

ZONESCAN 850 Logger allows to find leaks in water pipes underground. It measures the acoustic signal on the pipe and sends the data, through radio, to the cloud or specific device to be analysed. The server on the cloud, or an android device on the field, collect the acoustic data and calculate the existence of the leak and its position.

The sensor element of the ZS850 Logger is built around a neodymium magnet. This sensor element holds the full logger attached to the metallic pipe. When used in plastic pipes, some metal band needs to be attached to the pipe.

The radio communication on the ZS850 Logger is a proprietary solution on the ISM band at either 858 or 915 MHz band and is communication compatible with Gutermann ZS820 Loggers.

ZONESCAN 850 Logger		
Brand name	Model name	Radio region
ZONESCAN 850 LOGGER	ZS850-L21	1 (EU)
	ZS850-L22	2 (US & Canada)

The logger also has a set of auxiliary sensors, and it can measure:

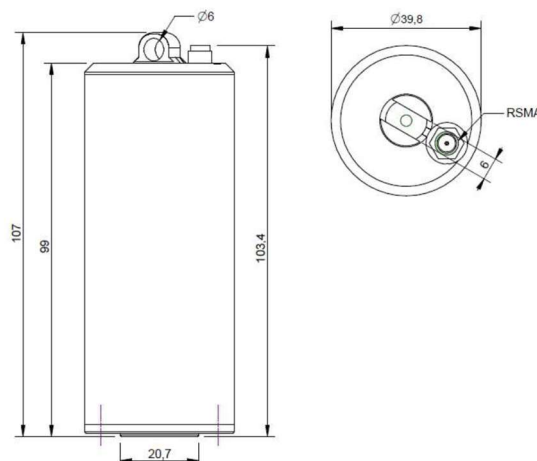
- Temperature
- Humidity (of the inside of the sensor)
- Current consumption
- 3D axis position referenced to the earth (gravity)

ZONESCAN 850 Logger can be assembled with 3 different antennas, depending on the type of chambers on the field. The three antennas can be used both in 868 o 915 bands.

ZONESCAN 850 Logger	
Model name	Radio region
ZS850-L21	1 (EU)
ZS850-L22	2 (US & Canada)

Mechanical (all models)			
Parameters	Value	Units	Tolerance
Diameter	39,8	mm	± 0,5
Length	108	mm	± 1
Weight	500	gr	±50
Hook diameter	6	mm	
Connector	RSMA jack		

Battery (all models)			
Type of cell	Primary cell (no rechargeable)		
Chemistry	Li-SOCl ₂		
Cell size	C		
Nominal Voltage	3,67	V	0mA
Nominal Capacity	5,8	AH	
Max continuous drain	1,3	A	
Pulse capability	2	A	



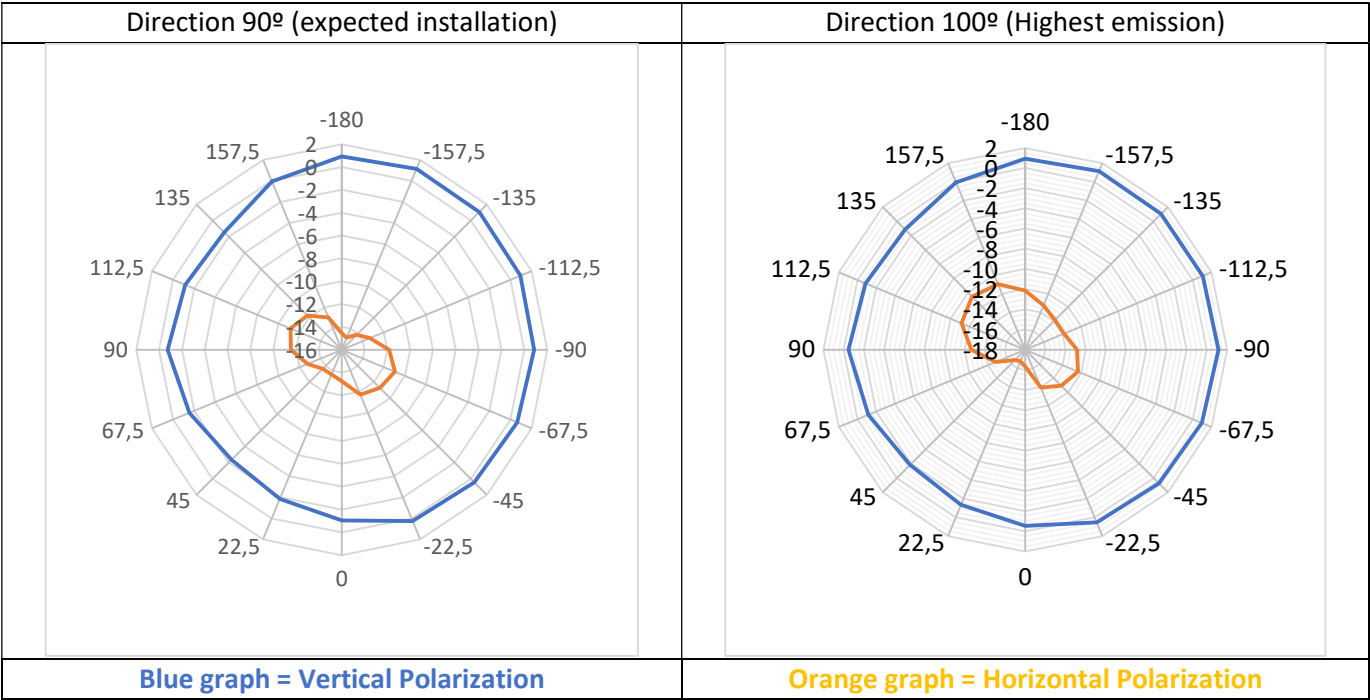
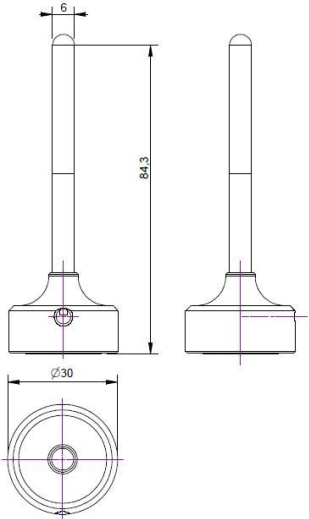
ZS850 Logger operation (all models)					
Parameters	Condition / Description	Min.	Typ.	Max.	Unit
Operative temperature	<i>Radio available, measurement available</i>	-30		+70	°C
High temp. off trip point	<i>Stop logger operation due to high temperature</i>	+70	+72	+75	°C
High temp. on trip point	<i>Restart logger after too high temperature</i>	+65	+67	+70	°C
Low temp. off trip point	<i>Stop logger operation due to low temperature</i>	-35	-33	-30	°C
Low temp. on trip point	<i>Restart logger after too low temperature</i>	-30	-27	-25	°C

Battery supply (all models)					
Parameters	Condition / Description	Min.	Typ.	Max.	Unit
Operative voltage	<i>Logger can measure & communicate over Radio</i>	2.7		4	Volts
Operative voltage	<i>Logger can communicate over set up Jig</i>	2,3		4	Volts
Low voltage modems off	<i>Trip point where the logger stops modem due low voltage</i>	2,5	2.6	2.7	Volts
Low voltage modem on	<i>Trip point where the logger reactivates modem after low voltage</i>	2,8	2.9	3	Volts
Low voltage jig off	<i>Trip point where the logger stops processor due low voltage</i>	2.3			Volts
Low voltage jig on	<i>Trip point where the logger reactivates processor after low voltage</i>	2,5			Volts
Stand by current	<i>Processor sleeps in stand by</i>	4	5	7	µA
Measurement current	<i>Analog sensor ON and measuring</i>		3	10	mA

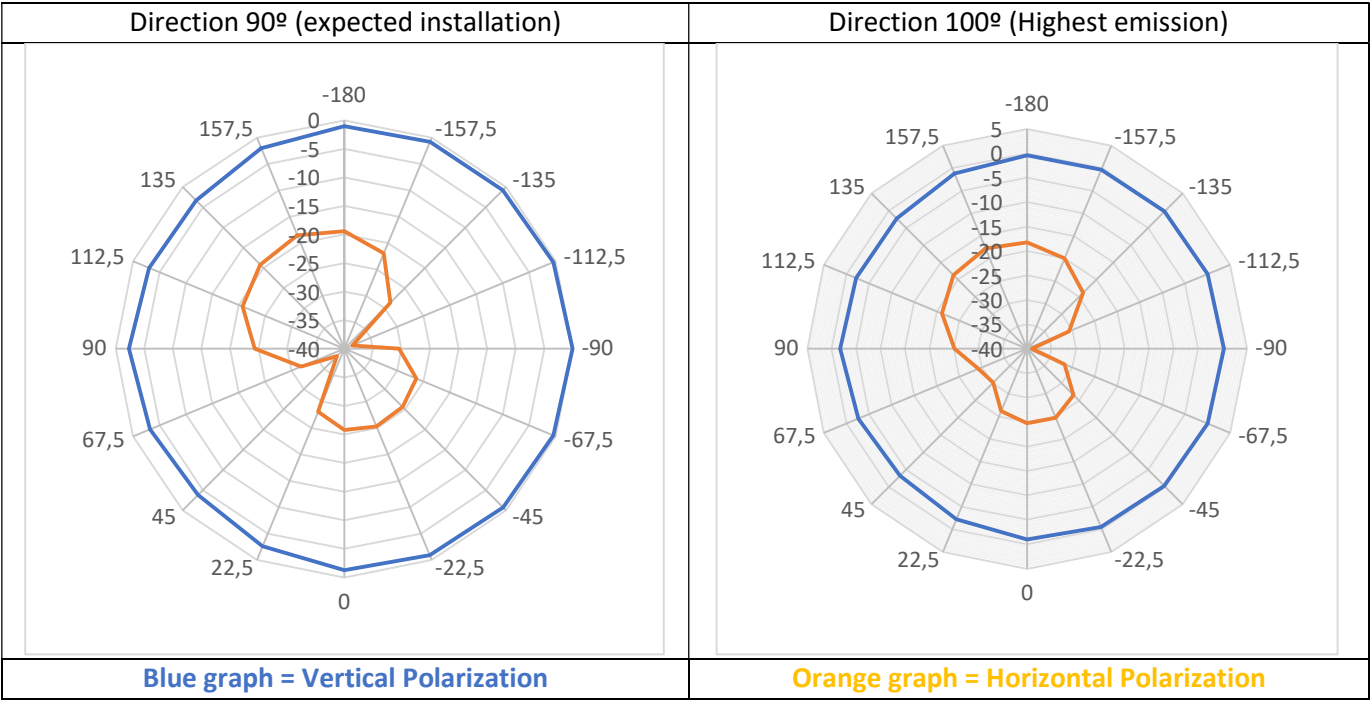
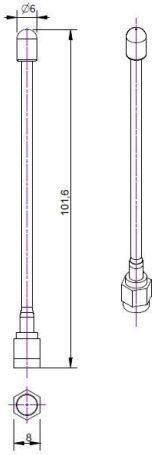
Radio region 1					
Parameters	Condition / Description	Min.	Typ.	Max.	Unit
Modulation		FSK			
Frequency range	<i>Nominal</i>		869,525		MHz
Frequency tolerance	<i>After production</i>	-3		+3	kHz
Temperature drift				2	ppm
Frequency deviation			±30		kHz
Occupied Bandwidth	<i>Per channel</i>		110		kHz
Received Bandwidth	<i>Per channel</i>		83.4		kHz
Receiver class		Class 2			
Transmit power			50		mW
Receiver sensibility	<i>BER ≤ 0.1%</i>	-108	-110		dBm

Radio region 2					
Parameters	Condition / Description	Min.	Typ.	Max.	Unit
Modulation		FSK with frequency hopping			
Frequency range	<i>Nominal</i>	904.0		918.7	MHz
Frequency tolerance	<i>After production</i>	-3		+3	kHz
Temperature drift				2	ppm
Channel separation	<i>Between hopping channels</i>		300		kHz
Frequency deviation			±30		kHz
Occupied Bandwidth	<i>Per channel</i>		110		kHz
Received Bandwidth	<i>Per channel</i>		83.4		kHz
Receiver class		Class 2			
Transmit power			50		mW
Receiver sensibility	<i>BER ≤ 0.1%</i>	-108	-110		dBm

Product				
Antenna rod model name	ANT-ROD-65			
Antenna base model name	ANT-BASE-06			
Mechanical				
Parameters	Value	Units	Tolerance	
Diameter	30	mm		
Length	87,3	mm		
Weight	65	gr		±2
Connector	RSMA Plug			
Cable length	0,6 meters			
Parameters				
Parameters	Min	Typ	Max	Units
Operational temperature	-30		70	°C
Frequency	868		930	MHz
Power RF			3	W
Impedance		50		Ω
Polarization	Linear; Vertical			
Peak gain	0.94 dBi			



Product				
Antenna rod model name		ANT-ZS-FLEX-65		
Mechanical				
Parameters	Value	Units	Tolerance	
Diameter	10	mm		
Length	102	mm		
Weight	4,1	gr	±0.5	
Connector	RSMA Plug			
Parameters				
Parameters	Min	Typ	Max	Units
Operational temperature	-30		70	°C
Frequency	868		930	MHz
Power RF			3	W
Impedance		50		Ω
Polarization	Linear; Vertical			
Peak gain	0.34 dBi			



Product				
Antenna rod model name		ANT-ZS-STUB		
Mechanical				
Parameters	Value	Units	Tolerance	
Diameter	8	mm		
Length	51	mm		
Weight	6	gr	±0.5	
Connector	RSMA Plug			
Parameters				
Parameters	Min	Typ	Max	Units
Operational temperature	-30		70	°C
Frequency	868		930	MHz
Power RF			3	W
Impedance		50		Ω
Polarization	Linear; Vertical			
Peak gain	-0.31 dBi			

