

SAY HELLO!

To the future of **SMART BUILDING MANAGEMENT**



 **ripple**

TRULY WIRELESS SYSTEM

Smart Meters - Gas , Water, Energy , EV and BTU

Safety Devices - Smart Gas Leak Detector

IoT Sensors for Building Management

Save Environment -Sustainability -Cost Savings

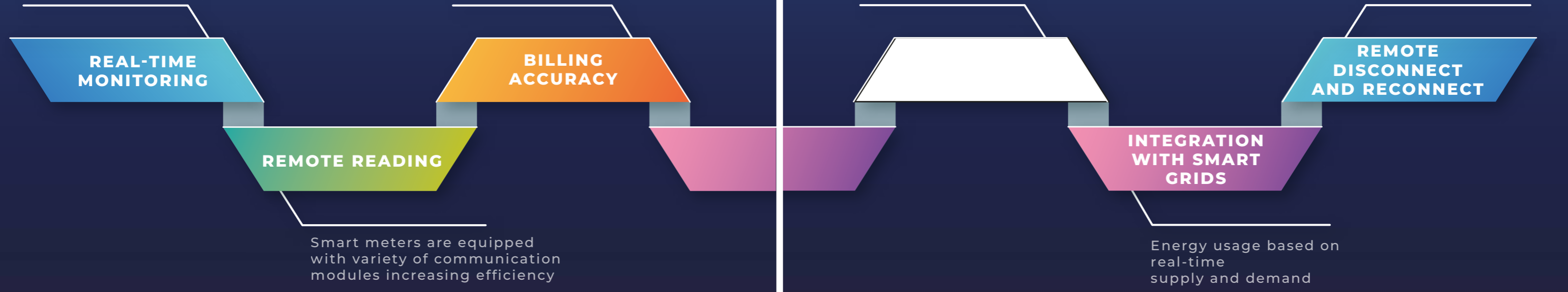
Connecting Cities with IoT-Driven Smart Meters

Transforming the way we manage and consume energy

Automated Data Transmission, Detailed Usage Records, precise billing

Demand Forecasting, Predictive Maintenance, enhance efficiency, improve customer service

AMR and AMI are essential components of modern utility metering systems



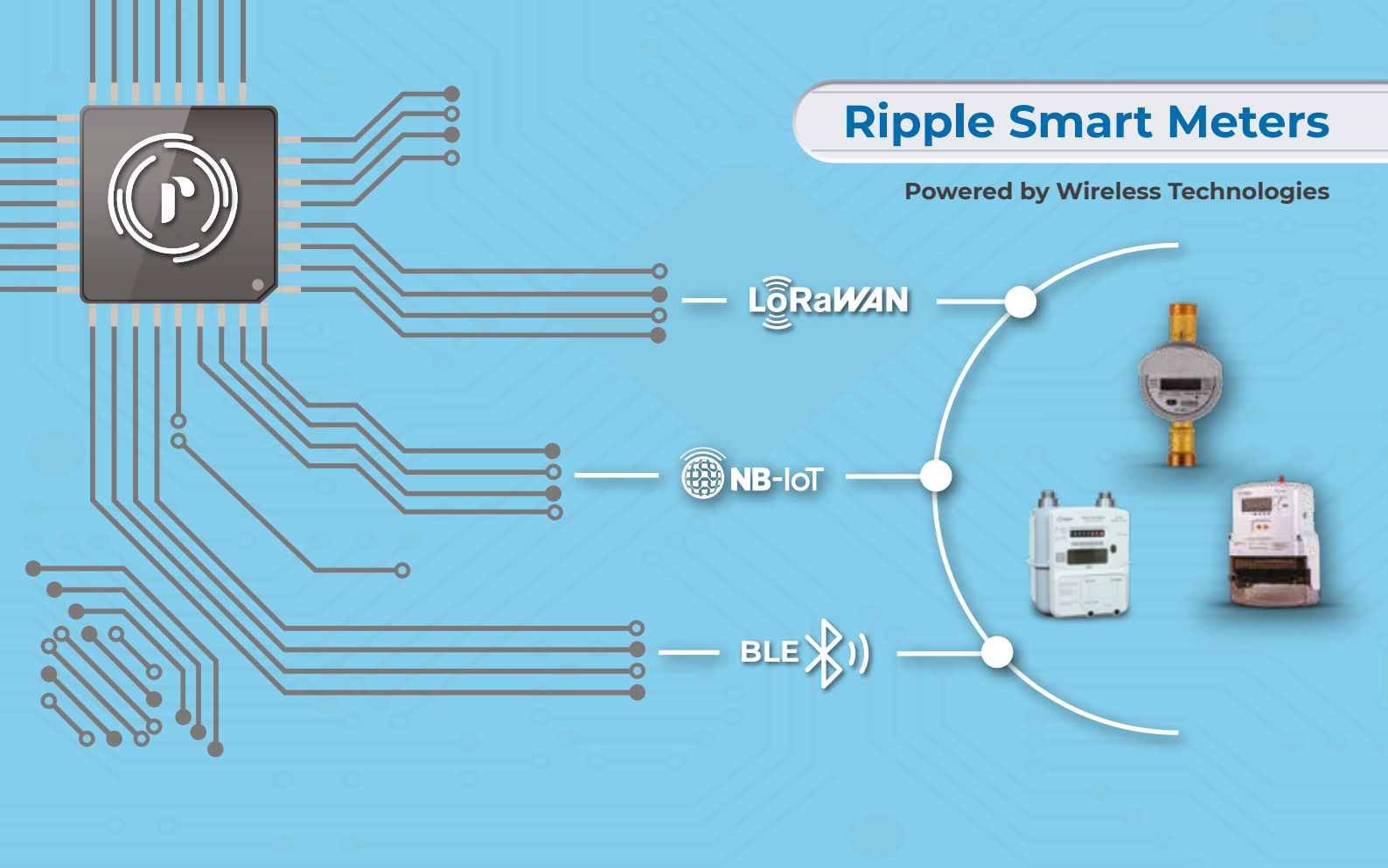
Smart meters are equipped with variety of communication modules increasing efficiency

Energy usage based on real-time supply and demand



Ripple Smart Meters

Powered by Wireless Technologies



NB-IoT Technical Specifications

Parameter	Characteristic
Power supply	Vin: 3.3V Typical current: 500 mA Maximum peak current: 1A
Operating Temperature	-45°C to 85°C
NB-IoT	Frequency bands: Band 3 – Uplink: 1710 MHz – 1785 MHz, Downlink: 1805MHz – 1880MHz Band 5 – Uplink: 824 MHz – 849 MHz, Downlink: 869MHz – 894MHz
	Mode of Operation: In-Band operation, Guard Band Operation, Stand Alone Operation
	Support eDRX and PSM mode
	Maximum Transmit power of 23dBm ±2dBm Receiver sensitivity -130dBm for both B3 & B5
Data Rate (3GPP R13)	Max uplink data rate 150 kbps
	Max downlink data rate 150 kbps
Device Management	LwM2M protocol for device management (DM) purpose
	MQTT based client for device management (DM) purpose
	Support HTTPS/HTTP/PPP/CoAP/TCP/UDP

LoRaWAN Technical Specifications

Parameter	Characteristic	Unit
Power supply	3.3V typical	V
RF Transmit Energy Consumption	112mA @22dBm in 470MHz typical	mA
RF Receive Power Consumption	6.8mA @BW125KHz,470MHz typical	mA
Sleep power consumption	About 3uA	uA
Receiver sensitivity -1	-141dBm, @470MHz, 125K bandwidth, SF=12	dBm
RF output signal	Maximum 22dBm @470MHz	dBm





SMART GAS METER

Diaphragm

PREPAID & POSTPAID

Residential & Industrial Applications

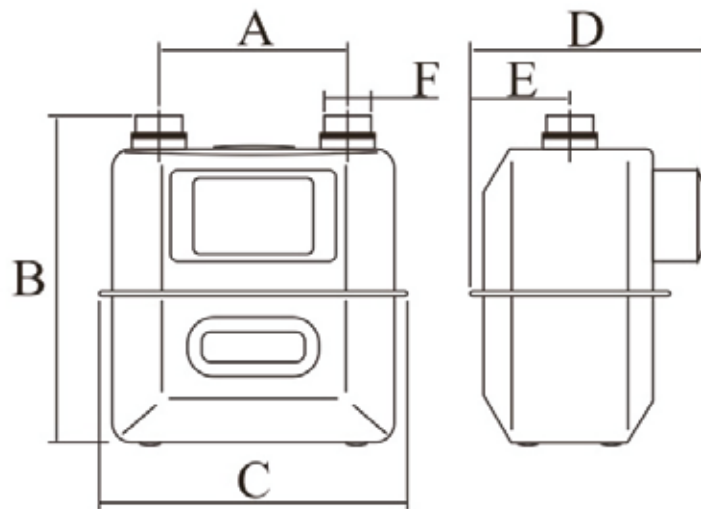
- ◆ The Diaphragm/Ultrasonic Gas Meter can measure Natural Gas, LPG.
- ◆ Residential Meter Sizes G1.6 / G2.5 / G4.0
- ◆ Industrial Meter Sizes: G6 / G10 / G16 / G25 / G40 / G65 / G100

Approvals & Certifications

- ◆ MID ◆ ATEX ◆ WPC

Diaphragm Gas Meter Specifications

Description	Unit	G1.6	G2.5	G4.0
Type		Diaphragm Gas Meter		
Nominal Flow Rate Qn	m ³ /h	1.6	2.5	4
Maximum Flow Rate Qmax	m ³ /h	2.5	4	6
Minimum Flow Rate Qmin	m ³ /h	0.016	0.025	0.04
Permissible Error		Qmin ≤ Q < 0.1Qmax±3%		
		0.1Qmax ≤ Q ≤ Qmax±1.5%		
Maximum Operating Pressure*	kPa	50		
Pressure Loss	Pa	≤ 50	≤ 110	≤ 170
Cyclic Volume	dm ³	1.2		
Maximum Reading	m ³	99999.999		
Minimum Reading	dm ³	0.2		
Ambient Temperature*	°C	(-25 - +55)		
Resistance to Water,Dust		IP65		
Case Material		Body-Pressed Zinc coated steel		
Measuring Gas		Natural Gas / LPG		
Dimension	mm	210 x 190 x 162 (H x W x D)		
Net weight	Kg	1.5		



METER SIZE

Item	Measure (mm)					
	A	B	C	D	E	F (Thread)
G1.6	130(110)	210	190	162	70	3/4" NPT
G2.5	130(110)	210	190	162	70	3/4" NPT
G4	130(110)	210	190	162	70	3/4" NPT



SMART WATER METER

PREPAID & POSTPAID

Water Meter Features

- ◆ The Water flow measurement happens through ultrasonic technology
- ◆ No moving parts, maintenance free
- ◆ Bi directional flow measurement
- ◆ Suitable for Horizontal/Vertical Installations

Smart Water Meter is powered by

- ◆ Automated Meter Reading (AMR)
- ◆ Advanced Meter Infrastructure (AMI)
- ◆ Automated Metering Management (AMM)



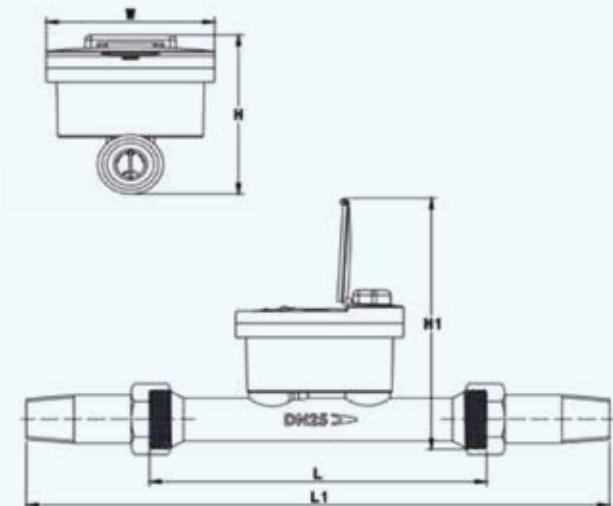
Approvals & Certifications

◆ IP68 ◆ FCRI - INDIA ◆ WPC ◆ W&M

Water Meter Specifications

Size	DN15	DN20	DN25	DN32	DN40
L (mm)	165	195	225/260	230/260	245/300
L1 (mm)	261	301	347/382	356/386	376/431
W (mm)	110	110	110	110	110
H1 (mm)	167	172	177	186	197
H (mm)	102	107	112	121	132
Pipe Joint - Sensor	G 3/4*	G 1*	G 1 1/4*	G 1 1/2*	G 2*
Pipe Joint - Tail Pieces	R 1/2	R 3/4*	R 1*	R 1 1/4*	R 1 1/2*
Max. Flow Q4(m ³ /h)	3.125	5	7.875	12.5	20
Constant Flow Q3(mm ³ /h)	2.5	4.0	6.3	10	16
R100 Q2/Q1(L/h)	40/25	70/40	100/63	160/100	260/160
R160 Q2/Q1(L/h)	25/16	40/25	70/40	100/63	160/100
R250 Q2/Q1 (L/h)	16/10	25/16	40/25	70/40	100/63
Starting Flow (L/h)	1.5	2.0	2.5	4.0	5.0
Accuracy Class	Class 2				
Pressure Class	PN16(PN10/PN25)				
Environmental Class	Class C				
Electromagnetic Class	E1/E2				
Pressure Loss Class	ΔP25 (ΔP63, ΔP40)				
Flow Sensitivity Class	U5/D3				
Temp Class	T30 (T50, T70, T90)				
Data Logger	With 2 years of daily totals and 24 monthly totals				
Communication Interfaces	MBUS, RS485, LORA, 4-20mA, Pluse etc optional				
PowerSupply	3.6 VDC (Replaceable Lithium Battery)				
Mesurement Cycle	Once per second				
Average Working Current	<20 μ A				

Meter Size



Ultrasonic Water Meter - Plastic Series (DN15-DN25)

This Series is one of the earliest residential ultrasonic water meter made of composite material, it is corrosion-resistant to ensure longevity.

Due to its compact design, its dimension is much smaller than regular water meters, hence it is suitable for a lot of scenarios especially in areas where installation space is limited.

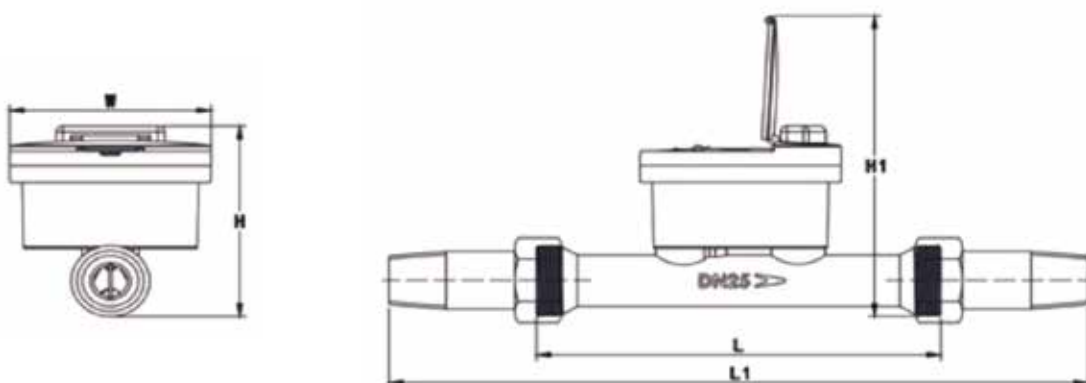


Features

- ◆ Lead-free composite flow pipe, conform with drinking water requirements
- ◆ Built-in lithium battery
- ◆ Low power consumption
- ◆ Wide dynamic range
- ◆ High measurement accuracy
- ◆ Bi-directional flow measurement
- ◆ Not affected by magnetic interference
- ◆ Tamper-proof design, automatically record when tamper is detected
- ◆ IP68 (waterproof/ submersible)
- ◆ Multiple communication interfaces optional
- ◆ Do not measure entrained air inside pipeline.



Technical Specifications



Size		DN15	DN20	DN25
Dimensions	L (mm)	165	195	225
	L1 (mm)	261	301	347
	W (mm)	95	95	93
	H1 (mm)	161	166	136
	H (mm)	96	101	100
Pipe Joint-Sensor		G3/4"	G1"	G1 1/4"
Pipe Joint- Tail Pieces		R1/2"	R3/4"	R1"
Max. FlowQ4(m³/h)		3.125	5	7.875
Constant FlowQ3(m³/h)		2.5	4.0	6.3
R100 Q2/Q1 (L/h)		40/25	70/40	100/63
R160 Q2/Q1 (L/h)		25/16	40/25	70/40
R250 Q2/Q1 (L/h)		16/10	25/16	40/25
R400 Q2/Q1 (L/h)		10/6	16/10	22/14
Starting Flow(L/h)		1.5	2.0	2.5
Accuracy Class		Class 2		
Pressure Class		PN16(PN10/ PN25)		
Environmental Class		Class B/O		
Electromagnetic Class		E1/E2		
Pressure Loss Class		ΔP63(ΔP25,ΔP40)		
Flow Sensitivity Class		U5/D3(U0/D0)		
Temp Class		T30(T50,T70,T90)		
Data Logger		With 2 years of daily totals and 24 monthly totals		
Communication Interfaces		Lora, WMBUS, GPRS/4G, CAT1, CAT M1, NB-IoT, MBUS, RS485, Pulse, 4-20mA, Infrared etc optional		
Power Supply		3.6VDC(Replaceable Lithium Battery)		
Measurement Cycle		Once per second		
Average Working Current		≤20μA		
Customization		Other technical specifications upon customer's requests		



SMART ENERGY METER

PREPAID & POSTPAID

Energy Meter Features

- ◆ Ability to pay-as-you-go.
- ◆ Anti-tamper Features provided in the meter as per Indian standards.
- ◆ Provides Overload tripping for EB and DG
- ◆ Provides a Dual source measurements Up to 80A whole current / CT operated (for BIS upto 60A)
- ◆ Meters are available in Single Phase or Three Phase
- ◆ Provides Overvoltage protection
- ◆ Monitors and display the balance, VLL, VLN, A, Hz, W, PF, VA, kWh EB & DG.

Smart Energy Meter is powered by

- ◆ Automated Meter Reading (AMR)
- ◆ Advanced Meter Infrastructure (AMI)
- ◆ Automated Metering Management (AMM)

Approvals & Certifications

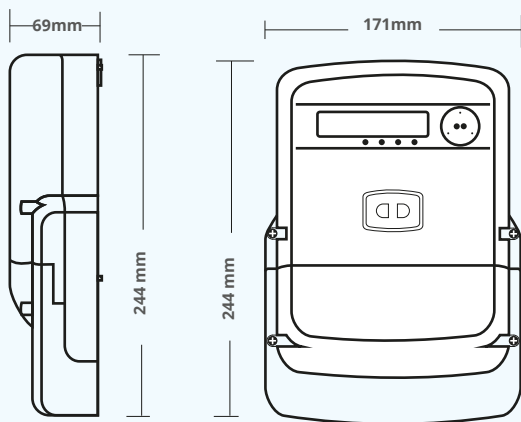
- ◆ BIS 13779 ◆ IS 16444 ◆ ERTL ◆ CPRI ◆ WPC



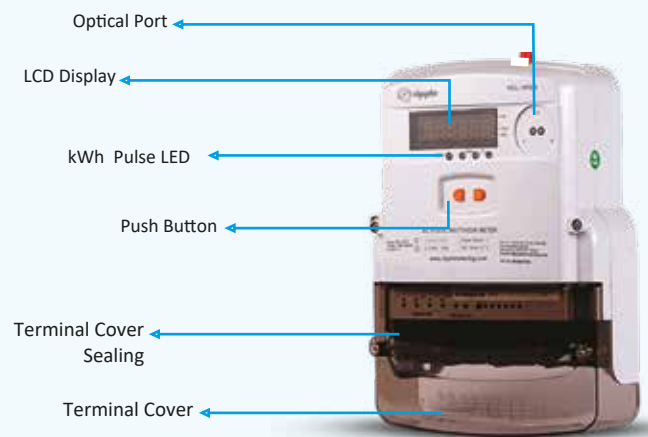
Technical Specification - Smart Meter

Specification	Three Phase	Single Phase
Connection Type	3-Phase, 4-wire AC Static Energy Meter	1-Phase, 2-wire AC Static Energy Meter
Accuracy	Class 1.0 Compliance as per IS 16444 Part 1	
Rated Current	Whole Current : 5/60A, CT Operated : -/5A	
Rated Voltage	3 X 240V (P-N) (-40% to + 20%), Frequency: 50 Hz \pm 5%	240V (P-N) (-40%to + 20%), Frequency: 50 Hz \pm 5%
Power Consumption	AS Per Standards	
Display Type	LCD with Backlit, Display mode: Auto Scroll, Push Button, Low Power Mode	
LED Indicators	LED Pulse imp/kWh for Energy Parameters	
Anti-Tamper Features	Current Reversal, Phase missing, Top Cover Open, Magnetic Temper	Current Reversal, Neutral missing , Earth Load tamper, Top Cover Open
Backup Power	Internal Rechargeable Super Capacitor	
Communication Port Options	Optical Port, WAN: Cellular LTE , GSM GPRS:900/1800MHZ, NAN 865-867 MHz With External Antenna, With Inbuilt/ Plug-in Options	
Communication Protocol	DLMS COSEM (GPRS/ Optical Port)	
Load Survey Parameters	30 Minutes integration period for 90 days	
Ingress Protection	IP 51	
Temperature	- 10°C to +55°C(Operating), -25°C to +70°C(Storage),Relative Humidity Up to 95% Non Condensing	
Standards	IS 13779, IS 16444, IS 15959, IEC62052-11	
Others Features	Maximum Demand, Time of Day, Load Control for Power Connect / Disconnect, Over Voltage, Over kVA	

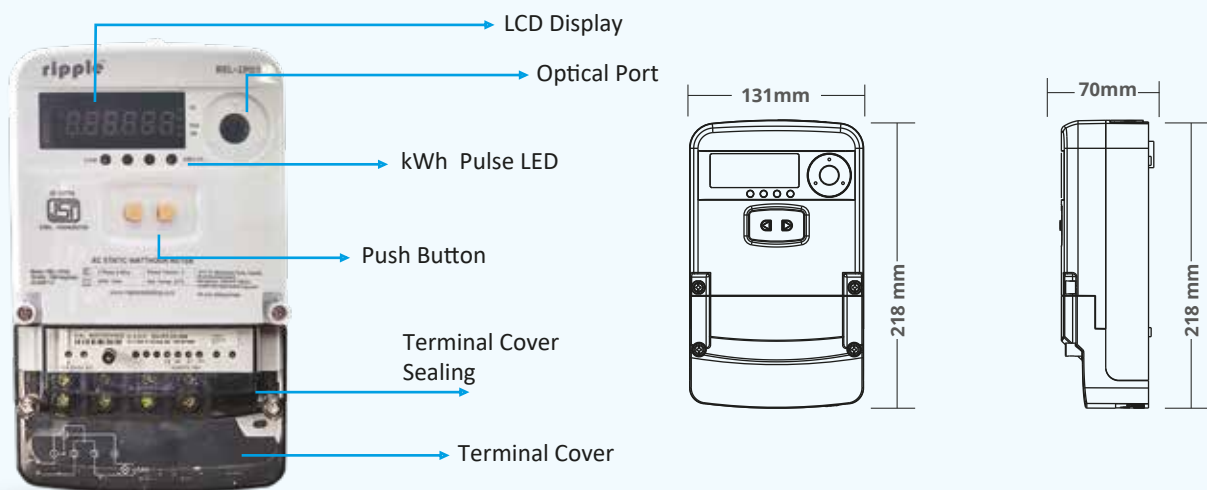
Mechanical Specification :



Three Phase



Single Phase



Ripple IoT Server - Head End Server for Meter Management

ANY SMART METERS / SENSORS



GAS METER



WATER METER



ENERGY METER



SOLAR



EV CHARGER

ANY WIRELESS TECHNOLOGIES



NB-IoT



LoRaWAN

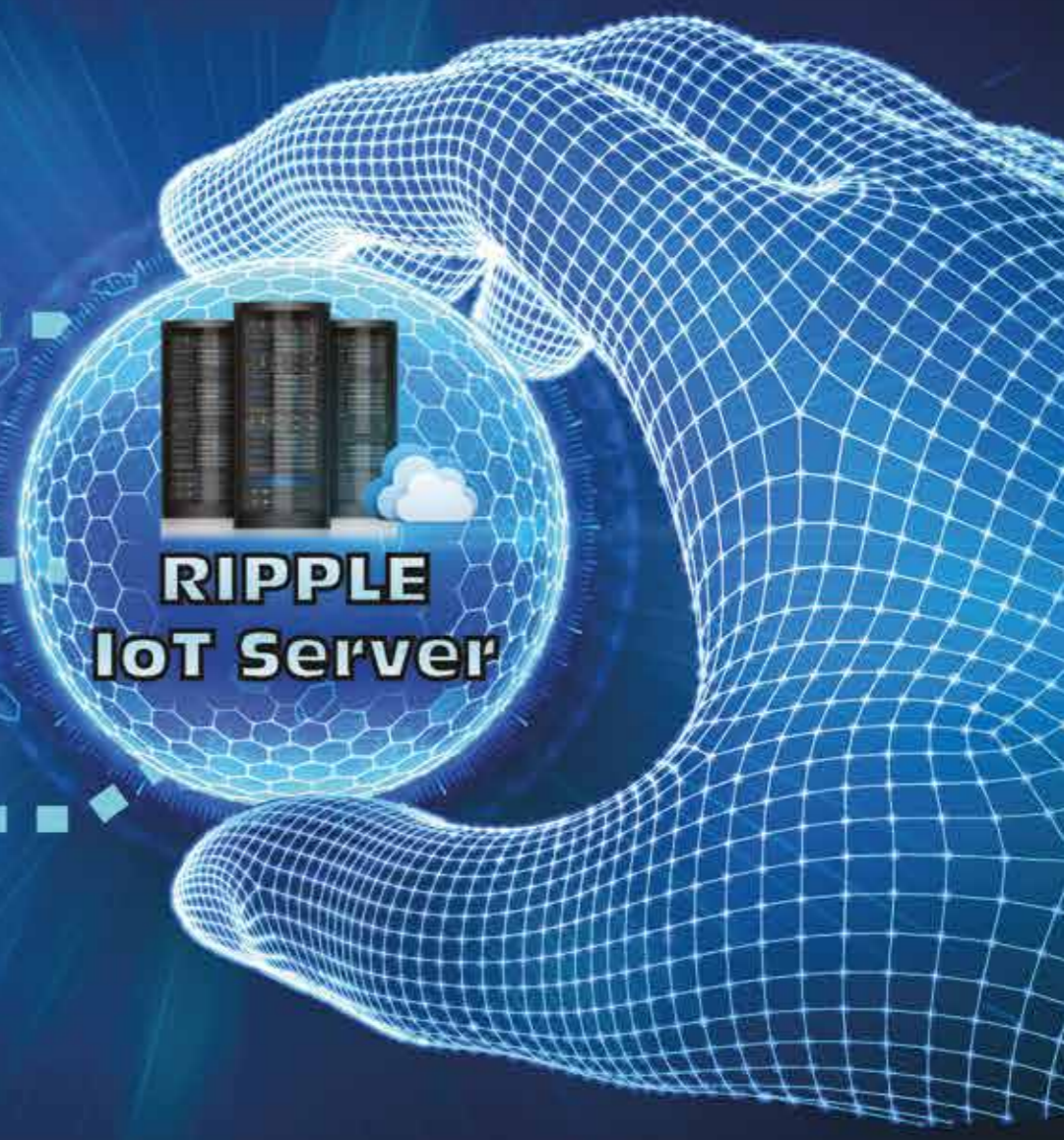


GSM/GPRS



BLE

ANY DATA FORMAT



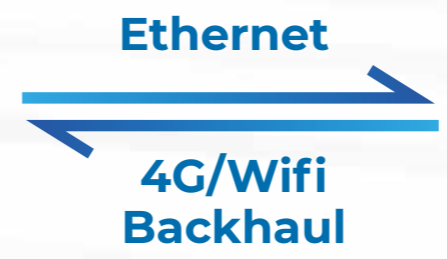
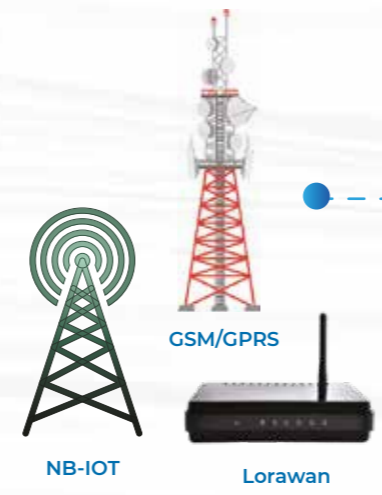
RIPPLE IoT Server

Ripple IoT Eco System

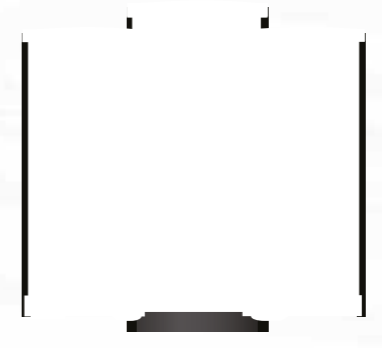
Smart Utility Meters



Network Gateways

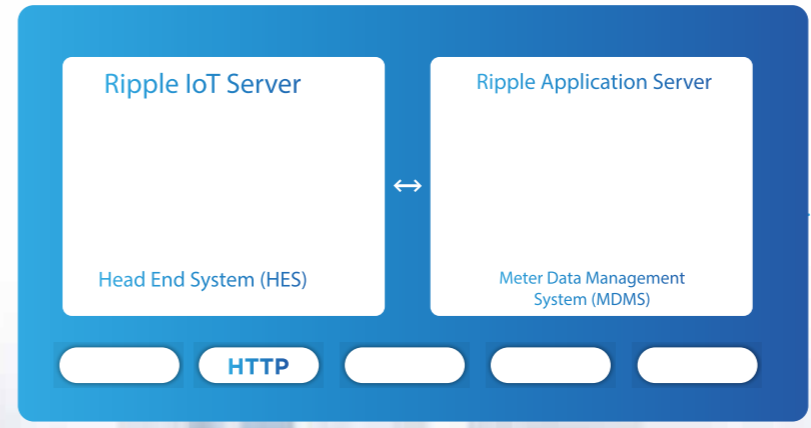


Network Servers



End User Application

Smart App





Smart Gas Leak Detector

Advanced Wireless Gas Leak Detection
for Enhanced Safety



Wi-Fi



4G



Notifications



Alarm

Protects What Matters - Smart, Reliable,
and Always Connected



Key Features



Always Reliable:

Built-in watchdog ensures continuous, fail-safe operation.



Easy Setup:

Configure directly via captive portal—no app required.



Instant Alerts:

Push notifications and SMS sent immediately to emergency contacts.



Dual Connectivity:

Wi-Fi with automatic 4G fallback for uninterrupted alert delivery.



24/7 Monitoring:

High-sensitivity gas detection for homes, offices, and light industrial spaces.



Cloud Connected:

Ready for integration with cloud dashboards and alert systems.



Secure & Personalised:

User details configurable; Wi-Fi credentials stored safely and privately.

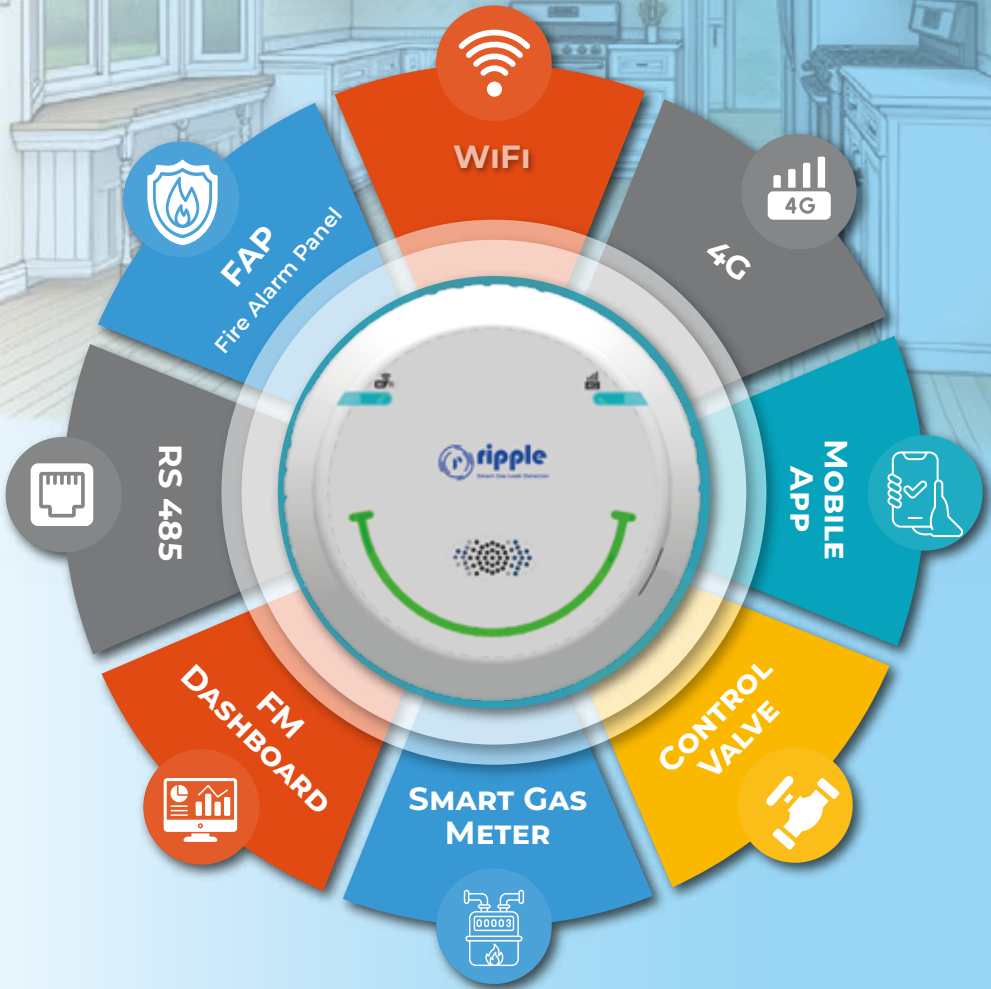


Technical Highlights

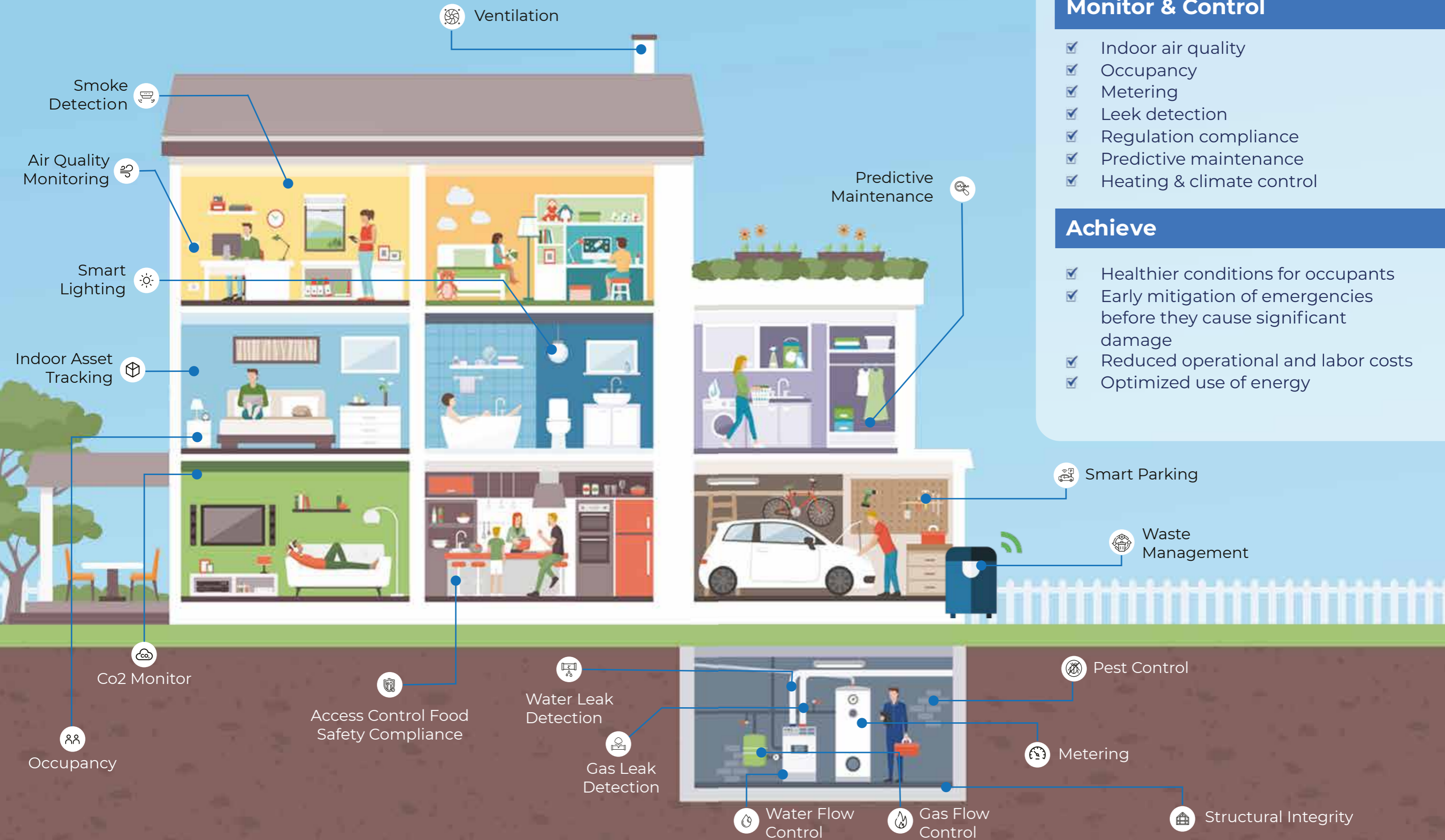
Specification	Details
Microcontroller	Dual-core SoC delivering efficient 32-bit processing performance
Sensor Interface	High-precision analog gas sensing (detects LPG & PNG)
Wireless Connectivity	Wi-Fi 802.11 b/g/n (user-configurable) with automatic captive portal for easy installation
Cellular (4G)	Integrated 4G support for SMS alerts and internet backup connectivity
Alert Channels	Real-time SMS alerts with customizable messages and unique device identification
Cloud Integration	Connects to Ripple server for instant alerts and safety monitoring
Configuration	Web-based, mobile-friendly interface—no app required
Continuous Monitoring	Hardware watchdog auto-resets the system in case of any hang, ensuring uninterrupted operation
Power Supply	5V DC input
Installation	Wall-mount, plug-and-play design for quick deployment



Smart Gas Leak Detector Architecture



Empowering India's Energy Future with Smart Building & Metering Evolution



SMART BUILDING

Monitor & Control

- ✓ Indoor air quality
- ✓ Occupancy
- ✓ Metering
- ✓ Leak detection
- ✓ Regulation compliance
- ✓ Predictive maintenance
- ✓ Heating & climate control

Achieve

- ✓ Healthier conditions for occupants
- ✓ Early mitigation of emergencies before they cause significant damage
- ✓ Reduced operational and labor costs
- ✓ Optimized use of energy

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