



# SonAire® M3 Series Sensors

Wireless | Non-Contact | Reliable | Intrinsically Safe

The Massasonic® SonAire® Series Sensors are ruggedly designed ultrasonic transmitter modules incorporating state-of-the-art ultrasonic technology and processing algorithms. All models are made of chemically resistant PVDF, support application ranges from 4 inches (100mm) to 35 feet (10.7m), and are RoHs and CE compliant. Two models are available and may be mixed on the same network:

### SonAire M3 (Standard)

*Reliable Unwired Monitoring,  
Low Cost, Easy Set-Up*

The M3 standard model is a general use sensor ideal for non-hazardous environments, where infrastructure may not be readily available, or quick set-up monitoring is desired. Ideal and cost efficient for C1D2 or lesser areas, the sensor is effective for monitoring a variety of fluids or solid materials, portable chemical tanks or collection points in factories, remote locations, flood zones and wastewater basins. The standard version offers an excellent performance value.

All SonAire models are user friendly and easily installed. The sensors come with field replaceable batteries that typically operate for four (4) years in the field over an operating temperature range of -30C to 65C. All models measure and store information such as range, temperature, battery voltage, and other sensor parameters at user-set time intervals. SonAire employs a field proven ZigBee radio that enables reliable site communication within ¾ of a mile and is easily expanded with an inexpensive router/gateway network design. An internal pushbutton switch is used to commission the sensor onto the ZigBee network, and an LED identifies the operating mode. The sensor package is rated for immersion and high pressure washing in accordance with IP67.

Standard with all models is an advanced diagnostic feature that, when using the supplied Python code and software, will display the receiver ultrasonic waveform on a computer screen for analysis. This feature is very useful for troubleshooting and optimizing challenging installations remotely and without the need for diagnostic equipment like an oscilloscope.

Massasonic SonAire sensors include an internal temperature probe for speed of sound compensation to ensure optimal range accuracy and stand above other intrinsically safe offerings for their excellent performance value, control versatility and field proven reliability.

### SonAire M3is (Intrinsically Safe)

*C1D1 (zone 0) Compliant,  
Long Battery Life, Privacy*

The M3is design is very well suited for monitoring combustible fluids or solid materials and fixed/portable chemical tanks in factories or remote locations where environmental risks may be an operational consideration. Designed with site privacy in mind, like cloud based inventory breaches, the IS model is particularly effective for oil patch, mining, waste storage, and hazardous chemical operations. Since the intrinsically safe version carries the highest FM certification for all groups (C1D1), it is readily usable in lesser rated areas.



SonAire M3 Series Sensor

## FEATURES

- Wireless, 10 Sensors/Gateway
- Many Sensing Range Options
- Low Power
- Easily Replaceable Long-Life Batteries
- Chemically Resistant PVDF Construction
- Built-In Temperature/Sound Speed Compensation
- Cost Efficient

## APPLICATIONS

- Liquid & Solid Level Monitoring
- Drums, Totes, and Tanks
- Outdoor Stockpiles
- Waste Basins and Flood Zone Monitoring
- Oil Patch, Mine, and Chemical Operations
- Remote, Quick Set-Up Sites
- Hazard Zones



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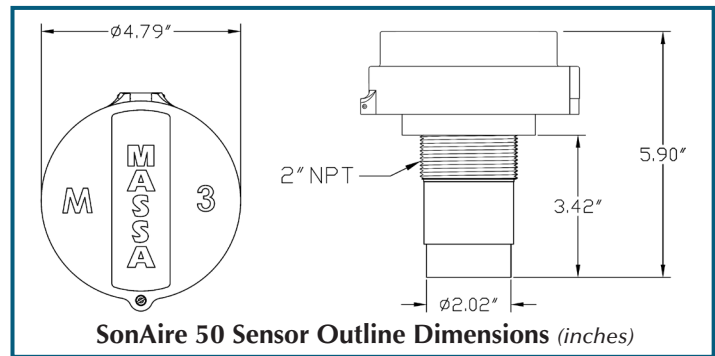
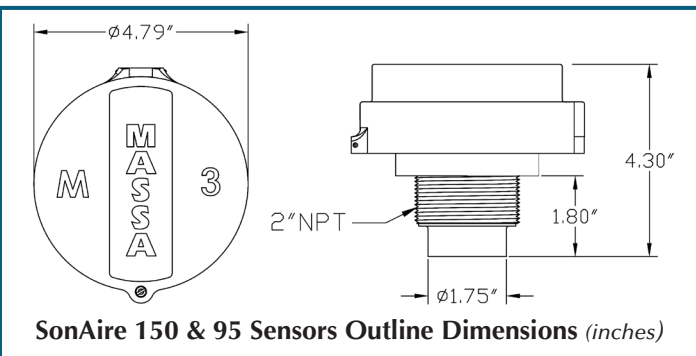
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Performance			
	Short Range (150 kHz)	Medium Range (95 kHz)	Long Range (50 kHz)
Target Detection Distances	4 inches (100 mm) to 7 feet (2.1 m)	12 inches (300 mm) to 13 feet (4 m)	14 inches (356 mm) to 35 feet (10.7 m)
Measurement Resolution	0.01 inches (0.25 mm)		0.02 inches (0.5 mm)
Measurement Accuracy	± 0.1% of Target Range		
Echo Detection Sensitivity	User Selectable		
System Beam Angle	8° Conical		
Data Acquisition Interval	Programmable from 1 event every 10 seconds to 1 event every 194 days		
Saved Data Events	Up to 111 events of sensor data saved in memory, includes target range, temperature, battery voltage, sensor status, and an event number		
Battery Life	4 years typical @ 4-12 data reports/day ( <i>may be affected by temp. and reporting rate</i> )		
Temperature Compensation	Internal Probe		
Radio/Power			
LED	Red and Green Status Indication		
Switch for Provisioning	Internal Pushbutton for commissioning sensor onto the network		
Radio Onboard	North America / Australia version, 63mW; Europe version, 10mW		
Gateway Networking	Connectivity by Digi International ConnectPort X2 or X4 (Zigbee)		
Power	3 Lithium Energizer Model L91 AA size 1.5V batteries (included) <i>(Note: only use Li batteries)</i>		
Minimum Battery Pack Voltage	3.1V ( <i>Note: Once battery pack decreases to 3.7V, its capacity diminishes at accelerated rate</i> )		
Mechanical/Environmental			
Operational Temperature	-30°C to 70°C		
Storage Temperature	-40°C to 85°C		
Relative Humidity	0 to 95%, non-condensing		
Enclosure Rating	IP67		



## SonAire Series Ordering Information

### M3 (Standard)

### M3is (Class 1, Div 1 (C1D1), All Groups)

Order Code	Sensing Range	Radio
SonAire M3/150	Short	North America
SonAire M3/150E	Short	Europe
SonAire M3/95	Medium	North America
SonAire M3/95E	Medium	Europe
SonAire M3/50	Long	North America
SonAire M3/50E	Long	Europe

Order Code	Sensing Range	Radio
SonAire M3is/150	Short	North America
SonAire M3is/150E	Short	Europe
SonAire M3is/95	Medium	North America
SonAire M3is/95E	Medium	Europe