

OPTICAL ROTARY ENCODERS

Product name	Absolute/ Incremental	Outputs (resolutions) (See relevant data- sheet for details of angular resolutions)	Scale options	Ring/disc diameter	System accuracy (depending on ring diameter)	Maximum speed (de- pending on ring size and resolution)	Reference mark	Limit switches	Readhead size (L x W x H)	Variants	Sealing	Operating temperature	Interface required?
RESOLUTE™	Absolute	Digital: N/A Analogue: N/A Serial: BiSS, Mitsub- ishi, FANUC, DRIVE- CLiQ (18 bit to 32 bit)	RESA30, REXA30	RESA30: 52 mm to 550 mm REXA30: 52 mm to 417 mm	RESA30 rings: ±4.28 to ±0.41 arc seconds REXA30 rings: ±4.28 to ±0.41 arc seconds (typical installed accu- racy with 2 readheads: up to ±1 arc second)	100 m/s (RESA30: up to 36 000 rpm, RESA30 with RES- OLUTE ETR: 18 000 rpm, REXA30: 8 500 rpm)	N/A	N/A	36 mm x 16.5 mm x 17.2 mm	Ultra-High Vacuum (UHV), Extended Tem- perature Range (ETR), Functional Safety (FS), side cable exit	RESOLUTE, ETR, FS: IP64 UHV: IP30	RESOLUTE, FS: 0 °C to 80 °C UHV: 0 °C to 75 °C ETR: -40°C to 80°C	Yes (DRIVE-CLiQ protocol only)
QUANTIC™	Incremental	Digital: RS422 (10 µm to 50 nm) Serial: N/A	RESM40	52 mm to 550 mm	±4.6 to ±0.44 arc seconds	24 m/s (up to 8 800 rpm)	IN-TRAC™ au- to-phase optical	N/A	35 mm x 13.5 mm x 10 mm	N/A	IP40	0 °C to 70 °C	No, digital direct from the readhead
TONIC™	Incremental	Digital: RS422 (5 µm to 1 nm) Analogue: 1 Vpp (20 µm) Serial: N/A	RESM20, REXM20	RESM20: 52 mm to 550 mm REXM20: 52 mm to 417 mm	RESM20 rings: ±4.28 to ±0.41 arc seconds REXM20 rings: ±4.28 to ±0.41 arc seconds (typical installed accu- racy with 2 readheads: up to ±1 arc second)	10 m/s (up to 3 673 rpm)	IN-TRAC auto-phase optical	N/A	35 mm x 13.5 mm x 10 mm	Ultra-High Vacuum (UHV), Functional Safety (FS)	TONIC, TONIC FS readheads: IP40 UHV readhead: IP20 Interface: IP20	0 °C to 70 °C	Yes (Ti, TD, DOP)
VIONIC™	Incremental	Digital: RS422 (5 µm to 2.5 nm) Serial: N/A	RESM20, REXM20	RESM20: 52 mm to 550 mm REXM20: 52 mm to 417 mm	RESM20 rings: ±4.20 to ±0.40 arc seconds REXM20 rings: typical installed accuracy with 2 readheads: up to ±1 arc second	12 m/s (up to 4 407 rpm)	IN-TRAC auto-phase optical	N/A	35 mm x 13.5 mm x 10 mm	N/A	IP40	0 °C to 70 °C	No, digital direct from the readhead
ATOM DX™	Incremental	Digital: RS422 (10 µm to 2.5 nm) Serial: N/A	RCDM	17 mm to 108 mm	40 µm: ±19.61 to ±3.25 arc seconds 20 µm: ±9.10 to ±3.08 arc seconds	20 m/s (up to 29 200 rpm)	Optical de-selectable	N/A	20.5 mm x 12.7 mm x 10.85 mm (20.5 mm x 12.7 mm x 7.85 mm for top exit variant)	N/A	IP40	0 °C to 70 °C	No, digital direct from the readhead
ATOM™	Incremental	Digital: RS422 (10 µm to 1 nm) Analogue: 1 Vpp (20 µm and 40 µm) Serial: N/A	RCDM	17 mm to 108 mm	40 µm: ±19.61 to ±3.25 arc seconds 20 µm: ±9.10 to ±3.08 arc seconds	20 m/s (up to 29 200 rpm)	Optical de-selectable	N/A	20.5 mm x 12.7 mm x 8.35 mm (20.5 mm x 12.7 mm x 7.3 mm for FPC version)	N/A	Cable variant IP40 Ri interface IP20 FPC variant IP20 (with lid fitted) Ti interface IP20	0 °C to 70 °C	Yes (ACi, Ri, Ti)
RGH20 Not recommended for new designs	Incremental	Digital: RS422 (5 µm to 10 nm) Analogue: 1 Vpp (20 µm) Serial: N/A	RESR20	52 mm to 550 mm	±5.6 to ±0.5 arc seconds	8 m/s (up to 2 938 rpm)	Magnetic actuator (no limit)	Single limit (no refer- ence mark)	36 mm x 13.5 mm x 14.8 mm	N/A	IP40	0 °C to 55 °C	No, digital direct from the readhead
RGH20F Not recommended for new designs	Incremental	Digital: RS422 (5 µm to 5 nm) Analogue: 1 Vpp (20 µm) Serial: N/A	RESR20	52 mm to 550 mm	±5.6 to ±0.5 arc seconds	5 m/s (up to 1 836 rpm)	Magnetic actuator (no limit)	Single limit (no refer- ence mark)	36 mm x 13.5 mm x 10.5 mm	N/A	Readhead: IP40 Interface: IP20	0 °C to 55 °C	Yes (REF)
RGH40 Not recommended for new designs	Incremental	Digital: RS422 (10 µm to 50 nm) Analogue: 1 Vpp (40 µm) Serial: N/A	RESR40	52 mm to 550 mm	±6.3 to ±0.6 arc seconds	10 m/s (up to 3 687 rpm)	Magnetic actuator	Dual limits	44 mm x 27 mm x 17 mm	N/A	IP50	0 °C to 55 °C	No, digital direct from the readhead