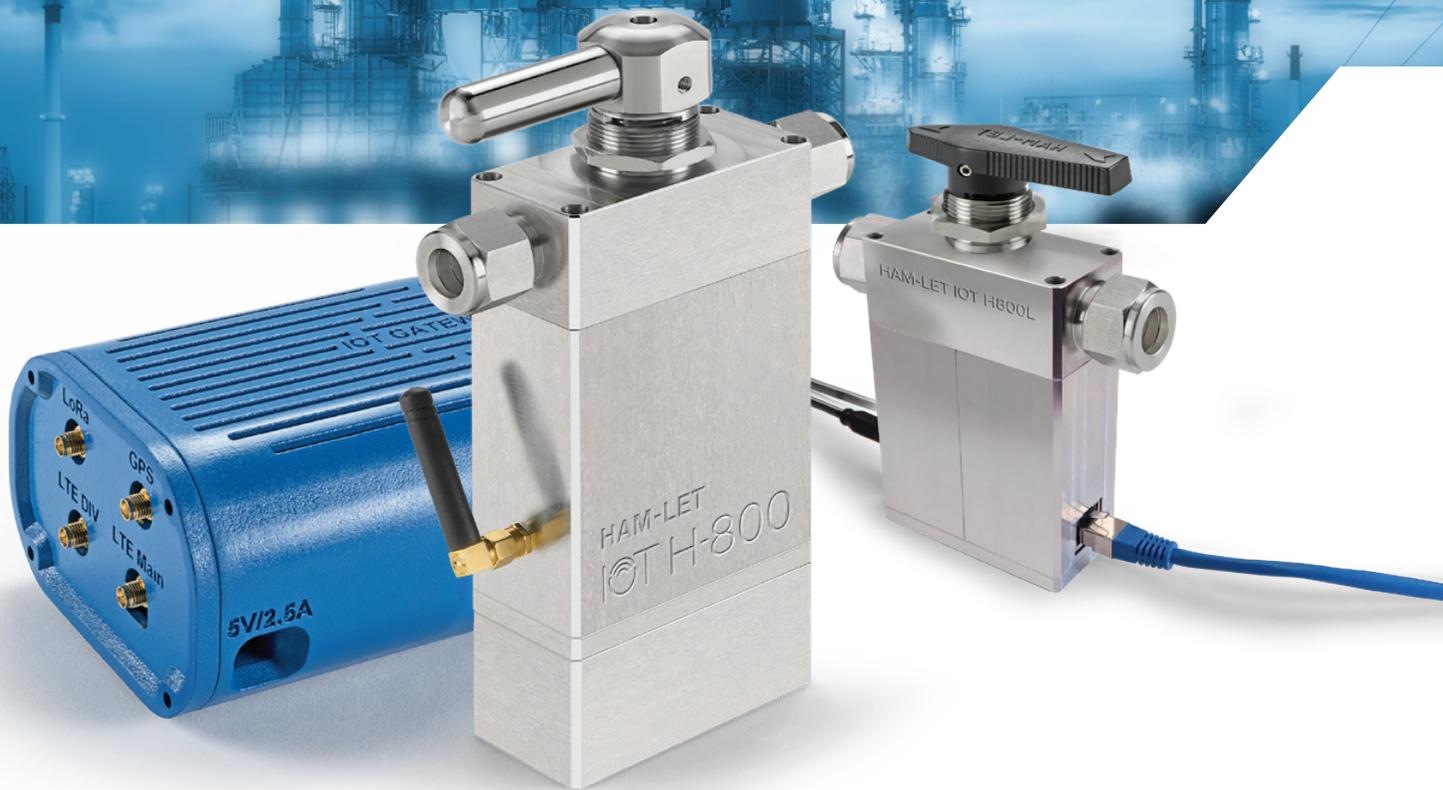


SMART FLOW CONTROL

PROCESS & INSTRUMENTATION SOLUTIONS



Ham-Let's **Internet of Things (IoT) Smart Valves** present a unique breakthrough in the process valves industry. Our solution enables online monitoring, control and management of various processes which allow immediate response for safety events, machine learning & optimization, machinery & equipment protection, device tracking and additional customer tailored features.

APPLICATIONS

- Process control & monitoring
- Process management
- Machinery and equipment protection
- Predictive maintenance
- Failure prevention
- Safety alerts
- Data analytics



IMPLEMENTATIONS

- Providing real-time inlet and outlet pressure measurement
- Employing differential pressure to trigger emergency shut off events
- Measuring temperature to detect, prevent and suppress system over heating
- Measuring vibration to indicate and avoid mechanical malfunctions
- Providing real time monitoring of ambient and media parameters under an intrinsic safety environment
- Integrating multiple measuring tools, reducing installation space and cost

BENEFITS

- Increased safety
- Reduced downtime costs
- Improved performance
- Decrease ownership costs
- Optional process optimization
- Enables machine learning



IoTH-800 SERIES INTRODUCTION

Industrial process valves are implemented in instrumentation and process lines in a wide range of applications.

In order to measure pressure, temperature, flow, humidity and indication of motion, one must use sensors and measuring devices.

Each of these external instruments are potential leak sources and most are not aligned with industry 4.0 applications and benefits.

Ham-Let's IoTH-800 series delivers an innovative concept with advanced capabilities, providing a unique product line.

IoTH-800 series is compatible with a wide range of industry 4.0 standards, and is inter-operable with customer's existing systems.

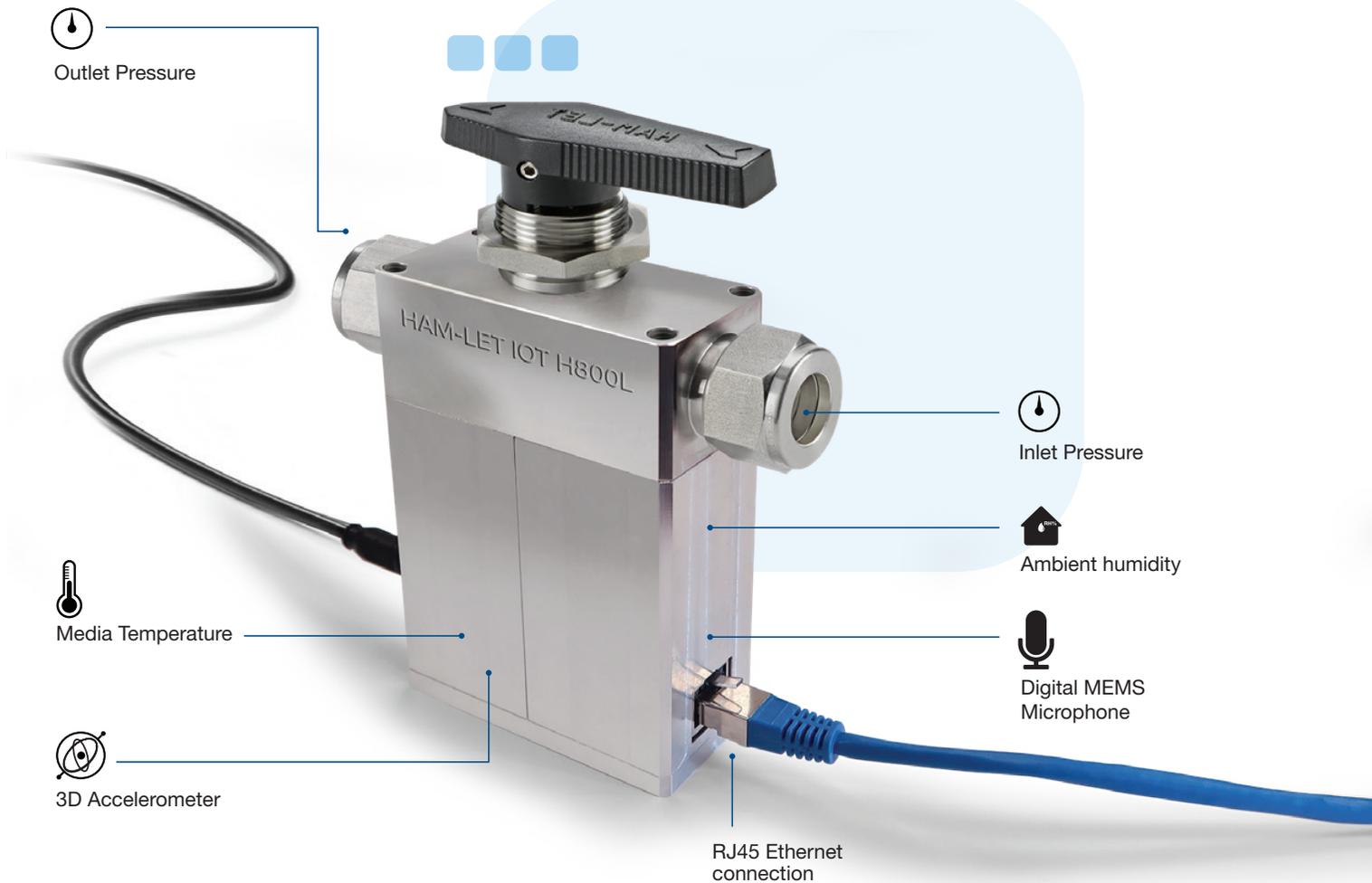
The IoTH-800 series features constant monitoring, management and control of motion indication, pressure, flow, humidity and temperature measurement.

The IoTH-800 enables increased safety, reduced downtime costs, and improved system performance—providing valuable data with a lower total cost of ownership. One of the IoTH-800's exclusive features, is its ability to alert control systems when critical parameters are triggered.

Examples of triggered events include downstream pressure drops, temperature increases, leakage and vibration. In addition, as an all in one product, the IoTH-800 smart valve provides the ability to predict when equipment maintenance is required.

The IoTH-800 series is offered in both wired and wireless configurations.

IoTH-800KL ETH SMART CYLINDRICAL VALVE



Features

The IoTH-800KL ETH is the large body wired configuration of the IoTH-800 Series. This smart valve is based on Ham-Let's state-of-the-art one-piece Cylindrical Valve series (H-800KL), which is suitable for low and high working pressure, wide temperature range and long life cycles. The one-piece body design reduces the possibility of shell leakage and offers tight shut-off, long-life service and low operating torque.

The IoTH-800KL ETH can be implemented for various use cases, as it features online measurement of multiple sensors, precise differential pressure measurement, motion indication and safety shut down.

- Pressure, Temperature, Humidity, Vibration and Acoustic sensing
- Precise Differential Pressure Measurement (0.1% Accuracy)
- Strong Communication Security (TLS)
- On/Off-service, one-piece Cylindrical Valve with 2-way pattern
- Diverter and On/Off-service, one-piece Cylindrical Valve with 3-way pattern
- Encapsulated Cylindrical Stem design
- Bi-directional flow in 2-way straight pattern
- Virtually no dead volume

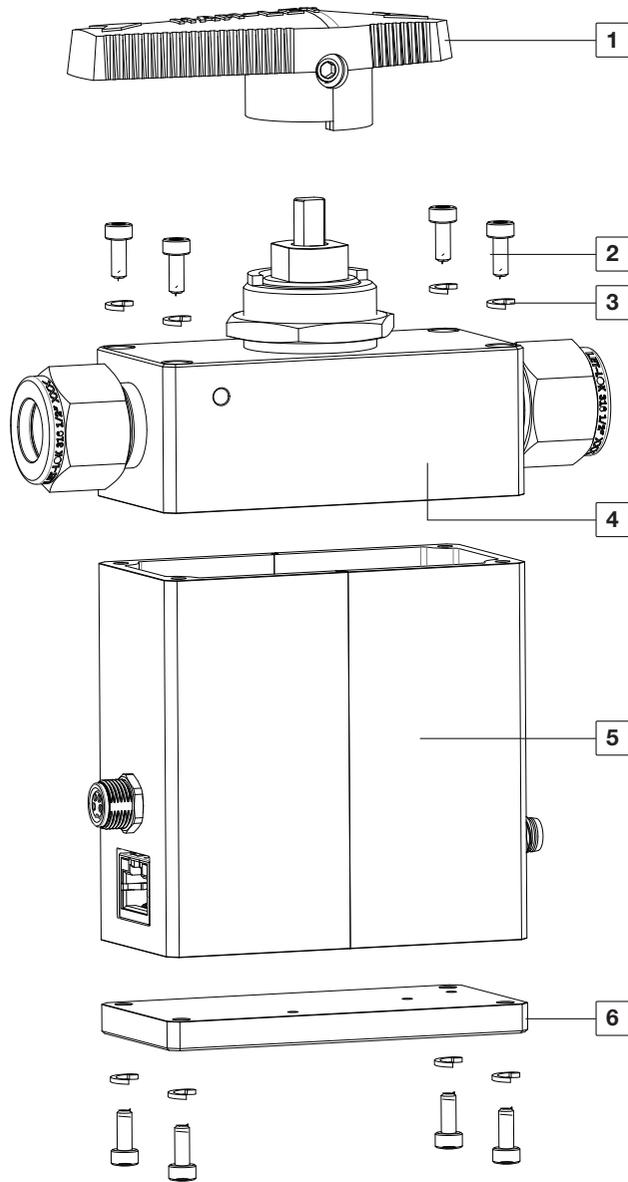
Technical Specifications

- MAWP 2500 psi (172 bar); MAWT 185°F (85°C)
- Pressure sensors accuracy (inlet and outlet) : $\pm 1\%$
- Temperature sensor accuracy: $\pm 3^{\circ}\text{C}$ (Operating -20 to 85°C)
- Ambient Relative humidity sensing 0% to 100%:
 - $\pm 3.5\%$ rH (20%-80% rH)
 - $\pm 5\%$ rH (0%-100% rH)
 - High rH sensitivity: 0.004% rH/LSB
- 3D Accelerometer - acceleration range of $\pm 2/\pm 4/\pm 8/\pm 16\text{g}$ and an angular rate range of $\pm 125/\pm 245/\pm 500/\pm 1000/\pm 2000\text{dps}$
- Communication
 - Modbus (TCP/RTU with RS485 interface)- Slave mode
 - Ethernet 10/100Mbps
- SSL/TLS 1.2 2-way authentication and X.509 Certificate Management
- Stainless Steel construction
- One-piece Cylindrical Stem ensures alignment of stem and orifice
- Panel mountable
- Vent options
- Variable end connection types and sizes from 1/4" to 1/2"
- Operation with colored nylon handles, metal handle and pneumatic actuator

IoTH-800KL ETH SMART CYLINDRICAL VALVE

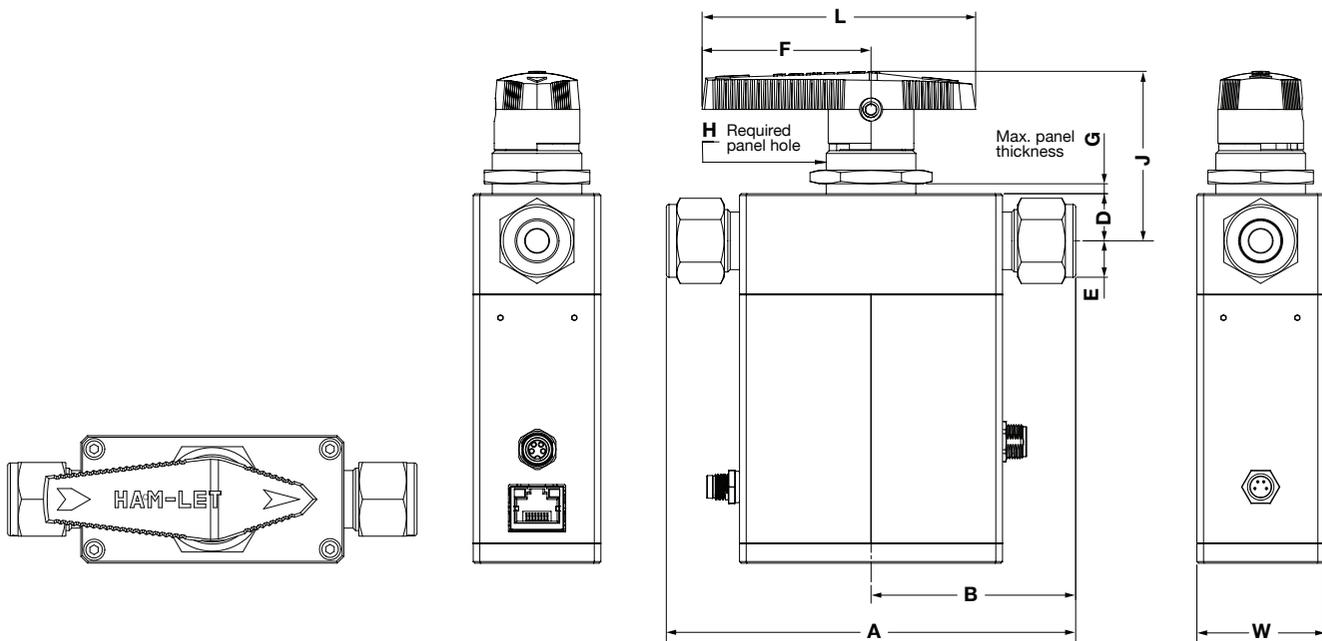
MATERIALS OF CONSTRUCTION

No.	Components	Qty	Material
1	Handle	1	Nylon + Glass Fiber
2	Screw M3X8 A2 DIN912	8	St.St.304
3	Washer SPR.M3 DIN7980	8	St.St.304
4	IoTH-800 Body	1	St.St.316
5	Sensors Box	1	AL6061
6	Lower Cover	1	AL6061



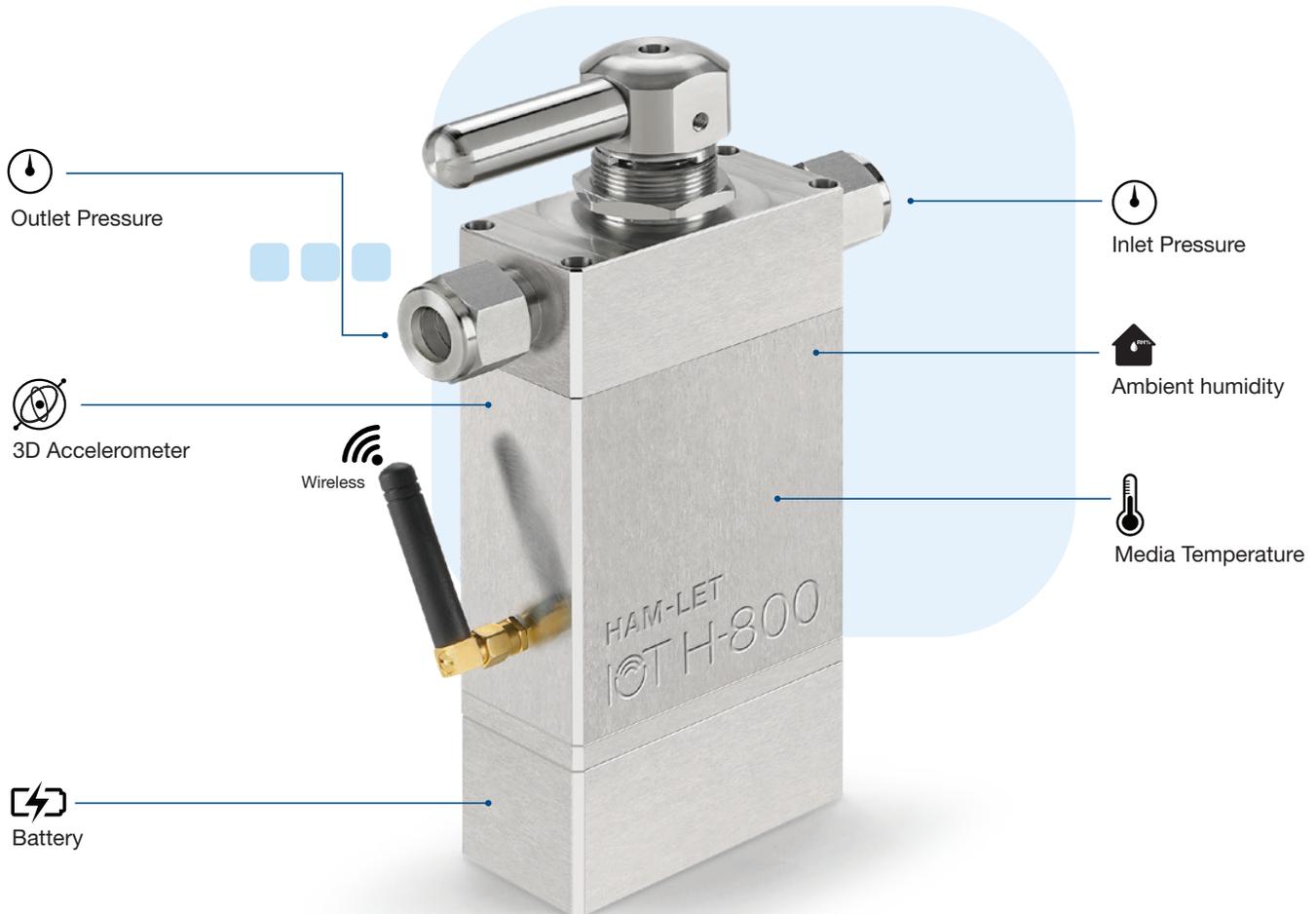
IoT-800KL ETH SMART CYLINDRICAL VALVE

Dimensions



Connection		Body size designator	Orifice		CV straight	Dimensions																					
Type	Size		mm	inch		A	B		C		D		E		F		L		G		H (diameter)		J		W		
							mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Let-Lok® Imperial	1/4"	M	4.8	0.19	1.4	114.3	4.5	5.71	2.55	140	5.51	11.2	0.4	6.85	0.2	38.9	1.53	63	2.48	4.8	0.19	19.8	0.7	52.6	2.07	38.4	1.51
	3/8"	L	7.1	0.28	6	117.53	4.62	58.76	2.31	150.32	5.91	14.2	0.56	14.2	0.56	50.8	2	82.3	3.24	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51
	1/2"	L	7.1	0.28	6	123.12	4.84	61.56	2.42	150.32	5.91	14.2	0.56	14.2	0.56	50.8	2	82.3	3.24	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51
Let-Lok® Metric	6mm	M	4.8	0.19	1.4	114.42	4.50	57.2	2.25	140	5.51	11.2	0.44	6.85	0.27	38.9	1.53	63	2.48	4.8	0.19	19.8	0.78	52.6	2.07	34.8	1.51
	10mm	L	7.1	0.28	6	118	4.64	59	2.32	150.32	5.91	14.2	0.56	14.2	0.56	50.8	2	82.3	3.24	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51
	12mm	L	7.1	0.28	6	123.12	4.84	61.56	2.42	150.32	5.91	14.2	0.56	14.2	0.56	50.8	2	82.3	3.24	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51

IoTH-800KL WLS SMART WIRELESS CYLINDRICAL VALVE



Features

The IoTH-800KL WLS is the large body wireless configuration of the IoTH-800 Series. This smart wireless valve is based on Ham-Let's state-of-the-art one-piece Cylindrical Valve series (H-800KL), which is suitable for low and high working pressure, a wide temperature range and long life cycles. The one-piece body design reduces possibility of shell leakage and offers tight shut-off, long-life service and low operating torque.

The IoTH-800KL WLS can be used in critical process points at isolated locations, as it features long range wireless connectivity and long battery life to sustain continuous online measurement of multiple sensors, differential pressure, motion and safety shut down.

- EX Zone 0 Ready. ATEX Certified, Indoor/Outdoor
- Pressure, Temperature, Humidity, Vibration And Acoustic sensing
- Precise Differential Pressure Measurement (0.1% Accuracy)
- CE Certified
- On/off-service, one-piece Cylindrical Valve with 2-way pattern
- Diverter and On/Off-service, one-piece Cylindrical Valve with 3-way pattern
- Encapsulated Cylindrical Stem design
- Bi-directional flow in 2-way straight pattern
- Virtually no dead volume
- Actuator control (DC powered)
- Long operating battery life > 5 years (based on 2 transmissions per day)

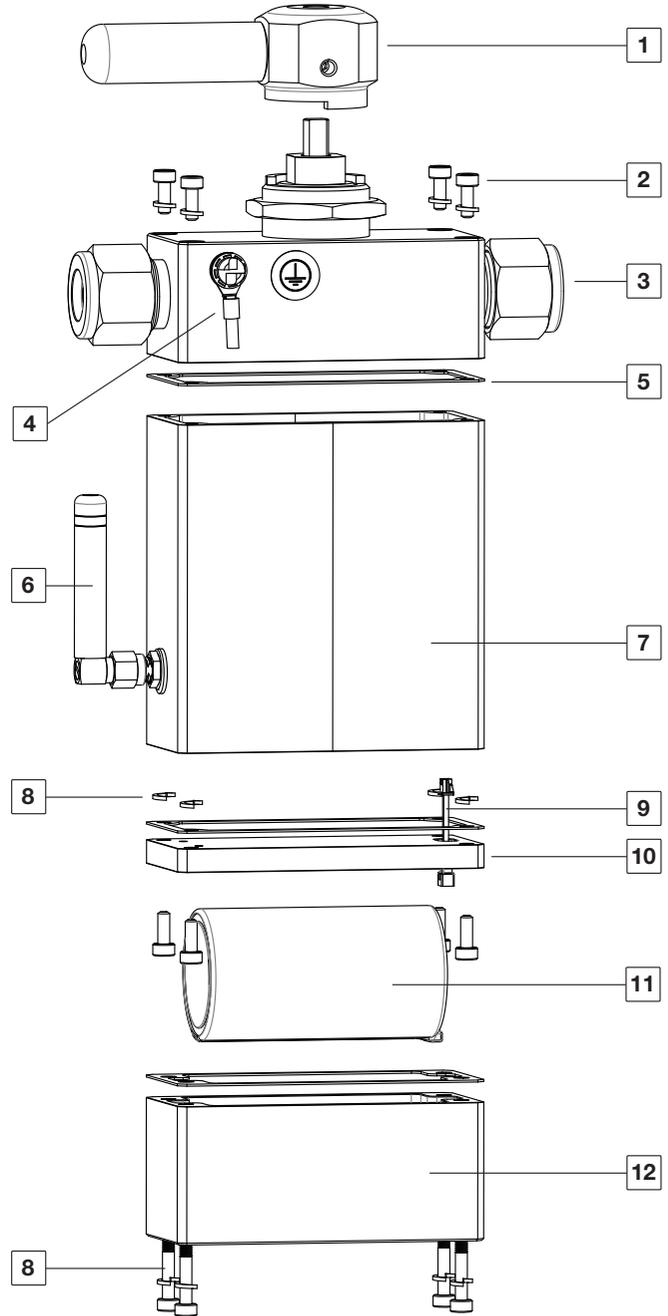
Technical Specifications

- MAWP 2500 psi (172 bar); MAWT 158°F (70°C)
- Zone 0 EX Marking - "II 1G Ex ia IIC T4 Ga IP66 Ta 70°C"
- Size D Safety Certified Battery (UL1642 or IEC 62133).
- Optional DC Powered (24V) Operated version with Modbus (RTU with RS485 interface)- Slave mode
- Wireless uplink connectivity - LoRa WAN 1.0
- Digital Pressure Sensors for inlet and outlet, $\pm 0.1\%$ accuracy
- Ambient Relative humidity sensing 0% to 100%:
 - $\pm 3.5\%$ rH (20%-80% rH)
 - $\pm 5\%$ rH (0%-100% rH)
 - High rH sensitivity: 0.004% rH/LSB
- 3D Accelerometer - acceleration range of $\pm 2/\pm 4/\pm 8/\pm 16g$ and an angular rate range of $\pm 125/\pm 245/\pm 500/\pm 1000/\pm 2000dps$
- Temperature sensor accuracy: $\pm 3^\circ C$
- Stainless Steel construction
- One-piece Cylindrical Stem ensures alignment of stem and orifice
- Panel mountable
- Vent options
- Variable end connection types and sizes from 1/4" to 1/2"
- Operation with colored nylon or metal handle
- Optional pneumatically actuated

IoTH-800KL WLS SMART WIRELESS CYLINDRICAL VALVE

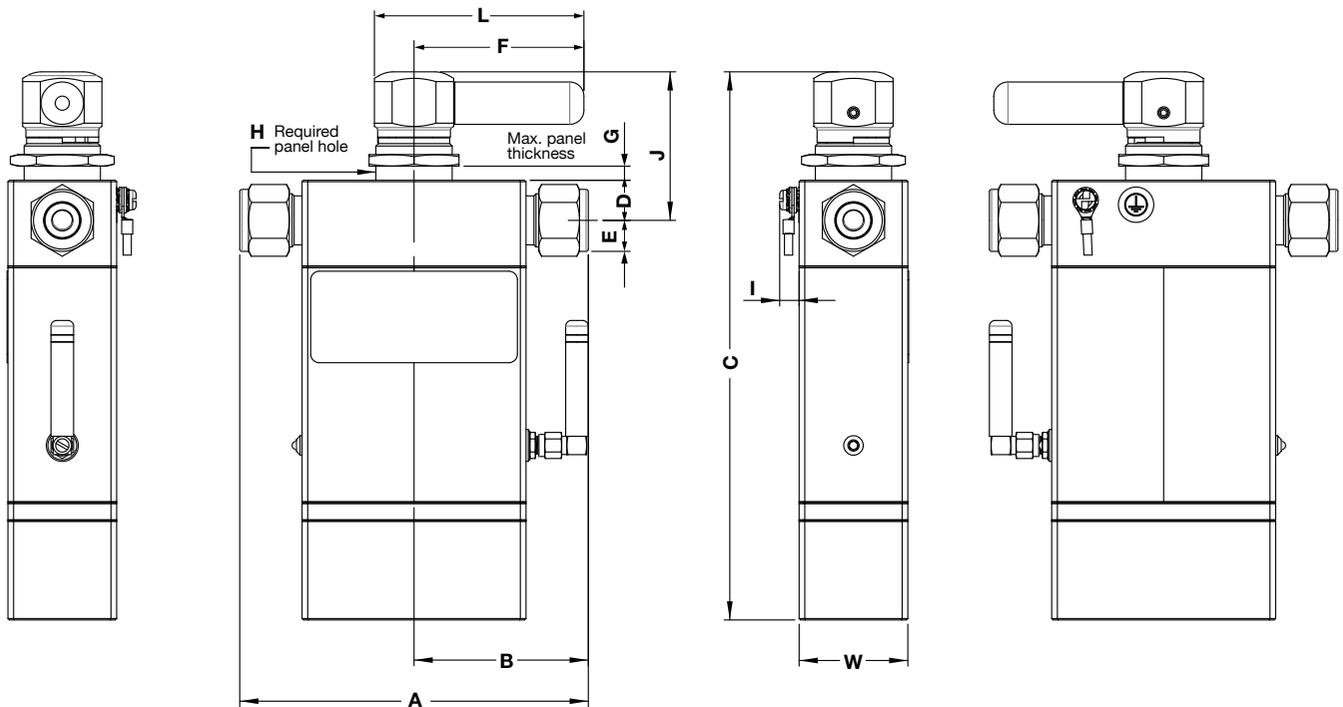
Materials Of Construction

No.	Components	Qty	Material
1	Handle	1	St.St.316
2	Screw M3X8 A2 DIN912	8	St.St.304
3	IoTH-800 Body	1	St.St.316
4	Grounding Cable	1	-
5	Gasket	3	Silicon
6	Antena	1	-
7	Sensor Box	1	St.St.303
8	Washer SPR.M3 DIN7980	12	St.St.304
9	Power cable	1	-
10	Lower Cover	1	St.St.303
11	Battery	1	-
12	Battery Cover	1	St.St.303



IoT^H-800KL WLS SMART WIRELESS CYLINDRICAL VALVE

Dimensions



Connection		Body size designator	Orifice		CV straight	Dimensions																							
Type	Size		mm	in		A	B	C	D	E	F	L	G	H (diameter)		J	W	I											
														mm	in				mm	in									
Let-Lok [®] Imperial	1/4"	M	4.8	0.19	1.4	114.35	4.50	57.1	2.25	178	7.01	11.2	0.44	6.85	0.27	38.9	1.53	63	2.48	4.8	0.19	19.8	0.78	36.63	1.44	38.4	1.51	6.9	0.27
	3/8"	L	7.1	0.28	6	117.53	4.62	58.76	2.31	194	7.63	14.2	0.56	14.2	0.56	60	2.36	74	2.91	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51	6.9	0.27
	1/2"	L	7.1	0.28	6	123.12	4.84	61.56	2.42	194	7.63	14.2	0.56	14.2	0.56	60	2.36	74	2.91	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51	6.9	0.27
Let-Lok [®] Metric	6mm	M	4.8	0.19	1.4	114.42	4.50	57.21	2.25	178	7.01	11.2	0.44	6.85	0.27	38.9	1.53	63	2.48	4.8	0.19	19.8	0.78	36.63	1.44	38.4	1.51	6.9	0.27
	10mm	L	7.1	0.28	6	118	4.64	59	2.32	194	7.63	14.2	0.56	14.2	0.56	60	2.36	74	2.91	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51	6.9	0.27
	12mm	L	7.1	0.28	6	123.12	4.84	61.56	2.42	194	7.63	14.2	0.56	14.2	0.56	60	2.36	74	2.91	9.5	0.38	28.6	1.13	52.6	2.07	38.4	1.51	6.9	0.27

IoT GATEWAY

Features & Technical Specifications

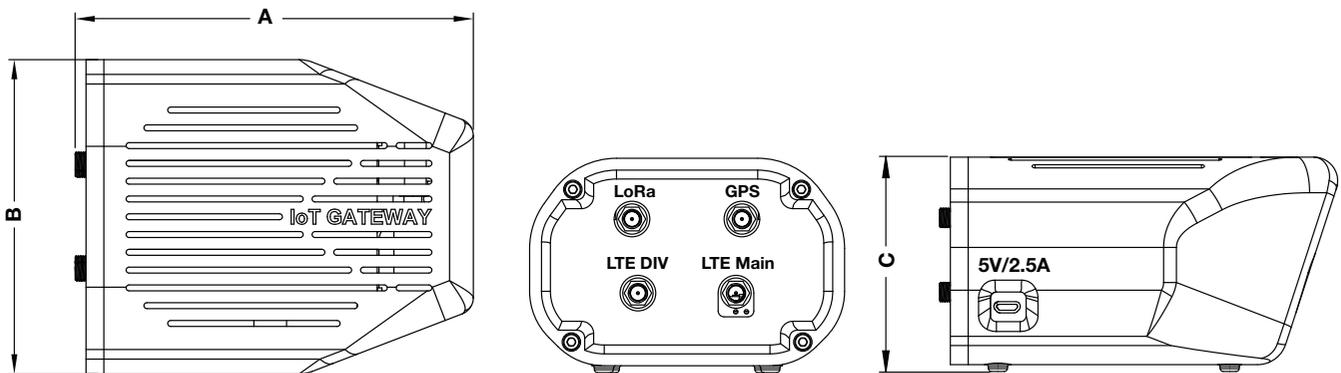
Ham-Let's IoT Gateway enables secured wired and wireless connection to the local control systems or to cloud computing services, such as IOT-LET (Ham-Let's smart valve management platform).

The IoT Gateway is onboarded to IOT-LET via secured communication using a unique ID. It also features encrypted data storage and internal communication with both our smart valves as well as our IOT-LET portal.



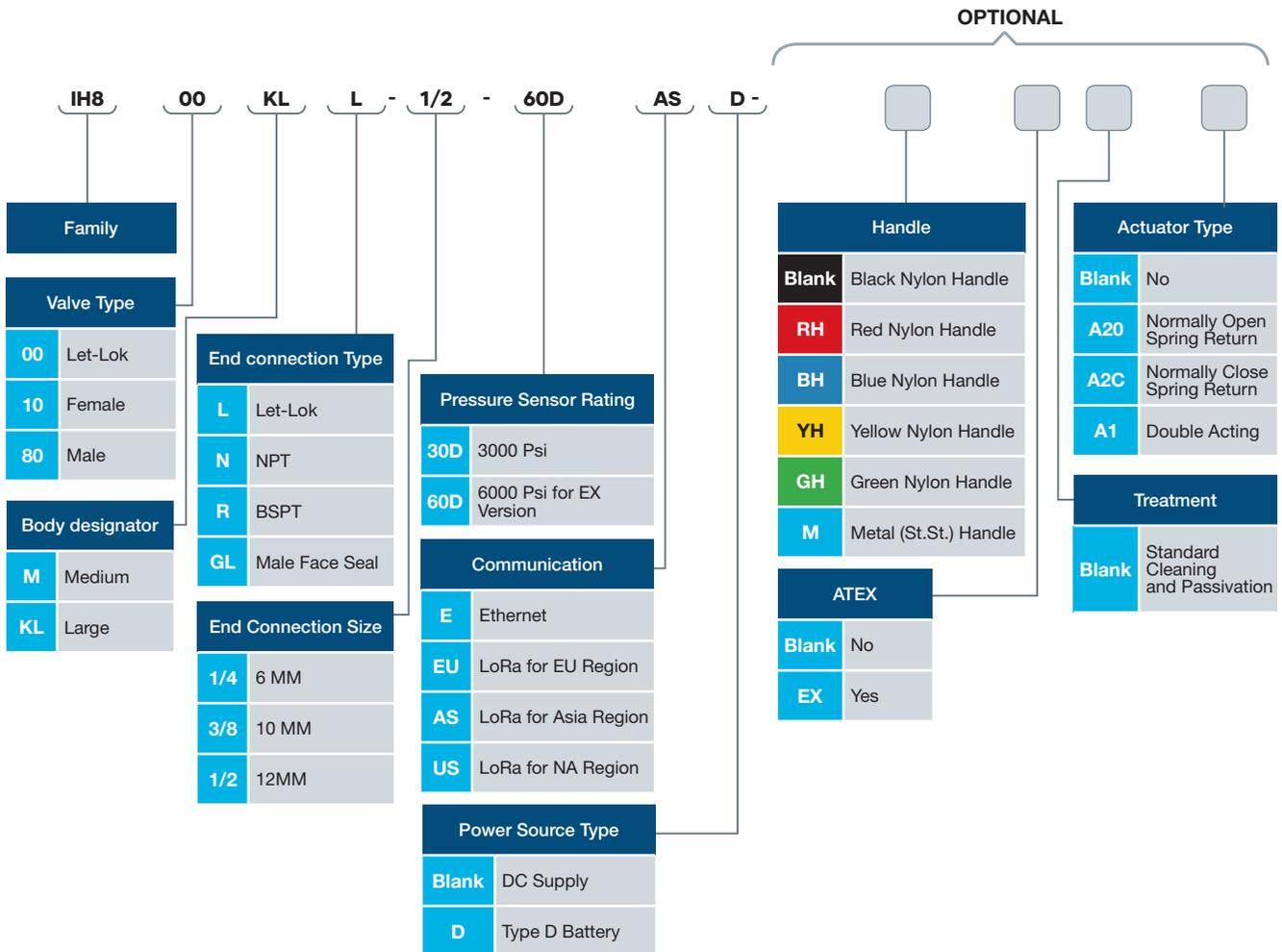
- Closed ports for incoming traffic
- Access to gateway configuration requires special user authentications
- Communication
 - LoRa WAN 1.0 network server
 - Ethernet 10/100/1000Mbps
 - WiFi
 - Support optional Cellular LTE module (EU region, US region, Asia Region)
- Build-in Heat Sink for thermal heat dissipation management.
- Supports 5V/2.5A power supply.
- LoRa Frequency supports global license-free frequency band (EU868, US915, AS923)
- Operating Temperature: -20 °C ~ 65°C
- FCC & CE compliance.
- Interface: 1x LAN, USB Power, LoRA Antenna, 2x LTE Antenna and GPS Antenna.
- SSL/TLS 1.2 2-way authentication and X.509 Certificate Management
- HSM based secure storage
- Secure remote firmware update
- Local web UI with Rest API support
- Network statistics support
- Edge analytics support

IoT GATEWAY Dimensions

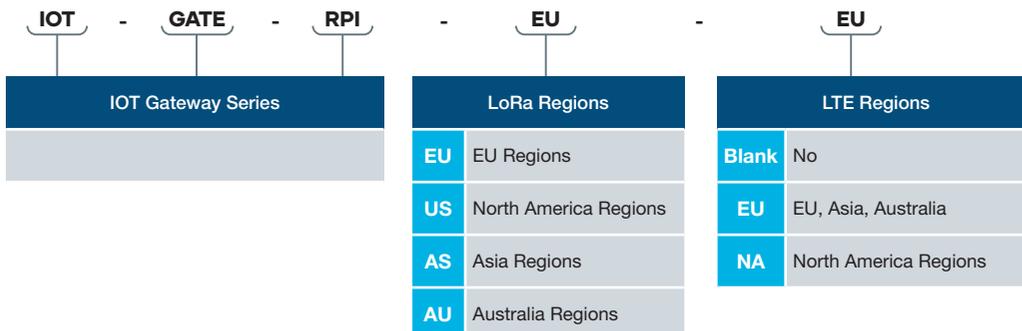


A		B		C	
mm	in	mm	in	mm	in
134	5.27	106	4.17	73.0	2.87

IoT-800 SERIES HOW TO ORDER



IoT GATEWAY HOW TO ORDER



For Actuated Valves

- For ordering information of actuators for high temperatures, please refer to HAM-LET Pneumatic Actuator Catalog
- For double mounting actuators, please contact your local representative
- Actuators Accessories (Limit Switch, Solenoid Valve please refer to HAM-LET Pneumatic Actuator Catalog
- For Stainless Steel Actuators or Electric Actuators please contact your local representative