Ball Joint Displacement Sensor with Easy-Sense Function

- Measurement range: 10 - 400 mm
- Long mechanical life
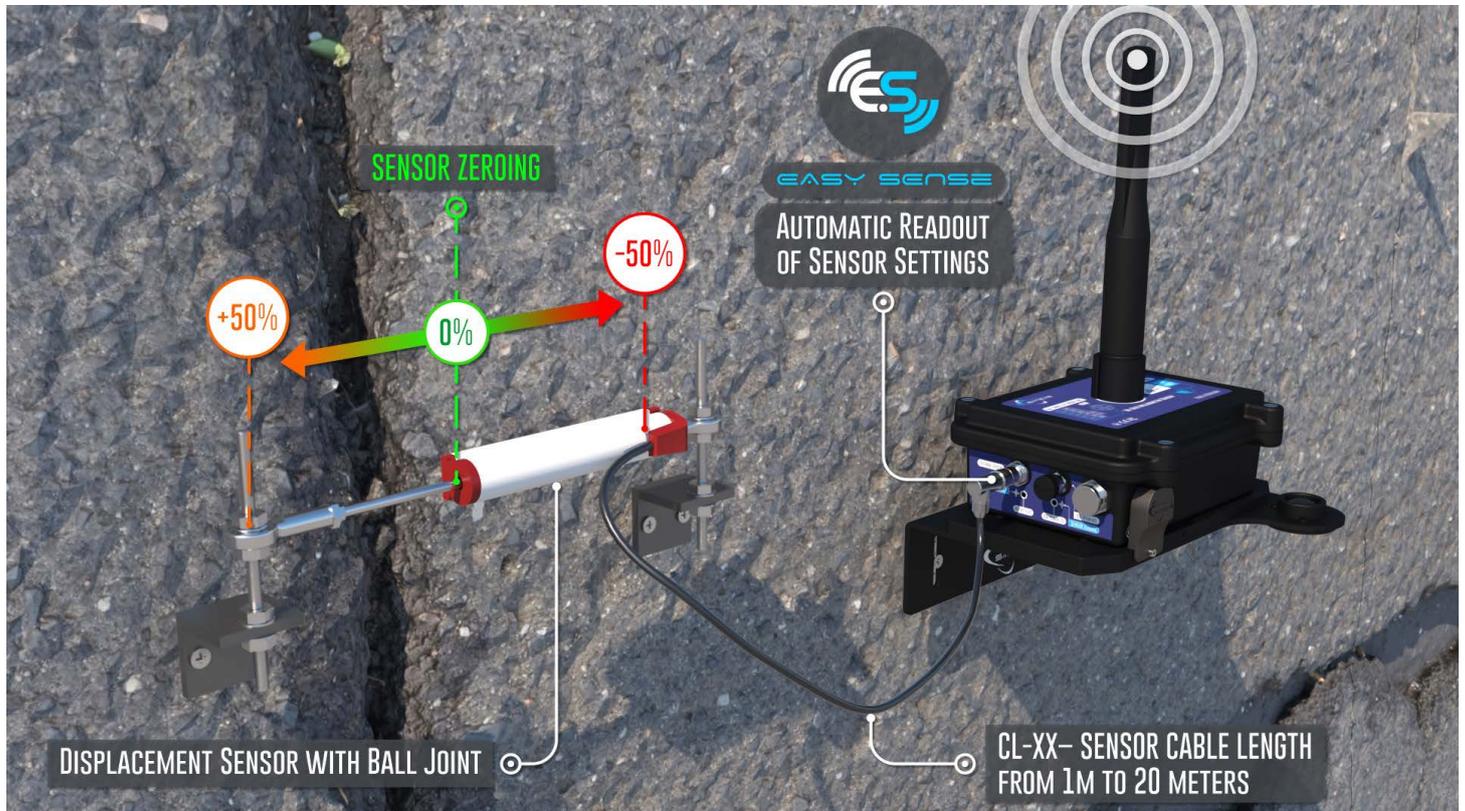- Excellent repeatability: <0.01 mm

EASY SENSE

Automatic Readout of Sensor Settings

Displacement Sensor with Ball Joint

Satevis Alpha-INC
Wireless IoT Inclinometer Sensor

Ball Joint Displacement Sensor with Easy-Sense Function

SENSOR ZEROING

+50%

0%

-50%

Automatic Readout of Sensor Settings

EASY SENSE

Displacement Sensor with Ball Joint

CL-XX– SENSOR CABLE LENGTH FROM 1M TO 20 METERS

1 > What is Easy-Sense function ?

How often have you experienced false alarms due to incorrect sensor configuration or calibration?
Easy-Sense helps address this issue by automatically storing and displaying the sensor settings:
• Sensor Type and Measurement Stroke (ex: Potentiometer, Measurement stroke: 100mm).
• Sensor Calibration settings and date of calibration .
• Alarms Thresholds Values (Three levels: Critical, Severe, Minor).
• Sensor Zero-offset and date of Sensor zero offset.

• Enhanced Traceability

The sensor's calibration settings are securely stored in its internal Flash memory, allowing for easy re-calibration using the Satevis® Link software.

• Simplified Maintenance

Users can keep the displacement sensor on-site and easily swap the Satevis® Alpha-Inc in case of sensor redeployment. There's no need to adjust the displacement sensor settings, such as alarm thresholds or zero-offset values.

Ball Joint Displacement Sensor with Easy-Sense Function

• Increased flexibility

The sensor's zero-offset can be adjusted remotely via the Satevis® cloud application (or a third-party cloud application).
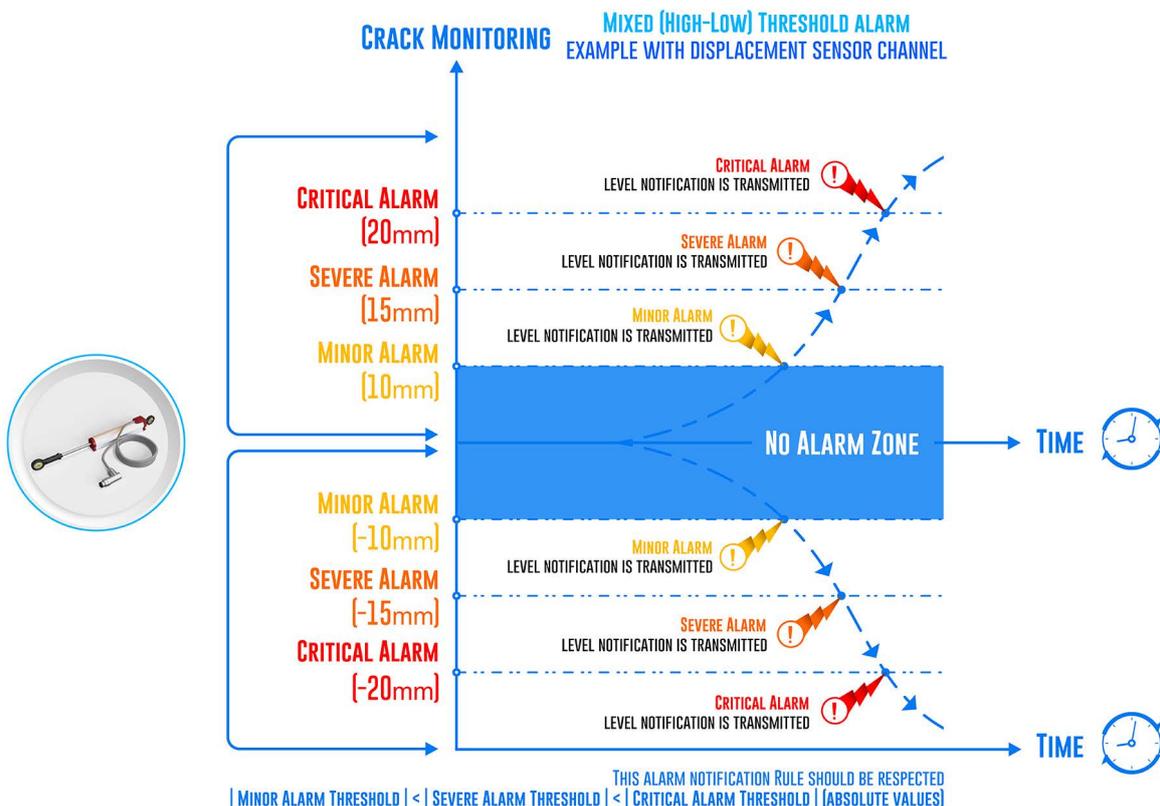
• Advanced Alarm Management
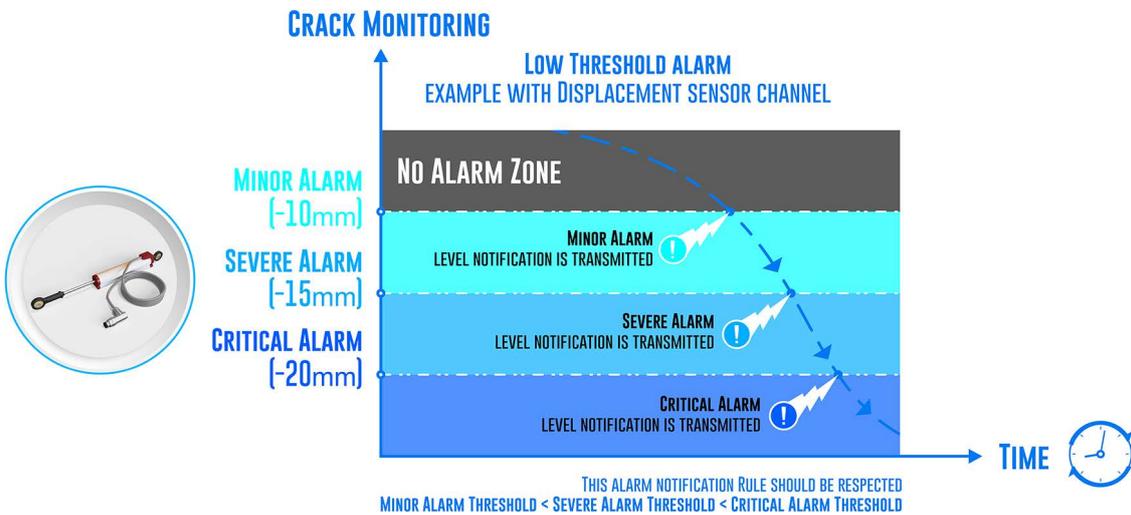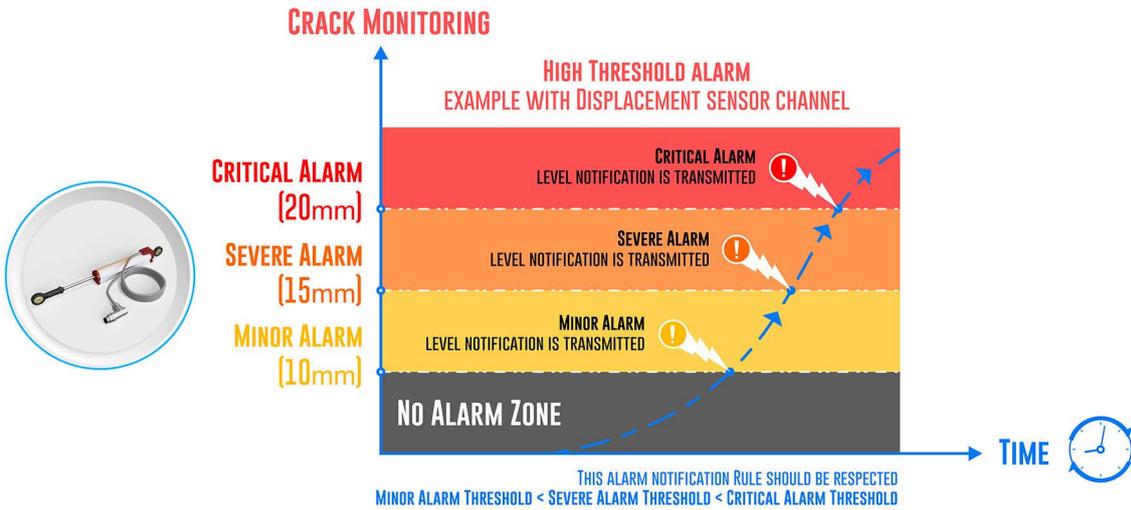
Three types of alarm thresholds are available:
• Low Alarm Threshold: Triggers an alarm when a data measurement falls below the set threshold.
• High Alarm Threshold: Triggers an alarm when a data measurement rises above the set threshold.
• Mixed Alarm Threshold: Triggers an alarm when a data measurement changes in two opposite directions.

Additionally, three alarm severity levels are available, allowing users to direct notifications to different emails or activate a dry contact:
• Minor Level: The lowest level of alarm.
• Severe Level: Medium level of alarm notification.
• Critical Level: Highest level of alarm, requiring field intervention.

Crack Monitoring   **Mixed (High-Low) Threshold alarm example with displacement sensor channel**

Critical Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Critical Alarm (20mm)

Severe Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Severe Alarm (15mm)

Minor Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Minor Alarm (10mm)

No Alarm Zone   **Time**

Minor Alarm (-10mm)

Minor Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Severe Alarm (-15mm)

Severe Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Critical Alarm (-20mm)

Critical Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Time

This alarm notification Rule should be respected
| Minor Alarm Threshold | < | Severe Alarm Threshold | < | Critical Alarm Threshold | (absolute values)

Ball Joint Displacement Sensor with Easy-Sense Function

Crack Monitoring

High Threshold alarm
EXAMPLE WITH Displacement sensor channel

Critical Alarm
(20mm)

Critical Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Severe Alarm
(15mm)

Severe Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Minor Alarm
(10mm)

Minor Alarm
LEVEL NOTIFICATION IS TRANSMITTED

No Alarm Zone

Time

This alarm notification Rule should be respected
Minor Alarm Threshold < Severe Alarm Threshold < Critical Alarm Threshold

Crack Monitoring

Low Threshold alarm
EXAMPLE WITH Displacement sensor channel

No Alarm Zone

Minor Alarm
(-10mm)

Minor Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Severe Alarm
(-15mm)

Severe Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Critical Alarm
(-20mm)

Critical Alarm
LEVEL NOTIFICATION IS TRANSMITTED

Time

This alarm notification Rule should be respected
Minor Alarm Threshold < Severe Alarm Threshold < Critical Alarm Threshold

• Sensor Zeroing

Sensor zeroing can be done by holding a magnet on Sensor Zeroing Label or remotely from Satevis® Cloud application (or Third-Party Cloud Software).

BALL JOINT DISPLACEMENT SENSOR WITH EASY-SENSE FUNCTION

TECHNICAL SPECIFICATIONS

PRODUCT REFERENCE

SAT-EASY-SENSE-DISP-BJ-MS-YY-CL-XX

MS-YY - Measurement stroke

10mm, 50mm, 100 mm, 150mm, 200mm, 250mm, 300mm, 350mm, 400mm

CL-XX– SENSOR CABLE LENGTH

from 1m to 20 meters

Example: SAT-EASY-SENSE-DISP-BJ-MS-100MM-CL-10M
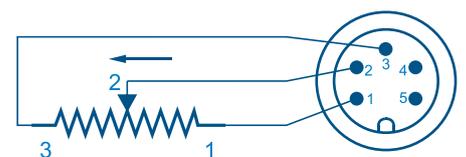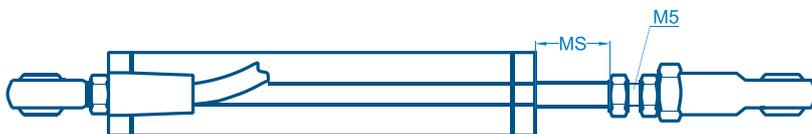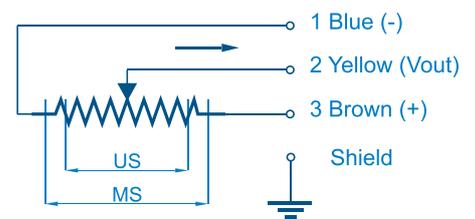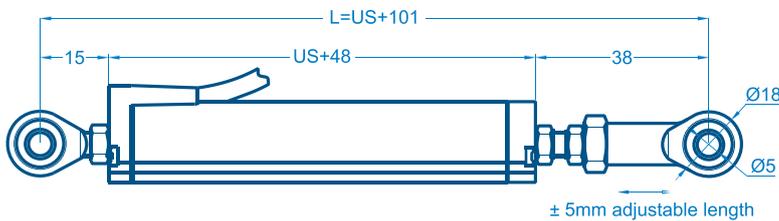Displacement sensor with ball Joint, Measurement stroke 100mm, Cable length 10 meters

DISPLACEMENT SENSOR SPECIFICATIONS

Sensor technology	Linear potentiometer with ball joints on both sides
Measurement stroke	10mm to 400mm
Linearity	±0.05% (>200 mm) , ±0.1% (130-200 mm) , ±0.2% (75-130 mm) , ±0.5% (50 and 10 mm)
Repeatability	< 0.01mm
Resolution	0.0003mm for 10mm measurement stroke 0.0017mm for 50mm measurement stroke 0.0034mm for 100mm measurement stroke 0.0050mm for 150mm measurement stroke 0.0067mm for 200mm measurement stroke 0.0084mm for 250mm measurement stroke 0.0101mm for 300mm measurement stroke 0.0117mm for 350mm measurement stroke 0.0134mm for 400mm measurement stroke
Resistance	2 kOhm: 10....50mm 5 kOhm : 75....400mm
Sensor Voltage	3.3VDC Powered directly by Satevis® device
Integrated Analog to Digital Converter	Integrated 15-bit Analog to Digital Converter
Displacement speed	< 5m/s
Mechanical Life	100 millions movements
Casing dimensions	18 mm of diameter
Casing material	Anodized Aluminum
Rod material	stainless steel
Rod diameter	5 mm of diameter
Mechanical mounting	ball joints on both sides
Waterproofness	IP66
Operating Temperature	-20°C to +80°C
Connection Plug	M8-4Pins connector
Satevis® compatibility	compatible with Satevis® Alpah-Inc/Alpha-Inc Kompakt

Ball Joint Displacement Sensor with Easy-Sense Function

EASY-SENSE FUNCTION	
Internal Flash Memory	Automatic Readout of Sensor Settings: • Sensor Type and Range • Sensor Calibration settings and date of calibration ; • Alarms Thresholds Values • Sensor Zero-offset and date of Sensor zero offset
Calibration	Calibration performed at Beanair Lab.
Alarms Management	Three level of Alarms: Critical/Severe/Minor With High/low and Mixed Alarms Thresholds
Sensor Zeroing	Sensor Zeroing can be performed on site or Remotely from Satevis Cloud Application (or Third-Party Cloud software)

DRAWING

L=US+101

15   US+48   38

Ø18

Ø5

± 5mm adjustable length

1 Blue (-)
2 Yellow (Vout)
3 Brown (+)
Shield

US
MS

MS   M5

23   10

18
8

2
3   1

Ball Joint Displacement Sensor with Easy-Sense Function

DISP-SENS (mm)	10	50	100	150	200	250	300	350	400
US (Usefull Stroke)	10	50	100	150	200	250	300	350	400
MS (Mecanical Stroke)	13	53	103	153	203	253	303	353	403
L (total Length)	111	151	201	251	301	351	401	451	501

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