Product Manual

The Safety Team's Resource for Setup, Installation, Operation, and Service

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Warnings and Cautionary Statements

⚠ **CAUTION:** Risk of Explosion. For safety reasons, this equipment must be operated and serviced by qualified personnel only. Read and understand the product manual completely before operating or servicing.

AVERTISSEMENT: Risques d'explosion. Pour des raisons de sécurité, cet équipment doit étre utilesé entretenu et réparé uniquement par un personnel qualifié. Étudier le manuel d'instructions en entire avant d'utiliser, d'entretenir ou de réparer l'équipement.

⚠ WARNING: Only one input to be connected at a time

AVERTISSEMENT: Une seule entrée à connecter à la fois

⚠ **IMPORTANT:** Fully charge the RGX™ Gateway before its first use.

⚠ **IMPORTANT:** Only charge the RGX Gateway battery at an ambient temperature range of 5 − 45°C (41 − 113°F).

⚠ **IMPORTANT:** Turn off all external power to the RGX Gateway before servicing the unit.

⚠ **WARNING:** Explosion Hazard. Do not open, maintain, or service where an explosive atmosphere may be present.

AVERTISSEMENT: Ne pas ouvrir sous tension. N'ouvrez pas, ne maintenez pas, ou service où une atmosphère explosive peut être présente.

⚠ **WARNING:** Explosion Hazard. Do not connect or disconnect where an explosive atmosphere may be present.

AVERTISSEMENT: Risques d'explosion. Ne pasbrancher ni débrancher où une atmosphère explosive peut être présente.

⚠ **WARNING:** *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block.

⚠ **CAUTION:** RGX Gateway for use in hazardous locations only as to intrinsic safety per control drawing 1810D9509-200.

AVERTISSEMENT: RGX Gateway pour une utilisation dans des emplacements dangereux uniquement en ce qui concerne la sécurité intrinsèque par schéma de commande 1810D9509-200.

⚠ **WARNING:** Potential electrostatic charging hazard. Only clean using a damp cloth.

AVERTISSEMENT: Risque potentiel de charge électrostatique. Nettoyez uniquement avec un chiffon humide.

⚠ **WARNING:** Substitution of components may impair intrinsic safety and may cause an unsafe condition.

AVERTISSEMENT: La substitution de composants peut compomettre la securite intinseque.

⚠ **WARNING:** Connect or disconnect only in a non-hazardous area.

⚠ **CAUTION:** Battery pack is only Industrial Scientific technician replaceable with ISC P/N 17157552; use of another battery may present a risk of fire or explosion. The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not crush, disassemble, or incinerate.

IMPORTANT: Batteries are to be disposed or recycled accordingly to local laws and regulations.

IMPORTANT: Equipment warning and marking must be legible during normal use. Clean with soft cloth and mild detergent.

⚠ This device complies with Part 15 of the FCC Rules for Intentional Radiators. 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. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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⚠ This equipment generates and radiates radio frequency energy during normal operation. It could cause interference with other types of radio communications if not installed in accordance with the installation instructions. There is no guarantee that interference will not occur in a particular installation even if installed in accordance with these instructions. If it is determined that this equipment is causing interference to radio communications (by turning this equipment off and on), the interference may be corrected 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.

⚠ This device is only compliant for use in fixed and mobile operation applications. Install this device to maintain at least 20 cm (8 inches) separation distance between the RGX Gateway and anywhere personnel may be present for prolonged periods of time to meet FCC, ISED and other international radio frequency (RF) exposure safety requirements.

⚠ This device complies with Industry Canada license-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.
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, même si le brouillage est susceptible d'en compromettre le fonctionnement.

⚠ The RGX Gateway's optional Magnet Mount Kit and individual kit items can cause injury. To avoid injury, Industrial Scientific recommends the following.

- Persons with a pacemaker or implantable cardio defibrillator (ICD) should maintain a minimum separation distance of 90 cm (36 ") between the pacemaker or ICD and the magnet. Please consult your physician or pacemaker or ICD manufacturer for additional guidance and recommendations.
- Neodymium magnets have a strong attractive force. Each can attract quickly when in close proximity to another magnet or metal surface and cause injury. The magnet material is brittle; it can crack or splinter on impact to cause injury and potentially become a flying hazard. Use protective gloves and eyewear to avoid a potentially severe pinch injury, cut, or splinter.
- Do *not* use magnet mounts with units that will draw power from a fixed DC power source.
- Keep magnets away from electronic devices, identification cards, and credit cards that use microchips, magnets, or magnetic fields.

Certification Summary

At the time of this document's publication, the RGX Gateway was certified for use as summarized below. To determine the hazardous-area classifications for which a unit is certified, refer to its label or the equipment order.

Table 0.1 RGX Gateway hazardous location certifications

Certifying Body	Classification[a]	Approved temperature range
c UL us	Class I, Division 2, Groups A, B, C, and D, Temperature Class T6	–20 °C to +55 °C (–4 °F to + 131 °F)

[a]To determine the hazardous-classified areas for which a unit is certified, refer to its label.

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In addition to the certified wireless uses summarized below, refer to the Industrial Scientific website for the most up-to-date information on wireless product certifications.

Table 0.2 RGX Gateway wireless certifications

Agency or authority	Identification number	Country or region
FCC	PHH-RGX, U90-SM220, SQGBL652, Z64-CC3102MOD, and RI7LE910SV	USA
ISED-Canada	20727-RGX, 7084A-SM220, 3147A-BL652, 451I-CC3120MOD, 5131A-LE910NA, and 5131A-LE910SV	Canada

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1

Product Information

System Overview

Key Features

Compatibilities

Specifications

Hardware Overview

System Overview

As shown below, the RGX™ Gateway (RGX) facilitates data exchange between compatible, enabled Industrial Scientific gas-detection instruments and *iNet®.* The exchanged data are used to support the live-monitoring capabilities of *iNet Now*. From a computer or smart-device, iNet Now users can learn, on a live basis, about everything from instrument gas readings to gas alarms, man-down events, panic alarms, and more.

This wirelessly connected, live-monitoring system, as depicted below, enhances the safety team's quick responses to and preparedness for hazardous events.

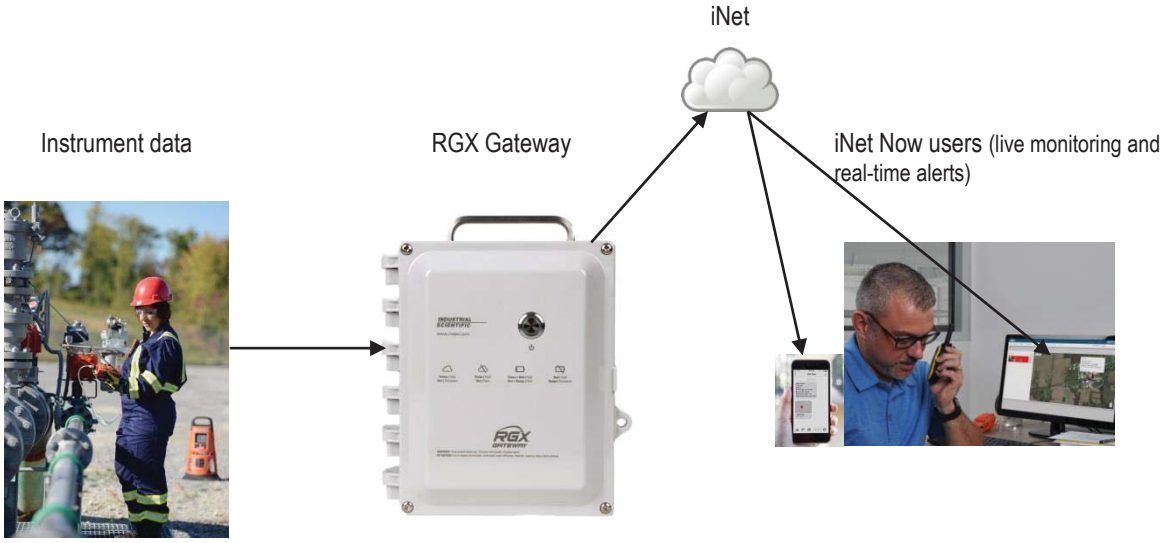

Figure 1.1 System overview

Key Features

Location

The RGX Gateway is suitable for indoor or outdoor use in locations that meet the product's certified uses and specifications. Indoor operation is suitable only when a unit's GPS location is *not* needed.

Communication and data security

Instrument–RGX Gateway

LENS™ Wireless (Linked Equipment Network for Safety) is a long-range, power-efficient wireless mesh network from Industrial Scientific. LENS functionality enables data sharing among wirelessly connected equipment items—gas-detection instruments and RGX Gateway units—that are set to operate within a specified LENS group (e.g., Group A). The following also apply.

- Ten named LENS groups are available.
- Each group can host up to 25 equipment items.
- More than one RGX can be included in a LENS group.

Instrument data exchanged through LENS are automatically encrypted with the Industrial Scientific key. Encryption can also be set to use a customer-supplied key. All equipment items in the group must be set to the same key.

RGX Gateway–iNet

The RGX can send data it receives from gas-detection instruments to iNet through these transmission options: wireless local area network (Wi-Fi), cellular, and Ethernet.

The customer sets each transmission option to on or off, allowing the RGX to maximize or to limit the number of channels through which it can exchange data with iNet. When more than one option is on, the customer prioritizes the order in which the unit will use them. For example, if Wi-Fi and cellular are on, the unit can be set to first use Wi-Fi and if that is not available, use cellular.

The RGX–iNet data exchanges are automatically encrypted using the Industrial Scientific encryption key. Optionally, a customer-supplied key may be used.

Mobility and mounting

The versatile RGX is designed for transportability and for permanent installation. It can be left unmounted for more mobile applications or mounted for permanent operation.

The RGX features a durable, factory-installed handle, which allows for a unit’s ready relocation from site to site when mobility is a factor. It can be transported in its optional case, which provides added protection for the unit, visibility to the unit's operational status indicator, and access to the unit's handle.

Based on the application, the RGX can be surface mounted or mounted to a customer-supplied strut-type rail installation using the optional Wall Mount Kit. The RGX can also be secured to a metal surface using the optional Magnet Mount Kit; however, *do not* use magnet mounts with a unit that will draw power from a fixed DC power source.

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Power

The RGX Gateway offers a variety of operational power options.

- The RGX can be powered solely by its rechargeable, factory-installed lithium-ion battery. This option is well suited for *short-term* use conditions that allow for the unit to be situated, between use cycles, in a nonhazardous location for charging.
- The RGX can receive operational power from a compatible, customer-supplied and customer-installed fixed DC power source. This option is suitable for *permanent* installations.
- The RGX can receive operational power from a compatible power-supply accessory only from Industrial Scientific; use of each accessory requires the RGX be equipped with its Intrinsic Safety (IS) Cable Adapter. This option is well suited for use conditions that do not require permanent installation, but demand a run time exceeding that of the factory-installed battery.
- *In a nonhazardous location only*, the RGX can draw operational power from its charging power supply.

Interior case access

The unit's interior is accessed by removing four screws from the case lid. To help restrict access, the case features tabs to accommodate a customer-supplied lock that is suitable for the location.

The unit features two conduit-hub openings, each sealed with a factory-installed plug. The conduit-hub plugs should *not* be removed except for permanent installations that will make use of customer-supplied conduit-hub fixtures as needed for the connection of a compatible fixed DC power source, Ethernet cable, or both.

Compatibilities

Instruments

Use the information supplied below to ensure gas-detection instruments are compatible with the RGX Gateway. As needed, upgrade instrument firmware to the required version, add LENS Wireless functionality, and refer to the instrument's product manual.

Table 1.1 RGX Gateway compatible gas-detection equipment

Instrument	Required firmware version	LENS Wireless required	Industrial Scientific *Product Manual* part number
Ventis® Pro Series	V3.0 or higher	Yes	17156830
Radius® BZ1 Area Monitor	V3.0 or higher	Yes	17155915

Operational power sources

WARNING: *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block.

The RGX can draw operational power from its factory-installed rechargeable lithium-ion battery, which can be charged in a nonhazardous location using the RGX charging power supply.

The operational run time for the factory-installed battery can be extended with the use of a compatible power-supply accessory only from Industrial Scientific. Each power-supply accessory, as listed below, has

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unique use restrictions or certified uses. Before using either accessory, read and understand its product manual and control drawing. The control drawing is provided in the power supply's product manual (part numbers provided below), and in this "Product Manual", Appendix A Supplemental information about external power connections.

Table 1.2 RGX compatible extended run time power-supply accessories

Power supplye	Orderable part number	*Product Manual* part number
Intrinsically Safe Extended Run Time Power Supply[a] (ISERTPS), Intrinsic Safety (IS) Cable, and the RGX IS Cable Adapter	18109516 (power supply) 17156261 (cable) 18109575 (adapter)	17158248
Extended Run Time Power Supply[a] (ERTPS) Kit (includes IS Cable) and the RGX IS Cable Adapter	18109388-XA[b] (power-supply kit) 18109575 (adapter)	17158385

[a]When used with the RGX Gateway, ensure a distance of 5 m (16 ' 4 ") between the RGX and its power-supply accessory from Industrial Scientific, or any that are in use nearby.

[b]Where X indicates regional power-cord type (1 for NA, 2 for EU, 3 for AU, and 4 for UK).

The RGX Gateway's input power parameters are provided below.

Table 1.3 RGX Gateway intrinsic safety (IS) input parameters

Item	Value
Ui	16.2 VDC
Ii	0.980 A
Pi	2.2 W
Ci	0 µF
Li	0 mH

The RGX Gateway can be operated using customer-supplied, customer-installed fixed DC power that supplies a compatible input voltage range of 9–30 VDC with a maximum current of 5A and is connected to the dedicated ports on the RGX terminal block. Before connecting power, read and understand the control drawing 1810D9509-200 in Appendix A Supplemental information about external power connections of this "Product Manual".

The RGX charging power supply and power cord (part number 17158665) can be used to provide operational power to the unit *only when* the unit is operated in a nonhazardous location.

Specifications

RGX Gateway specifications

Ensure all aspects of unit installation and operation are consistent with the product's specifications supplied below.

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Table 1.4 RGX Gateway specifications

Item	Description
Power input	Three • Terminal block: 9-30 VDC, 5A (Hazardous Locations) • 12V power supply: 12VDC, 5A (Nonhazardous Locations Only) • IS power: 16.2 VDC, 0.980A
Size (length x width x depth)	28 cm x 23 cm x 15 cm (11 " x 9 " x 6 ")
Weight	2.5 kg (5.6 lb)
Case materials	Polycarbonate
Ingress protection	IP65
Wet location rated	Yes
Environmental rating	Type 1 (outdoor use)
Pollution degree	2
Overvoltage category	≤60 volts
External buttons and indicators	
Buttons	One; power button on case lid
Indicators	Two • Power-button light (colors and patterns indicate operational status) • Indicator light on side panel (indicates battery charging status)
Internal buttons and indicators	
Buttons	One; SW1 RESET (resets the unit to its original factory-setting values)
Status indicators	Four • COMM indicates communication status. • LENS indicates LENS Wireless status. • ERR2 indicates communication error. • ERR1 indicates system error.
Ethernet indicators	Two • Yellow indicates connection status. • Green indicates connection speed.
Operating conditions	
Ambient temperature	–20 °C to +55 °C (–4 °F to +131 °F)
Humidity	5−95% relative humidity (RH) noncondensing (continuous)
Altitude	Use only at altitudes below 2000 m (6560 ')
Storage conditions[a]	
Temperature	–40 °C to +80 °C (–40 °F to +176 °F)

[a]When a unit is stored for more than 30 consecutive days, fully charge the battery before powering on the unit.

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Battery specifications

Run time, operating temperature, and other specifications for the RGX factory-installed battery are provided below.

Table 1.5 RGX Gateway factory-installed battery specifications

Item	Value
Battery type	Rechargeable lithium-ion
Run time[a]	168 hours
Battery charge time[b]	up to 8 hours
Charging cycles	up to 1500 cycles minimum
Charging temperature range[c]	5−45°C (41−113°F)
Nominal voltage	3.65 VDC
Nominal capacity	61 Wh

[a]Approximate run time when *all* of the following statements are true. The RGX battery is new and fully charged. The RGX is operating at room temperature (25 °C [77 °F]) using any or all communication options. The GPS setting is on and set to send location data every 60 minutes. The LENS group includes up to 25 equipment items. The RGX transmits up to 60 minutes of alarm data every 24 hours and is set to upload noncritical data every five minutes.

[b]When charged at room temperature (25°C [73 °F]).

[c]Battery charging is suspended in temperatures below 5 °C (41 °F) and above 45 °C (113 °F).

Power-supply accessory run-time effects

The RGX Gateway can draw operational power from compatible power-supply accessories only from Industrial Scientific. Provided below are the run-time estimates for the RGX when it is used with each accessory.

Each power-supply accessory has its own use restrictions. Refer to an accessory's *Product Manual* to determine if the power supply suits the application and to ensure it is used in accordance with its manual.

Table 1.6 Power supply run-time effects

Power supply (*Product Manual* part number)	RGX run time
Intrinsically Safe Extended Run Time Power Supply (17158248)	Indefinite
Extended Run Time Power Supply (17158385)	Indefinite

Hardware Overview

The main hardware components of the RGX Gateway are identified below in Figure 1.2.A and Figure 1.2.B (exterior and interior, respectively).

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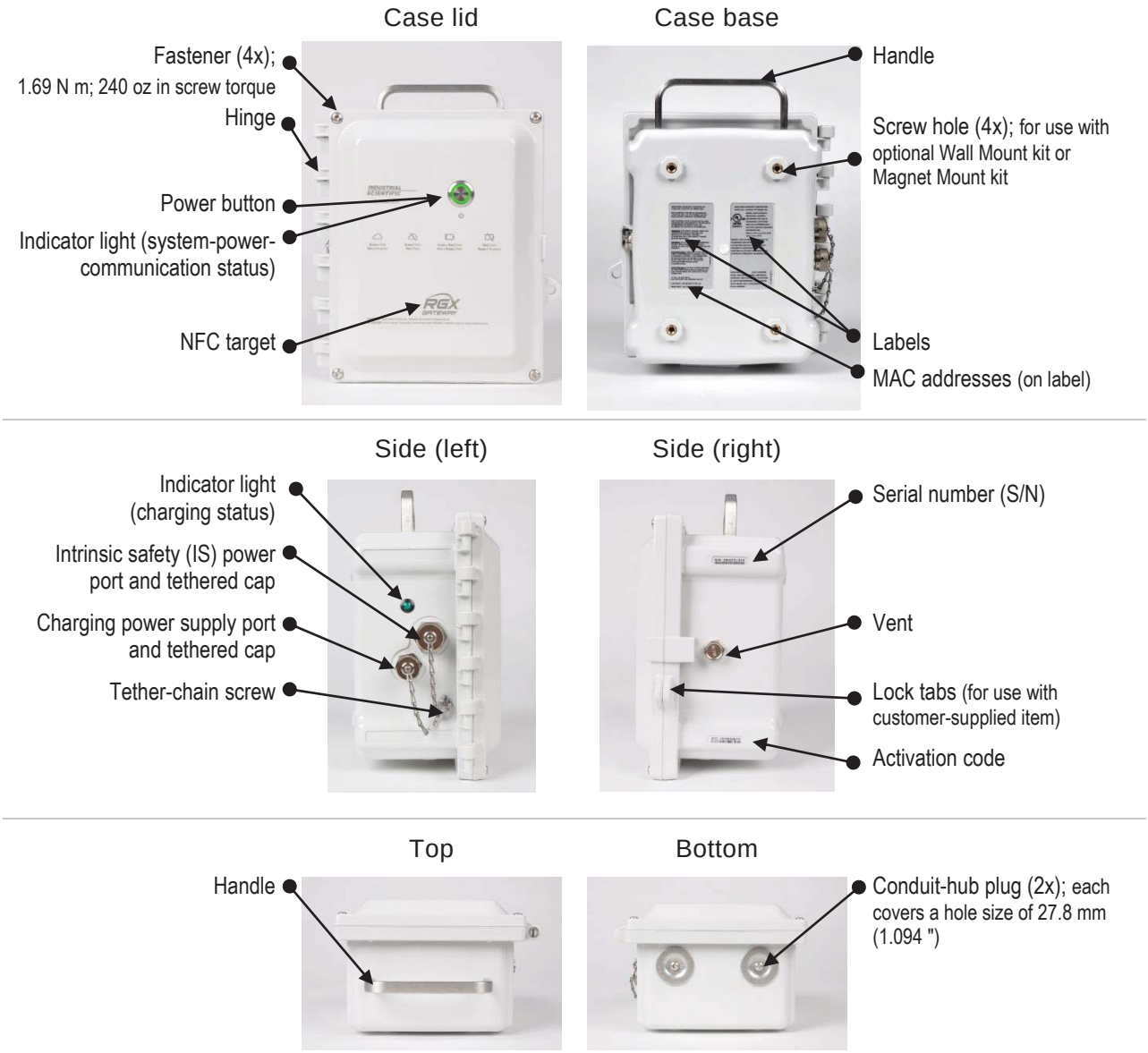

Figure 1.2.A Hardware overview (exterior)

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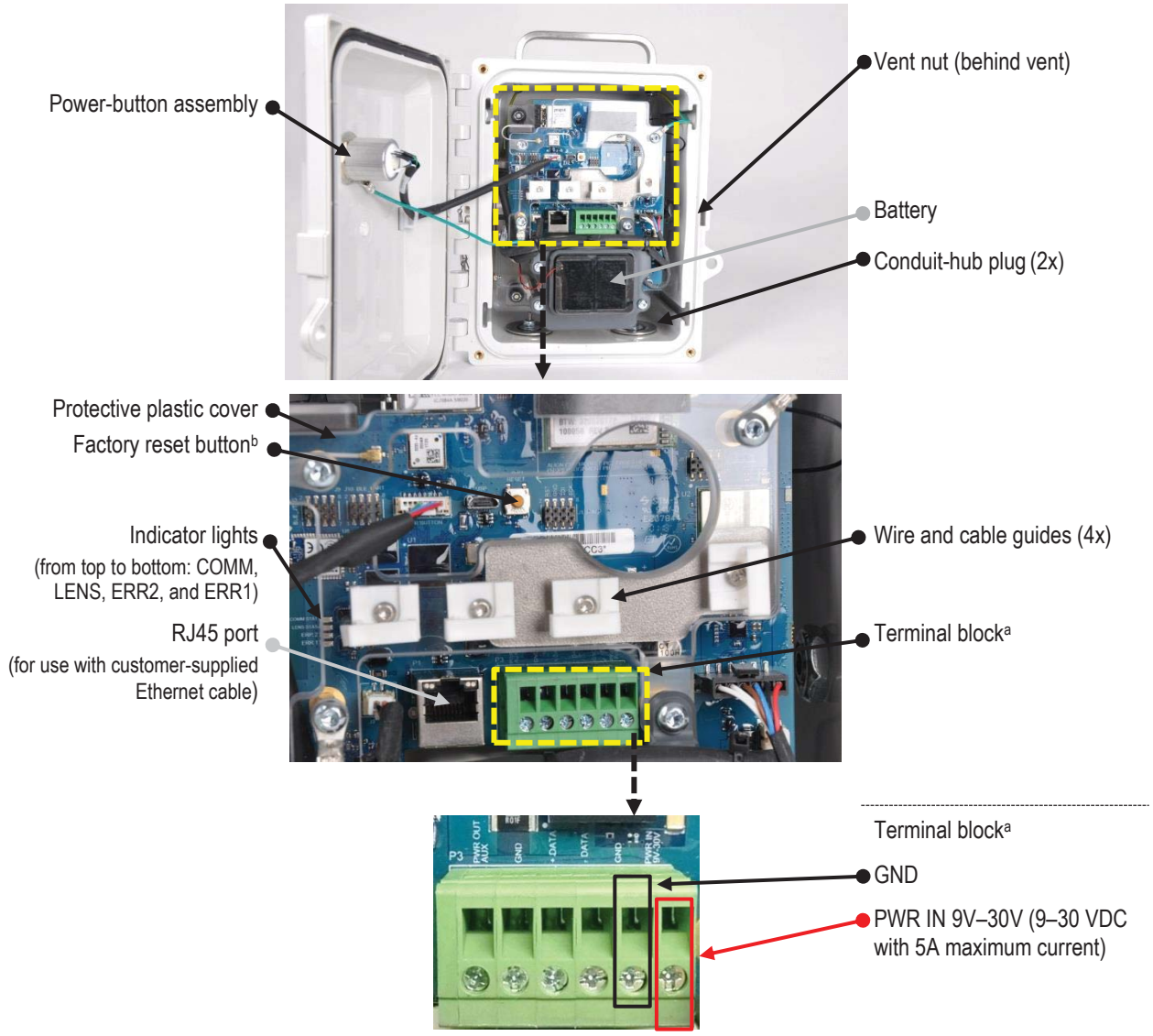

Figure 1.2.B Hardware overview (interior)

[a]For use with customer-supplied, customer-installed fixed DC power that supplies a compatible input voltage range of 9–30 VDC with a maximum current of 5A and is connected to the dedicated ports on the RGX terminal block.

[b]When the factory reset button is pressed and held for approximately 20 seconds, the unit's settings will revert to the original factory-setting values. After a reset, adjust unit settings as needed.

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2

Deployment Planning

Introduction

Communications

Settings and Connections

Sample Deployment Plans

Introduction

Whether you are using a single RGX™ Gateway or multiple units, this chapter will help you make decisions about how each is to operate within your applications. Communications, settings, and wireless connections are reviewed and illustrations are provided to depict simplified, sample deployment plans.

Communications

When using the RGX, two wireless networks are involved. One network allows the RGX to communicate with gas-detection instruments. The other network allows the RGX to send instrument data to iNet®, which supports the live-monitoring capabilities of iNet Now. Both networks are discussed below.

RGX Gateway−instrument communication (LENS Wireless)

The RGX can communicate with gas-detection instruments only when the equipment items are set to operate in the same named LENS™ Wireless group, and other requirements (settings and connections) are met. The following apply to or should be decided for deployment planning and setup preparation.

- Decide which named LENS group (e.g. "Group A") the RGX will monitor.
- A LENS group can include up to 25 equipment items, counting gas-detection instruments and RGX units.
- More than one RGX unit can be set to monitor a single LENS Group (iNet manages for any duplication of instrument data sent from multiple RGX units).

RGX Gateway–iNet® communication

The RGX Gateway is set, by the customer, to communicate with iNet using one or more options—Wi-Fi, cellular, and Ethernet. Your choices may be subject to your company's communication preferences and security guidelines. If you are not familiar with your company's communication operations, see your network administrator. For deployment planning and setup preparation, determine the following.

- Decide which of the three communication options a unit will use.

- If a unit will be set to use more than one communication option, decide the priority order in which they will be used. For example, if both Wi-Fi and cellular are to be used, a unit can be set to first use Wi-Fi and if that is not available, use cellular.
- If a unit will be set to allow Ethernet or Wi-Fi communication, know the "network protocol" connection type it will use during operation—*dynamic* (a.k.a., DHCP or Dynamic Host Configuration Protocol) or *static*. If the protocol is unknown to you, contact your network administrator.

Settings and Connections

The settings itemized below in Table 2.1 are required for iNet Now live monitoring of the equipment items in a LENS group.

Table 2.1 Required equipment settings for iNet Now live monitoring

	Equipment items		
Setting item	RGX Gateway	Ventis Pro	Radius BZ1
LENS Wireless	No setting required	Menu: Wireless Setting: LENS Wireless Value: iNet Now and Local	Menu: Wireless Setting: Wireless Radio Value: iNet Now and Local
LENS Wireless Group[a]	Menu: LENS Wireless Setting: LENS Group Value: Group X[b]	Menu: Wireless Setting: LENS Wireless, LENS Group Value: Group X[b]	Menu: Wireless Setting: Group Value: Group X[b]
Encryption key[a]	Menu: LENS Wireless Setting: Encryption Key Value[c]: Automatic or custom	Menu: Wireless Setting: LENS Wireless, Encryption Value[c]: Automatic or custom	Menu: Wireless Setting: Encryption Value[c]: Default or custom

[a]All equipment items must be set to the same LENS Wireless group and encryption key.

[b]"X" is used here to indicate the value will be a single character in length; the available values are the letters A through J.

[c]"Default" sets the unit's LENS Wireless to the Industrial Scientific encryption key, and "custom" to the customer's key. If a custom key will be used, some setup is also required in iNet.

You will need to make decisions about the RGX GPS and noncritical data settings.

- Determine if the unit will operate with its GPS on or off. When on, the unit can acquire its GPS coordinates and send this location data to iNet. Importantly, the GPS data are used by iNet Now users to identify the location of an RGX that has sent data from an in-alarm gas detector. Location data are also useful for tracking units that will be transported among sites. If the unit's GPS will be on, determine the interval (minutes) at which the unit will send its location data to iNet.

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- Determine the interval (minutes) at which the unit will send its noncritical data to iNet to support the live-monitoring capabilities of iNet Now.

Connections are generally maintained, when no interference is present, by keeping the equipment items within their range guidelines (see Table 2.2 below). Provided the required LENS Wireless connections are maintained, the live-monitoring of equipment items accommodates worker, instrument, and RGX movement.

Table 2.2 Range guidelines to maintain LENS Wireless connections

Equipment items	Line-of-sight distance, maximum
RGX to instrument	
RGX to Ventis Pro	100 m (109 yd)
RGX to Radius BZ1	300 m (328 yd)
Instrument to instrument	
Ventis Pro to Ventis Pro	100 m (109 yd)[a]
Ventis Pro to Radius BZ1	100 m (109 yd)[a]
Radius BZ1 to Radius BZ1	300 m (328 yd)

[a]Applies when a Ventis Pro instrument is positioned to face the other instrument.

To learn more about the Ventis Pro® or the Radius® BZ1, consult its product manual.

Sample Deployment Plans

As illustrated below in simplified, two-dimensional sample deployment plans, LENS provides flexibility for iNet Now live monitoring to occur when fully enabled, wirelessly connected instruments are located within a concentrated area, spread out over a distance, or take on some other formation (see Figure 2.1.A through Figure 2.1D). Figures 2.1.B and 2.1.D each feature one equipment item that is *not* within the range required for a LENS Wireless connection, so its data are not reaching the RGX, iNet, or users of iNet Now for live-monitoring purposes.

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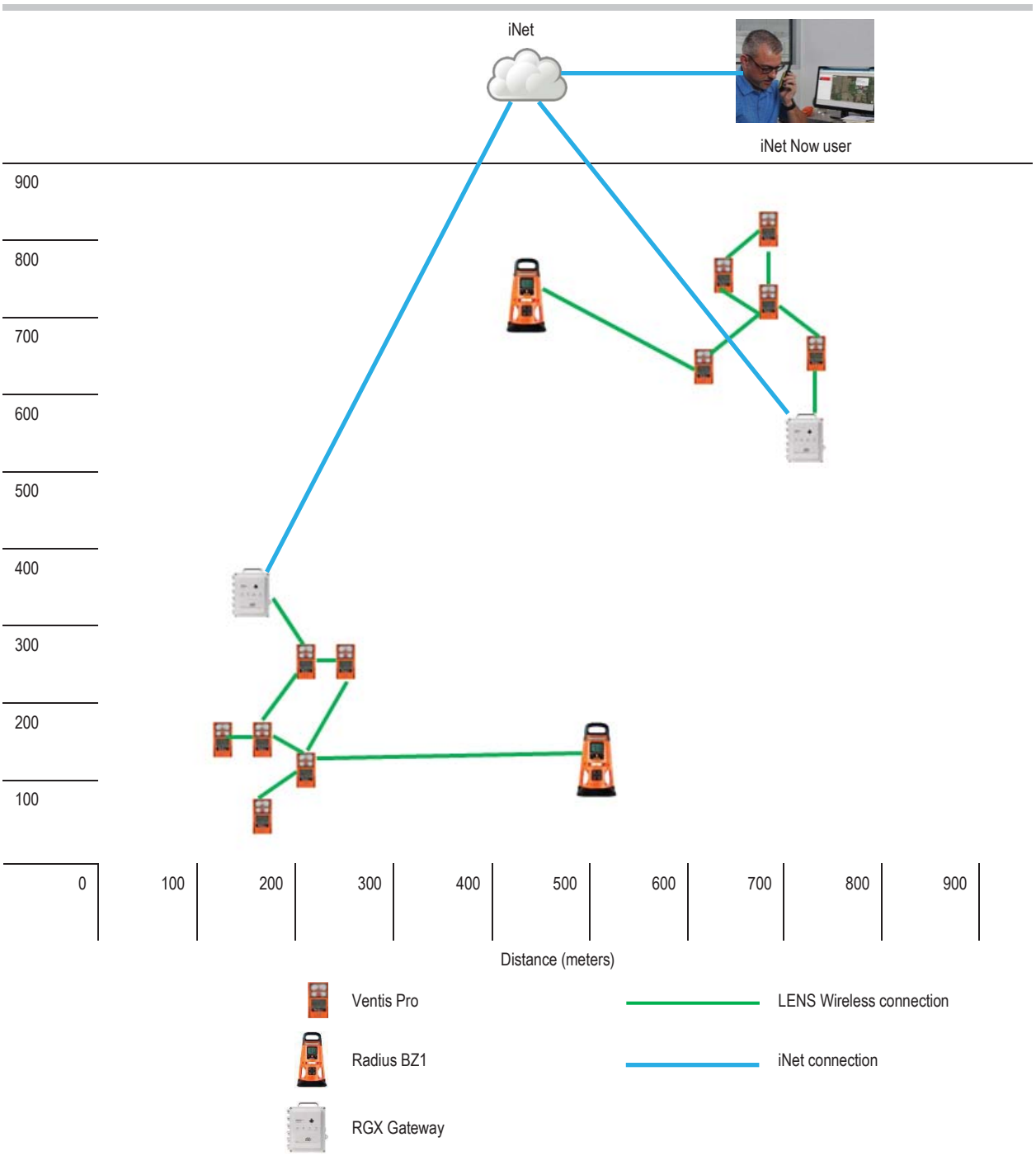

Figure 2.1.A LENS Wireless Group A instruments monitored: all

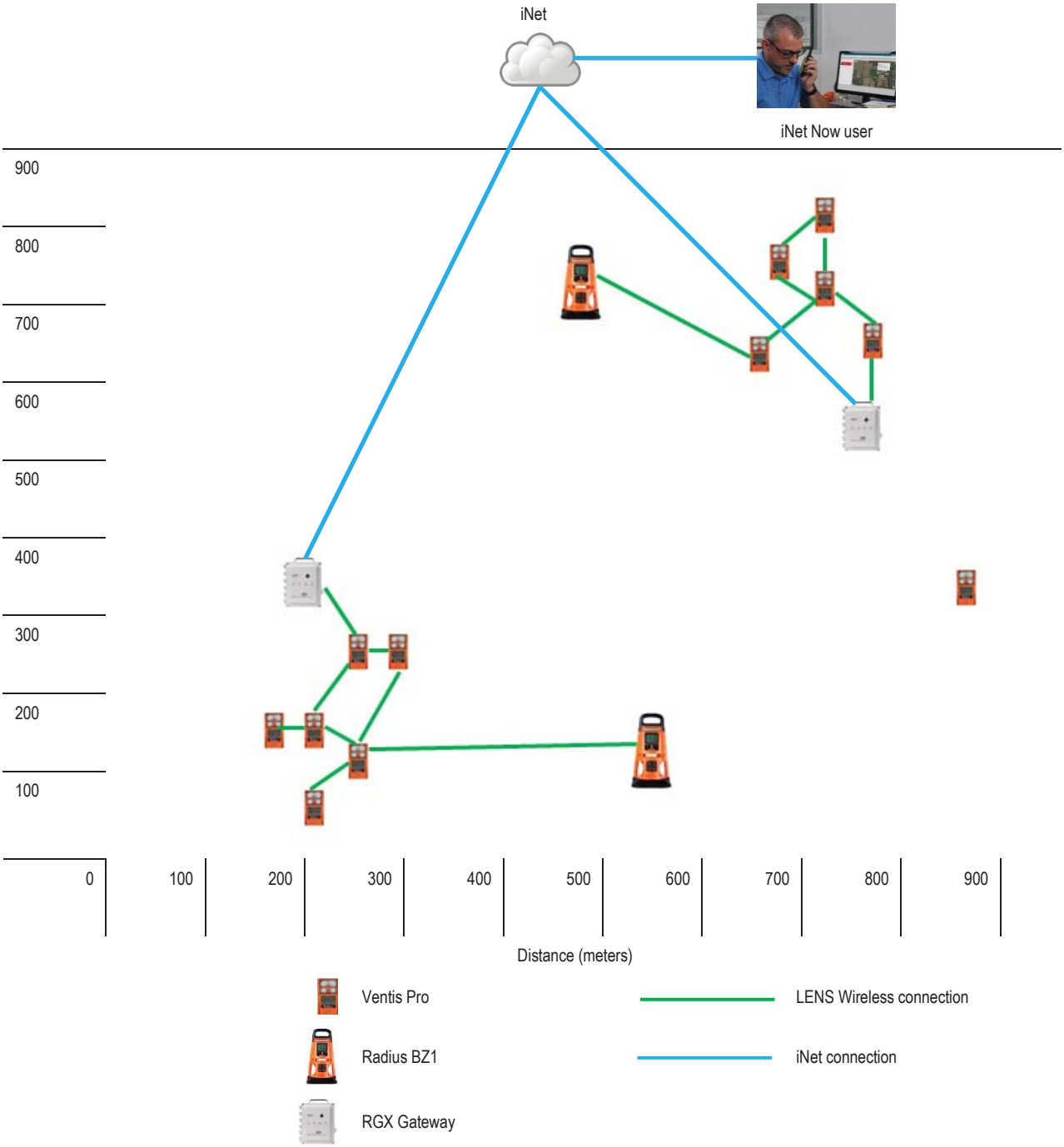

Figure 2.1.B LENS Wireless Group A instruments monitored: all but one

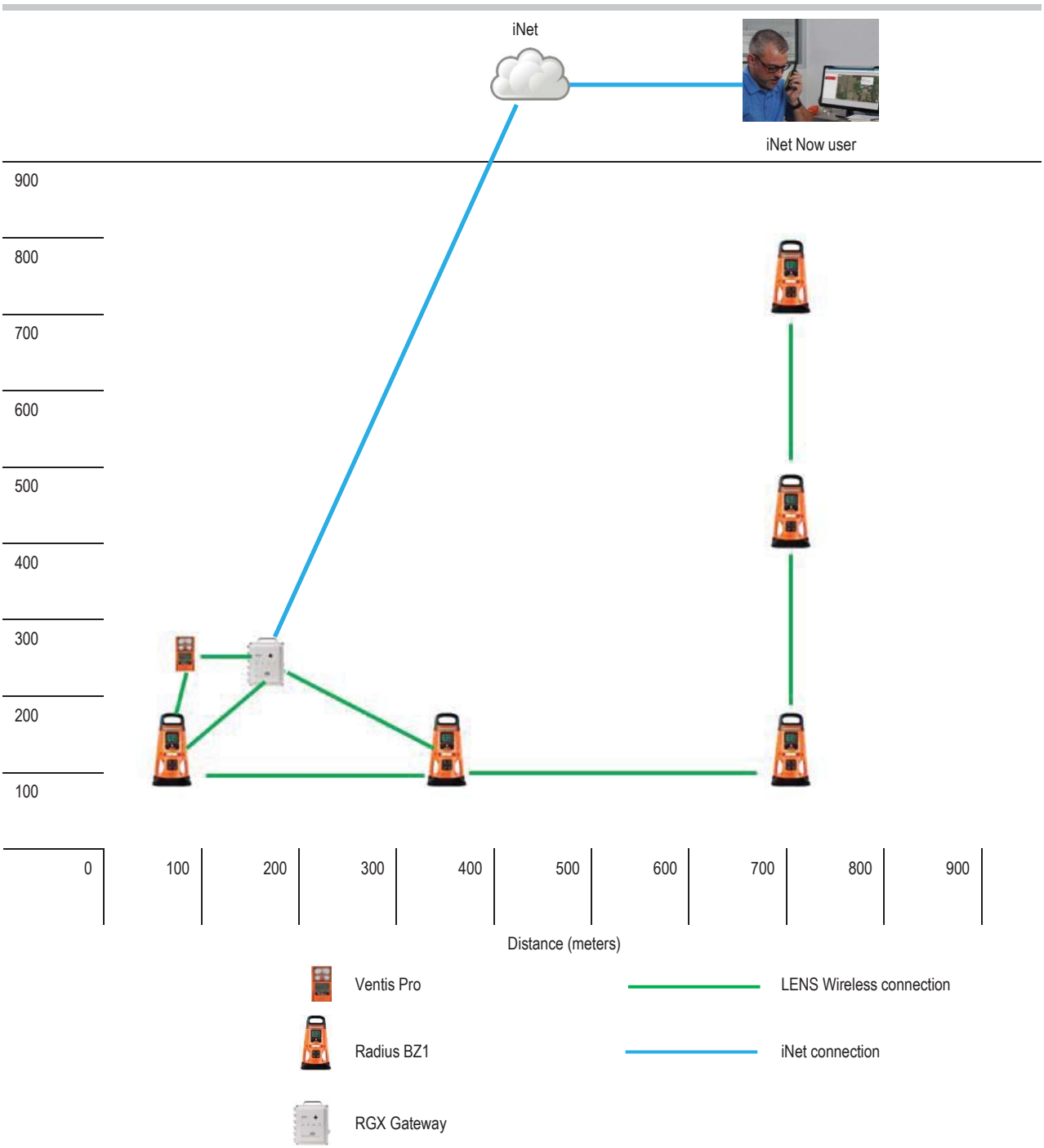

Figure 2.1.C LENS Wireless Group B instruments monitored: all

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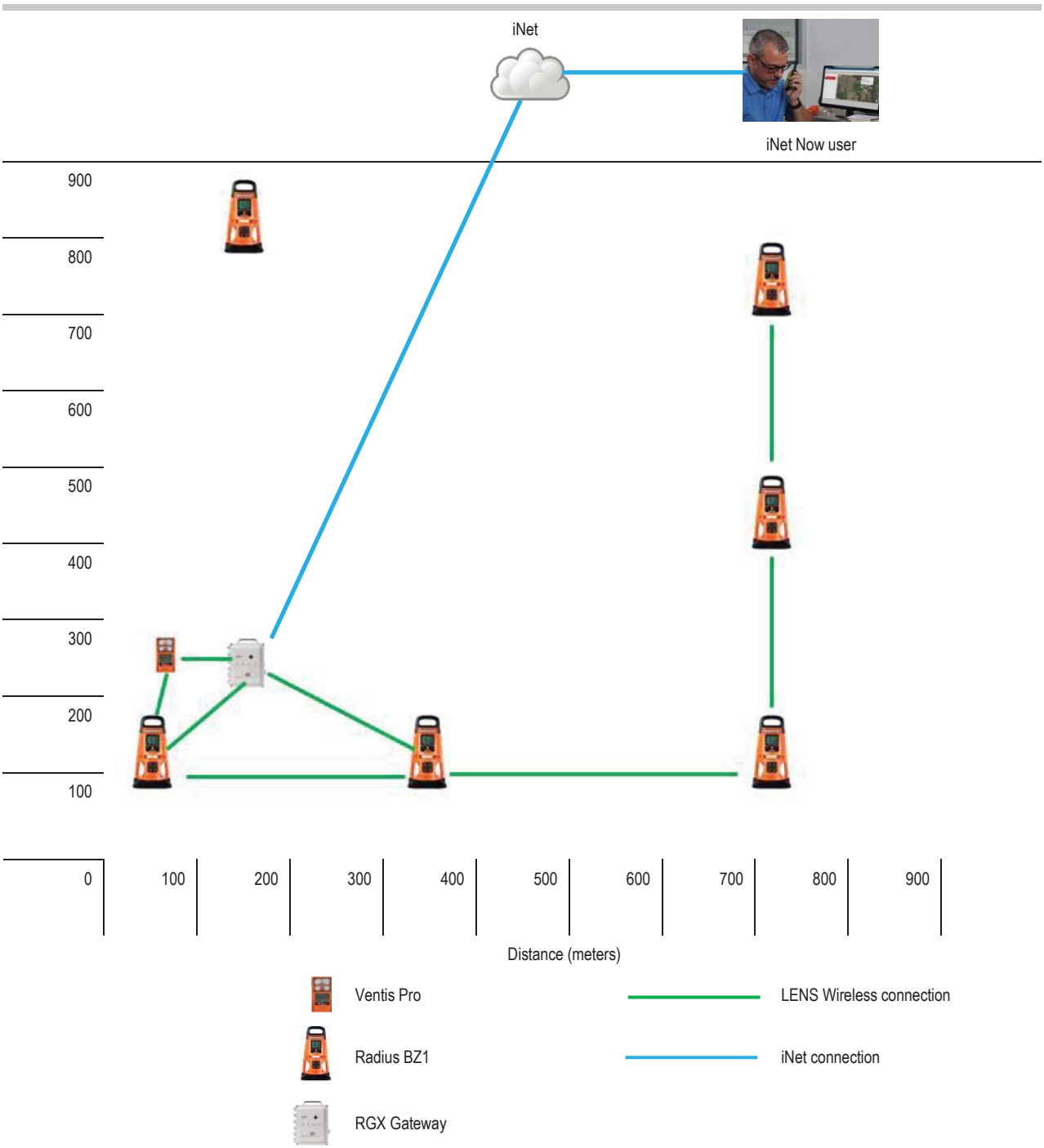

Figure 2.1.D LENS Wireless Group B instruments monitored: all but one

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3

Setup

Introduction

Unpack

Activation

Charge

Power On and Shutdown

Configuration

Installation Precheck

Introduction

Only qualified personnel should setup the RGX™ Gateway.

Choose a setup area that is in a *nonhazardous location* and has a clean, uncluttered surface on which to work. Ensure the area includes a power source that is compatible with the unit's charging power supply cord.

Additional setup needs will be supplied throughout this chapter. Needs will vary based on a unit's intended placement, operational power source, communication settings, and other factors.

Unpack

During the unpacking process, account for and examine each ordered item. If any item is missing or appears to have been damaged, contact Industrial Scientific or an authorized distributor of Industrial Scientific products. After unpacking, peel the protective plastic liner from the RGX case lid.

Table 3.1 Package contents

Quantity	Item	Description
As ordered	RGX Gateway	Moves data between compatible, enabled Industrial Scientific gas-detection instruments and iNet.
As ordered	Charging power supply and power cord	12 VDC power supply with customer-ordered cord that fits *one* power source type (AUS, EU, NA, or UK).
1	Document	*Warnings and Cautionary Statements*

There are several values unique to each RGX, as noted below, which will be required for various setup scenarios.

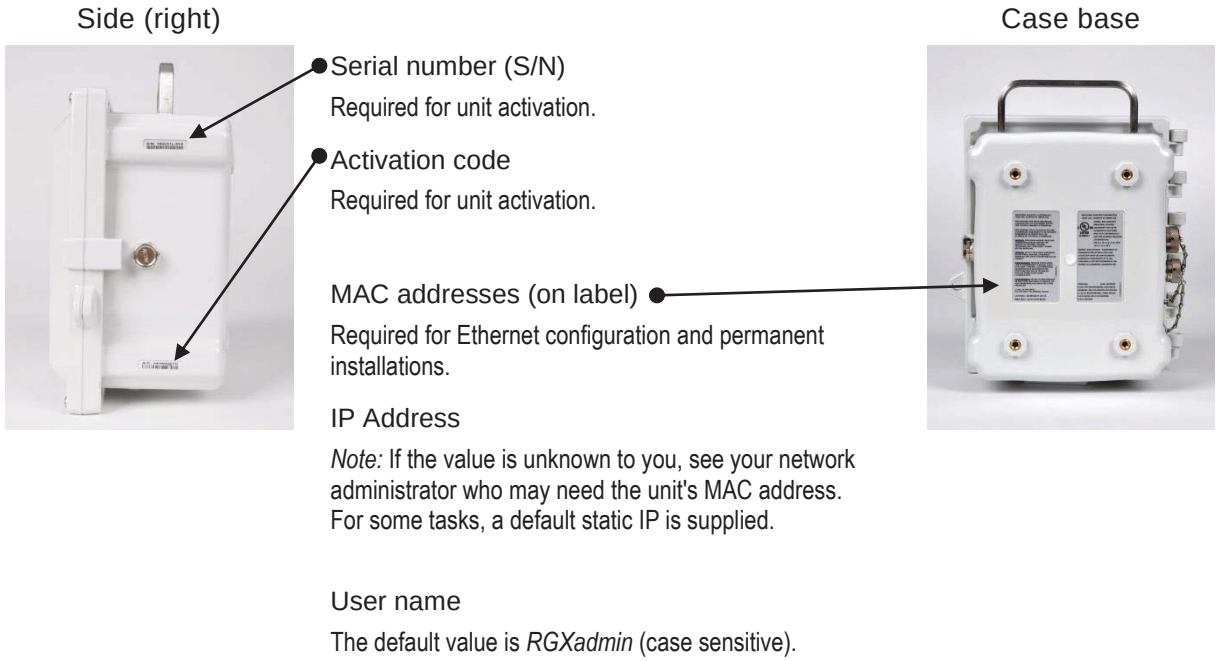

Figure 3.1 Required setup values

Activation

RGX Gateway

Activation of the RGX is required to enable wireless data exchange between the unit and iNet®, which is fundamental to the live-monitoring features of iNet Now.

To activate the unit, you will need the following.

- Access to iNet.
- RGX Serial Number (S/N), which is located on the right side of the unit.
- RGX Activation Code (A/C), which is located on the right side of the unit.

Log into iNet and follow this navigation.

- Click on the *Equipment* tab.
- Choose *Activate New Equipment*.
- In the provided fields, enter the unit's *Serial Number* and *Activation Code*.
- Use the OK button to enter the information.

Gas-detection instruments

For gas-detection instrument data to make the wireless journey from instrument to RGX to iNet and onto the users of iNet Now, the instruments must be activated for live monitoring. The following are required.

- Access to iNet.
- The Serial Number (S/N) for each instrument to be monitored.

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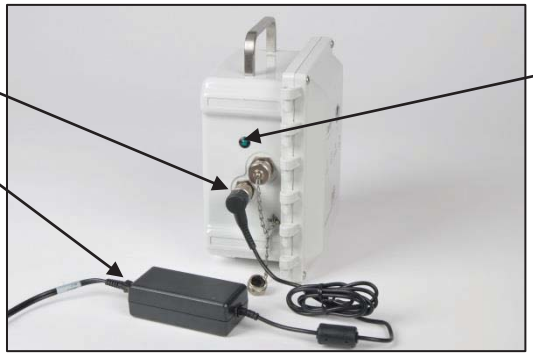
Log into iNet and follow this navigation.

- Click on the *iNet Now* tab.
- Choose *iNet Now Activations*.
- Use the serial number search box to locate an instrument.
- A check mark an item's *Activated* check-mark box indicates an instrument is activated for live monitoring.

Charge

Using *only* the supplied RGX charging power supply and power cord, charge the unit's installed battery as shown and described below.

Nonhazardous location



Connect the charging power supply to its power cord.

Uncap the unit's charging power supply port: turn the port cap counterclockwise to expose the port for use.

Connect the power-supply cable to the port and turn its swivel cover clockwise (approximately 45°) until it clicks closed or a full-stop connection feedback is felt.

Plug the power cord into a compatible outlet.

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Check the unit's charging-status indicator light.

- The green light will first *blink* on and off to indicate a precharging state.
- The green light will stay on, but stop blinking to indicate charging is in progress.
- The light will turn *off* to indicate the battery is fully charged.

When the battery is fully charged, unplug the power cord from the outlet.

Disconnect the cable from the port: turn its swivel cover counterclockwise (approximately 45°).

Cap the charging power supply port: turn its swivel cover clockwise (approximately 45°) until it clicks closed or a full-stop connection feedback is felt.

Note: always cap a port when it is not in use.

Figure 3.2 Charge the unit

Power On and Shutdown

Locate the power button on the case lid.

Power on

Press the power button for approximately 5 seconds until the power-button light turns on.

- If the unit is fully operational, the power-button light will be solid (not blinking) green.
- For information about other light patterns and colors, see Table 3.6 Power-button light indicators.

Shutdown

Press the power button for approximately 7 seconds.

- When the power-button light starts to blink, release the button.
- To indicate unit shutdown is in progress, the light will blink red and green.
- To indicate the unit is fully shutdown, the light will turn off.

Configuration

RGX configuration requires the use of one or two "apps", the RGX Configuration Interface (Interface) and iNet software. Generally, as outlined below, the Interface is used to configure the RGX-to-iNet communication settings; iNet software is used for all other RGX settings (see below). After initial configuration, use each app as needed to edit the settings it supports.

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Table 3.2 Configuration applications

Supported settings	App	
	RGX Configuration Interface	iNet software
RGX-iNet communication (cellular, Wi-Fi, and Ethernet)	Yes	No
LENS Wireless (group and encryption key)	No	Yes
Other (GPS, data upload intervals, communication priority, etc.)	No	Yes

Accessing and using the RGX Configuration Interface app

If the unit's communication setting will be cellular *only*, then you do *not* need to access or complete any work in the RGX Configuration Interface; skip to Figure 3.5 iNet settings.

There are two methods for accessing the RGX Configuration Interface—through a Wi-Fi or Ethernet connection. Supplies required for each access method are listed below.

Table 3.3 Supplies needed for configuration

Item	Access method	
	Wi-Fi	Ethernet
Torx screwdriver with a T25 bit	No	Yes
Ethernet cable Cat5 or greater	No	Yes
Computer (with browser)	No	Yes
Smart device (with browser)	Yes (or computer)	No
RGX Serial Number (S/N)	Yes	Yes
Access to iNet	Yes	Yes

When using the RGX Configuration Interface, the following apply.

- If you are not familiar with your company's communication operations, see your network administrator for assistance.
- If your company’s wireless security network is “WPA2-Enterprise”, the RGX Interface will require the upload of a *certificate of authenticity* that is 2048-bit or less and supplies the full chain of trust.
- As with most applications, the Interface is subject to timing out when idle.
- When a data field appears in gray, *no* entry is required.
- Within each section, work from top to bottom.
- When a "test" button appears, use it *after* entering all the required values that precede it; then, follow any on-screen instruction to learn of and correct for any invalid or missing values.

Based on your access method, Wi-Fi or Ethernet, complete *only one* of two possible instruction sets as indicated below.

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Table 3.4 RGX Configuration Interface instruction sets by access method

	Instruction set	
	Figure 3.3	Figure 3.4
Access Method		
Wi-Fi	Yes	No
Ethernet	No	Yes

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Figure 3.3

1 Power on the RGX

On the case lid, press the power button for approximately 5 seconds until the power-button light turns on. Observe the power-button light and proceed as noted below.

Green only (blinking or solid)	Continue.
Includes red (blinking or solid)	*See* Table 3.6 *before continuing*.
Light does not turn on	Try again. If the condition persists, the unit may not have sufficient charge. Charge the unit before continuing.

2 Activate Wi-Fi access mode

Tap the RGX power button three times quickly. If the power-button light blinks red, continue; otherwise, try again.

3 Log into the RGX Configuration Interface

Check the smart device for its list of Wi-Fi devices and find the RGX unit's serial number; highlight and click on it.

On the smart device, open a browser; into its address line type *https://* followed by the unit's IP address. If the unit IP address is unknown, use this value: 192.168.1.1.

When prompted, enter the log-in credentials given below to access the RGX Configuration Interface.

- User name: RGXadmin (case sensitive)
- Password: Unit activation code

Note: It is recommended that the password be changed after initial log in.

4 Configure communication options

Access *Settings*

Review the RGX–iNet communications options: cellular, Wi-Fi, and Ethernet.

- Enable or disable each option.
- For each enabled option, enter, select, or edit the required values.

  Reminder: If your company's wireless security network is "WPA2-Enterprise", the RGX Interface will require the upload of a *certificate of authenticity* that is 2048-bit or less and supplies the full chain of trust.

Save and Reboot

When finished, click on save; you will then be prompted to confirm the save.

When prompted to reboot, simply click on the request, then confirmation. *You do not need to do anything to the unit* as the software will complete the reboot.

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5 Verify RGX Gateway operation

To verify the unit is operational, observe the power-button light. If it is green and not blinking, the unit is operational. For information about other indicator-light patterns and colors, see Table 3.6.

Next, go to Figure 3.5 and follow the instructions to use iNet, where you will complete all other RGX settings.

Figure 3.3 Wi-Fi access method for RGX Configuration Interface

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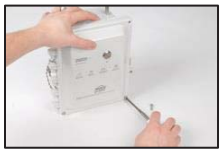
Figure 3.4

1 Shut down the RGX

Set the unit on the work surface, case lid facing up.

Observe the power-button light.

- If the light is *off,* continue.
- If the light is on and *green* only (blinking or solid), *shut down the unit*. Press the power button for approximately 7 seconds; when its light starts blinking, release the button. The power-button light will blink red and green to indicate shutdown is in progress; it will turn off to indicate the unit is fully shutdown.
- If the light is on and includes *red* light (blinking or solid), *see* Table 3.6 *before continuing*.



2 Access unit interior

Using a torx screwdriver with a T25 bit, unscrew and remove the four screws that secure the case lid to the case base.

Set aside the screws for later reinstallation.

The case is hinged on the left; open its lid from right to left.

3 Connect Ethernet cable; power on unit

Before connecting the Ethernet cable, you will need to ensure the computer and the RGX are on the same network. Consult your network administrator for assistance. *Note:* For network connections, the RGX default static IP is 192.168.1.1.

Next, connect one end of the customer-supplied Ethernet cable Cat5 or greater to the computer, then connect the other end to the RGX Ethernet port.

Power on the RGX: On the case lid, press the power button for approximately 5 seconds. Observe the power-button light and proceed as noted below.

Green only (blinking or solid)	Continue.
Includes red (blinking or solid)	*See* Table 3.6 *before continuing*.
Light does not turn on	Try again; be sure to hold the power button for a full 5-second count. If the condition persists, the unit may not have sufficient charge. Charge the unit before continuing.

4 Observe RGX interior LEDs

Observe the interior LEDs located near the left edge of the PCB (printed circuit board). From top to bottom, they are labeled COMM STAT, LENS STAT, ERR2, and ERR1. Each light may be on or off.

Check the ERR2 light (third from top). At this point, it may be red; continue.

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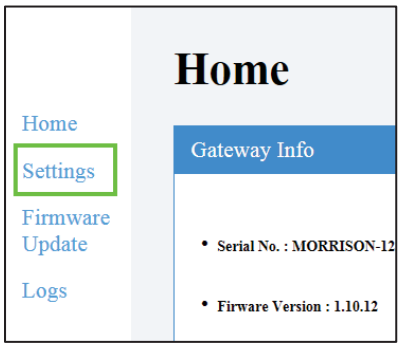
5 Log into the RGX Configuration Interface

On the computer, open a browser; into its address line type *https://* followed by the unit's IP address. If the unit IP address is unknown, use this value: 192.168.1.1.

When prompted, enter the log-in credentials given below to access the RGX Configuration Interface:

- User name: RGXadmin (case sensitive)
- Password: Unit activation code

Note: It is recommended that the password be changed after initial log in.



6 Configure communication options

Access *Settings*

Review the RGX–iNet communications options: cellular, Wi-Fi, and Ethernet.

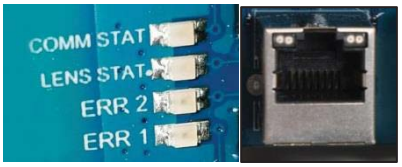
- Enable or disable each option.
- For each enabled option, enter, select, or edit the required values.

  Reminder: If your company's wireless security network is "WPA2-Enterprise", the RGX Interface will require the upload of a *certificate of authenticity* that is 2048-bit or less and supplies the full chain of trust.

Save and Reboot

When finished, click on save; you will then be prompted to confirm the save.

When prompted to reboot, simply click on the request, then confirmation. *You do not need to do anything to the unit* as the software will complete the reboot.



7 Status check

Observe the board's LEDs inside the case and compare them to the "operational status" column in Table 3.5 below.

- The LENS Wireless status light will be off until another equipment item joins the LENS group; otherwise, if there are no errors or connection issues, disconnect the Ethernet cable from the unit.
- If there are errors or issues, recheck the work completed to this point. If an issue persists, contact Industrial Scientific.
- Disconnect the cable from the computer and, as needed, reconfigure the computer to the desired network.

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8 Close case lid and secure to case base

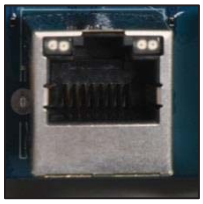
Close the RGX lid and ensure all wires and cables are secure and are contained inside the case and away from its closure surfaces.

Reinstall the four fasteners with the T25 torx bit to secure the case lid to the case base. Screw torque: 1.69 Nm (240 oz in)

Go to Figure 3.5 and follow the instructions to use iNet where you will complete all other RGX settings.

Figure 3.4 Ethernet access method for RGX Configuration Interface

Table 3.5 Internal indicator lights and their meanings

Label		Indicator	Light	Operational status
	COMM STAT	iNet connection status	Green	The unit has a connection to iNet; if blinking green, data are being exchanged.
			Off	The unit has *no* connection to iNet.
	LENS STAT	LENS Wireless status	Green	LENS Wireless is operational; if blinking green, data are being exchanged.
			Off	Either LENS Wireless is *not* operational or no other equipment items are in the LENS group.
	ERR2	Communication status	Red	There is a communications error.
			Off	There is *no* communications error.
	ERR1	System status	Red	There is a system error.
			Off	There is *no* system error.
Ethernet cable port				
	*Left* LED	Ethernet connection status	Green	There is *no* Ethernet connection.
			Off	There is an Ethernet connection.
	Right LED	Ethernet connection speed	Yellow	The Ethernet connection is 10 Mb.
			Off	The Ethernet connection is 100 Mb.

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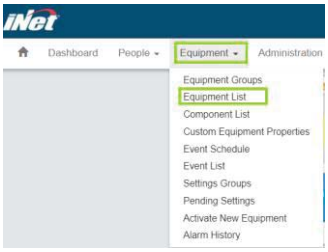


1 Log into iNet

Follow this navigation.

- Click on the *Equipment* menu.
- Choose *Equipment List*.

At the equipment list page (not shown), use the search box associated with the *Serial Number* column to enter the unit's serial number.

Click on the unit's serial number; the unit's information will display.

2 Configure LENS Wireless and General settings

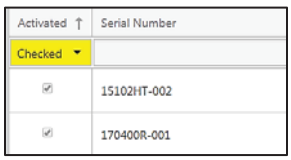
Go to settings.

- Use the Q*uick-links* box (shown) *or*
- Scroll the page to *Options*, click on *Edit*

In the *LENS Wireless* and *General* sections, complete these settings.

- GPS*
- noncritical data interval*
- communication priorities
- LENS group name
- LENS group encryption key

*When setting intervals, consider the application. For example, while a longer interval for sending the unit's GPS data uses less battery power, a shorter interval may be better suited if the unit is to be frequently moved among sites.



3 If the gas-detection instruments have not yet been activated for live monitoring, follow this navigation.

- Click on the *iNet Now* tab.
- Choose *iNet Now Activations*.

Use the serial number search box to locate an instrument. A check mark in the *Activated* column indicates an instrument is activated for live monitoring.

Figure 3.5 iNet settings

Installation Precheck

Power on the unit if it is not already on. Observe the power-button light on the case lid and compare it to the "operational status" column in Table 3.6 below.

- If there are no errors or issues, *shut down the unit.*
- If there are any issues, recheck the work completed to this point. If an issue persists, contact Industrial Scientific.

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Table 3.6 Power-button light indicators

Color and state		Operational status
Only green is on		
Solid (not blinking)		The unit is operational.
Rapid blinking		The unit is trying to communicate with iNet.
Slow blinking		The unit cannot communicate with iNet or the unit is communicating but its GPS* is not working.
Both green and red are on		
Alternating		Low battery warning or the unit's power button has been pressed and the unit is shutting down.
Only red is on		
Solid (not blinking)		The unit is not operational because there is no power or there is a system fault.
Light is off		The unit is powered off or the battery is completely discharged.

*Status is indicated only when feature is enabled.

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4

Installation and Operation

Introduction
Site Selection
Placement and Mounting
Installation Preparation
Installation
Operation Precheck

Introduction

Only qualified personnel should install and operate the RGX™ Gateway.

To help prevent injury and damage to the equipment, handle the unit with care and avoid dropping it.

NOTICE: A customer's intended use of the RGX Gateway may require mounting, as well as the installation of a compatible fixed DC power source, an Ethernet connection, or both. These and other tasks will require the customer acquisition and use of equipment, tools, and services. All customer-supplied equipment, tools, and services required to install (or uninstall), mount, or otherwise secure (or remove) the unit must comply with and be used in ways that meet any restrictions imposed by the hazardous-classified area; local, state, or national codes, regulations, standards, permits, or other requirements; and the Authority Having Jurisdiction (AHJ). The wiring of intrinsically safe circuits *typically* follows these examples.

- NFPA 70 National Electric Code (NEC); Article 504
- CSA C22.1 Canadian Electric Code (CEC); Appendix J 18-152
- IEC/EN 60079-14 Electrical installations

A list of possible customer-supplied equipment items and services is provided below.

Table 4.1 Customer-supplied equipment and services

Item	Purpose	Restrictions[a]
Mounting (optional)		
Mounting surface and mounting equipment items	Mounting the unit for operation.	The mounting surface must support 10.9 kg (24 lb) static weight, and must meet any weight-bearing requirements of the customer-supplied mounting equipment. A strut-type kit or strut-type rails and fasteners for mounting are suitable for a permanent installation. A unit can also be surface mounted.
Wall Mount Kit from Industrial Scientific	For use with surface mounting or strut-type mounting	See the Service section of this "Product Manual" for instruction.

Table 4.1 Customer-supplied equipment and services

Item	Purpose	Restrictions[a]
		Note: The kit includes a label that replicates important information that appears on the back of the RGX, including the unit's LAN MAC and WAN MAC values. These two values are to be customer recorded onto the kit label in the provided areas. Ensure the values are recorded on the kit label and the label has been customer affixed to an area of the RGX that will be visible during operation.
Magnet Mount Kit from Industrial Scientific	For use with metal surface mounting	*Do not* use with units that will draw power from a fixed DC power source. See the Service section of this "Product Manual" for instruction.
Power source, external (optional)		
Fixed DC power source	Operational power suitable for permanent installations.	9–30 VDC with a maximum current of 5A. Hubs and conduits suitable for the application and hole size 27.8 mm (1.094 ").
ISERTPS[b] from Industrial Scientific	Operational power suitable for extended run-time installations.	Before using the ISERTPS, ensure your application meets the product's certified uses and restrictions: read and understand the ISERTPS *Product Manual (*part number 17158248).
ERTPS[b] from Industrial Scientific	Operational power suitable for extended run-time installations.	Before using the ERTPS, ensure it suits your application: read and understand its *Product Manual* (part number 17158385). *Note:* Except for its IS cable, the ERTPS is *not* certified for use in any hazardous-classified areas.
Supplies (optional)		
Torx screwdriver set with T20, T25, and T30 bits 3/8 " open-end wrench	For use with removal and installation of conduit-hub plugs (T20 screwdriver and 3/8 " open-end wrench), wall mounts (T30), and case fasteners (T25)	Suitable for the installation location.
Other (optional)		
Ethernet cable for operation (if needed, 90° adapter or short adapter cable)	Required only for units that will use Ethernet during operation.	10/100 Ethernet support using an Ethernet cable that comprises RJ45 connectors and is of the cable type Cat5 or greater. For longer cables, 14−110 m [46–360 '], use a solid conductor shielded twisted pair cable. To prevent damage to the Ethernet cable and the RGX, it is recommended that the Ethernet cable have either no strain relief or flexible strain relief; if needed, a 90° adapter or short adapter cable may be used.

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Table 4.1 Customer-supplied equipment and services

Item	Purpose	Restrictions[a]
Lock	Supports restricted access to the unit's interior.	Suitable for the installation location.

[a]All customer-supplied equipment, tools, and services must comply with and be used in ways that meet any restrictions imposed by the hazardous-classified area; local, state, or national codes, regulations, standards, permits, or other requirements; and the AHJ.

[b]Ensure a minimum distance of 5 m (16 ' 4 ") between a unit and its optional power-supply accessory from Industrial Scientific, or any that are in use nearby.

Site Selection

Choose an operation location (site) that is in compliance with the product's certified use restrictions and product specifications. Ensure the site also supports the following.

- The unit is hinged on its left side and is opened from right to left. Avoid locations that that block this movement.
- If the RGX will be used with a compatible power-supply accessory from Industrial Scientific (ISERTPS or ERTPS), ensure the site allows sufficient space for the RGX and its Intrinsic Safety (IS) Cable Adapter, which extends down 62.2 cm (24.5 ") from IS power port on the left side of the RGX. Ensure the ISERTPS and ERTPS are installed and used in accordance with the instruction provided in their respective product manuals.
- If the RGX will be used with the ISERTPS or ERTPS power-supply accessory, maintain a minimum distance of 5 m (16 ' 4 ") between the RGX and the accessory or any nearby ISERTPS or ERTPS accessories (see Figure 4.1 below). This allows the RGX to be operated in a manner designed to prevent radio frequency interference per FCC (Federal Communications Commission) requirements.
- If the RGX will be connected to a compatible customer-supplied, customer-installed fixed DC power source, Ethernet cable, or both, ensure the site will accommodate the length of the intended conduit.
- To support the unit's wireless performance (Wi-Fi and LENS Wireless), ensure its placement or installation allows for a minimum distance of 1 m (3 ' 3 ") between the bottom of the unit and the ground.
- If the unit will use cellular, Wi-Fi, or both of these communication methods, ensure the site serves any connection-range requirements of those services and is not shielded.
- To achieve best performance for a unit that will use GPS, cellular communication, or both, ensure the site provides large, open-sky access and allows the unit to be mounted or placed using a vertical orientation, its handle toward the sky. Units used in an indoor environment *cannot* receive the signal required for GPS functionality.
- Ensure the unit and any cable or cord connections are situated away from standing water.

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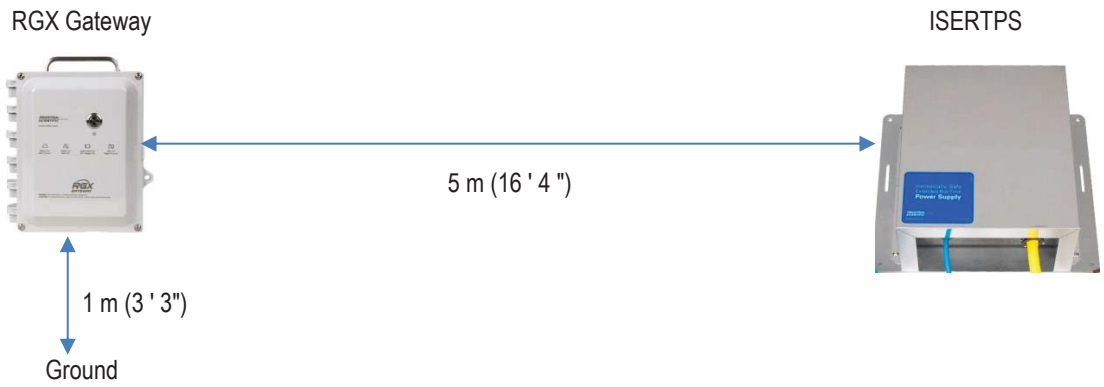

Figure 4.1 Distance requirements: ground-to-RGX and RGX-to-power-supply (ISERTPS shown)

Placement and Mounting

The unit can be placed or mounted for operation.

The optional Wall Mount Kit can be used for a unit that will be mounted to a wall, another surface, or to a strut-type rail setup. The kit contains a label that replicates important information that appears on the back of the RGX, which includes the unit's LAN MAC and WAN MAC values. These two values are to be customer recorded onto the kit label in the provided areas. Ensure the values are recorded onto the kit label and the label has been customer affixed to an area of the RGX that will be visible during operation.

The optional Magnet Mount Kit is used to mount the unit to a metal surface; however, *do not* use the Magnet Mount Kit with units that draw operational power from a compatible fixed DC power source.

Installation Preparation

Based on how the RGX will be mounted (or placed) and its intended operational power source and communications options, use the information below to determine which preparation tasks are needed. Refer to the Service section of this "Product Manual" for task instruction.

Table 4.2 Possible installation preparation tasks

Application	Service task
Mounting	
Wall, surface, strut-type rail mounting	Wall-mount installation
Magnet mounting	Magnet-mount installation; *do not use magnet mounts* with units that will draw operational power from a fixed DC power source
Operational power source	
Compatible power-supply accessory from Industrial Scientific	IS Cable Adapter installation
Fixed DC power source	Conduit-hub plug removal

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Table 4.2 Possible installation preparation tasks

Application	Service task
Conversion from fixed DC power source to any other operational power source	Acquire the Conduit-hub Plug Kit and complete installation. *Do not* reinstall any used conduit-hub plug components; once removed a plug's seal is compromised and other plug components may become altered or damaged.
Communication	
Ethernet	Conduit-hub plug removal
Conversion from Ethernet to non-Ethernet	Acquire the Conduit-hub Plug Kit and complete installation. *Do not* reinstall any used conduit-hub plug components; once removed a plug's seal is compromised and other plug components may become altered or damaged.

Installation

The RGX Gateway is suitable for use in Class I, Division 2, Groups A, B, C and D classified areas OR non-hazardous locations only.

- Class I, Division 2, Groups A B C D; Temp Code T6
- Ambient Temperature -20°C to +55°C

WARNING: *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block.

Based on the operational power the unit will use and whether or not an Ethernet connection will be installed, complete *only one* of two possible instruction sets as indicated below in Table 4.3. *Read the full instruction set before starting.* Along with the information supplied in the instruction set, meet the requirements of the AHJ, and consult the control drawing 1810D9509-200 located in this "Product Manual, Appendix A Supplemental information about external power connections.

Table 4.3 RGX Configuration Interface instruction sets

	Instruction set	
	Figure 4.2	Figure 4.3
Power-Ethernet combination		
Excludes fixed DC power *and excludes* Ethernet	Yes	No
Includes an external power source, Ethernet, or both	No	Yes

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Figure 4.2	If your installation *excludes* fixed DC power *and excludes* the connection of an Ethernet cable, continue below with step 1; otherwise, use the instruction set supplied in Figure 4.3.
—	1 Mount or place RGX If the unit has been prepared for mounting, use the customer-supplied equipment and services to complete the mounting task; otherwise place the unit at the desired operation location.
—	2 Port caps and power cables Next, choose *only one* instruction set below—a or b or c—that applies to the operational power source the RGX will use. **WARNING:** *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block. When installing a port cap or connecting a power supply cable to a port, push the cap or cable slightly, then turn its swivel connector clockwise (approximately 45°) until it clicks closed or a full-stop connection feedback is felt.
	a *No external power source* If the RGX will draw operational power *only* from its factory-installed battery, cap the charging power-supply port *and* the IS power port. Skip to Operation Precheck.
	b *Power supply accessory (ISERTPS or ERTPS)* **WARNING:** *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block. If the RGX will draw operational power from a compatible power supply accessory, cap the RGX charging power-supply port. Ensure the ISERTPS or ERTPS is installed, connected, and used in accordance with the instruction provided in its product manual. Skip to Operation Precheck.
	c *Charging power supply (part number 17158665)— use* only *in a nonhazardous location* **WARNING:** *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block. If the unit will be operated in a nonhazardous location and will draw operational power using the RGX charging power supply, cap the RGX IS power port. Uncap the unit's charging power supply port to expose the port for use; connect the power-supply cable to the port. Plug the cord into a compatible electrical outlet. Skip to Operation Precheck.

Figure 4.2 Installation for RGX that *excludes* fixed DC power *and excludes* Ethernet

Figure 4.3	If your installation *includes* the connection of an external power source, an Ethernet cable, or both, continue below with step 1;

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		otherwise, use the instruction set supplied in Figure 4.2.
—	1	De-energize *external* power source If the RGX *will* be connected to an external power source—either customer-supplied and customer-installed fixed DC power or a compatible power-supply accessory from Industrial Scientific—*de-energize the external power source.*
	2	Shut down the RGX Observe the RGX power-button light. • If the light is *off,* continue. • If the light is on and *green* only (blinking or solid), *shut down the unit*. Press the power button for approximately 7 seconds; when its light starts blinking, release the button. The power-button light will blink red and green to indicate shutdown is in progress; it will turn off to indicate the unit is fully shutdown. • If the light is on and includes *red* light (blinking or solid), *see* Table 3.6 *before continuing*.
	3	Port check Cap each power port that will *not* be used for operational power (charging power port *and* IS power port shown here). When installing a port cap, push the cap slightly, then turn its swivel connector clockwise (approximately 45°) until it clicks closed or a full-stop connection feedback is felt.
	4	Label check The Wall Mount Kit includes a label that replicates important information that appears on the back of the RGX, which includes the unit's LAN MAC and WAN MAC values. These two values are to be customer recorded onto the kit label in the provided areas. Ensure the values are recorded on the kit label and the label has been customer affixed to an area of the RGX that will be visible during operation.
—	5	Mount or place the RGX If the unit has been prepared for mounting*, use the customer-supplied equipment and services to complete the mounting task; otherwise, place the unit in the desired operation location.
	6	Access case interior

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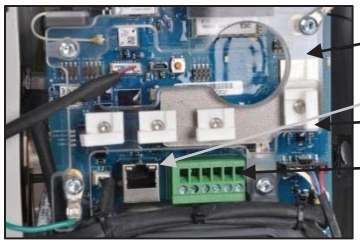
When working inside the unit, avoid accessing the battery, other exposed components, and any item that is protected by the unit's interior plastic cover. Avoid dropping or spilling anything into the case.

- Using a torx screwdriver with a T25 bit, unscrew and remove the four screws that secure the case lid to the case base. Set aside the screws for later reinstallation.
- The unit is hinged on the left; open the case lid from right to left.
- Bring in the customer-supplied Ethernet cable, power lines, or both through the customer-installed conduit-hub. If both an Ethernet cable and fixed DC power are to be used, it is recommended that the cable occupy one conduit and the power lines occupy the other, following AHJ requirements.
- Use the diagram below to locate the optional connection ports to be used: the terminal block, Ethernet cable port, and guides.



7 Connect power

Next, choose *only one* instruction set below—a *or* b, but not both—to connect *only one* external power source to the RGX.

WARNING: *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block.

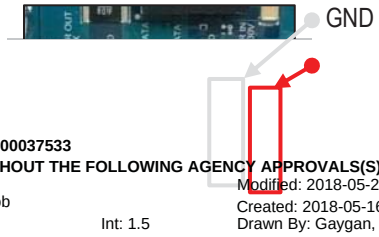
a Power supply accessory (ISERTPS or ERTPS)

WARNING: *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block.

If the RGX will draw operational power from a compatible power supply accessory (ISERTPS or ERTPS), connect the power supply's IS cable to the RGX IS Cable Adapter.

Ensure the ISERTPS or ERTPS is installed, connected, and used in accordance with the instruction provided in its product manual.

Skip to step 8.



b Fixed DC power

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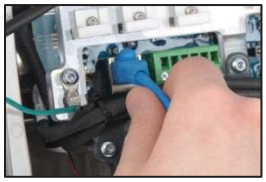
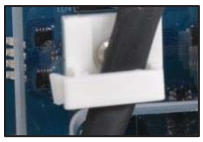
Terminal block (detail)	PWR IN 9V-30V	**WARNING:** *Only* one of the following power input ports is permitted to be connected at a given time: 12V Charger Port, IS Power Port, or 9–30 VDC Terminal Block. To complete the fixed DC power connections, count the terminal-block ports from left to right. Locate the fifth and sixth ports on the terminal block. The following apply. • Port 5 is labeled "GND" and is used to connect the ground line. • Port 6 is labeled "PWR IN 9V-30V" and is used to connect the compatible fixed DC power line that supplies an input voltage range of 9–30 VDC with a maximum current of 5A. • Use these mechanical and electrical wiring specifications. Mechanical: ○ Solid Wire: 18-12 AWG ○ Stranded Wire: 18-12 AWG ○ Torque: 4.0 lb in (0.45 N m) Electrical: Shield wiring, or conduit, at the source
	8	Connect optional Ethernet cable If an Ethernet connection is to be used, connect the cable to its port.
	9	Secure the cable and power line Use the guides to secure the already connected Ethernet cable and power line. Lift any guide by its tab. Place the cable or power line in the guide's groove. Lower and secure the tab to the guide base.
	10	Close case lid and secure to case base Ensure all wires and cables are secure, and are contained inside the case and away from the unit's closure surfaces. This will support the integrity of the items and full closure of the unit. If the strain relief on the Ethernet cable resists full closure of the unit, a 90° adapter or short adapter cable may be used. Close the case lid from left to right. Using a T25 torx screwdriver, reinstall the four screws that secure the case lid to the case base. Tighten them to a torque value of 1.69 N m (240 oz in).

Figure 4.3 Installation for RGX that *includes* an external power source, Ethernet, or both

Operation Precheck

Power on the unit: On the case lid, press the power button for approximately 5 seconds until the power-button light turns on.

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Observe the color and pattern of the power-button light, which indicates the unit's operational status. If the light is solid green (not blinking), the unit is fully operational. For information about other indicator-light patterns, refer to Table 3.6 Power-button light indicators for more information.

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5

Service and Warranty

Service

RGX™ Gateway service tasks should be performed only by qualified personnel under the following conditions.

- Perform service tasks *only* in a nonhazardous area.
- If an external power source is connected, de-energize the power source before servicing the unit.
- Ensure the unit is powered off; observe the power-button indicator light is off.
- Use only approved Industrial Scientific parts and accessories.
- Work on a nonconductive surface in a well-lit area.
- Wear grounding straps to prevent electrostatic discharge (ESD), which can cause damage to the unit's electronics.
- To support ingress protection, refer to Table 5.1 and tighten the items to their stated torque values.
- When working with the magnet mounts, the following apply.
    - Do not drill or abrade magnets; their powdered form is highly flammable.
    - Use protective gloves and eyewear to avoid a potentially severe pinch injury, cut, or splinter.

Service tasks that can be completed by Industrial Scientific customers are described in this "Product Manual." Table 5.1 indicates which parts and components are customer replaceable. All other service tasks should be performed *only* by Industrial Scientific or its authorized service centers.

Supplies

Torx screwdriver set

- T10 bit for port cap replacement
- T20 bit for conduit-hub plug removal or installation
- T25 bit for case fasteners
- T30 bit for wall mounts

Open-end wrenches

- 1/4 " for port cap replacement
- 3/8 " for conduit-hub plug removal or installation
- 3/4 " for vent replacement
- 18 mm for vent replacement

Additional supplies

- Isopropyl alcohol for fixed gasket replacement.

Instruction

Figure 5.1 provides disassembled views of the RGX Gateway, identifying its customer replaceable parts and components. This is followed by Table 5.1, which provides information about each part.

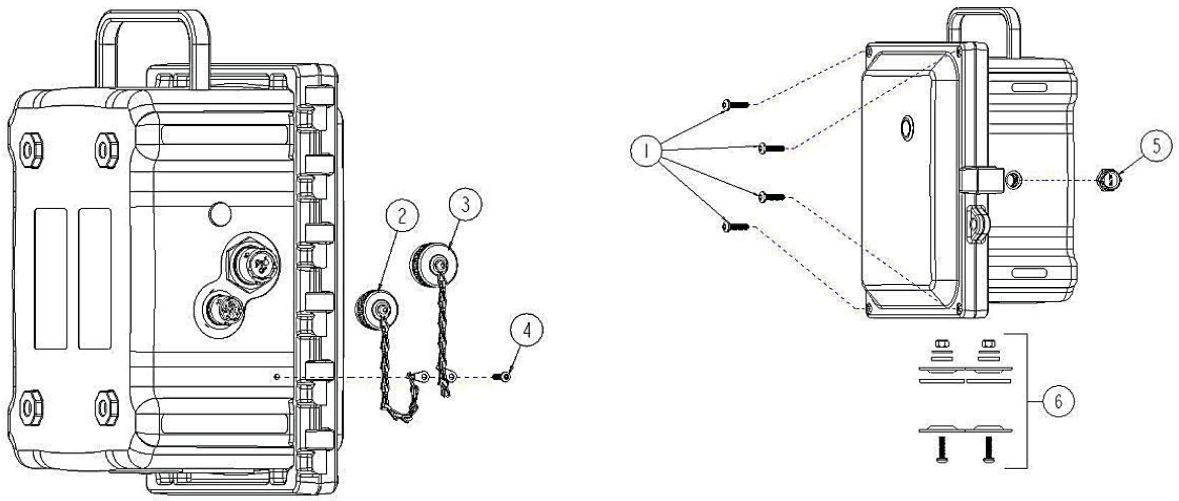

Figure 5.1 Replaceable parts diagram for the RGX Gateway

Table 5.1 RGX Gateway customer replaceable parts list

Diagram number	Part name	Part number	Notes
RGX			
1	Case fastener	18109573	Four fasteners per pack Fastener torque: 1.69 Nm (240 oz in)
2	Charging port cap	18109570	Includes tether-chain, screw, sealing gasket, washers and hex nut.
3	IS power port cap	18109571	Includes tether-chain, screw, sealing gasket, washers and hex nut.
4	Tether-chain screw	—	Screw torque: 0.63 Nm (90 oz in)
5	Vent	18109572	Vent nut torque: 1.27 Nm (180 oz in)
6	Conduit-hub plug	18109574	Screw torque: 1.27 Nm (180 oz in)
Accessories			
—	Wall Mount Kit	17157620	Screw torque: 1.13 to 1.69 Nm (160 to 240 oz in)
—	Magnet Mount Kit	18109564	*Do not use* with a unit that will draw power from a DC fixed power source. Each magnet has a pull force of 67.6 kgf (149 lbf).

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Table 5.1 RGX Gateway customer replaceable parts list

Diagram number	Part name	Part number	Notes
—	IS power cable adapter	18109575	Length: 62.2 cm (24.5 ")

Figure 5.2 provides instruction for the service of items that are installed on the case *exterior*: mounting kits and IS cable adapter.

Figure 5.3 provides instruction for the service items that require access to the case *interior*: conduit-hub plugs, vent, and port caps.

Wall Mount Kit installation

Using the orientation shown, mate the hexagon cutout of the wall mount to a corresponding corner on the back of the RGX.

The cross portion will extend past the edge of the case.

—

Using a T30 torx screwdriver, turn the torx screw clockwise to tighten.

Screw torque: 1.13 to 1.69 Nm (160 to 240 oz in)

Install the remaining wall mounts.

In the kit, locate the supplied label, which replicates important information that appears on the back of the RGX.

Locate the unit's LAN MAC and WAN MAC values, which are included on the label that is factory affixed to the back of the unit. Record these two values onto the kit label in the areas provided.

Affix the kit label to an area of the RGX that will be visible during operation.

—

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Magnet Mount Kit installation

Do not use with a unit that will draw power from a DC fixed power source.

Insert magnet post into a threaded screw hole on the back of the case; turn clockwise to tighten.

Repeat for second magnet installation.

The two magnets may be installed in the following configurations: top, bottom, left side, right side, and diagonal.

Two magnet mounts will support the weight of the RGX; up to four magnets may be installed.

Intrinsic Safety (IS) Cable Adapter installation

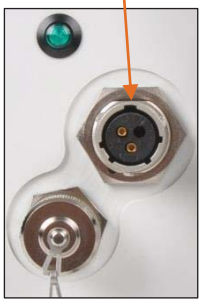
IS Cable Adapter connector

Wide tab

RGX IS port

Wide notch

Turn the IS power port cap counterclockwise (approximately 45°) to expose the port for use.



Align the wide tab of the metal adapter connector to the wide notch on the IS port; push on to the port to connect.

Turn the swivel connector clockwise (approximately 45°) until it clicks closed or a full-stop connection impact is felt.

—

—

Connect the other end of the adapter in accordance with the *Product Manual* instruction from the compatible Industrial Scientific power-supply accessory that is to be used.

Figure 5.2 Mounting kit and IS cable adapter service tasks

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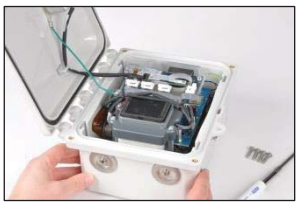
Case entry

Use a T25 torx screwdriver to unscrew and remove the four fasteners that secure the case lid to the case base; set aside the screws for later reinstallation.

The unit is hinged on the left; open the lid from right to left.

Case closure



When closing the lid, ensure all wires and cables are secure and are contained inside the case, away from its closure surfaces.

Reinstall the four fasteners with the T25 torx bit to secure the case lid to the case base. Screw torque: 1.69 Nm (240 oz in)

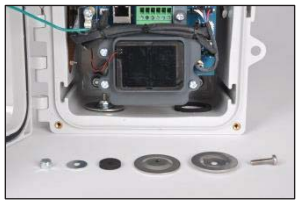
Conduit-hub plug removal and installation

Conduit-hub plug removal

Do not reinstall any used conduit-hub plug components; once removed, a plug's seal is compromised and other plug components may become altered or damaged.

Locate the conduit-hub plugs at the bottom of the case base.

Inside the case, hold the nut in place with a 3/8 " open-end wrench and turn the T20 torx screw counterclockwise to loosen.



Remove the nut, two internal washers, the sealing gasket, and one external washer from the case.

To remove a worn or damaged fixed gasket, push the outer edge of the gasket toward its center with a finger; use friction and a forward motion to separate the gasket from the base.

Use the glue side of the removed gasket in a dabbing motion to lift off remaining adhesive.

Rub all gasket-glue residue with a finger from the case base, and clean the area with isopropyl alcohol.

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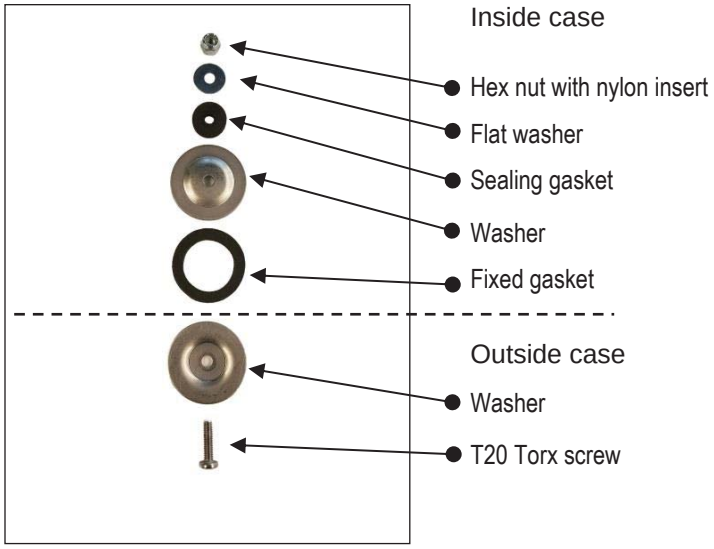
Conduit-hub Plug Kit installation

Use only an unused Conduit-hub Plug Kit from Industrial Scientific.

Do not reinstall any used conduit-hub plug components; once removed, a plug's seal is compromised and other plug components may become altered or damaged.



Remove the protective paper to expose the adhesive side of the gasket.

Inside the case, center and place the gasket over the conduit-hub plug opening on the base.

From outside of the case, place the torx screw into the concave side of the washer, and place over the base opening.

Inside the case, place the next washer—convex side down—over the screw and fixed gasket.

Follow with the sealing gasket, flat washer, and hex nut.

Hold the hex nut in place with a 3/8 " open-end wrench and turn the T20 torx screw clockwise to tighten.

Screw torque: 1.27 Nm (180 oz in)

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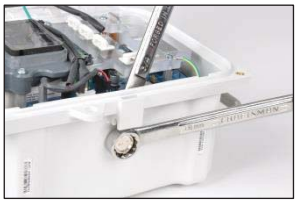
Vent replacement



To remove the vent, use an 18 mm open-end wrench to hold the vent in place.

Inside the case, turn the nut counterclockwise with a 3/4 " open-end wrench to loosen and remove.

Discard the items according to company policy.

Insert the replacement vent into the hole from outside of the case.

Inside the case, screw the nut onto the vent threads clockwise.

Hold the vent in place with the 18 mm open-end wrench; use the 3/4 " open-end wrench to turn the nut clockwise to tighten.

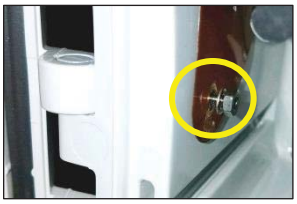
Vent nut torque: 1.27 Nm (180 oz in)

Port cap removal and installation (IS port cap shown)

Port cap removal

To remove a worn or damaged port cap, locate the hex nut for the tethered-chain screw inside the case.

Hold the hex nut in place with a 1/4 " open-end wrench and turn the T10 torx screw counterclockwise to loosen.



Inside the case, remove the nut, and one flat washer.

Lift the copper ground shield to remove the second flat washer and sealing gasket**.

Turn the port cap counterclockwise approximately 45°; separate from the port.

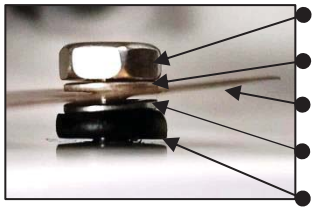
Discard the removed items according to company policy.

Port cap installation

Connect the replacement port cap* to the appropriate port (IS port or Charging port): turn clockwise (approximately 45°) until it clicks closed or a full-stop connection impact is felt.

Insert the T10 torx screw through both tether-chain end rings, and into the case screw hole.

* Always cap the port when it is not in use.



Inside the case, lift the copper ground shield enough to place the sealing gasket** and flat washer over the tether-chain screw; follow with the copper ground shield, second flat washer, and hex nut.

Hold the hex nut in place with a 1/4 " open-end wrench and turn the T10 torx screw clockwise to tighten.

Screw torque: 0.63 Nm (90 oz in)

**Replace the sealing gasket with every tether-chain screw disassembly.

Figure 5.3 Conduit-hub plug, vent, and port cap service tasks

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Warranty

Industrial Scientific Corporation's RGX™ Gateways are warranted to be free from defects in material and workmanship under normal and proper use and service for twenty-four (24) months from date of shipment. This warranty includes batteries, except where otherwise stated in writing in the literature accompanying the product. Industrial Scientific warrants that it will provide a cellular data plan for the life of the Gateway, for a minimum of two years from time of purchase provided the customer maintains an active iNet® Now account during that time; however, Industrial Scientific reserves the right to terminate any cellular data plan, at its sole discretion, in the case of misuse by Buyer, including but not limited to using data for purposes other than those described in this user manual and using data in regions outside of those originally purchased.

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Appendix A

Supplemental information about external power connections

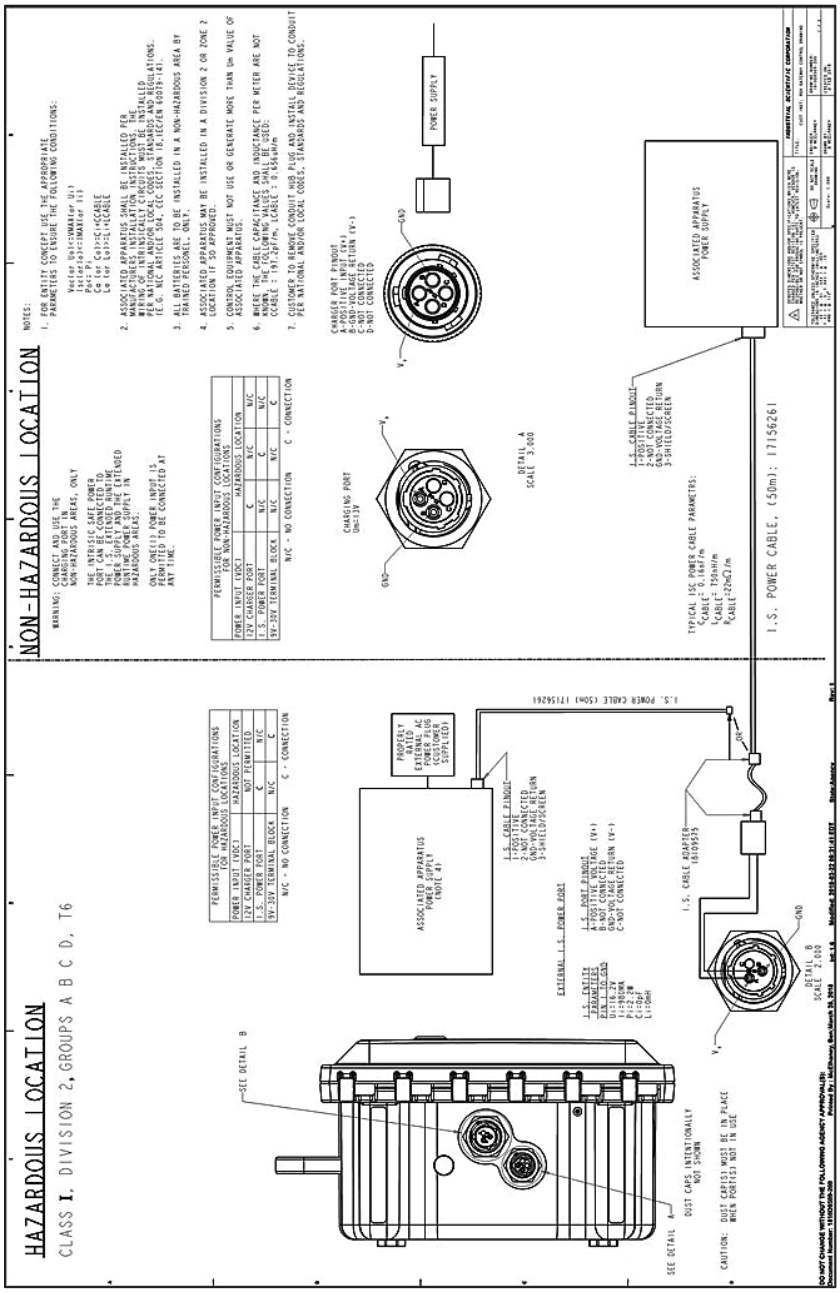

Figure A.1.A Control drawing 1810D9509-200 revision 1

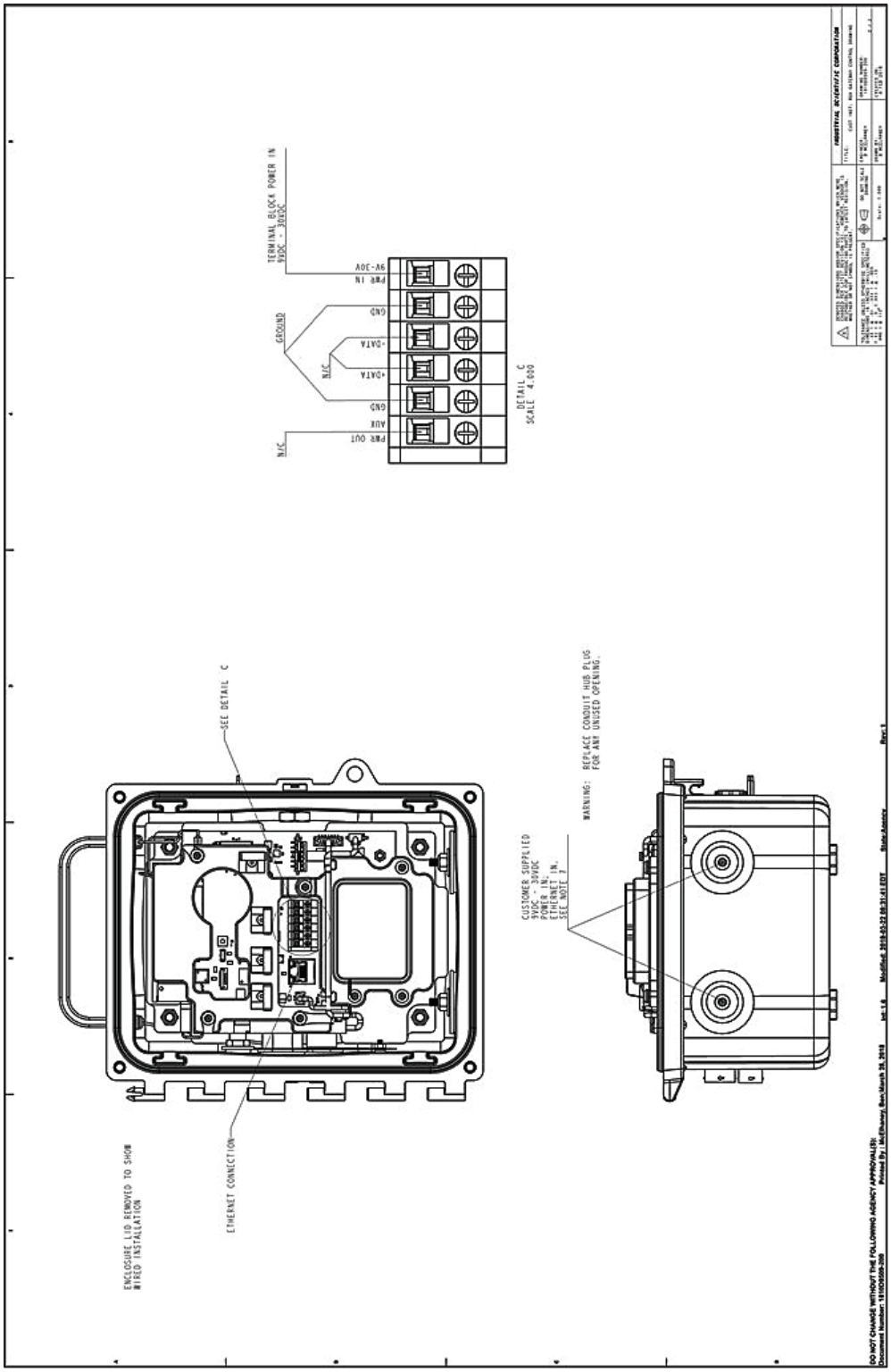

Figure A.1.B Control drawing 1810D9509-200 revision 1

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