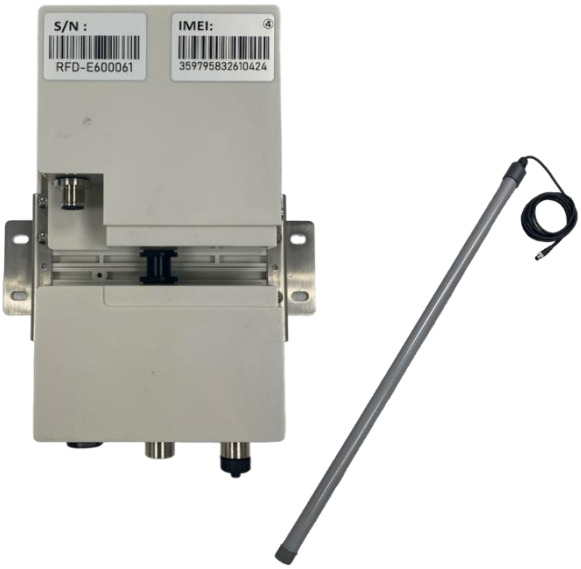
EnSense Sensing Node(ESN-100_RFD)

Smart real-time transmission water level sensor

- Flood control sensing integrated application solution

- ✓ Various environmental sensing (Flood control, Hydrology , Smart city,...)
- ✓ Smart Device Management (Real-time data, Power management, …)
- ✓ Optional Acceseory (Solar , wind speed & direction, …)



Features

- LTE-compatible Logger with FCC, CE, and NCC certifications.
- Secure uploads with backup and auto-recovery for 100,000 records.
- Supports MQTT communication protocol.
- Low power sleep mode for optimized monitoring.
- IP68 ABS housing: weatherproof and chemical-resistant.
- Customizes detection solutions for different types of industrial equipment.

ESN-100_RFD is a smart real-time transmission water level sensor that uses ST microcontrollers, 4G LTE transmission, and IoT technologies for instant data reporting. It supports real-time analysis and cloud-based management for remote monitoring and operations. The device features plug-and-play integration with sensors via RS-485/GPIO interfaces (e.g., water level meters, level switches, rain gauges). Its cost-efficient design makes it suitable for large-scale deployment.

With low power consumption, a certified built-in battery, and options for solar panel or lead-acid battery backups, it is ideal for environmental monitoring. Current applications include water quality, hydrology, air quality, smart cities, and slope monitoring.

Function

1. Environmental Sensing: Plug and play multi-sensors, water quality, pressure, level, flow…
2. IoT technology: Sensing data collection, upload. Cloud algorithm, storage and alarm notification.
3. Smart remote management: Device online inspection, abnormal equipment analysis, reduce labor and time cost.

EnSense

RF Specifications

Model name	EnSense Sensing Node		
Wireless	LTE		
Standard/Protocol	Up to non-CA CAT1 with 1.4 to 20 MHz RF bandwidth		
Frequency	FDD-LTE	WCDMA	GSM
	B1/B3/B7/B8/B20/B28A	B1/ B8	B3/ B8
Sensitivity	B1: -101.5dBm (10M) B3: -101.5dBm (10M) B7: -99.5dBm (10M) B8: -101dBm (10M) B20: -102.5dBm (10M) B28: -102dBm (10M)	B1: -110dBm B8: -110.5dBm	-109dBm
Data rate	Max 10 Mbps(DL) Max 5 Mbps (Ul)	Max 384 Kbps (DL) Max 384 Kbps(UL)	Max 107 Kbps (DL) Max 85.6 Kbps(UL)

Logger Specifications

General	
Certification	CE, FCC, NCC
Shell	ABS (IP68 rating)
MCU	Ultra-low-power Arm Cortex-M4 MCU 80 MHz 1 Mbyte of Flash
RTC	crystal controlled calendar clock and NTP server auto time synchronization
Built in battery	Battery pack 2s2p 8.4V 6700mAh (UN38.3 passed)
Memoty	16g SD card
Water level gauge Specifications	
Sensing principle	MEMS
Measuring range	0~3 m
Measuring accuracy	±1 cm
Resolution	1 mm
Output signal	RS485
Operating	
Operating Temperature	-10~+55°C
Operating Humidity	0 ~ 100%RH, Non-condensing
Storage temperature	-40~85°C
Power Supply	100~240VAC or 12VDC(Lead-acid Battery) or Solar power
Consumption	Average below 3W
Installation	Wall or pole mount
Dimension	210(L) x 130(W) x 60(H) mm
Weight	2 (kg)

Solar Solution Specification

Solar Panel		50Ah Lead-acid Battery	
Cell	Crystalline silicon(c-Si)	**Voltage**	12V
Maximum Output Power (P_M)	30W	**Capacity**	50Ah
Open-circuit Voltage (V_{OC})	22.4V	**Dimensions**	197 x 165 x 175 mm
Maximum Voltage (V_{MP})	18.2V	**Weight**	15.3 kg
Maximum Current (I_{MP})	1.65A	**22Ah Lead-acid Battery**	
Short-circuit Current (I_{SC})	1.79A	**Voltage**	12V
Dimensions	345 x 380 x 35 mm	**Capacity**	22Ah
Weight	3 kg	**Dimensions**	181 x 76.2 x 167 mm
		Weight	6.2 kg

Specifications of outdoor switch box (Features a locking mechanism)

Material	Stainless steel SUS304, 1.2mm Tthickness
Dimensions	300(H) x 300(W) x 200(D) mm
Weight	6.43 kg