Nemo Industry Probe

Industry 4.0 compliant 5G network active monitoring probe for harsh indoor environment

As the use of 5G technologies in automation grows strongly, private network providers must ensure network coverage, connectivity, and stability to maintain an ultra-reliable QoS in their 5G network and recognize network outages in real time.

Keysight´s Nemo Industry Probe is an Industry 4.0 compliant, autonomous field unit for unattended, remote-controlled measurements in harsh indoor environments. With Nemo Industry Probe, private network vendors and mobile network operators can perform continuous 24/7 remote monitoring of both private and public networks to secure network services in mission-critical locations, proactively detect network performance degradation issues, perform automated regression testing, and ensure Service Level Agreement (SLA) fulfillment.

KEYSIGHT

Need for 24/7 operational network availability?

5G wireless systems need to handle a variety of traffic types, including enhanced mobile broadband, massive machine communication, and low-latency, high-reliability applications. Various deployment options, stringent requirements, and spectrum security make implementing a 5G private network a complex task. The industry sector is moving rapidly towards using private networks to optimize its business operations, e.g., in production lines. This transition improves productivity and brings significant cost and resource savings.

24/7 cloud-based testing enables operators and network providers to secure a continuous quality of service while reducing costs. Keysight combines Nemo probes with Nemo Cloud and Nemo Analyze to provide an end-to-end solution to remotely monitor live networks and visualize key performance indicators in real time. High test frequency ensures constant visibility into the network quality of service and helps solve potential issues before those become visible to the end users.

A single user can monitor and control in real-time numerous fixed and mobile field units from a centralized location, enabling immediate response to alerts and errors. This allows focusing on the problem spots rather than on collecting information manually, enabling a completely automated data-processing chain from the field to an open workbook with analysis results.

Reliable and fully automated network measurement solutions

Nemo Industry Probes are installed in mission-critical locations e.g., in smart factories, and can be continuously monitored. Effective thermal control with a fan and active cooling element ensures that your 5G test devices do not overheat and remain functional during long-lasting test campaigns. The enclosure is IP65 rated, meaning it is fully dust-tight and protected against splashing, falling, or dripping water.

The deployed Nemo Industry Probe units can be upgraded with the latest Nemo measurement terminals ensuring flexible and future-proof autonomous testing of the latest technologies. Nemo Industry Probe supports all major technologies and the latest Android-based smartphones. Service measurements for data and voice are supported, including voice call and voice quality testing with POLQA v2 and v3, and social media testing with apps. The supported network and service testing capabilities are determined by the Nemo measurement terminals used with the Nemo Industry Probe.

Features

- Ruggedized enclosure (IP65 protection)
- 24/7 reliability
- Extensive network testing capabilities (the same as in Nemo Handy)
- Effective thermal control with fan and active cooling
  - Plastic enclosure with a lockable lid ensuring low attenuation, mounting options for wall, car, and table
- Dedicated connectivity to backend system (LAN, Wi-Fi)
- Backup battery (optional)
- Remote maintenance (OTA)
- GPS positioning (external antenna)

Use cases:

Smart factory

Nemo Industry Probes can be used in smart factories. The 5G connectivity allows flexible and adaptable production facilities, e.g., in the automotive industry.

Typical use cases that require 5G connectivity include:

- Managing robots and self-driving AGVs (Automated Guided Vehicles) in production lines
- Utilizing Augmented and Virtual Reality for visual verification in smart factories
- Utilizing numerous sensors to enable automated inventory control and supply chain management

These use cases require many wireless connections on the factory floor, ultra-reliable and stable coverage and connectivity, ultra-low latency, significant computational capabilities, and excellent data rates on both the downlink and the uplink. Applications that require high uplink data speeds and ultra-low latency are rare in the wireless consumer market, but these requirements are paramount in Industry 4.0 applications.

Access failure analytics

Use Nemo Industry Probes to identify access failures occurring in critical areas on the factory floor.

Regression testing

Deployment and maintenance of private networks rely on continuously made network updates. Often made software updates increase the risk for regression. On the other hand, manually made tests slow down the update operations. Automated testing is needed to be part of the regression testing process. Testing results must be post-processed and provided automatically per each update round.

Service Level Agreement (SLA) fulfillment

Nemo Industry Probe enables detecting network service outages and performance degradation issues before those impact critical operations. Use Nemo Industry Probe to monitor that the agreed service levels are met between the service provider and the client.