NEBULAE®
DESIGN TO CONNECT

www.nebulae.io

Automated Meter Reading Device

Made-in-India solution inline with your smart city infrastructure

About
System Level Solutions

- No. of Business Verticals: 6+
- Operating Bases: India, UK, USA
- No. of Manufacturing Plants: 1
- In-house Design & Manufacturing Capability
- Part of the Make-in-India initiative

100+
Active projects across the globe

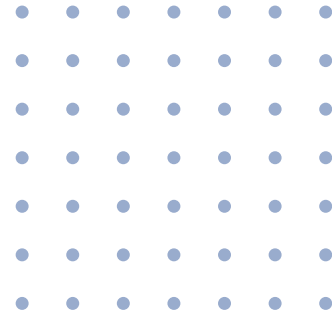**QUICK FACTS**

300+
In-house staff

20+
Years and counting
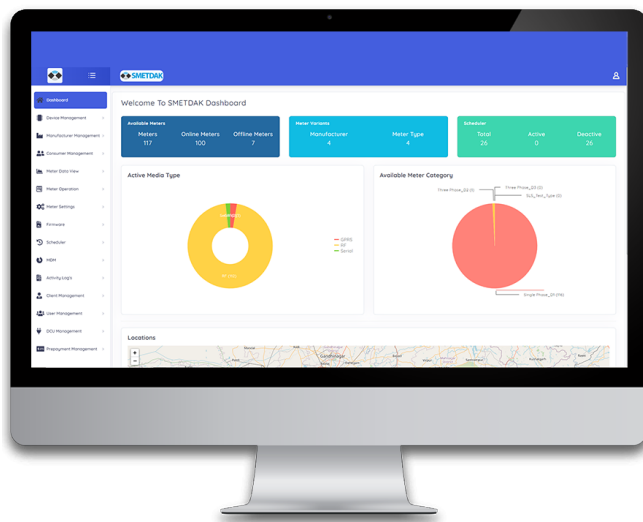
SLS
System Level Solutions

AMR
General
Introduction

Nebulae's Automated Meter Reading Device is designed for accurate reporting of utility meters in real-time.

- Real-time data collection & monitoring
- Prompt alerts on tampering attempts, device removal, or magnetic interference
- Plug-n-play device
- Zero maintenance

Head End **System**

The real-time reporting is done with a Head End System, which is an IoT-powered software solution that acts as a communication driver between Meter Data Management and measurement devices.

Gas Meter AMR

Nebulae's Gas Meter-based AMR is an industry-standard battery-based device used for live reporting of consumption data from smart gas meters.

It is specifically designed to assist utilities with prompt alerts on tampering attempts, device removal, or magnetic interference.

Magnetic / Inductive   AMR   Gateway / DCU

End User Application   Network Server / IoT middleware
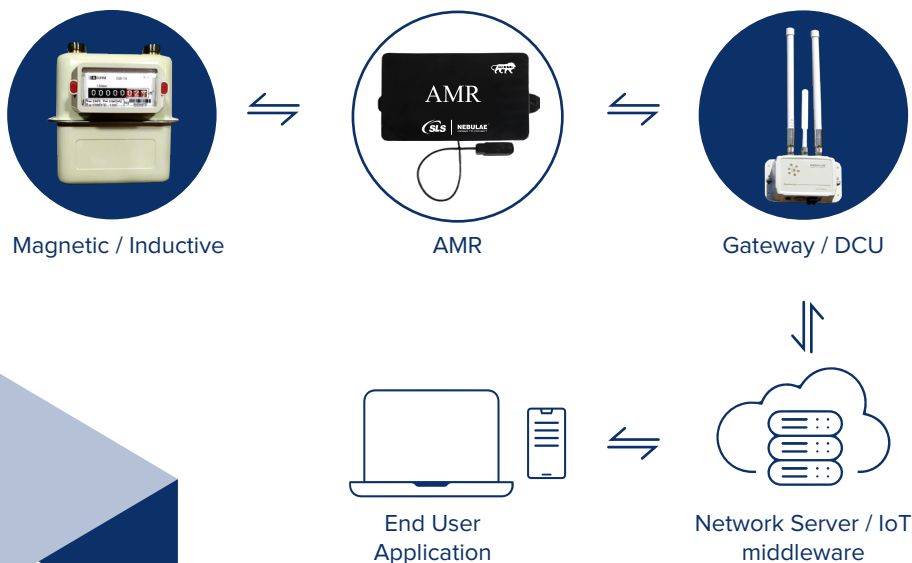
Gas Meter AMR Ecosystem

Features & Specifications

- Retrofit on existing meters, easy plug-n-play
- Zero configuration required, sends live data on configured intervals after installation
- Supports any diaphragm magnetic/inductive pulse-based meter.
- Works with LoRaWAN / Sigfox
- 5+ years of battery life with deep sleep technology
- Zero maintenance required
- Operating Temperature = -20°C to +85°C
- IP65 Self Certification
- Dimensions = 97 x 59 x 37mm

Water Meter AMR

Nebulae's Water Meter-based AMR is an industry-standard battery-based device used for live reporting of consumption data from smart water meters.

It is specifically designed to assist utilities with prompt alerts on tampering attempts, device removal, or magnetic interference.

Magnetic / Inductive / RS485 ⇌ AMR ⇌ Gateway / DCU

End User Application ⇌ Network Server / IoT middleware
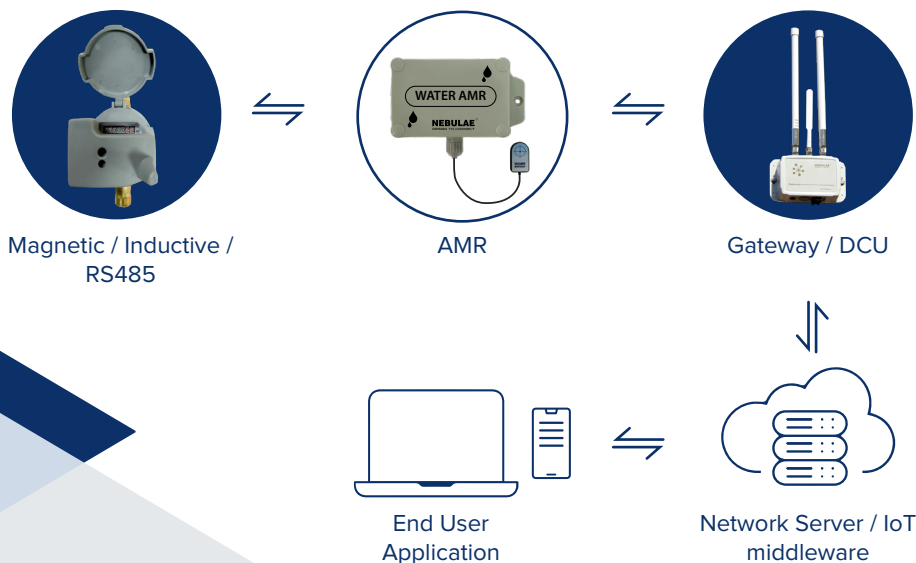
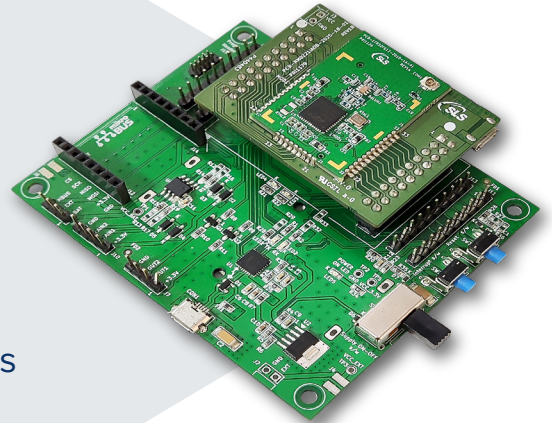**Water Meter AMR Ecosystem**

Features & Specifications

- Retrofit on existing meters, easy plug-n-play
- Zero configuration required, sends live data on configured intervals after installation
- Supports any diaphragm magnetic/inductive/RS485 pulse-based meter.
- Works with LoRaWAN / Sigfox
- 5+ years of battery life with deep sleep technology
- Zero maintenance required
- Operating Temperature = -20°C to +65°C
- IP65 Self Certification
- Dimensions = 97 x 59 x 37mm

RF NIC Energy Meter AMR

RF NIC Card houses Sub-GHz RF Module with an external antenna and an interface connector for establishing communication with smart meters.

It promptly monitors energy meters ensuring utilities with industry-standard energy efficiency, ultra-fast wakeup times, a scalable power amplifier, and an integrated balun.

Magnetic / Inductive / RS485 → AMR → Gateway / DCU

End User Application ⇆ Network Server / IoT middleware

Energy Meter AMR Ecosystem

Environmental Specifications

- Operating Temperature = -20°C to +65°C
- Storage Temperature = -20°C to 50°C
- Humidity = Up to 95% RH (Non-Condensing)

RF Characteristics

PARAMETERS	NIC CARD RF MODULE
• Transmit Power	+20dBm
• Receive Sensitivity (1% PER)	-98dBm
• RF Range (Line of Sight)	800m
• Frequency Band	865 - 867MHz
• RF Data Rate	150KB
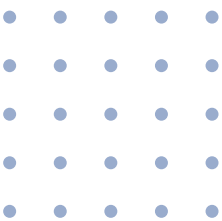
Electrical Specifications

PARAMETERS	VALUE	
	Min	Max
Supply Voltage	3.3V	4.2V
Digital Input/Output Voltage	0.3V	3.3V
Current Consumption (Radio in transmit mode)	107mA	
Current Consumption (Radio in receive mode)	10.2mA	
Current Consumption (Active Mode)	70uA	
Current Consumption (Deep Sleep Mode)	1.5uA	

Functional Specifications

- High Performance 32-bit 40MHz ARM Cortex® - M4 CPU
- 1024KB Flash & 128KB RAM Memory
- Operates on 38.4MHz crystal
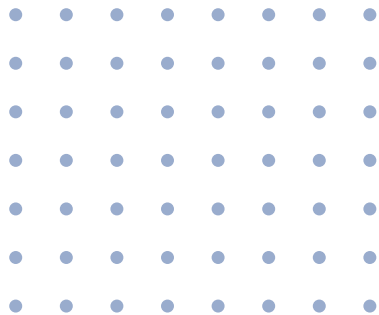
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