

# Battery Free Multi Sensor Tag

## AST-02-MS



The AST family of sensor tags allows wireless measurements to be taken by sensors from remote locations. Sensors are powered by microwave energy, harvested from a dedicated RF power source and need no batteries or other consumables.

The AST-02-MS sensor tag features built-in sensors for temperature, relative humidity, pressure, acceleration, inclination, light presence and magnetic field strength. It covers a wide spectrum of industrial applications.

### Features

---

2450 MHz harvesting frequency

---

Maintenance-free:  
no embedded battery, no wiring

---

Integrated 868 MHz bi-directional radio

---

Operation down to - 9 dBm input RF power

---

Up to 100 m working distance  
(application dependent)

---

Temperature, humidity, pressure,  
acceleration, inclination, angular velocity,  
light presence and magnetic field strength  
integrated sensors

---

RoHS compliant

---

CE certified

---



# AST-02-MS

## Characteristics

<b>Regulatory approvals</b>	EN 60950-1 EN 61000-6-2 EN 55011	EN 301489-1 & -3 EN 300220-1 & -2	
<b>Harvesting frequency</b>	2450 MHz		
<b>Integrated sensor's ranges</b>			
<b>Temperature</b>	Range: -40°C / 85°C Accuracy: ±1°C		
<b>Relative Humidity</b>	Range: 0% to 100% Accuracy: ±3.5% rH (20% to +80% rH), ±5% rH (0% to +100% rH)		
<b>Pressure</b>	Range: 260hPa to 1260hPa Accuracy: ±0.1hPa		
<b>Accelerometer/     Inclinometer</b>	Range: ±2, ±4, ±8, ±16 g Accuracy: 0.061mg to 0.488mg		
<b>Magnetic Field</b>	Range: ±1300 µT (x, y-axis), ±2500u T (z-axis) Sensitivity: 0.3 µT		
<b>Ambient light</b>	Qualitative value: 0 Lux (dark) to 50 000 Lux (Light)		
<b>Integrated Radio</b>			
Operating frequency	868.320 MHz		
Modulation (Rx & Tx)	2-GFSK / 50 kHz		
Data bit rate (Rx & Tx)	100 kbps on air		
<b>Integrated energy Storage</b>	200 µF capacitor (other capacitor sizes upon request)		
<b>ADC resolution</b>	24 bits		
<b>Maximum sampling rate</b>	10Hz		
<b>RF Sensitivity</b>	from - 9 dBm to + 15 dBm (max)		
<b>Mounting</b>	4x metallic holes Ø=3.6 mm in each corner		
<b>Dimensions</b>	70 mm x 52 mm x 9 mm (without SMA connector)		
<b>Operating (storage) Temp.</b>	- 20 °C / + 70 °C (- 40 °C / + 85 °C)		
<b>Weight</b>	30 g (with 1 SMA connectors)		

## Ordering Options

Part Number	Configuration Description
AST-02-STR- <b>A1-A2</b>	<p><b>A1: Power RF Input</b></p> <p><b>PVJ</b> : Jack connector for external 50 Ω antenna (vertically mounted)</p> <p><b>PVP</b> : Plug connector for external 50 Ω antenna (vertically mounted)</p> <p><b>PHJ</b> : Jack connector for external 50 Ω antenna (horizontally mounted)</p> <p><b>PHP</b> : Plug connector for external 50 Ω antenna (horizontally mounted)</p> <p><b>A2: Data RF Input/Output</b></p> <p><b>DA</b> : Integrated 868 MHz - 2,5 dBi antenna</p> <p><b>DVJ</b> : Jack connector for external 50 Ω antenna (vertically mounted)</p> <p><b>DVP</b> : Plug connector for external 50 Ω antenna (vertically mounted)</p> <p><b>DHJ</b> : Jack connector for external 50 Ω antenna (horizontally mounted)</p> <p><b>DHP</b> : Plug connector for external 50 Ω antenna (horizontally mounted)</p>