# Instruction Manual of RUGON

Version 1.1 (17 Dec 2025)



## What is RUGON?

RUGON stands for **R**eal-time **U**biquitous **G**round-shaking **O**bservation **N**etwork, and the pronunciation in Thai is "รู้ก่อน".

RUGON is an acceleration sensor tightly integrated with an onboard processor and a 4G module, providing nine years of IoT cellular data. It works as a standalone device or it is nested with other RUGON units to measure ground and structural vibration.

RUGON Co.,Ltd. has an infrastructure of approximately 100 sensors deployed across Thailand and Myanmar to detect earthquakes and provide earthquake early warning.

## Motto

"Sense then Share" reflects RUGON's design concept. The hardware and firmware are designed to sense and process data, and then transmit it to the cloud server as soon as possible. Then users will be alerted.

## Features

- Earthquake Early Warning based on approximately 100 ground stations in Thailand and Myanmar
- Live ShakeMap to track earthquake intensity from source to site in real-time
- Standalone or nested for structural monitoring to assess structural safety right after shaking.
- Able to automate alarm or shutdown systems.
- Based on the sensitive low-noise sensor ADXL355 by Analog Devices Inc.
- Calibrated by National Institute of Metrology (Thailand)
- 4G IoT data plan (9 years) is included.
- Wi-Fi access for configuration and monitoring
- App-centric: notifications and information are linked from a single app, supporting both Android and iOS.

**Terms and Conditions**

- Data from the sensor installed on the ground floor is shared anonymously for ShakeMap and Earthquake Early Warning. The cell tower location will be used. This feature will benefit the community overall. The shared data includes the maximum acceleration and the acceleration at alert thresholds. The waveform data will not be shared.
- 4G IoT data is included. No further payment for communication or cloud services is required by the end user. RUGON Co., Ltd. pays the communication and cloud service costs for a period of 9 years.
- The SIM card is locked to each device. It shall be used outside the device.
- The operator of the SIM card is highly regarded in the world, with more than 1 million IoT devices worldwide. It is essential to state that IoT data roaming has the same reliability and risk as mobile phones. A country can shut down roaming during wars or political unrest. Although this situation is very rare, it is mentioned here for clarity. A SIM shutdown is beyond the scope of RUGON Co., Ltd.'s liability. If that occurs, the device can still connect to the internet via Wi-Fi.

If Terms and Conditions are unacceptable, the user shall return the device for a full refund within two weeks after the purchase.

**Warranty**

The product's warranty period is 2 years. The device will be replaced or repaired free of charge if it is damaged by normal use during the warranty perriod. The included power supply shall be used at all times. The warranty does not cover damage caused by the use of other power supply units.

**Registration**

Registration is required to provide continuous updates to the user. Follow the link for registration.

**Installation**

The sensor comes with a bracket that can be mounted on the wall or the floor slab. For the wall mount, the sensor should be mounted on a masonry wall within 0.50 m from the floor. The spirit levels are provided on the bracket to confirm proper leveling. See the following figures for a typical installation.



**Configuration and Use**

1. App and notifications
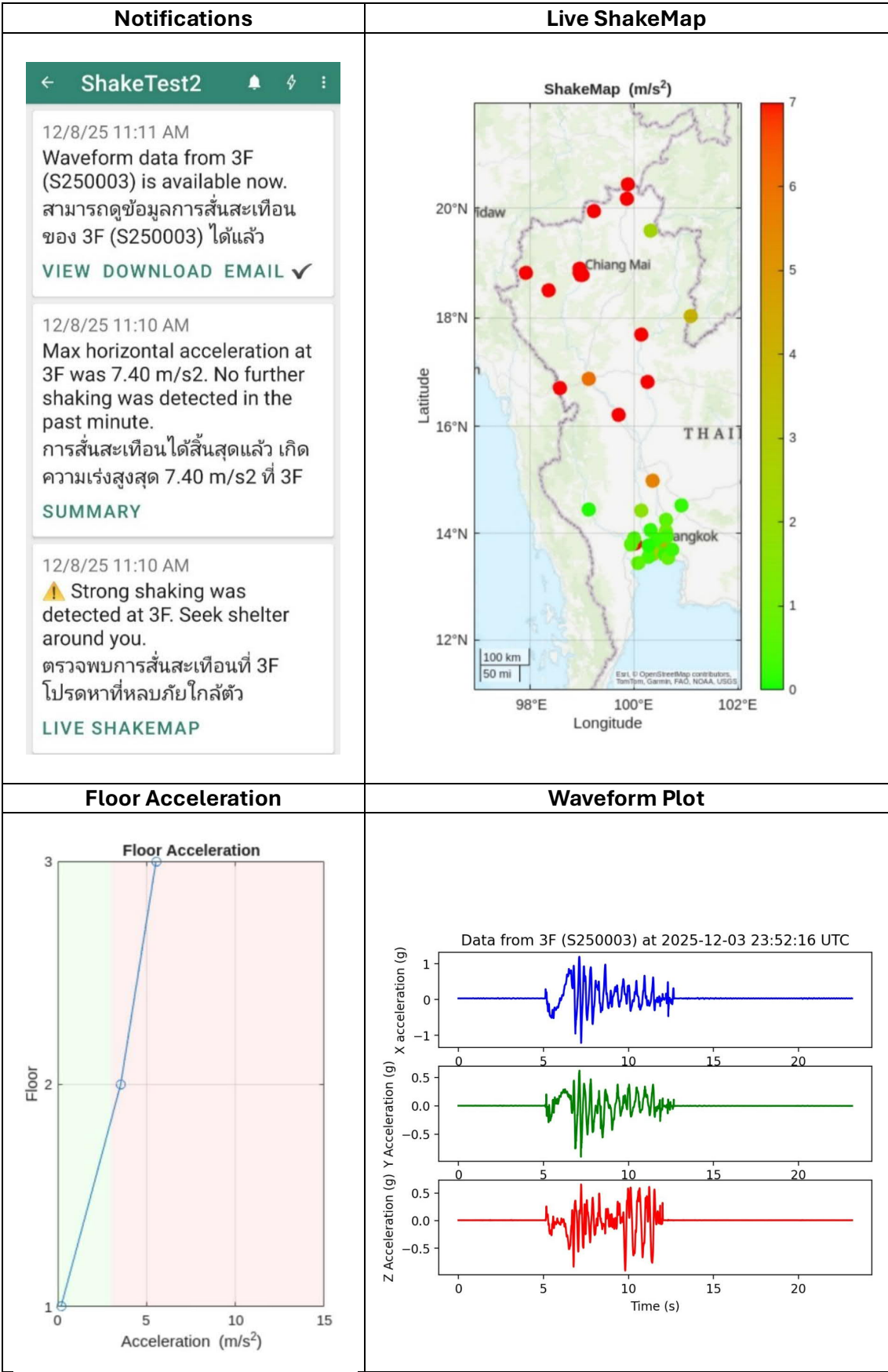
1.1 Install ntfy from this link.



1.2. Subscribe to Topic: S2XXXXX

See S/N on the side of RUGON

1.3. Power on RUGON

You will receive a notification when the device boots up. When the device detects vibration, a notification is sent. See the following screenshots.

| Notifications | Live ShakeMap |
|---|---|

### Notifications

ShakeTest2

12/8/25 11:11 AM
Waveform data from 3F (S250003) is available now.
สามารถดูข้อมูลการสั่นสะเทือนของ 3F (S250003) ได้แล้ว
VIEW   DOWNLOAD   EMAIL ✓

12/8/25 11:10 AM
Max horizontal acceleration at 3F was 7.40 m/s2. No further shaking was detected in the past minute.
การสั่นสะเทือนได้สิ้นสุดแล้ว เกิดความเร่งสูงสุด 7.40 m/s2 ที่ 3F
SUMMARY

12/8/25 11:10 AM
⚠️ Strong shaking was detected at 3F. Seek shelter around you.
ตรวจพบการสั่นสะเทือนที่ 3F โปรดหาที่หลบภัยใกล้ตัว
LIVE SHAKEMAP

### Live ShakeMap



ShakeMap (m/s²)

| Floor Acceleration | Waveform Plot |
|---|---|



Floor Acceleration



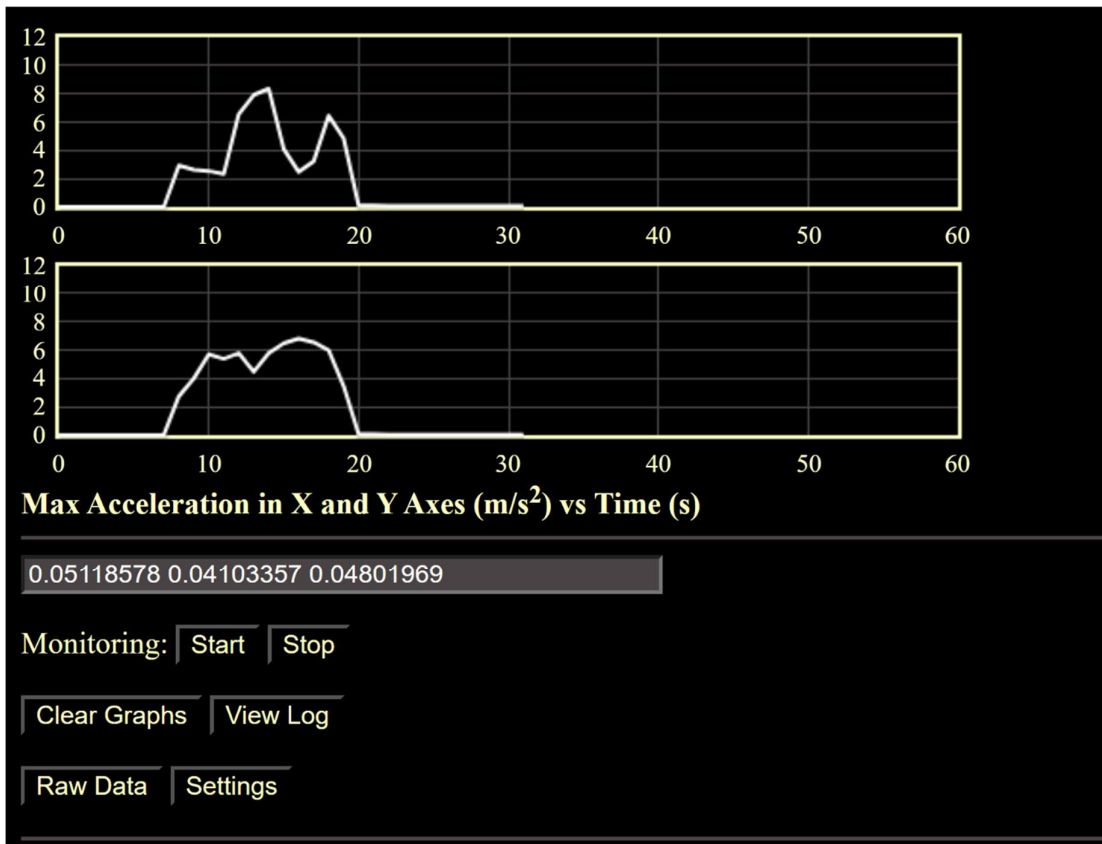Data from 3F (S250003) at 2025-12-03 23:52:16 UTC

2. Web server

The device broadcasts a Wi-Fi access point for local connection. This is used to
- see live data
- download waveform data
- configure some parameters, for example, device name, alert threshold, etc.

The Wi-Fi SSID is RUGON, and the password is provided at the device.



**Max Acceleration in X and Y Axes (m/s$^2$) vs Time (s)**

0.05118578 0.04103357 0.04801969

Monitoring: | Start | Stop |

| Clear Graphs | View Log |

| Raw Data | Settings |



**RUGON Settings**

| About RUGON |

Notification: | Press to Disable |

ntfy topic: | Get | _____ | Set |

Pushover API Token: | _____ | User Key: | _____ | Set |

Set Device Name: | Get | _____ | Set |

Letter "N" of RUGON is pointing | Get | _____ | Set | degrees clockwise from the magnetic North.

Set Network SSID: | _____ | Password: | 8+ characters | Set |

Alert Threshold (m/s$^2$) | Get | _____ | Set |

| REBOOT |

| SHUTDOWN |

**Technical Support**

Feel free to contact us if you have any questions or comments:

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