

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 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)	Output circuit			
Colour	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

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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 complemen- tary (I)
brown	Channel A	Channel A	Channel A	Channel A
green	Channel \overline{A}	Channel \overline{A}		Channel \overline{A}
grey	Channel B	Channel B	Channel B	Channel B
pink	Channel \overline{B}	Channel \overline{B}		Channel \overline{B}
red	Channel N	Channel N	Channel N	Channel N
black	Channel \overline{N}	Channel \overline{N}		Channel \overline{N}
violet (white) ¹	Sense GND	\overline{Alarm}	\overline{Alarm}	\overline{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
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

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 complemen- tary (I)
1	6	Channel \overline{B}	Channel \overline{B}	N.C.	Channel \overline{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 \overline{N}	Channel \overline{N}	N.C.	Channel \overline{N}
5	3	Channel A	Channel A	Channel A	Channel A
6	4	Channel \overline{A}	Channel \overline{A}	N.C.	Channel \overline{A}
7		N.C.	\overline{Alarm}	\overline{Alarm}	\overline{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

Irrtümer und Änderungen vorbehalten

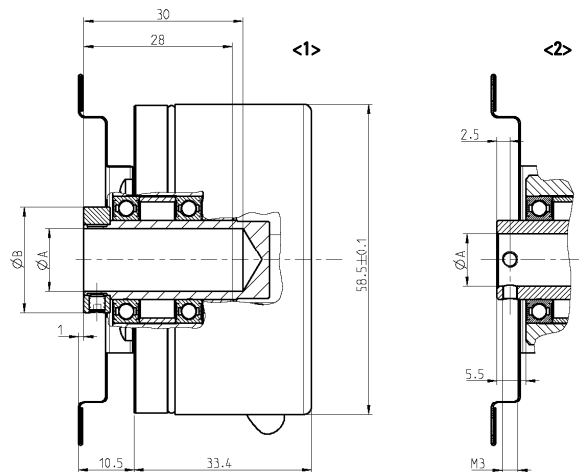
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DIMENSIONED DRAWINGS

Mounting F: Hubshaft



Dim.	Hollow shaft-Ø			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	

E_{max}		A
$A^* = \text{Diameter of connection shaft}$		

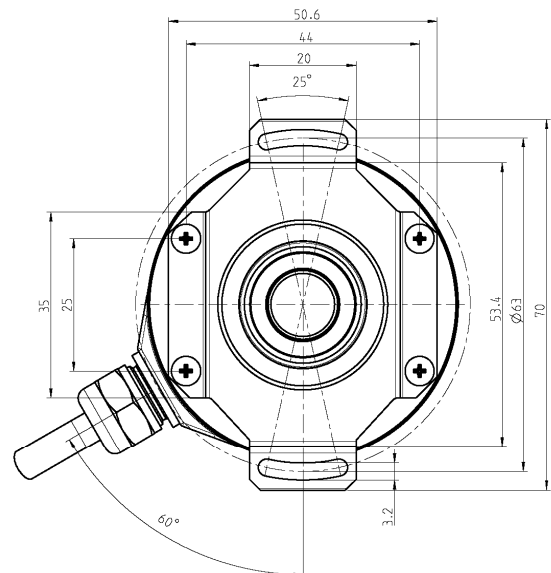
L = Length of connection shaft

<1> Ø A > 10 mm

<2> $\emptyset A \leq 10 \text{ mm}$

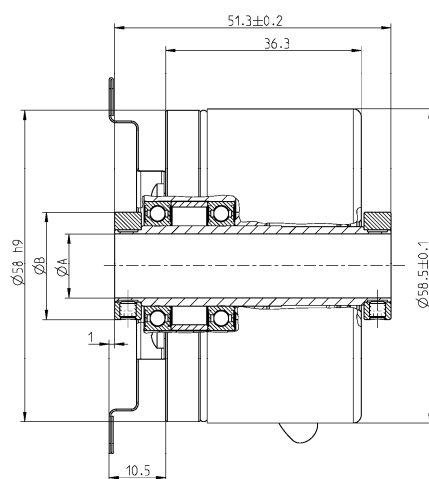
Cable bending radius R for flexible installation ≥ 100 mm

Cable bending radius R for fixed installation ≥ 40 mm



Dimensions in mm

Mounting B: Through hollow shaft



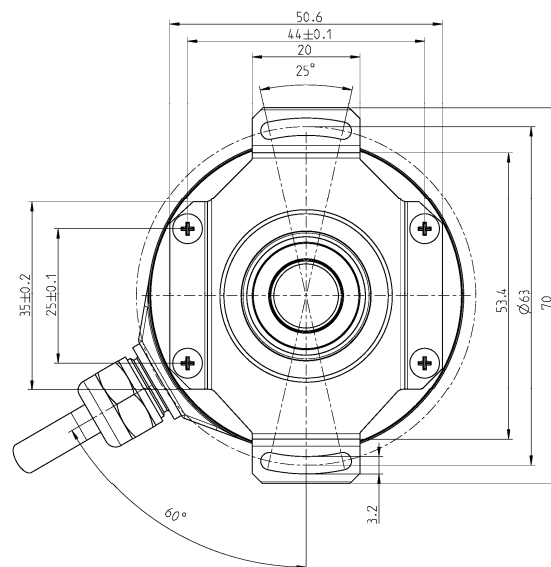
Dim.	Hollow shaft-Ø		Unit
A	10 ^{+0,012}	12 ^{-0,012}	mm
A*	10 _{q7}	12 _{q7}	mm
B		20	mm

A* = Diameter of connection shaft

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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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

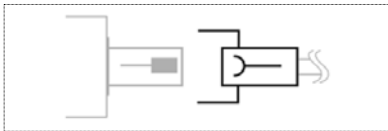
Example: Cable mit 3 m length and M23 connector, cw: ... F - D0 - I

Irrtümer und Änderungen vorbehalten

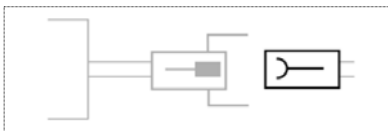
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TECHNICAL DATASHEET
Incremental Encoder RI58-F / RI58TF / RI58CF
Accessories
BEFESTIGUNGSELEMENTE

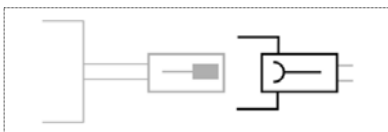
	Ordering code
Torque support	1 531 188

CONNECTORS


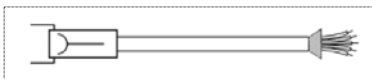
Connector (socket) matching with encoder connector	Ordering code
M16 (Binder), 6 pole, bent, IP40, mating connector for connection J/N	3 539 209
M16 (Binder), 6 pole, straight, IP67, mating connector for connection J/N	3 539 472
M23 (Conin), 12 pole, PG9, cw, mating connector for connection C/D/-I	3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

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


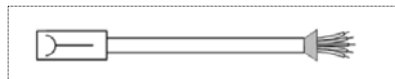
Connector (socket) matching with encoder cable with connector	Ordering code
M23 (Conin), 12 pole, ccw, mating connector for connection G/H/-D/-H	3 539 229
M23 (VDW), 12 pole, ccw, mating connector for connection -E (cable plug 3 539 274)	3 539 305

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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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

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