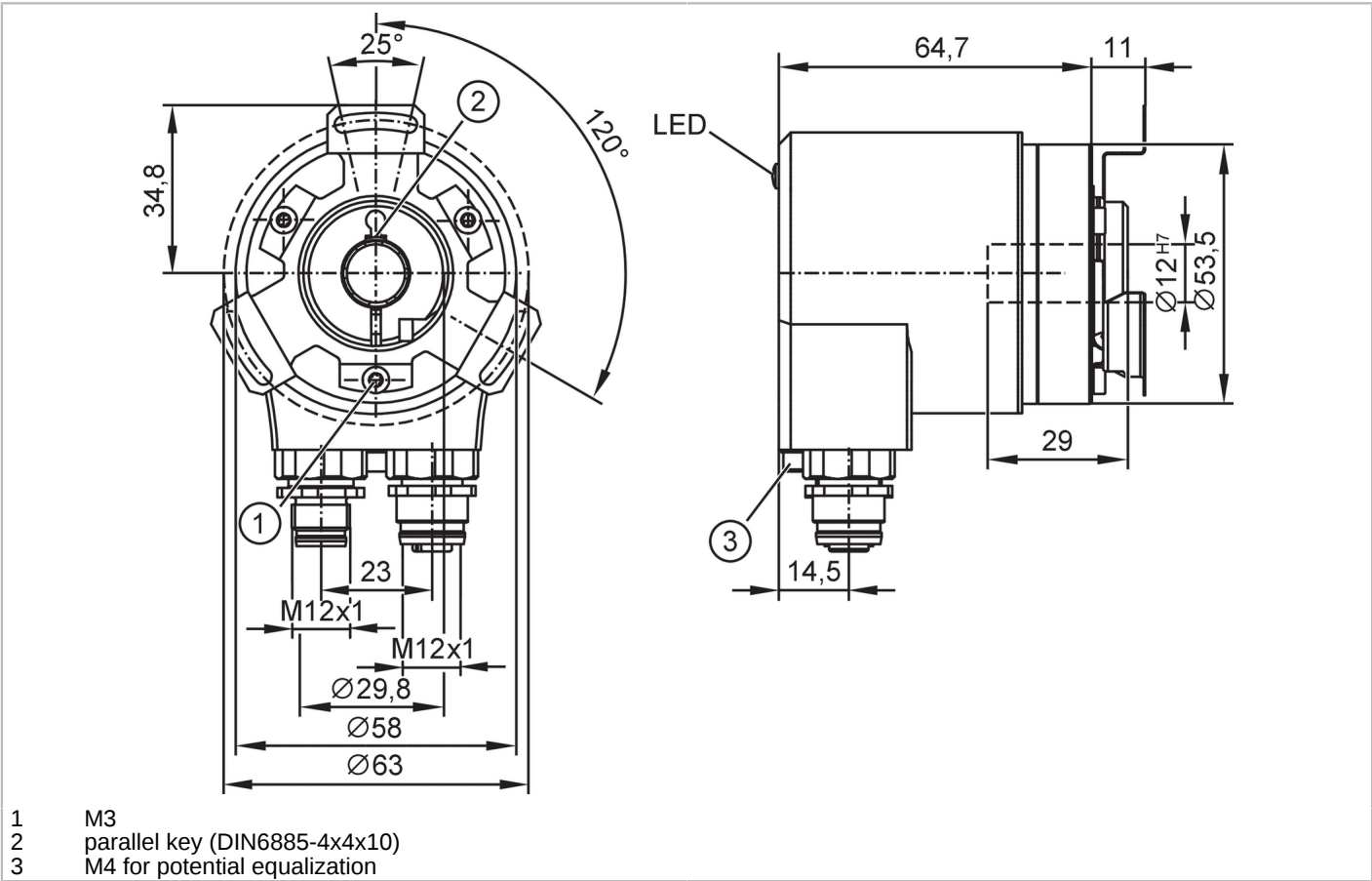


RM903S



Multiturn hollow shaft encoder

RMO12BRU51213bCANS



Product characteristics

Resolution	8192 steps; 65536 revolutions; 29 bit
Shaft design	hollow shaft open to one side
Shaft diameter [mm]	12

Application

Function principle	absolute
Revolution type	multiturn
Detection system	magnetic
Operating temperature (active) [°C]	-40...85

Electrical data

Operating voltage [V]	8...36 DC
Current consumption [mA]	< 60; ((24 V DC))
Power consumption [W]	1.5
Protection class	III
Reverse polarity protection	yes
Overvoltage protection	yes; (< 60 V DC)
Power-on delay time [s]	< 2

Outputs

Contact rating	max. 1,5 A (24 V DC)
----------------	-----------------------

RM903S



Multiturn hollow shaft encoder

RMO12BRU51213bCANS

Code		binary	
Measuring/setting range			
Resolution		8192 steps; 65536 revolutions; 29 bit	
Accuracy / deviations			
Accuracy	[°]	safety	0.5
Accuracy	[°]	non-safety	0.2
Repeatability		± 0,1 °; (magnetic)	
Reaction times			
Response time to safety request	[ms]	7	
Software / programming			
Parameter setting options		scaling; preset; Baud rate; node ID; gear function; monitoring window; Counting direction; speed parameters; integration time; ifm mode	
Interfaces			
Number of CAN interfaces		2	
Transmission rate		20 kBit/s... 1 MBit/s	
Terminating resistor		yes; (Extern M12 (z.B. E11590))	
CAN			
Protocol		CANopen; CANopen Safety; CAN Spezifikation 2.0 A	
Factory settings		Baud rate: 250 kBit/s	
		node ID: 32	
Version		CiA 406 V4.1.0; CiA 301 V4.2.0; CiA DSP-305 V3.0.0 LSS; EN 50325-4; EN 50325-5; ISO 11898	
Operating conditions			
Ambient temperature	[°C]	-40...85	
Storage temperature	[°C]	-40...90	
Note on storage temperature		dry	
Max. relative air humidity	[%]	98	
Max. height above sea level	[m]	5000	
Protection		IP 67; IP 69K; (with ifm socket duly screwed on)	



Multiturn hollow shaft encoder

RMO12BRU51213bCANS

Chemical media	test according to ISO 16750-5	
	the following media were tested at 85 °C for 22 hours	diesel
		biodiesel
		hydraulic fluids
		(Fuchs Hydrotherm 46 M HFC,
		(Fuchs Renoling B15 VG 46 HLP,
		Liqui Moly Hydrauliköl HEES 46)
		brake fluid
		(K2 TURBO DOT 4)
		urea
		(Adblue)
	the following media were tested for 22 hours at 23 °C	preservative
		(Pfänder W550)
		cold cleaner
		(Nigrin cold cleaner)
		ammonia-based cleaner
		(EMSAL Kraft und Grundreiniger)
		alkaline cleaner
		(Kärcher RM 69 FloorPro)
	the following media were tested for 2 hours at 23 °C	windscreen washer fluid
		(SONAX Clear View 1:100 Concentrate)
		vehicle cleaning product
		(Förch R527 car shampoo concentrate)
		wheel rim cleaner
		(SONAX Xtreme)
		de-icer
		(Eastman Clearway)
	the following media were tested for 10 minutes at 23 °C	lead-free petrol
		alcohol
Tests / approvals		
EMC	IEC 61000-4-2 ESD 6	6 kV CD / 15 kV AD
	IEC 61000-4-3 HF radiated	20 V/m (27...1000MHz)
		10 V/m (1000...2000MHz)
		3 V/m (2000...6000MHz)
	IEC 61000-4-4 Burst	4 kV
	IEC 61000-4-5 Surge	2 kV (screen)
	IEC 61000-4-6 HF	20 V
	IEC 55011	class B
	ISO 7637-2, ISO 16750-2 conducted immunity	12 V / 24 V
	pulse	1 2a 2b 3a 3b 4 5b
	Severity level	IV III III III III II
	Failure criterion	B A B A A A B
	IEC 61000-4-8 magnetic fields	30 A/m (50 Hz) / 1000 A/m (0 Hz)
	IEC 60068-2-6	15 g (15...2000 Hz) / 1 octave per minute in 3 axes
Vibration resistance		

RM903S



Multiturn hollow shaft encoder

RMO12BRU51213bCANS

Broadband noise	IEC 60068-2-64	15 g / 50...2000 Hz, 1 hour per axis, 1 octave per minute
Shock resistance	IEC 60068-2-27	100 g 6 ms half-sine; 100 shocks each in every direction of the 3 coordinate axes
Salt spray test	IEC 60068-2-52	severity level 5

Safety classification

Complies with the requirements	ISO 13849-1 Category 3, PL d	
	IEC 61508 SIL 2	
	IEC 61800-5-2	
	IEC 61800-5-3	
Mission time TM [h]	175800	
Mission time TM (additional indication)	20 years	
PFH [1/h]	2,00E-8	

Mechanical data

Weight [g]	726.95	
Housing	tubular	
Dimensions [mm]	Ø 58 / L = 64.7	
Material	housing: aluminum; flange: aluminum; sealings: NBR/HNBR; Display: UV-stabilized polycarbonate; Connections: diecast zinc nickel-plated (axial)/(radial)	
Max. revolution, mechanical [U/min]	6000	
Max. starting torque [Nm]	0.05	
Reference temperature torque [°C]	20	
Shaft design	hollow shaft open to one side	
Shaft diameter [mm]	12	
Shaft material	stainless steel (1.4305 / 303)	
Fixing flange	direct flange; Ø 63 mm	

Displays / operating elements

Display	Preoperational Mode	LED, green flashing
	Operational Mode	LED, green
	Error message	LED, red flashing

Remarks

Remarks	material for secure mounting not supplied; fixing must be done by the user	
	meets the EMC requirements for use in earthworks and construction machines and industrial trucks	
	can be used in applications up to Ag PL d in accordance with ISO 25119, up to MPL d in accordance with ISO 19014-3	
Pack quantity	1 pcs.	

RM903S

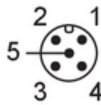


Multiturn hollow shaft encoder

RMO12BRU51213bCANS

Electrical connection - CAN-in

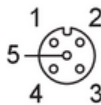
Connector: 1 x M12; coding: A; Contacts: 5; (open M12 connections must be covered with appropriate protective caps)



- | | |
|---|----------------------|
| 1 | CAN screen |
| 2 | VBB |
| 3 | GND |
| 4 | CAN_H |
| 5 | CAN_L |
| | PE via housing screw |

Electrical connection - CAN-out

Connector: 1 x M12; coding: A; Contacts: 5; (open M12 connections must be covered with appropriate protective caps)



- | | |
|---|----------------------|
| 1 | CAN screen |
| 2 | VBB |
| 3 | GND |
| 4 | CAN_H |
| 5 | CAN_L |
| | PE via housing screw |