LoRaWAN Valve Positioning Sensor

Intelligent industrial wireless sensor for remote monitoring in hazardous environments

SENSA.iO
INTELLIGENT SENSORS DRIVING CONNECTIVITY

PATENTED DESIGN

Performance features

- Compact, robust and weather-proof
- Quick and cost-effective installation
- SensorFusion remove angular algorithm
- Cortex® 150 Mhz - M4 for analytics at edge
- LoRaWAN global frequency plans
- End-to-End security: Inc. 128-bit AES encryption + MFA
- Bluetooth® 5 low energy
- Ultra-low power up to 10 years battery life [2]
- Intrinsically safe design for hazardous area (Zone 0/1)

Applications

- Process Control
- Distribution Automation
- Predictive Maintenance
- Manufacturing Automation
- Safety Lock Systems
- Water Treatment
- ATEX Zone Safety
- Level Monitoring

Specifications

Measuring principle	Inertial measurment unit (IMU)
Measuring ranges	Full range 0 - 100%
Accuracy [1]	3% FS
Embedded calculation	Sensor fusion algorithm
Long term stability	0.5° (0.05% of FS) max
Process connection	Page 2

Environment

Operating temperature	-40 ... +72°C / -40 ... +161.6 °F
Storage temperature (recommended)	+ 25 °C / 77 °F
Protection rating	IP65/67
Vibration	20 g, 5 ... 2000 Hz, X/Y/Z
Endurance @ 25 °C / 77 °F	>10 millions FS cycles
Shock	50 g / 11ms - 100 g / 6ms
Humidity	0 to 100% non-condensing

Material

Wetted part	Stainless steel 316L	
Housing option	Aluminum powder coated light weight	1.0 Kg
	Stainless steel 316L	1.5 Kg
Antenna	Reinforced anti-static polymer (ESD Protection and UV Stabilized)	

Communication

Bluetooth® 5	
Operating OS	Android 11 and greater or IOS 12 and greater
Beacon mode	Available for live pulling data
Class LoRaWAN	A – lowest power bi-directional
Range	Up to 10km
Baud rate range	From 0.3 kbps to 50 kbps
Adaptative data rate (ADR)	Available
Interference immunity	Very high
Mode	OTAA with external join server
Update rate [2]	100 frames / per day (default)
Frequency plans	Please see page 4 for options
RF Power	Max. 14 dBM ERP
Security	Dedicated trusted secure element AES 128 bits encryption Roaming activation via HSM
Antenna	Omni-directional multiband

Battery

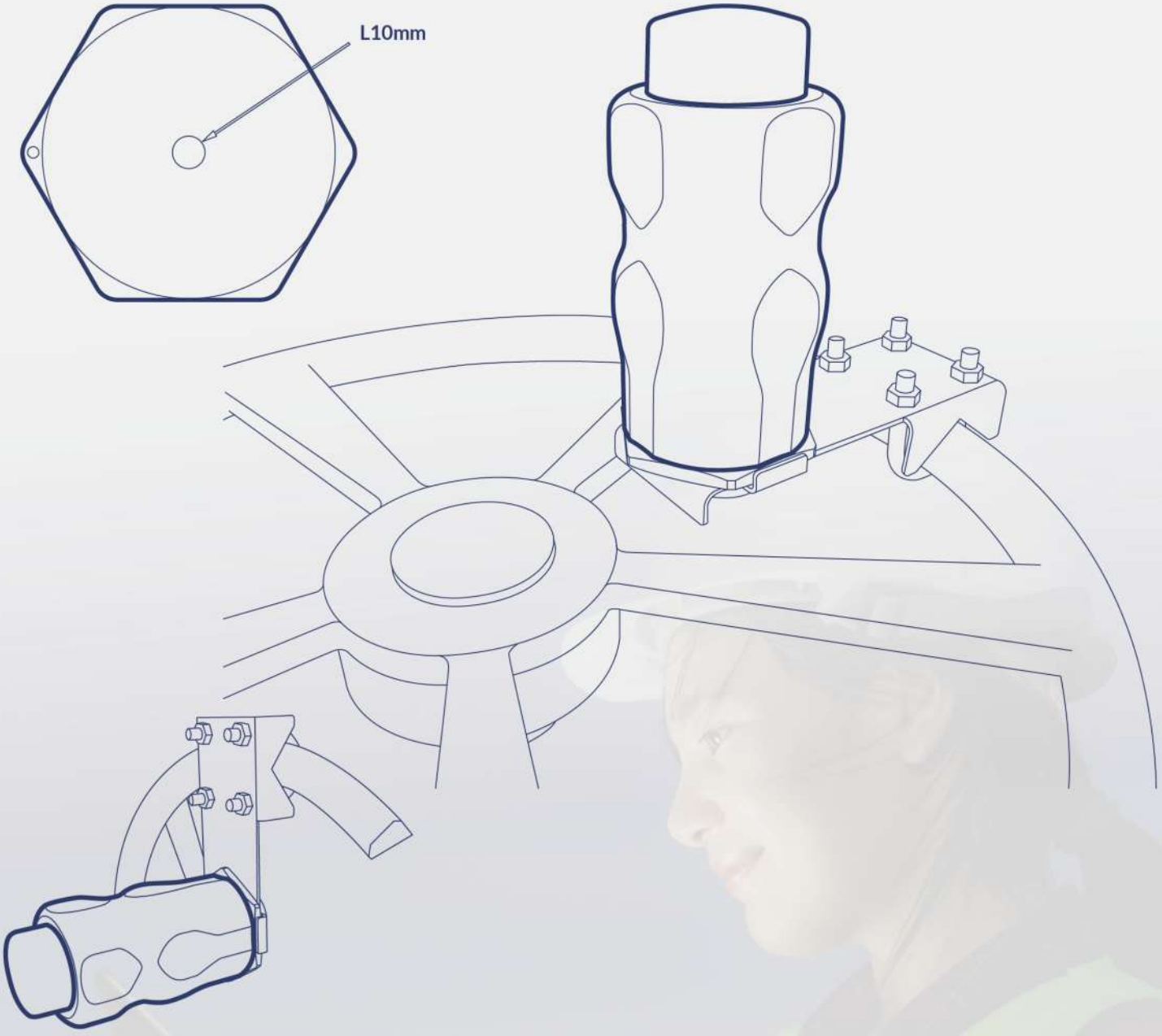
Format	Field replaceable D-size format
Type	Primary Li-MnO2
Nominal capacity @ 20 °C / 68 °F	12.4 Ah
Nominal voltage @ 20 °C / 68 °F	3.0 V
Storage temperature	+25 °C/77°F recommended

Approvals

Conformity	RoHS directive 2011/65/EU - RED directive 2014/53/EU ATEX directive 2014/34/EU - PED directive 2014/68/EU IEC61010-1:2020 + A1:2016
Safety	ATEX II 1 GD, ATEX I M1, Ex ia I Ma, UKCA IECEX Ex ia IIC T4 Ga, Ex ia IIIB T135 °C Da Class I/II/III Groups ABCDEFG T4

1 Including linearity, hysteresis and repeatability. Linearity calculated as best straight line through zero.
2 Changing default parameters can impact the battery life.

Process connection



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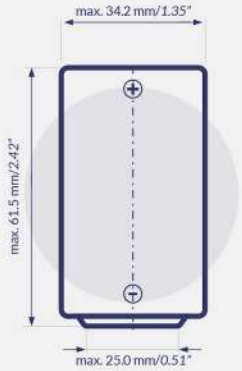
Battery characteristics : SAFT M 20 EX SV [3]

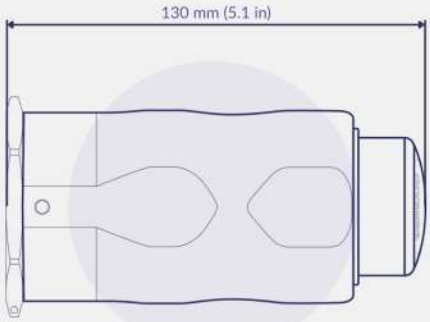


- Stainless steel container
- Hermetic glass-to-metal sealing
- Built-in safety vent
- Made in Germany
- ATEX and IECEX certified

Diameter (max)	34.2 mm (1.35 in)
Height (max)	61.5 mm (2.42 in)
Typical weight	115 g

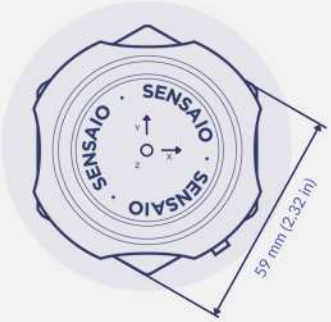
3 Only use the correct battery model for this device SAFT M 20 EX SV. There is a risk of damage if you replace the battery with an incorrect model. Restricted for transport (Class 9). Battery is sold separately

Dimensions

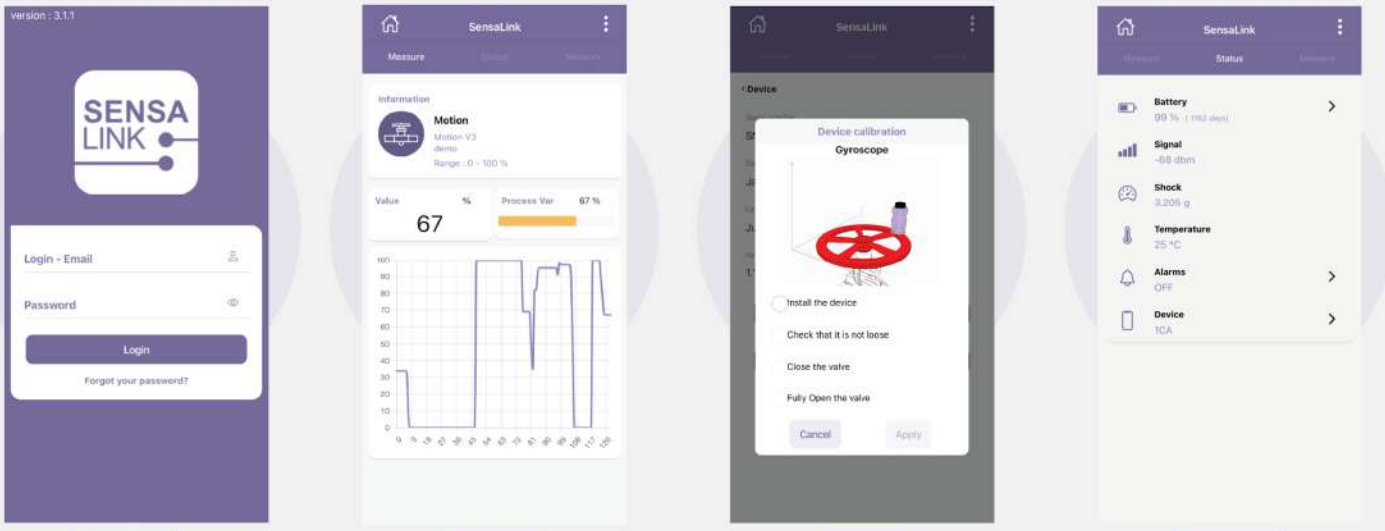


Tool kit

Flat spanner	59 mm
Allen key	2.5 mm
Max torque	50 Nm



Sensalink



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Ordering details / part number creation chart

SENSA.	VALV	XXX	X	X	X	X	X	X	X
Model									
Valve position sensor	VALV								
Type									
Inertial measurement unit		IMU							
Measurement range									
Max range 0-100%			1						
Process connection									
M10 female				1					
Mounting option									
Universal clamp					1				
Housing material									
Aluminium powder coated L						L			
Stainless steel 316L (mandatory for mining)						H			
Safety standard									
ATEX/IECEX/UKCA (gas/dust)							1		
HAZLOC NEC USA							2		
ATEX/IECEX/UKCA (mining)							3		
INMETRO							4		
HAZLOC/CSA Canada							5		

Frequency plan

Channel plan	ID plan	Channel plan	ID plan	Channel plan	ID plan	Channel plan	ID plan
EU863-870	1	AS923-1	7	KR920-923	10	AS923-4	13
US902-928	2	AS923-2	8	IN865-867	11		
AU915-928	5	AS923-3	9	RU864-870	12		

> Choose ID plan

Options*									
Null									N

Special conditions

Calibration is mandatory after each battery replacement and/or dismantlement of the device on the handwheel