



SAAX

Model 003

ShapeArray is patented technology.

Purpose-built for heavy duty horizontal installation: soil settlement, rail-line deformation, and pipeline monitoring. SAAX's watertight construction combines twist-resistant joints and thick-walled stainless steel segment tubes. The construction contains a compact array of triaxial MEMS accelerometers.

SAAX delivers superior cost-benefit returns to project budgets. All ShapeArray installations are fast and low-cost, requiring far fewer people than traditional in-place inclinometers. SAAX is rolled off a reel and set into user-installed conduit.

SAAX's segment length is 1000 mm.

SPECIFICATIONS



PHYSICAL PROPERTIES

SEGMENT LENGTH	1000 mm (Joint centre to joint centre)
STANDARD LENGTH OF SAAX	Up to 200 m
CUSTOM LENGTH OF SAAX	Over standard length, contact Measurand for details
MAXIMUM DIAMETER	24 mm
LENGTH OF UNSENSORIZED NEAR CABLE END SEGMENT	205 mm
LENGTH OF COMMUNICATION CABLE	15 m standard
LENGTH OF FAR TIP EYEBOLT	80 mm
WEIGHT	1 kg/m
MAXIMUM TENSILE RESISTANCE	225 kgf
MAXIMUM JOINT BEND ANGLES	90°
STORAGE TEMPERATURE	-40°C to 60°C
INSTALLATION TEMPERATURE	-20°C to 60°C
OPERATING TEMPERATURE	-35°C to 60°C polynomial temperature algorithm corrected
WATERPROOF TO	2000 kPa (200 m Water)
POWER REQUIREMENTS	12 VDC at 1.8 mA/segment

STATIC SHAPE MEASUREMENTS

RANGE OF 2D MODE (HORIZONTAL)	$\pm 30^\circ$ with respect to horizontal
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ACCURACY OF DEFORMATION RELATIVE TO STARTING SHAPE ^{1,2,3}	± 1.5 mm for 32 m SAAX
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RESOLUTION ^{1,2,3}	± 0.5 mm for 32 m SAAX
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RESOLUTION OF SINGLE SEGMENT	± 1 arcsecond
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ACCURACY OF TILT/SEGMENT WITHIN 20° OF HORIZONTAL ^{1,2,3}	± 0.0005 rad = 0.029°
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NOTES



¹ One-sigma value, based on field measurements of horizontal arrays > 1 year of operation. Accuracy value is a function of the square root of length.

² Value based on AIA (Average in Array) setting of 1000 samples.

³ RMS calculated from published noise figure of sensor (verified by Measurand) and bandwidth of system using highest AIA setting of 25,600 samples.

PATENT INFORMATION

ShapeArray is patented technology.

Measurand's patents include, but are not limited to:

Shape-Acceleration Measurement Device and Method, Canadian Patent 2,472,421 & 2,747,236

Shape-Acceleration Measurement Device and Apparatus, US Patent 7,296,363

Cyclical Sensor Array, Canadian Application 2,815,199 & 2,911,178

Bipartite Sensor Array, Canadian Application 2,815,195 & 2,911,175

ShapeArray patents include coverage in: United States, Canada, France, United Kingdom, Italy, Japan and Germany.

Installation patents include coverage in United States, Canada, France, United Kingdom, Italy, Germany, China, Hong Kong, and Korea.

Patent families are sufficiently broad to capture most or all usage of ShapeArray in longer lists of countries.

NOTES



Maximum diameter of array = 24 mm

Capped SAAX length = Cable terminator length (205 mm) + sensorized length

Sensorized length = 1000 mm per segment

Sensorized length tolerance is 0.5 % unless otherwise specified.

