

# Ranger Pro Gateway

## Datasheet

Bently Nevada Machinery Condition Monitoring

157M8584 Rev. -



### Description

Bently Nevada's Ranger Pro Gateway is a wireless network access device that is engineered for quick installation and setup to communicate with Ranger Pro ISA100 sensors.

The Ranger Pro Gateway complies with the ISA100 international, industrial standard.

The Ranger Pro Gateway is an integrated RF access point and gateway that manages all aspects of ISA 100 network and provides the conversion between wireless and Ethernet networks. It hosts the relevant routing, system management, security management and gateway functions in a compact rugged enclosure suitable for outdoors and harsh environments with effortless deployment.

### System Features

A typical wireless network uses one or more Ranger Pro Gateway devices to connect to wireless field devices.

Features include:

- Seamless Integration with System 1 Condition Monitoring Software
- Features include RF access and network gateway.
- Power-over-Ethernet to reduce cabling
- Rugged IP 66 rated housing for outdoor mounting.
- Web configuration Interface
- Modbus interface to monitor systems
- Various accessories are available to aid with the installation and maintenance of Ranger Pro Gateway devices.



## Compliance and Certifications

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

|                                 |   |
|---------------------------------|---|
| EMC conformity standards*       | ETSI EN 301 489-1, EN 55032, CISPR32<br>ETSI EN 301 489-17<br>EN 61326-1, EN 55011, CISPR11 |
| Radio Spectrum*                 | EN 300 328<br>FCC Part 15.247 Subparts b and c  |
| Safety*                         | IEC 61010-1<br>IEC 62311  |
| Conformity*                     | Compliant with all CE and FCC/IC requirements   |
| RoHS                            | Compliant   |
| Valid for RangerPro Gateway P/N | 154M7484-01-01  |

## Hazardous Area Approvals

WARNING

**HAZARDOUS ENVIRONMENT**

**Risk of explosive atmosphere.**

Before mounting Ranger Pro devices in a potentially hazardous environment, verify that hazardous materials, atmospheres, and conditions have been removed or that relevant risk mitigation measures have been implemented.

|                                |  |
|--------------------------------|--|
| North America (US and Canada)* | Class I, Zone 2, AEx ec IIC T4, Ex ec IIC T4<br>Class II, Zone 22, AEx tc IIIC T135°C, Ex tc IIIC T135°C<br>Class I, Div. 2, Grp A, B, C, D T4<br>Class II, Div. 2, Grp G, F T135°C<br>T <sub>Amb</sub> = -40°C to +70°C |
| IECEx*                         | Ex ec IIC T4 Gc<br>Ex tc IIIC T135°C Dc  |
| ATEX*                          | II 3G Ex e IIC T4 Gc<br>II 3D Ex t IIIC T135°C Dc  |

\* Pending

## Specifications

### Wireless

|                            |  |
|----------------------------|--|
| Network standards          | ISA100.11a   |
| Radio standard             | IEEE 802.15.4  |
| Radio frequency            | 2.45 GHz ISM band  |
| Encryption/Security        | 128-bit AES encrypted packets  |
| Output power (peak)        | < 10 dBm   |
| Max RF output power        | 4 mW/MHz   |
| Antenna connector          | N-Type, Female, 50 $\Omega$  |
| Ranger Pro Device Capacity | 50 ISA 100 Ranger Pro Devices (Includes up to 15 I/O Router Devices) |

### Ethernet

|                |  |
|----------------|--|
| Physical       | Ethernet 10BASE-T and 100BASE-TX Auto-MDIX |
| Connector type | RJ45                                       |
| Protocols      | ISA100.11a GCIModbus TCP                   |
| Cable type     | CAT5 or better                             |

### Power Supply\*

|                           |   |
|---------------------------|---|
| External supply           | 20-57 Vdc   |
| External supply connector | M12 4-pin A-coded female connector                    |
| PoE supply                | IEEE 802.3af/at Type 1 Mode B (Midspan) compliant PSE |
| PoE supply connector      | RJ45 socket connector                                 |
| Maximum Power consumption | 4 W   |

\* The user can elect to use both the PoE and External power supply options concurrently.

### RTC Backup Battery

|      |   |
|------|---|
| Type | CR2032X 220mAH<br>Manganese Dioxide Lithium<br>Coin Battery |
|------|---|

### Operating Conditions

|                       |  |
|-----------------------|--|
| Operating temperature | -40°C to 85°C (-40°F to 185°F) (Operating at extreme temperatures or beyond may damage the device) |
| Humidity              | 5 to 95 % (noncondensing)  |
| Altitude              | Maximum 3,000 m (9,842 ft.) outdoors   |

### Physical

|               |  |
|---------------|--|
| Weight        | 1.65 kg (3.64 lb)                                |
| Dimensions    | 202 x 165 x 66 mm (7.95 x 6.50 x 2.60 in)        |
| Case material | Powder coated, anodised aluminum                 |
| Mounting      | Pole or surface mount using supplied accessories |
| IP Rating     | IP66†  |

† Pending



County/region specific approvals are not listed. Contact your local Bently Nevada sales representative for details.

## Ordering Information



For the detailed listing of country and product specific approvals, refer to the *Approvals Quick Reference Guide* (108M1756) available from [Bently.com](http://Bently.com).

## Ranger Pro Gateway ISA100

### 70M320 – AA-BB-CC-DD-EE-FF

Description: Ranger Pro ISA 100 Gateway

#### A: Power Supply Option

|    |                         |
|----|-------------------------|
| 00 | None                    |
| 01 | Industrial POE          |
| 02 | 24 Vdc                  |
| 03 | 24 Vdc & Industrial POE |

#### B: Antenna Option

|    |       |
|----|-------|
| 01 | 2 dBi |
| 02 | 6 dBi |

#### C: Power and Reset Cable Option

|    |              |
|----|--------------|
| 00 | None         |
| 05 | 5 m (16 ft)  |
| 10 | 10 m (32 ft) |
| 20 | 20 m (65 ft) |

#### D: RF Extension Cable Option\*

|    |              |
|----|--------------|
| 00 | None         |
| 02 | 2 m (6 ft)   |
| 04 | 4 m (13 ft)  |
| 10 | 10 m (32 ft) |

#### E: Accessory Options

|    |                     |
|----|---------------------|
| 00 | None                |
| 01 | Lightning Arrester† |

|    |  |
|----|--|
| 02 | Field-Installable Connector (for Power-Reset Cable only) |
| 03 | Lightning Arrester & Field-Installable Connector†        |

#### F: Agency Approvals

|    |                        |
|----|------------------------|
| 01 | North America CII Div2 |
| 02 | ATEX/IECEx Zone 22     |

\* RF antenna extension cables will attenuate signals. Use the shortest length for the application. Additionally, the extension cable application is dependent on the installation area and local regulations. Please consult with Bently Nevada prior to ordering.

† Application is dependent on installation topology and local regulations. Please consult with Bently Nevada prior to ordering.


## Accessories

Use the following part numbers to order spare parts and accessibility for the Ranger Pro Gateway.

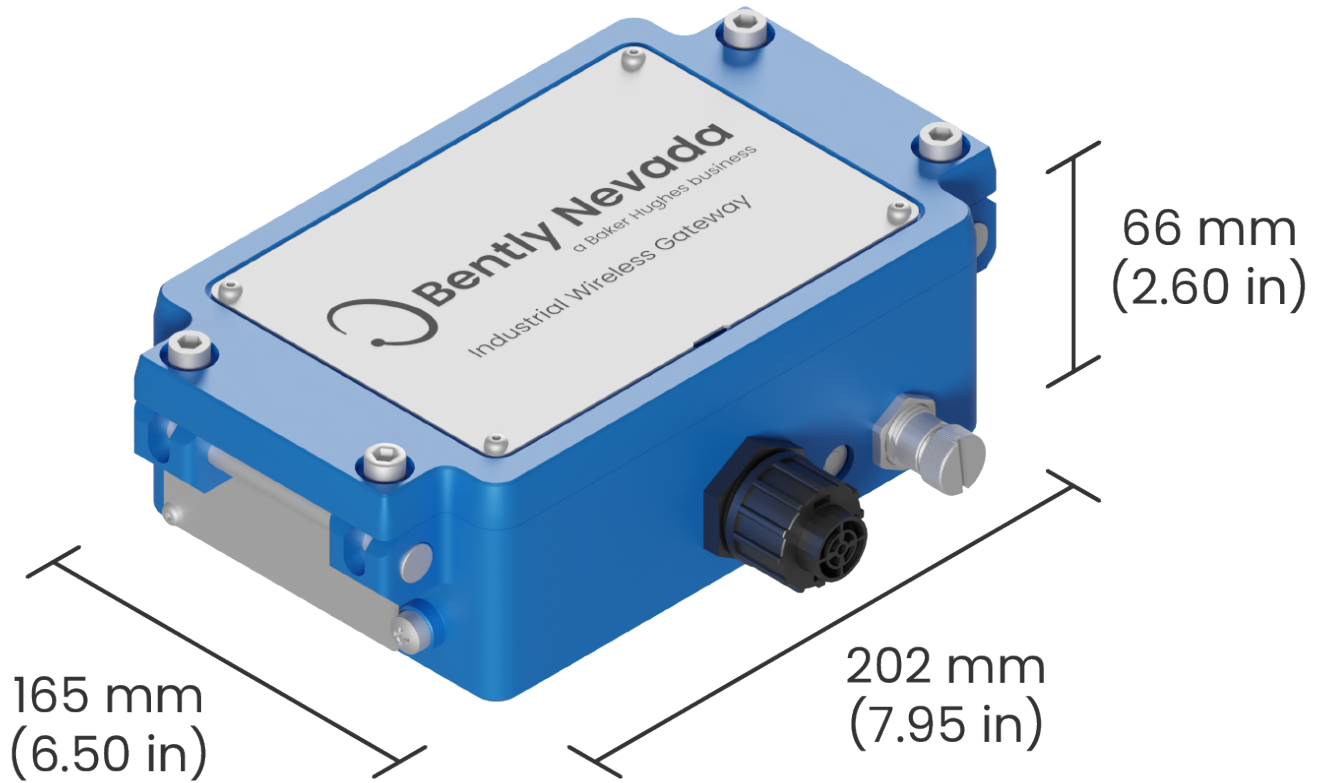
| Product or Document | Item  |
|---------------------|---|
| 147M0794            | 2 dBi Omnidirectional Antenna                                 |
| 147M0795            | 6 dBi Omnidirectional Antenna                                 |
| 147M0796*           | Lightning Arrester  |
| 147M0800            | Cable - Power + Reset (5 m)                                   |
| 147M0801            | Cable - Power + Reset (10 m)                                  |
| 147M0802            | Cable - Power + Reset (20 m)                                  |
| 151M0471            | Field installable A-Coded Connector for Power and Reset Cable |
| 154M1343            | RJ45 Connector Gland  |
| 151M1117            | PoE Injector (industrial use)                                 |
| 151M0474†           | RF Extension Cable (2 m)                                      |
| 151M0473†           | RF Extension Cable (4 m)                                      |
| 151M0475†           | RF Extension Cable (10 m)                                     |

\* Application is dependent on installation topology and local regulations. Please consult with Bently Nevada prior to ordering.

† RF antenna extension cables will attenuate signals. Use the shortest length for the application. Additionally, the extension cable application is dependent on the installation area and local regulations. Please consult with Bently Nevada prior to ordering.

| Catalog Order Number (1) | Part Number    | Figure  |
|--------------------------|----------------|---|
| 70M320-XX-XX-XX-XX-XX    | 154M7484-01-01 |  <p data-bbox="646 1738 1377 1801"><b>Figure 1: Ranger Pro Gateway 154M7484-01-01 Views Front (Top), Left Side (Middle), Right Side (Bottom)</b></p> |

## Drawings and Figures



**Figure 1: Ranger Pro Gateway Catalog Number 70M320**

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