

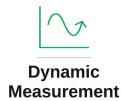
ROTATING TORQUE TRANSDUCER



Contactless, nominal torque from 0.5 N·m to 5000 N·m



- CONTACTLESS TRANSMISSION
- OUTPUT ± 10 V
- SPEED UP TO 10 000 rpm



NOMINAL TORQUE (FS)

Nominal torque (N·m)	Code	Shaft ØA	Torsional stiffness (kNm/rad)	Inertia (kg mm ²)	Nominal speed (rpm)
0.5	MRT80NM5 (1)	16h6	0.78	28	10 000
2.5	MRT82NM5 (1)	16h6	0.78	28	10 000
5	MRT85NM	16h6	0.78	28	10 000
10	MRT810NM	16h6	0.78	28	10 000
25	MRT825NM	16h6	4.4	28	10 000
50	MRT850NM	16h6	4.4	28	10 000
100	MRT8100NM	25h6	14	47	10 000
250	MRT8250NM	25h6	31	50	10 000
500	MRT8500NM	25h6	44	53	10 000
1000	MRT81000NM	50h6	181	1 295	9 500
3000	MRT83000NM	50h6	332	1 370	9 500
5000	MRT85000NM	50h6	377	1 475	9 500



TECHNICAL DATA

PRECISION

Linearity and hysteresis	$\leq \pm 0.2 \%$
Temperature effect on zero (1 °C)	$\leq \pm 0.02 \%$
Temperature effect on sensitivity (1 °C)	$\leq \pm 0.02 \%$
Nominal sensitivity	$\pm 10 \text{ V}$
Sensitivity tolerance	$\leq \pm 0.2 \%$
Zero balance	$\leq \pm 0.5 \%$
Reference temperature	+23 °C
Working temperature range	-10...+70 °C
Storage temperature range	-20...+80 °C

MECHANICAL PROPERTIES

Sensor material	Stainless steel
Case material	Aluminium
Process coupling	Cylindrical shaft · square coupling optional
Protection class	IP40 · EN 60529
Weight 0.5 ... 500 N·m	0.65...1 kg
Weight 1000 ... 5000 N·m	approx. 6 kg

MECHANICAL LIMITS

Service torque	100 %FS	Torque that may be applied continuously without leaving the specification.
Max. permissible torque	150 %FS	Torque that may be applied without permanent change of the characteristics.
Breaking torque	> 300 %FS	Torque at which mechanical failure of the shaft may occur.
Highly dynamic torque	70 %FS	Amplitude permitted for alternating load over the service life.
Nominal speed	10 000 rpm	Up to 500 N·m; 9 500 rpm from 1000 N·m. The shaft couplings limit the speed to 4 000 rpm — see the accessories.

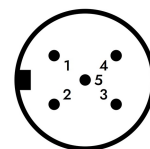
ELECTRICAL PROPERTIES

Output	$\pm 10 \text{ Vdc}$
Nominal power supply	17...24 V
Max. power supply	28 V
Max. absorption	60 mA
Load resistance	min. 3 k Ω
Bandwidth	1 kHz
Sample rate	3 kHz
Insulation resistance	> 2 G Ω

ELECTRICAL CONNECTION

Pin	Signal	Cable
1	+ POWER	RED
3	GND	BLACK
4	+ OUTPUT	BROWN
Shield, connected to the body		
M12x1 male, 5 poles · 3 m moulded PVC cable		

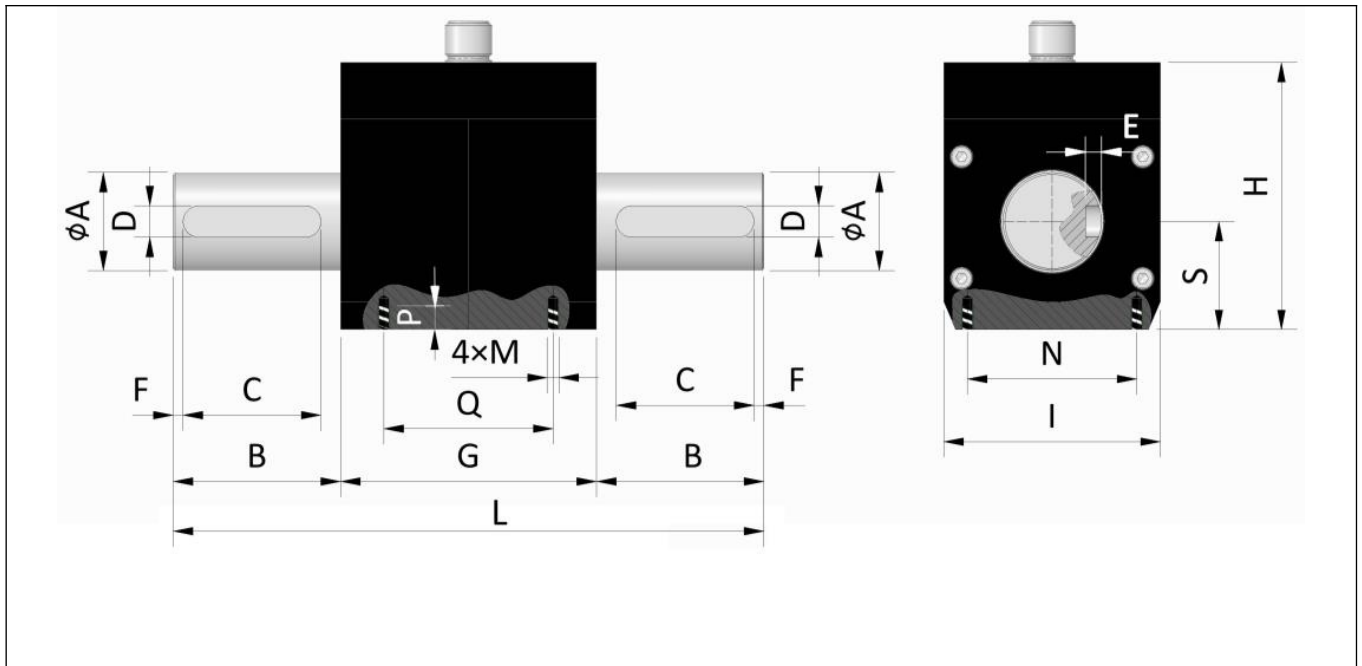
CONNECTOR AND WIRING



M12x1 male, 5 poles

RT8 · $\pm 10 \text{ V}$ output

DIMENSIONS (mm)



DIMENSIONS PER FRAME SIZE (mm)

Nominal torque	ØA	B	C	D	E	L	F · G · H · I · S · M · P · N · Q
0.5 ... 50 N·m	16h6	31.5	25	5	3	128	2.5 · 65 · 68 · 55 · 27.5 · M3 · 6 · 43 · 43
100 ... 500 N·m	25h6	42.5	35	8	4	150	2.5 · 65 · 68 · 55 · 27.5 · M3 · 6 · 43 · 43
1000 ... 5000 N·m	50h6	90	80	14	5.5	280	5 · 100 · 106 · 100 · 43 · M4 · 8 · 60 · 80

Keyslot UNI 6604: form A 5x5 for ØA 16h6 · form A 8x7 for ØA 25h6 · form A 14x9 for ØA 50h6.
Letters as marked in the drawing above.

(1) For 0.5 N·m and 2.5 N·m the ACCREDIA calibration cannot be carried out by LAT laboratory no. 93; on request it can be ordered from another accredited laboratory.



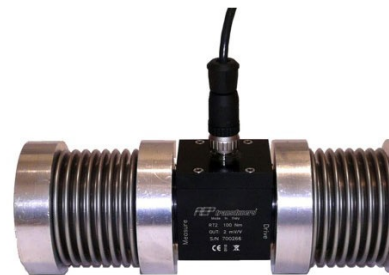
COMPLIANCE AND CERTIFICATION

Protection rating	IP40 according to EN 60529
Compliance	CE and RoHS, as marked on the manufacturer's data sheet and on the rating plate of the transducer
Declaration of conformity	Not published by the manufacturer for the RT8. A declaration exists for the RT2, the TRX and the microTor; for the RT8 it has to be requested
Quality system	Certified according to EN ISO 9001:2015 (Dasa-Rägiſter, IQ-1100-01)
On request	Calibration report, clockwise and anticlockwise
On request	ACCREDIA calibration certificate (ISO/IEC 17025), clockwise and anticlockwise — see note (1) on page 1
On request	Internal incremental encoder · square coupling to UNI ISO 1174-1

COMPLEMENTARY ACCESSORIES

MAAA: Shaft couplings FLEXSTEEL and METALFLEX

- Two shaft couplings and one adjustable support are needed for a correct installation. Assemble the couplings with the transducer off the machine and connected to a display, so that no unwanted torque, bending or tension is generated. Codes according to data sheet GT.563 of the manufacturer; the code table is on page 5 of the MDAA data sheet.



Bore Ø
16 · 25 · 50 mm

Max. speed
4 000 rpm

OPTIONS AND ACCESSORIES

Item	Availability	Data
Internal incremental encoder	Ordered with the transducer	Line driver RS422 · 5 Vdc, max. 10 mA · 3 520 pulses per revolution up to 500 N·m, 8 000 from 1000 N·m · M12x1 male, 12 poles
Square coupling to UNI ISO 1174-1	Ordered with the transducer	Sizes and total lengths in the table below
Calibration report	On request	Clockwise and anticlockwise
ACCREDIA calibration certificate	On request	ISO/IEC 17025, clockwise and anticlockwise — not from LAT laboratory no. 93 for 0.5 and 2.5 N·m, see note (1) on page 1
Shaft couplings FLEXSTEEL / METALFLEX	MAAA · two per installation	Bellows or disk pack, chosen by nominal torque and speed. The couplings are rated for 4 000 rpm and therefore limit the speed of the installation
Adjustable support	One per installation	Aligns transducer and couplings to ±0.1 mm during assembly · no order code given in the source



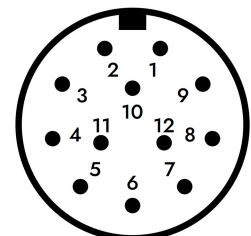
SQUARE COUPLING CODES

Nominal torque	Process coupling to UNI ISO 1174-1	Total length (mm)
0.5 ... 10 N·m	1/4" male · 1/4" female	86
25 ... 50 N·m	3/8" male · 3/8" female	89
100 ... 250 N·m	1/2" male · 1/2" female	94
500 N·m	3/4" male	119

ENCODER CONNECTION · OPTION

Pin	Signal	Cable
5	Encoder B–	YELLOW
6	Encoder B+	GREEN
7	Encoder A–	BLUE
8	Encoder A+	GREY
9	Encoder +5 Vdc	WHITE-YELLOW
10	Encoder GND	WHITE-BLACK
11	Shield	—
1 · 3 · 4	Torque signal, as in the electrical connection on page 2	as on page 2

With the encoder option the transducer carries an M12x1 male connector with 12 poles and a 2 m moulded PVC cable instead of the 5-pole connector. Output line driver RS422, 5 V; supply 5 Vdc, max. 10 mA. Resolution 3 520 pulses per revolution for 0.5 ... 500 N·m at up to 3 400 rpm, 8 000 pulses per revolution for 1000 ... 5000 N·m at up to 3 000 rpm.



M12x1 male, 12 poles

