

EXTERIOR CONTROLUX AIR IoT GATEWAY

EXTERIOR LIGHTING CONTROLS

OVERVIEW

The Controlux Air IoT Gateway is a state-of-the-art network interface device which synchronizes Controlux Air outdoor lighting controllers and the street lighting management software (Controlux Air CityManager or similar third-party software).

The IoT Gateway has an in-built radio module for wireless network configuration, commissioning, and maintenance. It can reliably communicate with a large number of devices spread across large distances. In-built smart monitoring tools notify users about the status of the lamps and the network (via CityManager or other software).

Several Internet connectivity options offer robustness and flexibility to the end-customer. Furthermore, it supports industry-standard protocols allowing for an easy integration with other systems and networks.

The Gateway encloses advanced industrial components for optimized performance worldwide.



EXTERIOR LIGHTING CONTROLS

specifications

product

- In-built power supply, 2.4 GHz wireless network communication, server communication (SIM-card, Ethernet, Wi-Fi). SIM-card provided by Twilight with global coverage, or by customer (requires 1GB monthly data subscription)

input voltage

- Universal 100 – 240 VAC, 50/60 Hz.

power consumption

- <8W (average)

processor

- High-performance industrial grade ARM Cortex-A9 CPU, 1 GHz

data storage

- Micro SD-card/On-board NAND flash

electrical protection

- Class II: overload, short-circuit and over-temperature protection

electrical safety

- Galvanic isolation between high-voltage and low-voltage terminals

operating conditions

- -20°C to +60°C operating; -40°C to +85°C Storage; 20% to 90%, Rh non-condensing

antenna

- Integrated internally for 2.4 GHz wireless, Wi-Fi and GSM

connectors

- 1x Ethernet port (10/100, RJ45)
- 1x Micro-SD memory card slot (max. 32 GB)
- 1x Push insert Standard SIM-card bay (25mm x 15mm)
- 2x UfL Antenna connector (2.4 GHz wireless, WiFi)
- 1x SMA-F Antenna connector (2G/ 3G modem)

product mounting options

- Pole or wall mounting. Please observe installation manual and Controlux Air installation guidelines with respect to radio connectivity.

housing

- IP65, UL94V0

dimension

- 230mm x 130mm x 90mm

manufacturing

- ISO 9001: 2008, Made in Europe

compliance

- CE, CB, EN61547, EN55015, EN60950-1, EN 301 489-1/17, EN 300 328, RoHS. RF transceiver compliant with US (FCC), Canadian (IC), European (ETSI), and Japanese (Telec) standards.

internet communication

server communication

- Cat 4 (150 Mbit/s DL, 50 Mbit/s UL)
- 3GPP Release 9
- FDD Bands
- 1, 3, 5, 7, 8, 20
- UMTS/DC-HSPA+
- 850/900/1900/2100
- GSM
- 850/900/1800/1900
- GPRS & EDGE Class 12

network security

- Additional Ports: Ethernet and WiFi
- 128 bit AES encryption between devices and IoT Gateway
- Certificate-based secure WebSocket and VPN
- connection between Gateway and Server

functions

- Real-time monitoring of devices and network
- Several Internet connectivity option using Ethernet, WiFi and GSM.
- SNTP time-sync between IoT Gateway and devices
- Regular logging of the system operation (selectable time interval) Real-time connection between Gateway and DigiHub
- Remote debugging of IoT Gateway and devices
- Over-the-air update for IoT Gateway and devices (software and firmware)

remote monitoring

- CityManager (or third-party software) enables remote management, monitoring, control, and configuration of lamps on individual and group level.

wireless communication

wireless network

- 2.4GHz IEEE 802.15.4 self-healing and self-forming wireless network Depending on variant: +9.5dBm max. transmit power, -96dBm receiver sensitivity, up to 150 meter open field range or + 22dBm transmit power, -100dBm max. receiver sensitivity, up to 1km open field range Up to 250kbps microcontroller RF data rate

device to gateway ratio

- 200:1

product compatibility

- Plug-and-play compatibility with Controlux Air family, CitySense and CityManager

application

- Outdoor street lighting. Area lighting



TVILIGHT



English

Gateway^{3.1}

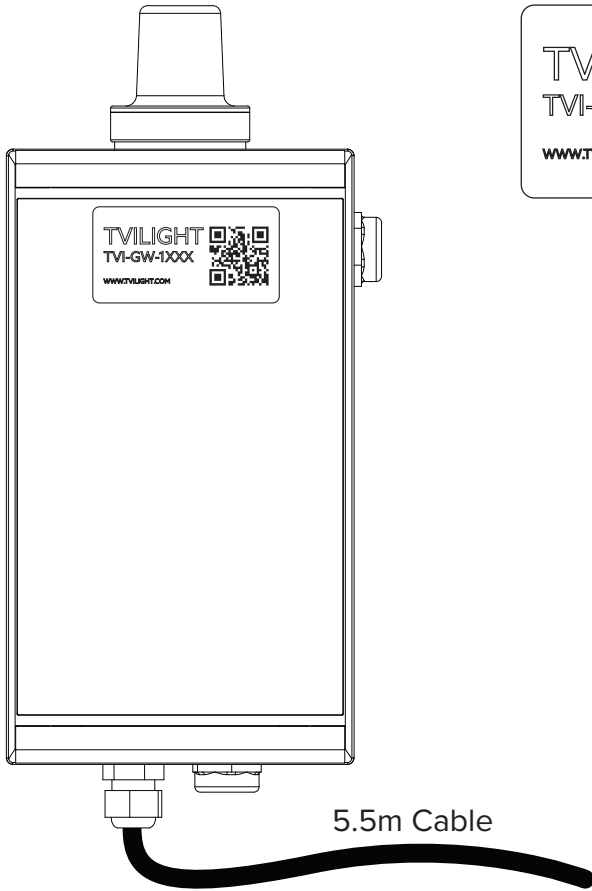
Installation Manual



TVILIGHT PROJECTS BV / Beechavenue 162-180, 1119 PS, Schiphol-Rijk, the Netherlands
info@tvilight.com / www.tvilight.com

In box:

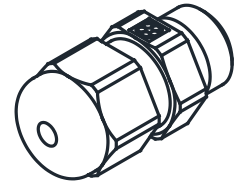
Gateway v3.1



Pole ID Label

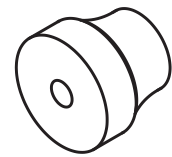


M16 Cable Gland



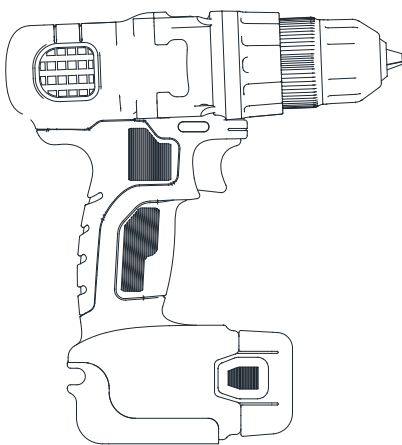
OR

20 mm Rubber Grommet



You'll need:

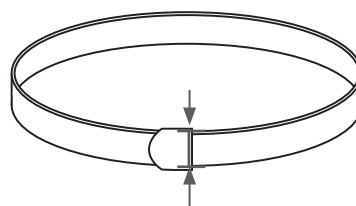
Drill



M16 Threaded
OR
20 mm



Generic Strap x 2



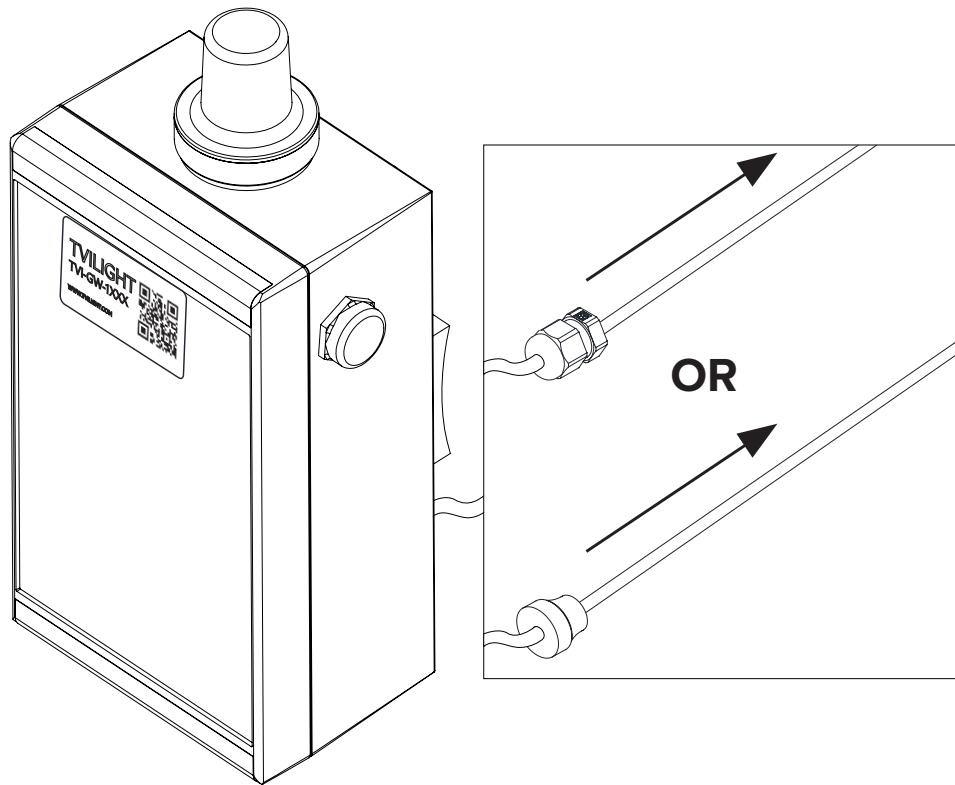
Max = 13mm
Min = 8mm

Scan&Go App



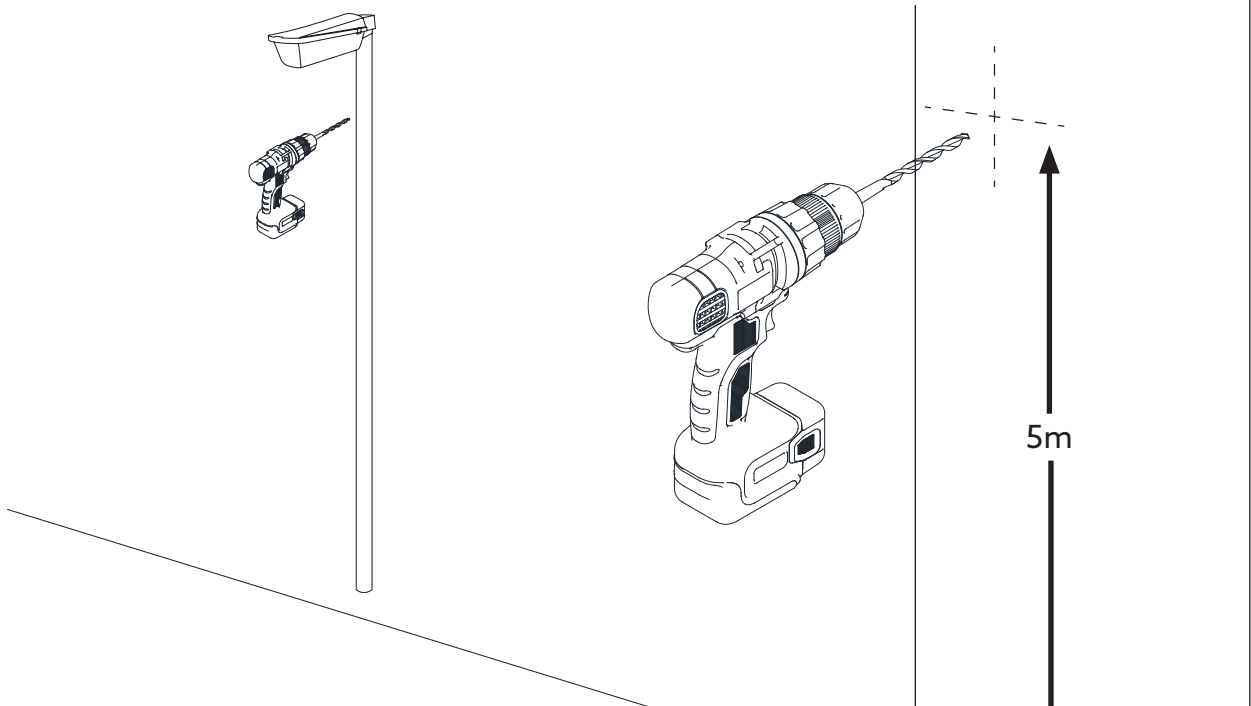
Available in the
Apple App Store
and in the
Google Play Store

1. Run wire through Cable Gland/Grommet

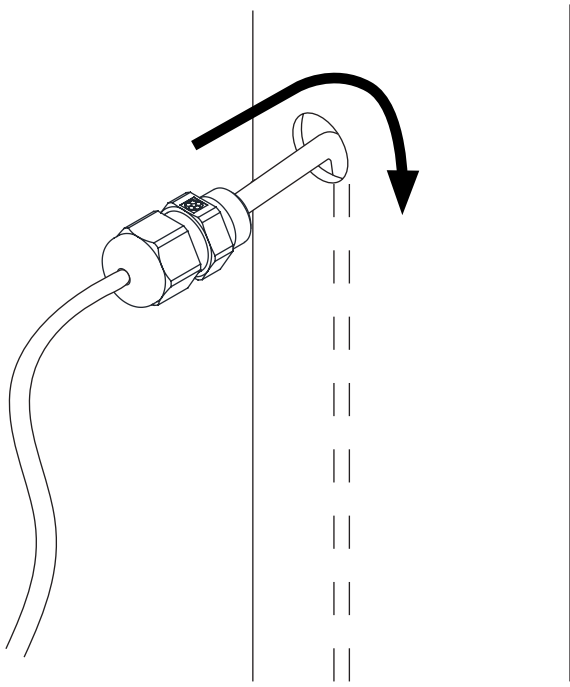


2. Drill hole into the pole: - M16 threaded (Cable Gland) OR - 20 mm (Grommet)

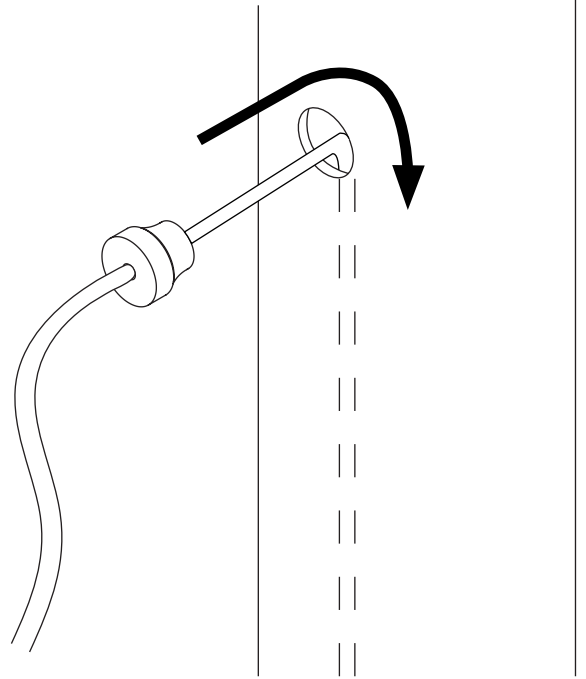
Note: For added protection against rust, the use of an anti-corrosion spray such as WD40 Corrosion inhibitor or equal is recommended.



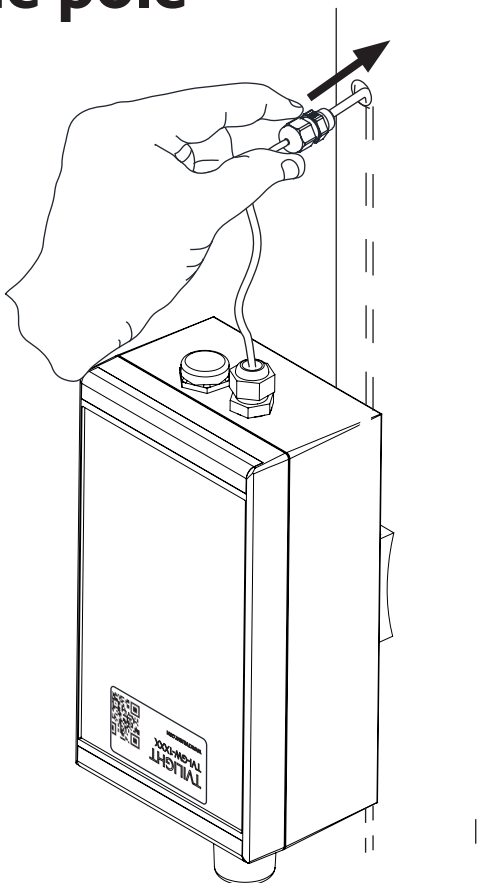
3. Run wire through hole in the pole



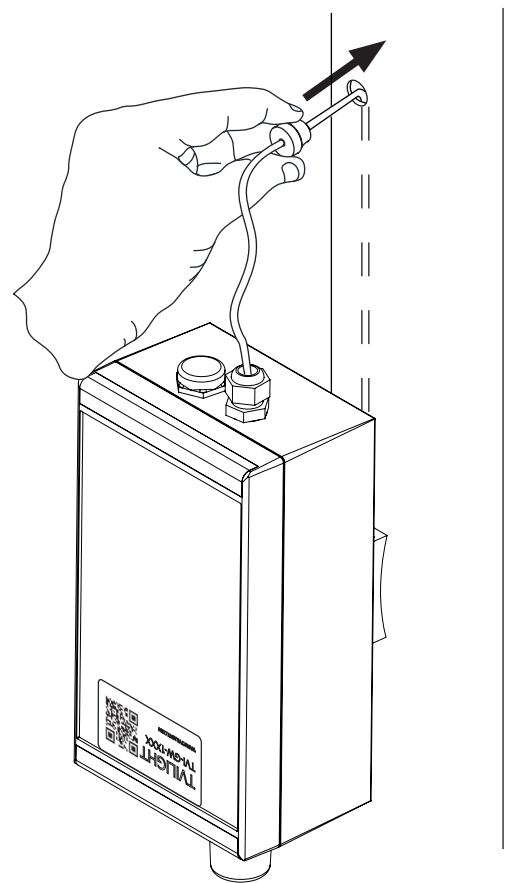
OR



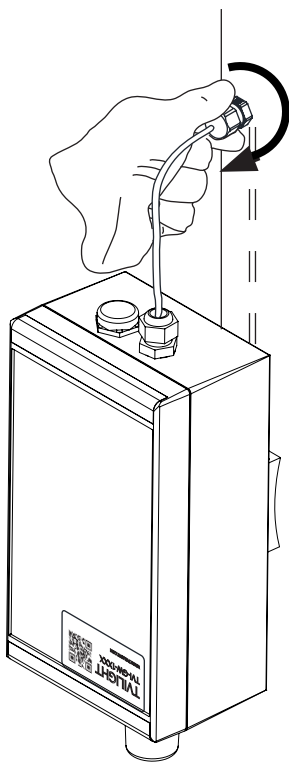
4. Insert Cable Gland/Grommet into hole in the pole



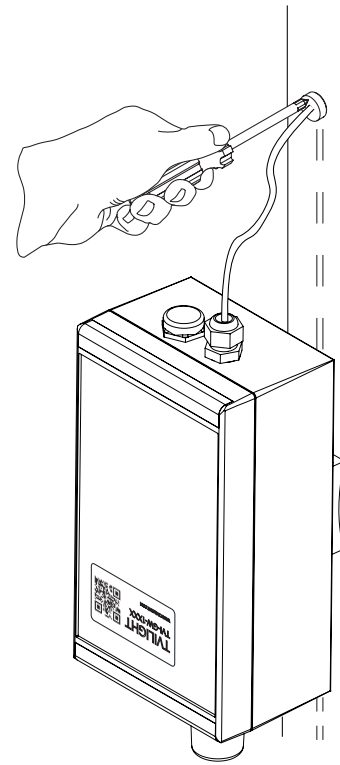
OR



5. Screw Cable Gland OR press Grommet into the pole

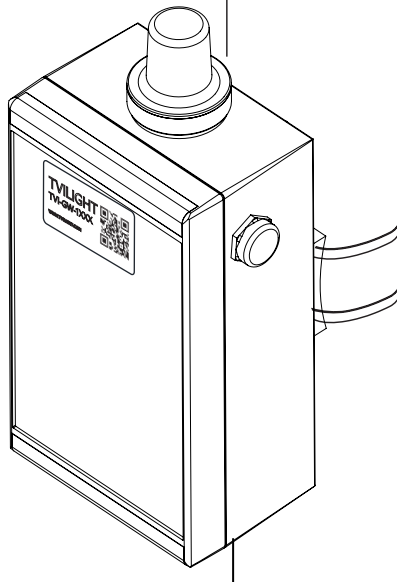


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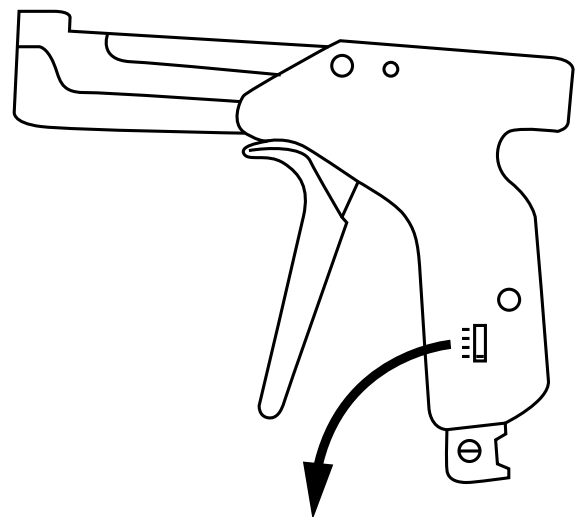


6. Strap product to the pole

↑
THIS
SIDE
UP



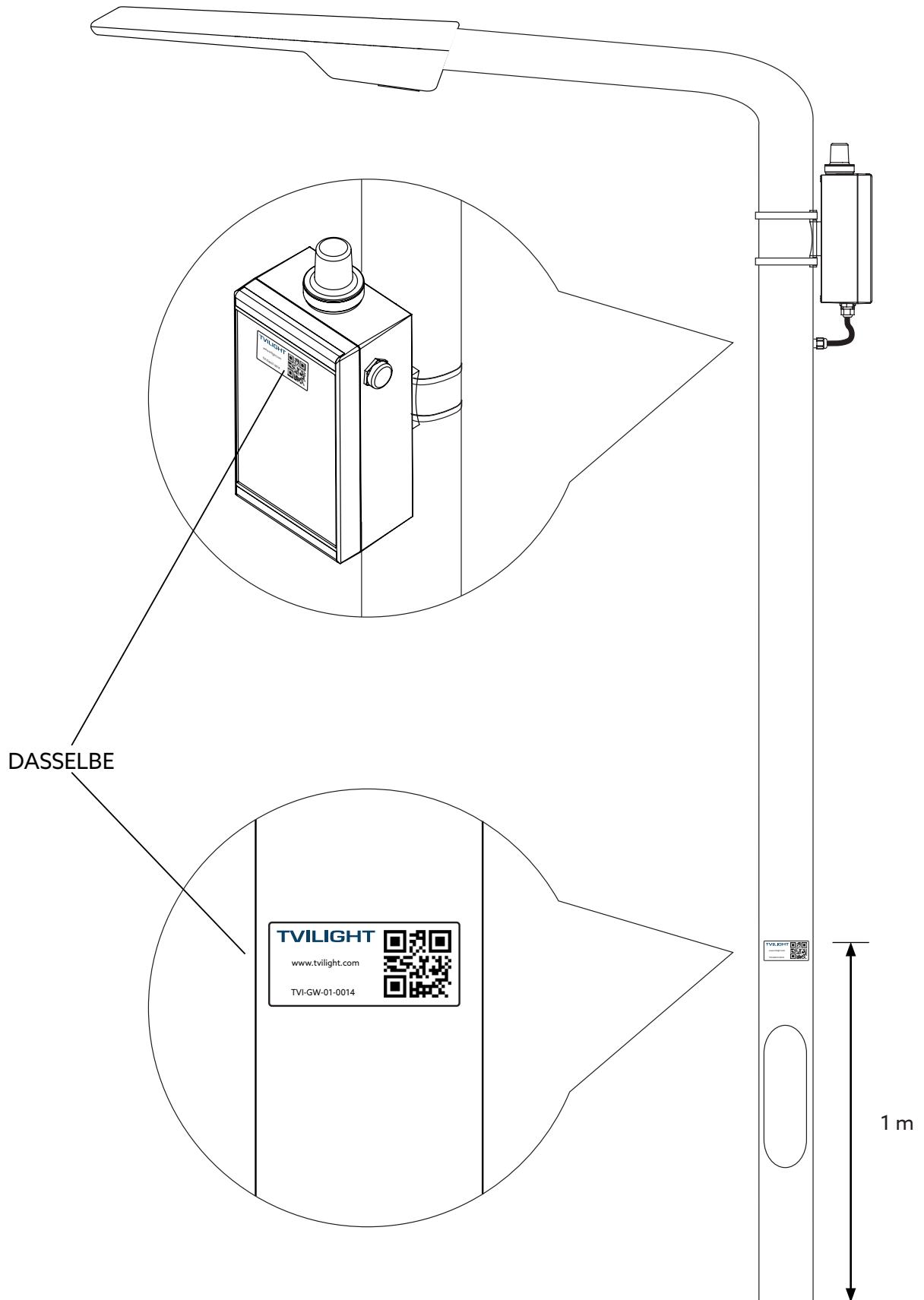
Tensioning Tool



* Ensure Tensioning Tool is set to maximum tension (#4)

7. Apply Pole ID Label to the pole

Ensure that the Product and Pole ID Labels match.



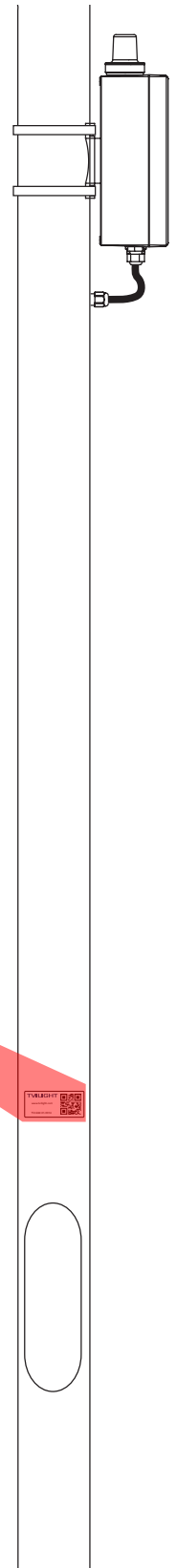
8. Add device to CityManager

1. Download Twilight Scan&Go from Apple iOS App Store or from Google Play Store.
2. Login with your Username and Password.
3. Use the 'Add device' function in Scan&Go app to add the device to CityManager.
4. The location of the new device is determined by Scan&Go's GPS and it will be indicated on the map.
5. The Device Serial Number will be added when scanning the QR-Code with the camera.
6. Fill in the required fields (the ones with an asterisk), select the device type and also **select the type of ballast** (PWM or DALI-Logarithmic or DALI-Linear).

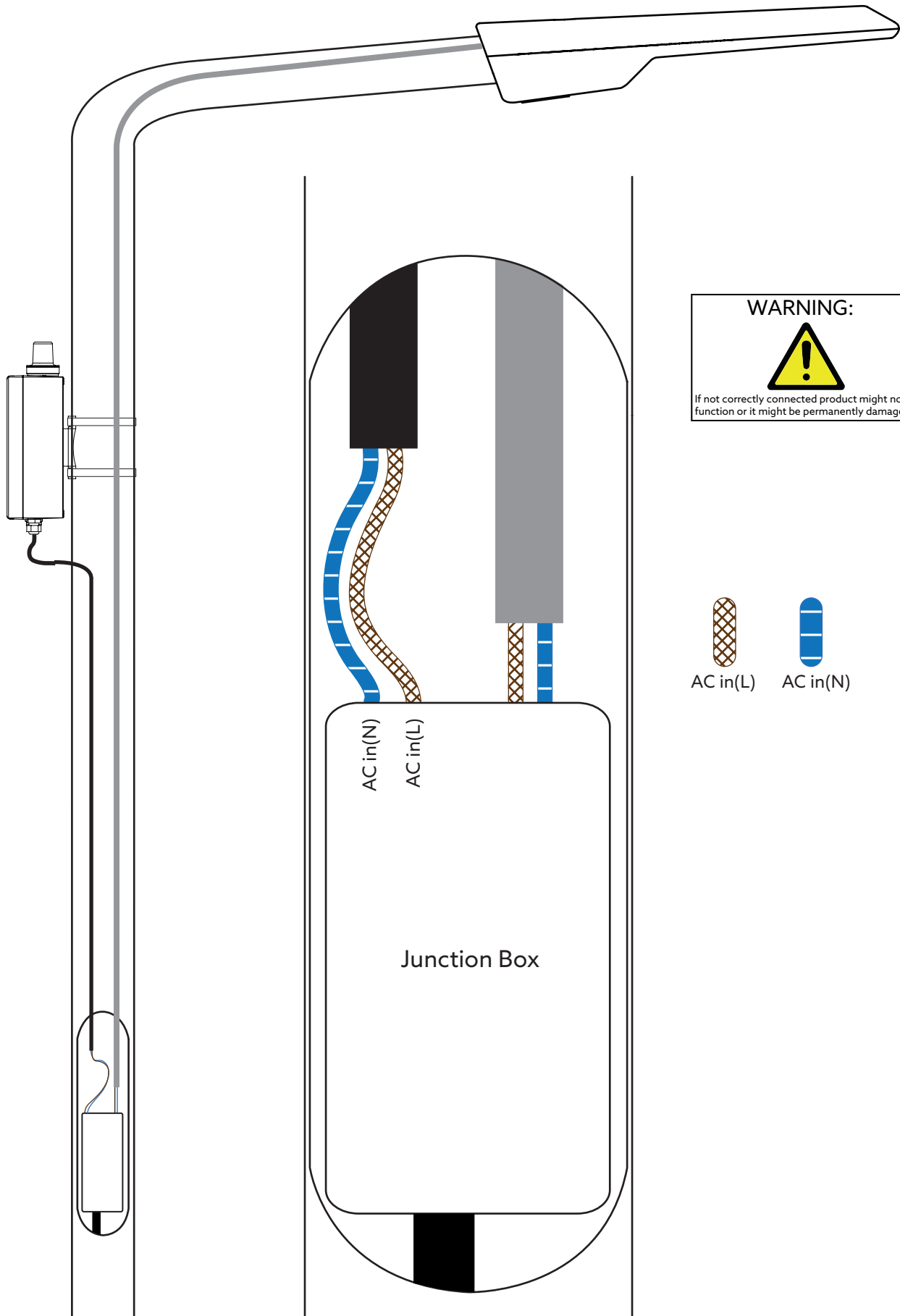
Note: The type of ballast must be known before installation.

7. Press save and move to next device.

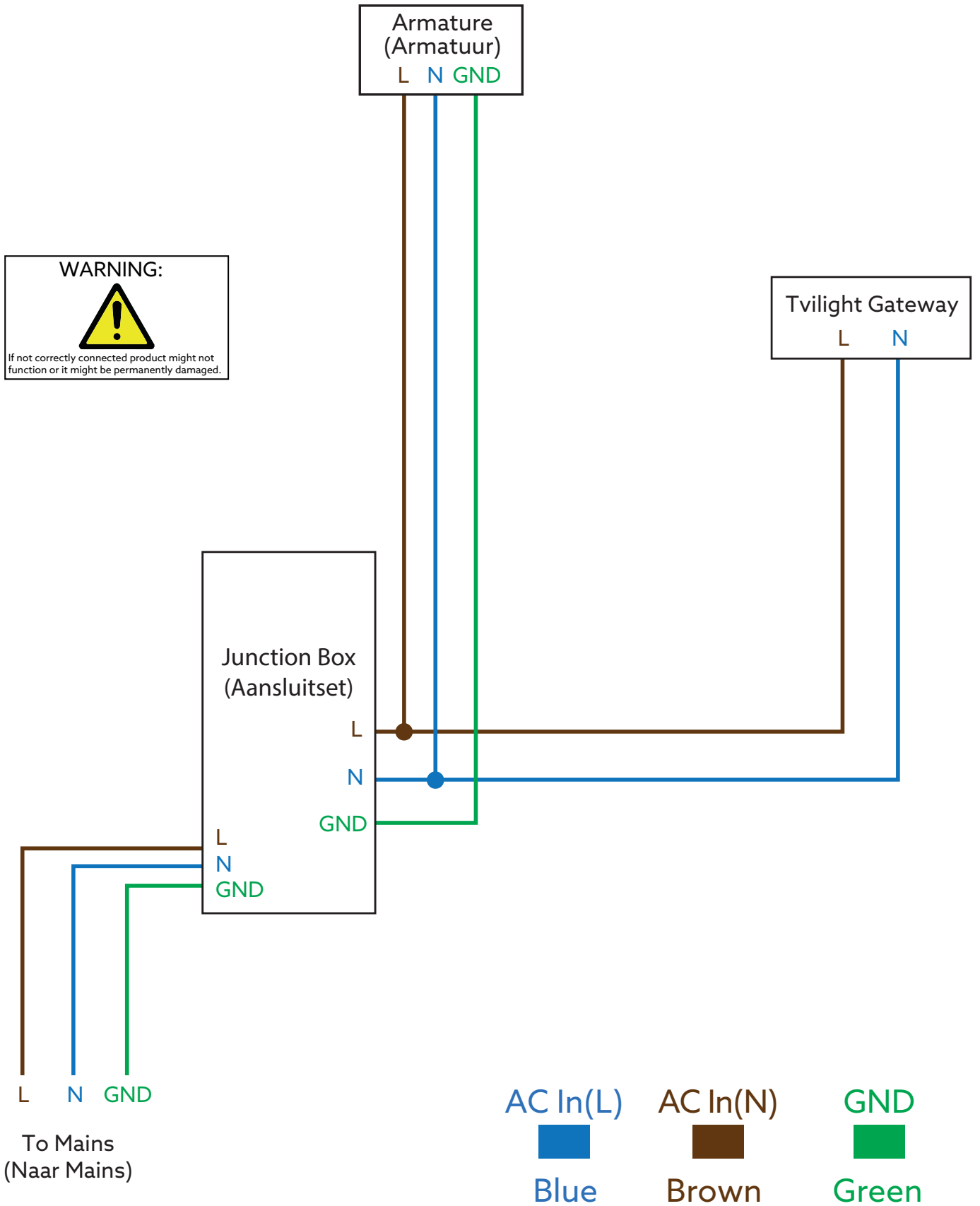
For more information on how to use Scan&Go app, please visit:
<https://www.tvilight.com/scan-go/>



Wiring Diagram



Wiring Diagram



Note: For added protection, an external circuit breaker at the power input of the product is recommended. Circuit breakers such as the ELeQ LS-94 5L2408 or similar rated products are acceptable.

Appendix: Ethernet Cable Connection Instructions

This appendix explains how to make an Ethernet connection in the Gateway v3.1.

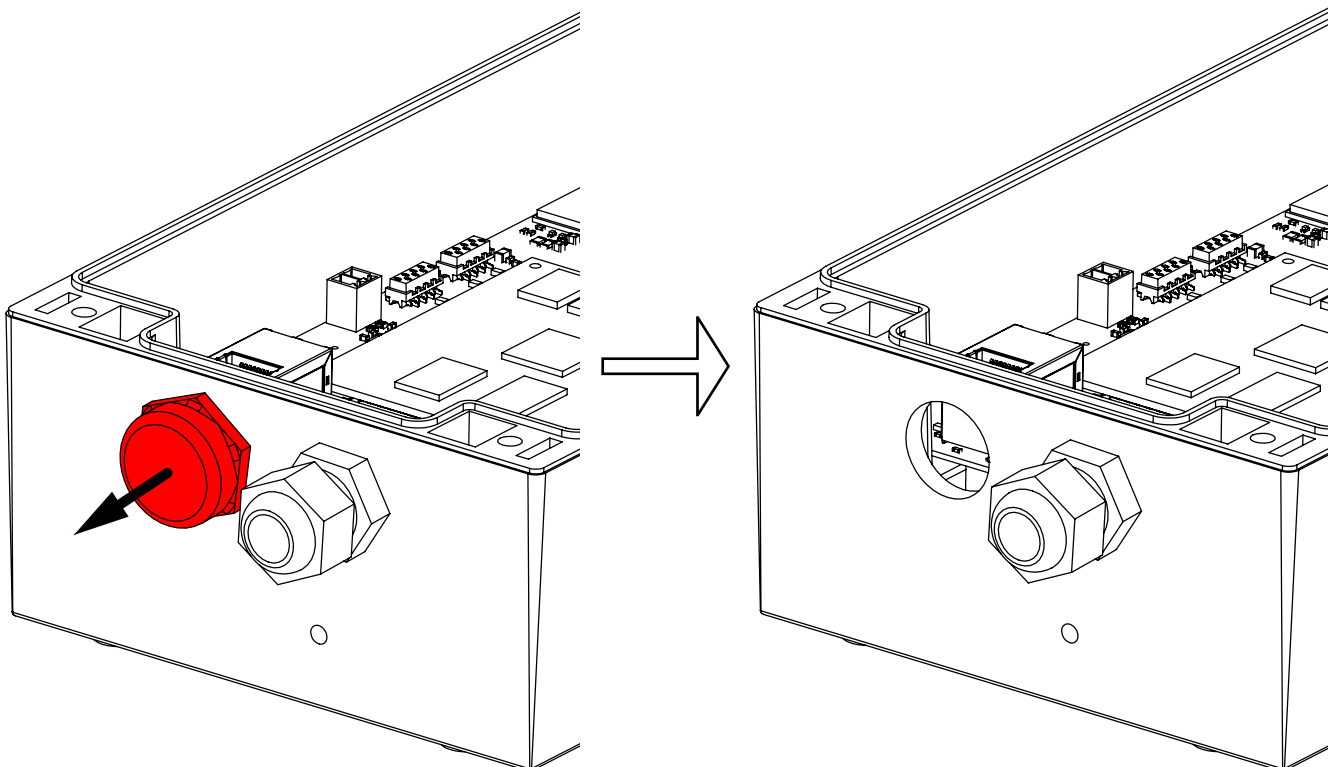
Required Parts:

- 1 x Wiska Pressure Compensation Cable Gland ESGV 20, RAL 7035, M20 (Manufacturer Part #: 10060974)
- 1 x Wiska Reduction Sealing Insert, RDE 20, M20 (Manufacturer Part#: 10062185)
- Category 5, 6, or 7 Ethernet Cable (without Connector); 8 mm max Cable diameter
- 2 x RJ45 Connector for Ethernet Cable

Required Tools:

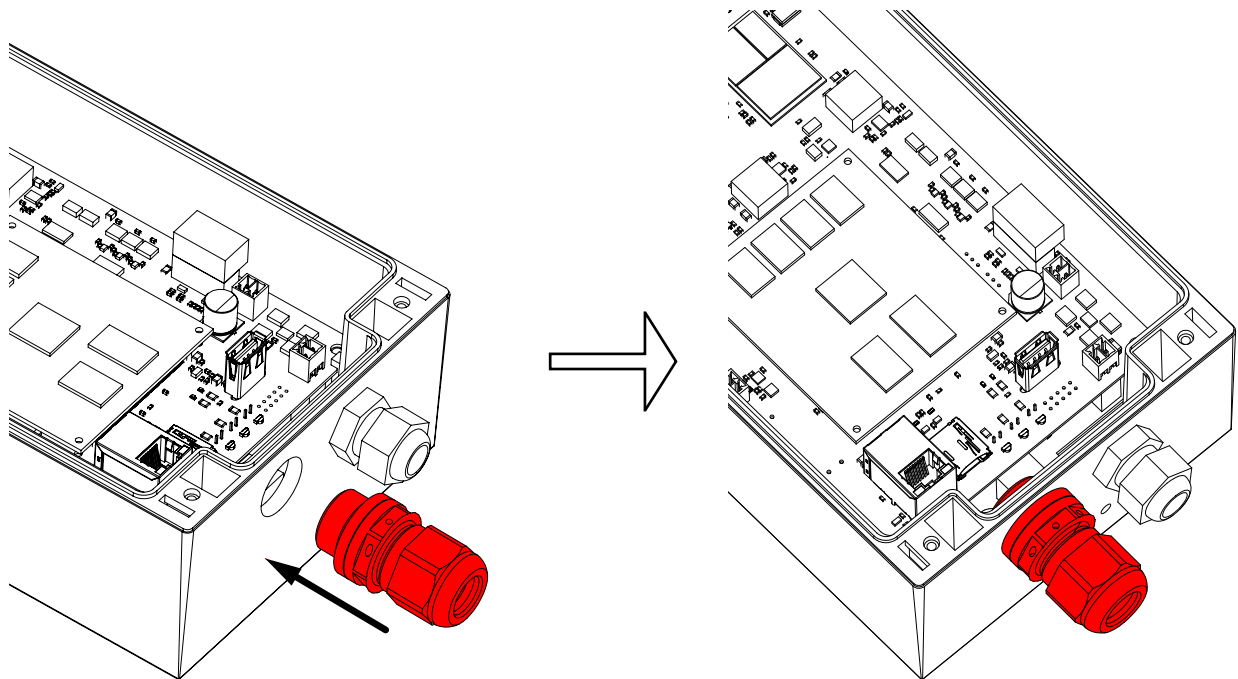
- RJ45 Ethernet Cable Crimping Tool

A1. Remove the Vent Gland located at the lower side of the GW

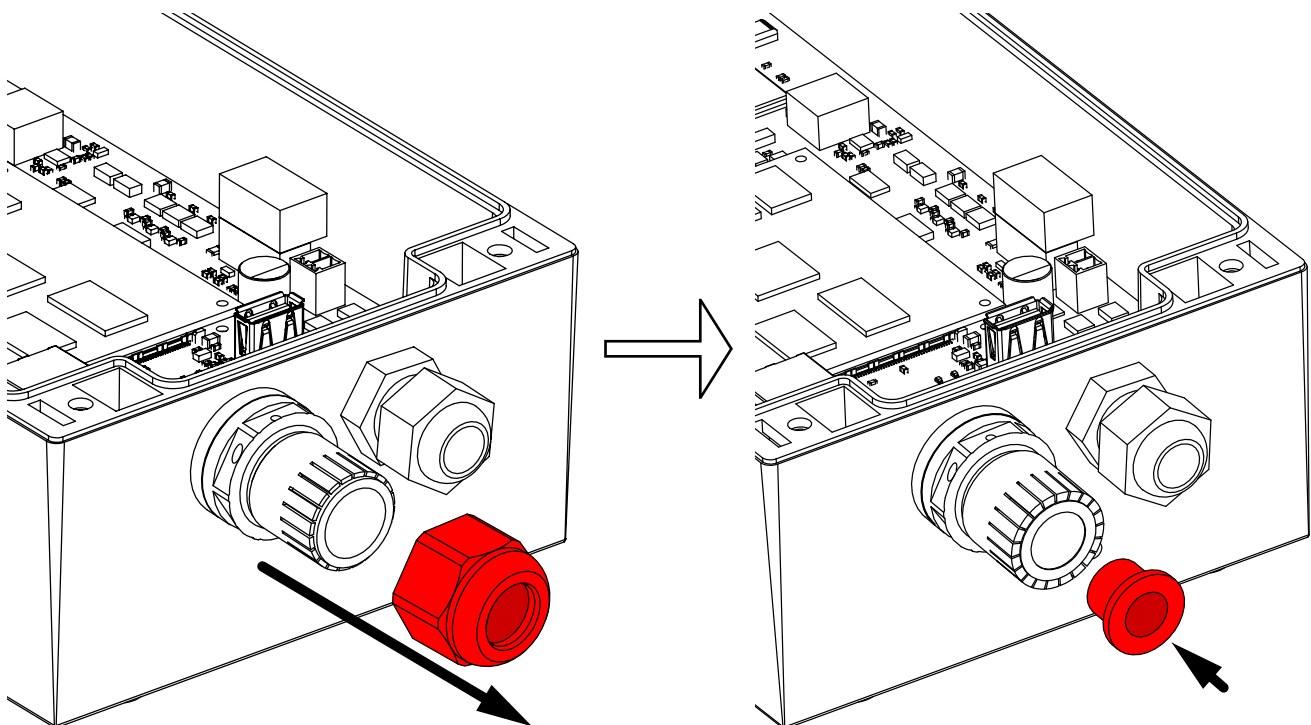


A2. Insert and tighten the M20 Venting Cable Gland in the open hole

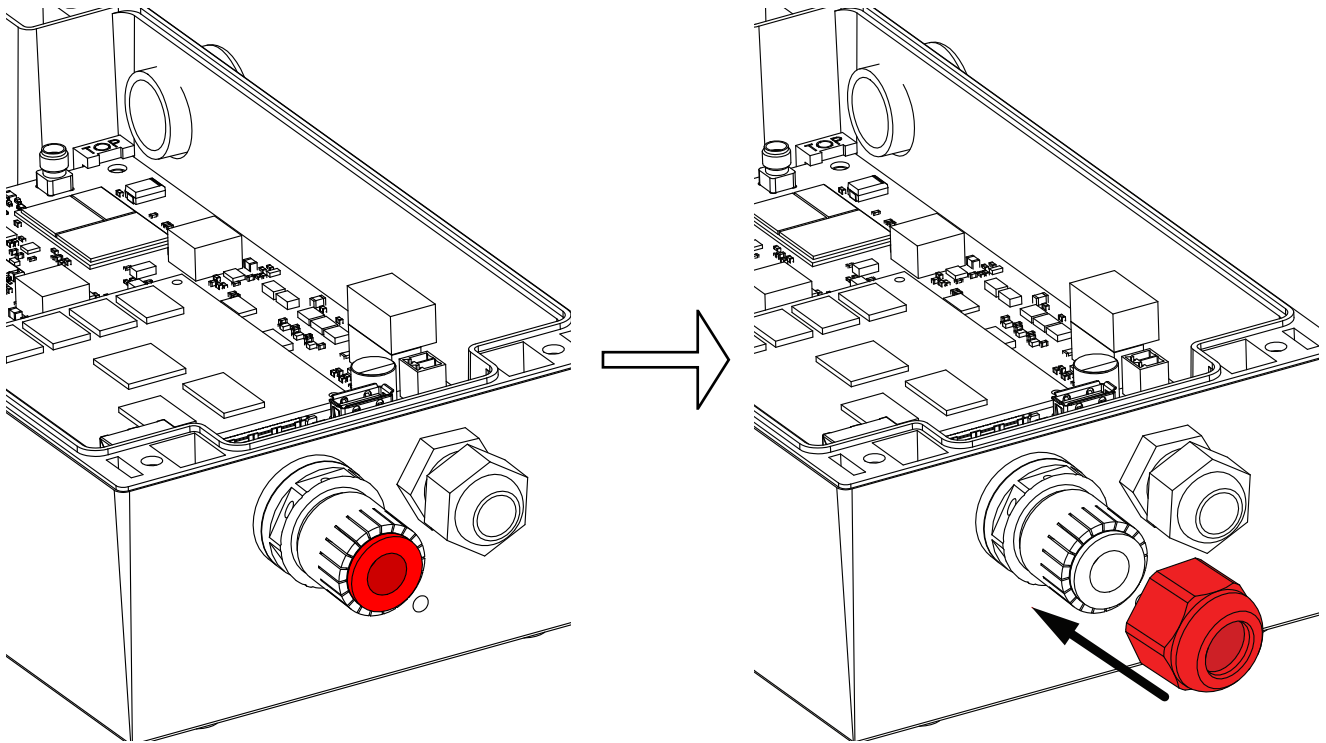
Note: Installation Torque of Venting Cable Gland: 4 Nm



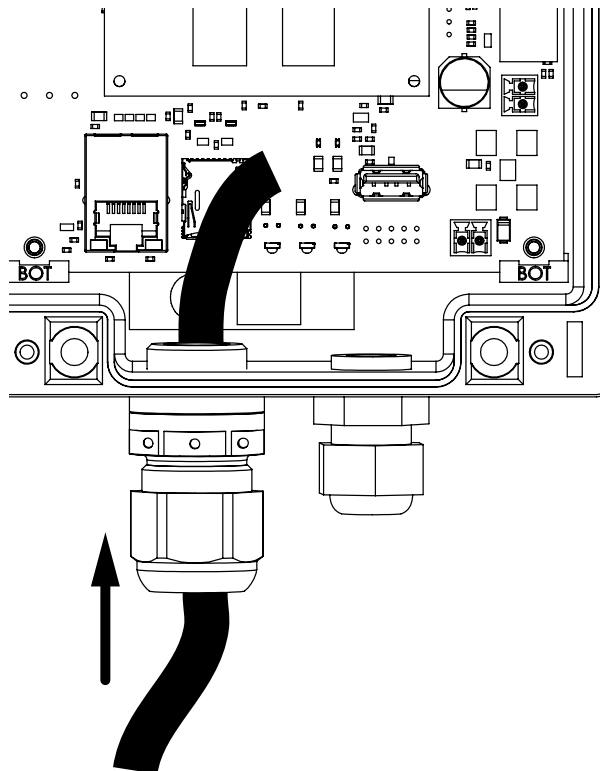
A3. Remove Sealing Nut from the M20 Venting Cable Gland and insert the Reduction Sealing Insert



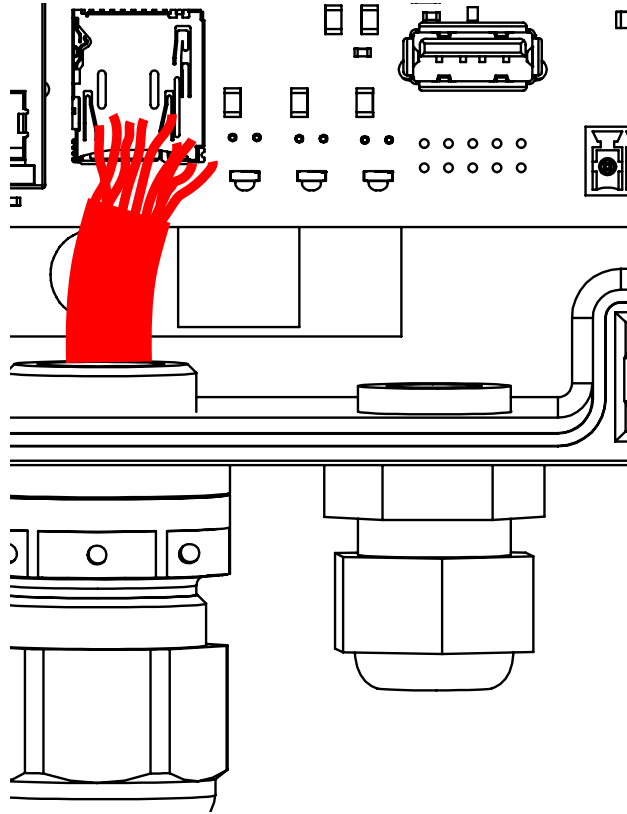
A4. Put the Sealing Nut back onto the Venting Cable Gland



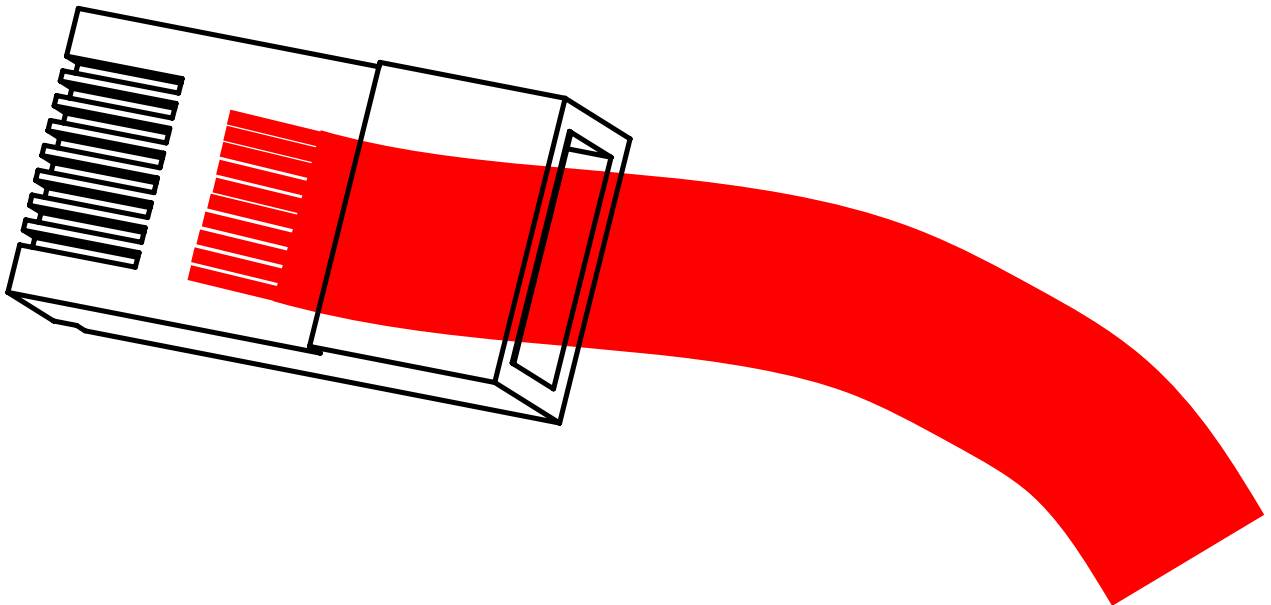
A5. Run the Ethernet Cable (without connector) through the Venting Cable Gland



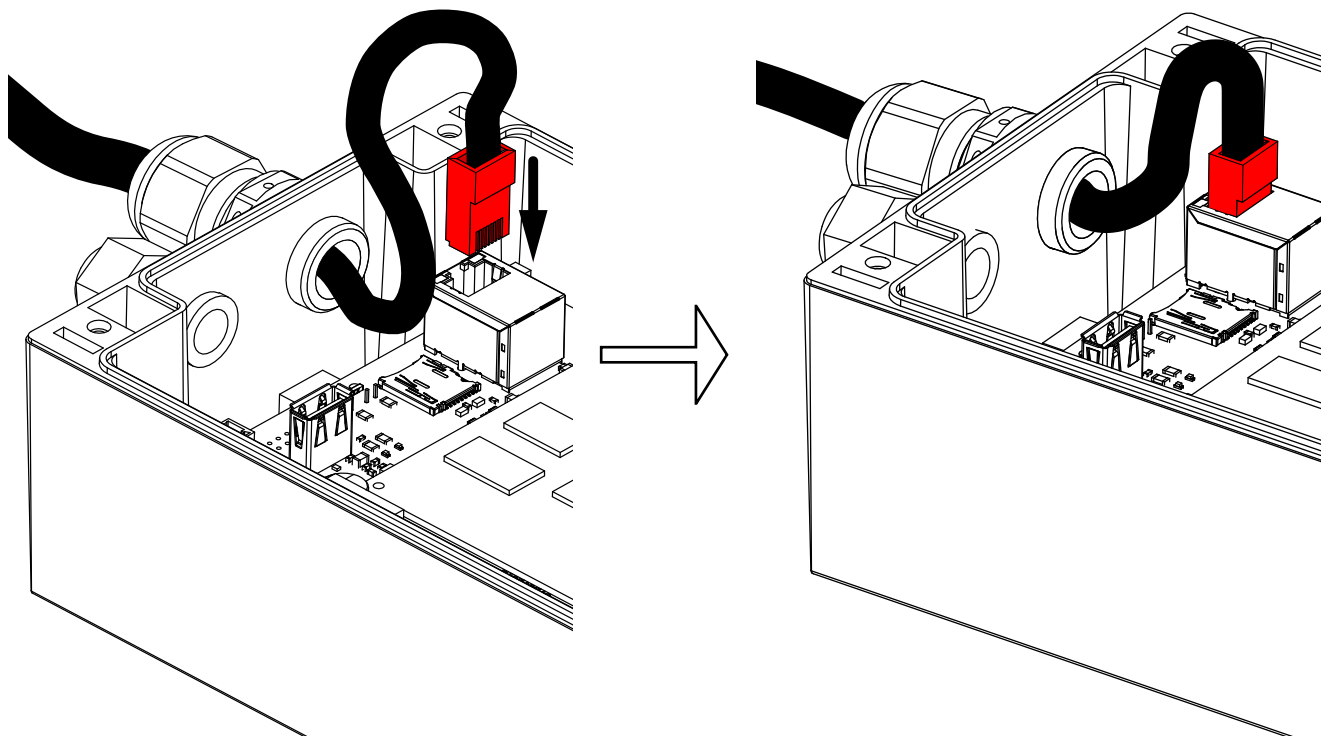
A6. Strip the Ethernet Cable



A7. Place connector onto Ethernet Cable and crimp it into place



A8. Connect the Ethernet Cable to the Ethernet port on the GW PCB



A9. Tighten the Venting Cable Gland to achieve a watertight seal between the Cable Gland and the Ethernet Cable

Note: Installation Torque of Cap Nut: 3 Nm.

