



## Ham-Let Group's global presence

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## HAM-LET QUALITY

Quality is an integral part of the development, engineering, production and planning processes at the Ham-Let Group. It is incorporated into the project starting from raw materials inspection, followed by ongoing quality assurance during production and finally through testing of the final product before delivery. Ham-Let Group quality levels meet the highest standards in including : ISO 9001, ISO14001, OSHA18000, Lloyds, DNV, S.A.E. CE (P.E.D.), ISO 15500, ECE-R110, ASME Standards and ASTM Standards.



# IOT-LET

## HAM-LET SMART VALVE MANAGEMENT SYSTEM



# IOT-LET YOUR PORTAL TO INNOVATION

IOT-LET is a cloud-based IoT portal with multi-layered approach for network, system and user-level security. It connects your products, plants, systems, and machines, enabling you to harness the wealth of your data with advanced analytics.

## IOT-LET MAIN FEATURES:

- Fully compatible with most popular web browsers
- Supports end-to-end connection with Ham-Let's smart IoT valves
- Customizable dashboard
- Easy & Remotely accessible
- Integrated with artificial intelligence (AI) and machine learning services
- IFTTT capability
- Supports sensing capabilities in Ham-Let's Smart IoT valves:
  - Temperature
  - Pressure (Inlet, Outlet and Differential Pressure)
  - Humidity
  - 3D linear and angular acceleration (Accelerometer & Gyroscope)
  - Battery life (For battery operated valve)
  - Acoustic sensing
  - Flow rate and flow volume



## TECHNICAL SPECIFICATIONS

### Certifications

IOT-LET follows the ISO 27001 Information Security Management System Framework. IOT-LET is hosted on Amazon Web Service (AWS)'s Amazon Elastic Compute Cloud (Amazon EC2). ISO 27001/27002 is a widely-adopted global security standard that sets out requirements and best practices for a systematic approach to managing company and customer information that's based on periodic risk assessments appropriate to ever-changing threat scenarios.

### Architecture

IOT-LET makes use of various AWS services, under AWS secured environment such as:

- Amazon DynamoDB
- Amazon Cognito
- Amazon CloudWatch
- Amazon Elastic Compute Cloud (EC2)
- AWS IAM, Identity and access management

### Identity management and access control

- Role based access control (RBAC) model
- Coarse grained authorization
- Multifactor authentication

### Communications

- Communication with web clients is encrypted via TLS v1.2
- Communication with the Ham-Let IOT gateway is encrypted via SSL and authentication is handled by two-way X.509 certificate validation.
- IOT-LET uses Certification Authority signed X.509 certificates, which are trusted by the Certification Authority Browser Forum (CA/B Forum).

### Ham-Let IOT Gateway

- Onboarded to IOT-LET with unique ID and using security credentials
- Closed ports for incoming traffic
- Access to gateway configuration requires special user authentications
- Encrypted internal communication and data storage

### Application and tenant management

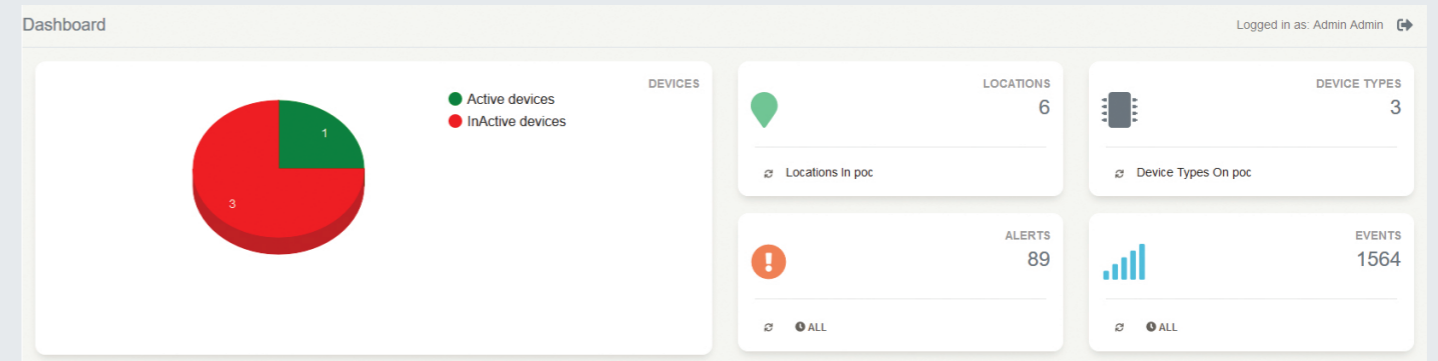
- Tenant isolation and separation, validation checks and content security policies

### Data security

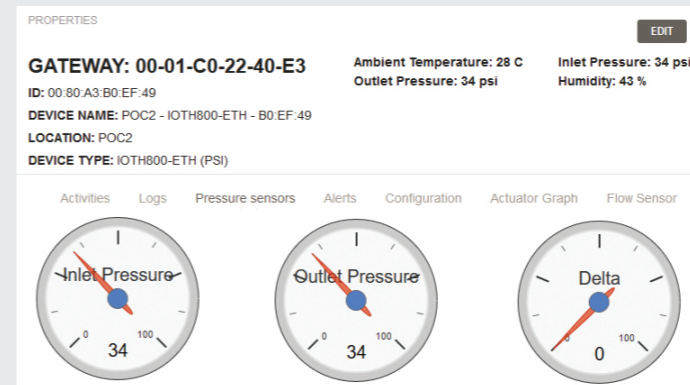
- IOT-LET's data is encrypted in transit with TLS algorithms
- Data redundancy guaranteed by Amazon Web Services (AWS)

### Controls and monitoring

- Threat risk analysis process
- Event and Audit log
- Stringent network vulnerability test to help quickly identify and fix vulnerabilities, including software flaws, missing patches, malware, and misconfigurations, across a variety of operating systems, devices and applications.



IOT-LET dashboard page enables customers to quickly detect any abnormalities and alerts



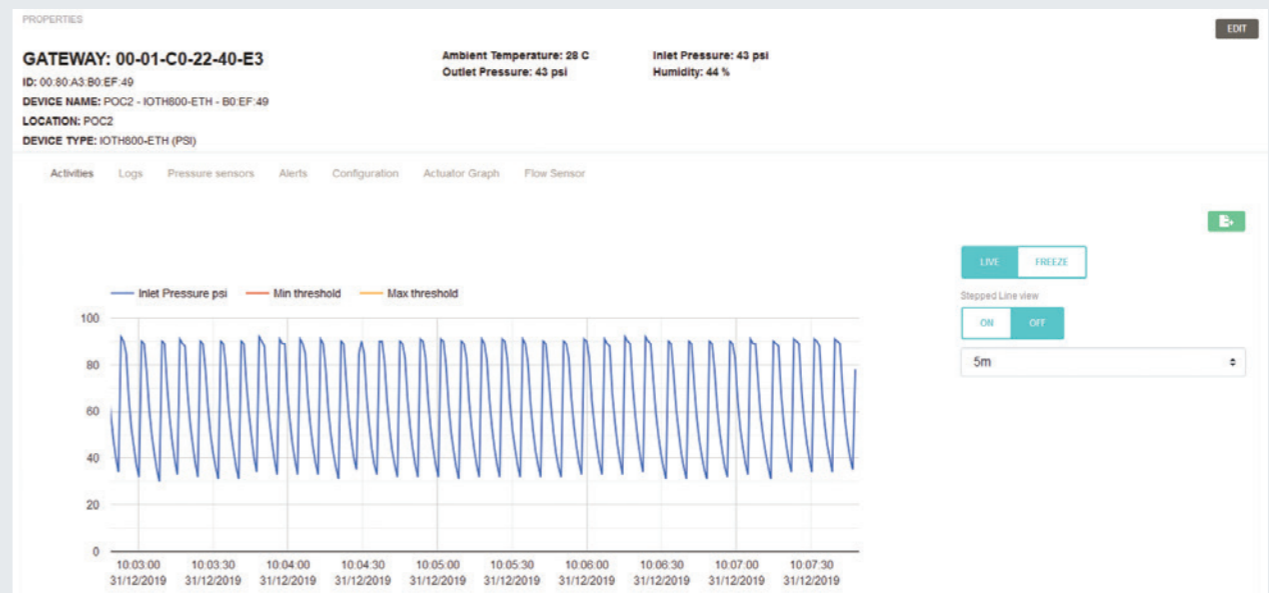
Pressure gauges display real time pressure readings



IOT-LET topology page enables customers to have a bird's eye view of all valves and their locations

DATE/TIME	DEVICE	EVENT TYPE	MESSAGE
12/31/2019, 10:15:38 AM	00:80:A3:B0:EF:49	INFO	INFO device:00:80:A3:B0:EF:49, State updated to Operational.
12/31/2019, 10:14:55 AM	74bad22-fbb7-410e-a32a-89bca678c77b	INFO	INFO company.poc, template:74bad22-fbb7-410e-a32a-89bca678c77b, updated successfully!
12/31/2019, 10:14:55 AM	00:80:A3:B0:EF:49	DEBUG	DEBUG device:00:80:A3:B0:EF:49, Sending config

Events, valves operations and errors are logged for audit and further investigation



IOT-LET allows customers to configured upper and lower limit thresholds per sensor. Notifications are sent to customrs when thresholds are triggered.

