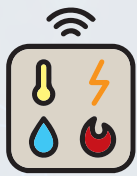


LoRaWAN® compatible
Open/Close Switch
&
Accelerometer

EM-ELST01



Multi Sensors

Featuring 2 types of sensors: a switch and an accelerometer. Reliably captures state changes and uplinks sensor states using the LoRaWAN® network.



LoRaWAN® Ready

Supports LoRaWAN® AS923 (frequency band for Japan) and can connect to The Things Stack.



High Capacity

Equipped with a large-capacity battery and a dustproof and waterproof case (equivalent to IP66). This enables the device to be used for long-term outdoor deployments.

Selection between two versions of open/close switches

EM-ELST01-E

External sensor



EM-ELST01-I

Internal sensor



Feature Highlights

- ✓ STM32L072x MCU
- ✓ SX1276 Wireless Chip
- ✓ LoRaWAN® 1.0.3 Class A
- ✓ Frequency plan AS923-JP
- ✓ Switch sensor (open/close detection)
- ✓ Selection between two types of switches: external and internal
- ✓ Accelerometer (vibration detection)
- ✓ Dustproof and waterproof case for outdoor use (equivalent to IP66)
- ✓ Ultra-low power consumption

Applications

Indoor and outdoor "structural" deformation detection

Levees, gates, slopes/sediment, struts, solar panels, vinyl greenhouses, building windows, etc.



Case study: open/close monitoring of a tsunami water gate

Technical Specifications

body	Size	W140 x D70 x H50mm
	Weight	200g
	Casing	Dust- and waterproof (equivalent to IP66)
controller	MCU	STM32L072C8Y6
	Flash	128KB
	RAM	20KB
	EEPROM	6KB
	Clock speed	32Mhz
	Supply voltage	2.1v~3.6v
	Operating temperature	-40~85°C
	Battery & power consumption	Battery type
Capacity		4000mAh
Self-discharge		< 1% per year @ 25° C
Max. continuous current		130mA
Max. boost current		2A per sec
Sleep Mode		2.7uA @ 3.3v
LoRa Transmission Mode		125mA@20dBm, 44mA@14dBm
LoRa™ related	Max. link budget	168dB
	Max. constant RF output	+20dBm - 100mW
	High efficiency PA	PA +14dBm
	Programmable bit rate	up to 300kbps
	RX sensitivity	-148dBm
	Bullet-proof front end	IIP3 = -12.5dBm
	Low RX current	10.3mA, 200nA register retention
	Others	Fully integrated synthesizer with 61Hz resolution; Modulations: FSK, GFSK, MSK, GMSK, LoRa, OOK; Built-in bit synchronizer performing clock recovery; 127dB dynamic range RSSI; Automatic RF sense and CAD with ultra-fast AFC; Packet engine with CRC up to 256 bytes