



425 SERIES

RS425 Contactless Torque Transducer

PRODUCT OVERVIEW



RS425 Contactless Torque Transducer

The RS425 Contactless Torque Transducer by Datum Electronics, is a high-performance shaft torque sensor designed for inline installation in drivetrains and test rigs. The Datum RS425 is a truly non-contact system, featuring wireless telemetry and a gap between rotor and stator, resulting in a bearing-free sensor, capable of very high speeds without wear, or placing frictional loads on the rotating drive shaft.

The Datum RS425 can be supplied with standard keyways or fully customised shaft configurations, covering a wide torque range from 3 N·m up to 30,000 N·m. Optional upgrades include extended RPM capability and enhanced IP ratings, making it a versatile solution for both industrial and R&D settings.

As a member of the 425 Series, the Datum RS425 is fully compatible with **Datum Link**, our latest app for iOS, Android, and Windows, enabling real time monitoring and streamlined data capture.

Features and Benefits

Accuracy Class: 0.1

Torque ranges from 3 N·m to 30,000 N·m

Fully non-contact system for low maintenance, long-term use

Standard keyway shafts for easy installation

Custom shaft options available

Selectable analogue outputs of torque, speed, & power

Rotary and static torque measurement

Digital data outputs via RS-485 and Wi-Fi

Compatible with Datum Link app for iOS, Android, & Windows

IP54 Rating as standard - IP67 upgrade available

1-10,000 RPM range as standard - 30,000 RPM upgrade available



Performance

Non-Linearity	±0.1% FSD
Repeatability	±0.05% FSD
Hysteresis	±0.05% FSD
Noise-free Resolution	20 bit to 13.5 bit (dependent on sample rate)
Digital Sample Rate	Standard 100 SPS
Analogue Sample Rate	Up to 100 SPS, standard 20 SPS
Output Baud Rate	3 Mbaud as standard
RPM Measurement	
Included as	1 pulse per rev
Transducer Output Interfaces:	
Serial data via RS-485	
Wi-Fi 2.4 GHz transmission	
Transducer Output Data:	
Torque	Shaft RPM*

*Output of RPM based on 1 pulse per revolution as standard.

Power Supply

12-24Vdc

Via Datum Connect Interface

Environment

Thermal Stability of Gain per 10°C	0.02%
Thermal Stability of Zero per 10°C	0.02%
Normal Specification Range	10°C to 60°C
Operating Range	-10°C to +70°C
Storage Range	-35°C to +75°C
Environmental Protection	IP54 standard – IP67 upgrade
Electromagnetic Compatibility	EN61326-1:2006 (IEC61000-4), IEC60945)

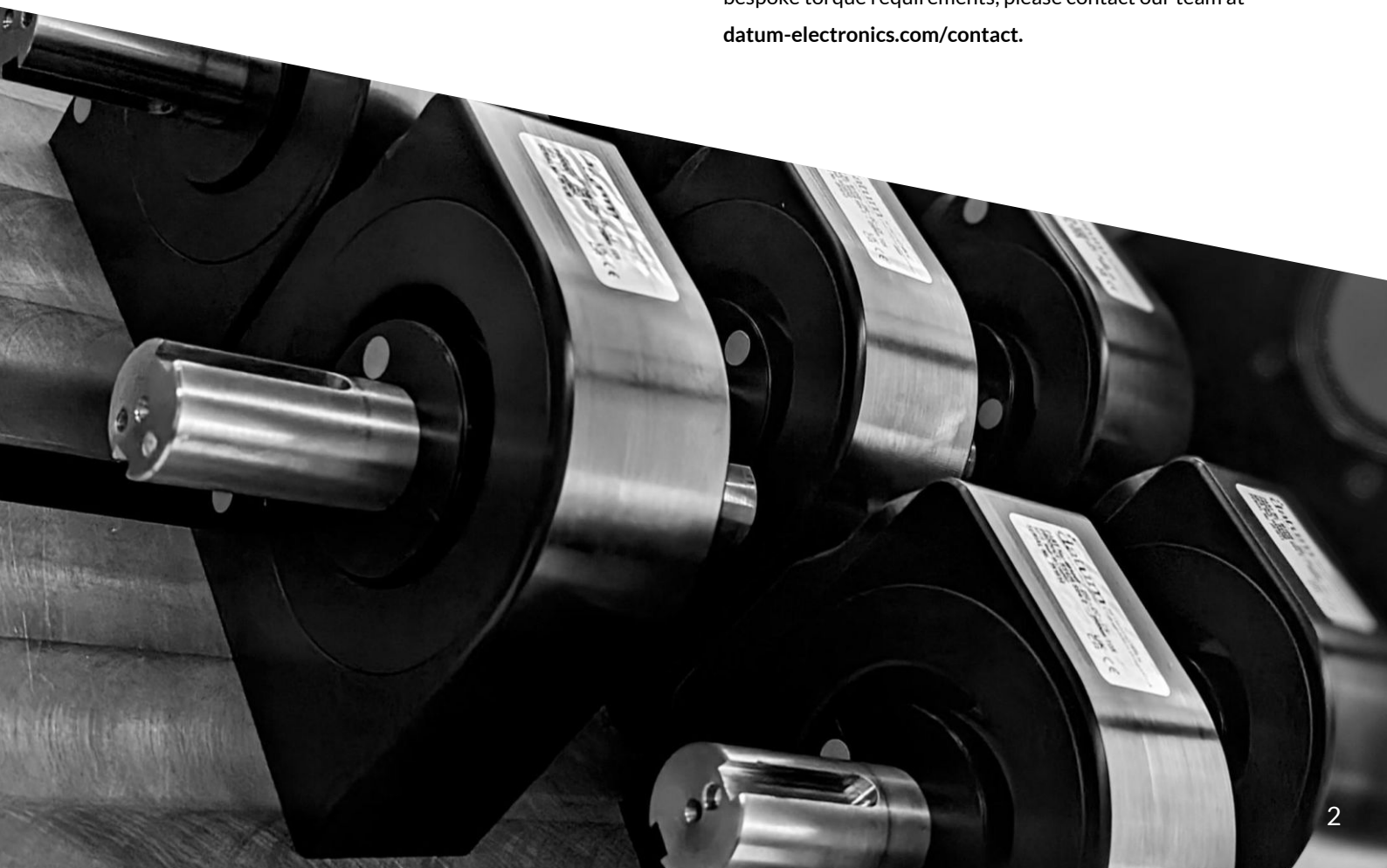
The Datum RS425 is supplied with the Datum Connect Interface [DCI] to give traditional digital and analogue outputs to customers.

Digital outputs include RS-485, USB, and **Datum Link**, our free app for iOS, Android, and Windows devices.

Learn more at datum-electronics.com/datum-link.

Individual analogue outputs for torque, speed, and shaft power are available which are scalable and selectable including: 0-10V, +/-10V, 4-20mA, and 12+/-8mA.

For more information about our products, or to discuss your bespoke torque requirements, please contact our team at datum-electronics.com/contact.



Performance Characteristics

RS425 model	Rated load (N·m)	Rated load (lbf·ft)	Standard RPM range	Stator mass (kg)	Rotor mass (kg)
S1-3Nm	3	2.2	1-10,000	1.057	0.401
S1-10Nm	10	7.4	1-10,000	1.057	0.401
S1-20Nm	20	14.8	1-10,000	1.057	0.421
S1-50Nm	50	36.9	1-10,000	1.057	0.462
S1-100Nm	100	73.8	1-10,000	1.057	0.560
S2-250Nm	250	184.4	1-10,000	1.057	1.201
S2-500Nm	500	368.8	1-10,000	1.057	1.276
S3-1kNm	1,000	737.6	1-6,000	1.057	1.668
S3-2kNm	2,000	1,475.1	1-6,000	1.057	2.149
S4-5kNm	5,000	3,687.8	1-5,000	1.152	6.112
S4-10kNm	10,000	7,375.6	1-5,000	1.152	12.162
S5-15kNm	15,000	11,063.4	1-2,000	2.138	20.499
S5-20kNm	20,000	14,751.2	1-2,000	2.138	22.318
S5-25kNm	25,000	18,439.1	1-2,000	2.138	34.608
S5-30kNm	30,000	22,126.9	1-2,000	2.138	40.969

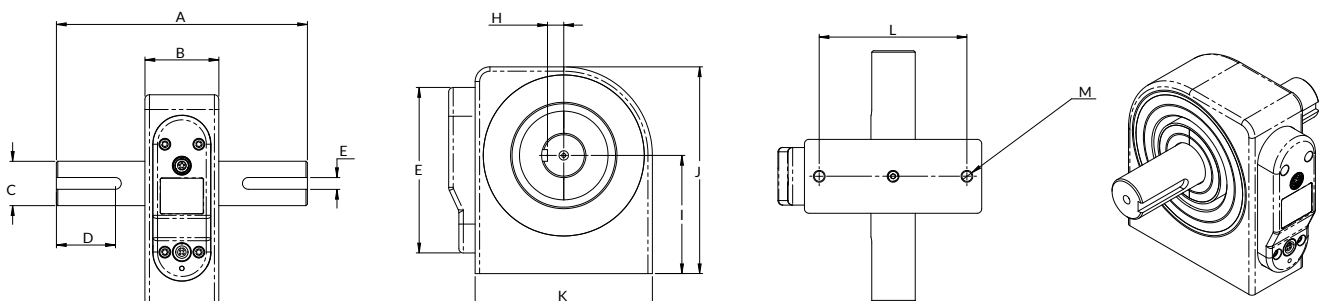
For more information, or to discuss how we can tailor a solution to your exact requirements, speak with our team.



Technical Specifications

RS425 model	Shaft length face to face (mm)	Body width (mm)	Shaft Ø (mm)	Keyway length (mm)	Keyway width (mm)	Output module length (mm)	Output module height (mm)	Keyway depth off axial centre (mm)	Base to shaft axial centre (mm)	Overall height (mm)	Base length (mm)	Base fixing holes. Centre to centre (mm)	Fixing holes (DIN 933)
	A	B	C	D	E	F	G	H	I	J	K	L	M
S1-10Nm	150	50	15	22.5	5	112	8.5	4.3	80	140	120	100	M8
S1-20Nm	150	50	15	22.5	5	112	8.5	4.3	80	140	120	100	M8
S1-50Nm	150	50	15	22.5	5	112	8.5	4.3	80	140	120	100	M8
S1-100Nm	150	50	15	22.5	5	112	8.5	4.3	80	140	120	100	M8
S2-250Nm	170	50	30	44	8	112	8.5	11	80	140	120	100	M8
S2-500Nm	170	50	30	44	8	112	8.5	11	80	140	120	100	M8
S3-1kNm	240	50	50	78.5	12	112	8.5	20	80	140	120	100	M8
S3-2kNm	240	50	50	78.5	12	112	8.5	20	80	140	120	100	M8
S4-5kNm	240	50	75	78.5	20	112	8.5	30	80	140	120	100	M8
S4-10kNm	240	50	75	78.5	20	112	8.5	30	80	140	120	100	M8
S5-15kNm	292	60	110	116	32	112	8.5	44	120	220	200	180	M10
S5-20kNm	292	60	110	116	32	112	8.5	44	120	220	200	180	M10
S5-25kNm	292	60	110	116	32	112	8.5	44	120	220	200	180	M10
S5-30kNm	292	60	110	116	32	112	8.5	44	120	220	200	180	M10

Alphabet key for Datum RS425



3D models and STEP files are available from Datum Electronics to assist project planning.
Please contact Datum Electronics for more information.

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Rev. D

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