

TECHNICAL DATASHEET

Incremental Encoder RI 58-G / RI 58TG



Clamping shaft

- Direct mounting without coupling
- Through hollow shaft Ø 14 mm and 15 mm
- Easy installation by means of clamping ring
- Fixing of flange by means of a stator coupling or set screw
- Applications: actuators, motors



NUMBER OF PULSES	RI 58-G	50 / 360 / 500 / 1000 / 1024 / 2000 / 2048 / 2500 / 3600 / 4096 / 5000
NUMBER OF PULSES	RI 58TG	50 / 360 / 500 / 1000 / 1024 / 2000 / 2048 / 2500

**TECHNICAL DATA
mechanical**

Housing diameter	58 mm
Shaft diameter	14 mm / 15 mm (Through hollow shaft)
Flange (Mounting of housing)	Synchro flange
Mounting of shaft	Front clamping ring, Rear clamping ring
Protection class shaft input (EN 60529)	IP64
Protection class housing (EN 60529)	IP64
Shaft tolerance	Ø 14/ 15 mm, tolerance g8
Max. speed	max. 4000 rpm
Starting torque typ.	≤ 2 Ncm
Moment of inertia	approx. 60 gcm ²
Vibration resistance (DIN EN 60068-2-6)	10 g = 100 m/s ² (10 ... 2000 Hz)
Shock resistance (DIN EN 60068-2-27)	100 g = 1000 m/s ² (6 ms)
Operating temperature	RI 58-G: -10 °C ... +70 °C RI 58TG: -10 °C ... +100 °C
Storage temperature	-25 °C ... +85 °C
Material housing	Aluminum
Weight	approx. 210 g
Connection	Cable, radial

**TECHNICAL DATA
electrical**

General design	as per DIN VDE 0160, protection class III, contamination level 2, overvoltage class II
Supply voltage ¹	RS422 + Sense (T): DC 5 V ±10 % RS422 + Alarm (R): ± 10% DC 5 V or DC 10 - 30 V Push-pull (K), Push-pull antivalent (I): DC 10-30 V
Current w/o load typ.	40 mA (DC 5 V), 60 mA (DC 10 V), 30 mA (DC 24 V)
Max. pulse frequency	RS422: 300 kHz Push-pull: 200 kHz
Standard output versions	RS422 + Alarm (R): A, B, N, \overline{A} , \overline{B} , \overline{N} , Alarm RS422 + Sense (T): A, B, N, \overline{A} , \overline{B} , \overline{N} , Sense Push-pull (K): A, B, N, Alarm Push-pull complementary (I): A, B, N, \overline{A} , \overline{B} , \overline{N} , Alarm

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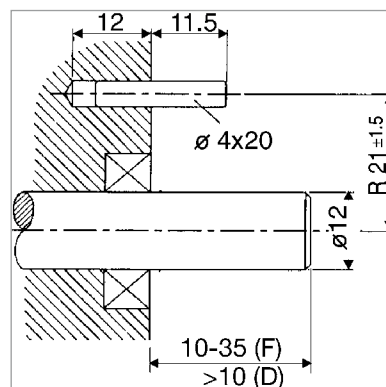
TECHNICAL DATA electrical (continued)

Pulse width error	± max. 25° electrical
Number of pulses	50 ... 2500
Alarm output	NPN-O.C., max. 5 mA
Pulse shape	Square wave
Pulse duty factor	1:1

¹ With push-pull (K): pole protection

MOUNTING NECESSITIES

In order to be able to compensate an axial and radial misalignment of the shaft, the encoder flange must not be fixed rigidly. Fix the flanges by means of a stator coupling (e.g. hubshaft with tether) as torque support (see "Accessories") or by means of a cylindrical pin:



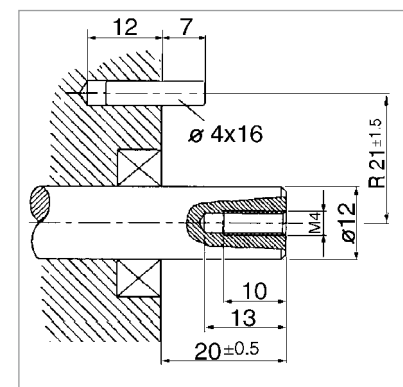
Dimensions in mm
also apply for shaft-Ø 10 or 14
Mounting = D, F (Clamping ring)
Preparation of the machine flange¹

(all mounting versions):

In the machine flange a straight pin must be installed (diameter 4x16 resp. 4x20, DIN 6325).

This pin is required as a torque support.

1 Or as an option: stator coupling as torque support



Dimensions in mm
also apply for shaft-Ø 10 or 14
Mounting = E (mounting with center screw)

Preparation of the drive shaft

(only in mounting = E):

The drive shaft must be provided with a threaded bore M 4 x 10:

This bore accepts the fastening screw of the shaft encoder.

ELECTRICAL CONNECTIONS Cable PVC

Cable PVC Colour	Output circuit			
	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
white	Channel A	Channel A	Channel A	Channel A
white/brown	Channel \bar{A}	Channel \bar{A}		Channel \bar{A}
green	Channel B	Channel B	Channel B	Channel B
green/brown	Channel \bar{B}	Channel \bar{B}		Channel \bar{B}
yellow	Channel N	Channel N	Channel N	Channel N
yellow/brown	Channel \bar{N}	Channel \bar{N}		Channel \bar{N}
yellow/black	Sense GND	$\bar{A}larm$	$\bar{A}larm$	$\bar{A}larm$
yellow/red	Sense V _{CC}	Sense V _{CC}		Sense V _{CC}
red	DC 5 V	DC 5 / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
black	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹	Cable screen ¹

¹ connected with encoder housing

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ELECTRICAL CONNECTIONS

Cable TPE

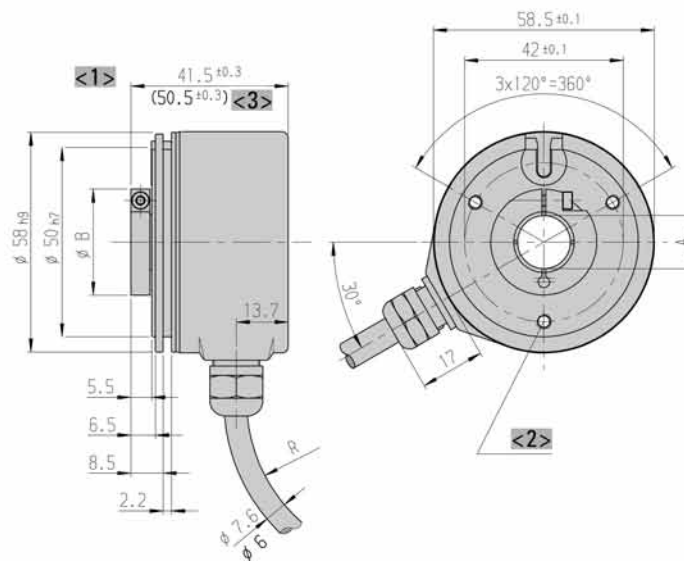
Cable TPE Colour	Output circuit			
	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
brown	Channel A	Channel A	Channel A	Channel A
green	Channel \bar{A}	Channel \bar{A}		Channel \bar{A}
grey	Channel B	Channel B	Channel B	Channel B
pink	Channel \bar{B}	Channel \bar{B}		Channel \bar{B}
red	Channel N	Channel N	Channel N	Channel N
black	Channel \bar{N}	Channel \bar{N}		Channel \bar{N}
violet (white) ¹	Sense GND	Alarm	Alarm	Alarm
blue	Sense V_{CC}	Sense V_{CC}		Sense V_{CC}
brown/green	DC 5 V	DC 5 / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
white/green	GND	GND	GND	GND
Cable screen ²	Cable screen ²	Cable screen ²	Cable screen ²	Cable screen ²

¹ white with RS422 + Sense (T)

² connected with encoder housing

DIMENSIONED DRAWINGS

Mounting D: Through hollow shaft with clamp on front



Dim.	Hollow shaft Ø		Unit
A	14 ^{H7}	15 ^{H7}	mm
A*	14 ^{g8}	15 ^{g8}	mm
B	30	30	mm

A* = diameter of connection shaft

<1> View turned 60°

<2> mounting thread M4x5

<3> value in brackets with version DC 10 - 30 V, RS422

Cable bending radius R for flexible installation ≥ 100 mm

Cable bending radius R for fixed installation ≥ 40 mm

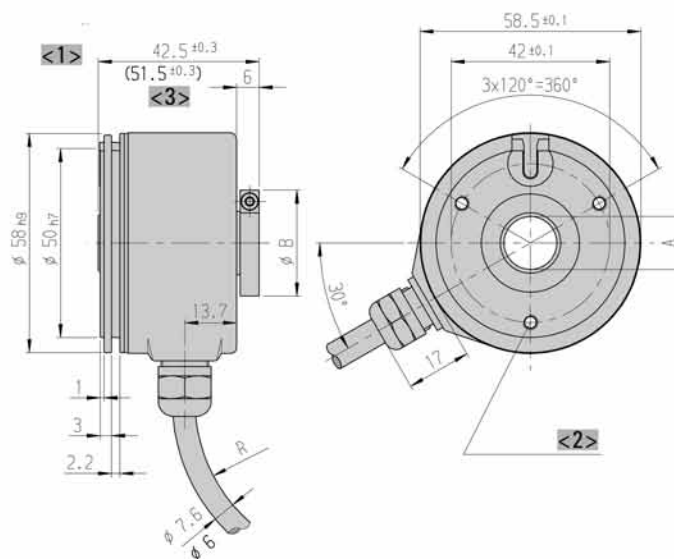
Dimensions in mm

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DIMENSIONED DRAWINGS (continued)

Mounting H optional: Through hollow shaft with clamping ring rear on request



Dim.	Hollow shaft Ø		Unit
A	14 ^{H7}	15 ^{H7}	mm
A*	14 ^{g8}	15 ^{g8}	mm
B	30	30	mm
A* = diameter of connection shaft			

- <1> View turned 60°
 - <2> mounting thread M4x5
 - <3> value in brackets with version DC 10 - 30 V, RS422
- Cable bending radius R for flexible installation ≥ 100 mm
Cable bending radius R for fixed installation ≥ 40 mm

Dimensions in mm

ORDERING INFORMATION

Type	Number of pulses	Supply voltage ^{1,2}	Flange, Protection, Shaft ³	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI58-G RI58TG	RI 58-G: 50 ... 5000 RI 58TG: 50 ... 2500	A DC 5 V E DC 10 - 30 V	D.39 Through hollow shaft with clamping ring front, IP64, 14 mm D.3D Through hollow shaft with clamping ring front, IP64, 15 mm H.39 Through hollow shaft with clamping ring rear, IP64, 14 mm H.3D Through hollow shaft with clamping ring rear, IP64, 15 mm	R RS422 +Alarm T RS422 +Sense K Push-pull I Push-pull complementary	B PVC cable, radial F TPE cable, radial

¹ DC 5 V: only with output "T", "R" available

² DC 10 - 30 V: only with output "K", "I", "R" available

³ IP67 on cover with connector only if IP67 mating connector mounted properly.

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ORDERING INFORMATION
Selection of cable length

Versions with cable outlet (connection A, B, E or F) are available with various lengths of cable. To order your desired cable length, please add the respective code to the end of your ordering code. For variants with connector on cable end please add cable length code in between. Further cable lengths on request.

Code	Cable length
without code	1.5 m
-D0	3 m
-F0	5 m
-K0	10 m
-P0	15 m
-U0	20 m
-V0	25 m

Example:

Cable 3 m length: ... B - D0

Cable mit 3 m length and M23 connectorr, cw: ... B - D0 - I