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PROXIMON

Incremental Shaft Encoder

TYPE	RI 58	RI 58 - H	RI 58 - D
			
Special Features	▪ universal industrial encoder ▪ up to 40,000 steps with 10,000 pulses high signal accuracy ▪ protection class upto IP 67 ▪ operating temperature up to 100°C ▪ flexible due to many flange and connector variants ▪ suitable for high shock loads ▪ applications e.g. machine tools, CNC axels, packaging machinery, motors, drivers, injection moulding machines, sawing machines, textile machinery	▪ through hollow shaft ▪ high accuracy due to integrated coupling ▪ secure shaft mounting ▪ applications, e.g. textile machinery, motors, drives, copiers	▪ direct mounting without coupling ▪ flexible hollow shaft concept up to 14mm ▪ through hollow shaft or as end shaft (blind shaft) ▪ simple installation with clampi ring or fixing screws ▪ short mounting depth of only 33 mm upto 100°C ▪ applications, e.g. positioning drives, length measuring machines, motors
Number of pulses	1…10000	1…5000	1…5000

Technical Data – mechanical

Flange	S = synchro flange, K = clamping flange, G.Q.=square flange, M=synchro clamping flange,	S = Synchro flange	E=synchro flange with blind shaf F,D,H=synchro flange with clamping shaft
Shaft diameter	6mm/6.35mm/7mm/10mm /9.52mm/12mm	Hollow shaft 10mm/12mm	Hollow shaft 10mm/12mm/14mn
Absolute max. shaft load radial/axial	Ø12mm -----180/140N(39/30 lbs) Ø7...10mm -160/107N(35/24 Ibs) Ø6mm/6.35mm-110/60N(24/13 Ibs)	Misalignment axial±0.4mm Misalignment parallel0.4mm Misalignment angular I°	
Absolute max. speed	10,000 RPM	3000 RPM	6000 RPM
Torque	≤0.5 N cm	≤2 Ncm	≤1.7 Ncm
Protection class Housing/ Bearing	IP 40/50, 65/64, 67/67	IP 64/64	IP 65/64
General design	as per DIN VDE 0160, protection class III	as per DIN VDE 0160, protection class III	as per DIN VDE 0160, protection class III
Operating temperature	RI58-0:-10..+70°C/ RI58-T:-25..+100°C	-10..+70°C	10..+70°C(Option: -25..+100°C)
Connection	Cable or connector axial/radial	Cable radial	Cable or connector axial/radial
Size	Ø 58 mm, square flange=63.5mm/80mm	Ø 58 mm	Ø 58 mm
Weight approx.	3OO g approx	21O g approx	17O g approx

Technical Data – electrical

Output	RS 422/push-pull/push-pull complementary	RS 422/push-pull/push-pull complementary	RS 422/push-pull/push-pull complementary
Supply Voltage (SELV)	5 VDC/10...30 VDC	5 VDC/10...30 VDC	5 VDC/10...30 VDC
Max. intrinsic power Consumption	40 mA (5 VDC), 30 mA (24 VDC), 60mA (10 VDC)	40 mA (5 VDC), 30 mA (24 VDC), 60mA (10 VDC)	40 mA (5 VDC), 30 mA (24 VDC 60mA (10 VDC)
Max. pulse frequency	300 kHz (RS 422) 200 kHz (push-pull)	300 kHz (RS 422) 200 kHz (push-pull)	300 kHz (RS 422) 200 kHz (push-pull)
Output load	RS 422 :± 30mA push-pull with short circuit protection 30mA (10...30VDC) NPN-O.C. 5 mA	RS 422 :± 30mA push-pull with short circuit protection 30mA (10...30VDC) NPN-O.C. 5 mA	RS 422 :± 30mA push-pull with short circuit protection 30mA (10...30VDC) NPN-O.C. 5 mA
Alarm output			
Pulse shape	1:1	1:1	1:1
Pulse duty factor	± max. 25° electrical	± max. 25° electrical	± max. 25° electrical
Pulse width error			

Incremental Shaft Encoder

Examples for typical applications of incremental encoders:

- Franking machines
- Lens grinding machines
- Scattering machines
- Screwing machines
- Analysis devices
- Door closing devices for trains
- Plotters
- Tampon printing machine
- Labeling machines
- Drilling machines
- Desktop robots
- Testing machines for optical waveguides
- Ultrasonic welding
- x/y indication
- Mixing machines

RI 30	**RI 38**	**RI 59**	**RX 70- I**
			
• small encoder for industrial applications • low power consumption • high immunity to interference • cable lengths up to 100m • suitable for high pulse frequencies • high level of protection • applications, e.g. CNC machine centers, handling systems, motors, medical technology, textile machinery	• encoder for universal mounting due to front or rear fixing • long life due to ball bearing • low torque • applications e.g. small motors, laboratory devices, labeling devices, plotters, length measuring machines	• stainless steel encoder with high degree of protection • high corrosion resistance • suitable for use in food production • applications e.g. packaging machinery, filling plants, washing systems, mixing machines	• explosion-proof according to class II EEX d IIC T6 • highest operating safety • applications e.g. lacquering lines, surface processing machines, filling plants, mixing machines, silo systems
5... 1500	5... 1024	1 ...10000	1... 10000

Technical Data - mechanical

S = synchro flange, R= round flange	Q = square flange	Q = square flange	K = clamping flange
5mm 30 N/15 N (6.5/3.3 Ibs)	6mm 30 N/15N (6.5/3.3 Ibs)	9.52 rnm/IO mm 160/107 N (35/24 Ibs)	10mm 160/107 N (35/24 Ibs)
10,000 RPM ≤0.2Ncm IP 64/64 as per DIN VDE 0160, protection class III -10...+70°C Cable axial/radial Ø 30 mm	10,000 RPM ≤0.2Ncm IP 50/40 as per DIN VDE 0160, protection class III -10...+60'C Cable radial 39 x 39 mm	10,000 RFM ≤0.5Ncm IP 67/67 as per DIN VDE 0160, protection class III -10...+70°C Cable radial Ø 58 mm, square flange = 63.5 mm	6,000 RPM(T6), 10,000 RPM(T4) ≤ .5Ncm IP 65/64 as per DIN VDE 0160, protection class III -10...+40'C Cable axial Ø 70mm
60 g approx.	60 g approx.	620 g approx.	1400 g approx.

Technical Data – electrical

RS 422/push-pull/push-pull complementary 5 VDC/10...30 VDC 40 mA (5 VDC), 30 mA (24 VDC), 60mA (10 VDC) 300 kHz (RS 422) 200 kHz (push-pull) RS 422 :± 30mA push-pull with short circuit protection 30mA (10...30VDC)	RS 422/push-pull/push-pull complementary 5 VDC or 10...30 VDC 40 mA (5 VDC), 30 mA (24 VDC), 300 kHz (5 VDC) 200 kHz (10...30VDC) push-pull with short circuit protection 10mA (5 VDC), 30mA (10...30VDC)	RS 422/push-pull/ push-pull complementary 5 VDC/10...30 VDC 40 mA (5 VDC), 30 mA (24 VDC), 60mA (10 VDC) 300 kHz (RS 422) 200 kHz (push-pull) RS 422 :± 30mA push-pull with short circuit protection 30mA (10...30VDC)	RS 422/push-pull/push-pull complementary 5 VDC/10...30 VDC 40 mA (5 VDC), 30 mA (24 VDC), 60mA (10 VDC) 300 kHz (RS 422) 200 kHz (push-pull) RS 422 :± 30mA push-pull with short circuit protection 30mA (10...30VDC)
NPN-O.C. 5 mA 1:1 ± max. 25° electrical	NPN-O.C. 5 mA 1:1 ± max. 25° electrical	NPN-O.C. 5 mA 1:1 ± max. 25° electrical	NPN-O.C. 5 mA 1:1 ± max. 25° electrical

Absolute Shaft Encoder

Absolute shaft encoders, also known as shaft-angle encoders, are by no means used only to detect angular positions. They are also suitable for linear movements that can be converted into rotary movements by a toothed belt, drive pinion, or wire winch.
The special feature of absolute shaft encoders is that they assign a unique, digitally encoded signal to each individual measured increment. The method of transducing prevents erroneous readings, whether by a power failure, or by a transient malfunction. After the encoder is switched on again, or power is restored, the position can be read out. It is not necessary to move to a reference position, as it is for shaft encoders of the incremental type.

Examples of application for absolute encoders –

- overhead support robots
- cam controllers
- folding machines
- ventilation flaps
- injection moulding machines
- printing machines
- spinning machines
- packaging machinery
- high lift storage systems
- conveyor belts
- extruders
- stamping machines

Type	**I RA 58 with parallel interface**	**I RA 58 with SSI**	**I RX 70-S, M. P (EX)**
		 **New:** Version with Preset button	
Special features	•**New**:singleturn up to 14 Bit (RA 58-S) •multiturn up to 24 Bit (RA 58-M) •**New**: option stainless steel version RA 59 •as singleturn with 9... 14 Bit •short circuit proof Tristate outputs •Gray or binary code •encoder self monitoring	•**New**: singleturn up to 14 Bit (RA 58-S) •**New**: imiltitum up to 26 Bit (RA 58-M) •programmable version with 24 Bit (RA 58-P) •**New**: option stainless steel encoder RA 59 as singleturn with 9... 14 Bit •Gray or binary code •encoder self test •Ex-version see type RX 70 •New: version with preset button for Type RA 58-P	• ex-protection class EEX d IIC T6 • singleturn, multiturn or programmable multiturn • up to 4096 steps / 4096 revolutions •SSI • Profibus DP • InterBus (K2/K3) on request • programmable parameters and status bits for RX70-P
Physical resolution (actual resolution of code disc; in addition the required resolution can be reduced for RA 58-P by programming the encoder parameters)	**Singleturn**: 9,10,12,13, 14 Bit **Multiturn**: 4096 pulses /16 revolutions (16 Bit) 4096 pulses / 256 revolutions (20 Bit) 4096 pulses / 4096 revolutions (24 Bit)	**Singleturn)**: 9, 10, 12, 13, 14 Bit **Multiturn:** 4096 pulses / 4096 revolutions (24Bit) 8192 pulses / 4096 revolutions (25Bit) 16384 pulses / 4096 revolutions(26Bit)	**Singleturn**: 9, 10, 12 Bit **Multiturn;** 4096 pulses / 4096 revolutions (24 Bit)
Technical Data - mechanical			
Flange	S = Synchro flange, K = clamping flange	S = Synchro flange, K = clamping flange	K.= clamping flange
Shaft diameter	6mm(S),IOmm(K)	6mm(S),IOmm(K)	10 mm
Absolute max. shaft load radial/axial	Ø6mm -IIO/6ON(24/13 lbs) Ø 10mm -160/107 N (35/24 lbs)	Ø 6mm -I IO/6ON (24/13 Ibs) Ø 10mm -160/107 N (35/24 Ibs)	IOON/40N
Absolute max. speed	10,000 RPM, 6,000 RPM	10,000 RPM, 6,000 RPM	6,000 min (T6), 10,000 mm (T4)
Torque	≤0.5Ncm	≤ 0.5Ncm	≤ 0.5Ncm
Protection class (EN 60529)	Housing IP 65, Bearing IP 64	Housing IP 65, Bearing IP 64	Housing IP 65, Bearing IP 64
General design	as per DIN EN 61010, protection class III	as per DIN EN 61010, protection class III	as per DIN EN 61010, protection class III
Operating temperature	-25...+85'C	-25...+85°C, RA-58-P:-10...+60°C	-10...+40°C
Connection	Cable or connector axial/radial	Cable axial/radial, flange connector axial/radial, flange connector with preset button radial	Cable axial
Size	Ø 58 mm	Ø 58mm	Ø 70mm
Weight approx.	Singleturn 3OO g, Multiturn 350 g.	Singleturn 3OO g, Multiturn 350 g.	approx. 1400 g
Technical Data - electrical			
Output	push-pull	RS485	RS485
Supply voltage (SELV)	5 VDC only for single-turn /10..30VDC	5VDC/10...30VDC	10...30VDC
Max. power consumption	0.6 A (9... 14 Bit); 0.9 A (16...24 Bit)	0.3 A (5 VDC); 0.2 A (10...30 VDC)	0.2 A
Baud rate	max. 100 kHz code switching frequency	SSI 70 KB... 1.5 MB	70KB....1.5MB
Type of code	Binary, Gray, Gray Excess	Binary, Gray	Binary, Gray
Alarm output (Encoder self test)	NPN-O.C. 5mA, Alarm bit	NPN-O.C. 5mA, Alarm bit	Alarm bit
Linearity	± $^1/_2$LSB, else with 13, 14 Bit ± ILSB	± $^1/_2$ LSB,(± ILSB with 25,26 Bit)	+ $^1/_2$LSB

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