

THE ELEMENTRIC'S LEAK DETECTOR E-LOR-MAT-P2



E-LOR-MAT-P2

models that use LoRaWAN communication.
Their architecture diagram is shown in Figure 1.

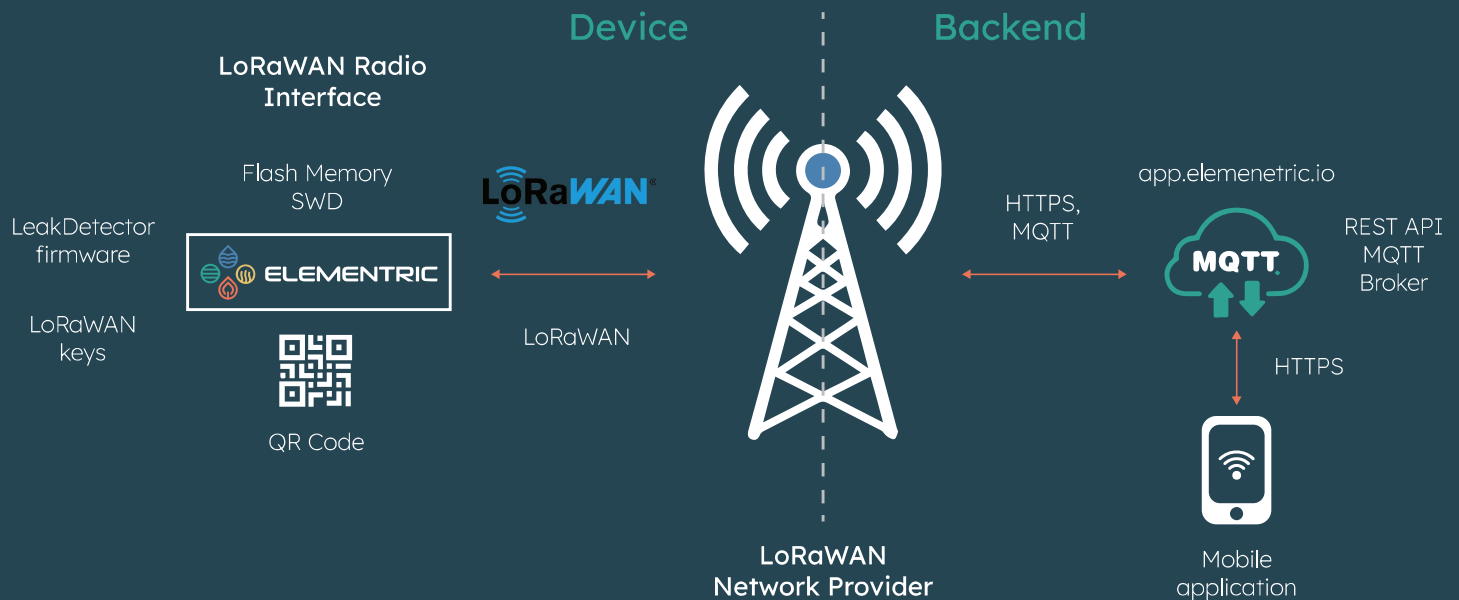
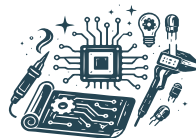


Figure 1. Leak Detector architecture – product E-LOR-MAT-P2



COMMUNICATION INTERFACE

The E-LOR-MAT-P2 model use LoRaWAN, a long-range, low-power communication protocol ideal to use across a larger housing complex or multi-building property.



HARDWARE AND PCB DESIGN

The LoRaWAN models (E-LOR-MAT-P) are based on the STM32WL55 MCU, with an integrated LoRa transceiver.



FIRMWARE AND SOFTWARE

The LoRaWAN version relies on the STM32WL software package, which provides drivers, LoRaWAN protocol stack, and power management utilities for the STM32WL55 MCU.



INTENDED USERS AND OPERATIONAL CONTEXT

The LoRaWAN models (E-LOR-MAT-P2) are designed for housing associations or property managers, enabling centralized monitoring of multiple units across a building or complex.

THE LIST OF ASSETS

 Security Asset	LoRaWAN keys	Cryptographic keys used for LoRaWAN communication. Generated randomly using the STM32 RNG library and stored in a dedicated flash page.	Flash page locked to prevent read access by any entity other than the device firmware	Device firmware	Read / Write	E-LOR-MAT-P2
 Security Asset	QR Code	QR Code containing information on device type and DevEUI – device unique identifier.	QR Code data should be publicly available	End user, mobile application	Read	E-LOR-MAT-P2
 Network Asset	LoRaWAN Radio Interface	LoRaWAN radio transceiver integrated or connected to the STM32, responsible for all wireless signal transmission and reception over LoRaWAN.	Access to the radio hardware is controlled exclusively via STM32 firmware; no external entity can manipulate signals directly	Device firmware	Read / Write	E-LOR-MAT-P2
 Network Asset	LoRaWAN	Software protocol stack implementing LoRaWAN communication for the STM32 device.	Access to the protocol stack is controlled exclusively by device firmware; only the STM32 application code can invoke protocol functions.	Device firmware	Read / Write	E-LOR-MAT-P2
 Network Asset	MQTT	Publish/subscribe messaging protocol used for data and command exchange for device and cloud services over TCP/IP.	TLS authentication, certificate-based	MQTT broker, backend server	Read / Write	E-LOR-MAT-P2