit switches
- Commissioning mode
- Servo or clamping flange



Function

This series of PROFIBUS rotary encoders is based on the modern fast technology of singleturn sampling. The absolute value rotary encoder corresponds to the PROFIBUS Profile for Encoders, Order No. 3.062. Operation is supported based on Class 1 and Class 2. For operation based on Class 1, position data and diagnostic data bytes 1 ... 16 are available. In addition, the direction of the code can be selected as either cw ascending (clockwise rotation, code course ascending) or cw descending (clockwise rotation, code course descending). If the rotary encoder is operated according to Class 2, additional functions to those from Class 1 are available. These include scaling of the resolution per revolution and the overall resolution, as well as the preset function. In addition, expanded diagnostic reporting is supported. Besides, the rotary encoder offers extended functionalities such as speed transfer, extended scaling functions, programmable limit switches and a commissioning mode. The removable connecting hood contains a slide switch for setting the terminating resistor and the rotary switches for setting the address. Assign a fixed address and bus termination to the encoder with this switches.

Dimensions



Release date: 2023-02-14 Date of issue: 2023-02-14 Filename: t49152_eng.pdf

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

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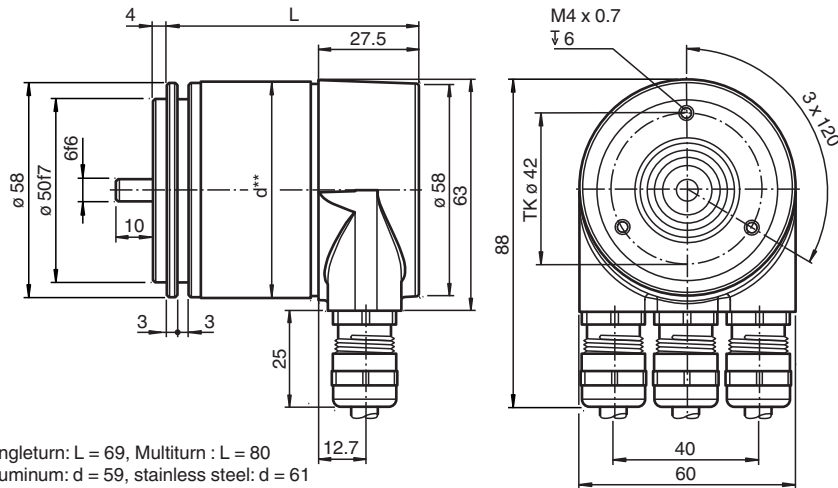
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Dimensions



* Singleturn: L = 69, Multiturn : L = 80
 ** Aluminum: d = 59, stainless steel: d = 61

Technical Data
















General specifications			
Detection type		photoelectric sampling	
Device type		Singleturn absolute encoder	
Electrical specifications			
Operating voltage	U_B	10 ... 30 V DC	
No-load supply current	I_0	max. 230 mA at 10 V DC max. 100 mA at 24 V DC	
Power consumption	P_0	max. 2.5 W	
Time delay before availability	t_v	< 1000 ms	
Linearity		± 2 LSB at 16 Bit, ± 1 LSB at 13 Bit, $\pm 0,5$ LSB at 12 Bit	
Output code		binary code	
Code course (counting direction)		programmable, cw ascending (clockwise rotation, code course ascending) cw descending (clockwise rotation, code course descending)	
Interface			
Interface type		PROFIBUS	
Resolution			
Single turn		up to 16 Bit	
Overall resolution		up to 16 Bit	
Transfer rate		0.0096 ... 12 MBit/s	
Standard conformity		PNO profile 3.062, RS-485	
Connection			
Terminal compartment		in removable housing cover	
Standard conformity			
Degree of protection		DIN EN 60529, IP65 IP66 (with shaft seal)	
Climatic testing		DIN EN 60068-2-30 , no moisture condensation	
Emitted interference		EN 61000-6-4:2007	
Noise immunity		EN 61000-6-2:2005	
Shock resistance		DIN EN 60068-2-27, 100 g, 6 ms	
Vibration resistance		DIN EN 60068-2-6, 10 g, 10 ... 2000 Hz	
Approvals and certificates			
UL approval		cULus Listed, General Purpose, Class 2 Power Source	
Ambient conditions			
Operating temperature		-40 ... 85 °C (-40 ... 185 °F)	
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)	
Mechanical specifications			
Material			

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Technical Data

Combination 1	housing: powder coated aluminum flange: aluminum shaft: stainless steel
Combination 2 (Inox)	housing: stainless steel flange: stainless steel shaft: stainless steel
Mass	approx. 550 g (combination 1) approx. 1100 g (combination 2)
Rotational speed	max. 12000 min ⁻¹
Moment of inertia	30 gcm ²
Starting torque	≤ 3 Ncm (version without shaft seal)
Shaft load	
Axial	40 N
Radial	110 N








Accessories

	9203	Angled flange
	AH 58-B1CA-2BW	Connection cover
	9310-3	Synchro clamping element
	9300	Mounting bracket for servo flange
	KW-10/10	Helical coupling
	KW-6/10	Helical coupling
	KW-6/6	Helical coupling
	KW-6/8	Helical coupling
	9401 10*10	Spring steel coupling
	9401 10*12	Spring steel coupling
	9401 6*10	Spring steel coupling
	9401 6*6	Spring steel coupling
	9402 6*6	Spring steel coupling
	9404 10*10	Spring disk coupling
	9404 6*6	Spring disk coupling

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Accessories

	9409 10*10	Bellows coupling
	9409 6*10	Bellows coupling
	9409 6*6	Bellows coupling
	9409 6*8	Bellows coupling
	9410 10*10	Precision coupling
	9410 6*6	Precision coupling
	MBT-36ALS	Spring-loaded mounting bracket with a diameter of 36 mm

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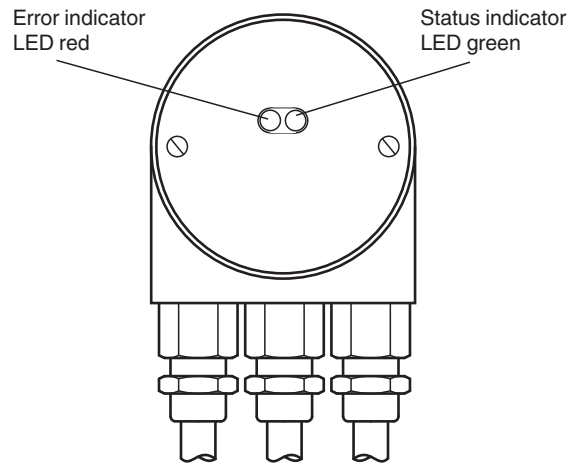
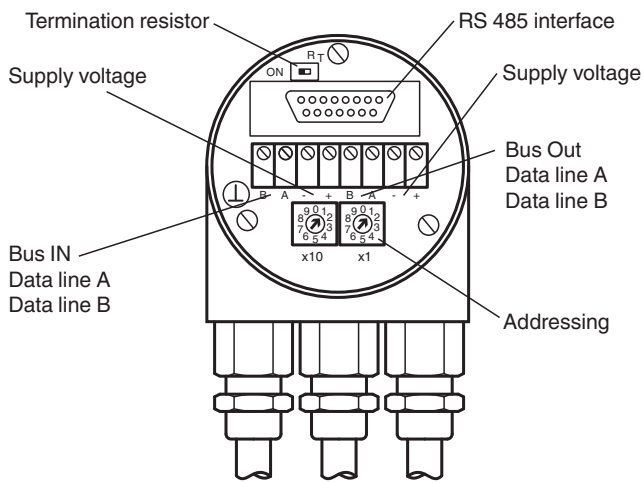
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Connection

Terminal	Explanation
⊥	Ground connection for power supply
B (left)	Data line B (pair 1), Bus In
A (left)	Data line A (pair 1), Bus In
(-)	0 V
(+)	10 V ... 30 V
B (right)	Data line B (pair 2), Bus Out
A (right)	Data line A (pair 2), Bus Out
(-)	0 V
(+)	10 V ... 30 V
	The supply lines only have to be connected once (regardless to which terminal). The outgoing bus is being uncoupled while the terminal resistor is on.

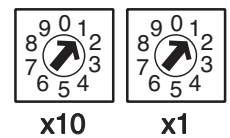
The arrangement of the terminals is shown in the section commissioning.

Configuration



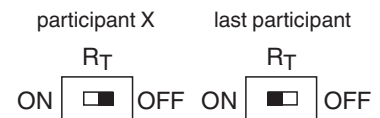
Adjusting the participant address

The participant address can be adjusted with the rotary switches. The address can be defined between 1 and 99, and may only be assigned once.



Adjusting the termination resistor

The terminating resistor R_T (220 Ω) can be connected to the circuit by means of the switch:



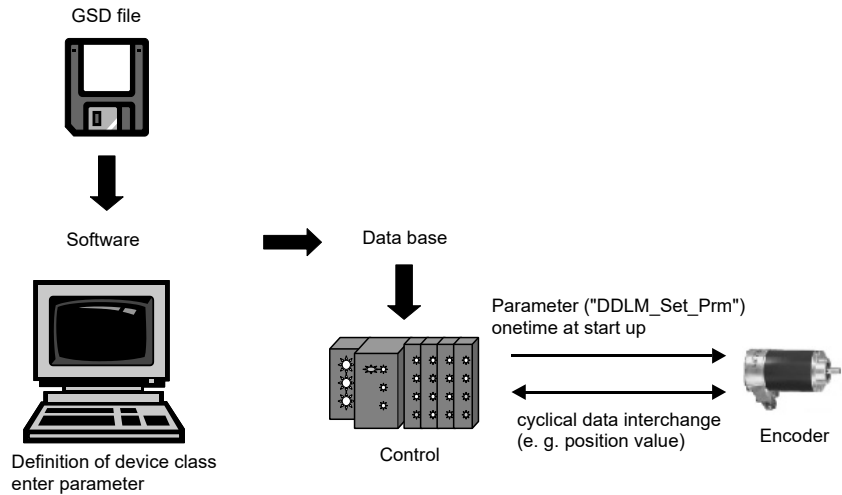
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ALED-indicators

LED red	LED green	Meaning
off	off	No voltage supply
on	on	Encoder ready, no configuration data received. possible reasons: - wrong address adjusted - wrong bus wiring
on	flashing	Parameterising or configuration error. Encoder receives data of incorrect length or inconsistent data. possible reason: - adjusted encoder resolution exceeds
flashing	on	Encoder ready, no communication with master (i.e. wrong address setting)
on	off	Data timeout (> 40 s). (i.e. data lines interrupted)
off	on	Normal operation, Data Exchange Mode
off	flashing	Installation Mode in Data Exchange Mode.

Function Principle

Principle of data transmission



Parameterization

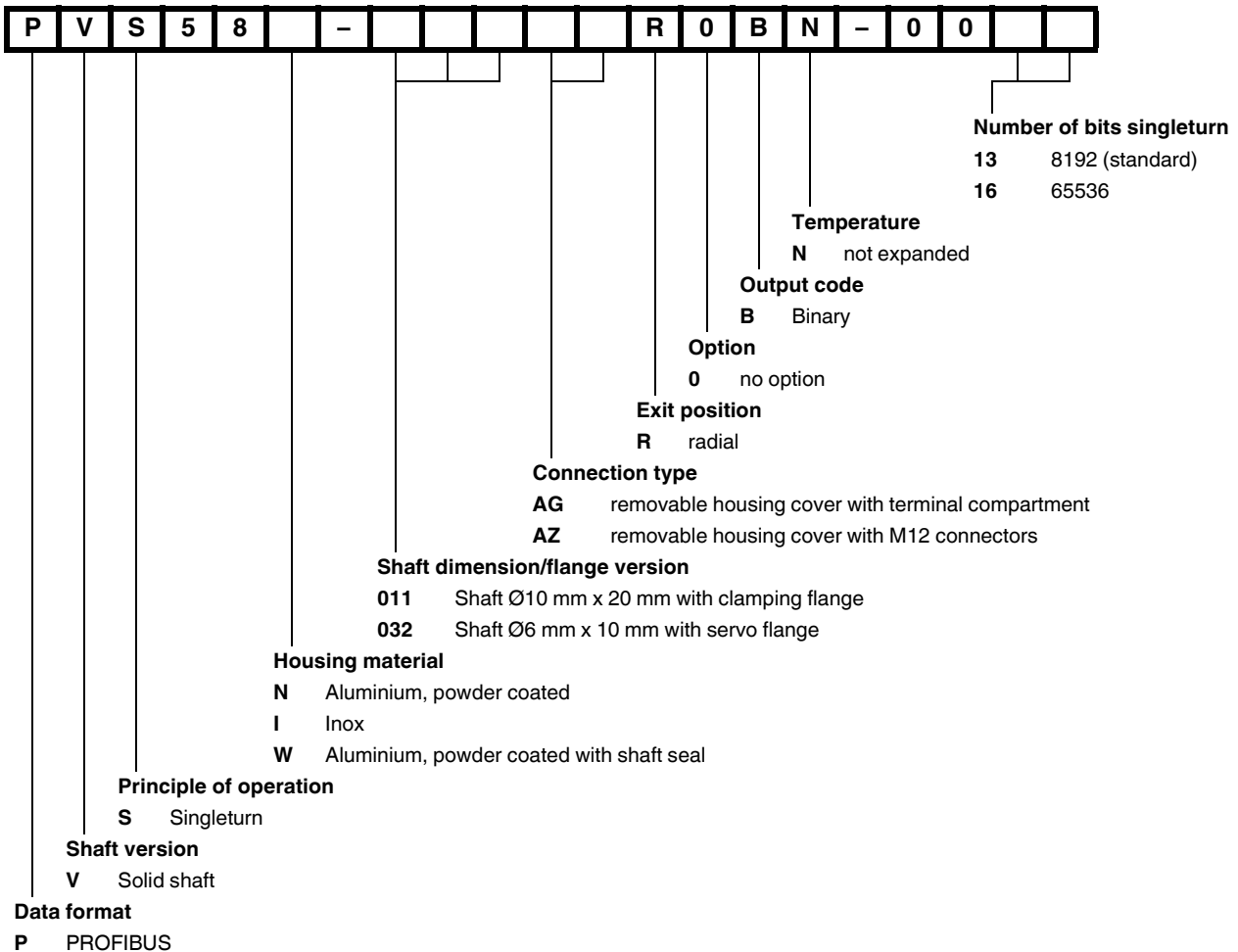
Parameter table encoder classes P+F 2.1 and P+F 2.2

Octet number (Byte)	Parameter	Bit number
1...8	PROFIBUS standard parameters	
9	Direction of rotation	0
	Class 2 functionality	1
	Commissioning Diagnostics	2
	Scaling function	3
	Reserved	4
	Reserved	5
	Activate manufacturer specific parameters (Octet 26)	6
	Reserved	7
10 ... 13	Desired measuring steps (reference: Octet 26, Bit 0 and 1)	
14 ... 17	Overall resolution	
18 ... 25	Reserved	
26	Reference for desired measuring steps	0
		1
	Activate commissioning mode	2
	Reduced diagnosis	3
	Reserved	4
	Activate lower software limit switch	5
	Activate upper software limit switch	6

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	Activation of the parameters from Octet 27	7
27 ... 30	Lower limit switch	
31 ... 34	Upper limit switch	
35 ... 38	Physical measuring steps	
39	Reserved	0
	Rotary encoder type (singleturn or multiturn)	1
	Reserved	2
	Reserved	3
	Selection of the unit for speed transfer	4
		5
	Reserved	6
	Reserved	7

Type Code



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