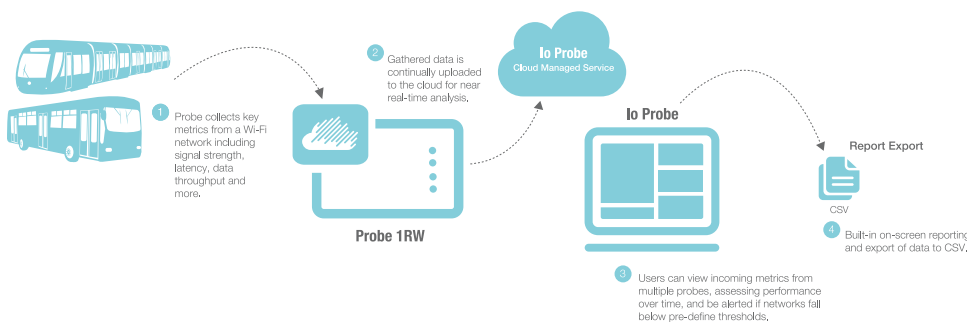




- ▶ Rugged IP66 enclosure
- ▶ Embedded PCIe modem
- ▶ 802.11 a/g/n/ac monitoring
- ▶ Dual band 2.4 GHz & 5 GHz
- ▶ 3x3 MIMO antennas¹
- ▶ Built-in 48-channel GPS
- ▶ 10/100 Ethernet M12
- ▶ 72V DC nominal input voltage
- ▶ Cloud management²
- ▶ E-Mark, FCC, CE compliance
- ▶ EN50155 for Rail applications

Introducing Probe 1RW for unattended network performance monitoring in mobile or static environments.

Probe 1RW from Nubolabs is a rugged, autonomous network monitoring device designed for the transportation environment. Probe provides always-on, unattended testing of Wi-Fi and wired network performance and quality, reporting directly into the Nubolabs cloud-based **Io Analytics** platform. Together they provide unparalleled visibility of network operational health, end-user experience, and tracking against KPIs.



Probe is a stand-alone unit that provides an autonomous alternative to the popular **Survey** app for Android, so that network monitoring can be carried out remotely with needing to do a truck roll to send someone on-site. Probe can be deployed on buses, trams, light rail, commuter trains, or public safety and delivery fleets to continuously monitor network quality and performance.

Probe is designed for permanent or semi-permanent installation in vehicles, or fixed environments that require a rugged IP66-rated hardware device. Probe continuously collects wireless and wired network metrics on a pre-defined schedule and sends it to your **Io Probe** account in the cloud, where you can view the detailed results in near-real time using a friendly graphical interface.

KEY FEATURES

- ▶ Provides 24/7/365 monitoring
- ▶ Rugged for harsh environments
- ▶ Rail-compliant hardware
- ▶ Powerful web-based reporting

KEY APPLICATIONS

- ▶ Public & Freight Transportation
- ▶ Emergency Vehicles
- ▶ Mining, Oil & Gas Installations
- ▶ IoT & LTE-U/LAA Deployments



¹ A range of Probe-compatible 3rd party antennas is available
² Requires a subscription to the **Io Probe** service

Nubolabs Probe 1RW

Technical Specifications



Processor

Freescale™ ARM Cortex A9 i.MX6

Wireless interface

2.4 GHz 802.11 b/g/n, 5 GHz 802.11 a/n/ac
Dual Band 3x3 MIMO up to 1.3 Gbps
Qualcomm-Atheros QCA9880 V2 chipset

Wireless output power

2.4 GHz 21 dBm max, 5 GHz max 20 dBm max per chain

Frequency range

2.412 - 2.472 GHz, 5.180 - 5.825 GHz

Modulation rates

OFDM: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM

RF connectors

23 x RP-SMA Male for Wi-Fi, 1 x SMA Female for GPS

Wired interface

Auto-sensing 10/100 Ethernet M12 (1 port)

GPS

NavStar L1C/A 48-channel receiver

USB interface

USB 2.0 M12 (1 port)

Indicators

Power, Wireless, Ethernet, GPS

Power supply

72 VDC nominal input voltage
0.22 A input current
Max 10 W consumption
50.4 - 137.5 VDC input range
EN 50155, reverse polarity protection

Temperature range

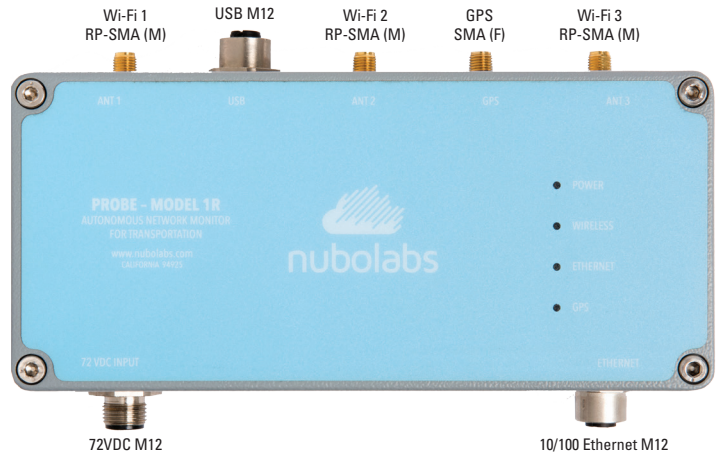
Operating: -25°C to +70°C Storage: -40°C to +80°C

Physical

IP66 rated against water, dirt & dust
6.9" x 4.5" x 2"
2.3 lbs (without optional mounting plate)
2.6 lbs (with optional mounting plate)

Standards certifications

Safety : EN45545-2 (HL3), NF F16-101 (I1F1) (Fire and Smoke) / EN60950-1
Radio : EN300-328 1.8.1 (2.4 GHz), EN301-893 1.7.1 (5 GHz, DFS)
EMC : EN50155 / EN50121-3.2, EN301-489-1, EN301-489-17
Environmental : EN61373, EN60068
FCC Part 15 Class A, IC, CE, RoHS



Wi-Fi Metrics

SSID
BSSID
Frequency
Bitrate
MCS Index
VHT MCS Index
VHT Spatial Streams
Channel Width
Guard Interval
Signal Strength
SNR

Network Quality Metrics

Latency
Packet Loss
Jitter

Throughput Metrics

Uplink Speed
Downlink Speed

User Experience Metrics

Success Status
Page Load Time
URL
Result Code
Screenshot

GPS Metrics

Fix Mode
Latitude
Longitude
Altitude
Speed
Track
Climb
Latitude Error
Longitude Error
Altitude Error
Speed Error
Climb Error
Available Satellites

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