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olixLink™ C1 5G / WiFi6 RCU

Dual–SIM | Plug & Play| VPN – Integrated | IP66 | ROS | Gigabit POE+ LAN

::: ROS

Dual–SIM Card Slot

Gigabit POE Ethernet

5G & WiFi6 Access

VPN Access via ZeroTier™

Technical Document No. 1772701025 | SKU# OLVX-C1-5GW6-ETH-POE | Revision V1.0 – MAR 2026

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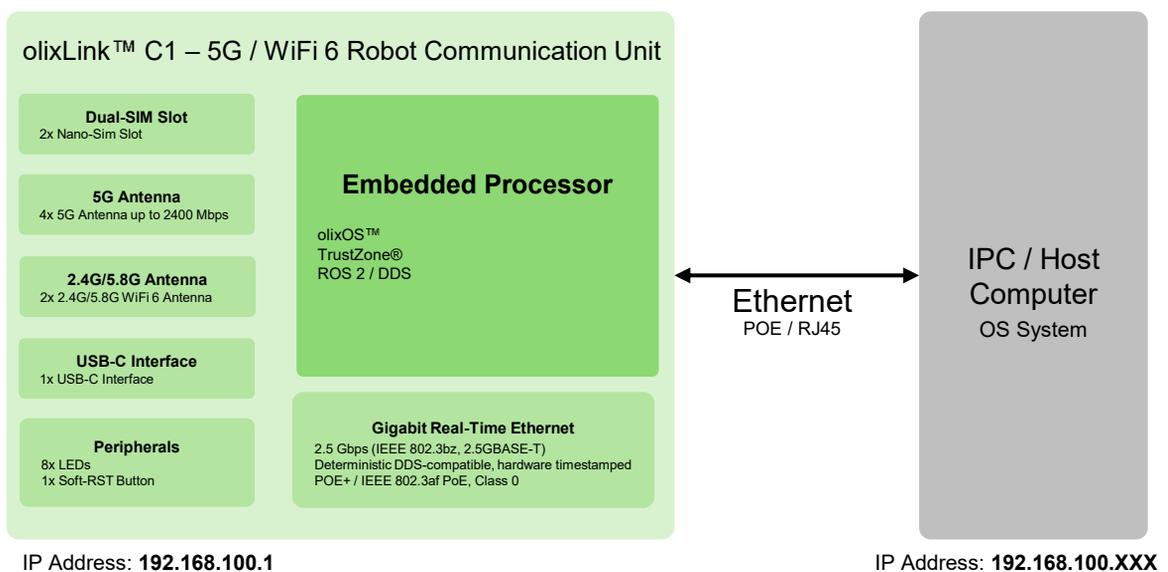contact@olive-robotics.com

1. Product Overview

Outdoor ready 5G router, armed with a six-antenna array for wide-range, full-coverage, gives your robot an encrypted VPN link for real-time control and support from anywhere. OlixLink™ C1 ensures your robot never loses connection, whether in a lab, factory, or outdoors. With global 5G NR SA/NSA support and dual SIM slots, it automatically switches networks to keep the link alive. Add WiFi 6 dual-band performance, and you've got seamless coverage for both research and industrial environments.

2. Key Features

- **Worldwide Access**: Secure 5G VPN enables worldwide, low-latency remote robot access
- **Teleoperation**: Real-time teleoperation supports remote control, diagnostics and updates
- **Easy Setup**: Zero-effort setup comes preconfigured, power on and start
- **Security**: Highly secure end-to-end encryption protects your robots and data
- **Connectivity**: Flexible dual-SIM 5G connectivity automatically selects the strongest carrier
- **Durability**: IP-rated hardware with high-gain antennas delivers robust 5G up to 2400 Mbps
- **ROS 2 Monitoring**: C1 provides a real-time status and diagnostics via a native ROS 2 node

3. System Architecture

olixLink™ C1 – 5G / WiFi 6 Robot Communication Unit

Dual-SIM Slot
2x Nano-Sim Slot

5G Antenna
4x 5G Antenna up to 2400 Mbps

2.4G/5.8G Antenna
2x 2.4G/5.8G WiFi 6 Antenna

USB-C Interface
1x USB-C Interface

Peripherals
8x LEDs
1x Soft-RST Button

Embedded Processor

olixOS™
TrustZone®
ROS 2 / DDS

Gigabit Real-Time Ethernet
2.5 Gbps (IEEE 802.3bz, 2.5GBASE-T)
Deterministic DDS-compatible, hardware timestamped
POE+ / IEEE 802.3af PoE, Class 0

Ethernet
POE / RJ45

IPC / Host Computer
OS System

IP Address: **192.168.100.1**   IP Address: **192.168.100.XXX**

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4. Applications

• Mobile Robots (AMR, AGV, UAV)
• Field & Outdoor Robotics
• Industrial Automation & Smart Factories
• Remote Support & Telemaintenance
• Research & Prototyping Platforms
• Infrastructure & Security Robotics

5. Specifications

- Physical and Electrical

Parameter	Value
Weight	760g
Size	135.0 mm x 140.0 mm x 45.0 mm
Power Consumption	Max. 30W
Operating Voltage	48V/0.6A (POE+ Standard)
Operating Temperature	-10°C to 85°C
Interface LEDs	8x (Power, SIM-Card, RF, System, WiFi)

- WiFi

Version	WiFi 6
WiFi Dual-Band	2.4G and 5.8G connectivity
Speed	Up to 2400 Mbps (5.8 G) and 600 Mbps (2.4G)
Compatibility	IEEE 802.11b/g/n/AC/AX
Encryption	WPA2/WPA3

- Communication Interface / ODR

Interface Connector	Ethernet RJ45 / LAN
Communications Protocol	2.5 Gbps (IEEE 802.3bz, 2.5GBASE-T)
Middleware / Protocols (DDS)	- rmw_fastrtps_cpp - rmw_cyclonedds_cpp
ROS 2 Distribution	- Humble

- ROS 2 Native Messages

Topic / Service Name	Type	Description
/status	diagnostic_msgs/msg/DiagnosticArray	OlixLink™ C1 Status

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- **Router Interface / Peripherals**

5G antennas

2.4/5.8G WiFi 6 antenna

2.4/5.8G WiFi 6 antenna

Status LEDs

Dual Sim-Card slots

USB-C

Factory Reset Button

RJ45 (LAN) Connector (POE+)

- **Physical Dimensions**

140mm

130mm

32mm

42mm

174mm

178mm
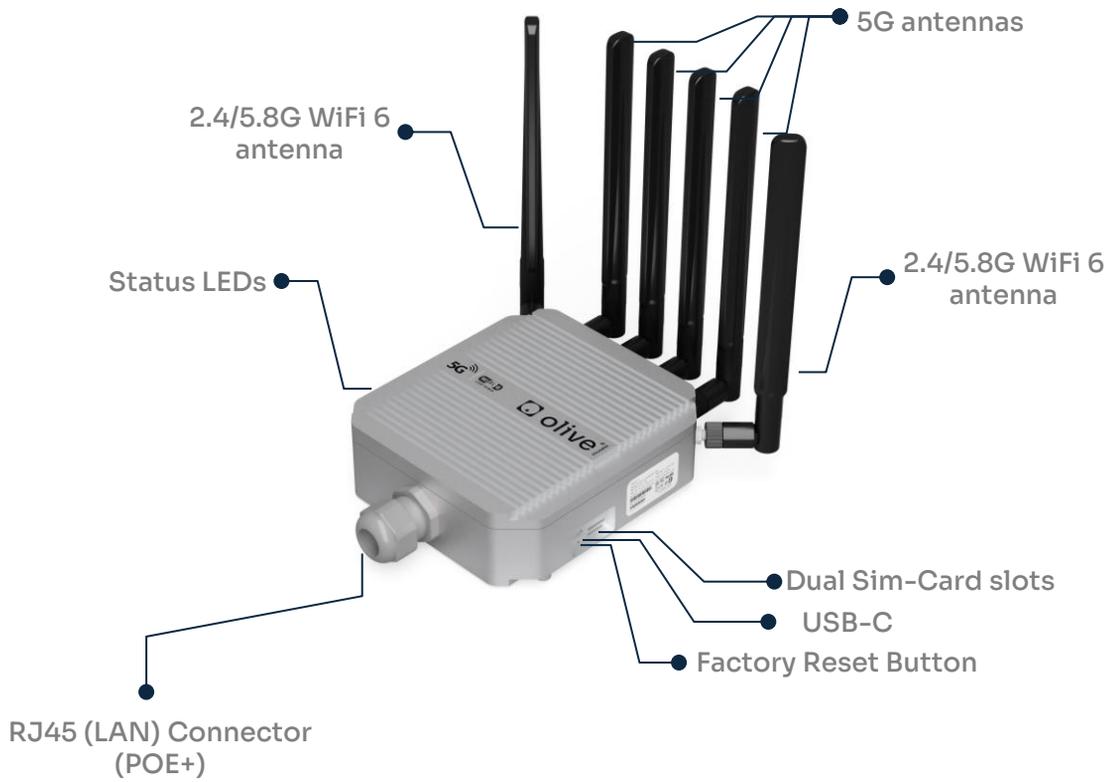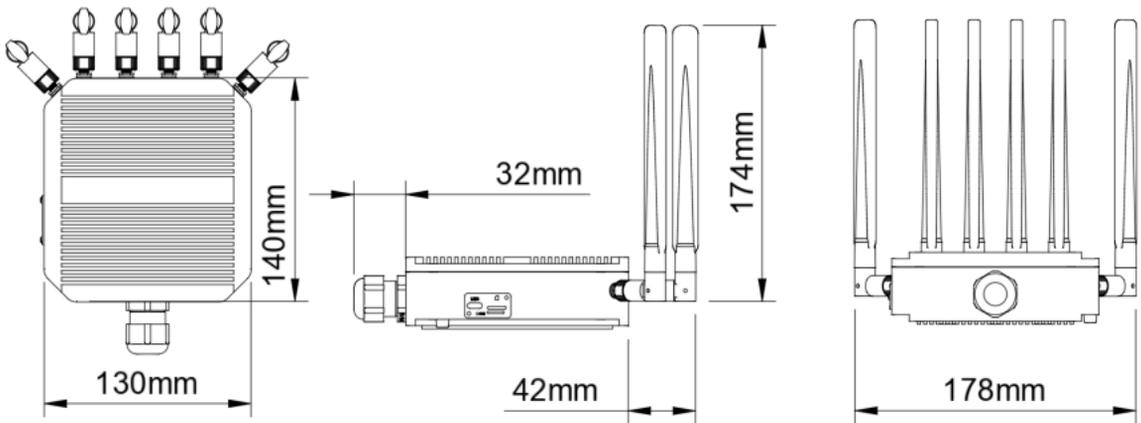
- **Connector Specification**

36,9

36,9

24

L

24

14,2

14,2

RJ45 connector (shape of cable bushing may vary)

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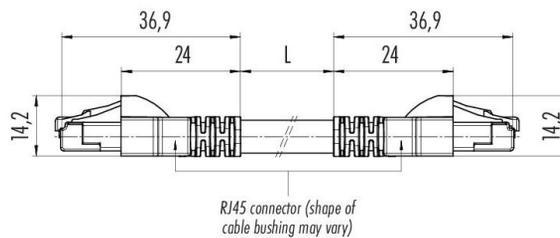
– Mechanical Installation Overview
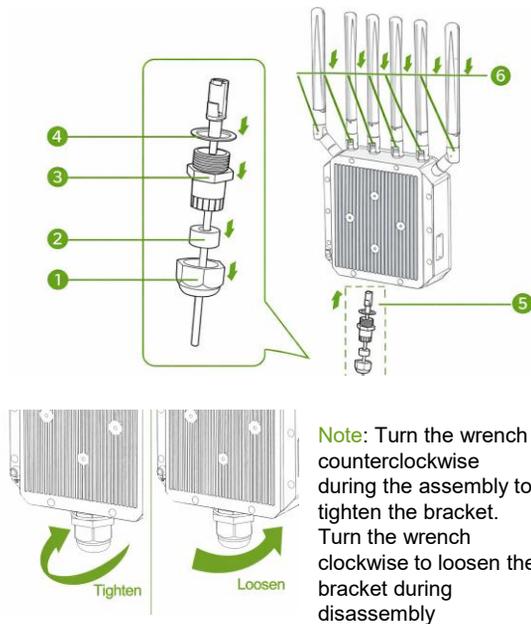
1. Pass the RJ45 cable through the waterproof connector cover.

2. Screw the waterproof seal into the waterproof connector cover.

3. Pass the RJ45 cable through the waterproof connector bracket and screw the waterproof connector bracket into the cover.

4. Put the waterproof sealing ring on the waterproof connector bracket.

5. Connect the RJ45 cable to WAN/LAN port

6. Screw the antennas into the 2.4G/5.8G and 5G antenna connector.

Note: Turn the wrench counterclockwise during the assembly to tighten the bracket. Turn the wrench clockwise to loosen the bracket during disassembly

⚠ **Waterproof Mounting Requirement**

The Router must be installed exactly as specified to maintain the IP66 waterproof rating. Improper installation, including incorrect sealing or mounting, will compromise the enclosure and invalidate the IP66 protection. Failure to comply may result in water ingress and permanent damage to the Router.

– Mounting Instructions
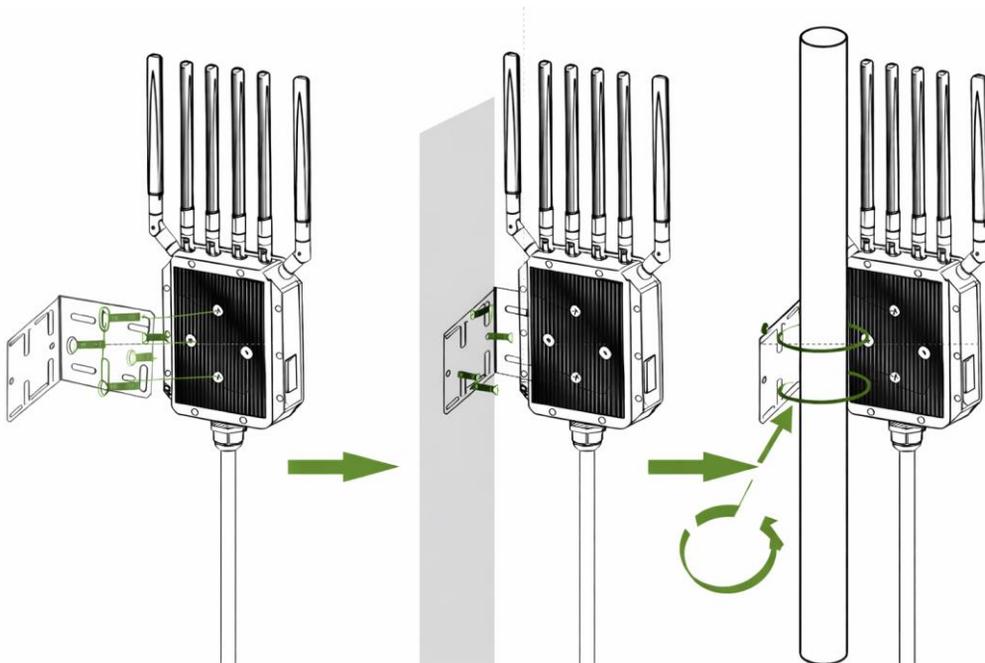
1. Mount the bracket onto the router

2.1. Secure the bracket by screwing it to a mounting surface

2.2. **Or** by using the included hose clamps to fasten it around a pipe
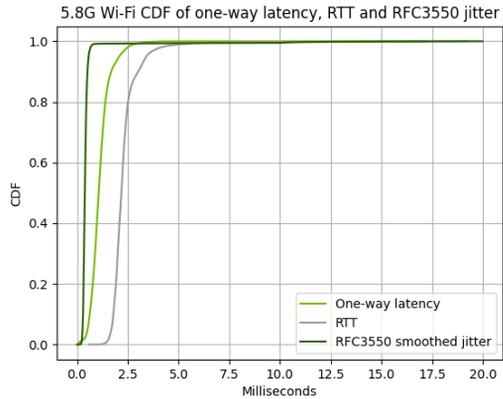
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- Performance Tests

Network latency and jitter characterization was performed using a IMU data stream at 100 Hz over 10 minutes per Wi-Fi (2.4Ghz and 5.8Ghz) and 5G over the Network (Connection via ZeroTier). IMU messages were acquired on Computer A (wired Ethernet) and transmitted via UDP through Router C1 to Computer B (wireless). Both systems were synchronized using NTP. Each IMU packet carried a sender timestamp, allowing measurement of one-way latency, round trip time, and RFC3550-style smoothed jitter. Round-trip time (RTT) was measured using application-level acknowledgments. The test reflects steady-state network performance under realistic operating conditions.

Additionally, a reference latency test was performed over 5G connection to the external Google DNS server (dns.google.com, IP 8.8.8.8)

- 2.4G WiFi
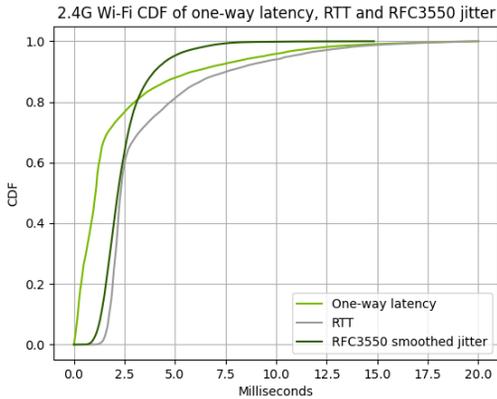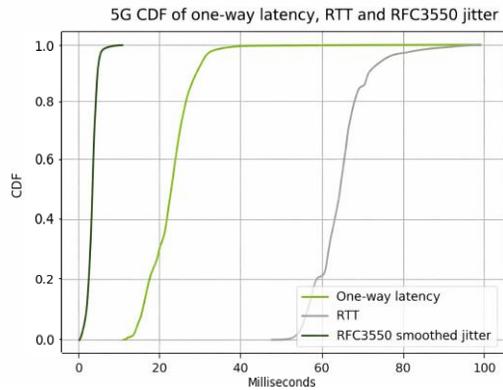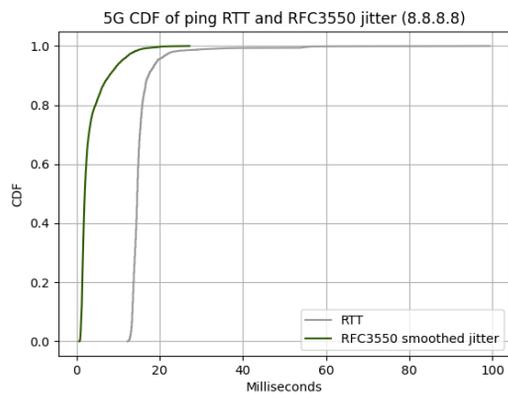
2.4G Wi-Fi CDF of one-way latency, RTT and RFC3550 jitter

- 5.8G WiFi

5.8G Wi-Fi CDF of one-way latency, RTT and RFC3550 jitter

- 5G over ZeroTier

5G CDF of one-way latency, RTT and RFC3550 jitter

- 5G Google DNS Server

5G CDF of ping RTT and RFC3550 jitter (8.8.8.8)

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