EWS Tilt Meter Monitoring

Specifications & Install Guide

Adroit is New Zealand's leading real-time environmental monitoring provider for councils, worksites, construction, civil and heavy industries.

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Environmental IoT

EWS Tilt Meter Monitoring
Overview

Overview

The EWS Telemetry Tilt Meter integrates the power of EWS wireless IoT monitoring technology with a highly accurate inbuilt tri-axial tilt sensor for remote monitoring of a range of geotechnical and structural applications. The EWS Telemetry Tilt Meter devices log and transmit tilt data independently and do not rely on radio transmission to a centralised gateway eliminating the risk of single-point failure. The device is plug and play and multi-communication enabled with transmission available over 4GLTE and uniquely over Satellite allowing the devices to be deployed in the most remote locations and presents a world first in satellite enabled tilt monitoring.

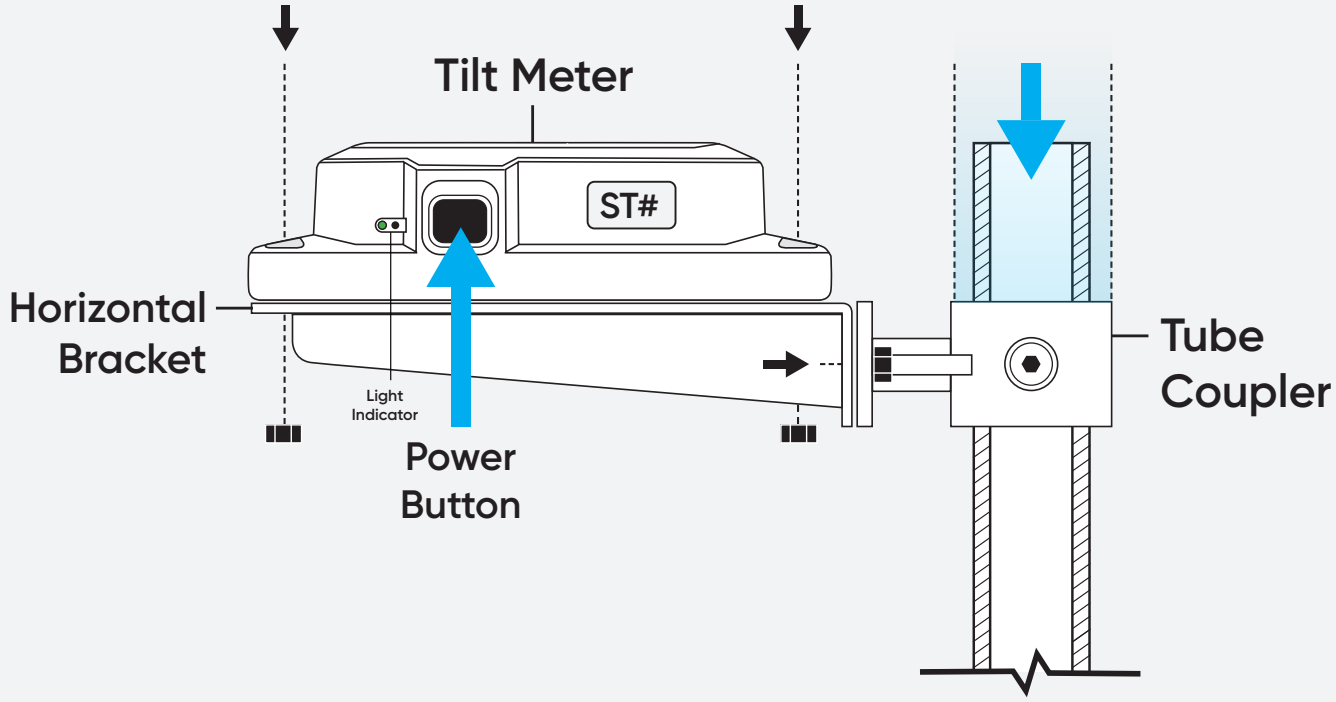
Features

- Worlds first satellite communication enabled wireless tiltmeter.
- Multi-Communications options Include, Iridium Satellite, CAT-M1 and NB-IoT.
- Highly accurate tri-axial MEMS tilt sensor.
- Ultra-Low power draw with internal long-life lithium batteries.
- Remotely change settings with two-way communications including via Iridium.
- Out-of Cycle “Event” transmission.
- Compact form factor 45mm x 110mm x 180mm.
- Rugged and robust for harsh environments - IP68.
- Encoding scheme for compression of data packet size.
- Automatic data upload directly to the Adroit Platform.
- Internal storage of up to 260,000 events.

Benefits

- Ideal for a range of remote slope stability, slip detection, rail and structural monitoring applications.
- Each device independently logs and transmits data.
- No gateway or further communication infrastructure required.
- Designed and Manufactured in Australia.
- Rugged and robust - designed for harsh remote environments.
- Plug and play setup on-site reducing installation time and footprint.
- Very straightforward and scalable for fast deployments and large monitoring campaigns.
- Make remote configuration changes over the air.

Tilt Meter Monitoring
Setup guide



STEP 1

Using nuts & bolts provided mount Tilt Meter to horizontal bracket

STEP 2

Bolt horizontal bracket to tube coupler

STEP 3

Insert tubing into ground and set to desired depth. Ensure tubing is vertically level

STEP 4

Slide tube coupler down tubing and lock-off using the grub screw

STEP 5

Press button once to turn on device, a green light will flash to indicate the device is operational

STEP 6

Record ST# and plot device location for platform reference

Refer to Network test guide to confirm connectivity

Locating sensor and setting tube depth is subject to on-site requirements and environmental consideration, this should be directed by a geotechnical specialist. Specifications subject to change without notice.

Tilt Meter Monitoring
Location and Position

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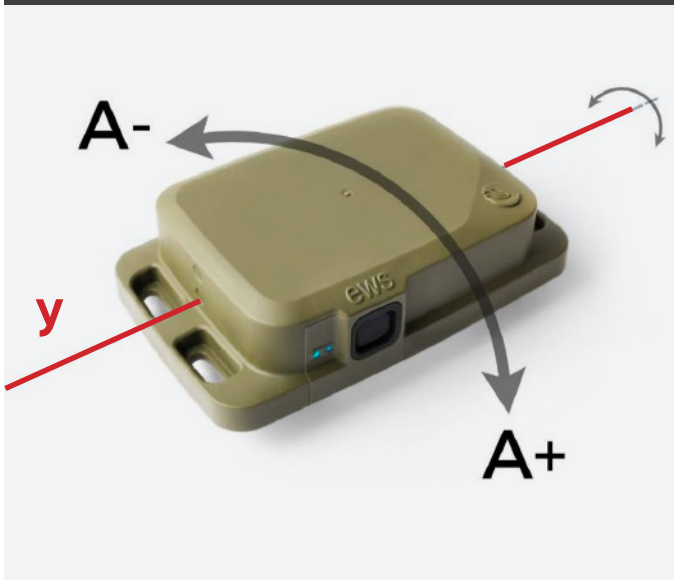
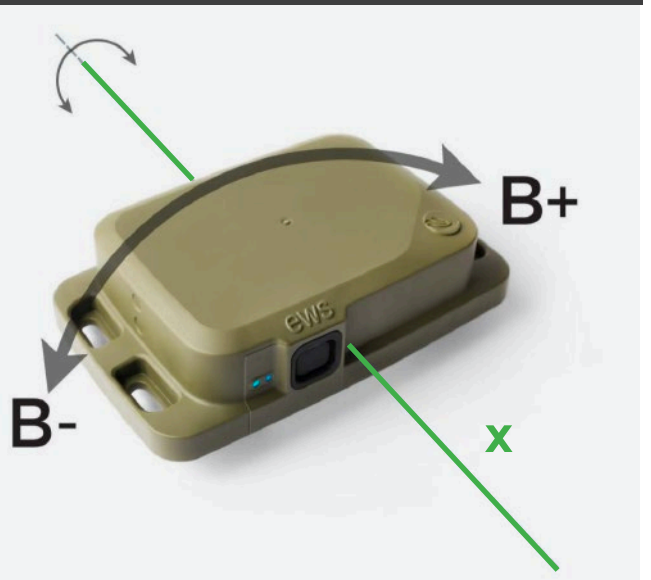
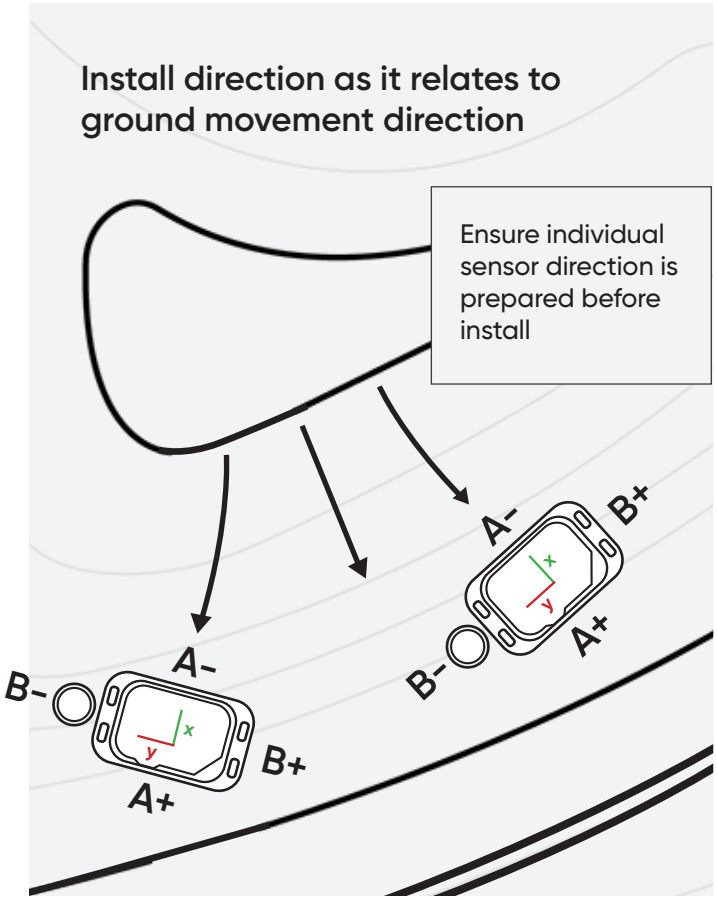
A-Axis (Pitch/Y)

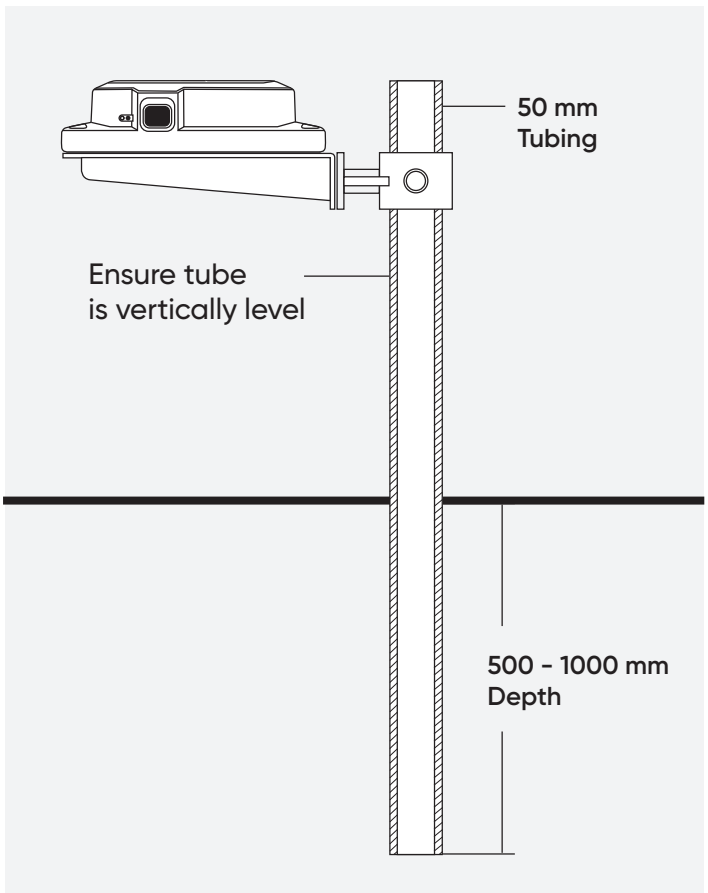


B-Axis (Roll/X)



Install direction as it relates to ground movement direction





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EWS Switch
Network connectivity testing

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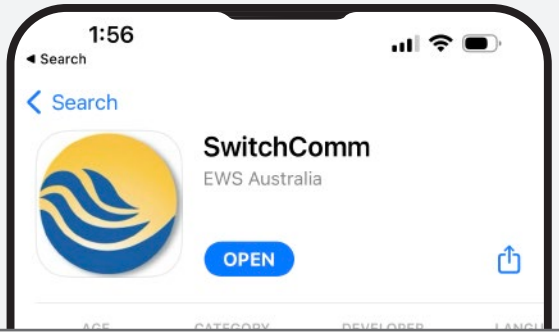
STEP 1

Download the EWS Switch-Comm app on iOS and Android devices



Available on the App Store

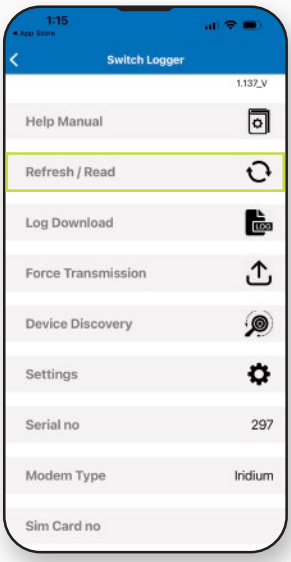
GET IT ON Google Play

STEP 2

From the main menu select logger

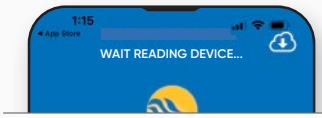
STEP 3

Select Refresh / Read to initiate device read

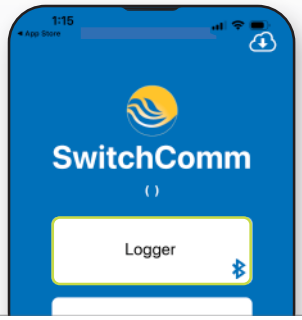


STEP 4

Wait for the device to complete read

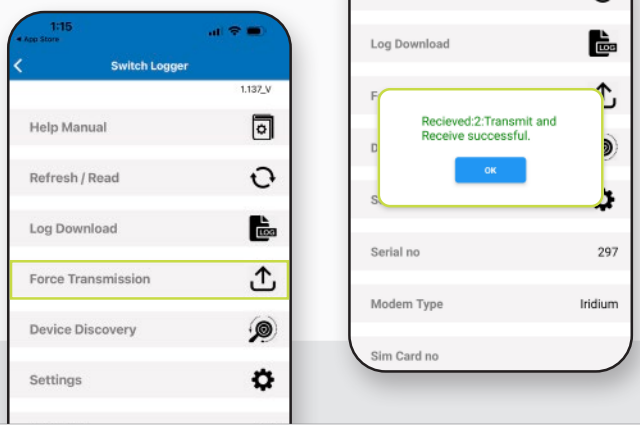


When the prompt disappears, select Logger



STEP 5

Select Force Transmission and wait for the transmit and receive successful window to appear, this may take a few minutes



Press OK to complete network testing, if unsuccessful close app & repeat steps

Specifications

Mechanical

Size	Width 110mm	Height 45mm	Length 180mm
Weight	800 grams		
Weather protection	IP68		

Built-in Triaxial Tilt Sensor Channel

MEMS Triaxial Accelerometer			
Range	-15°	+15° Degrees	
Resolution	0.001°		
Sensitivity	0.001°		
Repeatability	-0.002°	+0.002° Degrees	
Non-Linearity	-0.002°	+0.002° Degrees	

Environmental

Operating Temperature	-20 to 60 °C		
Storage Temperature	-40 to 65 °C		
Humidity	5 to 95 % Re		

Power

External Power Supply			
Input Voltage	12 V		24 V
Input Current	700 mA		
Internal Battery (Rechargeable)			
Chemistry	Lion		
Terminal Voltage	6.8 V	7.8 V	8.4 V
Capacity	1.8/4.8 Ahr		
Internal Battery (Non-rechargeable)			
Chemistry	LiMnO2		
Terminal Voltage	6.8 V	7.8 V	8.4 V
Capacity	4.8 Ahr		
Sensor Power Output			
Output Voltage	11 V	12 V	13 V
Output Current	500 mA		
Digital Output			
Output Voltage	11 V	12 V	13 V
Estimated Battery Life	5 hrs		10 hrs

Specifications subject to change without notice.

Specifications

Storage			
Non-volatile-Log			
Size Events	4 MB 256000 Events		

Bluetooth Support			
Bluetooth standard Data rate	5.0 2.5 kbps		

Clock			
RTC			
Accuracy (-10 to 70°C)	± 20 ppm	± 70 ppm	
Network Time Sync Support			
Supported Networks	Iridium satellite	CAT-M1	NB-IoT
Cellular			

Telemetry Support			
Iridium			
Protocols Coverage	Short Burst Data Worldwide		
4G Cellular LTE-M/NB-IOT			
Protocols Email Network Support Coverage	MQTT Spark 100% NZ Coverage		

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