nexa™
by WATTS

User Guide

Connection Kit

Contents

⚠ WARNING

Read this Manual BEFORE using this equipment.

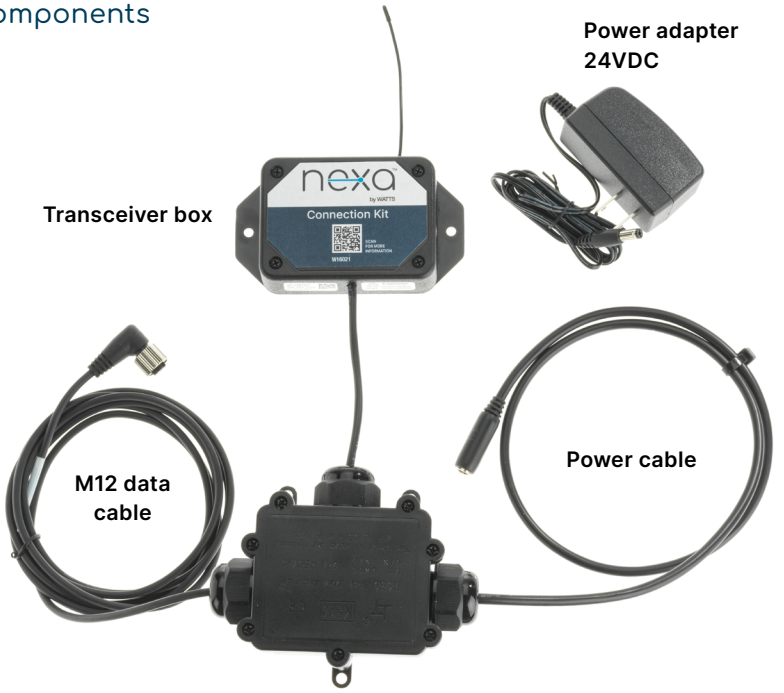
Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment.

Keep this Manual for future reference.

Overview

Nexa™ Connection Kit provides power to the Keyence flow meter and wirelessly communicates its output to Nexa Dual Gateway or Ethernet Gateway.

Kit Components



Mounting Hardware and Accessories

- Screws
- Velcro® strips
- Cable ties
- AA batteries (2) for transceiver box

Associated Hardware

Note: A Keyence® flow meter is required for each installation of a Nexa Connection Kit.

The following items are packaged separately.

- Keyence water flow meter
- Nexa Dual Gateway or Ethernet Gateway

Tools Required

- #1 Phillips screwdriver for battery cover
- Side cutters for trimming cable ties

Prerequisites

Installation of the connection kit requires a visual survey of the installation area beforehand to ensure kit components can be mounted properly and located within the required distance of other components and electrical outlets.

This visual aid shows one option for installing the connection kit and water flow meter on a pipe.

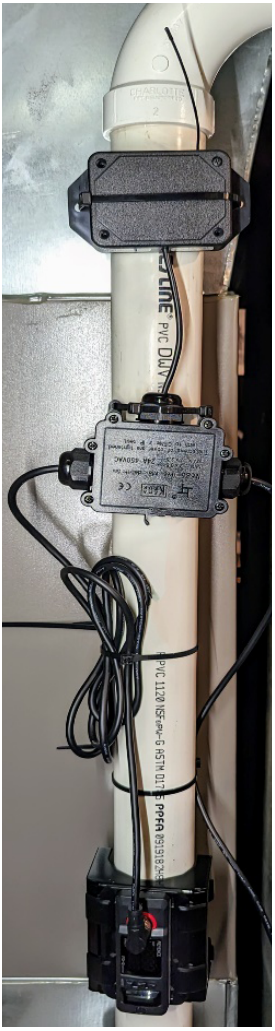
Observe the following:

- **IMPORTANT:** Determine the desired location for the Keyence flow meter. The meter can only be installed on the pipe to be measured for flow. The connection kit needs to be within 6 feet of the Keyence meter and within 7 feet of an electrical outlet.
- Choose the area of the pipe for mounting the Keyence meter. Consideration must be given to the requirements for distance from bends and other pipe characteristics. (For more information on proper installation of the meter, refer to the Keyence instruction manual.)

  IMPORTANT: Do not adjust the meter position after it has been loosely secured to the pipe. The measuring pads may become damaged which requires a return to the factory for repair.
- Set up Nexa Dual Gateway or Ethernet Gateway before you install the included AA batteries into the transceiver box. When the transceiver is powered on, it automatically attempts to pair with the nearest gateway.
- Note the identification (ID) and security code (SC) numbers on the transceiver box for the Nexa cloud setup. Configuration of the cloud service is detailed in another manual; however, here is a chance to jot down the numbers. Check the labels on the wired side of the transceiver box. See “Connecting to Nexa.”

  ID:_____

  SC:_____



Installing the Flow Meter and Connection Kit

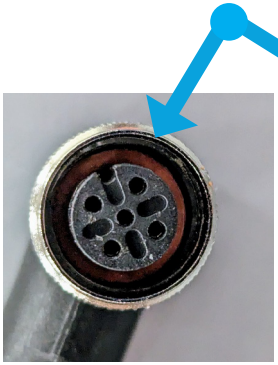
While the flow meter has to be installed on the pipe to be measured for flow, the Connection Kit can be installed either on the same pipe or on a nearby wall within cable length.

Attach the Data Cable

The data cable links the flow meter to the junction box. **Note:** The Keyence flow meter must already be installed as noted in the prerequisites.

1. Plug the 4-pin, right-angle M12 connector into Keyence flow meter. The M12 connector is keyed with a specific orientation. Do not place a tight turn or bend on the M12 wire near the connection. Place a typical strain relief loop from the Keyence to prevent damage.
2. Use any extra cable ties from the connection to clean up loose wiring.

Keyed connection



Attach the Power Cable

1. Plug the 24VDC power adapter into the barrel jack coming out of the junction box.

2. Plug the power adapter into the electrical outlet. The power adapter is rated for 100 to 240VAC 50/60Hz. (Standard electrical outlets in the United States are typically 120VAC 60Hz.)

The Keyence meter turns on immediately when connected to the power source. If the meter does not power on, check all connections. If the meter still does not powered on, check the electrical outlet for a GFCI reset or breaker at the panel.

Install the Batteries

Be sure the Nexa Dual Gateway or Ethernet Gateway is set up before you install the included AA batteries into the transceiver box. When the transceiver is powered on, it automatically attempts to pair with the nearest gateway.

Use a #1 Phillips screwdriver to detach the cover of the transceiver box. Install the AA batteries as marked and reattach the cover. Use replacement screws provided in the kit accessory bag as necessary.

Install the Junction Box and Transceiver

You can cable-tie the junction box and transceiver to a pipe or mount it to a flat surface with the included industrial strength Velcro.

Depending on the requirements of the install location, the transceiver box can be installed in one of two ways: stacked atop of the junction box or mounted separately directly above the junction box. With either installation, the antenna must point up.

Mount to a Pipe

The transceiver box and junction box can be mounted in a stacked or separate formation.

Stacked formation with transceiver box atop the junction box

Separate formation with transceiver box above the junction box

1. Using the included cable ties, mount the junction box portion first. The transceiver box cable can support its own weight hanging but could be damaged if the weight of the junction box were hanging on it.
2. Feed the cable ties through the mounting holes on top and bottom then fasten the ties securely around the pipe. If the pipe is too large, link two or more cable ties together to achieve the needed length.
3. Attach the transceiver box by stacking it to the junction box or by mounting it to the pipe separately.

   i. If stacking with Velcro, attach the boxes together.

   ii. If tying the boxes separately, attach the wireless box so that the battery compartment is still accessible for changing batteries without having to cut and replace the tie(s).

      a. Feed a single cable tie through the front of one of the holes all the way until it bottoms out.

      b. Feed the cable tie through the rear of the other hole and secure it with the buckle of a second cable tie to prevent it from falling back through. When done correctly, the first tie creates a loop around the back of the pipe.

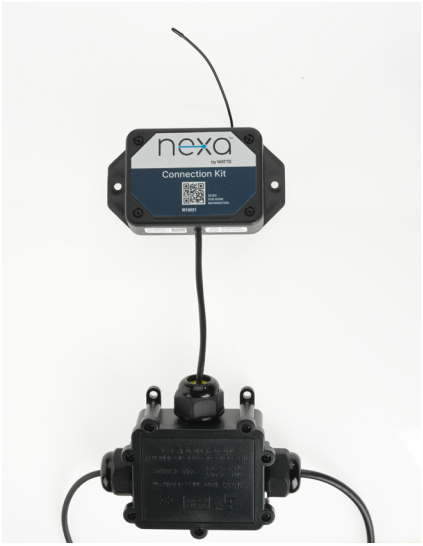
      c. Tighten the second cable tie buckle until the box is secure.

      d. Trim the two ties. The first tie makes the loop, the second tie provides a second buckle. Trim away all but the head of the tie.

Mount to a Surface

The transceiver box and junction box can be mounted in a stacked or separate formation.

Stacked formation with transceiver box atop the junction box



Separate formation with transceiver box above the junction box

1. Clean the desired mounting surface for proper adhesion of Velcro. Oily or dusty surfaces need to be clean and dry.
2. Choose the formation then use the included industrial strength Velcro to mount the boxes.
   a. If stacking, attach the boxes together with Velcro. Next attach one adhesive side of Velcro to the junction box and the other adhesive side to the surface. Spot the alignment and press the stacked boxes to the surface.
   b. If mounting each box separately, attach one adhesive side of Velcro to the box and the other adhesive side to the surface. Spot the alignment and press the box to the surface.

Finish the Installation

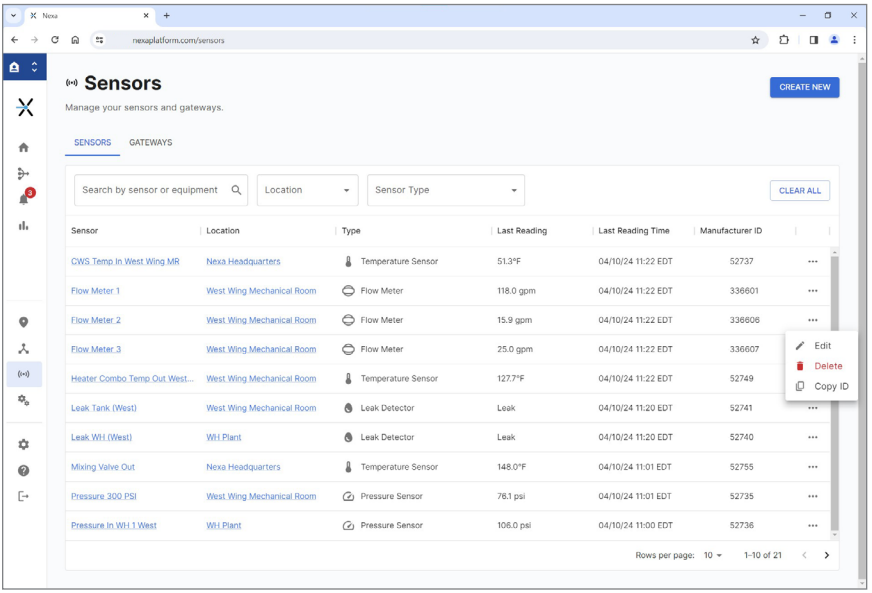
- To complete the kit installation, clean up any additional wiring with extra cable ties in the kit.
- Trim all cable ties close to the buckles to avoid leaving sharp edges. Discard waste appropriately.

Connecting to Nexa

Now that your flow meter and connection kit have been successfully installed, you need to contact your dedicated Customer Success Manager (CSM) to register you and your team on the Nexa platform. Your CSM connects your system data to the cloud, creates a system map, sets alerts, and onboards your team, providing visibility and generating valuable insights.

To complete the registration, your CSM will need some important information. Every sensor or gateway has a unique identification number (ID) and security code (SC) located on the bottom. (See example on the right.) Record and relay that information along with the precise location within the facility. Those location names are how you will be able to identify critical data for each device within Nexa.

After the sensors are registered and connected to Nexa, they are listed on the sensor page, as shown below. Each record includes the sensor name, location, type, last reading, last reading time, and manufacturer ID. Tap the 3-dot menu on the right end of a row to edit or delete the record or to copy the ID.



FAQs/Troubleshooting

Who should I reach out to in case of any issues?

Reach out to your dedicated Nexa Customer Success Manager, who can then directly assist or connect you with the right resource to resolve the issue.

What if my gateway is not all green?

- Ensure that the gateway is in an area with strong cellular signal.
- Perform a reset on the gateway by performing the following steps:
  - Power off the gateway.
  - Press and hold the Utility button for 20 seconds (keep holding while powering on).
  - After the start-up test, in which the LEDs all flash alternating red and green, release the button.
  - Press and hold the Utility button for 15 seconds or so until the LEDs go dark from top to bottom. A restart of the gateway follows.

What if some parts are missing?

Reach out to your dedicated Nexa Customer Success Manager, who can then ship out any missing or replacement parts to you.

What if my sensor won't connect?

- Contact your dedicated Nexa Customer Success Manager for support.
- Sensors may not connect because the distance from gateway is too great (particularly if signal is obstructed by barriers), or because of issues with a specific sensor. Follow the specification for distance and location area. If further assistance is needed, your Nexa Customer Success Manager will work with you to diagnose the root cause and develop a solution.
- If gateway signal is too weak, you may need to deploy an additional gateway closer to the sensor to ensure more consistent signal.
- If a specific sensor has issues, the Nexa team will ship a replacement sensor to you. Depending on the complexity of the installation, the Nexa team can remotely support you to replace the sensor, or schedule a service visit for the Nexa team to replace the sensor.

What if I put a device in the wrong location?

- Contact your Nexa Customer Success Manager, and share the device ID, current location, and intended location.
- With the preceding information, the Customer Success Manager will then update the location on the Nexa platform for you.

What if I want to add more sensors?

Reach out to your dedicated Nexa Customer Success Manager, who will work with you to confirm additional sensor counts, pricing, install logistics, and other aspects of your configuration.

Security Protocols

Data security and integrity are paramount at Nexa. Each layer of the system is secured using encryption and protocols designed to protect customer data and information. The system consists of sensor(s), gateway(s), and Nexa software. One or more sensors communicate with Nexa software through a gateway.

Sensor to Gateway

Sensor and gateway radio modules are purpose-built devices with proprietary unreadable firmware, which means the sensor cannot be physically hacked or re-purposed for malicious purposes. This adds a strong level of inherent security even before considering encryption. Data transmission between the sensor and the gateway are secured using Encrypt-RF Security (Diffie-Hellman Key Exchange + Advanced Encryption Standard (AES)-128 Cipher Block Chaining (CBC) for sensor data messages). Beyond the encryption, data transmissions are also structurally verified and CRC checked before passing up to Nexa or down to the sensor. This ensures the integrity of the data.

Gateway to Nexa

Data transmissions between the gateway and Nexa software are secured using 256-bit, high-level encryption.

Nexa

Access is granted through the Nexa user interface, or an Application Programming Interface (API) safeguarded by 256-bit Transport Layer Security (TLS 1.2) encryption. TLS is a blanket of protection to encrypt all data exchanged between Nexa and you.

Certifications

United States FCC

This equipment has been tested and found to comply with the limits for a Class B digital devices, 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 instruction manual, 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 of 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.

⚠ WARNING

Changes or modifications not expressly approved by Nexa will void the user's authority to operate the equipment.

⚠ WARNING

RF Exposure. To satisfy FCC RF exposure requirements for mobile transmitting devices, the antenna used for this transmitter must not be co-located in conjunction with any antenna or transmitter. Additionally, a separation distance of 8.7 in. (22 cm) or more should be maintained between this device and persons during device operation.

Nexa and Nexa Sensors

This equipment complies with the radiation exposure limits prescribed for an uncontrolled environment for fixed and mobile use conditions. This equipment should be installed and operated with a minimum distance of 9 in. (23 cm) between the radiator and the body of the user or nearby persons.

Approved Antennas

All Nexa sensors contain FCC ID: ZTL-G2SC1. The devices have been designed to operate with any one of the approved antennas (listed below), having a maximum gain of 14 dBi. Antennas having a gain greater than 14 dBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms.

- Xianzi XQZ-900E (5 dBi Dipole Omnidirectional)
- HyperLink HG908U-PRO (8 dBi Fiberglass Omnidirectional)
- HyperLink HG8909P (9 dBd Flat Panel Antenna)
- HyperLink HG914YE-NF (14 dBd Yagi)
- Specialized Manufacturing MC-ANT-20/4.0C (1 dBi 4" whip)

Canada (IC)

English

Under Industry Canada regulations, this radio transmittermay only operate using an antenna of a type and maximum(or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that necessary for successful communication.

The radio transmitters (IC: 9794A-RFSC1, IC: 9794A-G2SC1, IC: 4160a-CNN0301, IC: 5131A-CE910DUAL, IC: 5131A-HE910NA, IC: 5131A-GE910 and IC: 8595A2AGQN4NNN) have been approved by Industry Canada to operate with the antenna types listed on the previous page with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

This device complies with Industry Canada licence-exempt RSS standard(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.

Français

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la Puissance Isotrope Rayonnée Èquivalente (P.I.R.È) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteurs radio (IC: 9794A-RFSC1, IC: 9794A-G2SC1, IC: 4160a-CNN0301, IC: 5131A-CE910DUAL, IC: 5131A-HE910NA, IC: 5131A-GE910 et IC: 8595A2AGQN4NNN) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne figurant sur la page précédente et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, méme si le brouillage est susceptible d'en compromettre le fonctionnement.

⚠ WARNING

RF Exposure. To satisfy IC RF exposure requirements for mobile transmitting devices, the antenna used for this transmitter must not be co-located in conjunction with any antenna or transmitter. Additionally, a separation distance of 12.6 in. (32.1 cm) or more should be maintained between this device and persons during device operation.

Notes

Limited Warranty: Watts Regulator Co. (the "Company") warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. **SSO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.**

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by WATTS

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