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Part Numbers:
BWWIRELESS-S
BWWIRELESS-AP
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1. Introduction
The Belt-Way wireless kit enables long range wireless communication from a Belt-Way integrator to a remote display or Plant-Connect modem. The wireless kit decreases installation time and cost by eliminating long cable runs from the conveyor to a control tower or office. When properly installed, a wireless kit will provide a reliable connection with little ongoing maintenance. The wireless kit’s will work only with the new style Belt-Way integrator.

2. What is in the Box?

1. Transmitter with Internal Antenna (BWWIRELESS-S)
2. Transmitter with External Antennas (BWWIRELESS-AP)
3. Outdoor Rated Ethernet Cables
4. Mounting pipes and hardware
3. Wireless Kit Specifications

Transmitters
Wireless Standard: 802.11 b/g/n
Frequency: 2.4 Ghz
Transmit Power: up to 30 dBm
Antenna (BWWIRELESS-S): 8 dbi Internal Directional
Antenna (BWWIRELESS-AP): 2 x 2 dbi External Omnidirectional
Coverage with supplied antennas:
1 - 2 miles with ideal placement and clear line of sight
Environmental: IP65
Power: 12 - 24 vdc Power over Ethernet
(supplied by Scale integrator or Remote Display)

Cable
25 ft Cat 5e UV rated weatherproof cable

Hardware
1 - 48" galvanized mounting pipe
2 - 3/8" U Bolts
2 - 2" Hose Clamps

4. Wireless Network Overview
The wireless scale network requires one BWWIRELESS-AP (access point) installed near the remote display or Plant Connect modem and one BWWIRELESS-S (scale) installed at each scale integrator. Multiple scale transmitters can connect to a single access point. Each transmitter is preprogrammed with an IP address that must be on the same IP network as the remote display and scale integrators. The access point default IP address is 192.168.1.20. Scale 1 transmitter default IP addresses is 192.168.1.21, Scale 2 is 192.168.1.22, Scale 3 is 192.168.1.23, etc. The transmitters are labeled with their default IP address. Take care to install each transmitter at its proper location.

Network Example:
5. Wireless Connection Overview

Line of sight between the antennas is important for reliable performance. Carefully choose the mounting location for the transmitters to minimize the number of obstructions. Increasing the height of the transmitters will usually improve the signal strength. Use taller mounting poles and longer cables if necessary. The BWWIRELESS-AP includes 2 omnidirectional antennas which can receive a signal from 360°. The BWWIRELESS-S includes a directional antenna has a 60° beam width and must be pointed at the omnidirectional antenna for it to work properly. The transmitters can be installed at different elevations as long as the directional antennas are pointed toward the omnidirectional antenna.

Proper Installation Examples:

1. Transmitters installed at same elevation as access point with good line of sight. Increase height of transmitters to get above conveyors, piles, buildings, etc.

2. Transmitters installed at different elevations. Angle directional antennas to focus the signal at the omnidirectional antennas.
Improper Installation Examples:
1. Directional antennas pointed away from Access Point.

2. Poor line of sight causes low signal strength and connection failure.

6. Mount the Transmitters
1. Plug an ethernet cable into each transmitter. The cable must route through the connector as shown to ensure a waterproof seal.

2. This is the most important step in the installation process! The transmitters must have sufficient line of sight to work properly!

Attach the mounting pipe to the conveyor using the included u-bolts. Avoid areas with excessive vibration. Mount the transmitters to the pipes using two hose clamps. Route the cable so it is protected from the moving belt, falling debris, and other sources of damage.

Install the Access Point FIRST and continue to the Site Survey section to find the best locations for each of the scale transmitters!
7. Power the Transmitters
Connect the other end of each ethernet cable to a scale integrator, remote display, or modem. The ethernet cable passes power and data from the integrator or remote display to the transmitter.

The transmitter indicator lights will turn on as soon as power is applied.

The signal strength lights turn on ONLY when a wireless connection is made between the access point and scale transmitters. If there are no lights then the transmitters on both ends must be repositioned to gain better line of sight. If there is only one signal light, then the connection is weak and should be improved for reliable long term performance. Raising the transmitters may be enough to increase the signal. If two, three, or four lights are on then the signal is strong and should work well.

Contact Belt-Way Scales tech support at (815) 625-5573 for help with wireless installations.
8. Site Survey

A site survey may be performed to make sure the wireless connection will work properly. A smartphone is required for the following procedure.

1. Install the Access Point near the remote display / modem and power it up.

2. Go to a point where a scale transmitter will be installed and search for the beltway wireless network.

   Apple iPhone Example
   Click the Settings icon. Click Wi-Fi. Make sure Wi-Fi is enabled.

   ![Apple iPhone Settings](image)

   Android Phone Example
   Click the Tools > Settings icon. Click Wi-Fi. Make sure Wi-Fi is enabled.

   ![Android Phone Settings](image)

3. If the beltway network is visible, the connection should work from that exact location.

4. Continue to each scale and repeat the process to make sure all connections will be successful.