



- robust
- miniature telemetry transmitter
- reliable
- easy installation
  
- universal
- up to 16 simultaneous channels
- measurement range  $-55^{\circ}\text{C}$  to  $+1,250^{\circ}\text{C}$
- operating temperature  $-40^{\circ}\text{C}$  to  $+140^{\circ}\text{C}$
- inductive power supply
- high measurement accuracy
- Anti-EMC for secure data transmission on electric drives

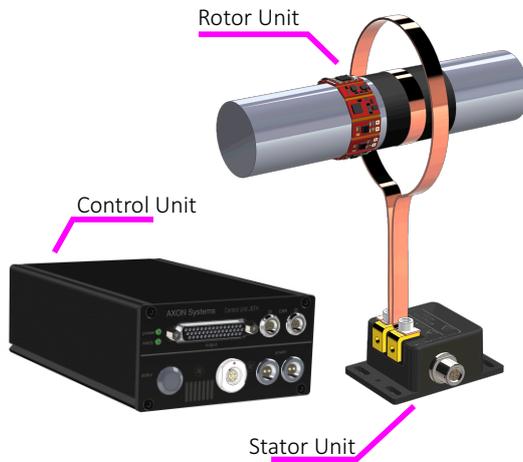


## MULTICHANNEL-TELEMETRY SYSTEM

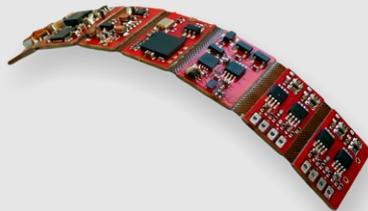
for temperature measurements on rotating parts

# Telemetry System AXON JXTH

## Function



The AXON JXTH telemetry system enables fully contactless transmission of thermocouple signals from rotating components. Advanced digital signal processing ensures highly accurate, low-noise and interference-resistant acquisition of temperature values, even under harsh operating conditions such as vibration, temperature fluctuations or electromagnetic interference. A dedicated transmission channel continuously monitors the inductively supplied voltage directly on the measuring shaft during operation. Based on this real-time feedback, the system autonomously regulates the inductive power transfer and maintains a stable, optimally adjusted supply voltage at all times, ensuring reliable sensor performance without manual intervention. In addition, the quality of the received digital data stream is indicated via an RSSI output. All parameters critical to safe and dependable operation – from power supply status to transmission integrity – can therefore be continuously monitored and evaluated in real time, providing maximum transparency and operational reliability.



### Rotor Unit:

The Rotor Unit forms the core of signal processing on the rotating shaft. It acquires and digitizes the thermocouple signals directly at the point of measurement and transmits the data digitally and contactlessly to the Stator Unit. By performing signal conditioning and conversion directly on the shaft, the system minimizes interference and ensures high signal integrity even under dynamic operating conditions. Its compact design, low mass and multiple design variants enable reliable integration, even in highly confined installation spaces and demanding mechanical environments.



### Control Unit:

The Control Unit provides central system control and data processing. It regulates the inductive power supply of the Rotor Unit and outputs the measured shaft data in both digital and analog form.

Inductive power transfer and RF data reception are continuously monitored and dynamically adjusted during operation. This ensures a stable energy supply and permanently reliable, interference-resistant data transmission – even during long-term operation under demanding conditions.



### Stator Unit:

The Stator Unit generates the dynamic inductive field required for contactless power transfer to the Rotor Unit while simultaneously receiving the transmitted measurement data. The contactless coupling between rotor and stator antenna enables transmission distances of up to 80 mm. This allows reliable compensation of substantial axial and radial relative movements between rotor and stator. The result is maximum flexibility for integration into test benches and vehicle platforms, ensuring stable energy and data transmission even in complex installation scenarios.

# Telemetry System AXON JXTH

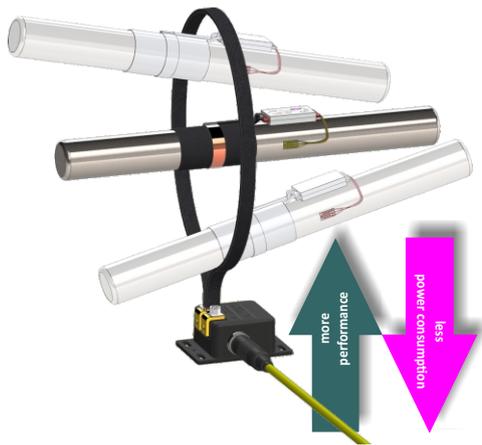
Performance

## Anti-EMC:

### Noise Cancelling for Reliable Measurements

The integrated Anti-EMC technology actively suppresses electromagnetic interference affecting the received data stream.

In environments with electric drives, inverters or high switching currents, unwanted emissions can significantly impair signal quality. The Anti-EMC function continuously detects and compensates for these disturbances, ensuring stable and interference-resistant data transmission. As the system operates automatically in the background, no additional user interaction is required, providing dependable measurement results in e-mobility applications and advanced test bench setups.



## Inductive Power Supply 4.0

The inductively transmitted power supply of the Rotor Unit is continuously monitored and actively controlled during operation to ensure optimal performance at all times.

**IPT – Intelligent Power Transmission** – dynamically adjusts the transmitted energy: power is increased instantly when required and reduced wherever possible. In a wide range of applications, this intelligent regulation decreases the overall power consumption of the telemetry system by up to 60% while simultaneously enhancing system stability. Reliable transmission is maintained even on shafts with significant deflection and relative movement. Stable inductive coupling is ensured under challenging installation scenarios, including confined spaces such as gearboxes, guaranteeing uninterrupted energy supply and dependable data transmission.



## Individual Telemetry Carriers

The JXTH telemetry system enables numerous customized mechanical solutions. This ensures straightforward integration of the measurement technology, even as a retrofit into existing systems and test benches – including installations with limited space and complex geometries. Designed for measurements up to +1,250 °C, the maintenance-free system provides a reliable and precise foundation for demanding temperature measurements. It is particularly well suited for brake temperature measurements, for example on flywheel brake dynamometers. The robust design combined with flexible mechanical adaptation guarantees stable operation and reproducible measurement results even under harsh environmental conditions.

## Custom Solutions

**Brake temperature measurements  
Plug & Play**

# Telemetry System AXON JXTH

## Technical Data

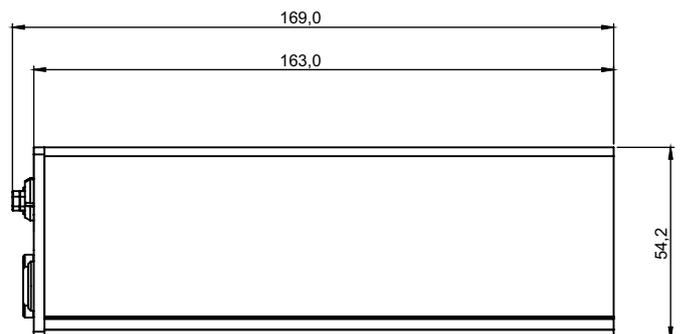
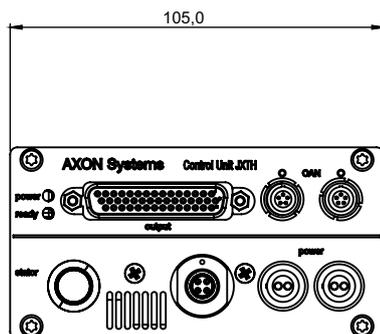
### General Technical Data

Channels	16
Measurement range	-60°C - +1,250°C
Operating temperature range rotor / stator	-40°C....+125°C
Operating temperature range rotor / stator (optional)	-40°C....+140°C
Measuring accuracy (operating temperature <100°C, entire measuring range)	±2°C
Measuring accuracy (operating temperature >100°C, measurements up to 400°C)	±2°C
Measuring accuracy (operating temperature 100°C - 125°C, measurements >400°C)	±4°C
Measuring accuracy (operating temperature >125°C, measurements >400°C)	±6°C
Resolution	16 Bit
Sampling Rate	100 samples/s/ch
Supported thermocouple types	Type K
Signal output analogue (linearised)	5mV/°C
Digital signal output (linearised)	CAN-Bus
CRC (Cyclic Redundancy Check)	integrated
AXON IPT (intelligent power transmission)	integrated
Rotor / stator coil distance	0 - 80 mm

operating temperature	Measurement value: -55°C....+500°C		Measurement value: +500°C....+1.000°C		Measurement value: +1.000°C....+1.250°C	
	Error (typ.)	Error (max.)	Error (typ.)	Error (max.)	Error (typ.)	Error (max.)
-40°C	±2°C	±4°C	±4°C	±6°C	±7°C	±8°C
-30°C	±1°C	±3°C	±2°C	±5°C	±6°C	±7°C
0°C	±1°C	±2°C	±1°C	±2°C	±2°C	±3°C
+20°C	±1°C	±2°C	±1°C	±2°C	±1°C	±2°C
+85°C	±1°C	±2°C	±2°C	±2°C	±3°C	±3°C
+125°C	±1°C	±2°C	±3°C	±4°C	±4°C	±5°C
+140°C	±1°C	±3°C	±5°C	±6°C	±7°C	±9°C

### Control Unit

Type	JXTH-CC13
Power Consumption (typ.)	15 VA
Power Consumption (max.)	30 VA
Power Supply	9 - 36 VDC
Carrier frequency (standard)	13,6 MHz
Carrier frequency (optional)	11,6 MHz, 12,6 MHz, 14,6 MHz, 15,6 MHz
Analog Output Connector	44 pol Sub-D
Analog Output	5mV / °C linearized
Digital Output	CAN-Bus 2.0B configurable
Digital Output Connector	2 x Lemo 5 pol
Dimensions (without connectors)	105 x 54 x 169 mm
Weight	720 g
Degree of protection	IP40



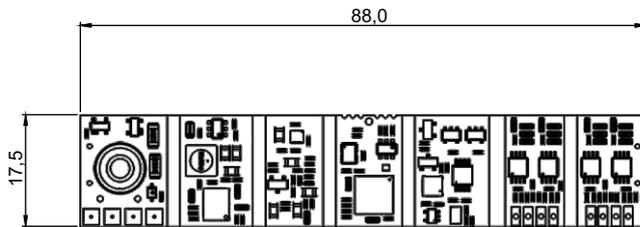
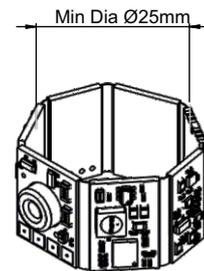
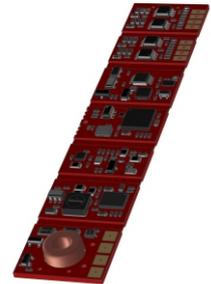
# Telemetry System AXON JXTH

## Rotor Units

### General Technical Data

Signal conditioning	thermocouple type K NiCrNi
Power supply	inductive or battery
Modulation	FSK (digital)
Resolution	16 Bit
Measurement range	-55°C .... +1,250°C
Cold Junction Compensation	integrated
Sensor Break Detection	integrated
Carrier frequency (standard)	13,6 MHz
Carrier frequency (optional)	11,6 MHz, 12,6 MHz, 14,6 MHz, 15,6 MHz

Type	J4TH-RFK13TL	J4TH-RFK13HL
Channels		4
Connections	Solder pads	
Dimensions	88 x 17,5 x 4 mm	
Operating temperature range	-40°C .... +125°C	-40°C .... +140°C
Design	Rigid-Flex PCB	
Minimum bending radius	12,5 mm	
Weight	4,9 grams	
Degree of protection	IP10, components covered with silicone material	

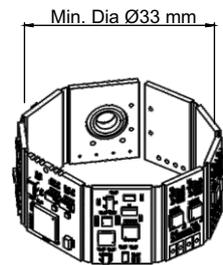
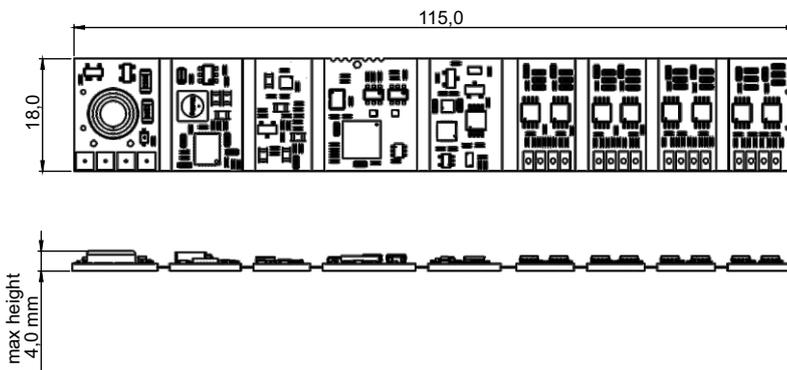
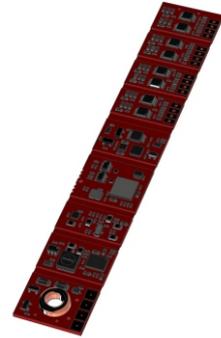


Technical Data

# Telemetry System AXON JXTH

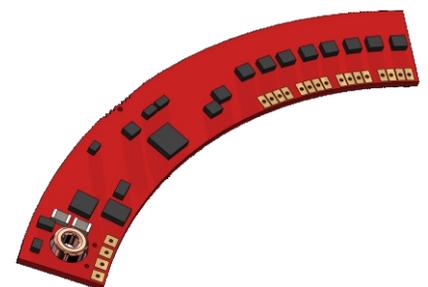
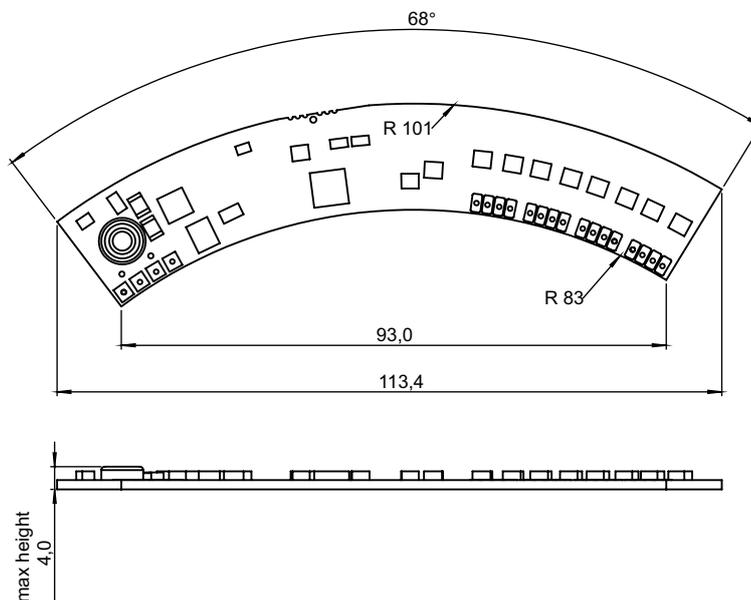
## Rotor Units

Type	J8TH-RFK13TL	J8TH-RFK13HL
Channels	8	
Connections	Solder pads	
Dimensions	115 x 18 x 4 mm	
Operating temperature range	-40°C .... +125°C	-40°C .... +140°C
Design	Rigid-Flex PCB	
Minimum bending radius	16,5 mm	
Weight	6,2 grams	
Degree of protection	IP10, covering material inclusive	



Technical Data

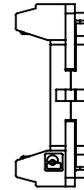
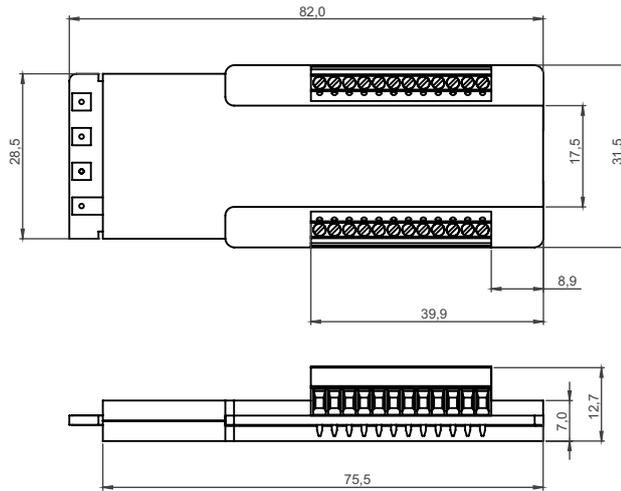
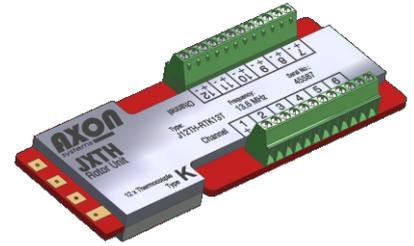
Type	J8TH-RQK13TL	J8TH-RQK13HL
Channels	8	
Connections	Solder pads	
Dimensions	115 x 18 x 4 mm	
Operating temperature range	-40°C .... +125°C	-40°C .... +140°C
Design	Circular segment-shaped printed circuit board	
Shape radius	83 / 101 mm	
Weight	6,2 grams	
Degree of protection	IP10, covering material inclusive	



# Telemetry System AXON JXTH

## Rotor Units

Type	J12TH-RTK13TS	J12TH-RTK13HS
Channels	12	
Connections	Miniature screw terminals	
Dimensions	82 x 31,5 x 13 mm	
Operating temperature range	-40°C .... +125°C	-40°C .... +140°C
Housing	Aluminium	
Weight	33 grams	
Degree of protection	IP67, except contacts	



Technical Data

# Telemetry System AXON JXTH

## Stator Units JXD-SRxx- Ring Stators with Wideband Reception

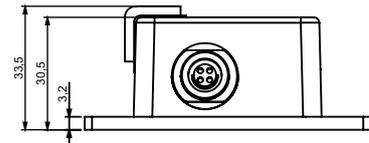
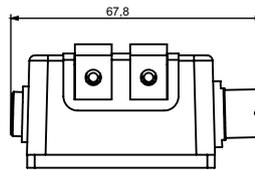
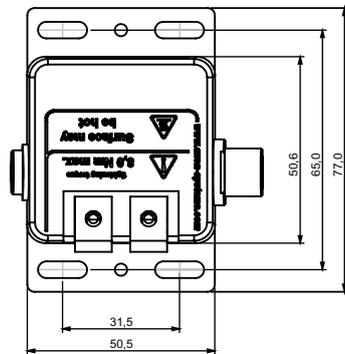
### General Technical Data

Transmission type	Ring stator with conductor loop (transmission coil)
Transmission coil	Copper stator antenna $\varnothing > 4$ mm Optional: copper stator antenna JX-EC02 Optional: EMC stator antenna JX-ECE02
Transmission coil connection	Screw terminals with connection option on top and front
Cable length Stator – Control Unit	5 m, optional 7 m, 8 m, 10 m, 15 m, 20 m, 30 m, 50 m
Reception frequency range	Wideband (10 – 30 MHz)
Degree of protection	IP 68

### Designs / Versions

Type	JXD-SR80TE	JXD-SR80HE
Housing	Aluminum, powder-coated	
Dimensions	68 x 53 mm (base plate 77 x 33.5 mm)	
Operating temperature range	-40°C .... +125°C	-40°C .... +140°C
Transmission coil diameter	$\varnothing$ 60 .... 500 mm	
Anti-EMC	Integrated	
Weight	232 g	
Degree of protection	IP68	

Type	JXD-SR80TEL	JXD-SR80HEL
Housing	Aluminum, powder-coated	
Dimensions	68 x 53 mm (base plate 77 x 33.5 mm)	
Operating temperature range	-40°C .... +125°C	-40°C .... +140°C
Transmission coil diameter	$\varnothing$ 300 .... 2,000 mm	
Anti-EMC	Integrated	
Weight	232 g	
Degree of protection	IP68	

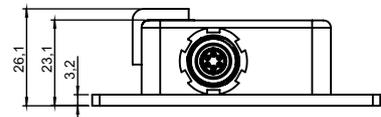
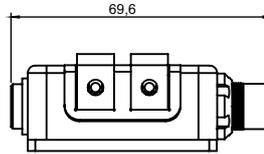
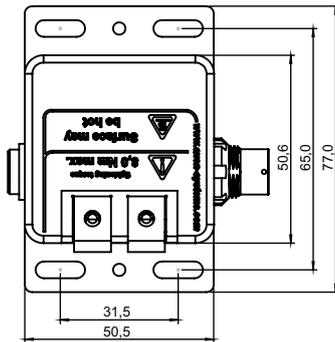


Technical Data

# Telemetry System AXON JXTH

## Stator Units JXD-SRxx- Ring Stators with Wideband Reception

Type	JXD-SR80TM	JXD-SR80HM
Housing	Aluminum, powder-coated	
Dimensions	68 x 53 mm (base plate 77 x 33.5 mm)	
Operating temperature range	-40°C .... +125°C	-40°C .... +140°C
Transmission coil diameter	Ø 40 .... 300 mm	
Anti-EMC	Integrated	
Weight	232 g	
Degree of protection	IP68	



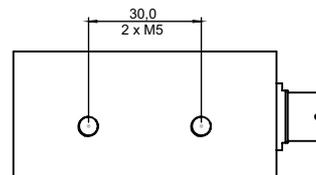
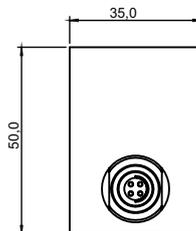
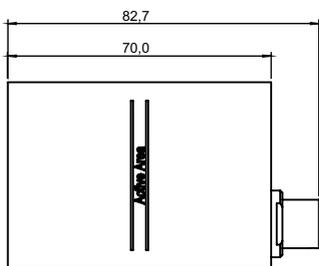
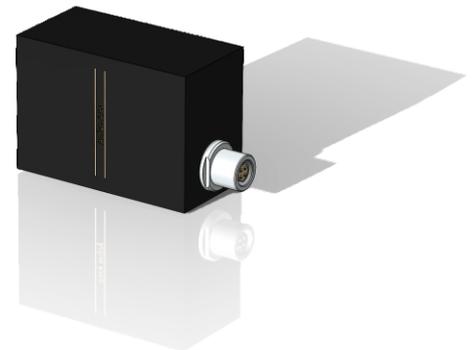
## Stator Units JXD-SExx- Inductive Pick Up with Wideband Reception

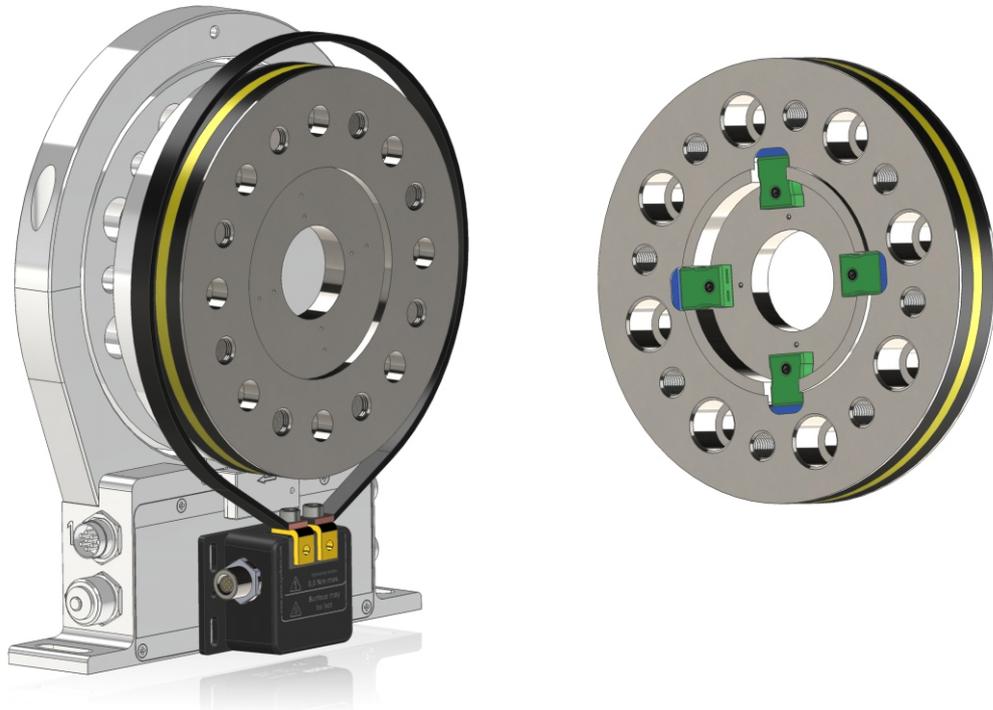
### General Technical Data

Transmission type	Inductive stator as pick-up
Cable length Stator – Control Unit	5 m, optional 7 m, 8 m, 10 m, 15 m, 20 m, 30 m, 50 m
Reception frequency	Wideband
Degree of protection	IP 68

### Designs / Versions

Type	JXD-SE60TE
Housing	Plastic, black
Dimensions	82.7 x 50 x 35 mm
Operating temperature range	-40°C .... +125°C
Distance stator – shaft	0 – 60 mm (free field)
Weight	220 g
Degree of protection	IP68



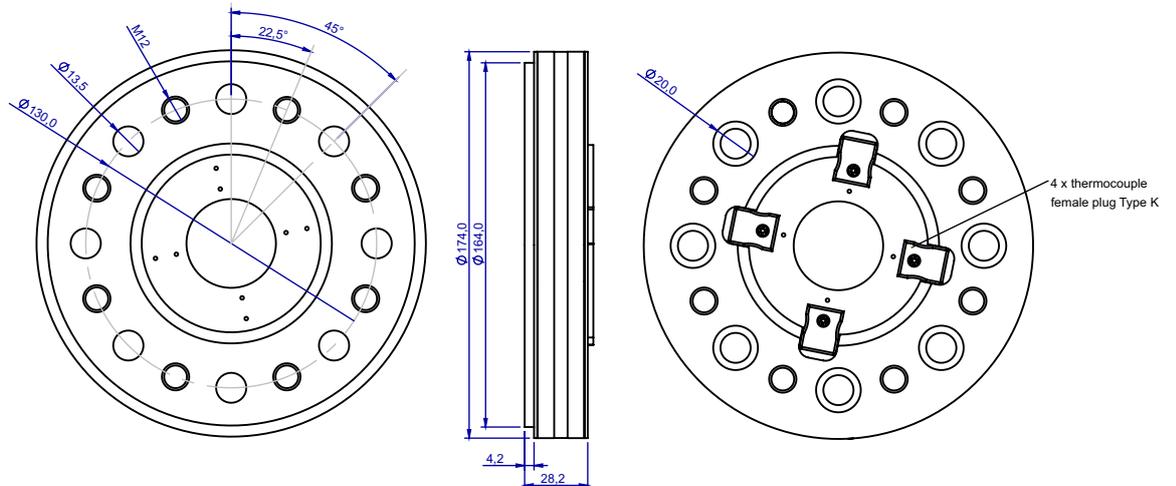


J4TH-AT10

**Plug & Play:**

Based on the JXTH system, the temperature measurement flange offers an easy connection to existing torque measurement flanges (e.g., HBM T40B), thus enabling straightforward temperature measurement on the drivetrain. The extremely slim design allows for easy integration.

Example J4TH-AT10-130-13T (suitable for e.g., HBM T40B 3kNm):



*Engineering  
Trust  
in  
Motion*

**AXON Systems GmbH** stands for telemetry solutions engineered with passion, precision and a deep understanding of real-world measurement challenges. Founded in Germany and driven by engineering excellence for more than two decades, AXON develops high-end telemetry systems for strain gauge, torque and temperature measurements on rotating components – wherever accuracy, robustness and reliability truly matter.

Our systems are designed to perform under the harshest conditions: high temperatures, limited installation space, strong electromagnetic interference and demanding test environments. Whether in vehicle testing, e-mobility applications, test benches or industrial R&D, AXON telemetry solutions deliver stable, trustworthy measurement data when conventional approaches reach their limits.

Development, production, calibration and application engineering are combined under one roof. This allows us to create not only technically advanced products, but also application-specific solutions tailored precisely to our customers' needs – including fully customized mechanical integrations for contactless temperature measurement. AXON systems are trusted worldwide by automotive manufacturers, suppliers and research institutions. We follow uncompromising quality standards and continuously strengthen our processes, including information security, to ensure long-term reliability and confidence.

Behind every system stands a dedicated team. For technical support and application assistance, our engineers are directly reachable via [support@axon-systems.com](mailto:support@axon-systems.com) – personal, fast and free of charge.

