

TECHNICAL DATASHEET

Incremental Encoder RI58-D / RI58TD / RI58CD



Clamping shaft

- Direct mounting without coupling
- Flexible hollow shaft design up to diameter 15 mm
- Through hollow shaft or as end shaft (blind shaft)
- Easy installation by means of clamping shaft or blind shaft
- Short overall length of 33 mm
- Fixing of flange by means of a stator coupling or set screw
- Various shaft versions
- Applications: actuators, motors
- Operating temperature up to +100 °C (RI58TD); up to -40 °C (RI58CD)

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NUMBER OF PULSES RI58-D

1 / 3 / 4 / 5 / 10 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / **250** / 256 / 300 / 314 / 360 / 375 / 400 / 460 / 480 / **500** / 512 / 600 / 625 / 720 / 900 / **1000** / **1024** / **1250** / 1500 / 1800 / 2000 / 2048 / **2500** / 3000 / 3480 / **3600** / **4000** / 4096 / **5000**

Other number of pulses on request

Preferably available versions are printed in bold type.

NUMBER OF PULSES RI58TD

4 / 5 / 10 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / **250** / 256 / 300 / 314 / 360 / 375 / 400 / 460 / 480 / **500** / 512 / 600 / 625 / 720 / 900 / **1000** / **1024** / **1250** / 1500 / 1800 / 2000 / 2048 / **2500**

Other number of pulses on request

Preferably available versions are printed in bold type.

NUMBER OF PULSES RI58CD

3000 / 3480 / **3600** / **4000** / 4096 / **5000**

Other number of pulses on request

Preferably available versions are printed in bold type.

TECHNICAL DATA mechanical

Housing diameter	58 mm
Shaft diameter ¹	6 / 8 / 10 / 12 mm (Through hollow shaft) 6 / 8 / 10 / 12 / 14 / 15 mm (Hubshaft)
Flange (Mounting of housing)	Synchro flange
Mounting of shaft	Front clamping ring, Rear clamping ring, Center bolt
Protection class shaft input (EN 60529)	IP64
Protection class housing ² (EN 60529)	Through hollow shaft: D, H: IP64 Hubshaft: E: IP65, F: IP67
Shaft tolerance	Ø 10 mm, tolerance g8 (-0,005 ... -0,027 mm), Ø 12 / 14 / 15 mm, tolerance g8 (-0,006 ... -0,033 mm)
Max. speed ³	Hub shaft - E, F: max. 6000 rpm Through hollow shaft - D, H: max. 4000 rpm
Starting torque typ.	≤ 1 Ncm (Hub shaft - E, F) ≤ 2 Ncm (Through hollow shaft - D, H)

¹ Other shaft diameters on request

² Further protection class upon request

³ Higher values available upon request

Specifications subject to change without notice

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TECHNICAL DATASHEET

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TECHNICAL DATA mechanical (continued)

Moment of inertia	approx. 35 gcm ² (Hub shaft with clamping ring front - F) approx. 20 gcm ² (Hub shaft, mounting with set screw - E) approx. 60 gcm ² (Through hollow shaft with clamping ring front - D, H)
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	RI58-D: -10 °C ... +70 °C RI58TD: -40 °C ... +100 °C RI58CD: -40 °C ... +70 °C
Storage temperature ¹	-25 °C ... +85 °C
Material housing	Aluminum
Weight	approx. 170 g with hubshaft (E,F), approx. 190 g with trough hollow shaft (D, H)
Connection ²	Cable, axial or radial M23 connector (Conin), radial

¹ due to packing

² Standard cable length: 1,5 m cable, other cable length on request (only RI 58-TD)

TECHNICAL DATA electrical

General design	As per DIN EN 61010-1, 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 complementary (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} , \overline{Alarm} RS422 + Sense (T): A, B, N, \overline{A} , \overline{B} , \overline{N} , Sense Push-pull (K): A, B, N, \overline{Alarm} Push-pull complementary (I): A, B, N, \overline{A} , \overline{B} , \overline{N} , \overline{Alarm}
Pulse width error	± max. 25° electrical
Number of pulses	1 ... 5.000
Alarm output	NPN-O.C., max. 5 mA
Pulse shape	Square wave
Pulse duty factor	1:1

¹ With push-pull (K): pole protection

Specifications subject to change without notice

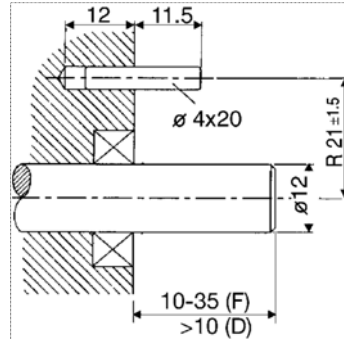
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TECHNICAL DATASHEET

Incremental Encoder RI58-D / RI58TD / RI58CD

MOUNTING INSTRUCTIONS

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 all other shaft diameter
Mounting = D, F (Clamping ring)

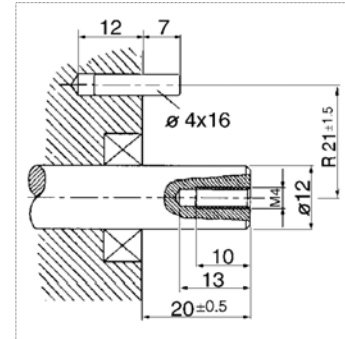
Preparation of the machine flange ¹

(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 all other shaft diameter
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

(Connection codes A and B)

Cable PVC (A, B)	Output circuit			
	Colour	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)
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	$\bar{\text{Alarm}}$	$\bar{\text{Alarm}}$	$\bar{\text{Alarm}}$
yellow/red	Sense V cc	Sense V cc		Sense V cc
red	DC 5 V	DC 5/10 - 30 V	DC 5/10 - 30 V	DC 5/10 - 30 V
black	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹		Cable screen ¹	Cable screen ¹

¹ connected with encoder housing

Specifications subject to change without notice

TECHNICAL DATASHEET

Incremental Encoder RI58-D / RI58TD / RI58CD

ELECTRICAL CONNECTIONS
Cable TPE
(Connection codes E and F)

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

ELECTRICAL CONNECTIONS
M23 connector (Conin), 12 pole
(Connection codes D and H)

M12 connector, 8 pole
(Connection code 8)

Pin M23, 12 pole	Pin M12, 8 pole	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
1	6	Channel \bar{B}	Channel \bar{B}	N.C.	Channel \bar{B}
2		Sense V cc	Sense V cc	N.C.	Sense V cc
3	7	Channel N	Channel N	Channel N	Channel N
4	8	Channel \bar{N}	Channel \bar{N}	N.C.	Channel \bar{N}
5	3	Channel A	Channel A	Channel A	Channel A
6	4	Channel \bar{A}	Channel \bar{A}	N.C.	Channel \bar{A}
7		N.C.	$\bar{A}Alarm$	$\bar{A}Alarm$	$\bar{A}Alarm$
8	5	Channel B	Channel B	Channel B	Channel B
9		N.C. ¹	N.C. ¹	N.C. ¹	N.C. ¹
10	1	GND	GND	GND	GND
11		Sense GND	N.C.	N.C.	N.C.
12	2	DC 5 V	DC 5 V / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V

¹ screen for cable with CONIN connector

ELECTRICAL CONNECTIONS
KPT connector, 8 pole
(Connection code 2)

M16 connector (Binder), 6 pole
(Connection code J)

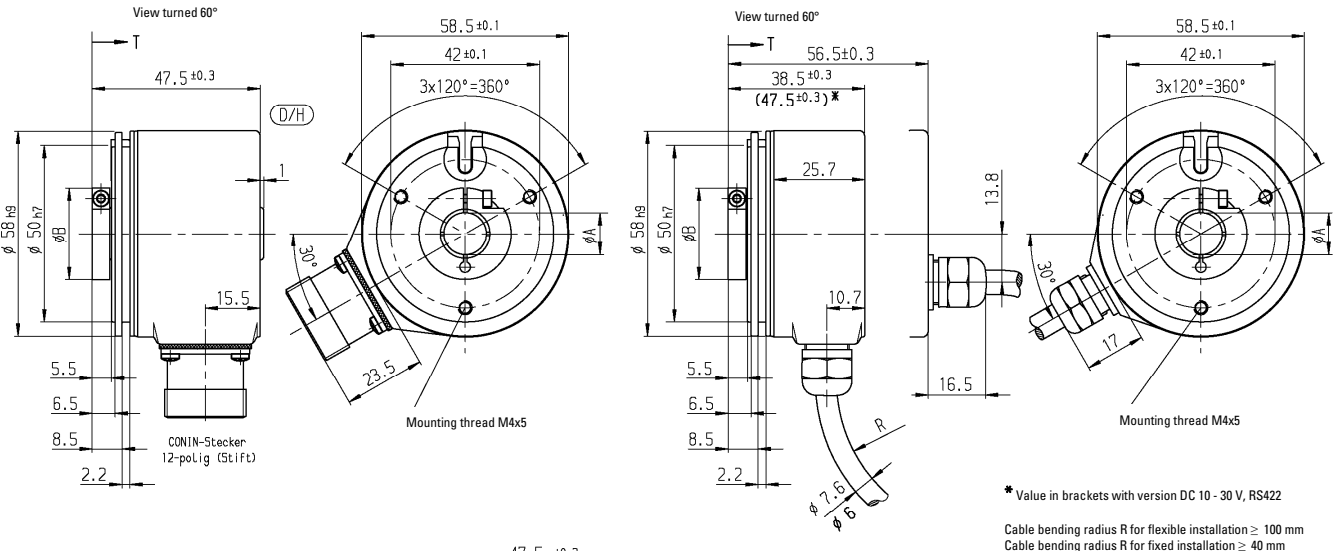
Pin KPT, 8 pole	RS422 + Alarm (R)	push-pull (K)	push-pull complementary (I)	Pin M16, 6 pole	push-pull (K)
A	Channel B	Channel B	Channel B	1	DC 10 - 30 V
B	Channel \bar{B}		Channel \bar{B}	2	Channel A
C	Channel \bar{A}		Channel \bar{A}	3	Channel N
D	Channel A	Channel A	Channel A	4	Channel B
E	DC 5 V / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V	5	$\bar{A}Alarm$
F	GND	GND	GND	6	GND
G	Channel N	Channel N	Channel N		
H	Channel \bar{N}	$\bar{A}Alarm$	Channel \bar{N}		

TECHNICAL DATASHEET

Incremental Encoder RI58-D / RI58TD / RI58CD

DIMENSIONED DRAWINGS

Mounting F: Hubshaft with clamping ring front



* 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

Dim.	Hollow shaft-Ø						Unit
A	6 ^{H7}	8 ^{H7}	10 ^{H7}	12 ^{H7}	14 ^{H7}	15 ^{H7}	mm
A*	6 ^{g8}	8 ^{g8}	10 ^{g8}	12 ^{g8}	14 ^{g8}	15 ^{g8}	mm
B	26	26	26	28	30	30	mm
T	33,5	33,5	33,5	33,5	22,5	22,5	mm
A* = Diameter of connection shaft							

Dimensions in mm

Specifications subject to change without notice

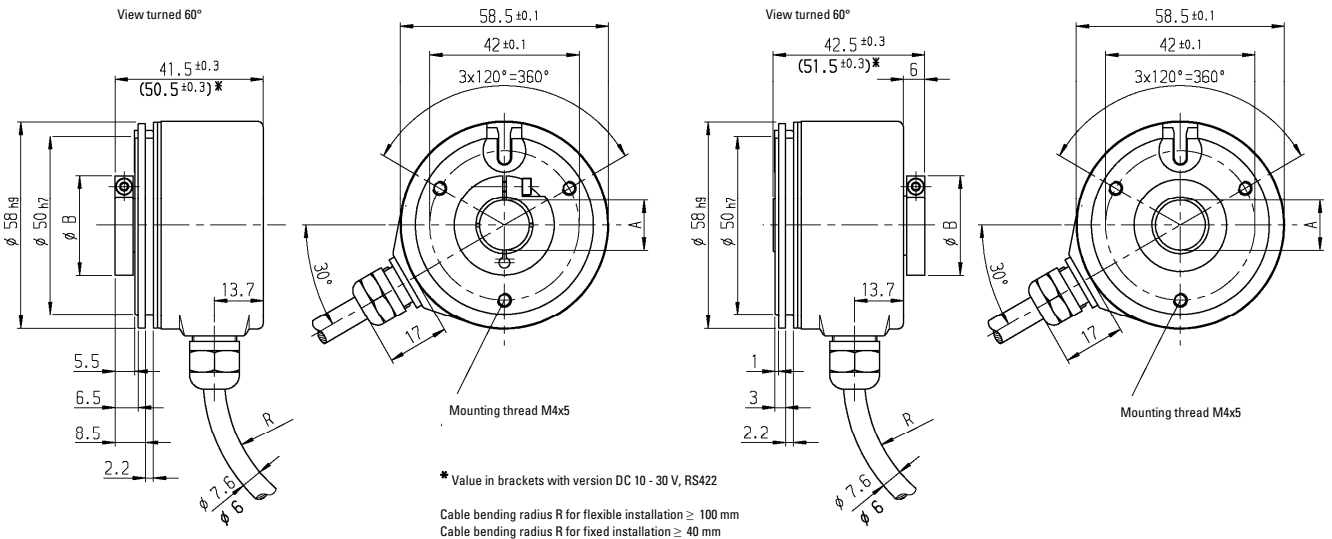
TECHNICAL DATASHEET

Incremental Encoder RI58-D / RI58TD / RI58CD

DIMENSIONED DRAWINGS
(continued)

Mounting D: Through hollow shaft with clamping ring front

Mounting H: Through hollow shaft with clamping ring rear



Dim.	Hollow shaft-Ø				Unit
	6 ^{H7}	8 ^{H7}	10 ^{H7}	12 ^{H7}	
A	6 ^{H7}	8 ^{H7}	10 ^{H7}	12 ^{H7}	mm
A*	6 ^{g8}	8 ^{g8}	10 ^{g8}	12 ^{g8}	mm
B	26	26	26	28	mm
Mounting "D"	X	X	X	X	
Mounting "H"			X	X	

A* = Diameter of connection shaft
X = Available connection shafts

Dimensions in mm

Specifications subject to change without notice

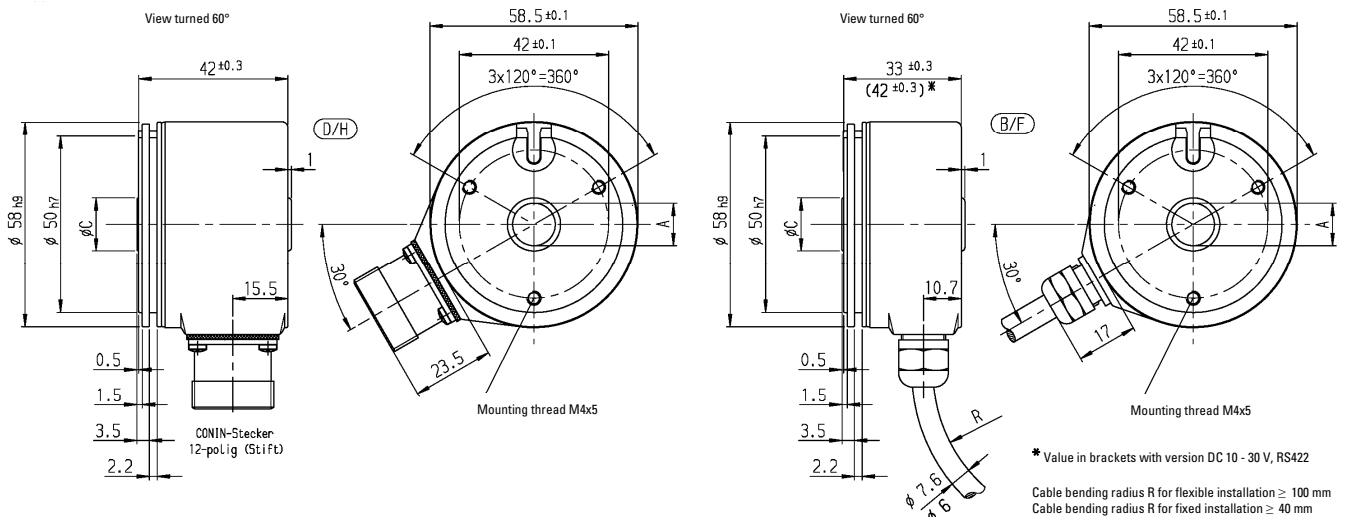
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Incremental Encoder RI58-D / RI58TD / RI58CD

DIMENSIONED DRAWINGS (continued)

Mounting E: Hubshaft, mounting with center screw



Dim.	Hollow shaft-Ø			Unit
A	10 ^{H7}	12 ^{H7}	14 ^{H7}	mm
A*	10 ^{g8}	12 ^{g8}	14 ^{g8}	mm
C	15	15	17	mm

A* = Diameter of connection shaft

Dimensions in mm

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Incremental Encoder RI58-D / RI58TD / RI58CD

ORDERING INFORMATION

Type	Number of pulses	Supply voltage	Flange, Protection, Shaft ³	Output	Connection
□	□	□	□	□	□
RI58-D RI58TD* RI58CD*	RI58-D: 1 ...5000 RI 58TD: 4 ...2500 RI58CD: >2500 ... 5000 Others available upon request	A DC 5 V ¹ E DC 10 - 30 V ²	D.31 Through hollow shaft with clamping ring front, IP64, 6 mm D.3C Through hollow shaft with clamping ring front, IP64, 8 mm D.32 Through hollow shaft with clamping ring front, IP64, 10 mm D.37 Through hollow shaft with clamping ring front, IP64, 12 mm H.32 Through hollow shaft with clamping ring rear, IP64, 10 mm H.37 Through hollow shaft with clamping ring rear, IP64, 12 mm E.42 Hubshaft, mounting with set screw, IP64, 10 mm E.47 Hubshaft, mounting with set screw, IP64, 12 mm E.49 Hubshaft, mounting with set screw, IP64, 14 mm F.41 Hubshaft, mounting with clamping ring front, IP64, 6 mm F.4C Hubshaft, mounting with clamping ring front, IP64, 8 mm F.42 Hubshaft, mounting with clamping ring front, IP64, 10 mm F.47 Hubshaft, mounting with clamping ring front, IP64, 12 mm F.49 Hubshaft, mounting with clamping ring front, IP64, 14 mm F.4D Hubshaft, mounting with clamping ring front, IP64, 15 mm	R RS422 + Alarm T RS422 + Sense K Push-pull I Push-pull complementary	A PVC cable, axial B PVC cable, radial E PVC cable, axial F TPE cable, radial D M23 connector (Conin), 12 pole, radial, cw H M23 connector (Conin), 12 pole, radial, ccw 8 M12 connector, 8 pole, radial J M16 connector (Binder), 6pole, radial 2 KPT connector, 8 pole, radial Others available upon request

¹ only with output "T", "R" available

² only with output "K", "I", "R" available

³ Mounting (flange) code "D", "H" only with connection code "B" and "F" (cable)

*RI58TD and RI58CD not available with connection code "A" and "B"

Specifications subject to change without notice

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Incremental Encoder RI58-D / RI58TD / RI58CD

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
-W0	30 m
-X0	40 m
-Y0	50 m

Examples:

Cable 3 m length: ... B - D0

Cable mit 3 m length and M23 connector, cw: ... F - D0 - I

Specifications subject to change without notice

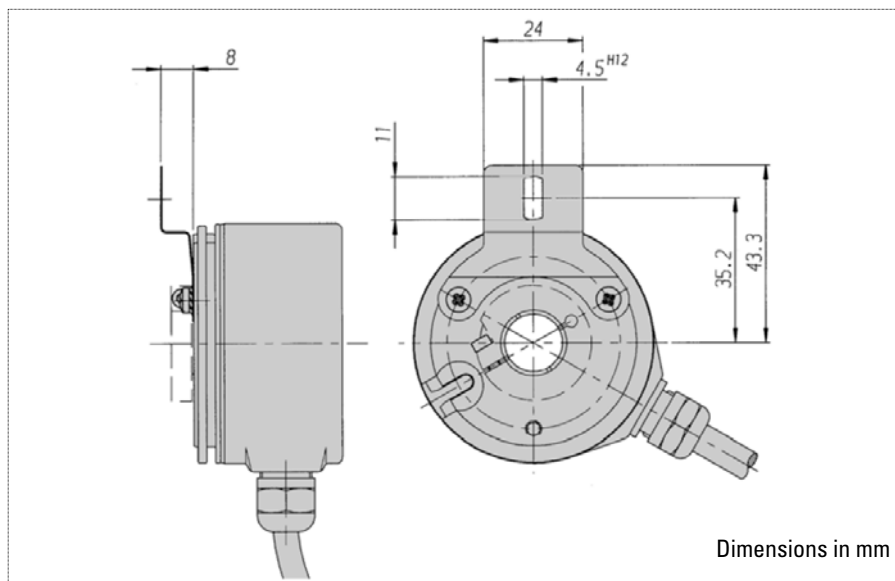
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TECHNICAL DATASHEET

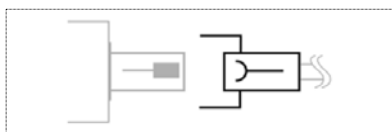
Incremental Encoder RI58-D / RI58TD / RI58CD

Accessories

ACCESSORIES Hubshaft with tether as stator coupling, ordering code 1 531 162

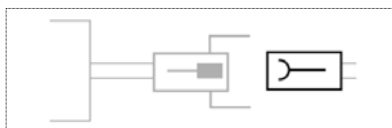


CONNECTORS



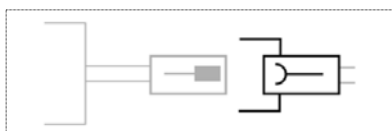
Connector (socket) matching with encoder connector	Ordering code
M16 (Binder), 6 pole, bent, IP40, mating connector for connection J/N	3 539 209
M16 (Binder), 6 pole, straight, IP67, mating connector for connection J/N	3 539 472
M23 (Conin), 12 pole, PG9, cw, mating connector for connection C/D/-I	3 539 202

CONNECTORS



Coupling (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, cw, mating connector for connection -C (cable plug 3 539 186)	3 539 187
M23 (VDW), 12 pole, cw, mating connector for connection -B (cable plug 3 539 252)	3 539 304

CONNECTORS



Connector (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, ccw, mating connector for connection G/H/-D/-H	3 539 229
M23 (VDW), 12 pole, ccw, mating connector for connection -E (cable plug 3 539 274)	3 539 305

COUNTERS

Counters	Art.-Nr.
Multifunctional counter tico 732	www.hengstler.com
Multifunctional counter tico 772	www.hengstler.com

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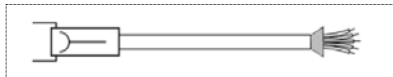
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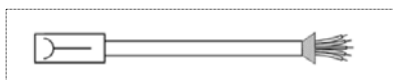
Accessories

CONNECTING CABLES



Connecting cables with plug (socket) on one end	Ordering code
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 3 m	1 522 405
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 5 m	1 522 406
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 10 m	1 522 340
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 15 m	1 522 833
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 50 m	1 522 836
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 3 m	1 522 348
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 5 m	1 522 349
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 10 m	1 522 350
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 15 m	1 522 454
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 20 m	1 522 456
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 25 m	1 522 457
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 30 m	1 522 464
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 40 m	1 522 643
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 50 m	1 522 793
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 3 m	1 522 394
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 5 m	1 522 395
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 10 m	1 522 396
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 15 m	1 522 447
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 20 m	1 522 461
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 25 m	1 522 462
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 30 m	1 522 463
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 40 m	1 522 779

CONNECTING CABLES



Connecting cables with coupling (socket) on one end	Ordering code
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection -C, 10 m	1 522 735
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection -C, 20 m	1 522 621

CONNECTING CABLES

Cable not made up with connectors	Ordering code
PVC cable, 10-core + screen	3 280 114 + length
PVC cable, 6-core + screen	3 280 113 + length
TPE cable, 12-core + screen	3 280 112 + length

Specifications subject to change without notice

TECHNICAL DATASHEET

Incremental Encoder RI58-F / RI58TF / RI58CF



- Incremental hollow shaft encoder
- Up to 10 000 ppr
- Through hollow shaft and hubshaft up to 12 mm
- Optimized stator coupling
- Applications: Feedback for asynchronous motors, industrial applications

ICURO®
industry



NUMBER OF PULSES **RI58-D**

1 / 2 / 3 / 4 / 10 / 20 / 25 / 30 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / **250** / 256 / 300 / 314 / 350 / 360 / 375 / 400 / 460 / 480 / **500** / 512 / 600 / 625 / 720 / 900 / **1000** / **1024** / **1250** / 1500 / 1600 / 1800 / 2000 / 2048 / 2500 / 3000 / 3480 / **3600** / 4000 / **4096** / **5000** / **7854** / **10000**

Other number of pulses on request

Preferably available versions are printed in bold type.

NUMBER OF PULSES **RI58TF**

10 / 20 / 25 / 30 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / **250** / 256 / 300 / 314 / 350 / 360 / 375 / 400 / 460 / 480 / **500** / 512 / 600 / 625 / 720 / 900 / **1000** / **1024** / **1250** / 1500 / 1600 / 1800 / 2000 / 2048 / 2500

Other number of pulses on request

Preferably available versions are printed in bold type.

NUMBER OF PULSES **RI58CF**

3000 / 3480 / **3600** / 4000 / **4096** / **5000** / **7854** / **10000**

Other number of pulses on request

Preferably available versions are printed in bold type.

TECHNICAL DATA
mechanical

Housing diameter	58 mm
Shaft diameter	6mm / 10 mm / 12 mm (Hubshaft) 6mm / 10 mm / 12 mm (Through hollow shaft)
Flange (Mounting of housing)	Tether
Mounting of shaft	Set screw, Front clamping ring, Rear clamping ring, Clamping ring with set screw
Protection class shaft input (EN 60529)	IP64
Protection class housing (EN 60529)	Through hollow shaft - B: IP64 Hubshaft - F: IP67
Axial endplay of mounting shaft (hubshaft)	± 1,5 mm
Radial runout of mating shaft (hubshaft)	± 0,2 mm
Max. speed	Hubshaft - F: max. 4000 rpm Through hollow shaft - B: max. 6000 rpm
Vibration resistance (DIN EN 60068-2-6)	100 m/s ²
Shock resistance (DIN EN 60068-2-27)	1.000 m/s ²
Operating temperature	RI58-F: -10 °C ... +70 °C RI58TF: -40 °C ... +100 °C RI58CF: -40 °C ... +70 °
Storage temperature	-25 °C ... +85 °C

Irrtümer und Änderungen vorbehalten

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TECHNICAL DATASHEET

Incremental Encoder RI58-F / RI58TF / RI58CF

**TECHNICAL DATA
mechanical (continued)**

Material shaft	Stainless Steel
Material housing	Aluminum
Weight	approx. 180 g
Connection	Cable, radial M12 or M23 connector (Conin), 12 pole, radial

**TECHNICAL DATA
electrical**

General design	As per DIN EN 61010-1, 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 complementary (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)
Standard output versions	RS422 + Alarm (R): A, B, N, \overline{A} , \overline{B} , \overline{N} , \overline{Alarm} RS422 + Sense (T): A, B, N, \overline{A} , \overline{B} , \overline{N} , Sense Push-pull (K): A, B, N, \overline{Alarm} Push-pull complementary (I): A, B, N, \overline{A} , \overline{B} , \overline{N} , \overline{Alarm}
Pulse width error	± max. 25° electrical
Number of pulses	1 ... 10.000
Alarm output	NPN-O.C., max. 5 mA
Pulse shape	Square wave
Pulse duty factor	1:1

¹ Pole protection with supply voltage DC 10 - 30 V

² Output code "K" and "I": short-circuit-proof

**ELECTRICAL CONNECTIONS
Cable PVC
(Connection code B)**

Cable PVC (B) 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 \overline{A}	Channel \overline{A}		Channel \overline{A}
green	Channel B	Channel B	Channel B	Channel B
green/brown	Channel \overline{B}	Channel \overline{B}		Channel \overline{B}
yellow	Channel N	Channel N	Channel N	Channel N
yellow/brown	Channel \overline{N}	Channel \overline{N}		Channel \overline{N}
yellow/black	Sense GND	\overline{Alarm}	\overline{Alarm}	\overline{Alarm}
yellow/red	Sense V cc	Sense V cc		Sense V cc
red	DC 5 V	DC 5/10 - 30 V	DC 5/10 - 30 V	DC 5/10 - 30 V
black	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹		Cable screen ¹	Cable screen ¹

¹ connected with encoder housing

Irrtümer und Änderungen vorbehalten

TECHNICAL DATASHEET

Incremental Encoder RI58-F / RI58TF / RI58CF

ELECTRICAL CONNECTIONS
Cable TPE
(Connection code F)

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

ELECTRICAL CONNECTIONS
M23 connector (Conin), 12 pole
(Connection codes D and H)

M12 connector, 8 pole
(Connection code 8)

Pin M23, 12 pole	Pin M12, 8 pole	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
1	6	Channel \bar{B}	Channel \bar{B}	N.C.	Channel \bar{B}
2		Sense V _{cc}	Sense V _{cc}	N.C.	Sense V _{cc}
3	7	Channel N	Channel N	Channel N	Channel N
4	8	Channel \bar{N}	Channel \bar{N}	N.C.	Channel \bar{N}
5	3	Channel A	Channel A	Channel A	Channel A
6	4	Channel \bar{A}	Channel \bar{A}	N.C.	Channel \bar{A}
7		N.C.	$\bar{A}larm$	$\bar{A}larm$	$\bar{A}larm$
8	5	Channel B	Channel B	Channel B	Channel B
9		N.C. ¹	N.C. ¹	N.C. ¹	N.C. ¹
10	1	GND	GND	GND	GND
11		Sense GND	N.C.	N.C.	N.C.
12	2	DC 5 V	DC 5 V / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V

¹ screen for cable with CONIN connector

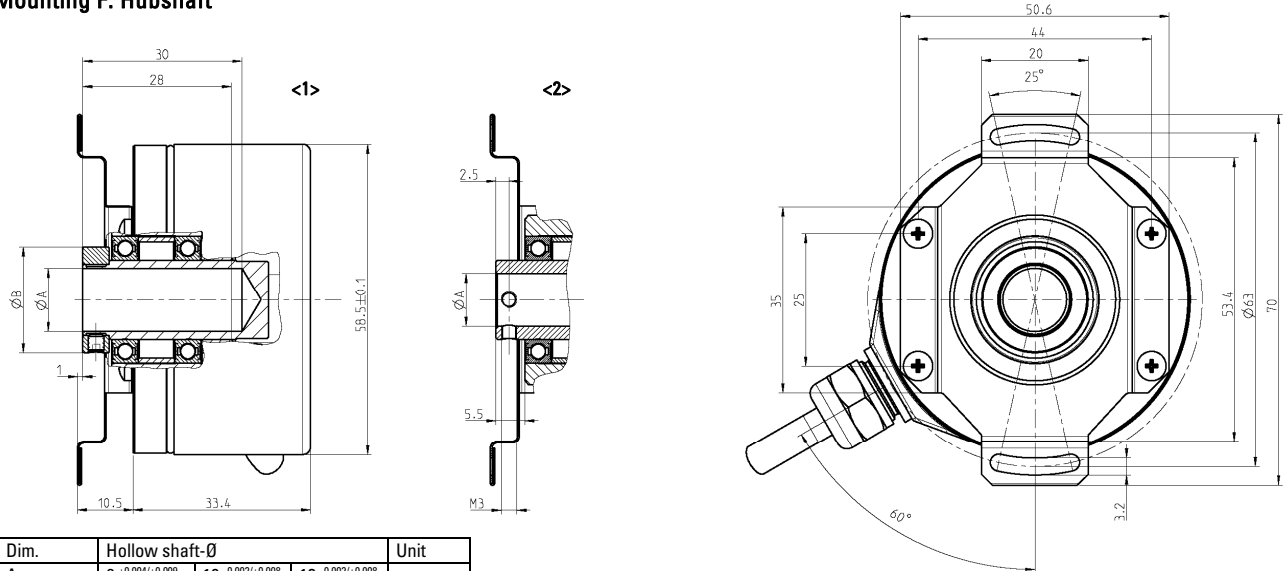
Irrtümer und Änderungen vorbehalten

TECHNICAL DATASHEET

Incremental Encoder RI58-F / RI58TF / RI58CF

DIMENSIONED DRAWINGS

Mounting F: Hubshaft



Dim.	Hollow shaft- \varnothing			Unit
A	6 ^{+0.004/+0.009}	10 ^{-0.002/+0.008}	12 ^{-0.002/+0.008}	mm
A*	6 _{h7}	10 _{g7}	12 _{g7}	mm
B			20	mm
L min	X	X	X	
L max		X	X	

A* = Diameter of connection shaft
L = Length of connection shaft

<1> $\varnothing A > 10$ mm

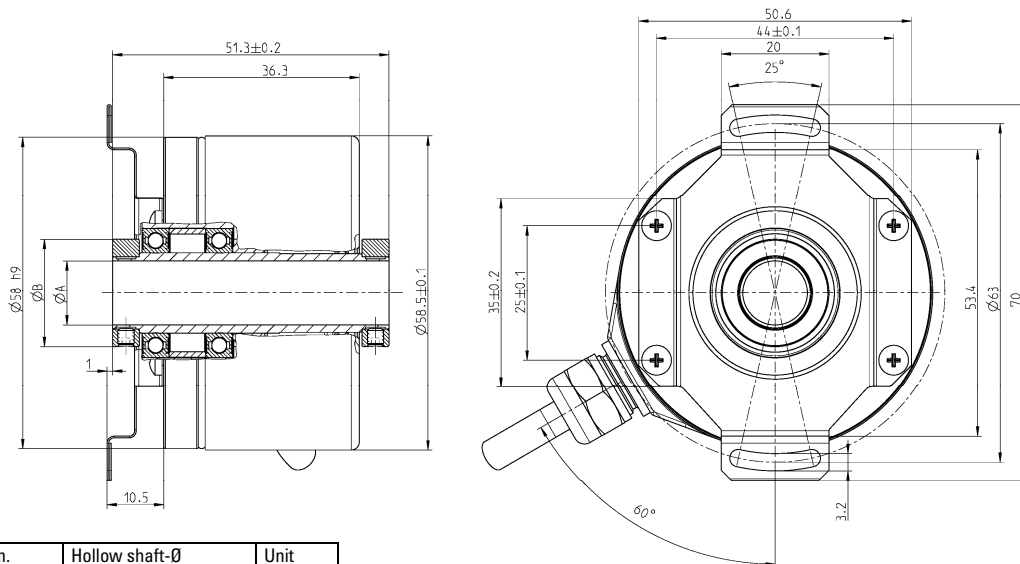
<2> $\varnothing A \leq 10$ mm

Cable bending radius R for flexible installation ≥ 100 mm

Cable bending radius R for fixed installation ≥ 40 mm

Dimensions in mm

Mounting B: Through hollow shaft



Dim.	Hollow shaft- \varnothing		Unit
A	10 ^{+0.012}	12 ^{-0.012}	mm
A*	10 _{g7}	12 _{g7}	mm
B		20	mm

A* = Diameter of connection shaft

Cable bending radius R for flexible installation ≥ 100 mm

Cable bending radius R for fixed installation ≥ 40 mm

Dimensions in mm

Irrtümer und Änderungen vorbehalten

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TECHNICAL DATASHEET

Incremental Encoder RI58-F / RI58TF / RI58CF

ORDERING INFORMATION

Type	Number of pulses	Supply voltage	Flange, Protection, Shaft	Output	Connection ³
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI58-F RI58TF* RI58CF*	RI58-F: 1 ... 10000 RI58TF: 10 ... 2500 RI58CF: >2500 ... 10000 Others available upon request	A DC 5 V ¹ E DC 10 - 30 V ²	B.32 Spring tether, IP64, through hollow shaft, 10 mm, mounting with clamping ring front and rear B.37 Spring tether, IP64, through hollow shaft, 12 mm, mounting with clamping ring front and rear F.41 Spring tether, IP64, hubshaft 6 mm, mounting with set screw F.42 Spring tether, IP64, hubshaft 10 mm, mounting with set screw F.47 Spring tether, IP64, hubshaft 12 mm, mounting with ring with clamping set screw	R RS422 + Alarm T RS422 + Sense K Push-pull (HTL) I Push-pull complementary (HTL)	B PVC cable, radial F TPE cable, radial D M23 connector (Conin), 12 pole, radial, cw H M23 connector (Conin), 12 pole, radial, ccw 8 M12 connector, 8 pole, radial

¹ DC 5 V only with output T, R, K

² DC 10 - 30 V only with output K, I

³ Connection code D, H, 8 only with hubshaft

*RI58TF and RI58CF not available with connection code B

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	Code	Cable length
without Code	1,5 m	-U0	20 m
-D0	3 m	-V0	25 m
-F0	5 m	-W0	30 m
-K0	10 m	-X0	40 m
-P0	15 m	-Y0	50 m

Example: Cable 3 m length: ... B - D0

Example: Cable mit 3 m length and M23 connector, cw: ... F - D0 - I

Irrtümer und Änderungen vorbehalten

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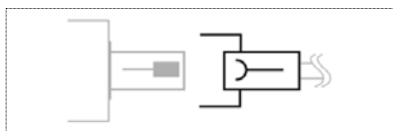
Incremental Encoder RI58-F / RI58TF / RI58CF

Accessories

BEFESTIGUNGSELEMENTE

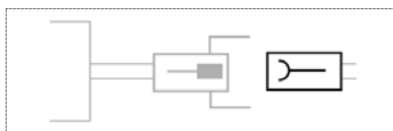
	Ordering code
Torque support	1 531 188

CONNECTORS



Connector (socket) matching with encoder connector	Ordering code
M16 (Binder), 6 pole, bent, IP40, mating connector for connection J/N	3 539 209
M16 (Binder), 6 pole, straight, IP67, mating connector for connection J/N	3 539 472
M23 (Conin), 12 pole, PG9, cw, mating connector for connection C/D/-I	3 539 202

CONNECTORS



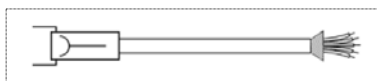
Coupling (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, cw, mating connector for connection -C (cable plug 3 539 186)	3 539 187
M23 (VDW), 12 pole, cw, mating connector for connection -B (cable plug 3 539 252)	3 539 304

CONNECTORS



Connector (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, ccw, mating connector for connection G/H/-D/-H	3 539 229
M23 (VDW), 12 pole, ccw, mating connector for connection -E (cable plug 3 539 274)	3 539 305

CONNECTING CABLES



Connecting cables with plug (socket) on one end	Ordering code
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 3 m	1 522 348
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 5 m	1 522 349
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 10 m	1 522 350
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 15 m	1 522 454
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 20 m	1 522 456
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 25 m	1 522 457
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 30 m	1 522 464
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 40 m	1 522 643
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 50 m	1 522 793
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 3 m	1 522 394
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 5 m	1 522 395
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 10 m	1 522 396
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 15 m	1 522 447
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 20 m	1 522 461
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 25 m	1 522 462
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 30 m	1 522 463
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 40 m	1 522 779

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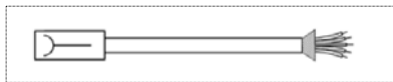
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TECHNICAL DATASHEET

Incremental Encoder RI58-F / RI58TF / RI58CF

Accessories

CONNECTING CABLES



Connecting cables with coupling (socket) on one end	Ordering code
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection -C, 10 m	1 522 735
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection -C, 20 m	1 522 621

CONNECTING CABLES

Cable not made up with connectors	Ordering code
PVC cable, 10-core + screen	3 280 114 + length
PVC cable, 6-core + screen	3 280 113 + length
TPE cable, 12-core + screen	3 280 112 + length

COUNTERS

Counters	Art.-Nr.
Multifunctional counter tico 732	www.hengstler.com
Multifunctional counter tico 772	www.hengstler.com

Irrtümer und Änderungen vorbehalten

TECHNICAL DATASHEET

Incremental Encoder RI58-G / RI58TG / RI58CG



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

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NUMBER OF PULSES	RI58-G	50 / 360 / 500 / 1024 / 2048 / 2500 / 4096 / 5000 Other number of pulses on request
NUMBER OF PULSES	RI58TG	50 / 360 / 500 / 1024 / 2048 / 2500 Other number of pulses on request
NUMBER OF PULSES	RI58CG	4096 / 5000 Other number of pulses on request

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, Center bolt
Protection class shaft input (EN 60529)	IP64
Protection class housing (EN 60529)	IP64
Shaft tolerance	Ø 14/ 15 mm, tolerance g8
Max. speed	max. 4.000 U/min
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	RI58-G: -10 °C ... +70 °C RI58TG: -40 °C ... +100 °C RI58CG: -40 °C ... +70 °
Storage temperature	-25 °C ... +85 °C
Material housing	Aluminum
Weight	approx. 210 g
Connection	cable, radial

Irrtümer und Änderungen vorbehalten

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TECHNICAL DATASHEET

Incremental Encoder RI58-G / RI58TG / RI58CG

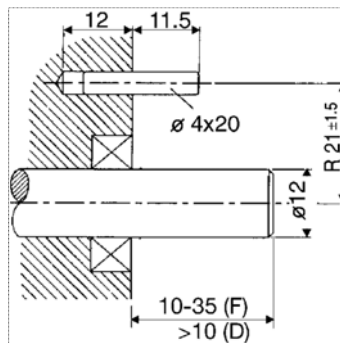
TECHNICAL DATA electrical

General design	As per DIN EN 61010-1, 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 complementary (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} , \overline{Alarm} RS422 + Sense (T): A, B, N, \overline{A} , \overline{B} , \overline{N} , Sense Push-pull (K): A, B, N, \overline{Alarm} Push-pull complementary (I): A, B, N, \overline{A} , \overline{B} , \overline{N} , \overline{Alarm}
Pulse width error	± max. 25° electrical
Number of pulses	50 ... 2.500
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 INSTRUCTIONS

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 all other shaft diameter

Mounting = D (Clamping ring)

Preparation of the machine flange ¹

(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

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TECHNICAL DATASHEET

Incremental Encoder RI58-G / RI58TG / RI58CG

ELECTRICAL CONNECTIONS

Cable PVC
(Connection codes B)

Cable PVC (B)	Output circuit			
	Colour	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)
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 5/10 - 30 V	DC 5/10 - 30 V
black	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹		Cable screen ¹	Cable screen ¹

¹ connected with encoder housing

ELECTRICAL CONNECTIONS

Cable TPE
(Connection codes F)

Cable TPE (F)	Output circuit			
	Colour	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)
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	$\bar{A}larm$	$\bar{A}larm$	$\bar{A}larm$
blue	Sense V cc	Sense V cc		Sense V cc
brown/green	DC 5 V	DC 5/10 - 30 V	DC 5/10 - 30 V	DC 5/10 - 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

Irrtümer und Änderungen vorbehalten

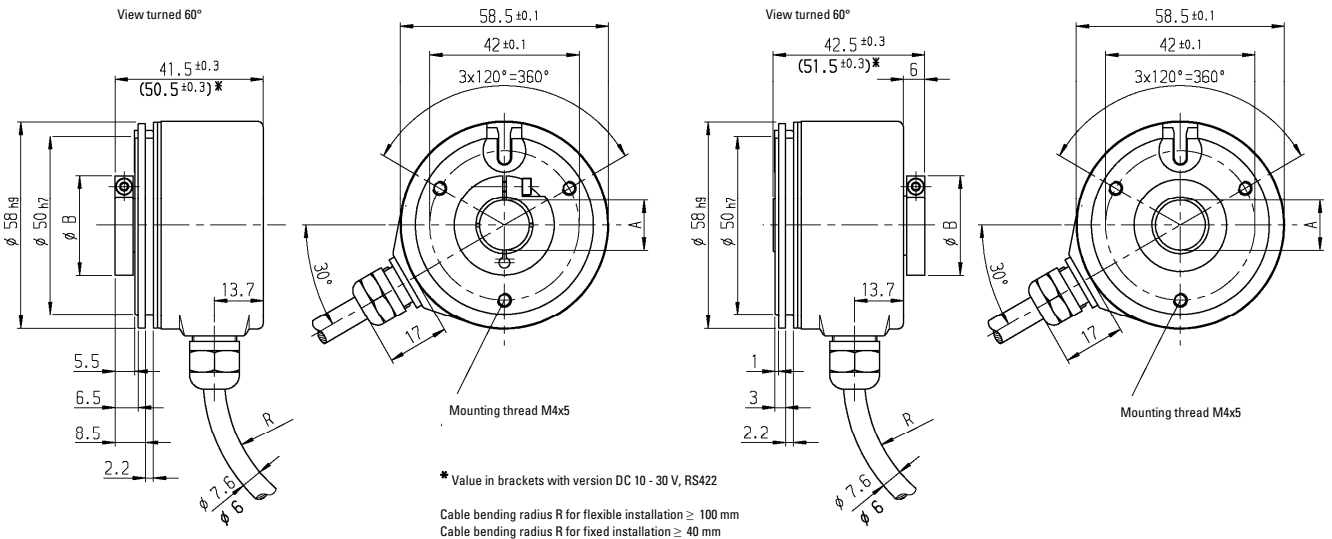
TECHNICAL DATASHEET

Incremental Encoder RI58-G / RI58TG / RI58CG

DIMENSIONED DRAWINGS

Mounting D: Through hollow shaft with clamping ring front

Mounting H: Through hollow shaft with clamping ring rear



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

A* = Diameter of connection shaft

Dimensions in mm

Irrtümer und Änderungen vorbehalten

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TECHNICAL DATASHEET

Incremental Encoder RI58-G / RI58TG / RI58CG

ORDERING INFORMATION

Type	Number of pulses	Supply Voltage ^{1,2}	Flange, Protection, Shaft	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI58-G RI58TG* RI58CG*	RI58-G: 50...5000 RI58TG: 50 ...2500 RI58CG: >2500 ... 5000	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

*RI58TG and RI58CG not available with connection code "B"

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
-W0	30 m
-X0	40 m
-Y0	50 m

Examples:

Cable 3 m length: ... B - D0

Cable mit 3 m length and M23 connector, cw: ... F - D0 - I

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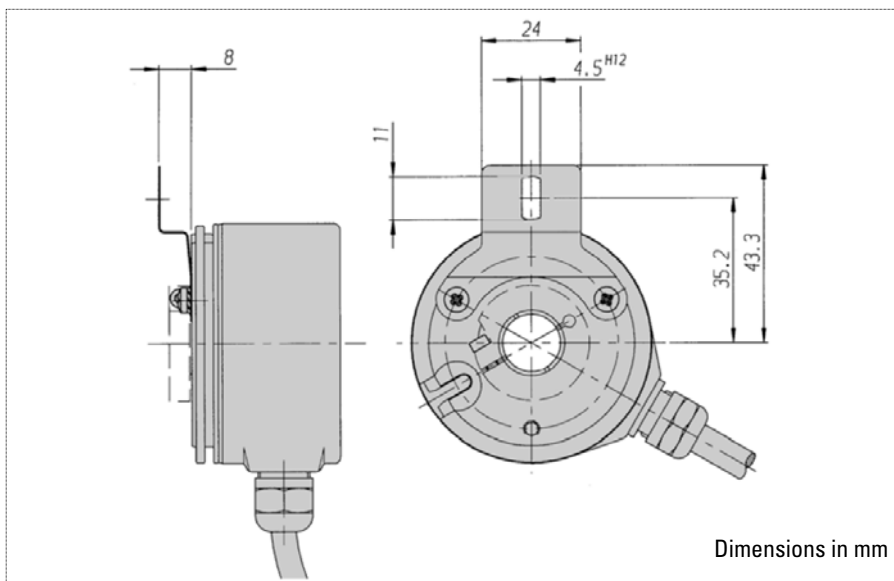
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TECHNICAL DATASHEET

Incremental Encoder RI58-G / RI58TG / RI58CG

Accessories

ACCESSORIES Hubshaft with tether as stator coupling, ordering code 1 531 162



COUNTERS

Counters	Art.-Nr.
Multifunctional counter tico 732	www.hengstler.com
Multifunctional counter tico 772	www.hengstler.com

Irrtümer und Änderungen vorbehalten

TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C



- Universal industry standard encoder
- Up to 40,000 steps with 10,000 pulses
- High signal accuracy
- Protection class up to IP67
- Flexible due to many flange and configuration variants
- Suitable for high shock ratings
- Applications: machine tools, CNC axes, packing machines, motors/ drives, injection moulding machines, sawing machines, textile machines
- For EX version, see RX70TI; for stainless steel version, see RI59
- Operating temperature up to 100 °C (RI 58-T); up to -40 °C (RI58-C)

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industry



NUMBER OF PULSES RI58-O

1 / 3 / 4 / 5 / 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / 230 / **250** / 256 / 300 / 314 / 360 / 375 / 400 / 480 / **500** / 512 / 600 / 625 / 720 / 750 / 900 / **1000** / **1024** / 1200 / **1250** / 1500 / 1600 / 1800 / 2000 / 2048 / **2500** / 3000 / 3480 / **3600** / 3750 / 968 / 4000 / **4096** / 4800 / **5000** / 5400 / 6000 / 7200 / 7680 / 8000 / 8192 / 9000 / 10000

Other number of pulses on request

Preferably available versions are printed in bold type

NUMBER OF PULSES RI58-T

4 / 5 / 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / 230 / **250** / 256 / 300 / 314 / 360 / 375 / 400 / 480 / **500** / 512 / 600 / 625 / 720 / 750 / 900 / **1000** / **1024** / 1200 / **1250** / 1500 / 1600 / 1800 / 2000 / 2048 / **2500**

Other number of pulses on request

Preferably available versions are printed in bold type

NUMBER OF PULSES RI58-C

3000 / 3480 / **3600** / 3750 / 968 / 4000 / **4096** / 4800 / **5000** / 5400 / 6000 / 7200 / 7680 / 8000 / 8192 / 9000 / 10000

Other number of pulses on request

Preferably available versions are printed in bold type

TECHNICAL DATA mechanical

Housing diameter	58 mm
Shaft diameter ¹	6 mm / 6.35 mm / 7 mm / 8 mm / 9.52 mm / 10 mm / 12 mm (Solid shaft)
Flange (Mounting of housing)	Synchro flange, Clamping flange, Square flange, Synchro clamping flange
Protection class shaft input (EN 60529)	IP64 or IP67
Protection class housing (EN 60529)	IP65 or IP67
Shaft load axial / radial	Ø 6 mm / 6,35 mm: 20 N / 40 N Ø 7 ... 10 mm: 40 N / 60 N Ø 12 mm: 60 N / 80 N
Max. speed ²	max. 10.000 U/min
Starting torque typ.	≤ 0,5 Ncm ≤ 1 Ncm (IP67)
Moment of inertia	approx. 14 gcm ² (Synchro flange) approx. 20 gcm ² (Clamping flange)

¹ Other shaft diameters on request

² Higher values available upon request

Specifications subject to change without notice

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TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

**TECHNICAL DATA
mechanical (continued)**

Vibration resistance (DIN EN 60068-2-6)	100 m/s ² (10 - 2000 Hz)
Shock resistance (DIN EN 60068-2-27)	1000 m/s ² (6 ms)
Operating temperature	RI58-O: -10 °C ... +70 °C RI58-T: -40 °C ... +100 °C RI58-C: -40 °C ... +70 °C
Storage temperature ¹	-25 °C ... +85 °C
Material shaft	Stainless Steel
Material housing	Aluminum
Weight	approx. 360 g
Connection	PVC cable, axial or radial TPE cable, axial or radial M23 connector (Conin), axial or radial M16 (Binder), axial or radial M12 connector, axial or radial MS, axial or radial KPT connector radial

¹ due to packing

**TECHNICAL DATA
electrical**

General design	As per DIN EN 61010-1, protection class III, contamination level 2, overvoltage class II
Supply voltage ^{1,2}	RS422 + Sense (T): DC 5 V ±10 % RS422 + Alarm (R): ± 10% DC 5 V or DC 10 - 30 V Push-pull (K), Push-pull complementary (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} , \overline{Alarm} RS422 + Sense (T): A, B, N, \overline{A} , \overline{B} , \overline{N} , Sense Push-pull (K): A, B, N, \overline{Alarm} Push-pull complementary (I): A, B, N, \overline{A} , \overline{B} , \overline{N} , \overline{Alarm}
Pulse width error	± max. 25° electrical
Number of pulses	1 ... 10,000
Alarm output	NPN-O.C., max. 5 mA
Pulse shape	Square wave
Pulse duty factor	1:1

¹ Pole protection with supply voltage DC 10 - 30 V

²Wide range power supply DC 3 - 38 V available on request

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TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

ELECTRICAL CONNECTIONS Cable PVC (Connection codes A and B)

Cable PVC (A, B)	Output circuit			
	Colour	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)
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 5/10 - 30 V	DC 5/10 - 30 V
black	GND	GND	GND	GND
Cable screen ¹	Cable screen ¹		Cable screen ¹	Cable screen ¹

¹ connected with encoder housing

ELECTRICAL CONNECTIONS Cable TPE (Connection codes E and F)

Cable TPE (E, F)	Output circuit			
	Colour	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)
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	$\bar{A}larm$	$\bar{A}larm$	$\bar{A}larm$
blue	Sense V cc	Sense V cc		Sense V cc
brown/green	DC 5 V	DC 5/10 - 30 V	DC 5/10 - 30 V	DC 5/10 - 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

Specifications subject to change without notice

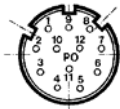
TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

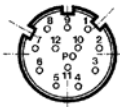
ELECTRICAL CONNECTIONS
M23 connector (Conin), 12 pole
(Connection codes C, D, G, H)

M12 connector, 8 pole
(Connection codes 7 and 8)

Pin-Adjustment
M23, cw



Pin-Adjustment
M23, ccw



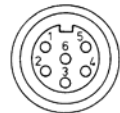
Pin M23, 12 pole	Pin M12, 8 pole	RS422 + Sense (T)	RS422 + Alarm (R)	push-pull (K)	push-pull complementary (I)
1	6	Channel \bar{B}	Channel \bar{B}	N.C.	Channel \bar{B}
2		Sense V_{cc}	Sense V_{cc}	N.C.	Sense V_{cc}
3	7	Channel N	Channel N	Channel N	Channel N
4	8	Channel \bar{N}	Channel \bar{N}	N.C.	Channel \bar{N}
5	3	Channel A	Channel A	Channel A	Channel A
6	4	Channel \bar{A}	Channel \bar{A}	N.C.	Channel \bar{A}
7		N.C.	$\bar{A}larm$	$\bar{A}larm$	$\bar{A}larm$
8	5	Channel B	Channel B	Channel B	Channel B
9		N.C. ¹	N.C. ¹	N.C. ¹	N.C. ¹
10	1	GND	GND	GND	GND
11		Sense GND	N.C.	N.C.	N.C.
12	2	DC 5 V	DC 5 V / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V

¹ screen for cable with CONIN connector

ELECTRICAL CONNECTIONS
KPT connector, 8 pole
(Connection code 2)

M16 connector (Binder), 6 pole
(Connection codes J and N)

Pin KPT, 8 pole	RS422 + Alarm (R)	push-pull (K)	push-pull complementary (I)	Pin M16, 6 pole	push-pull (K)
A	Channel B	Channel B	Channel B	1	DC 10 - 30 V
B	Channel \bar{B}		Channel \bar{B}	2	Channel A
C	Channel \bar{A}		Channel \bar{A}	3	Channel N
D	Channel A	Channel A	Channel A	4	Channel B
E	DC 5 V / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V	5	$\bar{A}larm$
F	GND	GND	GND	6	GND
G	Channel N	Channel N	Channel N		
H	Channel \bar{N}	$\bar{A}larm$	Channel \bar{N}		



ELECTRICAL CONNECTIONS
MS connector, 10 pole, Euro-pinout
(Connection codes O and K)

MS connector, 7 pole
(Connection codes P and L)

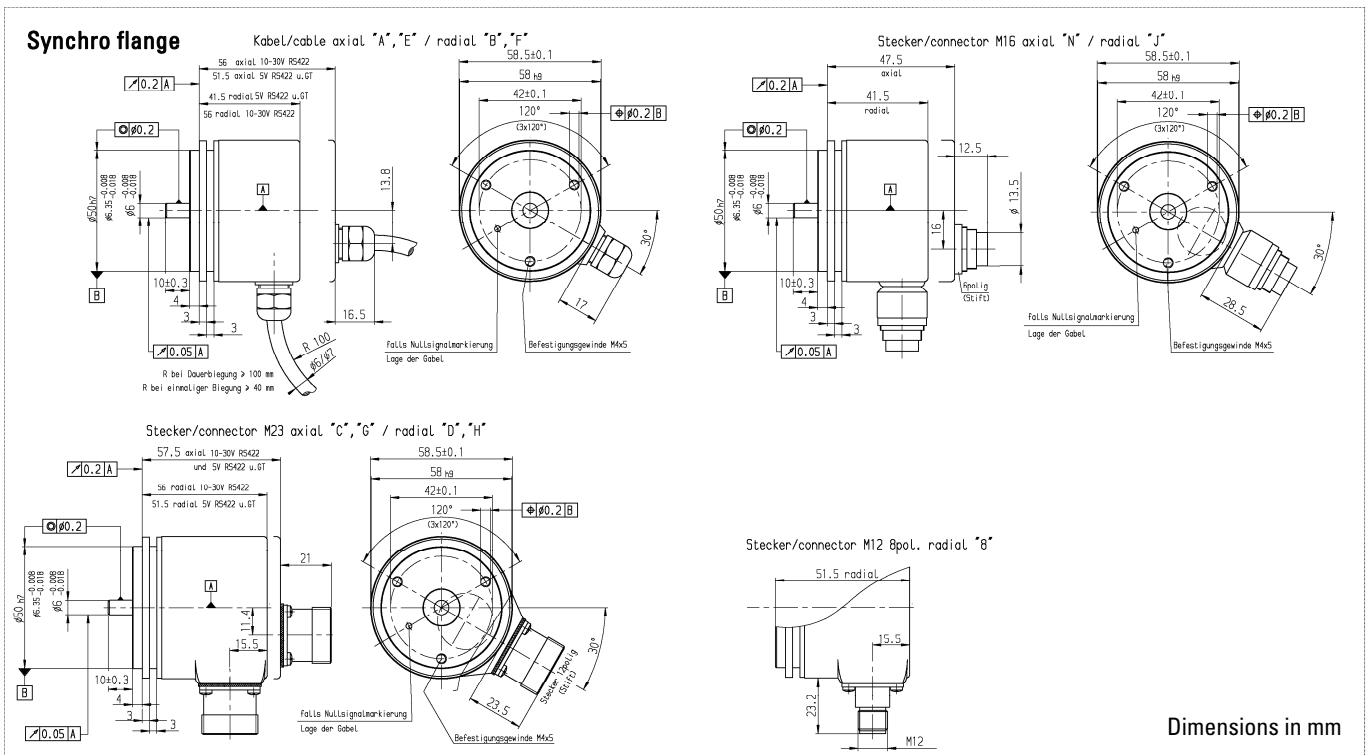
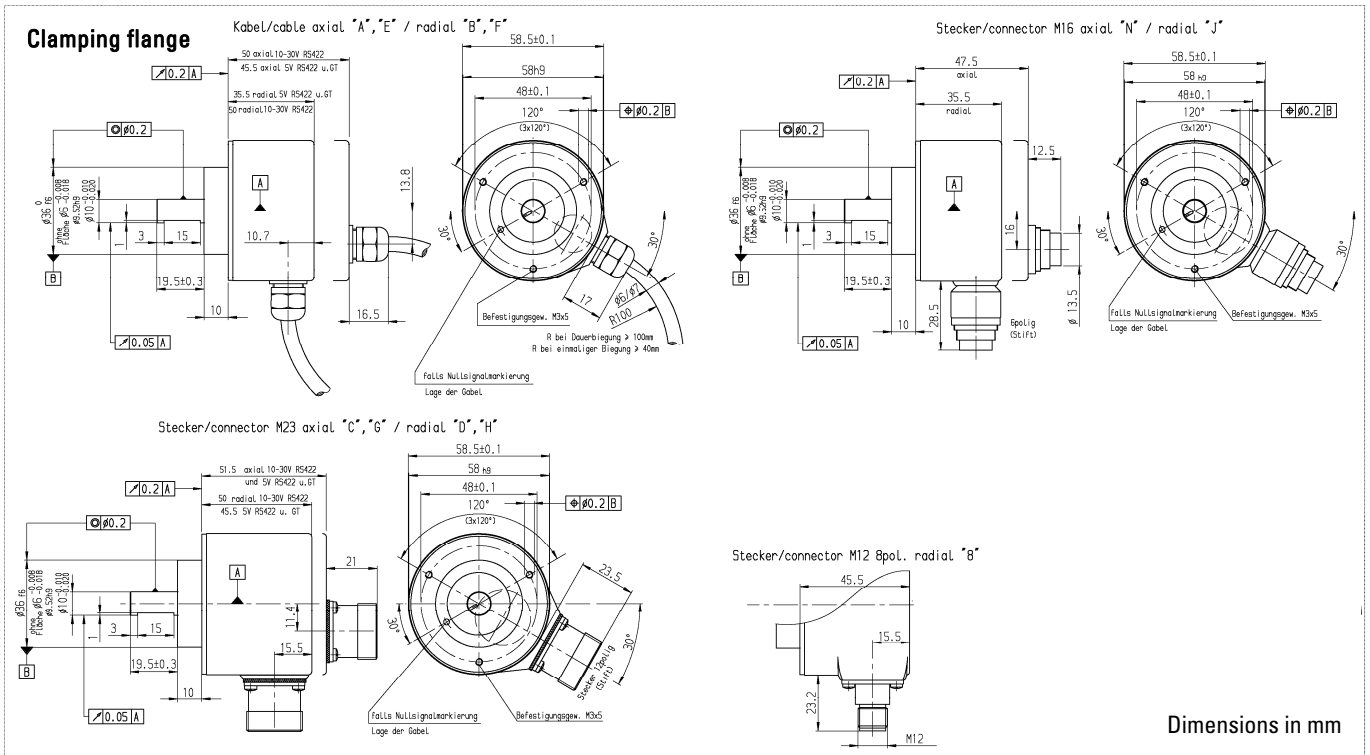
Pin 10 pole	Pin 7 pole	Description RS422 (R)	push-pull (K)	push-pull complementary (I)
1/A	1/A	Channel A	Channel A	Channel A
2/B	2/B	Channel B	Channel B	Channel B
3/C	3/C	Channel N	Channel N	Channel N
4/D	4/D	DC 5 V / 10 - 30 V	DC 10 - 30 V	DC 10 - 30 V
5/E	5/E	$\bar{A}larm$	$\bar{A}larm$	$\bar{A}larm$
6/F	6/F	GND	GND	GND
7/G		Channel \bar{A}	screen	Channel \bar{A}
8/H		Channel \bar{B}	N.C.	Channel \bar{B}
9/I		Channel \bar{N}	N.C.	Channel \bar{N}
10/J	7/G	Screen	Screen	screen

Specifications subject to change without notice

TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

DIMENSIONED DRAWINGS



Specifications subject to change without notice

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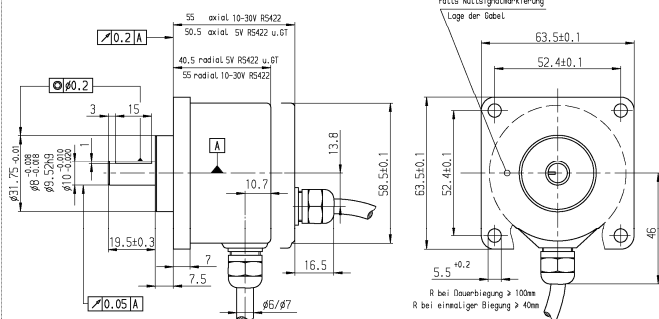
TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

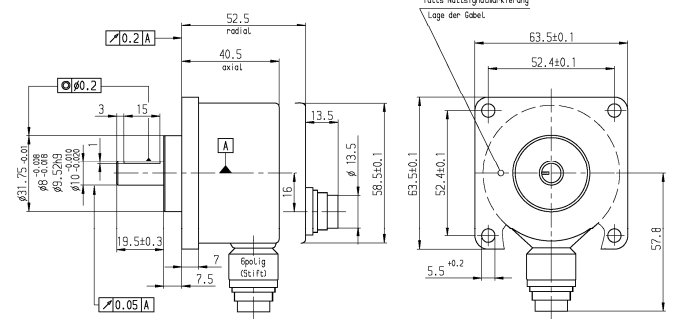
DIMENSIONED DRAWINGS (continued)

Square flange, 63,5 mm x 63,5 mm (2,5" x 2,5')

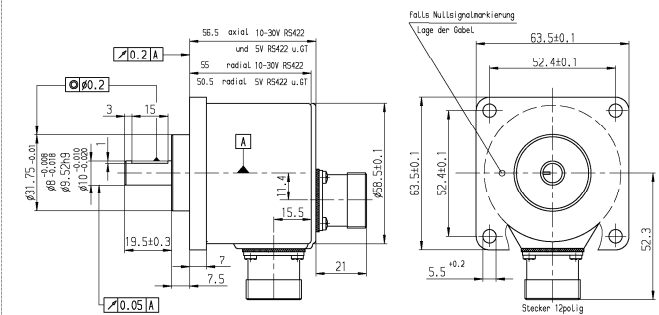
Kabel/cable axial "A", "E" / radial "B", "F"



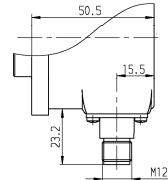
Stecker/connector M16 axial "N" / radial "J"



Stecker/connector M23 axial "C", "G" / radial "D", "H"

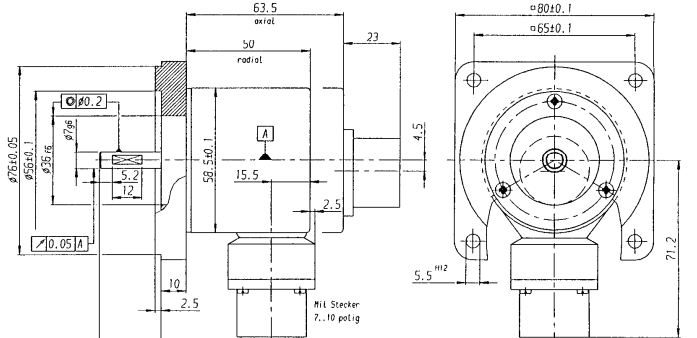
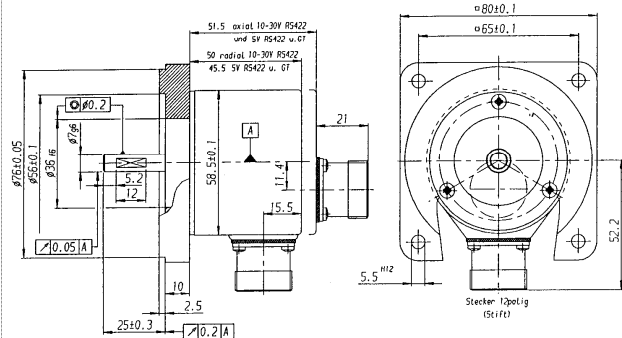
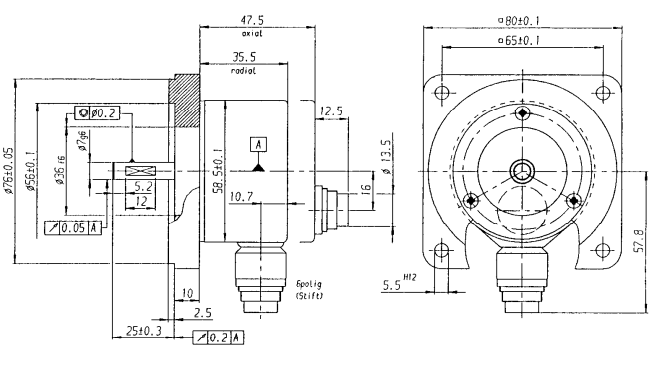
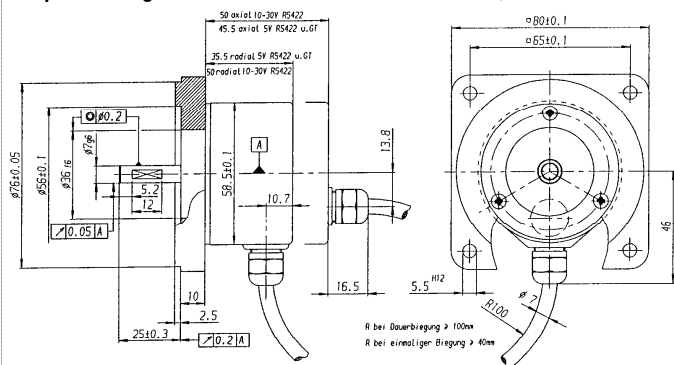


Stecker/connector M12 8pol. radial "8"



Dimensions in mm

Square flange 80 x 80 mm



Dimensions in mm

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TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

ORDERING INFORMATION

Type	Number of pulses	Supply voltage ¹	Flange, Protection, Shaft ³	Output ⁴	Connection ^{5,6}
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI58-O RI58-T* RI58-C*	RI 58-O: 1 ... 10000 RI 58-T: 4 ... 2500 RI 58-C: >2500 ... 10000	A DC 5 V E DC 10 - 30 V H DC 3 - 38 V ²	S.41 Synchro, IP65 ⁷ , 6 mm S.45 Synchro, IP65 ⁷ , 6,35 mm S.71 Synchro, IP67, 6 mm S.75 Synchro, IP67, 6,35 mm K.41 Clamping M3, IP65 ⁷ , 6 mm K.48 Clamping M3, IP65 ⁷ , 6x19,5 mm L.48 Clamping M4, IP65 ⁷ , 6x19,5 mm K.4C Clamping M3, IP65 ⁷ , 8 mm K.42 Clamping M3, IP65 ⁷ , 10 mm L.42 Clamping M4, IP65 ⁷ , 10 mm L.72 Clamping M4, IP67, 10 mm K.47 Clamping M3, IP65 ⁷ , 12 mm K.43 Clamping M3, IP65 ⁷ , 7 mm K.46 Clamping M3, IP65 ⁷ , 9,52 mm K.72 Clamping M3, IP67, 10 mm K.76 Clamping M3, IP67, 9,52 mm M.46 Syn.clamping, IP65 ⁷ , 9,52 mm M.76 Syn.clamping, IP67, 9,52 mm Q.4C Square, IP65 ⁷ , 8 mm Q.46 Square, IP65 ⁷ , 9,52 mm Q.42 Square, IP65 ⁷ , 10 mm Q.76 Square, IP67, 9,52 mm Q.72 Square, IP67, 10 mm G.43 Square80x80, IP65 ⁷ , 7 mm	R RS422 + Alarm T RS422 + Sense K Push-pull I Push-pull complementary	A PVC-cable, axial B PVC-cable, radial E TPE-cable, axial F TPE-cable, radial C M23 connector (Conin), 12 pole, axial, cw D M23 connector (Conin), 12 pole, radial, cw G M23 connector (Conin), 12-pole, axial, ccw H M23 connector (Conin), 12 pole, radial, ccw 7 M12 connector, 8 pole, axial 8 M12 connector, 8 pole, radial J M16 connector (Binder), 6 pole, radial N M16 connector (Binder), 6 pole, axial O MS connector, 10 pole (Insert arrangement 18-1), axial K MS connector, 10 pole (Insert arrangement 18-1), radial P MS connector, 7 pole (Insert arrangement 16-S), axial L MS connector, 7 pole (Insert arrangement 16-S), radial 2 KPT connector, 8 pole, radial

¹ DC 10 - 30 V available with output K, I, R/ DC 5 V available with output R, T

² Wide range power supply DC 3 - 38 V with output K, I, R available on request

³ other flange versions can be realized by combination of clamping flange + flange adapter (see Accessories), e.g. RI58 with synchro flange and 10 mm-shaft: version clamping flange with 10 mm shaft + synchro flange adapter (1 522 328)

⁴ Output code "K" and "I": short-circuit-proof

⁵ Connection code "O", "K": according to MIL-C-5015

⁶ IP67 on cover with connector only if IP67 mating connector mounted properly.

⁷ Protection class shaft input (EN 60529) IP64

*RI58-T and RI58-C not available with connection code "A" and "B"

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	Code	Cable length
without Code	1,5 m	-U0	20 m
-D0	3 m	-V0	25 m
-F0	5 m	-W0	30 m
-K0	10 m	-X0	40 m
-P0	15 m	-Y0	50 m

Example: Cable 3 m length: ... B - D0

Example: Cable mit 3 m length and M23 connector, cw: ... F - D0 - I

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TECHNICAL DATASHEET

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Accessories

FLEXIBLE COUPLINGS



Bellows coupling



Disk coupling



Isolated disk coupling



Helical coupling



Plastic coupling

	Hub diameter d1/d2	Ordering code
Bellows coupling	12 mm / 12 mm	0 070 666
Bellows coupling	10 mm / 10 mm	3 520 037
Bellows coupling	9.53 mm / 9.53 mm	3 520 038
Bellows coupling	6 mm / 6 mm	3 520 068
Bellows coupling	8 mm / 10 mm	3 520 077
Disk coupling	6 mm / 6 mm	0 070 663
Helical coupling 19/28	6 mm / 6 mm	0 070 653
Helical coupling 19/28	6.35 mm / 6.35 mm	3 520 057
Helical coupling 25/32	6 mm / 9.53 mm	3 520 052
Helical coupling 25/32	6 mm / 10 mm	3 520 066
Helical coupling 25/32	6.35 mm / 9.52 mm	3 520 062
Helical coupling 25/32	10 mm / 12 mm	3 520 065
Helical coupling 25/32	10 mm / 10 mm	3 520 074
Isolated disk coupling	6 mm / 6 mm	3 520 081
Isolated disk coupling	6 mm / 10 mm	3 520 082
Isolated disk coupling	6 mm / 9.53 mm	3 520 084
Isolated disk coupling	6.35 mm / 6.35 mm	3 520 085
Isolated disk coupling	7 mm / 7 mm	3 520 086
Isolated disk coupling	10 mm / 10 mm	3 520 088
Plastic coupling	5 mm / 6 mm	3 520 033
Plastic coupling	6 mm / 6 mm	1 761 026
Plastic coupling	5 mm / 5 mm	3 520 034

MOUNTING

	Ordering code
Fastening angle (plastic), for clamping flange RI 58, AC 58 (fastening material included)	1 522 329
Mounting bell (plastic), for synchro flange RI 58, AC 58 (clamping eccentric and fastening material included)	1 522 330
Square flange adapter 58 x 58 mm, for clamping flange RI 58, AC 58 (fastening material included)	1 522 326
Square flange adapter 80 x 80 mm, for clamping flange RI 58, AC 58 (fastening material included)	1 522 327
Synchro flange adapter , for clamping flange RI 58, AC 58 (fastening material included)	1 522 328
Clamping eccentric for synchro flange, d6,5 for M3 (set of three)	0 070 655
Clamping eccentric for synchro flange, d9 for M3 (set of three)	0 070 657
Clamping eccentric for synchro flange for M4 (set of three)	1 522 300
Spring arm for clamping flange RI58, AC58	1 522 912
Mounting bracket spring loaded	1 522 883

Specifications subject to change without notice

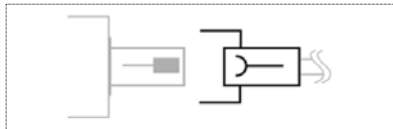
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TECHNICAL DATASHEET

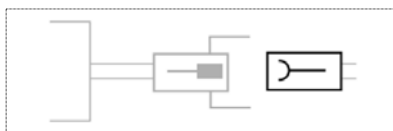
Incremental Encoder RI 58-O / RI 58-T / RI58-C

Accessories

CONNECTORS



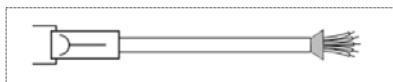
CONNECTORS



CONNECTORS



CONNECTING CABLES



Connector (socket) matching with encoder connector	Ordering code
M16 (Binder), 6 pole, bent, IP40, mating connector for connection J/N	3 539 209
M16 (Binder), 6 pole, straight, IP67, mating connector for connection J/N	3 539 472
M23 (Conin), 12 pole, PG9, cw, mating connector for connection C/D/-I	3 539 202
MS, 10 pole, mating connector for connection K/O/R/T	3 539 258
MS, 7 pole, mating connector for connection L/P	3 539 262
PT, 8 pole, mating connector for connection 1/2	3 539 333

Coupling (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, cw, mating connector for connection -C (cable plug 3 539 186)	3 539 187
M23 (VDW), 12 pole, cw, mating connector for connection -B (cable plug 3 539 252)	3 539 304

Connector (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, cw, mating connector for connection -C (cable plug 3 539 186)	3 539 229
M23 (VDW), 12 pole, cw, mating connector for connection -B (cable plug 3 539 252)	3 539 305

Connecting cables with plug (socket) on one end	Ordering code
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 3 m	1 522 405
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 5 m	1 522 404
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 10 m	1 522 340
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 15 m	1 522 833
M16 (Binder), 6 pole, PVC cable, mating connector for connection J/N, 50 m	1 522 836
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 3 m	1 522 348
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 5 m	1 522 349
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 10 m	1 522 350
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 15 m	1 522 454
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 20 m	1 522 456
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 25 m	1 522 457
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 30 m	1 522 464
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 40 m	1 522 643

Specifications subject to change without notice

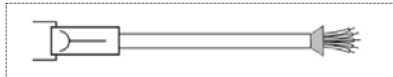
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TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

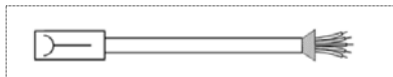
Accessories

CONNECTING CABLES (continued)



Connecting cables with plug (socket) on one end	Ordering code
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 50 m	1 522 793
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 3 m	1 522 394
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 5 m	1 522 395
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 10 m	1 522 396
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 15 m	1 522 447
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 20 m	1 522 461
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 25 m	1 522 462
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 30 m	1 522 463
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 40 m	1 522 779
MS, 10 pole, TPE cable, mating connector for connection O/K, 3 m	1 522 610
MS, 10 pole, TPE cable, mating connector for connection O/K, 5 m	1 522 754

CONNECTING CABLES



Connecting cables with coupling (socket) on one end	Ordering code
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection -C, 10 m	1 522 735
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection -C, 20 m	1 522 621

CONNECTING CABLES

Cable not made up with connectors	Ordering code
PVC cable, 10-core + screen	3 280 114 + length
PVC cable, 6-core + screen	3 280 113 + length
TPE cable, 12-core + screen	3 280 112 + length

COUNTERS

Counters	Art.-Nr.
Multifunctional counter tico 732	www.hengstler.com
Multifunctional counter tico 772	www.hengstler.com

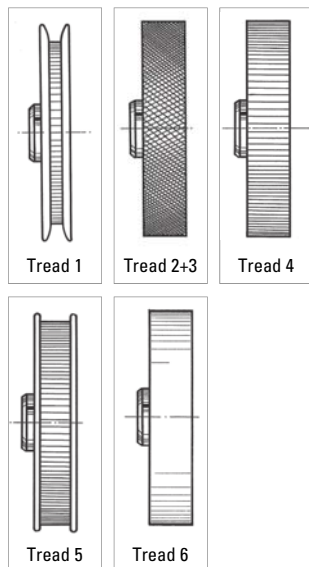
Specifications subject to change without notice

TECHNICAL DATASHEET

Incremental Encoder RI 58-O / RI 58-T / RI58-C

Accessories

MEASURING WHEELS



ORDERING INFORMATION Aluminum

Tread 1 with rim and fine crosshatched knurl Applications such as threads and yarns
Tread 2 with glued-on rubber profile (white), low-wear rubber surface with good grip. Applications such as paper and cardboard, measuring cables, non-greasy metals, fleece, undressed or surface-treated wood, soft and hard plastics
Tread 3 vulcanized rubber surface with parallel knurl Applications such as rubber, leather, fabrics, flooring and glass
Tread 4 Aluminum with parallel knurl Applications such as rubber, soft plastics, wood with rough surface, and to a limited extent for fabrics
Tread 5 with rim, aluminum with parallel knurl Applications such as threads, yarns and bands
Tread 6 plastic surface Applications such as wire, greasy metals and steel sections

Diameter	Circumference	Tread	Width of bearing surface (mm)	Bore diameter (mm)	Ordering code
6,37cm	0,2 m	1	4	7 H7	0 601 017
6,37cm	0,2 m	2	12	6 H7	0 601 048
6,37cm	0,2 m	2	12	10 H7	0 601 049
6,37cm	0,2 m	2	24	7 H7	0 601 092
6,37cm	0,2 m	2	24	7 H7	0 601 192
6,37cm	0,2 m	4	20,5	7 H9	0 601 093
6,37cm	0,2 m	5	16,5	7 H7	0 601 094
15,92 cm	0,5 m	2	25	7 H7	0 601 050
15,92 cm	0,5 m	2	25	7 H7	0 601 150
15,92 cm	0,5 m	2	25	10 H7	0 601 151
15,92 cm	0,5 m	3	25	7 H7	0 601 160
15,92 cm	0,5 m	3	25	10 H7	0 601 161
15,92 cm	0,5 m	3	25	12 H7	0 601 166
15,92 cm	0,5 m	4	25	7 H7	0 601 121 ¹
15,92 cm	0,5 m	4	25	10 H7	0 601 157
15,92 cm	0,5 m	6	25	7 H7	0 601 063 ¹
15,92 cm	0,5 m	6	25	10 H7	0 601 163
15,92 cm	0,5 m	6	25	12 H7	0 601 165
9,70 cm	1 Fuß	2	25	7 H7	0 601 171
15,92 cm	0,5 m	4	25	7 H8	0 601 301
15,92 cm	0,5 m	6	25	7 H8	0 601 300

¹ complies with PTB requirements

Specifications subject to change without notice

Data sheet created	© Hengstler GmbH Umlandstr. 49 D-78554 Aldingen/ Germany	Page
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TECHNICAL DATASHEET

Incremental Encoder RI 58-H



- Through hollow shaft
- High accuracy by means of integrated flexible coupling
- Safe shaft mounting
- Applications: textile machines, motors, drives, copiers



NUMBER OF PULSES

1 / 2 / 3 / 4 / 5 / 10 / 15 / 20 / 25 / 30 / 35 / 40 / 45 / 50 / 60 / 64 / 70 / 72 / 80 / **100** / 125 / 128 / 144 / 150 / 180 / 200 / **250** / 256 / 300 / 314 / 350 / 360 / 375 / 400 / 460 / 480 / **500** / 512 / 600 / 625 / 720 / 900 / **1000** / **1024** / **1250** / 1500 / 1600 / 1800 / 2000 / 2048 / **2500** / 3000 / 3480 / **3600** / 4000 / **4096** / **5000**

Other number of pulses on request

Preferably available versions are printed in bold type.

TECHNICAL DATA mechanical

Housing diameter	58 mm
Shaft diameter	10 mm / 12 mm (Hubshaft)
Flange (Mounting of housing)	Synchro flange
Protection class shaft input (EN 60529)	IP64
Protection class housing (EN 60529)	IP64
Shaft tolerance	Ø 10 mm, tolerance g8 (-0.005 ... -0.027 mm), Ø 12 mm, tolerance g8 (-0.006 ... -0.033 mm)
Axial endplay of mounting shaft (hubshaft)	± 0.4 mm
Parallel endplay of mounting shaft	0.4 mm
Angular endplay of mounting shaft	1 °
Max. speed	max. 3000 rpm
Starting torque typ.	≤ 2 Ncm
Moment of inertia	approx. 65 gcm ² (10 mm shaft) approx. 95 gcm ² (12 mm shaft)
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	-10 °C ... +70 °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)

TECHNICAL DATASHEET

Incremental Encoder RI 58-H

TECHNICAL DATA
electrical (continued)

Max. pulse frequency	RS422: 300 kHz Push-pull: 200 kHz
Standard output versions	RS422 + Alarm (R): A, B, N, \bar{A} , \bar{B} , \bar{N} , \overline{Alarm} RS422 + Sense (T): A, B, N, \bar{A} , \bar{B} , \bar{N} , Sense Push-pull (K): A, B, N, \overline{Alarm} Push-pull complementary (I): A, B, N, \bar{A} , \bar{B} , \bar{N} , \overline{Alarm}
Pulse width error	\pm max. 25° electrical
Number of pulses	1 ... 5000
Pulse shape	Square wave
Pulse duty factor	1:1

¹ Pole protection with supply voltage DC 10 - 30 V

ELECTRICAL CONNECTIONS
Cable PVC

Connecting cable Colour	Lead \square	Output RS422 T and R	push-pull K and I
red	0.5 mm ²	DC 5/10 - 30 V	DC 10 - 30 V
red/yellow	0.14 mm ²	Sense VCC	Sense VCC
white	0.14 mm ²	Channel A	Channel A
white	0.14 mm ²	Channel \bar{A}	Channel \bar{A} ¹
green/brown	0.14 mm ²	Channel B	Channel B
green/brown	0.14 mm ²	Channel \bar{B}	Channel \bar{B} ¹
yellow	0.14 mm ²	Channel N	Channel N
yellow/brown	0.14 mm ²	Channel \bar{N}	Channel \bar{N} ¹
black	0.5mm ²	GND	GND
black/yellow	0.14 mm ²	$\overline{Alarm/Sense}$ GND ²	\overline{Alarm}
screen ³		screen ³	screen ³

¹ only push-pull complementary (I)

² depending on ordering code

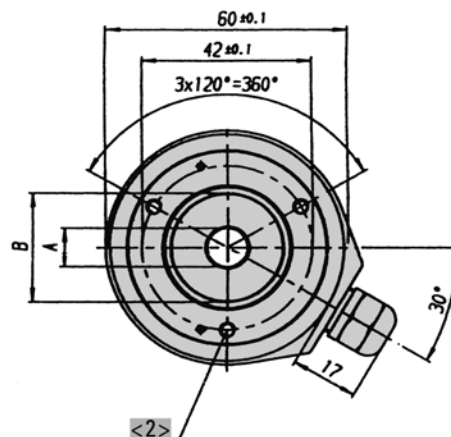
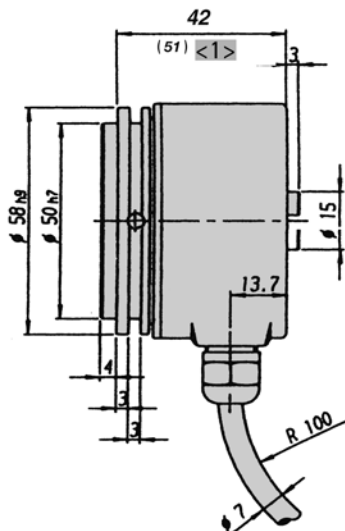
³ connected with encoder housing

TECHNICAL DATASHEET

Incremental Encoder RI 58-H

DIMENSIONED DRAWINGS

Synchro flange



Required dimension of mounting shaft (g8)	Hollow shaft Ø (A)	B	Unit
-0.005 ... -0.027	10 *	28	mm
-0.006 ... -0.033	12 *	33	mm

* Tolerance H7 = 0 ... +0.018 mm

<1> value in brackets with version DC 10 - 30 V, RS422

<2> mounting thread M4x5

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	Output	Connection
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RI58-H	1 ... 5000	A DC 5 V E DC 10 - 30 V	S.32 Synchro, IP64, 10 mm S.37 Synchro, IP64, 12 mm	R RS422 +Alarm T RS422 +Sense K Push-pull I Push-pull complementary	B PVC cable, radial

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

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

TECHNICAL DATASHEET

Incremental Encoder RI 58-H

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

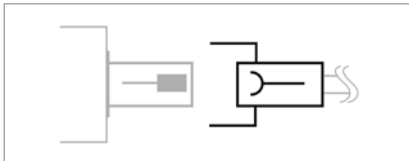
TECHNICAL DATASHEET

Incremental Encoder RI 58-H Accessories

MOUNTING

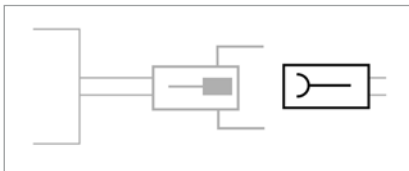
	Ordering code
Clamping eccentric for synchro flange, d6,5 for M3 (set of three)	0 070 655
Hubshaft with tether as stator coupling	1 531 162

CONNECTORS



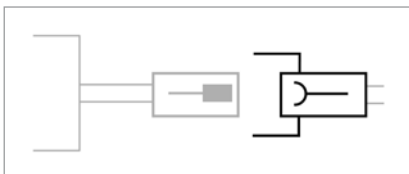
Connector (socket) matching with encoder connector	Ordering code
M23 (Conin), 12 pole, PG9, cw, mating connector for connection C/D/-I	3 539 202

CONNECTORS



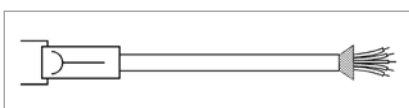
Coupling (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, cw, mating connector for connection -C (cable plug 3 539 186)	3 539 187
M23 (VDW), 12 pole, cw, mating connector for connection -B (cable plug 3 539 252)	3 539 304

CONNECTORS



Connector (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, ccw, mating connector for connection G/H/-D/-H	3 539 229
M23 (VDW), 12 pole, ccw, mating connector for connection -E (cable plug 3 539 274)	3 539 305

CONNECTING CABLES



Connecting cables with plug (socket) on one end	Ordering code
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 3 m	1 522 348
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 5 m	1 522 349
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 10 m	1 522 350
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 15 m	1 522 454
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 20 m	1 522 456
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 25 m	1 522 457
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 30 m	1 522 464
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 40 m	1 522 643
M23 (Conin), 12 pole, TPE cable, cw, mating connector for connection C/D/-I, 50 m	1 522 793

TECHNICAL DATASHEET

**Incremental Encoder RI 58-H
Accessories**

CONNECTING CABLES (continued)

Connecting cables with plug (socket) on one end	Ordering code
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 3 m	1 522 394
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 5 m	1 522 395
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 10 m	1 522 396
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 15 m	1 522 447
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 20 m	1 522 461
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 25 m	1 522 462
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 30 m	1 522 463
M23 (Conin), 12 pole, TPE cable, ccw, mating connector for connection G/H/-D/-H, 40 m	1 522 463

CONNECTING CABLES

Cable not made up with connectors	Ordering code
PVC cable, 10-core + screen	3 280 114 + length
PVC cable, 6-core + screen	3 280 113 + length
TPE cable, 12-core + screen	3 280 112 + length