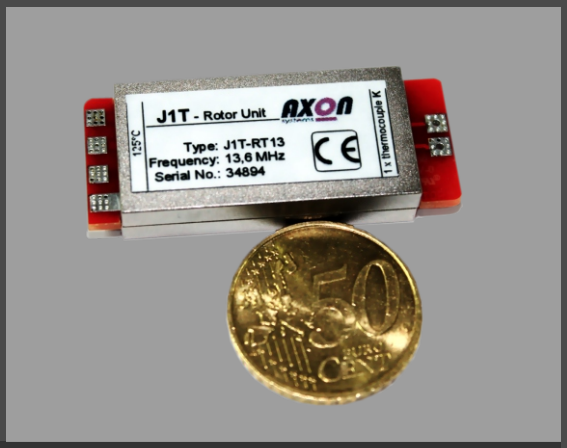
Technical Datasheet

Telemetry System

AXON J1T

- very rugged
- reliable
- operating temperature up to +140°C
- measurement rage -80 to +715°C
- for thermocouple type K
- inductive power supply
- high accuracy
- simple installation



TELEMETRY SYSTEM

for temperature measurement on rotating parts

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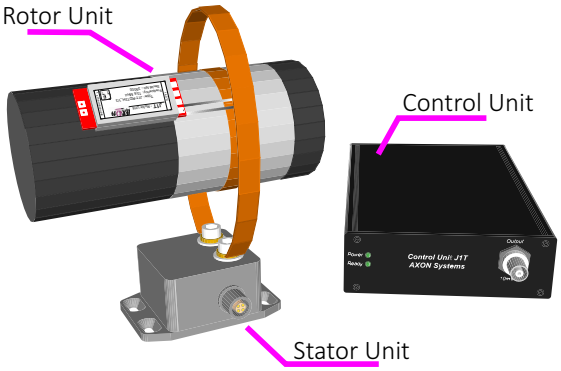
Funcional Principle

Telemetry System AXON J1T



The telemetry system AXON J1T is designed for transmitting thermocouple based measurement signals from rotating shafts or other mechanical parts. Like all AXON telemetry systems, the J1T is extremely robust and delivers reliable readings at operating temperatures of up to +140°C in continuous operation, even under the toughest conditions. The inductive, contact-free power supply of Rotor Unit and transducer ensures an interruption-free operation.

Rotor Unit:

Captures the thermocouple signals and processes the data from the transducer and transmits the fully digitised data stream contactless between the rotating shaft and the Stator Unit.

Control Unit:

The central control unit and data output of the telemetry system. Generates the inductive supply voltage for the rotor unit and reproduces the data measured on the shaft as a voltage signal. Inductive supply and RF data reception are monitored and always controlled during operation to ensure the best possible data transmission.

Stator Unit:

Produces the dynamic inductive field which supplies power to the Rotor Unit on the rotating shaft. Simultaneously it receives the digital data stream from the shaft. Distances up to 70mm between rotor and stator antenna can be realized. Axial and radial relative movements between stator and rotor are covered in an range of several centimeters(1).

(1) Depending on application

Telemetry System

AXON J1T

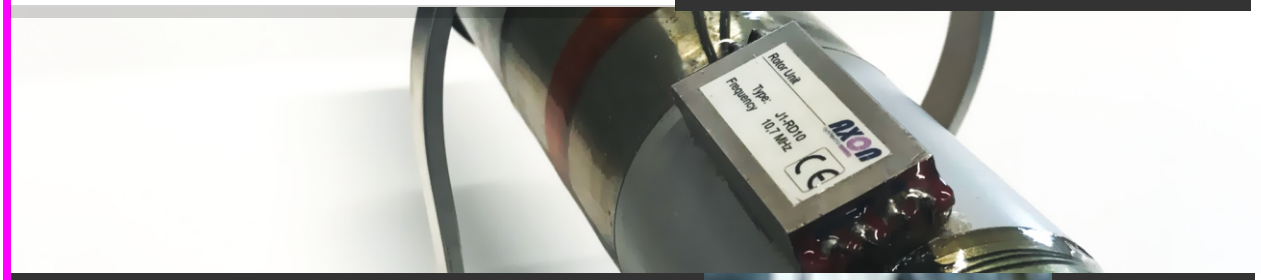
Funcional Principle

The highly effective inductive power supply of the rotating components allows an uninterrupted use even under harsh conditions.
Even in oil, a stable power- and data transmission is ensured.
The distance between the stator and rotor antenna can easily vary between 1 and 70mm[1].
The intelligent inductive power transmission IPT continuously optimizes the rotor supply voltage during operation.
In addition, the RSSI output[2] of the Control Unit provides information about the quality of the received data stream.

1) Depending on application
2) Receive Signal Strength Indicator

Temperature measurements on:

- Drive shafts
- Prop shafts
- Torque Flanges
- Rotating gearbox parts
-Clutches
- and many more



The ideal system for temperature measurements

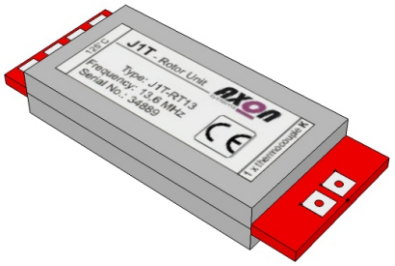
The J1T telemetry system is the perfect foundation for highly professional temperature measurement tasks that deliver stable and highly accurate measurement data, even under the toughest conditions. Whether in vehicle testing or on the test bench- AXON telemetry systems standing for reliable measurement results under a wide variety of applications.

Specifications

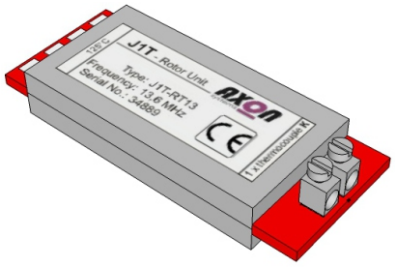
Telemetry System
AXON J1T

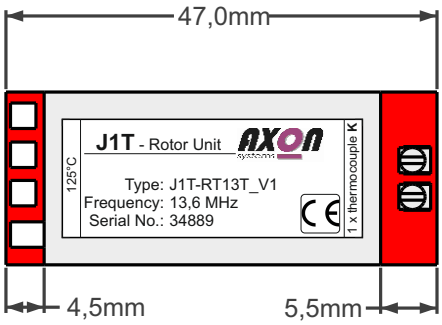
Rotor Units

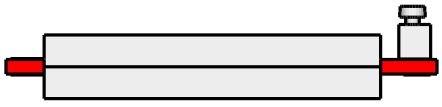
Typ	J1T-RT13TL	J1T-RT13HL
Number of channels	1	
Signal conditioning	Thermocouple type K NiCrNi	
Spannungsversorgung	inductive or battery	
Modulation	PCM (digital)	
Resolution	12 bit (pure data stream)	
Sampling	100 averaged samples / second	
Measurement range	-80°C to + 715°C	
Cold junction compensation	integrated	
Sensor break detection	integrated	
Housing	Aluminium	
Connections	Solder pads	
Dimensions	47 x 19 x 7 mm (incl. connections)	
Operating temperature	**-40°C .... +125°C**	**-40°C .... +140°C**
Carrier frequency (standard)	13,6 MHz	
Carrier frequencies (optional)	12,6 MHz, 14,6 MHz, 15,6 MHz	
Weight	10 grams	
Degree of protection	IP67 with protectional covering of solder pads	
Conformity	CE	

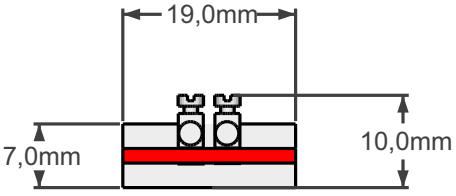


Typ	J1T-RT13TS	J1T-RT13HS
Number of channels	1	
Signal conditioning	Thermocouple type K NiCrNi	
Spannungsversorgung	inductive or battery	
Modulation	PCM (digital)	
Resolution	12 bit (pure data stream)	
Sampling	100 averaged samples / second	
Measurement range	-80°C to + 715°C	
Cold junction compensation	integrated	
Sensor break detection	integrated	
Housing	Aluminium	
Connections	Miniature screw terminal	
Dimensions	47 x 19 x 10 mm (incl. connections)	
Operating temperature	**-40°C .... +125°C**	**-40°C .... +140°C**
Carrier frequency (standard)	13,6 MHz	
Carrier frequencies (optional)	12,6 MHz, 14,6 MHz, 15,6 MHz	
Weight	11 grams	
Degree of protection	IP67 with protectional covering of solder pads	
Conformity	CE	









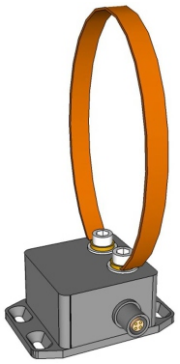
Specifications

Telemetry System
AXON J1T

Stator Units

Standard-ringstator

Type	JXD-SR70	JXD-SR70T
Type of transmission	inductively with conductor loop (transmission coil)	
Transmission coil	copper free shapeable Ø 40 .... 1000mm	
Transmission distance	0 .... 70 mm(1)	
RF-Reception	wideband (10 MHz .... 30 MHz)	
Housing	Aluminium	
Connections	Fischer 4-pole, IP68	
Dimensions (incl. connections)	63 x 50 x 34,5 mm	
Operating temperature	**-40°C .... +105°C**	**-40°C .... +125°C**
Cable lentgh Stator - Control Unit	5m; optional 7m, 8m, 10m, 30m, 50m any cable length up to 200m on request	
Weight	187 grams	
Degree of protection	IP68	
Conformity	CE	



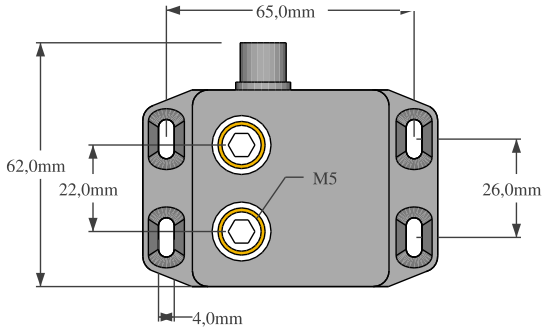
Ringstator for high EMC loaded environments

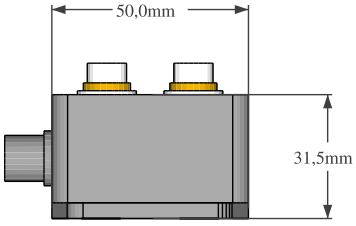
Type	JXD-SR70E	JXD-SR70TE
Type of transmission	inductively with conductor loop (transmission coil), additional EMC-terminal for signal analysis and supression of disturbance fields	
Transmission coil	EMC-stator coil JX-ECE02 Ø 40 .... 1000mm	
Transmission distance	0 .... 70 mm(1)	
RF-Reception	wideband (10 MHz .... 30 MHz)	
Housing	Aluminium	
Connections	Fischer 4-pole, IP68	
Dimensions (incl. connections)	63 x 50 x 34,5 mm	
Operating temperature	**-40°C .... +105°C**	**-40°C .... +125°C**
Cable lentgh Stator - Control Unit	5m; optional 7m, 8m, 10m, 30m, 50m any cable length up to 200m on request	
Weight	189 grams	
Degree of protection	IP68	
Conformity	CE	

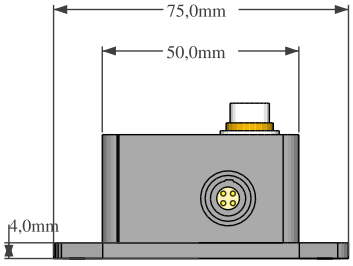
(1) Depending on application

Especially for use in vehicles with electric drive and high EMC load

recommended accessory
JX-ECE02
Free shapeable transmission coil for stator units JX(D)-SR70(T)**E** with additional EMC-terminal. Length 1m, shortenable







Specifications

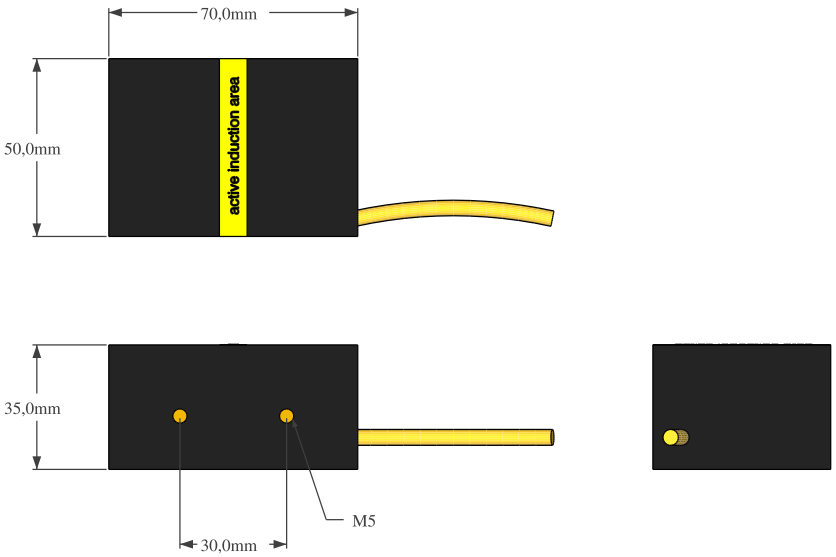
Telemetry System
AXON J1T

Stator Units

Inductive-Stator without transmission coil

Typ	JXD-SE60	JXD-SE60T
Type of transmission	inductive as Pick-Up	
RF-Reception	wideband (10 MHz …. 30 MHz)	
Housing	Plastic	
Transmission distance	0 …. 60 mm(1)	
Dimensions (without cable)	63 x 50 x 34,5mm	
Operating temperature	**-40°C …. +105°C**	**-40°C …. +125°C**
Cable lentgh Stator - Control Unit	5m; optional 7m, 8m, 10m, 30m, 50m any cable length up to 200m on request	
Weight	220 grams	
Degree of protection	IP68	
Conformity	CE	

(1) Depending on application



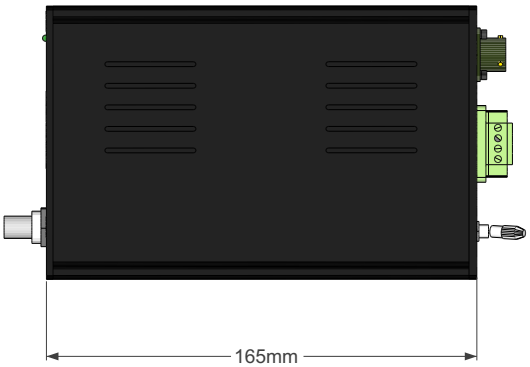
Specifications

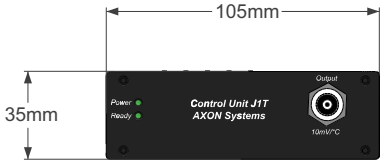
Telemetry System AXON J1T

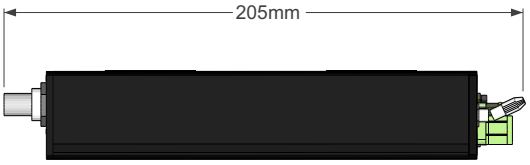
Control Unit

Type	J1T-CE13
Dimensions	205 x 105 x 35mm (incl. connectors)
Supply voltage	9 - 36 VDC
Signal output	BNC; voltage -0,8 … 7,15V; 10mV/°C linearised
Carrier frequency (standard)	13,6 MHz
Carrier frequency (optional)	12,6 MHz, 14,6 MHz, 15,6 MHz
Signal propagation delay	450 µs
Degree of protection	IP40
Weight	app. 450 grams
Operating temperature	-20°C - +75°C
Overvoltage protection	integrated
Reverse polarity protection	integrated
Power consumption	app. 15 VA
RSSI-Output(1)	0 - 4,5 VDC
Conformity	CE

(1) Receive Signal Strength Indicator







CE

The product is in compliance with the requirements of the following European directive:

199/5/EC	Radio and Telecommunications Terminal Equipment (R&TTE)
2011/65/EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

The compliance with the requirements of the European Directive was proved by the application of the following harmonized standards:

R&TTE:	EN 300 330-2 V1.5.1 EN 301 489-1 V1.9.2 EN 301 489-3 V1.6.1 EN 50364:2010 EN 55011:2009+A1.2010 EN 60950-1:2006 + A11:2009 + A12:2011 + A1:2010 +A2:2013
RoHS:	EN 50581:2012

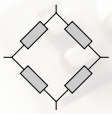
The object of the declaration described above is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Product range „J“

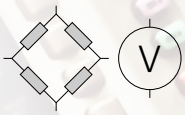
Telemetry System
AXON J1T

AXON „J“-series telemetry systems as an overview

- AXON J1
robust 1-channel telemetry system for strain gauge measurements, analogue transmission



- AXON J1DB
digital 1-channel telemetry system for strain gauge measurements with monitoring of the rotor power supply



- AXON J2D
digital 2-channel telemetry system for the simultaneous transmission of two strain gauge signals

- AXON J2DT
digital 2-channel telemetry system for the simultaneous transmission of one strain gauge and one thermocouple signal

- AXON J1T
digital 1-channel telemetry system for the transmission of one thermocouple signal

- AXON J2T
digital 2-channel telemetry system for the simultaneous transmission of two themocouple signals

- AXON J4T
digital 4-channel telemetry system for the simultaneous transmission of four thermocouple signals

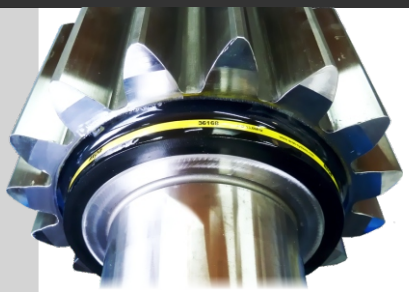
- AXON J8T
digital 8-channel telemetry system for the simultaneous transmission of eight thermocouple signals

Applications

Telemetry System
AXON J1T

Shaft applications for torque- and temperature measurements
planned in detail - professionally built - delivered quickly

Another focus of AXON is the production of customized torque- and temperature measurment shafts. Careful planning includes the preparation of release drawings, which allow the user to check all dimensions and details for execution.
The flexibility of the AXON telemetry systems enables the construction of measuring shafts that work in the most difficult space conditions.
Sensors and electronics are seald in multiple layers. A high-strength glass fiber composite protects the application from water, oil and mechanical damage. Thus, the maintenance-free applications are ideally suited for long-term driving tests.



State-of-the-art technology in a robust package

The flexible design options of the AXON telemetry systems allow countless application variants.

- Telemetry
- Application
- Calibration

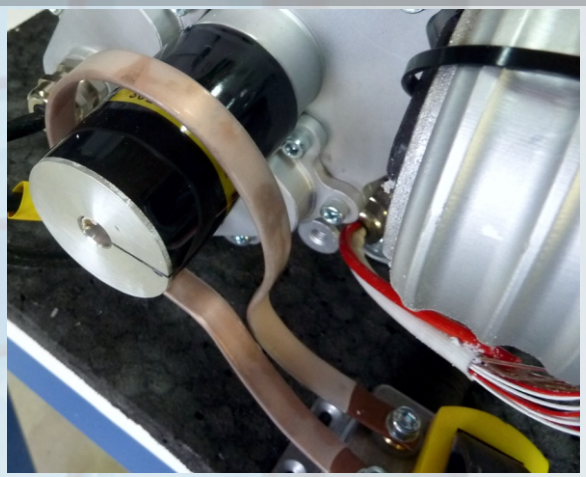
from one source
fast and reliable

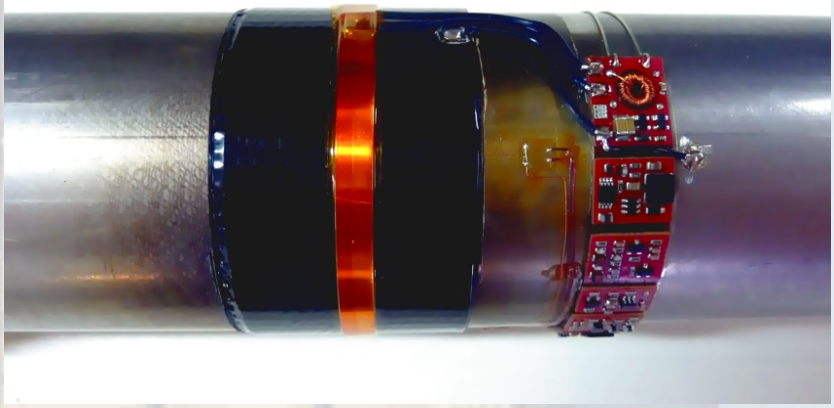
Telemetry System

AXON J1T

From development to customized solutions - all from one hand

- Development and production
- Application of measurement shafts
- Strain gauge application and calibration





Whether by phone, e-mail or in person- our support is always available for questions about our systems - fast and easy!

Our experienced engineers and technicians will be happy to assist you in planning your measurement tasks- contact us!

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