

Contactless Rotating Torque Transducer

Features

- Capacities 0.5Nm – 5000Nm.
- Linearity $\pm 0.2\%$ RO.
- IP40 rating.
- Optional square couplings.
- Optional speed/angle encoder.

Applications

- Test machines.
- Process control.



Description

The TQ-RT8 is a contactless rotating torque transducer manufactured using a key slot design, suitable for measuring rotational torsion up to 4000rpm. The RT8 sensor body is produced from stainless steel with an aluminium housing. This transducer has been designed for the measurement of static and dynamic torque on rotating machines, test benches and automatic tightening systems.

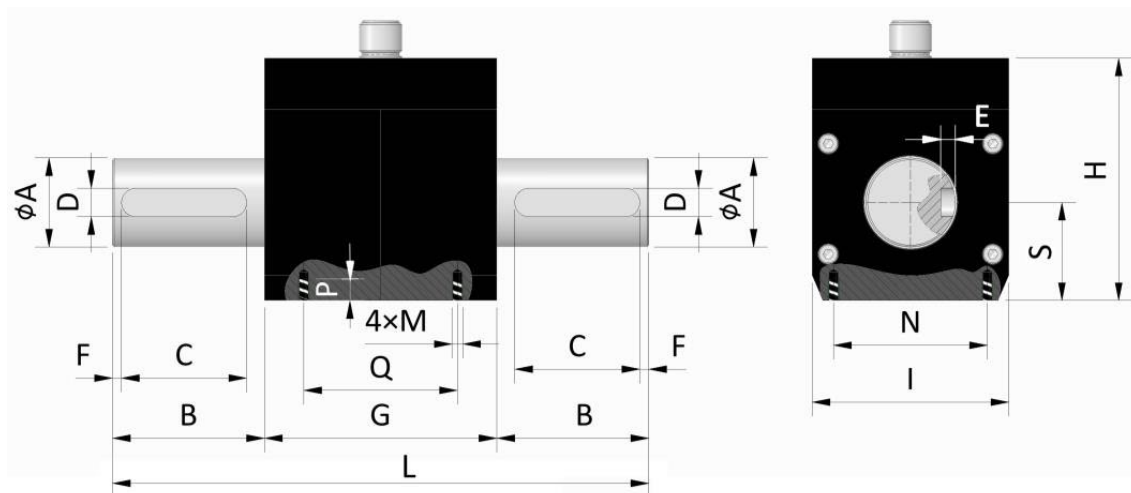
The RT8 is available with optional square drives and/or speed/angle encoder.

NOTE: Torque transducers are supplied calibrated in a single direction as standard, either clockwise or anti-clockwise. If calibration in both directions is required, please specify this on enquiring.

Typical Specification

PARAMETER	VALUE	UNITS
Capacities Range	0.5, 2.5, 5, 10, 25, 50, 100, 250, 500, 1000, 3000, 5000	Nm
Rated Output	± 10	V
Sensitivity Tolerance	0.2	$\pm\%$ of Rated Output
Linearity & Hysteresis	0.2	$\pm\%$ of Rated Output
Temperature Effect ON ZERO	0.02	$\pm\%$ of Rated Output/ $^{\circ}$ C
Temperature Effect ON OUTPUT	0.02	$\pm\%$ of Rated Output/ $^{\circ}$ C
Insulation Resistance	>2	G Ω
Zero Balance	≤ 0.5	$\pm\%$ of Rated Output
Excitation NOMINAL SUPPLY RANGE	17-24	Volts AC or DC
Excitation MAXIMUM SUPPLY	28	Volts AC or DC
Maximum Absorption NO LOAD APPLIED	60	mA
Loading Resistance	3	K Ω
Mechanical Limit SERVICE LOAD	100	% of Rated Output
Mechanical Limit SAFE OVERLOAD	150	% of Rated Output
Mechanical Limit ULTIMATE OVERLOAD	>300	% of Rated Output
Mechanical Limit SAFE DYNAMIC LOAD	70	% of Rated Output
Nominal Speed	4000	rpm
Temperature Range OPERATING	-10 to +70	$^{\circ}$ C
Temperature Range STORAGE	-20 to +80	$^{\circ}$ C
Weight	~ 0.65 to 6	KG
Environmental Sealing	IP40	-
Electrical Connection	M12x1 male 5-pole connector, mating 3m cable	-
Construction Material SENSOR	Stainless Steel	-
Construction Material CASE	Aluminium	-

Outline Dimensions in millimetres



LOAD (Nm)	ϕA	B	C	D	E	KEYSLOT	F	G	H	I	S	L	M	N	P	Q
0.5	16h6	31.5	25	5	3	UNI 6604 form A 5x5	2.5	65	68	55	27.5	128	M3	43	6	43
2.5																
5																
10																
25																
50	25h6	42.5	35	8	4	UNI 6604 form A 8x7	5	100	100	100	43	300	M4	80	8	80
100																
250																
500	50h6	100	80	14	5.5	UNI 6604 form A 14x9	5	100	100	100	43	300	M4	80	8	80
1000																
3000																
5000																

LOAD (Nm)	ORDERING CODE
0.5	MRT80NM5
2.5	MRT82NM5
5	MRT85NM
10	MRT810NM
25	MRT825NM
50	MRT850NM
100	MRT8100NM
250	MRT8250NM
500	MRT8500NM
1000	MRT81000NM
3000	MRT83000NM
5000	MRT85000NM

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Accessories: Square Couplings

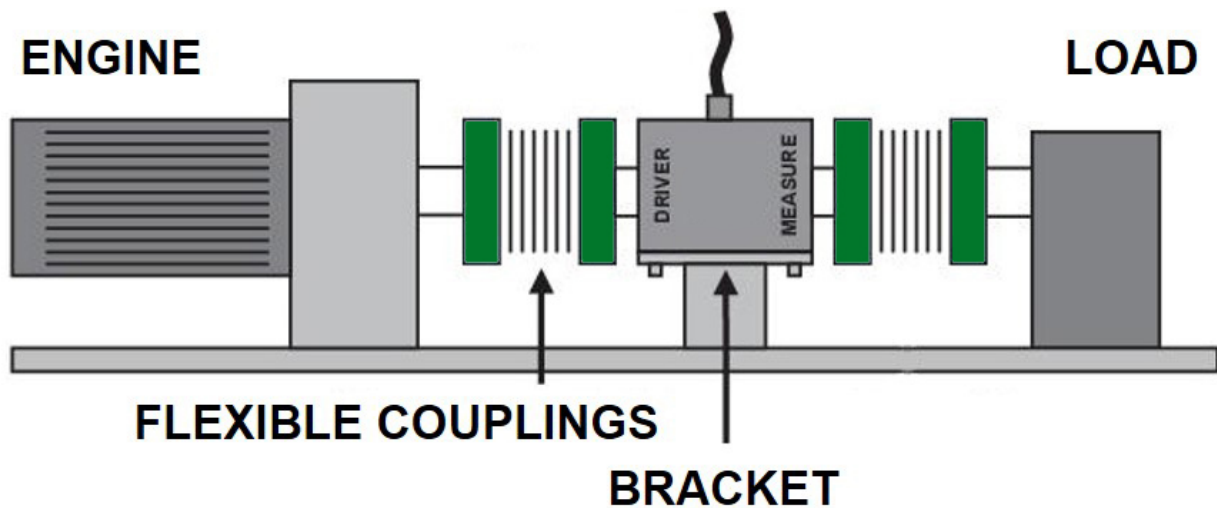
PROCESS COUPLING (Nm)	ACCORDING TO UNI ISO 1174-1	TOTAL LENGTH (mm)
0.5, 10	■ 1/4" male - □ 1/4" female	86
25, 50	■ 3/8" male - □ 3/8" female	89
100, 250	■ 1/2" male - □ 1/2" female	94
500	■ 3/4" male - ■ 3/4" male	119

Accessories: Internal Incremental Encoder

PARAMETER	VALUE	UNITS
Output Line Driver	RS422 5V	-
Excitation <small>MAXIMUM SUPPLY</small>	5V	DC
Maximum Absorption <small>NO LOAD APPLIED</small>	10	mA
Electrical Connection	M12x1 male 12-pole connector and mating 2m cable	-

RATING (Nm)	DESCRIPTION	
0.5 - 500	3520 pulses per revolution. Maximum speed measured 3400rpm.	
1000 - 5000	8000 pulses per revolution. Maximum speed measured 3000rpm.	

Applications

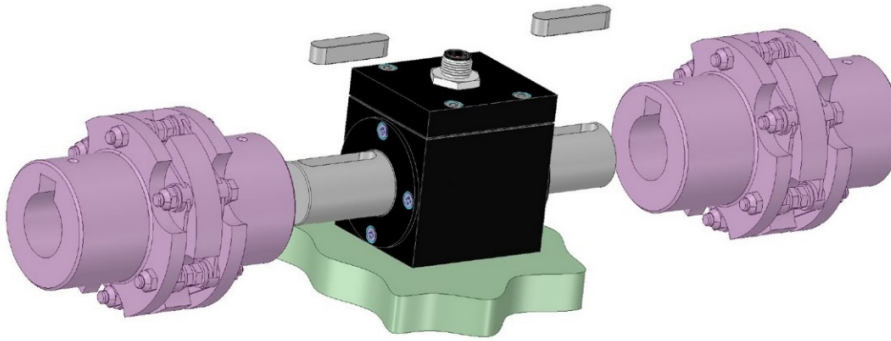


The RT8 measures **CLOCKWISE** torque with a **POSITIVE** output in tension or **ANTICLOCKWISE** torque with **NEGATIVE** output in tension.

For a correctly operational system it is necessary to prepare:

- 2x shaft couplings with a bellow or disk pack to suit the nominal torque and rotating speed (max 4000 rpm).
- 1x adjustable support that allows you to align the RT2 with the two junction shafts (tolerance $\pm 0.1\text{mm}$) during the installation phase.

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The assembly of the couplings to the RT8 must be done whilst disconnected from the machine (system) with the transducer only connected to a display, thus verifying in real time that no unwanted torque, bending or tension are generated which may overload the transducer.

Mount the RT8 with its couplings on the support, align the system along its own axis and connect the system. Even in this phase, care must be taken that the measure showed on the display does not exceed the nominal torque rating of the transducer.

WARNING: Avoid accidental overloading that may irreparably damage the TQ-RT8.

WARNING: Protect the cable from contact with high tension cables, inverters, generators and/or solenoid valves.



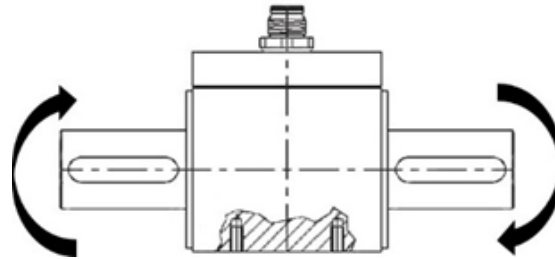
Wiring Details

±10V OUTPUT	M12x1 MALE CONNECTOR	CABLE

M12 CONNECTOR	±10V OUTPUT	PIN OUT	OUTPUT	CABLE	
		1	POWER +	RED	
		3	GND	BLACK	
		4	OUTPUT +	BROWN	
	ENCODER				
		5	B-	YELLOW	
		6	B+	GREEN	
		7	A-	BLUE	
		8	A+	GREY	
		9	+5VDC	WHITE-YELLOW	
		10	GND	WHITE-BLACK	
		11	SHIELD	SHIELD	

Shielded PVC cable with moulded M12 connector 12 poles. = Shield connected to the body of the transducer.

Loading Mode



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