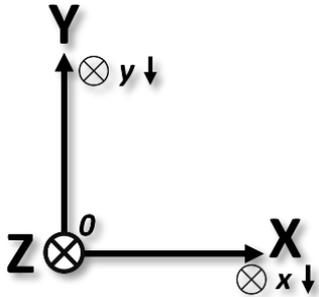
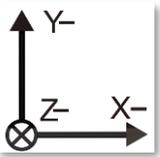


6306 Type - WiSenMeshWAN® Omni Tilt Sensor Node	
<b>Basics</b>	
Battery Power	Qty. x 1 (3.6V Lithium primary D-Cell ER34615)
Accuracy Stop Voltage	2.1VDC
Mesh Stop Voltage	2.1VDC
Battery Connection	Standard Aluminium Battery Holder
Working Current (DC)	Max. 65mA (Typ. 50mA)
Local Storage	Min. 1500 Messages during Meshing at Mesh3.0 Protocol
Dimension (L x W x H)	Standard 6306: 80 x 75 x 57mm (Without External Antenna) Low Profile 6306R: 80 x 75 x 57mm (With internal antenna)
Weight	0.43kg
<b>Primary Sensor</b>	
Sensor Type	X-axis; Y-axis; Z-axis Tilt Values
Range	-90° to +90°
Accuracy	Over (-90°, 90°) tilting range: Better than ±0.01° (36'' or 0.1745mm/m) at Any 1° change (as specified in the Calibration Certificate) Or Better than ±0.002° (7.2'' or 0.0349mm/m) at Any 0.2° change
Resolution	0.0001° (0.36'' or 0.001745mm/m)
<b>Standard System Parameter</b>	
Temperature	Range:-40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution: 0.1°C
Voltage	Accuracy: ± 0.1V
<b>WSN Interface</b>	
Mesh Wireless Interface	WiSenMeshWAN® Protocol
<b>Industrial Standard</b>	
Casing and Painting Materials	Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)
IP Rating	≥ IP68
Operating Temperature	-40 to 85°C
Fire Proof	Approved
<b>Tilting Orientation</b>	
<p><b>Interpretation 1:</b></p> 	<ol style="list-style-type: none"> <li>1) When holding the Spec paper horizontally, then when X-axis arrow rotates around 0-dot into the paper plane, the readings of "x" decreases; It also applies to both Y/Z-axis;</li> <li>2) The node fixings must be rigid for the sensor to measure accurate data. Movement in the fixings will affect the readings;</li> <li>3) The Omni Tilt Sensor Nodes must be oriented with any two axis marked on the label parallel to the horizontal plane, so that the data can be easily interpreted.</li> </ol>
<p><b>Interpretation 2:</b></p> 	<p>Arrow toward gravity, reading decreases. Away gravity, reading increases.</p> 

**Interpretation 3: As shown in the 3 figures below**

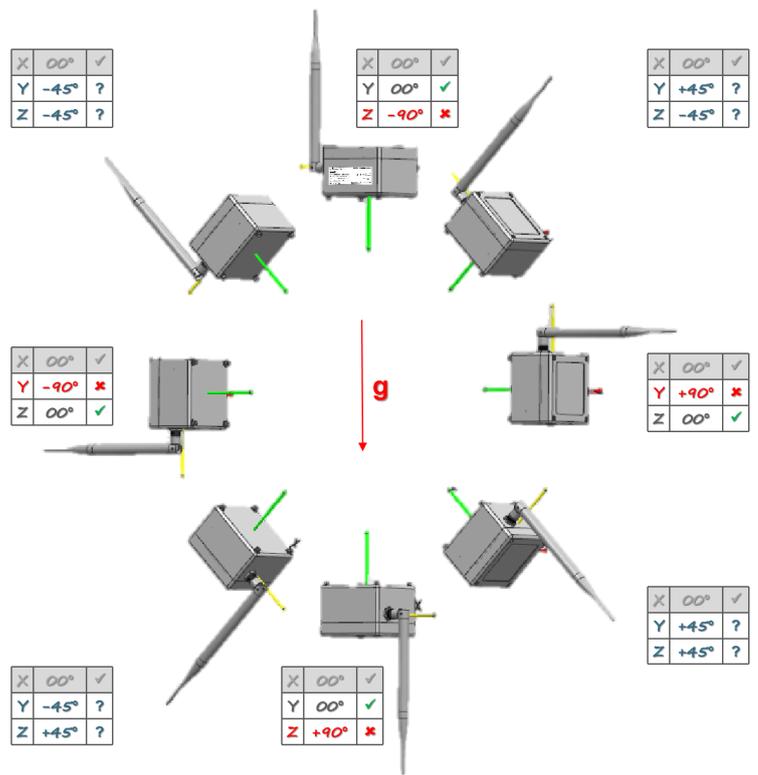
The node is shown at multiple positions with the axis rotation values labelled for clarity;  
 Only 2 axis values can be used at any rotation.

**Node rotation along X;**

2 axis values can be used (XY or XZ);

Notes:

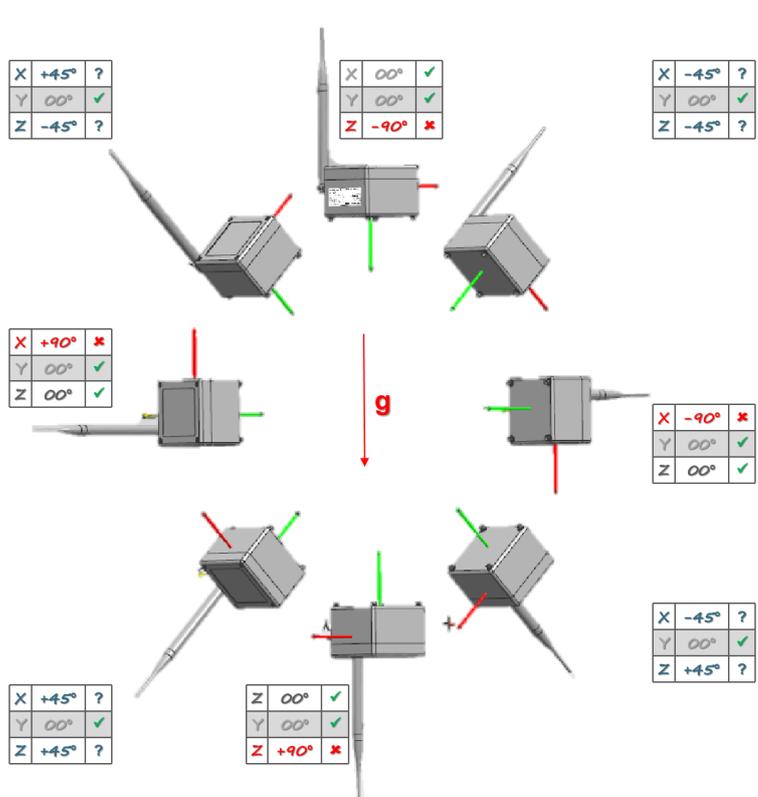
- × Out of range > 60° (use alternative axis)
- ? Use Y or Z axis
- ✓ Axis in range


**Node rotation along Y;**

2 axis values can be used (YX or YZ);

Notes:

- × Out of range > 60° (use alternative axis)
- ? Use X or Z axis
- ✓ Axis in range

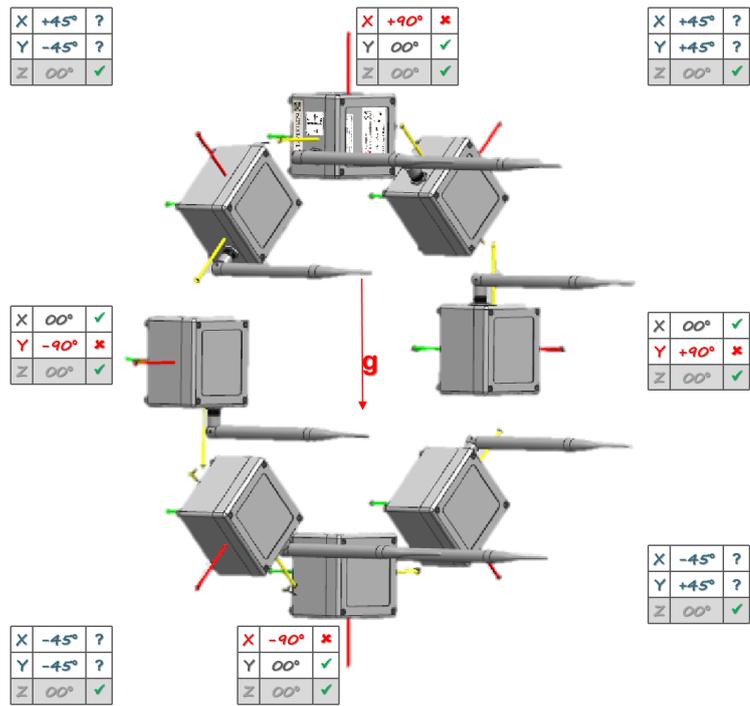


### Node rotation along Z;

2 axis values can be used (ZX or ZY);

#### Notes:

- × Out of range > 60° (use alternative axis)
- ? Use X or Y axis
- ✓ Axis in range



### Applications

Infrastructure tilting condition monitoring, such as retaining wall, supporting column, river embankment etc.

From the 1<sup>st</sup> level of data conversion, the movement of one end of a beam/crossbar can be monitored, such as land sliding, railway track monitoring.

With our latest developed mathematical model, we can achieve the Horizontal Convergence of a metro tunnel of 6 segments.

Wireless tilt beam sensor: Furthermore, Omni Tilt Sensor Nodes are also designed to be installed on rigid beam fixing brackets, where: multiple number of beams are inner connected to form a chainage of highly accurate tilt beams for settlement monitoring. Note: the beams are ranged from 1.0m, 2.0m and 3.0m.

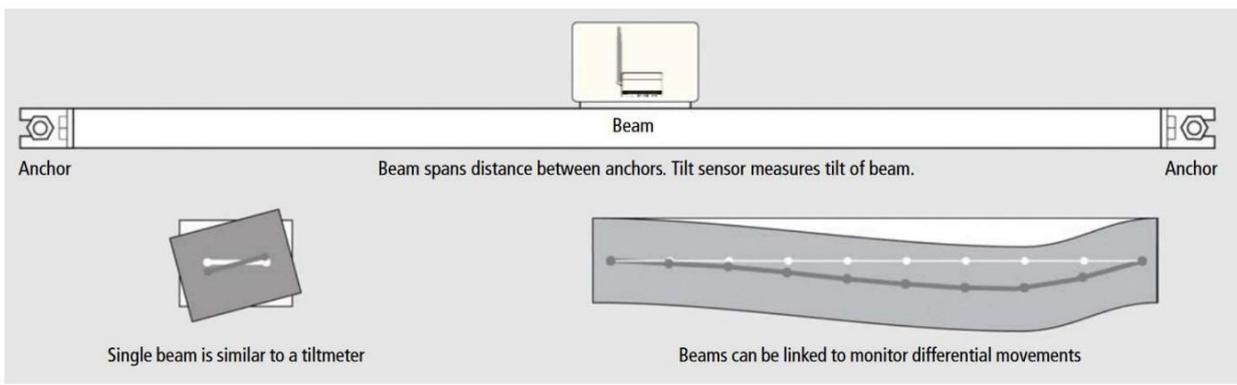


Figure. Tilt beam demonstration.

**Installation Guidance: The tilt node could be installed in any orientation.**



Figure. 6306 Type- **Standard** Omni Tilt Sensor Node Product Photos (With External Antenna).



Figure. 6306R Type- Omni Tilt Sensor Node Product Photos (With internal antenna);  
Low profile during installation BUT 0.3-0.4 times radio distance to the standard type.