6F07/6F08 Type - WiSenMeshWAN® Omni Tilt & 33m / 100m Distance Sensor Node

| Basics	6F07- 33m	6F08- 100m
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. 350mA (Typ. 250mA)	
Local Storage	Min. 1500 Messages during Meshing at Mesh3.0 Protocol	
Dimension (L x W x H)	100 x 100 x 60mm	
Weight	≤ 0.65kg	
Primary Sensor		
Sensor Type	Distance	
Laser Class	Class 2	
Laser Range	0.05m-33m	0.05m-100m
Laser Accuracy	Better than ±1.0mm (Typical 0.5mm)	
Laser Resolution	0.1mm	
Laser Lens Durability	≥ 500Hrs@3Hz@50°C or 2500Hrs@3Hz@25°C	
Standard System Parameter		
Tilt Sensor	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)	
Temperature	Range:-40 to 85°C; Accuracy: ±1°C; Resolution: 0.1°C	
Voltage	Accuracy: ±0.1V	
WSN Interface		
Mesh Wireless Interface	WiSenMeshWAN® Protocol	
Industrial Standard		
Casing and Painting Materials	Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)	
IP Rating	≥ IP68	
Operating Temperature	-10 to 50°C	
Fire Proof	Approved	
Applications		
Long term distance monitoring between two specific points, such as horizontal convergence of a tunnel.		
Laser Distance User Notifications		
Warning!		

A. This is an automated system. The laser beam must be set to point at an appropriate non-reflective surface;

B. The protection window glass on a node must be kept clear all the time;

C. Distance 0mm starting plane: plane of the protection window glass.

Special Notice

Lase Point Constantly ON:

Laser_Pointing_Mode Hardware Switch: It sets laser into pointing mode. By default, it is in switched off state (i.e., empty circle sign). The switch location is highlighted in the figure below.
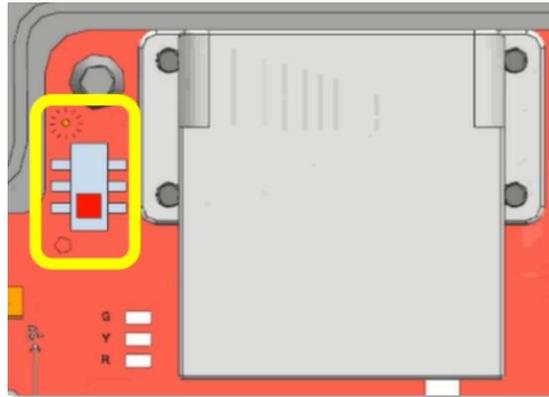
It can be switched on/off before/after a node's power-on.

Note: please do switch it off when an installation is completed. As a power saving mechanism, the laser pointing beam is maximumly on for 20min., then it automatically switches itself off.

Laser front Lenses Protection Cover: All our laser nodes are shipped with their individual Protection Cover (of a 3M Double Coated Tissue Tape at one side). Once a battery is installed, node is powered on, and lid is screwed on properly. Then glue the cover onto the node as shown in the figure below. It protects the lenses from dust, heat and potential damage.

Data Fields Interpretations		
Code Info	Description	Notice (Shown in Web Portal)
00	Node is working in a good condition	Node is working in a good condition
01	Target moving too fast or beam interrupt	Repeat measurement, use tripod (@E260)
02	Signal too low or distance out of range	Use special target plate (@E255)
03	Signal too high	Avoid high reflecting surfaces (@E256)
04	Time out on reply	Bad physical connection on laser module or far out of laser

		range (e.g., pointing to sky) (Wisen)
05	Single reading achieved	Single success on the sampling procedure.
06	Max-Min>2xError Tolerance	The difference of sample values is too large, repeat measurement or use tripod. (Wisen)
07	Unknown command or wrong parameter	Use correct syntax (@E203)
08	Error on serial communication	Check communication (@E220)
09	Temperature too high	Cool down module (@E252)
10	Temperature too low	Warm up module (@E253)
11	Voltage supply too low	Improve voltage supply quality (@E254)
12	Too much background light	Protect target against sunlight (@E257)
13	Laser error	Laser module defect (@E284)
14	APD-voltage can't be adjusted correctly	Laser module defect (@E288)
15	Flash configuration error	Power down and up again (@E289)
16	Unknown command or wrong parameter from laser module	Change to a new battery or Laser module defect (Wisen)
24	Checksum error	Change to a new battery or Laser module defect (@E224)
74	No EEPROM detected, code has to be loaded by GSI	Change to a new battery or Laser module defect (@E274)
76	Read of code from EEPROM wrong	Change to a new battery or Laser module defect (@E276)
78	EEPROM error which appears if something goes wrong during the flashing of the firmware	Change to a new battery or Laser module defect (@E278)
90	Calibration signal out of range	Change to a new battery or Laser module defect (@E290)
Laser Time	The time period (in the unit of seconds) that a laser module has been switched on at each T. Typically, of value: 2-3s.	
Sampling Status	The number of samples that has been successfully measured. Typically, of value: 5.	

Tilting Orientation

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;
2) The node fixings must be rigid for the sensor to measure accurate data. Movement in the fixings will affect the readings;
3) The Omni Tilt Sensor Nodes must be oriented with any one axis marked on the label parallel to the horizontal plane, so that the data can be easily interpreted.

Installation Guidance

Figure. 6F07 Type- Standard Omni Tilt & Distance Sensor Node Product Photos (With External Antenna).

Figure. 6F07R Type- Omni Tilt & Distance Sensor Node Product Photos (With Internal Antenna).

Low profile during installation BUT 0.3-0.4 times radio distance to the standard type.