

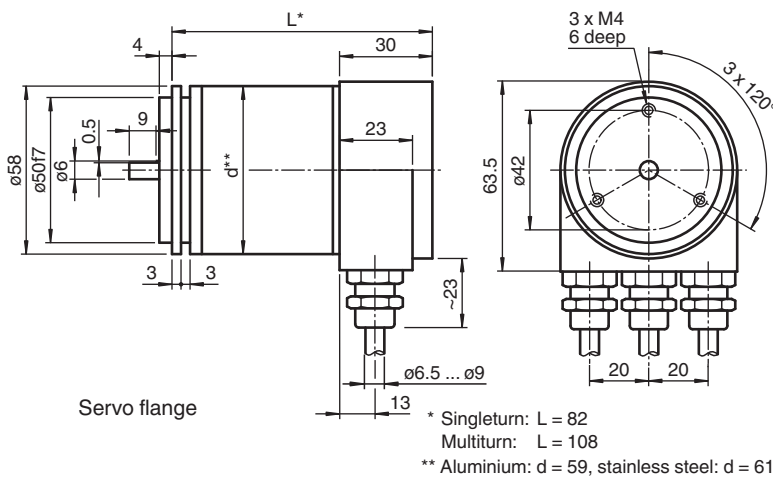
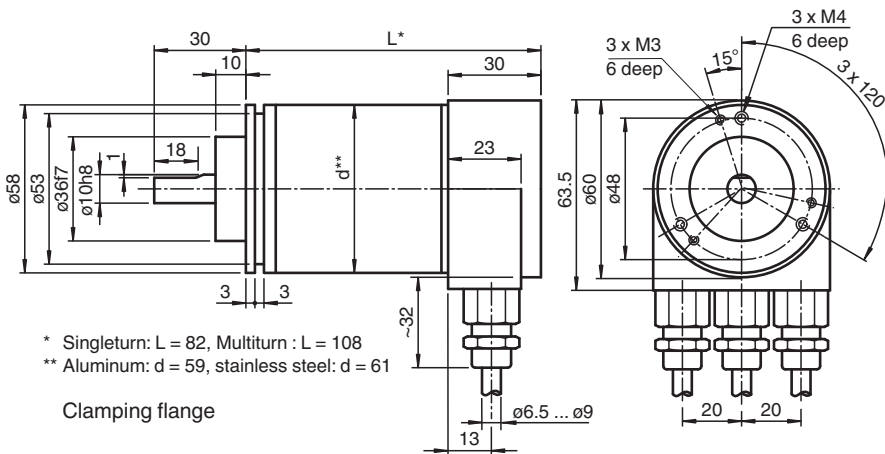


# Multiturn absolute encoder CVM58S

- Integrated functional safety with twin processor structure and dual sensing for extra security
- For systems up to SIL3 and PLe
- Industrial standard housing  $\varnothing 58$  mm
- 30 Bit multiturn
- Galvanically isolated CAN interface
- DSP 406/301/304, CLASS 1 and 2
- Servo or clamping flange
- 2 limit switches
- CANopen and CANopen Safety interface



## Dimensions



Release date: 2023-02-14 Date of issue: 2023-02-14 Filename: t43492\_eng.pdf

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

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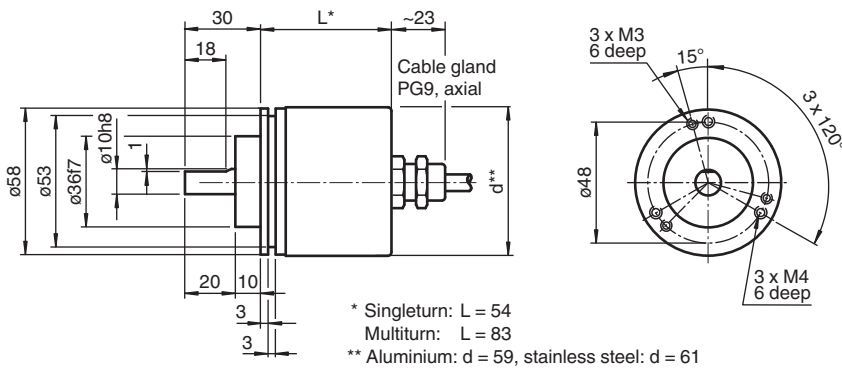
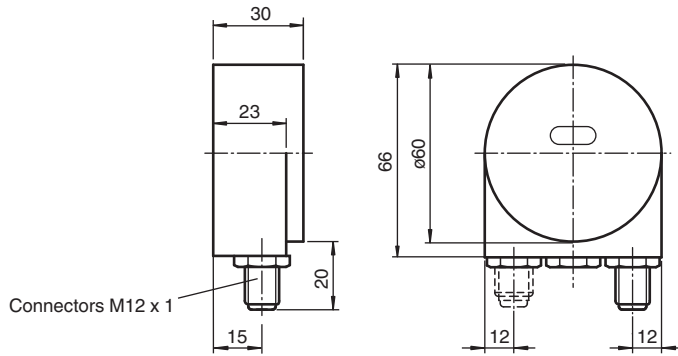
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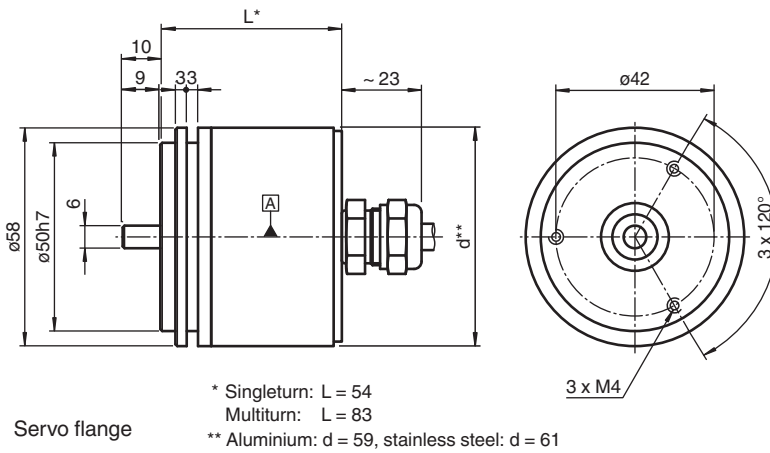
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**PF** PEPPERL+FUCHS

**Dimensions**



Clamping flange



Servo flange

**Technical Data**

<b>General specifications</b>		
Detection type		photoelectric sampling
Device type		Multiturn absolute encoder
<b>Electrical specifications</b>		
Operating voltage	$U_B$	12 ... 30 V DC
No-load supply current	$I_0$	max. 100 mA
Linearity		Non Safety: ± 4 LSB at 16 Bit, ± 0,5 LSB at 12 Bit Safety Value: 10 bit ± 0 LSB



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## Technical Data

Output code	binary code
Code course (counting direction)	cw ascending (clockwise rotation, code course ascending) cw descending (clockwise rotation, code course descending)
<b>Interface</b>	
Interface type	CANopen / CANopen Safety
Resolution	
Single turn	CANopen: up to 16 Bit CANopen Safety: 10 Bit
Multiturn	14 Bit
Overall resolution	up to 30 Bit
Transfer rate	max. 1 MBit/s
Standard conformity	DSP 406/301/304, CLASS 1 and 2
<b>Output</b>	
Output type	DSP 406/301/304, CLASS 1 and 2
<b>Connection</b>	
Terminal compartment	in removable housing cover
<b>Standard conformity</b>	
Degree of protection	DIN EN 60529, shaft side: IP64 (without shaft seal)/IP66 (with shaft seal) housing side: IP65
Climatic testing	DIN EN 60068-2-3, 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 ... 1000 Hz
Functional safety	IEC 62061:2005 ISO 13849-1:2006
<b>Approvals and certificates</b>	
UL approval	cULus Listed, General Purpose, Class 2 Power Source
<b>Ambient conditions</b>	
Operating temperature	-30 ... 70 °C (-22 ... 158 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)
<b>Mechanical specifications</b>	
Material	
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. 800 g (combination 1) approx. 1300 g (combination 2)
Rotational speed	max. 12000 min <sup>-1</sup>
Moment of inertia	30 gcm <sup>2</sup>
Starting torque	≤ 3 Ncm (version without shaft seal)
Shaft load	
Axial	40 N
Radial	110 N

## Accessories

	<b>9203</b>	Angled flange
	<b>9310-3</b>	Synchro clamping element

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
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## Accessories

	<b>9300</b>	Mounting bracket for servo flange
	<b>KW-10/10</b>	Helical coupling
	<b>KW-6/10</b>	Helical coupling
	<b>KW-6/6</b>	Helical coupling
	<b>KW-6/8</b>	Helical coupling
	<b>9401 10*10</b>	Spring steel coupling
	<b>9401 10*12</b>	Spring steel coupling
	<b>9401 6*10</b>	Spring steel coupling
	<b>9401 6*6</b>	Spring steel coupling
	<b>9402 6*6</b>	Spring steel coupling
	<b>9404 10*10</b>	Spring disk coupling
	<b>9404 6*6</b>	Spring disk coupling
	<b>9409 10*10</b>	Bellows coupling
	<b>9409 6*10</b>	Bellows coupling
	<b>9409 6*6</b>	Bellows coupling
	<b>9409 6*8</b>	Bellows coupling
	<b>9410 10*10</b>	Precision coupling
	<b>9410 6*6</b>	Precision coupling
	<b>MBT-36ALS</b>	Spring-loaded mounting bracket with a diameter of 36 mm

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**Function**

This absolute rotary encoder with Safety CANopen interface fulfills through its mechanical and electrical concept with twin-microcontroller structure and double sampling all safety function requirements of modern functional safe control systems. It is suitable for the use in machines and plants with safety categories up to:

- SIL3 acc. to EN 62061
- PLe acc. to IEC 13849
- Category 4 acc. to IEC 13849

The bus electronics is integrated in the removable housing cover. Due to this the encoder and the bus electronics can be installed or replaced separately in case of maintenance and service. This device is made for shaft mounting and comes with a clamping-flange.

**Connection**

**Electrical connection**

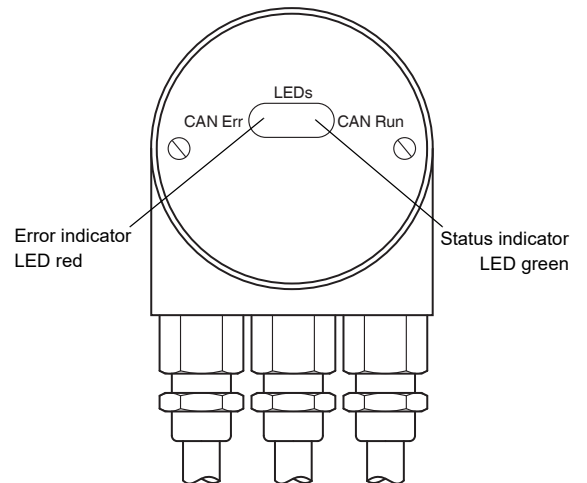
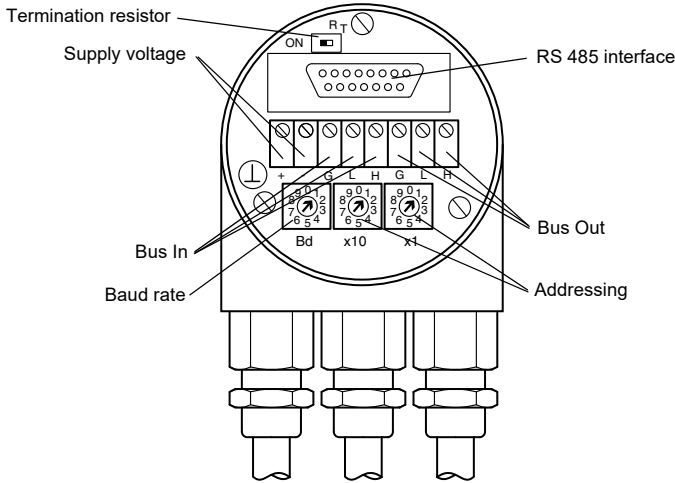
Terminal	Cable	Connector(s)	Explanation
⊥	-	-	Ground connection for power supply
(+)	Red	2	Power supply, +12 ... +30 VDC
(-)	Black	3	Power supply, 0 VDC
CG	-	1	CAN Ground (Bus In)
CL	Blue	5	CAN Low (Bus In)
CH	White	4	CAN High (Bus In)
CG	-	1	CAN Ground (Bus Out)
CL	Blue	5	CAN Low (Bus Out)
CH	White	4	CAN High (Bus Out)

**Additional Information**

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**Indicating and operating elements**

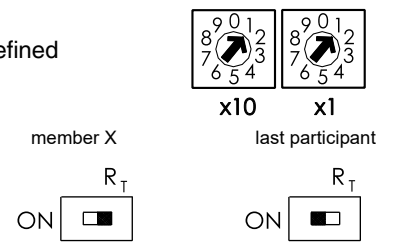


**Adjusting the participant address**

The participant address can be adjusted with the rotary switches. The address can be defined between 1 and 64, and may only be assigned once.

**Adjusting the termination resistor**

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



**Baud rate adjustment**

Baud rate [kBit/s]	Switch position	Value Object 3001h	Baud rate [kBit/s]	Switch position	Value Object 3001h
20	0	0	500	5	5
50	1	1	800	6	6
100	2	2	1000	7	7
125	3	3	reserved	8	-
250	4	4	reserved	9	-

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**LED-Indicators**

LED CAN Err (rot)	Status	Meaning
off	No error	Device operates in normal mode.
single flash	Warning limit reached	At least one of the CAN controllers error counter has reached or crossed the warning limit (too many error frames).
double flash	Error event	NMT error monitor event or heartbeat error has happened.
flashing continuously	Invalid configuration	General configuration fault.
on	Bus off	The CAN controller has disconnected from the bus

LED CAN Run (grün)	Status	Meaning
off	Reset	Devive is performing a reset.
single flash	STOPPED	The devices status is STOPPED.
flashing continuously	PRE-OPERATIONAL	The devices status is PRE-OPERATIONAL.
on	OPERATIONAL	The devices status is OPERATIONAL.

**Order code**

C	V	M	5	8	S	-					0	B	-	1	4		
---	---	---	---	---	---	---	--	--	--	--	---	---	---	---	---	--	--

**Number of bits singleturn**

13 8192

16 65536

**Number of bits multiturn**

14 16384

**Option 2**

**N** Aluminum housing (standard)

**I** Stainless steel housing

**W** Version with shaft seal

**Output code**

**B** Binary

**Option 1**

**0** No option

**Exit position**

**A** Axial (connection type K1, without bus cover)

**R** Radial

**Connection type**

**AG** Removable housing cover with terminal compartment

**AN** 1 connector (male), M12 x 1, 5 pin

**AW** 2 connectors (1 male, 1 female), M12 x 1, 5 pin

**K1** cable, 1 m

**Shaft dimension/flange version**

**011** Shaft Ø10 mm x 20 mm with clamping flange

**012** Shaft Ø10 mm x 20 mm with servo flange

**032** Shaft Ø6 mm x 10 mm with servo flange

**Special identification**

**S** Functional safety / Safety assessed

**Principle of operation**

**M** Multiturn

**Shaft version**

**V** Solid shaft

**Data format**

**C** CAN Bus

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