

LYNKED

Mesh RF Gateway



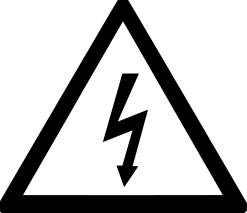
CG-400
Technical Manual

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1

SAFETY INFORMATION

 DANGER	 WARNING AVERTISSEMENT	 CAUTION ATTENTION
 Keep all devices and connected wiring away from moisture, liquids, and wet environments. Tenez tous les appareils et le câblage connecté à l'écart de l'humidité, des liquides et des environnements humides.	Installation, adjustment, and servicing of the unit are best performed by qualified electrical maintenance personnel. Disconnect all power sources before maintenance or adjustment of the unit. L'installation, le réglage et l'entretien doivent être effectués uniquement par du personnel électrique qualifié. Débranchez toutes les sources d'alimentation avant l'installation ou le réglage de l'appareil.	Use only the accessories and attachments included with the unit. Do not use third-party or uncertified adapters. Unauthorized repair, modification, alteration, or operation outside the described steps are strictly prohibited and will void any applicable warranties and service agreements. Utilisez uniquement les accessoires et les fixations fournis avec l'appareil. N'utilisez pas d'adaptateurs tiers ou non certifiés. Toute réparation, modification, altération ou utilisation non conforme aux étapes décrites peut annuler les garanties et les ententes de service.

2 PRODUCT OVERVIEW

2.1 Front-Access Cover

Open the front-access cover to expose the I/O connections.

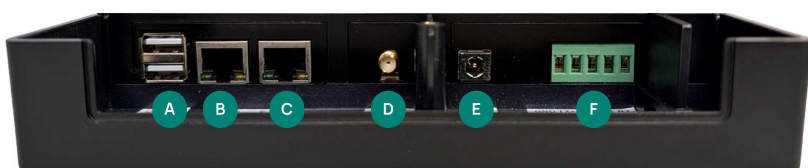


Figure 1. CG-400 I/O Connections

2.2 Connector & Port Descriptions

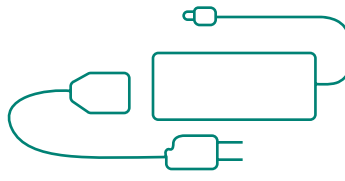
Refer to **Figure 1** to locate and identify the ports described below.

A	Debug	This USB connector is used for debug communication and add-on devices.
B	ETH2	The secondary Ethernet port for connecting to an additional network.
C	ETH1	The primary Ethernet port. If only one Ethernet cable is used, connect it to this port.
D	Antenna Connector	The threaded connector for the external antenna
E	DC	24 VDC power input
F	RS-485	The 5-pin connector supports both half-duplex and full-duplex communication. For half-duplex communication, use the pins labeled TX+ (D+) and TX- (D-). For full-duplex communication, connect TX+ , TX- , RX+ , RX- . Connect GND (ground) if applicable.

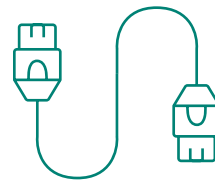
2.3 What's in the Box



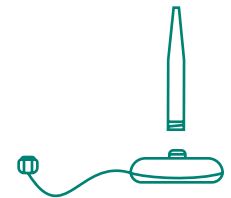
1 x LYNKED
Mesh RF Gateway (CG-400)



1 x DC Power Supply



1 x Ethernet Cable



1 x External antenna
with magnetic base

3 INSTALLATION

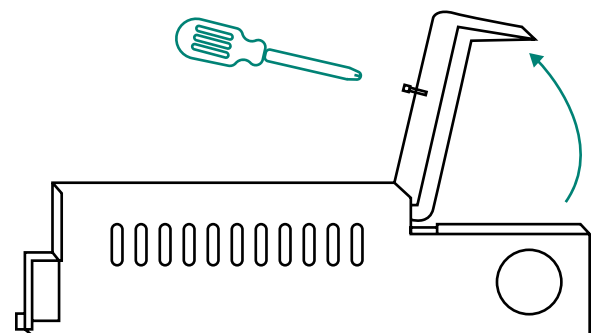
1 Check Package Contents

Open the box and verify that all items listed in **Section 2.3** are present. If any items are missing or damaged, contact LYNKED Support immediately.



2 Open Front-Access Cover

In preparation for installation and wiring, loosen the screw on the CG-400 front-access cover, then tilt the cover back to expose the I/O connections.



3 Select Installation Location

Choose a location that can withstand the specified operating temperature (see **CG-400 Technical Specifications**). Allow adequate clearance for ventilation and cable routing. Install the CG-400 in a safe location, such as a locked electrical, mechanical, or communications room or closet. Avoid unsecured areas such as hallways, stairwells, or shared amenity spaces.

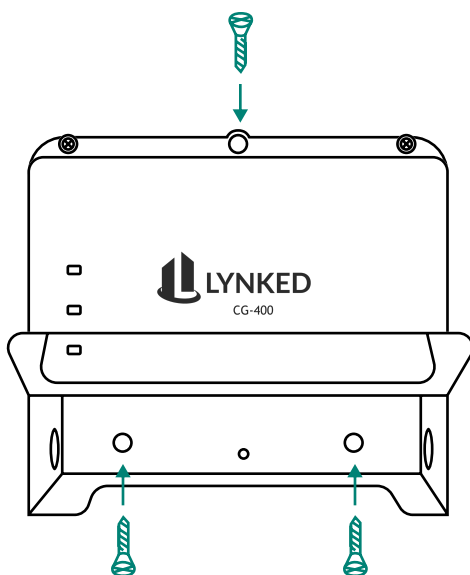
For Outdoor Installations:



Outdoor installation of the CG-400 is not recommended for general use. However, it may be performed in specific cases where the gateway is appropriately protected. If installed outdoors, use a NEMA-rated enclosure suitable for the local climate and environmental conditions. For information on NEMA enclosure ratings, refer to the [NEMA Rating Guide](#).

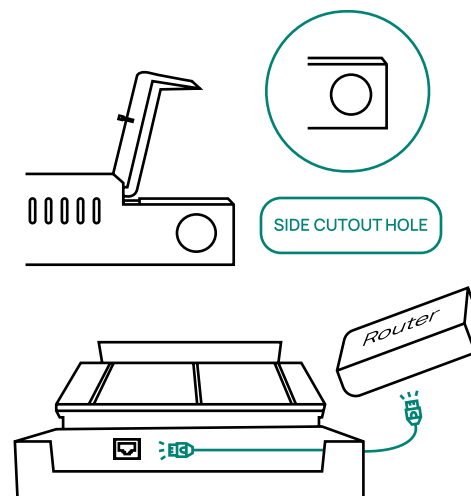
4 Optional Mount the CG-400

If mounting the CG-400 is required for your installation, secure it to a suitable mounting surface using three appropriate screws depending on the surface material.



5 Connect the Ethernet Cable

Connect the Ethernet cable from the router or switch to the primary Ethernet port (**ETH1**) through the side cutout near the antenna connector. If required, connect a second cable to the secondary Ethernet port (**ETH2**) through the nearest cutout near the USB ports.

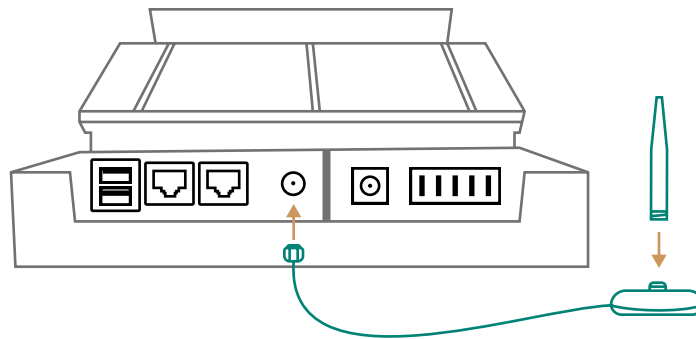


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Connect the Antenna

Route the antenna cable through the side cutout hole before connecting it to the SMA connector. Verify that the connector is tightened all the way. Mount the magnetic base of the antenna to a metal surface, such as an electrical enclosure panel or a filing cabinet, to boost the signal. Place the antenna at least 7 inches from any edge, seam, or gap in the metal. Ensure that there is 7 inches of solid metal on all sides of the base.

To achieve optimal RF coverage in the horizontal direction, the antenna should be oriented vertically (perpendicular to the ground). For optimal RF coverage in the vertical direction, the antenna should be oriented horizontally (parallel to the ground).



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Optional

Connect the RS-485 Wiring

If RS-485 communication is required, see **Section 2.2** for wiring information. Route the wires through the side cutout hole.

For RS-485 Non-Approved Devices:

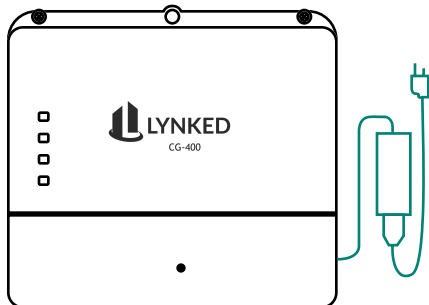


Do not connect non-approved devices to the RS-485 port without contacting LYNKED Inc. to verify compatibility and obtain any required licensing.

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Connect the Power Supply

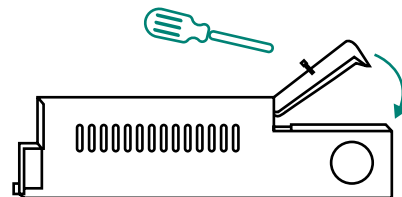
Route the power supply connector through the side cutout hole, then connect it to the CG-400.



9

Close the Front-Access Cover

Ensure all wiring is securely connected before closing the cover to avoid having to unscrew and reopen it. Close the cover and tighten the top screw.

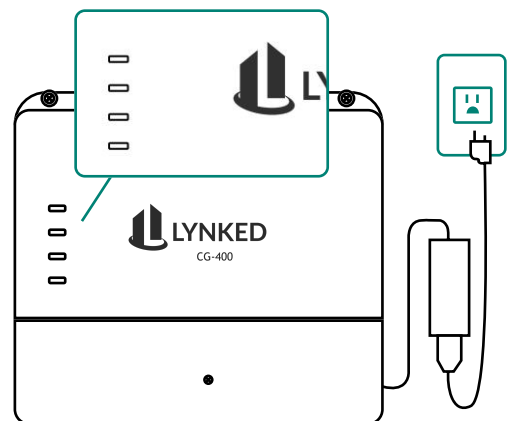


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Turn On the Unit

Ensure the power supply is plugged into a 120 VAC outlet. The CG-400 will power on, light up automatically and will take ~2 minutes to complete boot-up.

See **Section 5** for a full description of LED indicators and basic troubleshooting.



4

WIRELESS COMMUNICATION OVERVIEW

Mesh Topology

Nodes, repeaters, or end devices on the network can communicate directly to the CG-400. Data can also be relayed through these intermediary devices to get to the gateway.

Self-Healing

If a node, repeater, or end device drops out of the network, traffic will be automatically rerouted using the neighboring Mesh RF devices as a communication path instead.

Coverage via Mesh RF

LYNKED Mesh RF achieves extended coverage over large areas through its mesh network topology. Each device functions as a repeater, so range is extended as devices retransmit signals to one another rather than requiring a single device to reach the destination directly. This allows coverage to scale with the number of devices in the mesh, rather than being limited to the range of an individual RF device.



NEED HELP? For technical support, contact support@lynked.io or visit www.lynked.io



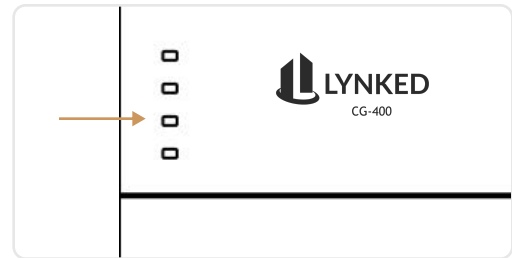
5 POWER & LED INDICATORS

5.1 Power-Up Sequence

Ensure all wiring is properly connected and that the power supply is connected to the CG-400, before applying power.

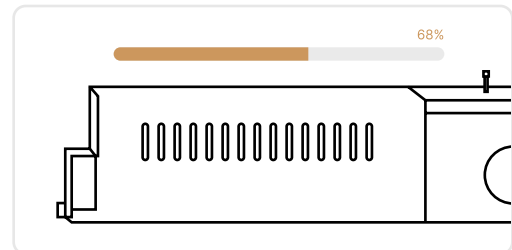
1 Power Indicator

 White Solid LED



2 Boot-Up

 ~ 2 minutes



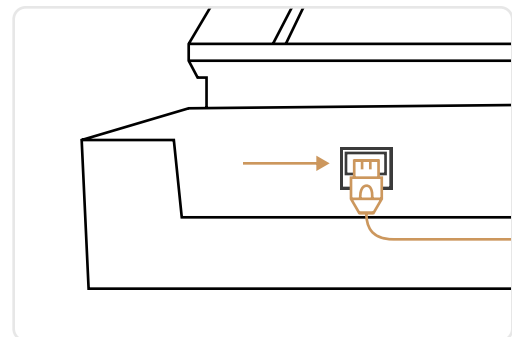
3 RJ-45 Indicator



Amber Solid LED
Physically Connected



Green Blinking LED
Network Activity



5.2 Basic Troubleshooting

Power LED is OFF

- ✓ Confirm power supply is securely plugged into CG-400 and outlet.
- ✓ Confirm the outlet is live or connect to a known-working outlet.
- ✓ Inspect power supply for damage.

No Ethernet Activity

- ✓ Check that the Ethernet cable is securely plugged in at both ends.
- ✓ Confirm the router or switch port is active.
- ✓ Check that the router is configured to assign IP addresses using DHCP.
- ✓ Try a different Ethernet cable or port.

No Mesh RF Activity

Mesh RF connections can take over 15 minutes to establish (scanning, authentication, routing). Wait at least 15 minutes before troubleshooting further.

- ✓ Confirm Mesh RF nodes, repeaters, and end devices are powered on.
- ✓ If distance is degrading the signal, add a repeater device, such as the LYNKED CN-40, CN-41, or CM-MRFA.
- ✓ Check for metal or thick concrete (especially rebar) blocking the signal path. Relocate the device or antenna to avoid the obstruction.
- ✓ Mount the external antenna's magnetic base on a metal surface, such as an enclosure or filing cabinet, to boost signal.
- ✓ Reorient the antenna to improve directional signal strength (see **Section 3, Step 6**).
- ✓ Confirm the target device's MAC address is on the CG-400's authorized device list.
- ✓ Ensure the antenna is fastened tightly.

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REGULATORY INFORMATION

Compliance

EMC:	CAN ICES-003(B) / NMB-003(B) FCC Part 15B Class B
Safety:	CSA C22.2 No. 62368-1, UL 62368-1 UL 62368-1
Radio Frequency (RF):	RSS-Gen, RSS-102, RSS-247 FCC Part 2 (§2.1091), 15C (§15.247)

Certifications

Contains IC:	8979A-WSN27915
Contains FCC ID:	UU3FC-3902-915
MET Listed:	



ISED Compliance Statements

CAN ICES-003(B)

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

This radio transmitter 8979A-WSN27915 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Allowed Antennas:

Frequency (MHz)	Antenna Type	Maximum Gain (dBi)	Impedance (Ω)
902-928	Monopole (Detachable)	5	75

This equipment complies with ISED radiation exposure limits for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm (8 inches) between the radiator and the user's body.

CAN NMB-003(B)

Cet appareil contient un ou plusieurs émetteurs/ récepteurs sans licence conformes aux normes RSS exemptes de licence d'Innovation, Sciences et Développement économique Canada. Son fonctionnement est soumis aux deux conditions suivantes : (1) Cet appareil ne doit pas causer d'interférences, et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant entraîner un fonctionnement indésirable.

Le présent émetteur radio 8979A-WSN27915 a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

Antennes autorisées:

Fréquence (MHz)	Type d'antenne	Gain maximal (dBi)	Impédance (Ω)
902-928	Monopôle (détachable)	5	75

Cet appareil est conforme aux limites d'exposition aux rayonnements d'ISED pour un environnement non contrôlé. Il doit être installé et utilisé à une distance minimale de 20 cm (8 pouces) entre l'émetteur et le corps de l'utilisateur.

UL & CSA Compliance Statements

This product is designed and manufactured to meet the safety requirements of UL 62368-1 and CSA C22.2 No. 62368-1 for Audio/Video, Information and Communication Technology Equipment. Use only the provided power supply and do not operate this equipment near water. This equipment is intended for indoor use only. Follow all instructions in this manual to ensure safe operation.

Ce produit est conçu et fabriqué conformément aux exigences de sécurité des normes UL 62368-1 et CSA C22.2 No. 62368-1 pour les équipements audio/vidéo, les équipements de technologie de l'information et de communication. Utilisez uniquement l'alimentation fournie et ne faites pas fonctionner cet équipement à proximité de l'eau. Cet équipement est destiné uniquement à un usage intérieur. Suivez toutes les instructions de ce manuel pour assurer une utilisation en toute sécurité.

FCC Compliance Statements

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by LYNKED Inc. could void the user's authority to operate this equipment.

This device contains transmitter module FCC ID: **UU3FC-3902-915**.

This transmitter has been evaluated for use with a detachable monopole antenna with a maximum gain of 5 dBi. The use of any antenna not included in this list, or having a gain greater than 5 dBi, is strictly prohibited and may violate Federal Communications Commission rules.

This equipment complies with FCC radiation exposure limits for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm (8 inches) between the radiator and the user's body.

Tampering Prohibited

Unauthorized tampering, modification, or alteration of this device is strictly prohibited. Any such actions may compromise the performance, safety, or regulatory compliance of the device and may void applicable warranties, service agreements, and the user's authority to operate the equipment.