Products Capability Brochure







Contents

I. INTRODUCTION	
Smithtek Ecosystem	3
Smithtek Topology	4
Products Application use	
	5
MAKO V2 PLC	
Overview	6
Special Features	7
Technical Spec	8
10	9-10
Programming software (V-NET)	11
PassPort IGW	
Overview	12
Special Features	13
Technical Spec	14
10	15-16
Programming Software	17
(NodeRED)	
SMITHTEK.CLOUD	
Overview	18
Special Features	10

HOW THE SYSTEM WORKS

Overview	20 7
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APPLICATIONS, CONTACT &

PRICING

Applications	21-29
Pricing	30
Team	31
Contact	32







Smithtek Ecosystem

A complete Integrated Telemetry System

Smithtek's suite of products operates within a harmonious 3-point topology, seamlessly interconnecting the cloud, edge gateway, and edge devices. Together, they offer an all-encompassing telemetry system embedded with independent automation logic.

1. Mako PLC - The Edge Device:

- Role: Serves as the nerve-end, interfacing directly with physical sensors.
- Operation: Capable of independent functioning or as a node within a mesh network.
- Flexibility: Designed for dual operation it can act as both a master and a slave device simultaneously, making it adaptable to varied network requirements.

2. PassPort Gateway - The Edge Gateway:

- Communication: Bridges the gap between the Mako PLCs using its LoRa modem, ensuring effective and consistent communication between edge devices.
- Interface: Equipped with rs485, allowing it to interface with a plethora of devices.
- Versatility: Can be configured as a slave device, a master, or a combination of both, catering to a diverse range of network setups.

3. Smithtek.cloud - Central Control & Communication:

- Connectivity: Establishes direct communication with both the PassPort and the Mako, either over LAN or 4G.
- Centralization: Provides an overarching view and control of the entire system from a single, accessible point, ensuring effective remote monitoring and control telemetry. Not only does it retain sensor data for years, but it also offers custom visualization tools, empowering users to view their assets' performance at any given time.

Together, these three pillars of Smithtek create a resilient and adaptable ecosystem, ensuring that industries have a reliable, future-proof, and comprehensive solution for their telemetry and automation needs.











Products Application Use

Our products have been designed to cater for the following industries and applications

- Mining: Wireless solutions for various mining needs
- Utilities: Enhance power, water, and gas distribution.
- Agriculture & Irrigation: Tools for modern for crop management, soil analysis, and water distribution.
- Water Management: Optimized for bore pumping, water pumping, and sewage pumping, medium transfe
- Asset Management: Track & remote control portable skid assets and generator sets.
- Telemetry & Automation: Advanced telemetry systems for remote control, and automated operations.
- Security: Robust tools for safeguarding assets.
- Public Services: Solutions offering for government parks and public spaces.
- Environmental: Tools for monitoring and maintaining natural resources and habitats.
- Marine: Solutions tailored for both onshore and offshore marine activities.
- Building Systems: Comprehensive tools for BMS, home automation, both in industrial and domestic settings.
- Metering: Metering solutions including flow meters and energy meters for commercial, industrial, and domestic applications.

With a strong focus on innovation and reliability, Smithtek ensures each product aligns with the demands and specific requirements of these diverse sectors.



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Mako V2 PLC Overview



Smithtek's Mako V2 PLC is designed to provide the ultimate solution for telemetry, automation, and control monitoring. With a focus on reliability, simplicity, and future-proofing, this cutting-edge device combines the power of an IoT device and a ultrafast PLC.

With its compact size, embedded LoRa RF, Wi-Fi, GPS, and direct IoT connectivity, the **Mako V2** is an ideal choice for remote applications, especially large sites. Its LoRa radio capability allows for seamless communication over the air, enabling remote control and monitoring of your equipment. The device's direct IoT connectivity further enhances its usefulness, allowing you to easily connect it to the internet for remote control and monitoring.

The Mako's V-NET configuration software is user-friendly, with a drag-and-drop flow-based design that accommodates users of all technical levels. Its modern communication protocols, IoT connectors, and traditional PLC tools provide a seamless and powerful experience, unlocking endless creative possibilities. In conclusion, the Mako V2 represents a revolution in control, breaking down traditional barriers and paving the way for a more connected and efficient future.





Mako V2 PLC Special Features



- 240MHz, dual-core Xtensa® 32-bit LX6 MCU.
- Multi communication ability, LoRa, WIFI, RS485, at the same time.
- High precision 16bit 20mA analog inputs.
- Low Power mode.
- LoRa RF, 300 to 1000Mhz range.
- 15KM LOS RF communications over LoRa.
- Single, Mesh, Master, Slave capable
- Micro SD storage for data logging.
- GNS (GPS,GLONASS,Galileo).
- 8 * Digital inputs all assignable to pulse inputs 1 to 1Khz.
- 8 digital outputs NPN transistor type
- 2 * 0-5V inputs, assignable to digital inputs

- 3A Relay version available 5 outputs
- WiFI- IEEE 802.11, WPA2- AES.
- Modbus RTU/TCP, 2 channels can act as slave or master independently.
- Internal power supply sensing assignable on the V-NET software
- HTTP and HTTPS SSL security.
- MQTT. 3.1 secure
- Advanced data type tools, Json, binary, packets, ASCI,base 64.
- V-NET programmer IDE. Dedicated software to program the Mako.
 Simple, packed with tools to assist simplify programming functions.
- Super small size, tough robust with hardened 35mm din-rail connectors.





Mako V2 PLC Technical Spec

	Voltage Supply	9-28VDC
Power Max		2.16 Watts
	Load Idle	90mA
	Load Each Relay	23mA(Relay Version)
	Operating Temperatures	40 to +85C
	Operating Humidity	0 – 95% RH (NC)
Device Specs	Dimensions	160/98/34 mm
	Dimensions with Terminals Connected	178/117.5/39.5 mm
	Enclosure Material	ABS (ROHS)
	Programming Communication Method	USB Type A
	Terminals	2.54mm socket connectors WIRE SIZE 2.5MM
	Mounting Option 1	Spring load (35mm Din-rail clips)
	Mounting Option 2	Desktop
	RF Type	LoRa Modulation
	RF BW	62.5-500kHz
	RF Frequency	169-915MHz
	TX Power	0-20dBm max 100mW
LoRa Radio	Encryption	128bit AES
	Antenna Type	SMA Female
	TX Load	18.75mA at 24VDC 0.45W
	RX Load	4mA at 24VDC 0.095W
	Radio RF	2.4GHz
	Security	WPA, WPA2, WPA3, AES
VA/::C:	Standards	802.11 b/g/n
Wifi	TX Power	0 - 20.5dBm
	TX Load	54mA ave at 24VDC
A CONTRACTOR OF THE PARTY OF TH	Rx Load	18.75mA ave at 24VDC
	Digital Input	PNP open collector >10.5VDC True <6VDC False
	Digital Input	Pulse input 0.1hz to 1kHz. Program debounce 0 to >99999mS
The state of the s	Digital output Relay	3A max 150VDC
	Digital output Transistor	Transistor NPN Max 300mA per output
10	4 20mA Analog Input	Single ended 16bit ADC
100	0-5VDC Analog Input	Single ended 12bit ADC
The same of the sa	RS485-1	TVS protected with built in 120Ω Terminator
The state of	RS485-2	TVS protected with built in 120Ω Terminator
The state of the s		

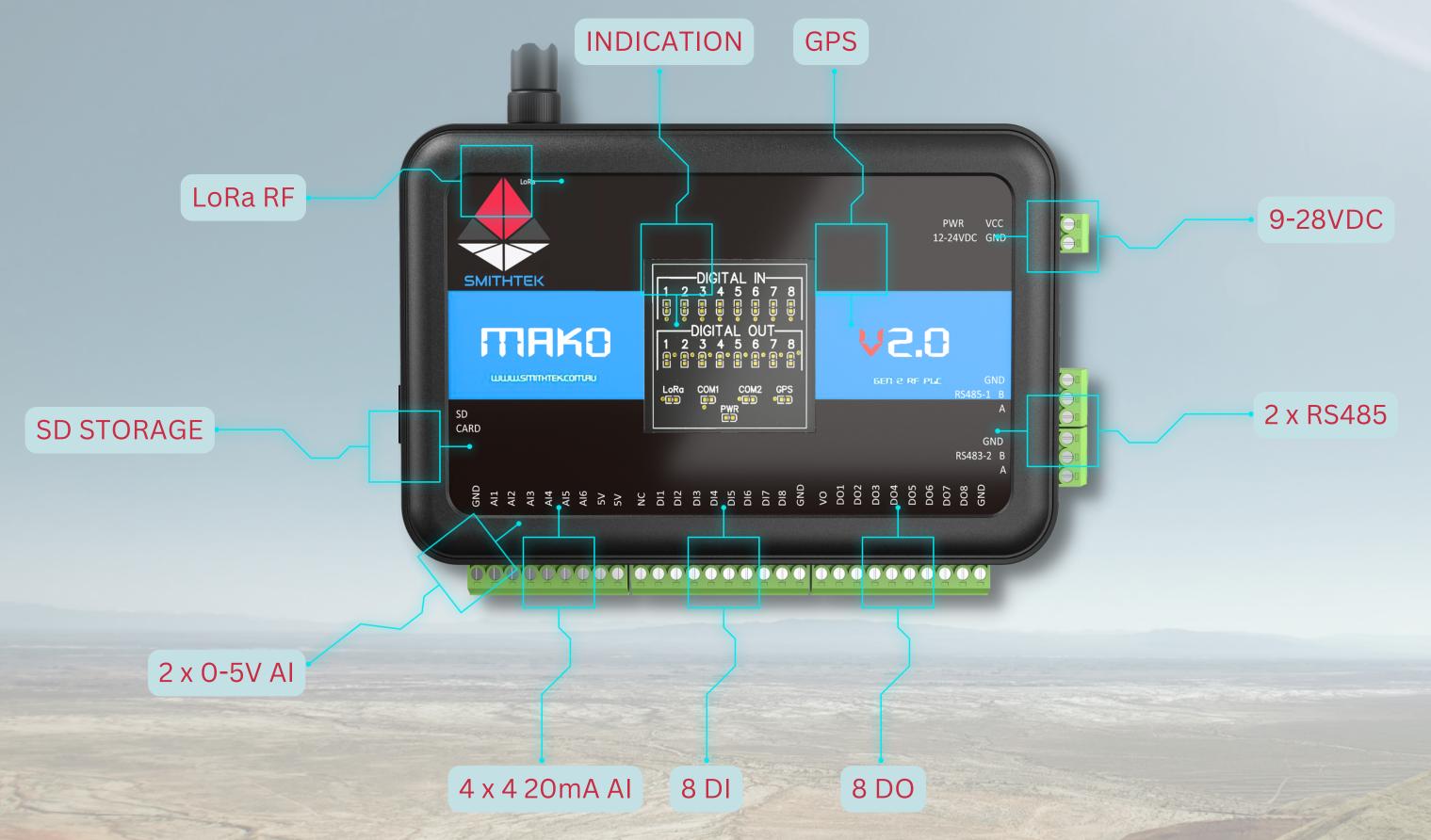


	Update frequency	1Hz
	Tracking channels	32
	Positioning Precision	2.5M
	Cold start	32 seconds first fix
	Hot start	< 3 seconds from power-up
		Reads up to six satellite navigation
	System Features	systems and implements joint
GNS		positioning, navigation.
GNS	Navigation Satellite Systems	BeiDou ,GPS,GLONASS,Galileo
	Lattitude	(DD) decimal degrees -7 decimal
		places
	Logtitude	(DD) decimal degrees -7 decimal
		places
	Course	0-360 degrees
	Speed	Feet per second
The state of the s	RX load	4.8mA at 24VDC , 0.115W
Compliances	CE	2014/30/EU
	CE	RED
	RCM	AS/NZS 4417.1, 44171.2
	RCM	AS/NZS 3820
	RCM	AS/NZS 4268
	FCC	Part 15.249
	FCC	Part 15.247
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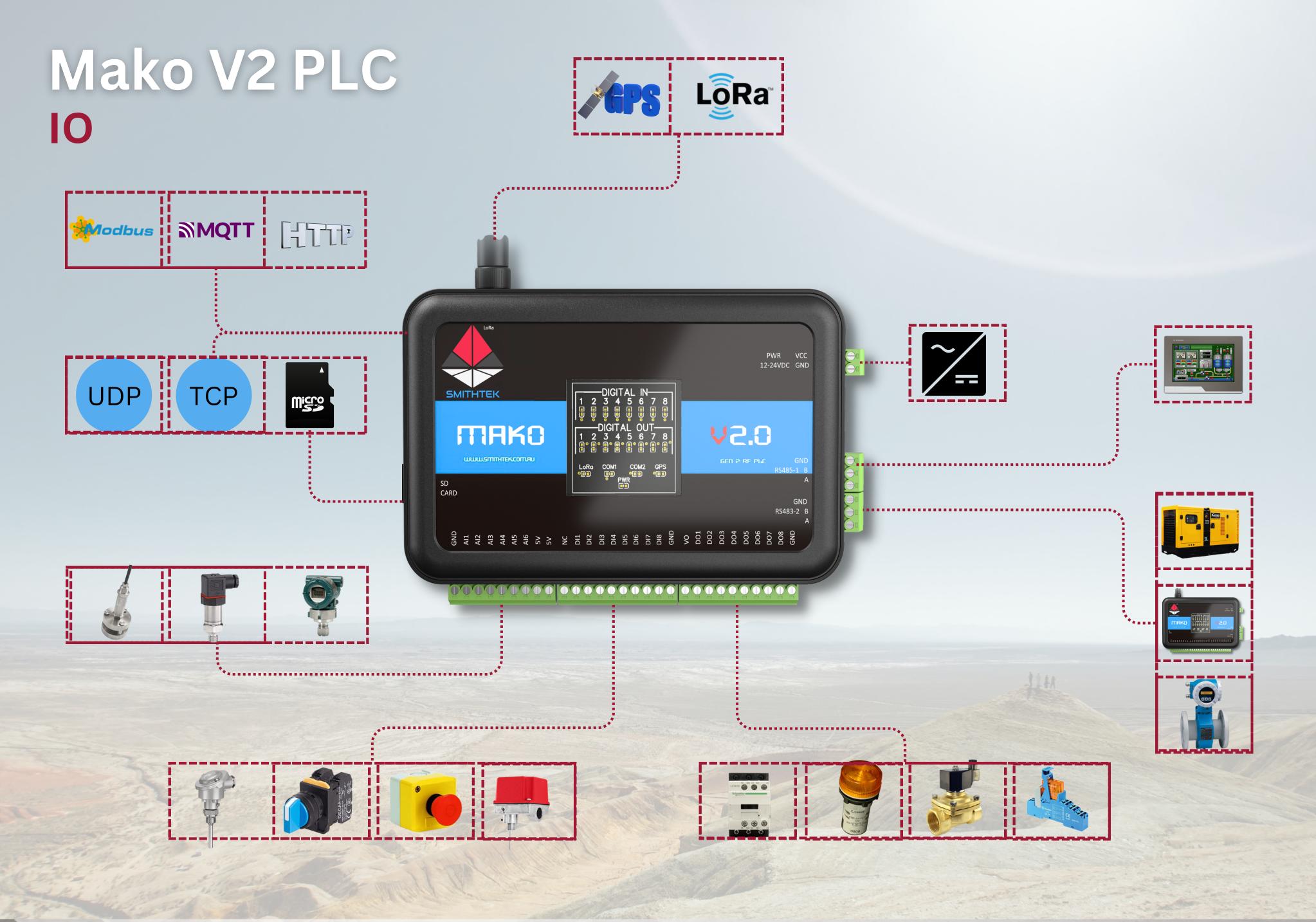
Mako V2 PLC 10



- 10.5-28VDC supply
- 4 * 4-20mA Analog inputs
- 2 * 0-5VDC Analog inputs
- 8 Digital inputs / Pulse inputs 1khz
- 8 * Digital outputs, Transistor NPN
- 5 * 3A relay MV2-R Version Only
- 2 * RS485 serial Ports
- 1 * Micro SD (Data Storage)
- 1 * GNS- GPS/GLONASS/GALILEO
- 1 * LoRa SX 1278 private LoRa Coms
- LED Coms indication
- Internal battery supply sensor





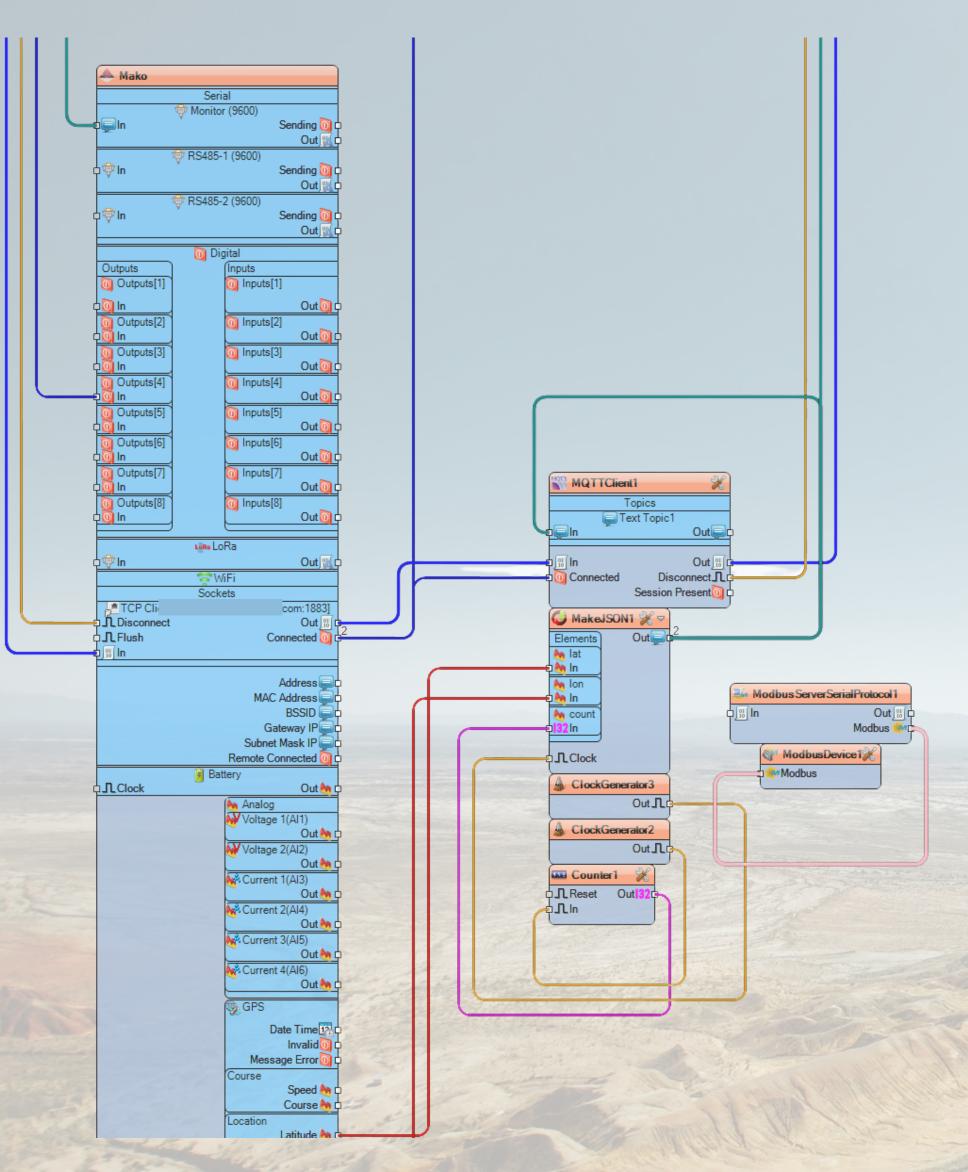






Mako V2 PLC Dragraming Software

Programming Software



The Mako PLC is an exceptional device that demands exceptional software to complement its capabilities. Fortunately, V-NET is a powerful and user-friendly visual programming Integrated Development Environment (IDE) that simplifies Programmable Logic Controller (PLC) programming through an intuitive dragand-drop interface.

One of the standout features of V-NET is its extensive library of pre-made components that combine logical functions, allowing users to reduce their workload significantly. Additionally, the software can handle multiple Input/Output (IO), data sources, and communication protocols simultaneously, which can lower hardware needs and labor costs.

Another significant benefit of V-NET is that the user interface on the programmer accurately reflects the physical I/O on the Mako device. This feature allows users to interact with each port as if it were a genuine digital/analog input, streamlining the programming process.

The tool library contains over 100 components, ranging from traditional PLC tools like gates, delays, timers, and counters to advanced components like PID control, hysteresis, filtering, MQTT, HTTP, Modbus RTU/TCP, ASCII, JSON, synchronization tools, and date and time tools. With such a vast array of tools, V-NET can handle a wide range of automation tasks, making it a versatile and powerful tool for any industrial automation project.





PassPort IGW Overview



The Pass-Port is an industrial IIoT gateway designed for both local and remote communication with Makos and other devices, spanning distances of up to 15 km using its LoRa (Long Range) antenna.

Though it's adept at off-grid operations, the Pass-Port can also connect to the internet via 3G/4G-LTE, WiFi, or Ethernet. At its core lies IBM's NodeRED, a visual programming tool crafted for integrating various hardware devices.

As a gateway, the Pass-Port effortlessly links multiple devices and can communicate with thousands of sensors, positioning itself as a premier telemetry management platform. With advanced security encryption techniques, it ensures your sensor data remains safeguarded.





PassPort IGW Special Features



• Efficiency & Design:

- Rapid Deployment: Set up swiftly and effectively.
- Space-Saving Design: Optimized footprint for minimal space occupation.
- Software & Compatibility:
 - o IBM's Node-Red: Pre-installed for seamless device integration.
 - Versatile Connectivity: Features 2 x RS485, making it compatible with thousands of industrial devices.
 - o Pre-loaded Nodes: Ensures a quick start to get your application operational.

Communication & Range:

 Long-Range LoRa Antenna: Superior connection with multiple Makos over distances up to 15 km.

• Data Management:

- Flexible Visualization: Real-time data display on Smithtek.cloud, or opt for your preferred cloud service.
- Ample Storage: 8 GB of data storage capacity.
- Store & Forward: Sensor data is stored locally and transmitted when the network becomes available.

Independence & Connectivity:

- Standalone Capability: No mandatory internet connection required for operation and device control.
- Internet Ready: Options for Ethernet and WiFi connectivity.

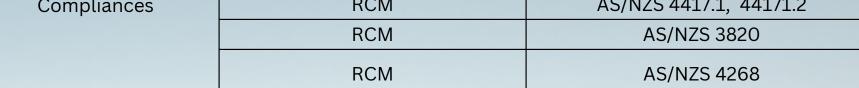




PassPort IGW **Technical Spec**

	Voltage Supply	9-28VDC
	Power Max	3.6 Watts
	Load Idle	300mA at 12VDC, 150mA at 24VDC
	Operating Temperatures	40 to +85C
Device Specs	Operating Humidity	0 – 95% RH (NC)
	Dimensions	160/98/34 mm
	Dimensions with Terminals Connected	178/117.5/39.5 mm
	Enclosure Material	ABS (ROHS)
	Programming Communication Method	USB Type A
	Terminals	2.54mm socket connectors WIRE SIZE 2.5MM
	Mounting Option 1	Spring load (35mm Din-rail clips)
	Mounting Option 2	Desktop
	RF Type	LoRa Modulation
	RF BW	62.5-500kHz
	RF Frequency	169-915MHz
1 D D I'	TX Power	0-20dBm max 100mW
LoRa Radio	Encryption	128bit AES
	Antenna Type	SMA Female
	TX Load	18.75mA at 24VDC 0.45W
	RX Load	4mA at 24VDC 0.095W
	Radio RF	2.4GHz
)A/: C:	Security	WPA, WPA2, WPA3, AES
Wifi	Standards	802.11 b/g/n
	TX Power	9.5 -28.2 mW (9.8 - 14.5 dBm
10	RS485-1	TVS protected with built in 120Ω Terminator
10	RS485-2	TVS protected with built in 120Ω Terminator
LAN	Ethernet	Gigabit Ethernet

USB to UART GNS	Update frequency	1Hz
	Tracking channels	32
	Positioning Precision	2.5M
	Cold start	32 seconds first fix
	Hot start	< 3 seconds from power-up
	Navigation Satellite Systems	BeiDou ,GPS,GLONASS,Galileo
	Lattitude	(DD) decimal degrees -7 decimal
		places
	Logtitude	(DD) decimal degrees -7 decimal
		places
	Time Epoch	Time since 1970 in seconds
	Time UTC	ISO 8601
	Course	0-360 degrees
	Speed	Feet per second
	RX load	5.4mA at 24VDC , 0.129W
Compliances	RCM	AS/NZS 4417.1, 44171.2



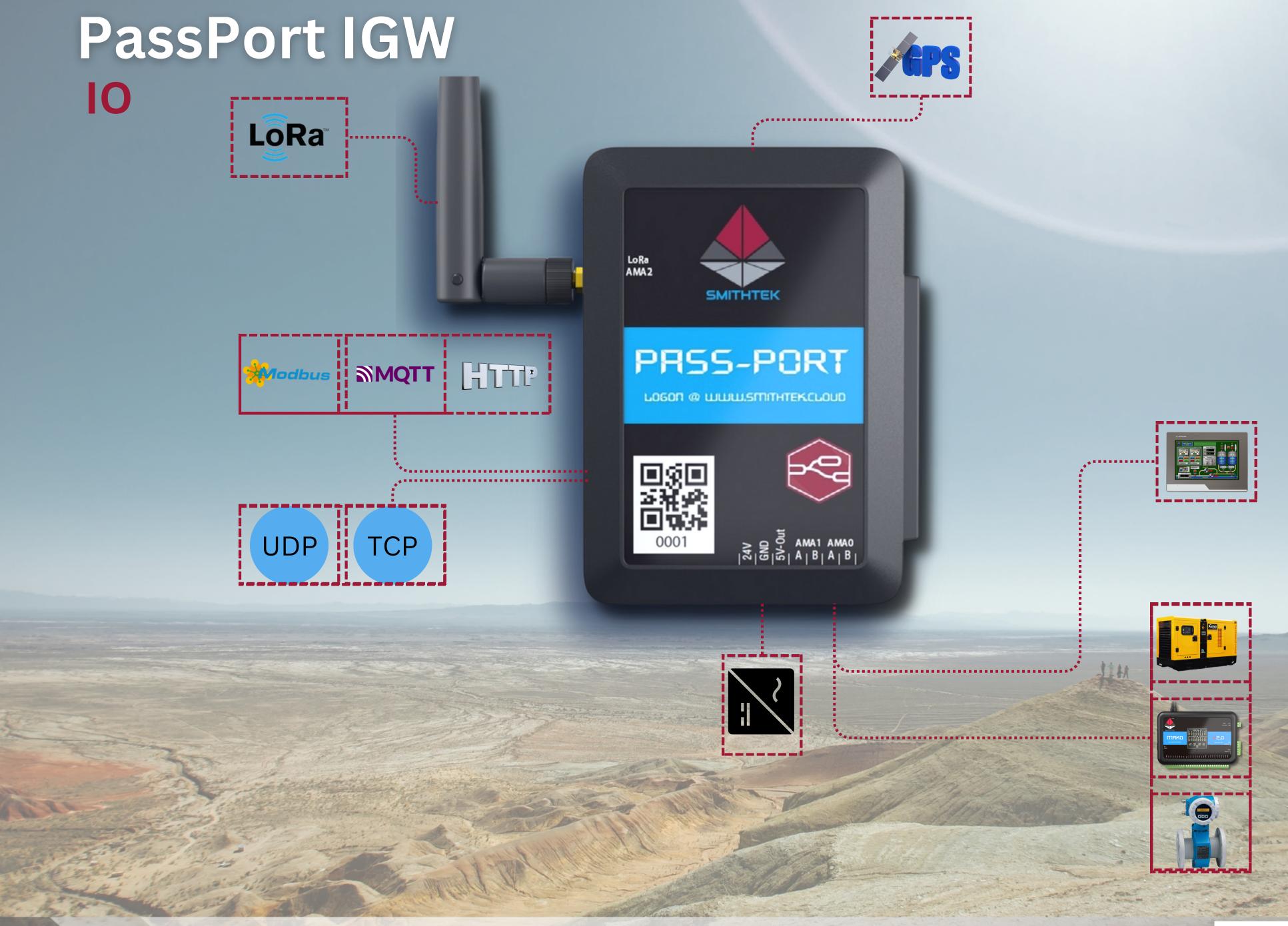










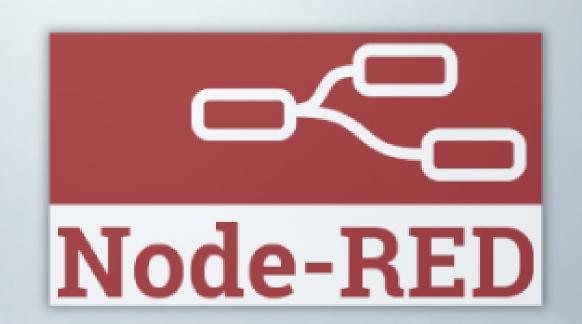






PassPort IGW Programming Software

The PassPort Gateway is powered by Node-RED, enabling seamless communication with Makos through the LoRa antenna. Serving as a central Distributed Control System (DCS), it allows for remote access and configuration of site-wide logic.



The driving force behind the PassPort is IBM's Node-RED, an innovative flow-based development tool specifically crafted for visual programming, making it ideal for integrating hardware devices and sensors. With the capacity to connect a multitude of devices, the PassPort Gateway can interface with thousands of sensors in real-time.

As a standalone gateway controller, the PassPort is meticulously designed to act as the primary site controller, disseminating logical and event-driven commands to all its connected devices.

Smithtek, in its quest for innovation and integration, has developed a variety of nodes that simplify the process of interfacing with other services and logical functions. This tailored approach further enhances the capabilities of Node-RED, streamlining connections and operations. Furthermore, a seamless IoT connector has been integrated, facilitating a direct link to the Smithtek.cloud, thus amplifying the gateway's prowess in real-time communication and data management.

CLICK HERE







SmithTek Out

Smithtek. Cloud Overview



"Smithtek.cloud is a cutting-edge web-based HMI SCADA system designed to provide flexibility and real-time insights.

Within our cloud platform, you can effortlessly monitor and retrieve data independently from both the PassPort Gateway and the Mako V2 PLC or seamlessly integrate them through various IoT connection methods.

These data points, which we refer to as 'variables,' respond instantly to sensor changes, creating dynamic 'data dots' or timestamps. Our platform offers an extensive data retention period of up to 2 years, ensuring that historical data is readily available for analysis.

Additionally, Smithtek.cloud supports GPS tracking and heat map functionality, enabling you to gain deeper insights into your operations and assets. Much like a traditional SCADA system, our platform empowers you to personalize and design your own cloud-based dashboard. Our intuitive drag-and-drop interface ensures that you can have your system up and running within minutes. Customize your dashboard to meet your unique needs and harness the power of real-time data visualization."

CLICK HERE





Smithtek. Cloud **Special Features**



- Real-time Dashboards: Create real-time dashboards to analyze data and control devices.
- Widgets Support: Smithtek.cloud offers a wide range of widgets for data visualization, including:
- Line Charts
- SCADA Widgets
- Switches
- Sliders
- Wind Rose Map
- And many more...
- Data Retention: The platform boasts an extended data retention period of up to 2 years, ensuring access to historical data for analysis and insights.
- Security: Smithtek.cloud prioritizes data security with secure MQTT communication and a secure website, safeguarding your data and user information.
- Events Engine: The platform features a robust events engine, allowing you to set up automated notifications and actions triggered by specific conditions, including:
- SMS Notifications
- Email Alerts
- Schedule Timer: Smithtek.cloud provides a scheduling feature, enabling you to automate tasks and data collection at specific times or intervals.
- GPS Heat Map and Trace: Gain valuable insights into location-based data with GPS tracking capabilities, including heat map visualizations and trace routes.
- Dashboard Sharing: Simplify collaboration by sharing your ideas and projects with others, eliminating the need for tedious access provisioning with usernames and passwords.
- User-Friendly Interface: The platform offers an intuitive drag-and-drop interface, making it easy to customize and design your own cloud-based dashboards to meet your specific needs.
- With these features, Smithtek.cloud becomes a versatile and user-friendly IoT platform, designed to empower users with real-time data analysis, device control, data visualization, automation, security, collaboration, and locationbased insights for your users and devices.

CLICK HERE





How our system works together?

TSmithtek.cloud serves as the central hub in our trio topology. It connects to the PassPort Gateway through multiple connection options, including Wi-Fi, LAN, or 4G. Using MQTT communication, Smithtek.cloud efficiently retrieves and sends sensor data to and from the PassPort, making it the core platform for data management and visualization.

The PassPort connects to the cloud through NodeRED. All the logical control Is done through NodeRED, kind of like a DCS HUB. It can send and retrieve sensor data it collects through its local interfaces. It has the ability to expand and intigrate with industrial sensors, controllers like PLC's data loggers.

Its LoRa RF antenna allows it to further expand and communicate to Makos over long distances.

The Mako PLC is a highly versatile controller designed to function both independently and as part of a larger control network simultaneously. It operates as a Master/Slave device, offering flexible deployment options to suit your specific needs. Mako is capable of interfacing with a wide range of sensors, including industrial sensors and digital protocol sensors. It is a reliable choice for standalone tasks. Alternatively, it can communicate with the PassPort Gateway, integrating into a larger control network for comprehensive data management and control across your IoT ecosystem.



The PassPort and Mako can operate autonomously; however, the true strength of the system emerges when they work together. This synergy allows you to build a powerful and comprehensive control system.



MAKO





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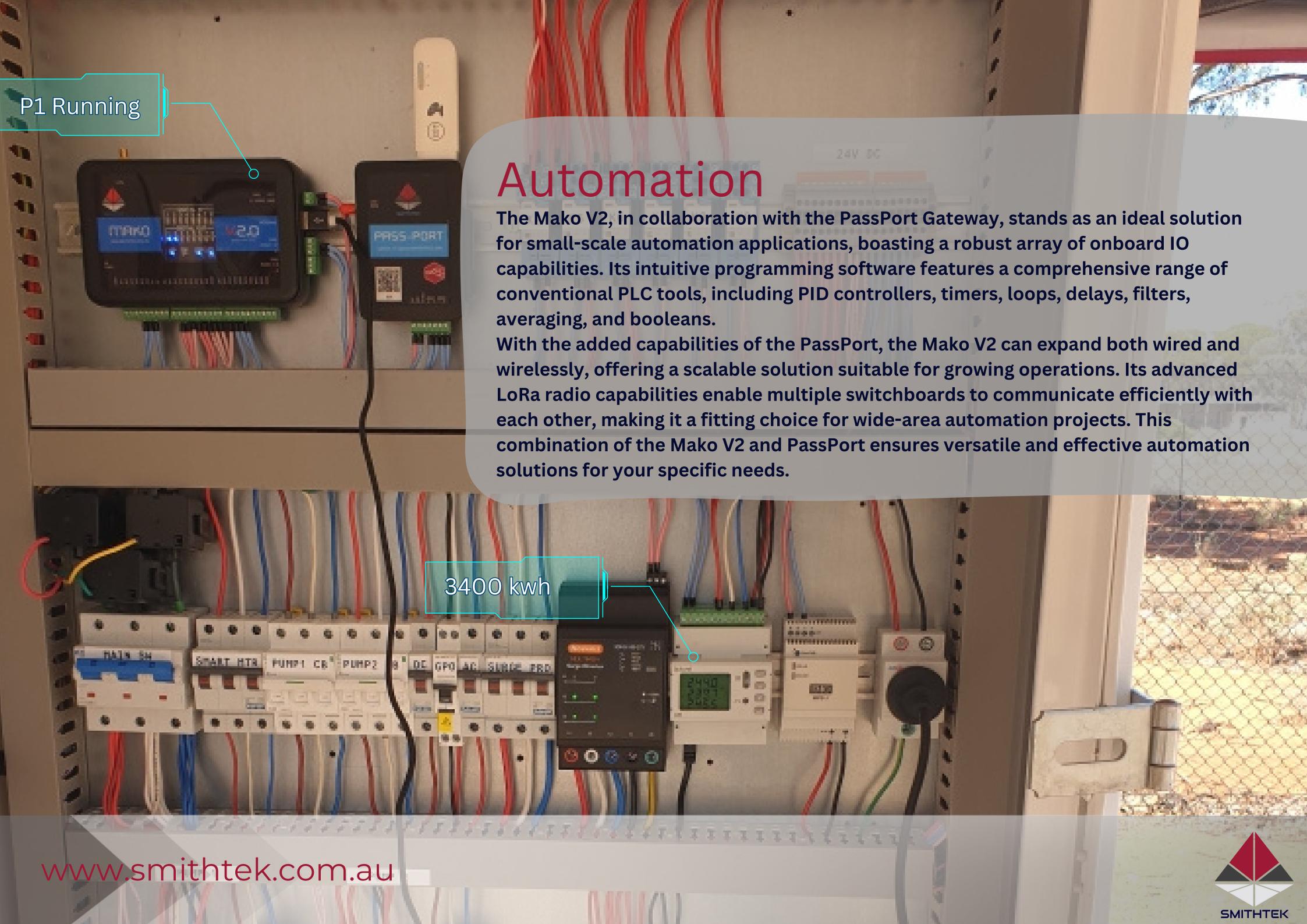


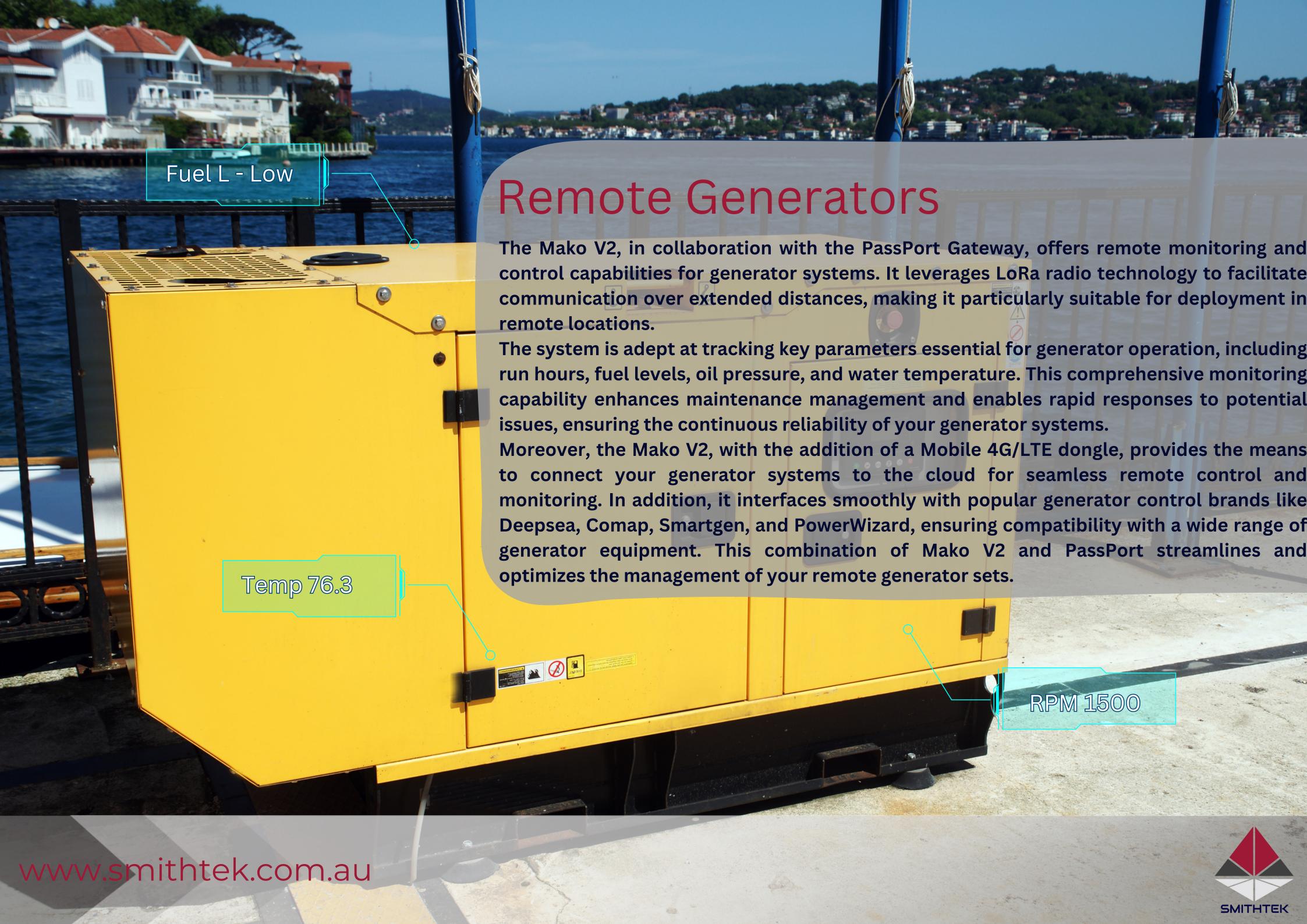


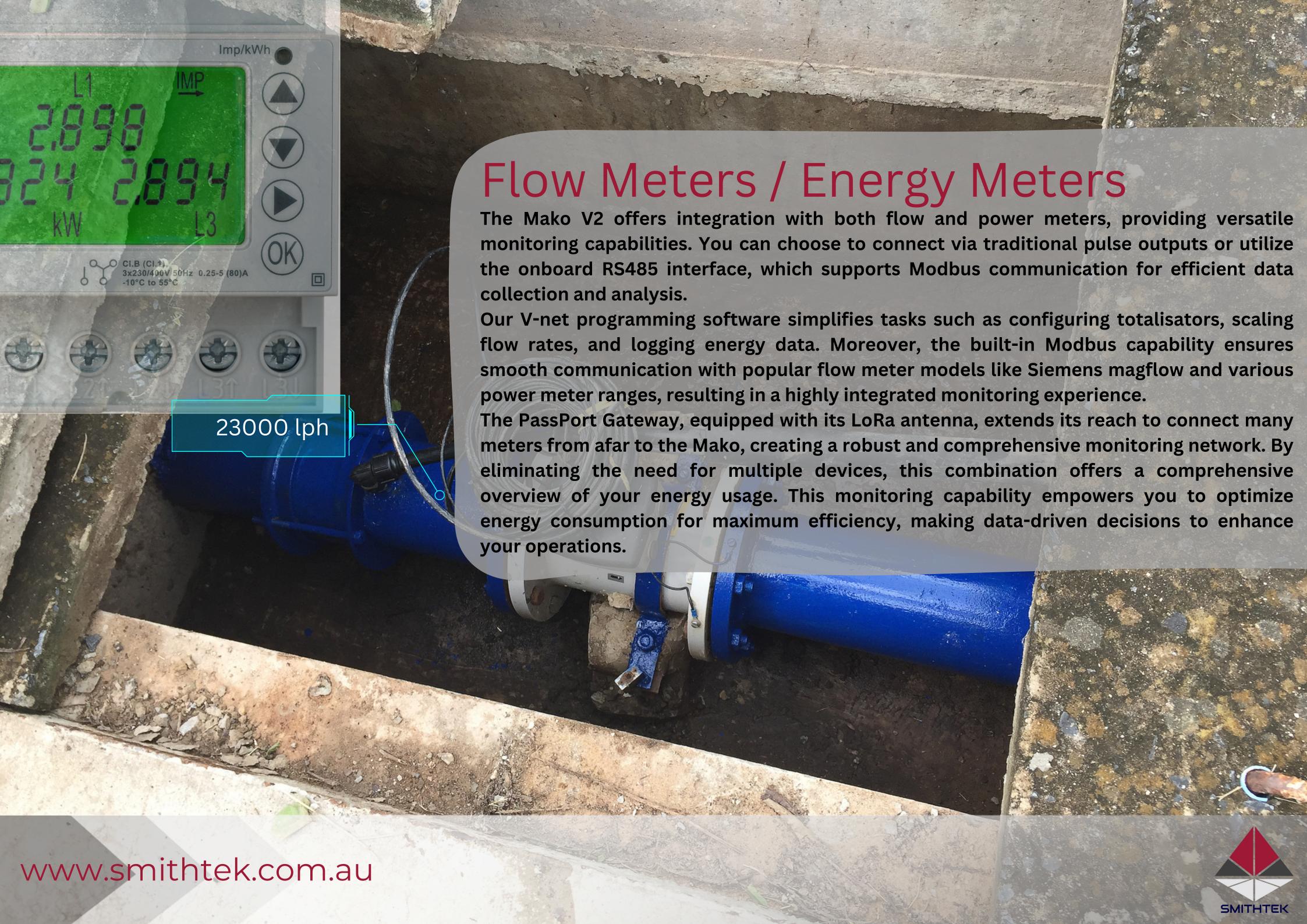
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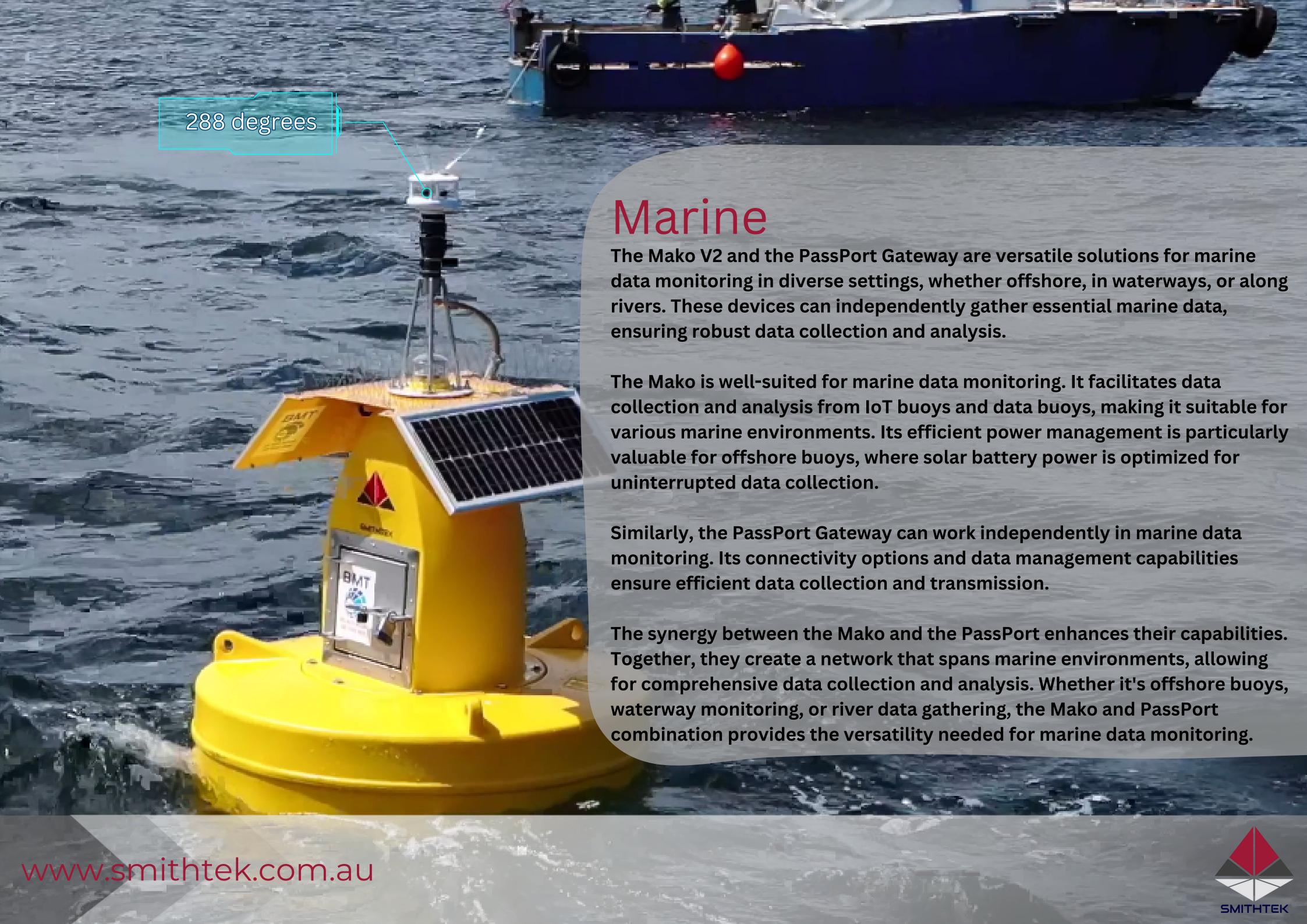






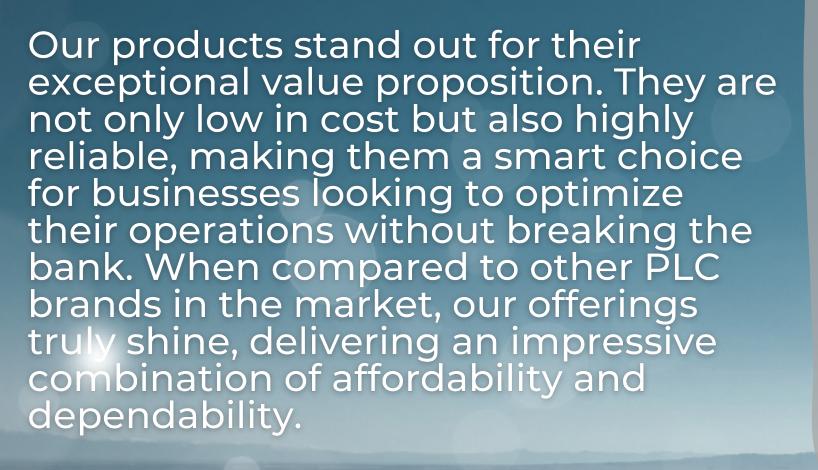












PRODUCT PRICING

ITEM

Mako V2 PLC

Mako V2 PLC GNS

PassPort IGW

Smithtek.cloud - 1 device/20 variables per year, 1 minute

updates

Modbus

All prices are in Australian dollars and include GST (tax)

PRICE

\$605.00

\$638.00

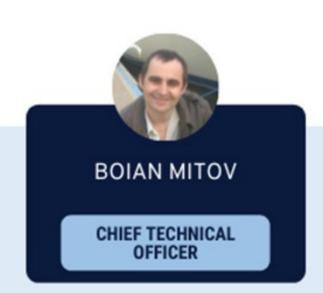
\$605.00

\$231

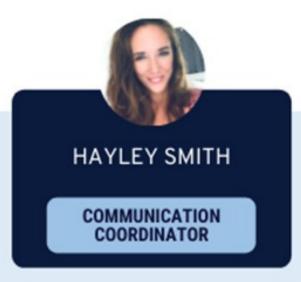












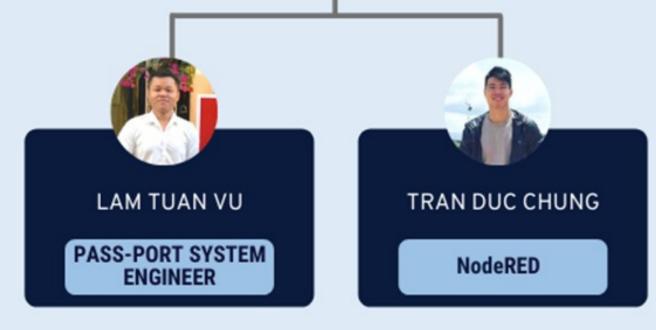




Smithtek believes that creating great products is not just about the technology or the design; it's about the people who make them. We are a team of like-minded engineers, technicians, and thinkers who share a passion for creating products that last, are simple to use, and fun to interact with.

Our mission is to make tech that people love to use, that last for years, and that provide a seamless experience.

We understand that technology can be intimidating, and that's why we aim to create things that are simple and intuitive to use. We believe that everyone should be able to benefit from technology, regardless of their technical knowledge.





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