Encoders

BDG – FXX36-BS Series – RS485

BDG abbcc-ddee-fghhi-jjkk-llmm-nnoo

BDG
Encoders

a Principle
F = absolute

bb Version
BF = Steel mag. shielded axial (36)
BP = Steel mag. shielded radial (36)

cc Flange size
36 = 36 mm

dd Shaft form, flange
BS = Blind hole, trim ring (clamping ring, symm. spring clamp with slot)

ee Shaft diameter
08 = 8 mm
10 = 10 mm
12 = 12 mm
14 = 14 mm
15 = 15 mm

f Interface category
D = Absolute digital, unidirectional

g Interface
P = RS485

hh Interface details
GA = RS485, v1

i Supply voltage
2 = 4.75...32 VDC
5 = 5 VDC

jj Resolution single turn
1 - 16 = 1 - 16 bits

kk Resolution multi turn
0 - 31 = 0 - 31 bits

ll Shielded cable
00 = no cable
AF = PVC gray, 4x2x0.14 mm²

mm Cable length
00 = no cable
20 = 2 m
50 = 5 m
A0 = 10 m

nn connector
00 = no connector
S8 = M12 connector 8-pin A coded

oo Wire assignments (connector / cable)
R1 = RS485/SSI for M12 connector and shielded cable

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Basic features

Approval/Conformity	CE cULus WEEE UKCA
Measuring principle	absolute measuring system

Display/Operation

Function indicator	LED red/green

Electrical connection

Connection	Cable or connector

Electrical data

Mean life expectancy	1x 10'9 revs. at 100 % rated shaft load 1x 10'10 revs. at 40 % rated shaft load 1x 10'11 revs. at 20 % rated shaft load
Multi turn technology	Wiegand wire
Operating voltage Ub	4,75 ... 32 VDC
Single turn accuracy	± 0.0878° (≤ 12 bits)
Single turn repeat accuracy	± 0.0878° (≤ 12 bits)
Single turn technology	Hall sensor
Speed max.	6000 U/min
Switch-on delay max.	1.5 s

Environmental conditions

Ambient temperature	-40…85 °C
IP rating	Housing: IP65, IP67 Shaft entrance: IP65
Storage temperature	-40…100°C

Functional safety

Diagnostic coverage	0 %
MTTF (40 °C)	1000 a
Mission Time	20 a

Interface

Interface	RS485

Material

Housing material	Stainless
Material flange	Aluminium

Mechanical data

Bearings type	2x precision ball bearings
Flange type	End hollow shaft
Housing diameter	36 mm
Shaft load axial max.	50 N
Shaft load radial max.	80 N
Starting torque typ.	ca. 1,6 Ncm bei Raumtemperatur

Remarks

Interface details RS485:

Configuration inputs
Positive counting direction:
(view on shaft)
DIR = GND: cw
DIR = +Ub: ccw
Zeroing: Preset = +Ub for 2 s
Baud rate: Default: 9600 bit/s
Polling cycle: Standard: 20 ms (tolerance: +/- 2 ms)
Telegram size: 6 byte singleturn, 8 byte multiturn
Telegram structure: 2 byte preamble, 2 /4 byte
User data, 2 byte CRC
Byte structure: Start bit (0) and stop bit (1), the bytes are big-endian and LSB first, no parity bits are available

CRC definition: Code:
- CRC-CCITT 16 bit (X^16+X^12+X^5+1)
- Start value 0x1021,
- start/stop bits not included
- Preamble (0xABCD) included in calculation
- Bytewise oriented: per CRCRefresh 1 byte is used

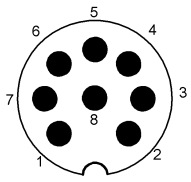
Error behavior of the protocol:
If the encoder recognizes that it is not possible to send a correct value (e.g. magnet loss), then the transmitted telegram is set to the maximum value in its user data. Baud rate and polling cycle remain constant.

LED behavior:
At startup / bootup: - red light (<2.3 s)
Error: - constant red glow (>2,3 s)
Normal operating condition: - constant green glow
No supply applied: - no glow
For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

Connector Diagramm

M12x1-male, 8-pin, A-coded



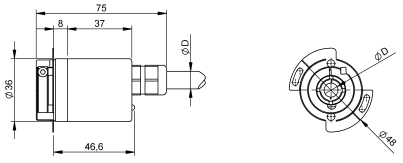
Wiring diagramm

R1 (RS485/SSI)

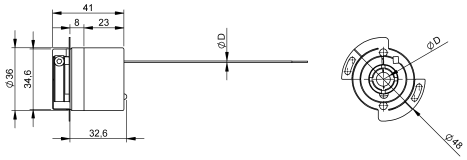
SSI, RS485	R1	
Signal	Pin	Color
GND	1	WH
+UB	2	BN
CLK+	3	GN
CLK-	4	YE
DATA+	5	GY
DATA-	6	PK
PRESET	7	BU
DIR	8	RD
Shield	housing	housing

Product View

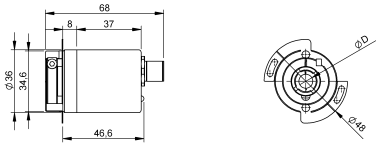
Cable outlet axial



Cable outlet radial



Connector outlet axial



Connector outlet radial