

WiSenMeshWAN® Product Specification

Wisen Innovation Co., Ltd. 15/09/2020



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Revision History and Clarification

V2.0 15/09/2020 1. Symbols, signs and format unification. W.Y. H.X.Y. V1.9 18/08/2020 1. Add new product types; 6C01 – Voltage Interface Node/6510-Laser Distance Sensor Node/6517-Weather Sensor Node/6A08-4xVW Interface Node; W.Y. H.X.Y. V1.8 16/04/2020 1. Distance Range added; 2. Improvement on the tilt accuracy; 3. Certifications addition on "ACMA (Australia)". W.Y. H.X.Y. V1.8 16/04/2020 1. Revision of product series name to WiSenMeshWAN®. S.T. W.Y. V1.6 05/12/2019 2. Battery life table added; W.Y. H.X.Y. V1.6 05/12/2019 2. Battery life table added; W.Y. H.X.Y. V1.1 11/11/2019 1. 6305/6707/6708 tilt orientation and installation notification. W.Y. H.X.Y. V1.1 19/08/2019 3. Unify the name system of 433MHz, 868MHz, 915MHz into; Add Data format & Remote Commands. H.X.Y. V1.1 19/08/2019 3. Unify the name system of 433MHz, 868MHz, 915MHz into; W.Y. H.X.Y. V1.2 04/06/2019 4. "Standard Aluminium Battery Holder" is emphsised to be "Standard Aluminium Battery Holder" S. 2305, 2F07, 2F08: Tilt range updated; S. 2407: Working current updated. V.1.1 14/05/2019 2. Revised features on the Radio Features; H.X.Y. W.Y. V1.1 14/05/2019 2. Revised features on the Radio Features; H.X.Y. W.Y. W.Y.	Rev. Issue Date			Version Control	Written	Revised
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V1.0 25/03/2019	146.0	25/02/2215	1.	Establishment of the document;	111777	1407
	V1.0	25/03/2019	2.	Add: types of 2005, 2305, 2F07/08, 2A07.	H.X.Y	W.Y.



Radio Specification

Point to Point Radio Feature				
Radio Frequency	915MHz System	915MHz System	868MHz System	
Certification	FCC	RCM/ACMA	CE	
Radio Band	902-928MHz	915-928MHz	865-868MHz	
Default Transmit Power	180	dBm	14dBm	
Transmit Power Range		5-20dBm		
Receive Sensitivity		-112dBm		
Bandwidth	500kHz			
Transmission Speed	19.2kb/s			
No. of Mesh Hop* Supported	6 Hops			
Sampling Interval	1-60mins			
	Over Air (Line of Sight) @ 900MHz:			
Distance Range	Open Field (Tx & Rx @ 2m Height): 1.0km+; Tunnels: 400m+.			
Distance hange	Penetration @ 900MHz:			
	Concrete: 0.5m+; Soil: 0.8m+; Sand: 2.0m+; Lake Water: 2m+.			
	Mesh Antenna	Omni-directional (2	20cm in length) or Customised	
Antenna Description	2/2.5/3/4G-Antenna	Omni-directional 3.5dl	Bi (20cm in length) or Customised	
	Antenna Connector	SMA (M)		

WiSenMeshWAN® Wireless Sensor Network Protocol Standard

Electromagnetic Compatibility

WiSenMeshWAN® system is designed of ISM 868MHz & 915MHz.

Notice: Within any electrically noisy environment, nodes with sensors must be ≥ 0.3 m away from the source of the noise.

Notice: all the parameters demonstrated in this specification are obtained at 25° C.

^{*} E.g., the radio link from a gateway to the 1st layer node is called the 1st hop.



Data Format & Remote Commands

Data Format	
Basic Information	Time Stamp: Universal Time Coordinated (i.e., UTC)
	SN and Short ID
Network	Gateway includes:
Information	1. Mesh Network Information, i.e., no. of hops, sequential number of transmission,
	parent node SN, received power strength, transmit power strength.
	2. System Information, Sampling Time Interval (T), radio frequency (F), Back_Time, Signal
	Threshold (radio power strength threshold), Relay_Factor.
	Node includes: no. of hops, sequential number of transmission, parent node SN, received power
	strength, transmit power strength and no. of messages unsent in a node.
Sensor	Node Type
Information	Sensor Information:
	1. Power information includes: battery voltage, key reference voltage, etc.;
	2. Sensor parameters.
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Remote Commands

ID	Descriptions Units applied				
DTU_T	Server Connection Ratio to Time Interval	Gateway			
APN Settings	Allowing a customer to change the APN/User	Gateway			
	Name/Password for the 2/3/4G Network setting.				
Time Interval	Systematically changing the sampling time interval (T) of the	Gateway & Node			
	nodes under a gateway.				
Radio Frequency	Systematically changing the radio channel (F) of the nodes	Gateway & Node			
	under a gateway.				
Back_Time	Defining the time taken for all the data from the nodes to	Gateway & Node			
	reach a gateway.				
Signal Threshold	Systematically changing the radio power threshold so it can Gateway & Node				
	join into a mesh network so a mesh can be optimised.				
Relay_Factor	Systematically changing the relay time for all the node in a	Gateway & Node			
	gateway so a mesh can be optimised.				
Transmit Power	Systematically changing the radio transmit power between	Gateway & Node			
	5dBm and 20dBm under one gateway and its nodes, so that:				
	A. the system can be adaptive to different regional maximum				
	radio power restrictions; B. to have one extra tool to				
	optimise the mesh network besides Signal Threshold.				
Route ID	By applying the same route ID to nodes, the user can	Node			
	manually assign a specific path that one or more nodes can				
	go in a complex mesh network system.				



WiSenMeshWAN® Smart Gateway Series

Basics Primary Battery Power (Internal) Qty. x 4 (3.6V Lithium primary D-Cell ER34615) Battery Connection Standard Aluminium Battery Holder Secondary DC Power (External) 7 - 32VDC @ Min. 2A (e.g. 110-240VAC to 12VDC adaptor) Tertiary Power (External) 3.6VDC Battery Unit or Solar Unit Mobile Network Stop Voltage ≥ 2.65VDC Local Storage 8GB (Min. 1.5 Yrs Storage) L x W x H 180 x 140 x 60mm Weight ≤ 2.0kg Qty. 1 x EMC-CMA12 for external R5232 connection Qty. 1 x EMC-CMA14 for external DC input power connection Wire Connection DC In - Spring type wiring terminal External Interface Wireless Module Compatible with 2G/2.5G/3G/4G of Micro SIM card Wirel Port R5232 WSN Interface WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Ev	6005 Type - WiSenMeshWAN® Smart Gateway (C-Type)				
Standard Aluminium Battery Holder	asics				
Secondary DC Power (External) Tertiary Power (External) Mobile Network Stop Voltage Local Storage BGB (Min. 1.5 Yrs Storage) L x W x H Respective Compatible with 2G/2.5G/3G/4G of Micro SIM card Wired Port Wired Port WSN Protocol Low Power Mode WSN Protocol Low Power Mode Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Woltstain Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) In Rating Pating Prating Prating Prating Prating Prating Prating Prating Protocol Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) ≥ 1P66 Operating Temperature -40 to 85°C		Qty. x 4 (3.6V Lithium primary D-Cell ER34615)			
Tertiary Power (External) Tertiary Power (External) Mobile Network Stop Voltage Local Storage Local Storage Lx W x H Respectively 180	Battery Connection	Standard Aluminium Battery Holder			
Mobile Network Stop Voltage ≥ 2.65VDC Local Storage 8GB (Min. 1.5 Yrs Storage) L x W x H 180 x 140 x 60mm Weight ≤ 2.0kg Cable Gland Qty. 1 x EMC-CMA12 for external RS232 connection Qty. 1 x EMC-CMA14 for external DC input power connection Wire Connection DC In - Spring type wiring terminal External Interface Wireless Module Compatible with 2G/2.5G/3G/4G of Micro SIM card Wired Port RS232 WSN Interface WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	_	7 - 32VDC @ Min. 2A (e.g. 110-240VAC to 12VDC adaptor)			
Local Storage L x W x H 180 x 140 x 60mm Weight Cable Gland Cable Gland Wire Connection Wire Connection Wireless Module Wireless Module Wish Module Wish Module Wish Module Wish Module Wish Module Wish Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) P Rating Operating Temperature -40 to 85°C	Tertiary Power (External)	3.6VDC Battery Unit or Solar Unit			
L x W x H Weight Cable Gland Cable Gland Wire Connection Wire Connection Wire Connection External Interface Wireless Module Wised Port WSN Interface WSN Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) I P Rating Operating Temperature -40 to 85°C	Mobile Network Stop Voltage	≥ 2.65VDC			
Weight ≤ 2.0kg Cable Gland Qty. 1 x EMC-CMA12 for external RS232 connection Qty. 1 x EMC-CMA14 for external DC input power connection Wire Connection DC In - Spring type wiring terminal External Interface Wireless Module Wireless Module Compatible with 2G/2.5G/3G/4G of Micro SIM card Wireless Module RS232 WSN Interface WSN Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Local Storage	8GB (Min. 1.5 Yrs Storage)			
Cable Gland Qty. 1 x EMC-CMA12 for external RS232 connection Qty. 1 x EMC-CMA14 for external DC input power connection Wire Connection DC In - Spring type wiring terminal External Interface Wireless Module Compatible with 2G/2.5G/3G/4G of Micro SIM card Wired Port RS232 WSN Interface WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	LxWxH	180 x 140 x 60mm			
Cable Gland Qty. 1 x EMC-CMA14 for external DC input power connection Wire Connection DC In - Spring type wiring terminal External Interface Wireless Module Compatible with 2G/2.5G/3G/4G of Micro SIM card Wired Port RS232 WSN Interface WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Weight	≤ 2.0kg			
Qty. 1 x EMC-CMA14 for external DC input power connection Wire Connection DC In - Spring type wiring terminal External Interface Wireless Module Compatible with 2G/2.5G/3G/4G of Micro SIM card Wired Port RS232 WSN Interface WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Every 3 Years by Manufacturer (or inspected by Polyester Powder Coating) LP Rating Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) P Rating ≥ IP66 Operating Temperature -40 to 85°C	Cable Cland	Qty. 1 x EMC-CMA12 for external RS232 connection			
External InterfaceWireless ModuleCompatible with 2G/2.5G/3G/4G of Micro SIM cardWired PortRS232WSN InterfaceWSN ProtocolWiSenMeshWAN® ProtocolLow Power ModeT≥5min and Server Connection Ratio DTU_T = [1,99]TStandard System ParameterTemperatureMeasurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; ResolutionVoltageAccuracy: ±0.1VRe-Calibration MethodEvery 3 Years by Manufacturer (or inspected by arranged methods)Industrial StandardEvery 3 Years by Manufacturer (or inspected by arranged methods)Industrial StandardAluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)IP Rating≥ IP66Operating Temperature-40 to 85°C	Cable Gland	Qty. 1 x EMC-CMA14 for external DC input power connection			
Wireless Module Compatible with 2G/2.5G/3G/4G of Micro SIM card Wired Port RS232 WSN Interface WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Wire Connection	DC In - Spring type wiring terminal			
Wired Port RS232 WSN Interface WSN Protocol WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	xternal Interface				
WSN Interface WSN Protocol WiSenMeshWAN® Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Wireless Module	Compatible with 2G/2.5G/3G/4G of Micro SIM card			
WSN Protocol Low Power Mode T≥5min and Server Connection Ratio DTU_T = [1,99]T Standard System Parameter Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature	Wired Port	RS232			
Low Power ModeT≥5min and Server Connection Ratio DTU_T = [1,99]TStandard System ParameterTemperatureMeasurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; ResolutionVoltageAccuracy: ±0.1VRe-Calibration MethodInspection PeriodEvery 3 Years by Manufacturer (or inspected by arranged methods)Industrial StandardAluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)IP Rating≥ IP66Operating Temperature-40 to 85°C	VSN Interface				
Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	WSN Protocol	WiSenMeshWAN® Protocol			
Temperature Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Low Power Mode	T≥5min and Server Connection Ratio DTU_T = [1,99]T			
Voltage Accuracy: ±0.1V Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	tandard System Parameter				
Re-Calibration Method Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Temperature	Measurement Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution: 0.1°C			
Inspection Period Every 3 Years by Manufacturer (or inspected by arranged methods) Industrial Standard Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Voltage	Accuracy: ±0.1V			
Industrial Standard Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	e-Calibration Method				
Casing and Painting Materials Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating) IP Rating ≥ IP66 Operating Temperature -40 to 85°C	Inspection Period	Every 3 Years by Manufacturer (or inspected by arranged methods)			
IP Rating ≥ IP66 Operating Temperature -40 to 85°C	ndustrial Standard				
Operating Temperature -40 to 85°C	Casing and Painting Materials	Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)			
	IP Rating	≥ IP66			
Fire Proof Approved	Operating Temperature	-40 to 85°C			
	Fire Proof	Approved			
Certificates FCC, ACMA	Certificates	FCC, ACMA			

Applications

A gateway is used as a key unit in Wireless Sensor Network system. It is responsible for the command issuing (such as T modifications) to and data collection from all the nodes involved in a mesh network (L-Series); meanwhile, it forwards the data and system information to the remote server via mobile network or the local server via standard RS232 connections.

Non-Standard Accessory

- A. RS232 to USB connection cable from a gateway to a PC for local parameter configuration; [Software to use: WiSenMeshWAN® Standard Serial Port Software V3.1.16 or above]
- B. TTL to USB 1m cable to read the mesh data from a gateway in parallel to the mobile network data



- transmission; [Software to use: WiSenMeshWAN® Standard Serial Port Software V3.1.16 or above]
- C. Daughter board: 2/3/4G GSM interface board (by default), or Wi-Fi/Ethernet/RS-485 interface daughter board;
- D. Outdoor adaptor, IP68: 110-240VAC to 12VDC@5.0A.

Gateway PCB Layout

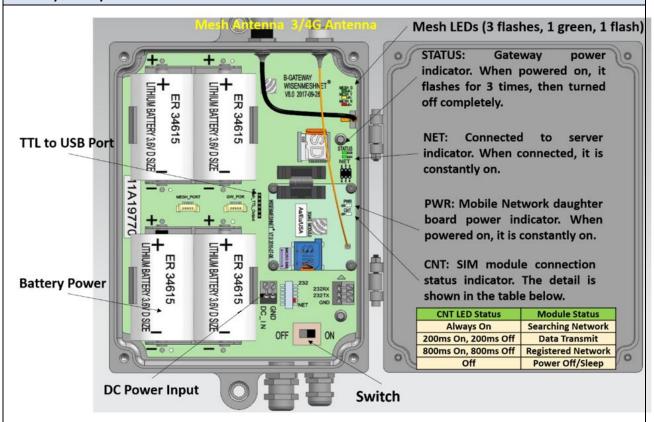


Figure. C-Gateway Layout (Subject to the real product).

Highlights

1. When connected to a remote server, "NET" LED will be constantly on;



Figure. 110-240VAC to 12VDC@5A Adapter Connection.

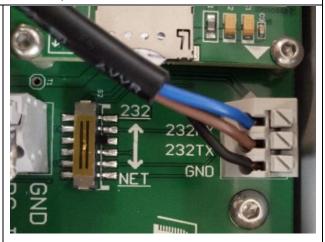


Figure. RS232 to USB Connection.







Figure. TTL to USB Connection.

Installation Guidance



Figure. C-Gateway Product Photos.

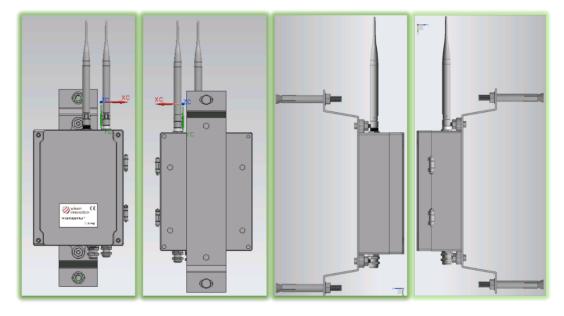
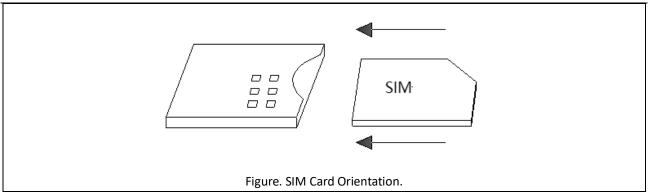


Figure. C-Gateway Fixing Bracket.







6003 Type - WiSenMeshWAN® Mini Smart Gateway					
Basics					
Primary DC Power	USB 5VDC				
LxWxH	52 x 50 x 40mm				
Weight	< 80g				
Cable Gland	Qty. 1 x USB Connection				
Local Storage	N.A.				
External Interface					
Wired Port	USB				
WSN Interface					
WSN Protocol	WiSenMeshWAN® Protocol				
Standard System Parameter					
Temperature	Range: [-40, 85], Accuracy: ±1°C (Typ. 0.5°C), Resolution: 0.1°C				
Voltage	Accuracy: ±0.1V				
Re-Calibration Method					
Inspection Period	Every 3 Years by Manufacturer (or inspected by arranged methods)				
Industrial Standard					
Casing and Painting Materials	PC				
Operating Temperature	-40 to 85°C				

A gateway is used as a key unit in Wireless Sensor Network system. It is responsible for the command issuing (such as T, F modifications) to and data collection from all the nodes involved in a mesh network; meanwhile, it forwards the data and system information to the local PC via standard USB connection.

Non-Standard Accessory

Applications

A. USB connection cable from a gateway to a PC for local parameter configuration. [Software to use: WiSen® Standard Serial Port Software V3.0.11 or above]







Figure. Mini Gateway Product Photo and the relate USB Connection.



WiSenMeshWAN® Sensor Node Series

Basics	
Battery Power	Qty. x 1 (3.6V Lithium primary D-Cell ER34615)
Accuracy Stop Voltage	2.7VDC
Mesh Stop Voltage	2.1VDC
Battery Connection	Standard Aluminium Battery Holder
Working Current (DC)	Max. 65mA (Typ. 50mA)
Local Storage	Min. 450 Messages during Meshing
LxWxH	80 x 75 x 57mm
Weight	0.43kg
Primary Sensor	
Sensor Type	X-axis; Y-axis; Z-axis Tilt Values
Range	-90° to +90°
A	0.002° (7.2" or 0.0349mm/m) @ [-2.0°, 2.0°] & Better than 0.01° (36" or
Accuracy	0.1745mm/m) @ Any 1° over (-90°, 90°)
Resolution	0.0001° (0.36" or 0.001745mm/m)
Standard System Parameter	
Temperature	Range: -40 to 85°C; Accuracy: ±1°C, typical 0.5°C; Resolution: 0.1°C
Voltage	Accuracy: ± 0.1V
WSN Interface	
WSN Protocol	WiSenMeshWAN® Protocol
Industrial Standard	
Casing and Painting Materials	Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)
IP Rating	≥ IP66
Operating Temperature	-40 to 85°C
Fire Proof	Approved
Certificates	FCC, ACMA
Re-Calibration Method	
Inspection Period	Every 3 Years by Manufacturer (or inspected by arranged methods)
Tilting Orientation	
Y → × × × × × × × × × × × × × × × × × × ×	 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; The node fixings must be rigid for the sensor to measure accurate data Movement in the fixings will affect the readings; 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.



Infrastructure tilting condition monitoring, such as retaining wall, supporting column, river embankment etc. From the 1st 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.

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



Figure. Standard Omni Tilt Sensor Node Product Photos (Subject to the final product).



Basics	6F07/2F07	6F08/2F08		
Battery Power	Qty. x 1 (3.6V Lithium	primary D-Cell ER34615)		
Accuracy Stop Voltage	2.	7VDC		
Mesh Stop Voltage	2.	1VDC		
Battery Connection	Standard Alumir	nium Battery Holder		
Working Current (DC)	Max. 350m	A (Typ. 250mA)		
Local Storage	Min. 450 Messa	ges during Meshing		
LxWxH	100 x 10	00 x 60mm		
Weight	≤().65kg		
Primary Sensor				
Sensor Type	Dis	stance		
Laser Class	CI	ass 2		
Laser Range	0.05m-33m	0.05m-100m		
Laser Accuracy	Better than ±1.0ı	mm (Typical 0.5mm)		
Laser Resolution	0.	1mm		
Laser Lens Durability	≥ 500Hrs@3Hz@50°C	C or 2500Hrs@3Hz@25°C		
Standard System Parameter				
Tilt Sensor	X-axis; Y-axis;	Z-axis Tilt Values		
	Range: -	90° to +90°;		
Tilt Range	Accuracy: 0.002° (7.2" or 0.0349mm/m) @ [-2.0°, 2.0°] & Better than 0.01°			
The Nange	(36" or 0.1745mm/m)	@ Any 1° over (-90°, 90°);		
	Resolution: 0.0001° (0.36" or 0.001745mm/m).			
Temperature	Range: -40 to 85°C; Accu	racy: ±1°C; Resolution: 0.1°C		
Voltage	Voltage Accuracy: ±0.1V			
WSN Interface				
WSN Protocol	WiSenMesh	WAN® Protocol		
Re-Calibration Method				
Inspection Period	Every 3 Years by Manufacturer (or inspected by arranged methods)		
Industrial Standard				
Casing and Painting Materials	Aluminium-Alloy Die Castings 12	2 (Epoxy Polyester Powder Coating)		
IP Rating	2	IP66		
Operating Temperature	-10	to 50°C		
Fire Proof	Ар	proved		
Certificates	FCC	, ACMA		
Applications				
	between two specific points, such as ho	· · ·		

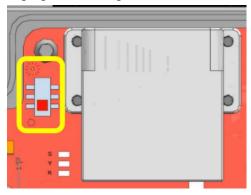


- A. This is an automated system, the laser beam must be set to point at an appropriate non-reflective surface;
- B. The protection window glass on a node must be kept clear all the time;
- C. Distance 0mm starting plane: plane of the protection window glass.



Special Notice

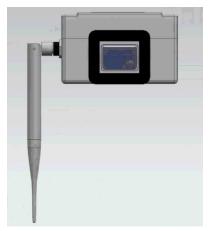
Laser_Pointing_Mode Hardware Switch: It sets laser into pointing mode. By default, it is in switched off state (i.e., empty circle sign). Switch location is highlighted in the figure below.



It can be switched on/off before/after a node's power-on. This pointing mode only becomes active after a valid laser reading is achieved.

Note: please do switch it off after an installation is completed, otherwise, the battery life is significantly shortened.

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.



Error Code Instructions					
Code_Info	Description Notice				
00	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	Cable may have gone loose or check if			



					there is any bad physical connection or
	too far out of range (e.g., point to the				
					sky) (Wisen)
05	Sing	gle readir	ng ad	chieved	Single success on the sampling procedure.
					The difference of sample values is too large,
06 Max-Min>			ĸErrc	or Tolerance	repeat measurement or use tripod.
					(Wisen)
07	Unk	nown co	mm	and or wrong parameter	Use correct syntax (@E203)
08	Erro	or on seri	ial co	ommunication	Check communication (@E220)
09	Tem	perature	e toc	high	Cool down module (@E252)
10	Tem	perature	e toc	olow	Warm up module (@E253)
11	Volt	age supp	ply to	oo low	Improve voltage supply quality (@E254)
12	Too	much ba	ackg	round light	Protect target against sunlight (@E257)
13	Lase	er error			Module defect (@E284)
14	APD)-voltage	can	't be adjusted correctly	Module defect (@E288)
15	Flas	h configu	urati	on error	Power down and up again (@E289)
16	Unknown command or wrong parameter from laser module			and or wrong parameter from laser	Change to a new battery (Wisen)
24	Che	cksum ei	rror		Change to a new battery (@E224)
74	No EEPROM detected, code has to be loaded by GSI			ected, code has to be loaded by GSI	Change to a new battery (@E274)
76	Read of code from EEPROM wrong			m EEPROM wrong	Change to a new battery (@E276)
70	EEPI	ROM eri	ror	which appears if something goes	Change to a new bettern (@5270)
78	wro	ng durin	g th	e flashing of the firmware	Change to a new battery (@E278)
90	Calil	bration s	signa	al out of range	Change to a new battery (@E290)
Laser Time	_	The tin	ne p	eriod (in the unit of seconds) that a	laser module has been switched on at each T.
Laser Tillie				Typically, of v	value: 2-3s.
Sampling Sta	Sampling Status The number of samples that has been successfully measured. Typically, of value: 5.				
Tilting Orienta	ation				
1) When holding the Spec paper horizontally, then when X-axis arrow rotates around					
∱⊗ y ↓	∱⊗y↓		0-dot into the paper plane, the read		dings of "x" decreases; It also applies to both
			Y/Z-axis;		
			2) The node fixings must be rigid for the sensor to measure accura		for the sensor to measure accurate data.
Movement in the fixings will affect t				the readings;	
Z ⊗ —		X	3)	The Omni Tilt Sensor Nodes must be oriented with any one axis marked on th	
	(⊘ x ♦		label parallel to the horizontal plane	e, so that the data can be easily interpreted.
Installation Gui	danc	е			





Figure. Laser Tilt Sensor Node Fixing Bracket (Please refer to the actual brackets in the shipment as the final).



7,1	AN® Liquid Level Settlement Sensor Node	
Basics		
Battery Power	Qty. x 1 (3.6V Lithium primary D-Cell ER34615)	
Accuracy Stop Voltage	2.7VDC	
Mesh Stop Voltage	2.1VDC	
Battery Connection	Standard Aluminium Battery Holder	
Working Current (DC)	Max. 160mA (Typ. 100mA)	
Local Storage	Min. 450 Messages during Meshing	
LwWwII	Interface Node: 100 x 100 x 60mm	
LxWxH	Liquid level settlement sensor: depending on the measurement range in mm.	
Node Weight	0.45kg	
Sensor Weight	Range: 100mm, Approx. 3kg; Range: 200mm, Approx. 4kg; Range: 300mm,	
Sensor Weight	Approx. 5kg.(Excluding the brackets and liquid tubes)	
Primary Sensor		
Sensor Type	Vertical Settlement	
Range	100/200/300/400/500mm	
Accuracy	1.0mm (Typical 0.5mm)	
Resolution	0.001mm	
Standard System Parameter		
Temperature	Range: -40 to 85°C; Accuracy: ±1°C; Resolution: 0.1°C	
Voltage	Accuracy: ±0.1V	
WSN Interface		
WSN Protocol	WiSenMeshWAN® Protocol	
Re-Calibration Method		
Inspection Period	Every 3 Years by Manufacturer (or inspected by arranged methods)	
Industrial Standard		
Casing and Painting Materials	Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)	
IP Rating	≥ IP66	
Operating Temperature	-40 to 85°C	
Fire Proof	Approved	
Certificates	FCC, ACMA	

Ground settlement monitoring: A minimum of two settlement sensor nodes are applied, with one as the reference point and other(s) as the vertical movement measurement point.

Sensor compatible: http://www.bsil.com.cn/english/view.php?id=15

Product Photo











Figure. Liquid Level Settlement Node.



Basics							
Battery Power		Qty. x 4 (3.6V Li	thium primary D-Cell ER3	4615)			
Accuracy Stop Voltage			2.7VDC				
Mesh Stop Voltage			2.1VDC				
Battery Connection		Standard A	Aluminium Battery Holder				
Working Current		Max. 38	80mA (Typical: 150mA)				
Alternative DC Input		7-	-32VDC@Min. 1A				
Local Storage		Min. 450 ľ	Messages during Meshing				
LxWxH	4 Channel Inte	rface Node: 180 x 1	40 x 60mm; Laser Distan	ce Unit: 80 x 75 x 57mr			
Node Weight			1.3kg				
Lanca Dintaga a Hait		0.37kg x Qty. 4	(excluding brackets and ca	ables)			
Laser Distance Unit	Default ca	able length: 0.5m (8	00m when high quality sh	nield cable is used.)			
Cable Gland		Qt	y. 4 x EMC-CMA12				
Wire Connection		Spring	type wiring terminal				
Primary Sensor							
Sensor Type			Distance				
Laser Class			Class 2				
Laser Range			0.05m-33m				
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 Paramet	er						
Temperature		Range: -40 to 85°C	; Accuracy: ±1°C; Resoluti	on: 0.1°C			
Voltage		ı	Accuracy: ±0.1V				
WSN Interface							
WSN Protocol		WiSer	nMeshWAN® Protocol				
Re-Calibration Method							
Inspection Period	Every 3	3 Years by Manufact	turer (or inspected by arra	anged methods)			
Industrial Standard							
Casing and Painting	Alumir	nium-Allov Die Cast	ings 12 (Epoxy Polyester F	Powder Coating)			
Materials	Alumin	main Anoy Die east	ings 12 (Epoxy i diyestel i	- owder codding)			
IP Rating			≥ IP66				
Operating Temperature			-10 to 50°C				
Fire Proof			Approved				
Certificates			-				
Sensor Output Voltage							
"Vcc_Out Hardware Switch	n" is used to control	the Vcc_out voltage	e to be 5V, 9V and 12V cro	oss all 4 channels			
simultaneously However 1	for 6510 type 12V r	nust be used as pov	wer supply voltage to the	laser sensors.			
simultaneously. However, i	o. 0510 type, 121 .		res calciary sessable se asse	1			

Wisen Innovation Ltd, 4 Chapel Close Litlington Royston Herts, United Kingdom SG8 0QJ Office D501, 530 Mansion, Taihu International Hi-tech Zone, Xinwu District, Wuxi, China Postcode 214135

12V (Default)

1 2





Table. Vcc Out Switch Setting.

Applications

4 sets of laser sensors can be hosted in this product, each can be used for long term distance monitoring between two specific points, such as horizontal convergence of a tunnel.

Note:

- 1. Vcc_Out Switch must be set as Switch = 2, i.e., 12V for the laser sensors to work;
- 2. It does not contain any tilt readings as in 6Fxx laser tilt series.

Warning!

- D. This is an automated system, the laser beam must be set to point at an appropriate non-reflective surface;
- E. The protection window glass on a node must be kept clear all the time;
- F. Distance 0mm starting plane: plane of the protection window glass.



Special Notice

Laser_Pointing_Mode Hardware Switch: It sets laser into pointing mode. By default, it is in switched off state (i.e., empty circle sign). Switch location is highlighted in the figure below.



It can be switched on/off before/after a node's power-on. This pointing mode only becomes active after a valid laser reading is achieved.

Note: please do switch it off after an installation is completed, otherwise, the battery life is significantly shortened.

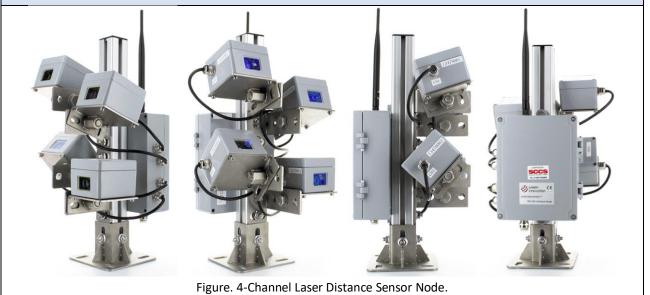
Laser front Lenses Protection Cover: All our laser nodes are shipped with their individual Protection Cover (of a 3M Double Coated Tissue Tape at one side). Once a battery is installed, node is powered on, and lid is screwed on properly. Then glue the cover onto the node as shown in the figure below.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

Error Code Instructions						
Code_Info	Description	Notice				
00	Node is working in a good condition	-				
01	Target moving too fast or beam interrupt	Repeat measurement, use tripod (@E260)				



02	Signal too le	ow or distance out of range	Use special target plate (@E255)		
03	•				
03	Signal too h	ngn	Avoid high reflecting surfaces (@E256)		
			Cable may have gone loose or check if there		
04	Time out or	n reply	is any bad physical connection or too far		
		. ,	out of range (e.g., point to the sky)		
			(Wisen)		
05	Single readi	ing achieved	Single success on the sampling procedure.		
06	May-Min>2	xError Tolerance	The difference of sample values is too large,		
00	IVIAX-IVIIII/Z	ALTIO TOTELATICE	repeat measurement or use tripod. (Wisen)		
07	Unknown c	ommand or wrong parameter	Use correct syntax (@E203)		
08	Error on ser	rial communication	Check communication (@E220)		
09	Temperatur	re too high	Cool down module (@E252)		
10	Temperatur	re too low	Warm up module (@E253)		
11	Voltage sup	pply too low	Improve voltage supply quality (@E254)		
12	Too much b	ackground light	Protect target against sunlight (@E257)		
13	Laser error		Module defect (@E284)		
14	APD-voltage	e can't be adjusted correctly	Module defect (@E288)		
15	Flash config	guration error	Power down and up again (@E289)		
16	Unknown c	ommand or wrong parameter from laser	Change to a new battery (Misser)		
16	module		Change to a new battery (Wisen)		
24	Checksum 6	error	Change to a new battery (@E224)		
74	No EEPROM	1 detected, code has to be loaded by GSI	Change to a new battery (@E274)		
76	Read of coo	de from EEPROM wrong	Change to a new battery (@E276)		
70	EEPROM e	rror which appears if something goes	Cl		
78	wrong durii	ng the flashing of the firmware	Change to a new battery (@E278)		
90	Calibration	signal out of range	Change to a new battery (@E290)		
		The time period (in the unit of seconds)) that a laser module has been switched on at		
Laser	lime	each T. Typically, of value: 2-3s.			
Sampling	Status		uccessfully measured. Typically, of value: 5.		

Product Photo





Basics											
Battery Power			Qty. x 4 (3.6)	V Lithium p	rimary D-0	Cell ER34615)					
Accuracy Stop		2.7VDC									
Voltage		2.7700									
Mesh Stop Voltage		2.1VDC									
Battery Connection		Standard Aluminium Battery Holder									
Working Current	М	Max. 570mA (Typ. 210mA). Note: External 12VDC is strongly recommended.									
Alternative DC Input		7-32VDC@min. 1A									
Local Storage			Min. 4	50 Message	s during N	Лeshing					
LyMyH			4 Channel I	nterface No	de: 180 x	140 x 60mm					
LxWxH			Sei	nsor: 600 x	300 x 250	mm					
Node Weight				1.3	kg						
Sensor Weight				3.0	kg						
Cable Gland				Qty. 4 x EN	1C-CMA12	<u> </u>					
Wire Connection			Sp	ring type wi	iring term	inal					
Primary Sensor											
Channel Choice			(CH2 ONLY				CH4 ONI			
Sensor Type	Temperature	Humidity	Light Intensity	Air Pressure	Noise Level	Wind Speed	Wind Direction	Rainfall/T			
Sensor Type	-40~100°C	0~100%RH	0~200000Lux	30~1100hPa	30~130dB	0~45m/s	0~359°	0~6553.5mm			
Accuracy	±0.3°C	±3%RH	±4%F.S.	±1hPa	±3dB	±(0.3+3%xSpeed) m/s	±3°	±1mm			
Resolution	±0.1°C	0.1%RH	1Lux	0.11hPa	0.1dB	0.1m/s	1°	0.2mm			
Standard System Para	meter			L	l	<u>I</u>	L	L			
Temperature		Rar	nge: -40 to 8	5°C; Accura	cy: ±1°C; F	Resolution: 0.1°	C.				
Voltage				Accuracy	/: ±0.1V						
WSN Interface											
WSN Protocol			Wi		'AN® Proto	ocol					
Re-Calibration Metho	d										
Inspection Period		Every 3 Yes	ars by Manu	facturer (or	inspected	d by arranged m	nethods)				
Industrial Standard		<u> </u>	<u> </u>								
Casing and Painting											
Materials		Aluminiun	n-Alloy Die C	astings 12 (Epoxy Pol	yester Powder	Coating)				
IP Rating				≥ IP	66						
Operating											
Temperature			-40 to 8	35°C (exclud	ıng rainfal	ı sensor)					
Fire Proof				Appro	oved						
Certificates				-							
Sensor Output Voltag	_										

simultaneously. However, for 6517 type, 12V must be used as power supply voltage to weather sensors.



Hardware Switch	Vcc_Out Output	Demo Photo
0	5V	Vcc Out =5V
1	9V	VCC OUI -
2	12V (Default)	No
3	5V	12V

Table. Vcc_Out Switch Setting.

Applications

Outdoor Long term multi meteorological parameters monitoring, including: Temperature, Humidity, Light Intensity, Air Pressure, Noise Level, Wind Speed, Wind Direction and Rainfall per T.

Note:

- 1. CH2 must be connected with the combined weather sensors; CH4 must be connected with the rainfall sensor:
- 2. Vcc_Out Switch must be set as Switch = 2, i.e., 12V for the weather sensors to work.

Product Photo

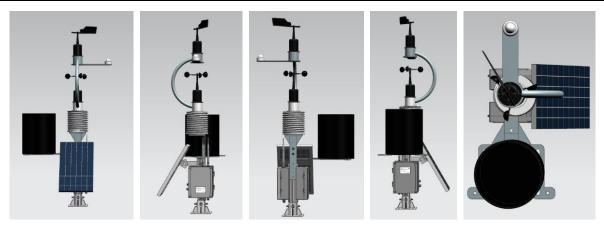


Figure. Weather Sensor Node.



WiSenMeshWAN® Interface Node Series

Basics	6A07: 1 x VW Interface Node	6A08: 4 x VW Interface Node					
D. 11 D	Qty. x 1 (3.6V Lithium primary D-Cell	Qty. x 2 (3.6V Lithium primary D-Cell					
Battery Power	ER34615)	ER34615)					
Accuracy Stop Voltage	2.1VDC						
Mesh Stop Voltage	2.1VDC						
Battery Connection	Standard Aluminium Battery Holder						
Working Current (DC)	Max. 60mA (Typ. 48mA)					
Local Storage	Min. 450 Message	s during Meshing					
LxWxH	100 x 100 x 60mm	180 x 140 x 60mm					
Weight	0.60kg	1.20kg					
External Sensor Size and	Depending on the spe	cific VW sensor connected					
Weight	(external cable l	ength ≤ 1.1km)					
Cable Gland	Qty. 1 x EMC-CMA12 for external VW	Qty. 4 x EMC-CMA12 for external VW					
cable diana	sensor connection	sensor connections					
Wire Connection	Spring type wi	ring terminal					
Externally Connected VW	Sensor						
Sensor Type	Vibrating V	Vire Typed					
No. of Inputs	1 Channel	4 Channels					
	VW Type of 5 wires: VW+, VW-, T+, T-, GND.						
Sensor Connection	Note: Temperature wires (or a $3k\Omega$ resistor) must be connected to the T+ & T- terminals						
	so VW node can work properly; Ground wire between a node and a sensor must be						
	connected.						
Parameter	Resonant Fre						
Range	400 to 6						
Accuracy	0.015% at A	<u> </u>					
Sensitivity	0.002Hz@400Hz o	r 0.05Hz@6000Hz					
External Thermistor Senso							
Parameter	Thermistor Resist						
Range	0.052kΩ to						
Accuracy	0.12kΩ	or 2°C					
Standard System Paramete							
Temperature	Range: -40 to 85°C, Accuracy: ±1°C	**					
Voltage	Accuracy	/: ±0.1V					
WSN Interface							
WSN Protocol	WiSenMeshW	AN® Protocol					
Re-Calibration Method							
Inspection Period	Every 3 Years by Manufacturer (or	inspected by arranged methods)					



Casing and Painting	Aluminium Alloy Dia Castings 12 (Enavy Polyostar Poyedor Casting)
Materials	Aluminium-Alloy Die Castings 12 (Epoxy Polyester Powder Coating)
IP Rating	≥ IP66
Operating Temperature	-40 to 85°C
Fire Proof	Approved
Certificates	FCC, ACMA

Applications

WiSenMeshWAN® VW interface node is Compatible with all different brands & types of high quality Vibrating Wire sensors, therefore it can be applied in all different related monitoring projects.

Examples of VW sensors: Strain Gauge; Displacement Transducers; Piezometers; Settlement Sensors; Pressure Cells; Load Cells. Suggested VW sensor supplier: http://www.soilinstrument.com/

Installation Guidance

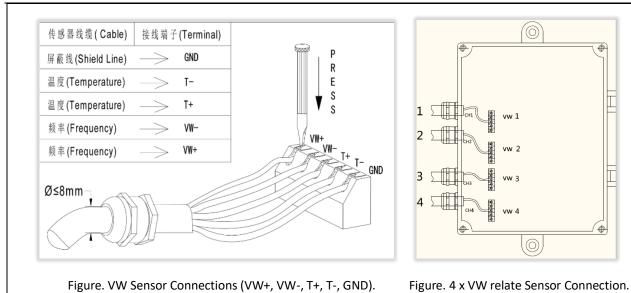


Figure. 1-Channel VW Interface Node Product Photos.



Figure. 1-Channel VW Interface Node Brackets.







	AN® Voltage Interface Node					
Basics						
Battery Power	Qty. x 1 (3.6V Lithium pr					
Accuracy Stop Voltage	2.7VDC					
Mesh Stop Voltage	2.1VDC					
Battery Connection	Standard Aluminiu	m Battery Holder				
Working Current (DC)	Max. 2	10mA				
Local Storage	Min. 450 Message	s during Meshing				
LxWxH	Interface Node: 10	00 x 100 x 60mm				
Weight	0.6	kg .				
External Sensor Size and	Depending on the spec	ific sensor connected				
Weight	(external cable I	ength ≤ 1.0m)				
Cable Gland	Qty. 1 x EMC-CMA12 for	external sensor connection				
Wire Connection	Spring type wi	ring terminal				
Primary Sensor						
	Signal Output Range (0 to Vcc_Out)	Power Input Voltage (Vcc_Out) @				
	Signal Output Kange (0 to vec_out)	max. 100mA				
	0-1.8V	1.8V±0.05V				
Sensor Type	0-2.5V	2.5V±0.05V				
	0-3.3V	3.3V±0.05V				
	0-5.0V 5.0V±0.05V					
	Notice: Power On Time to External Sensor	: 1s power on before samples are taken.				
	Please confirm the sensor stable time before	ore use.				
Accuracy	0.05%	6F.S.				
Resolution	0.18i	mV				
Standard System Parameter						
Temperature	Range: -40 to 85°C; Accurac	:y: ±1°C; Resolution: 0.1°C				
Voltage	Accuracy	: ±0.1V				
WSN Interface						
WSN Protocol	WiSenMeshW	AN® Protocol				
Re-Calibration Method						
Inspection Period	Every 3 Years by Manufacturer (or	inspected by arranged methods)				
Industrial Standard						
Casing and Painting Materials	Aluminium-Alloy Die Castings 12 (I	Epoxy Polyester Powder Coating)				
IP Rating	≥ IP	66				
Operating Temperature	-40 to	85°C				
Fire Proof	Approved					
Certificates	-					
Sampling Range Selection						

Sampling Range Selection

"Vcc_Out Hardware Switch" is used to select the option of:

- A. sampling "Voltage Signal Output Range" from an external sensor;
- B. providing "Input Power Voltage" to an external sensor, e.g., for 6C01 type, "Vcc_Out Switch" of 2.5V must be selected so that the EC-5 soil moisture sensor can be powered at 2.5V and also the node can



sample between 0 and 2.5V from the sensor.

Notice: For any other sensors, please check against the sensor specification before the setting is completed!

Hardware Switch	Vcc_Out Output	Demo Photo
0 (default)	1.8V (default)	1.80
1	2.5V	Vcc Out : 8
2	3.3V	vcc_out. 9. m
3	5.0V	5:5V

Figure. Vcc_Out Switch Setting.

Wire Connections



Applications

- A. Voltage typed sensors of Vin = 1.8V/2.5V/3.3V/5.0V, Current required ≤ 100 mA, Sensor Vout Signal \leq Sensor Vin;
- B. Sensor example:
 - a. High precision moisture Sensor:https://www.metergroup.com/environment/products/ec-5-soil-moisture-sensor
 - b. Displacement Sensor: http://www.miransensor.com/english/cpzx/32/list_1633.html

Product Photo

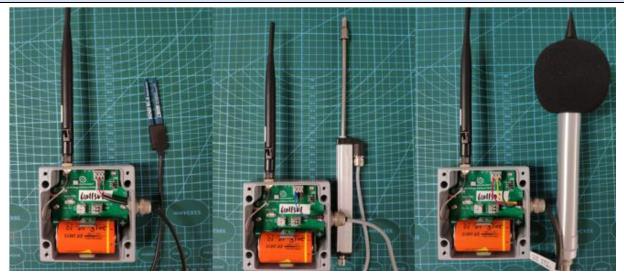


Figure. Voltage Node (From left to right: EC-5 Soil Moisture in %, Displacement in mm, Noise Level in dB).



Battery Life Table (No. of Months)

T/mi	63	05	_	8@2.3s r On	6A07@VW	Crackmete	6501@RS4 Static Settle	•	6005	@4G
n	Worst	Best	Worst	Best	Worst	Best	Worst	Best	Worst	Best
1	2.0	4.7	1.2	1.9	2.1	5.9	0.8	0.9	0.20	0.23
5	7.4	22.5	5.7	9.0	9.7	22.6	3.9	4.1	0.57	0.68
15	21.7	66.8	15.1	22.4	28.0	45.0	11.2	10.2	1.77	1.98
30	52.9	108.3	26.3	34.7	57.0	60.4	21.9	21.1	3.51	4.01
60	98.7	184.7	40.0	51.2	97.1	70.3	42.5	35.0	6.69	7.60

End of the Specification.