



Sensotek

The Sensotek Tau® sensor range is used to continuously monitor your vibratory equipment. Reporting key parameters to our cloud based Analytix® platform, these values can be trended over time and used to identify faults or inefficiencies with your equipment.



Magnetic



Bolted

Tau E Structure Datasheet

The Sensotek Tau® E Structure sensor ANTS1002, is a digital stroke card.

Key Applications

- Vibrating Screens
- Feeders
- Crushers
- Any machine with a given motion:
 - Elliptical
 - Circular
 - Linear

Product Improvements

Improved battery life (4+ years)
Waveform and stroke plot data sampling
Stronger magnetic fitting

Product Variant

TS-m01

m – mounting method

0	Magnetic
1	Bolted
2	Stud Mount

Mechanical

Physical

Dimensions	See dimension section
Weight (Magnet)	
Weight (Bolted)	
Lid Material – Lid	POM-GF20
Material – Magnetic Base	Anodised Aluminium
Material – Bolted Base	Stainless Steel

Environmental

Operating Temperature	-40 to 85°C (-40 to 185°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Sealing	IP69K
Shock	1000g

Power Supply

Battery

Type	Non-Replaceable 3.6V
Energy	1700mAh (New)
Chemistry	Lithium Thionyl Chloride
Life (Standard)	5 years
Impact to Life	Temperature, Transmission Rate Humidity

Communication

Stroke Data Sampling

Time	10 seconds
Rate	5 minutes

Waveform Data Sampling (New)

Time	4 seconds
Rate	8 hours

Data Transmission

Effective Range	250 meters Line-of-Sight
Frequency	<1GHz ISM Band
Sensotek Channel	Channel 2

Tau E Structure Datasheet

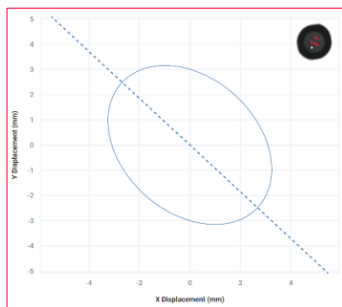
Data Measurement and Sampling

Temperature	
Temperature Range	-40 to 85°C (-40 to 185°F)
Temperature Accuracy	±2°C
Vibration	
Axes	X, Y, Z
Sampling Frequency	See sampling section
Vibration Measurements	Stroke Raw Waveform Spectrum

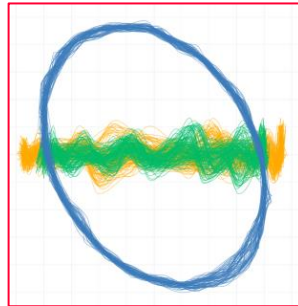
Calculated Parameters

Parameter	Unit
Stroke Length	mm
Stroke Angle	degrees
Phase Angle	degrees
Running Speed	RPM or Hz
Deflection (Velocity)	mm/s
Deflection (Displacement)	mm
Peak Displacement (X/Y)	mm
Screen Uptime	5-minute resolution
Rotating Pattern	representative image

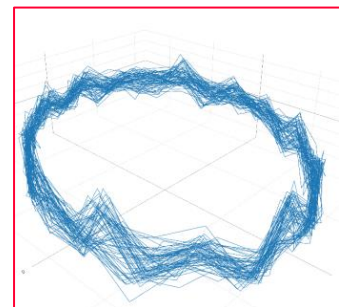
Time Series and Stroke Plot Data



2D Stroke Plot



2D Time Waveform
(Axes Comparison)



3D Time Plot

Stroke Sampling Details *1

Range (Acceleration)	-8 to +8g
Sample Time	10 seconds
Sample Rate	409.6 Hz
Sample Count	4096
Bin Resolution	0.1 Hz

Waveform Sampling Details *1

Range (Acceleration)	Autoscaling up to ±16G
Sample Time	4 seconds
Sample Rate	1024 Hz
Sample Count	4096
Spectrum FMax	400 Hz
Spectrum LOR	1600
Bin Resolution	0.25 Hz

Accuracy *2

Raw Accelerometer	
Acceleration (Peak)	±0.05 g
Resultant Values	
Stroke Length	± 0.14 mm
Stroke Angle*	± 2 deg
RPM	± 6 RPM
Z Velocity	± 1 mm/s

*1 – Parameters are calculated on-sensor and transmitted to the Analytix Platform

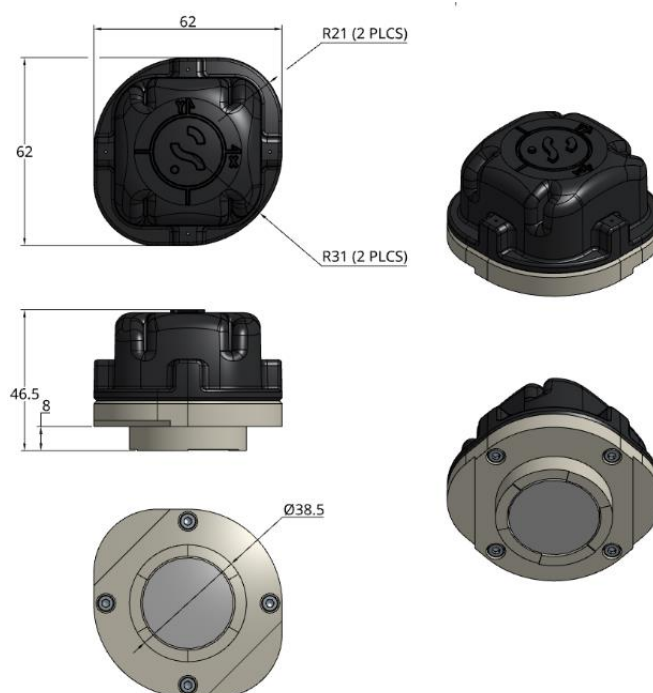
*2 – Stroke accuracy is dependent on RPM, reading. Accuracy is defined at 18Hz (1080 RPM)

Tau E Structure Datasheet

Dimensions

Standard – Magnetic mounting option

Dimensions	62mm x 46.5mm x Ø 38.5mm
Weight (with magnet)	260g
Weight (bolted)	240g



* Bolted dimensions available on request

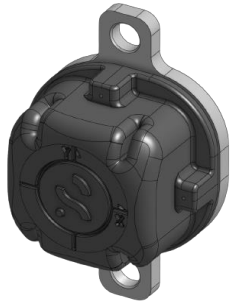


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Magnetic



Bolted

Tau E Bearing Datasheet

The Sensotek Tau® E Bearing sensor ANTS1002 is a triaxial vibration and temperature sensor for rotating equipment monitoring. A ruggedised design with a low profile to withstand harsh environments.

Key Applications

- Mining and mineral processing
- Aggregate processing
- Any machine with a rotating element:
 - Pumps
 - Fans
 - Motors

Product Highlights
Improved battery life (4+ years)
Waveform sampling
Stronger magnetic fitting

Product Variant
TB-m01
m – mounting method
0 Magnetic
1 Bolted
2 Stud mount

Mechanical	
Physical	
Dimensions	See dimension section
Weight (Magnet)	260g
Weight (Bolted)	240g
Lid Material – Lid	POM-GF20
Material – Magnetic Base	Anodised Aluminium
Material – Bolted Base	Stainless Steel
Environmental	
Operating Temperature	-40 to 85°C (-40 to 185°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Sealing	IP69K
Shock	1000g

Power Supply	
Battery	
Type	Non-Replaceable 3.6V
Energy	1700mAh (New)
Chemistry	Lithium Thionyl Chloride
Life (Standard)	4+ years
Impact to Life	Temperature Humidity Transmission Rate

Communication	
Data Sampling	
Rate (Short Interval)	1 minute
Rate (Long Interval)	12 hours
Data Transmission	
Effective Range	250 meters Line-of-Sight
Frequency	433.4 MHz
Sensoteg Channel	Channel 2

Measurement	
Temperature	
Temperature Range	-40 to 85°C (-40 to 185°F)
Temperature Accuracy	±2°C
Vibration	
Axes	X, Y, Z
Sampling Frequency	See sampling section
Range – Acceleration	± 16g Autoscaling

Tau E Bearing Datasheet

Short Interval Data – Overall Values	
Sample Rate (Temperature)	1 minute
Sample Rate (Vibration)	3 minutes
Measurements	Temperature Velocity RMS Acceleration RMS Acceleration Pk-Pk
Sample Window	200ms
Sample Frequency	6.4 kHz
Sample Rate (Temperature)	1 minute
Sample Rate (Vibration)	3 minutes
Measurements	Temperature Velocity RMS Acceleration RMS Acceleration Pk-Pk

Long Interval Data – Time Waveform and Spectrum		
Sample Rate	12 hours	
Type of Measurement	High	Full
Purpose	Speed Ident.	Vib. Analysis
Sample Window	2938ms	625ms
Sample Frequency	1.4kHz	6.4kHz
Number of Samples	4096	
Max Freq (Fmax)	550Hz	2500Hz
Lines of Resolution (LOR)	1600	
Bin Resolution	0.34Hz	1.56Hz
FFT Windowing	None or Hann	
Calculated Values	Pk-Pk Crest Factor Spectrum Bands	

Tau E Bearing Datasheet

Dimensions	
Standard - Magnetic mounting option	
Dimensions	62mm x 46.5mm x Ø 38.5mm
Weight (with magnet)	260g
Weight (bolted)	240g

Technical drawings of the Tau E Bearing showing dimensions and labels:

- Top view: Dimensions 62mm x 62mm. Labels: R21 (2 PLCS), R31 (2 PLCS).
- Side view: Dimensions 46.5mm x 8mm.
- Bottom view: Dimension Ø38.5mm.

* Bolted dimensions available on request