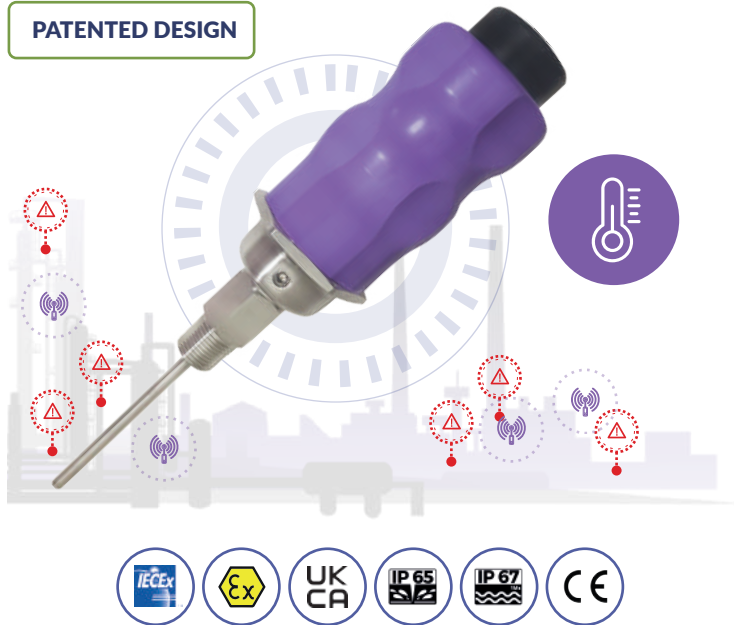# LoRaWAN Temperature Sensor

Intelligent industrial wireless sensor
for remote monitoring in hazardous environments

SENSA.iO
INTELLIGENT SENSORS DRIVING CONNECTIVITY

PATENTED DESIGN

Performance Features

- ☑ Compact, robust and corrosion-resistant
- ☑ Quick and cost-effective installation
- ☑ Wide temperature ranges and mounting options
- ☑ Cortex® 150Mhz-M4 for analytics at the edge
- ☑ LoRaWAN Global frequency coverage
- ☑ 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 areas (Zone 0/1)

Applications

- ☑ Oil, gas and mining
- ☑ Chemical and petrochemical
- ☑ Biomass, geothermal & hydrogen
- ☑ Energy, utilities and transport
- ☑ Recycling & waste treatment
- ☑ Pharmaceutical
- ☑ Aerospace

Sensor specifications

Measuring option	- Resistance Temperature Detector (RTD) - Nickel-Alloy Thermocouple (Type K)
Measuring ranges	-40 °C ... 650 °C / -40 °F ... 1200 °F
Accuracy [1]	PT100 Class A ±(0.15 + 0.002 × t)°C Type K Class 1 ±1.5°C or 0.4% of reading
Immersion tube, diameter	Ø6 mm or Ø5 mm
Immersion tube, lenght	Min. 100mm - Max. 1000mm / 4in to 40in
Mounting option	- In-line Spring Loaded - Surface mounted - Pipe pressure mounted

Environment

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

Material

Wetted Part	Stainless Steel 316L or Inconel 625	
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 7.0 or IOS 12 or greater
Beacon mode	Available for Live pulling data
Class	A – lowest power bi-directional
Range	up to 10km
Baud rate range	from 0.3 kbps to 50 kbps
Adaptive 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. 14dBM 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	12.4 Ah
Nominal voltage @ 20°C	3.0 V
Storage Temperature	+25 °C recommended

Approvals

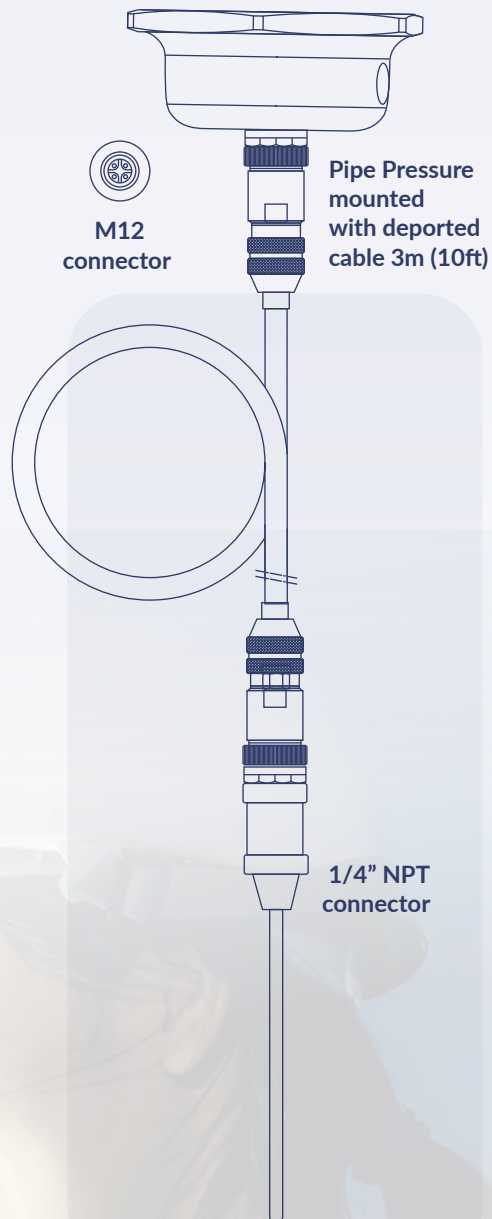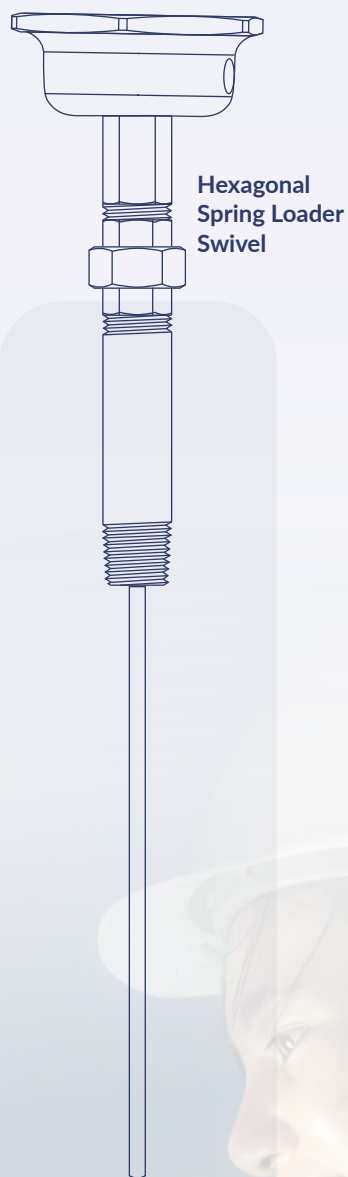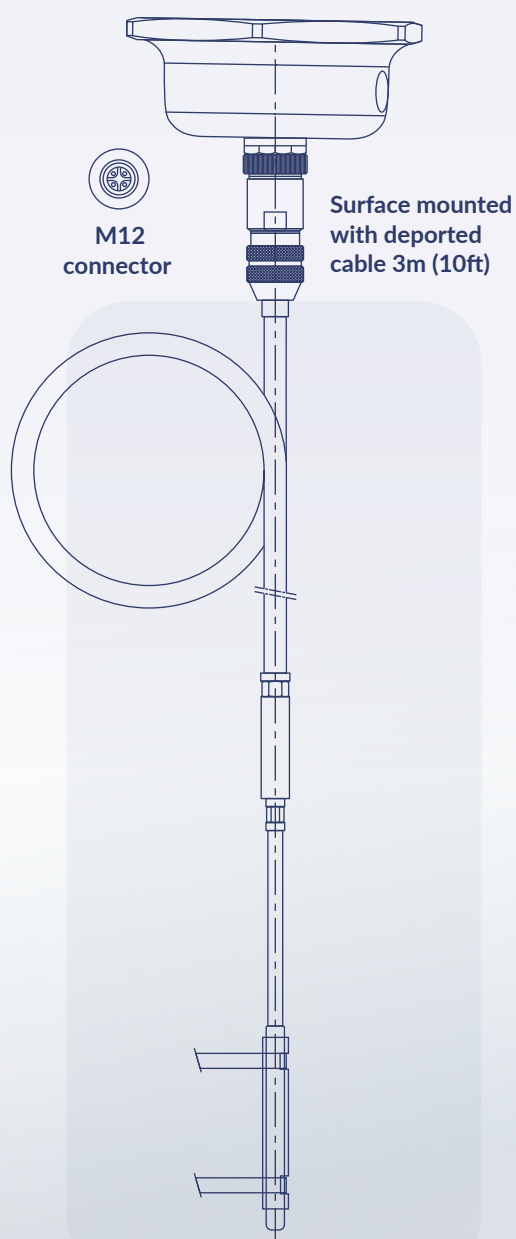|	
Conformity	RoHS directive 2011/65/EU - RED directive 2014/53/EU ATEX directive 2014/34/EU IEC - 61010-1+ A1
Safety	ATEX II 1 GD, ATEX I M1, Ex ia I Ma, UKCA IECEX Ex ia IIC T4 Ga, Ex ia IIIB T135 °C Da Class I/II/III Groups ABCDEFG T4

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

Mounting options

M12 connector

Surface mounted with deported cable 3m (10ft)

Hexagonal Spring Loader Swivel

M12 connector

Pipe Pressure mounted with deported cable 3m (10ft)

1/4" NPT connector

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INTELLIGENT SENSORS DRIVING CONNECTIVITY

Scroll down for further information

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Battery Characteristics : SAFT M 20 EX SV[3]

max. 34.2 mm/1.35"
max. 61.5 mm/2.42"
max. 25.0 mm/0.51"
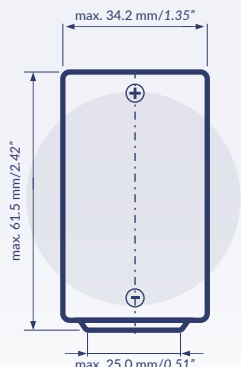
☑ Stainless steel container
☑ Hermetic glass-to-metal sealing
☑ Built-in safety vent
☑ Made in Germany
☑ ATEX and IECEX certified

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

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

Custom Length (L)   149mm(5.87in)

DIN M5 x 4 HEX

Tool Kit

☑ Flat Spanner   59 mm
☑ Lock Spanner   SNS
☑ Max Torque   50Nm

59mm

Sensalink

version : 3.1.1

SENSA LINK

Login - Email
Password
Login
Forgot your password?

SensaLink
Measure
Information
RTD
1CAB520000000331
Range : -40 - 150 °C
Value °C   Process Var   56 %
66.02

SensaLink
Device
Sensor calibration
Enter reference temperature
0   C
Cancel   Apply
Calibrate your device
DFU

SensaLink   Status
Battery 99 % (3079 days)
Signal -80 dbm
Shock 3.189 g
Temperature 25 °C
Alarms OFF
Device 1CA

Download on the App Store
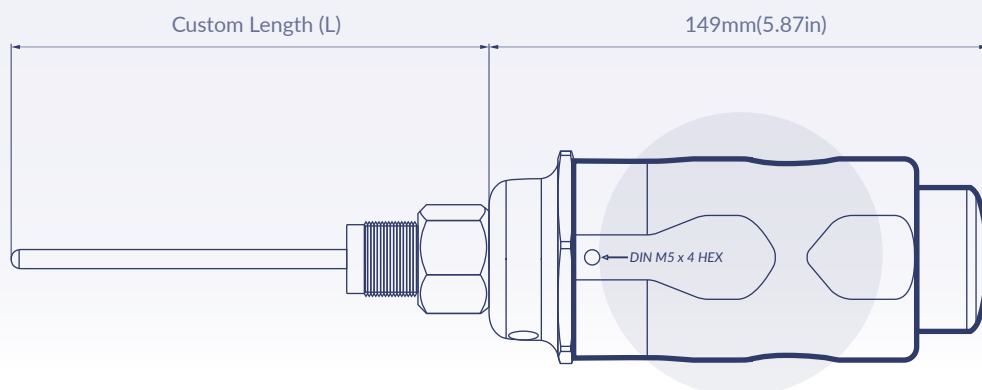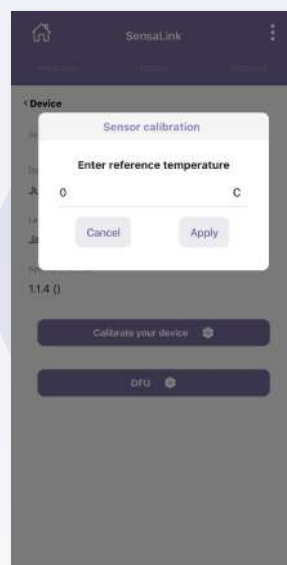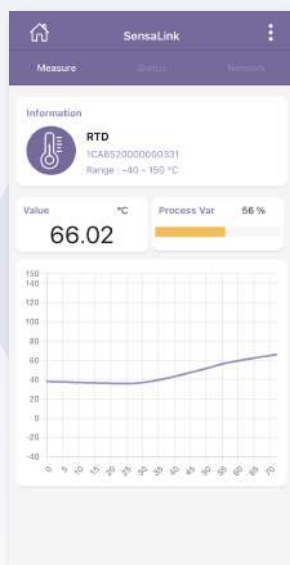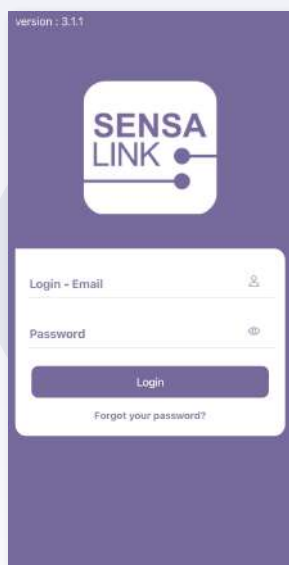
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Ordering details / part number creation chart

SENSA.		TEMP	XXX	X	X	X	X	X	X	X
Model										
Temperature Sensor		TEMP								

Type
Resistance Temp. Detector (RTD)		RTD
Nickel-Alloy Thermocouple (K)		TCK

Measurement Range
-40 / 100°C	0
-40 / 150°C	1
-40 / 250°C	2
-40 / 450°C	3
-40 / 650°C (only Type k)	4

Process Connection
Thermowell mounted Spring Loader 1/2" NPT	1
Surface mounted with deported cable 3m (10ft)	2
Pipe Pressure mounted with deported cable 3m (10ft) - 1/4" NPT Max Pressure 1,000bar	3

Probe length
150mm (6in)	1
300mm (12in)	2
Other on demand	C

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 / CSA Canada	2
ATEX/IECEX/UKCA (Mining)	3
INMETRO	4

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
Hydrogen	H

Special Conditions
The unit must be mounted with sufficient thermal insulation between the process and the main housing of the device such that thermal backflow from the process does not cause the temperature of the enclosure to exceed the maximum specified ambient temperature. This can be achieved, for example, with suitable heat insulation or a neck tube of suitable length.

Disclaimer