



Model Number

PVS58

Features

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

Description

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.

Release date: 2012-07-19 15:37 Date of issue: 2012-07-19 14:15:22_eng.xml

Technical data

General specifications

Detection type photoelectric sampling

Functional safety related parameters

MTTF_d 80 a
 Mission Time (T_M) 20 a
 L_{10h} 1.9 E+11 at 6000 rpm and 20/40 N axial/radial shaft load
 Diagnostic Coverage (DC) 0 %

Electrical specifications

Operating voltage U_B 10 ... 30 V DC
 No-load supply current I₀ max. 230 mA at 10 V DC
 max. 100 mA at 24 V DC
 Power consumption P₀ max. 2.5 W
 Linearity ± 2 LSB at 16 Bit, ± 1 LSB at 13 Bit, ± 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

Protection degree 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, 20 g, 10 ... 2000 Hz

Ambient conditions

Operating temperature -40 ... 85 °C (-40 ... 185 °F)
 Storage temperature -40 ... 85 °C (-40 ... 185 °F)

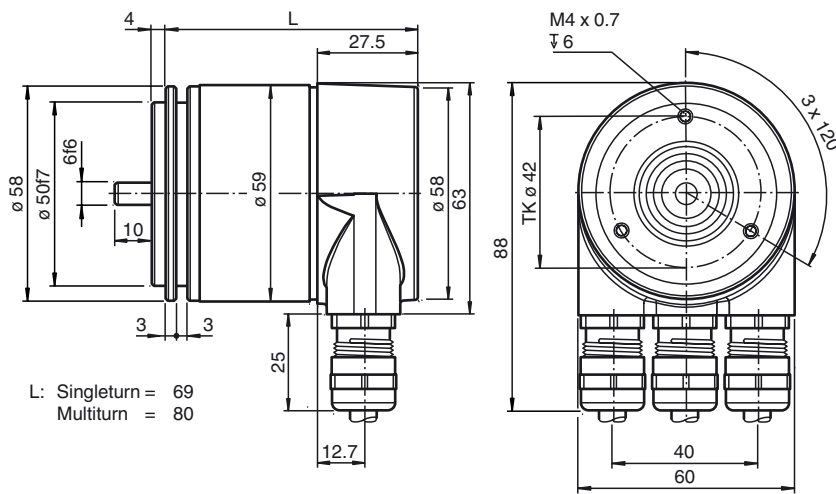
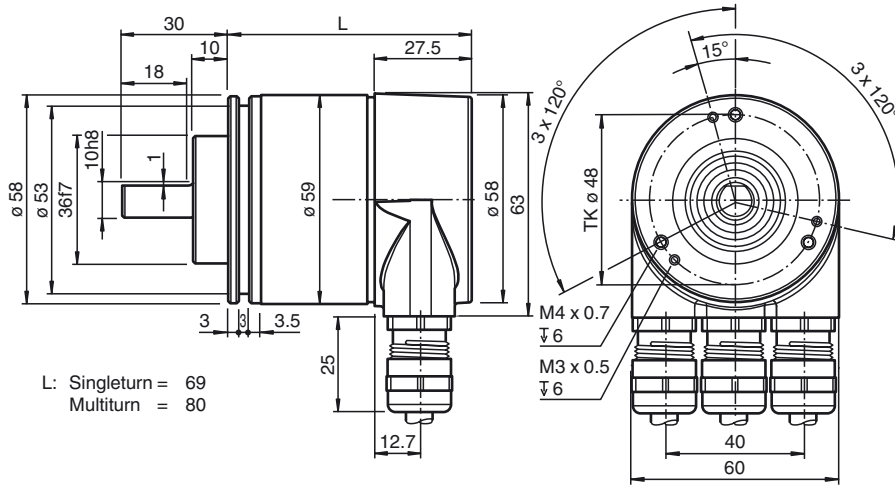
Mechanical specifications

Material
 Combination 1 housing: powder coated aluminium
 flange: aluminium
 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 gcm²
 Starting torque ≤ 3 Ncm (version without shaft seal)
 Shaft load
 Axial 40 N
 Radial 110 N

Approvals and certificates

UL approval cULus Listed, General Purpose, Class 2 Power Source

Dimensions



Accessories**9203**

Angled flange

9213

Mounting bracket, spring-loaded for clamping flange

AH 58-B1CA-2BW**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

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 10*12

Precision coupling

9460 6*6

Stainless steel bellows coupling

9410 6*6

Precision coupling

9460 10*10

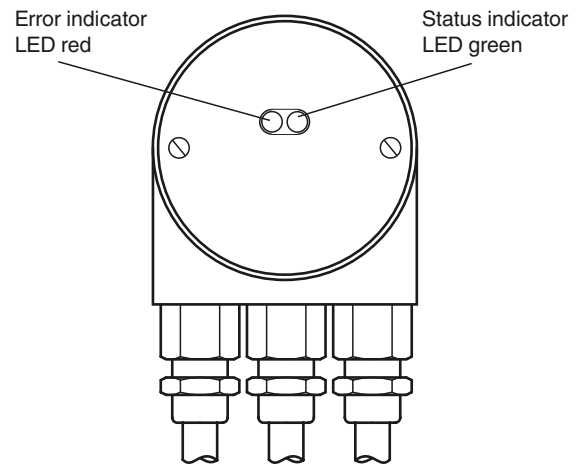
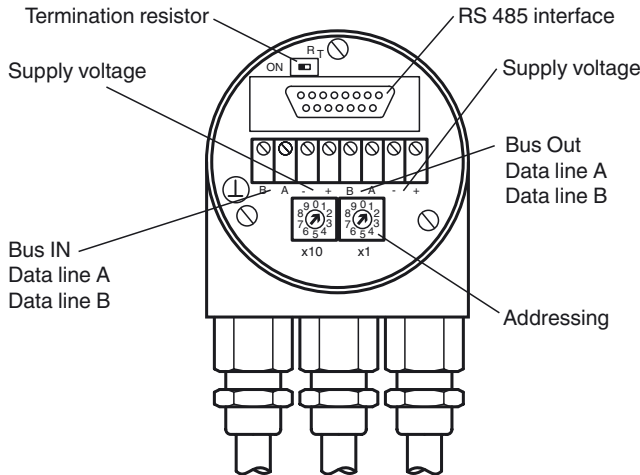
Stainless steel bellows coupling

Electrical 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.

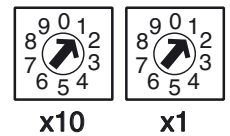
The arrangement of the terminals is shown in the section operating elements.

Indicating and operating elements



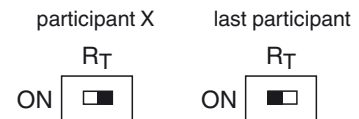
Adjusting the participant address

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.



EAdjusting the termination resistor

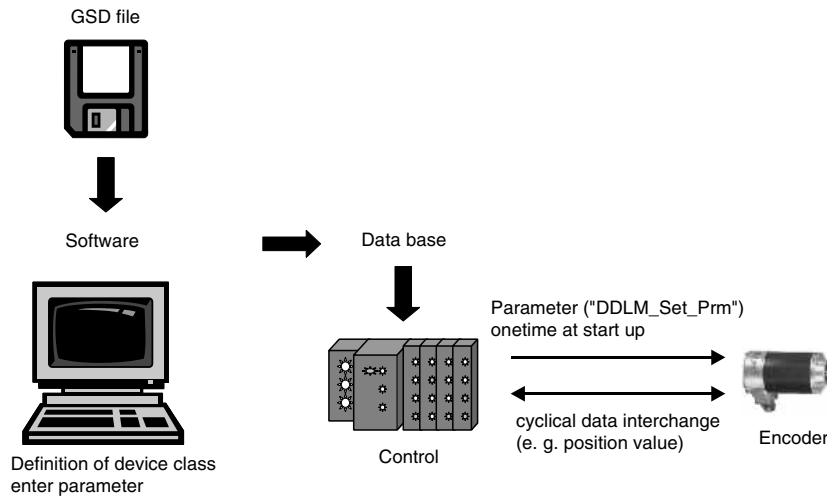
The terminating resistor R_T (121 Ω) can be connected to the circuit by means of the switch:



LED-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.

Principle of data transmission



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
	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

Release date: 2012-07-19 15:37 Date of issue: 2012-07-19 149152_eng.xml

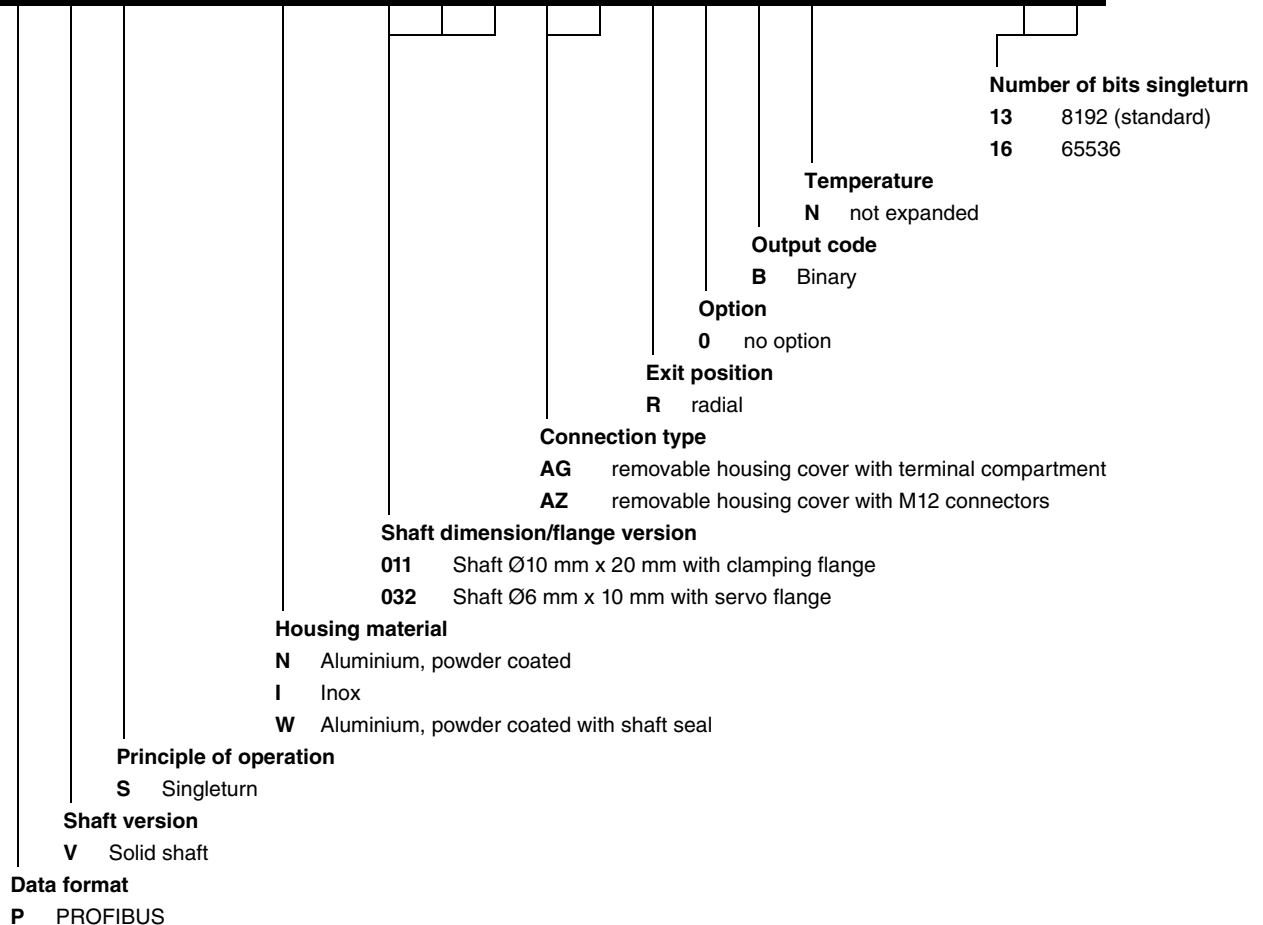
Accessories

For type	Accessories	Name/defining feature	Order code
PVS58*-011	Couplings	D1: Ø10 mm, D2: Ø10 mm	9401
		D1: Ø10 mm, D2: Ø10 mm	9404
		D1: Ø10 mm, D2: Ø10 mm	9409
		D1: Ø10 mm, D2: Ø10 mm	KW
	Measurement wheels with circumference of 500 mm	Plastic	9101, 10
		Pimpled rubber	9102, 10
		Knurled aluminium	9103, 10
		Knurled plastic	9112, 10
	Measurement wheels with circumference of 200 mm	Plastic	9108, 10
		Pimpled rubber	9109, 10
		Knurled aluminium	9110, 10
	Mounting aids	Mounting bracket	9203
		Mounting bracket	9213
PVS58*-032	Couplings	D1: Ø6 mm, D2: Ø6 mm	9401
		D1: Ø6 mm, D2: Ø6 mm	9402
		D1: Ø6 mm, D2: Ø6 mm	9404
		D1: Ø6 mm, D2: Ø6 mm	9409
		D1: Ø6 mm, D2: Ø6 mm	KW
	Mounting aids	Mounting bracket and set	9300 and 9311-3
		Eccentric clamping elements	9310-3

For additional information on the accessories, please see the "Accessories" section.

Order code

P V S 5 8 - - - - R 0 B N - 0 0



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