



## **PRECOlink**

**PLW8003**

**PLW8004**

**Operating Manual**



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## FCC STATEMENT

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**Warning:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference.

## INDUSTRY CANADA STATEMENT

Per RSS-Gen, Section 8.4 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.

Per RSS - Gen, Section 8.4 Cet appareil est conforme à Industrie Canada exempts de licence standards RSS. Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas provoquer d'interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.

This radio transmitter, 20379-PRECOLINK, has been approved by Innovation, Science and Economic Development Canada to operate with the antenna type listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

**Manufacturer:** Antenna Factor by Linx

**Model number:** ANT-2.4-ID-2000-SMA

**Peak Gain:** 3.0dBi max

**Impedance:** 50-ohms

## REGULATORY COMPLIANCE

The PreView Side Defender®II sensor is compliant with the following countries/regions and their regulations as of the published date of this manual. The sensor may be compliant in other countries/regions. Please check your local regulations or contact PRECO Electronics® for support.

- **United States** - FCC- Part 15.247
  - FCC ID: OXZPCLK2020
- **Canada** - RSS-247:2017
  - IC ID:20379-PRECOLINK
- **European Union** - ETSI EN300 328 V2.3.3:2019-07. ETSI EN301 489-17 V3.1.1:2017
- **Australia/New Zealand** - AS/NZS 4268:2017

## Patent pending

This document may be amended, corrected, and enhanced in keeping with the sensor development progress. The most recent version can be found at [www.preco.com](http://www.preco.com)

## TRADEMARKS

The names of actual companies and products mentioned herein may be the trademarks of their respective owners. Any rights not expressly granted herein are reserved.

Contents

- Safety Symbols and signal words..... 1
- 1 Daily Maintenance ..... 2
- 2 Product Description..... 3
  - 2.1 System Operation ..... 4
- 3 Installation ..... 6
  - 3.1 Before you Begin ..... 6
  - 3.2 PRECOlink Install Location..... 6
  - 3.3 System Connections..... 6
- 4 PRECOlink Pin Out..... 7
- 5 Troubleshooting..... 8
- 6 Specifications ..... 8
- 7 Warranty Information ..... 9
- More PRECO Electronics® Safety Products ..... 10

## Safety Symbols and signal words

	Indicates a hazardous situation that, if not avoided, could result in death or serious injury
	Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury
	Indicates information considered important, but not hazard-related

**This operating manual should be stored in a safe place and be referred to when maintaining and/or reinstalling the system.**

**PRECOlink is an integral part of your PreView® object detection system. The following notices and daily maintenance apply to all systems that utilize PRECOlink technology.**

*If the PRECO Electronics® system is not maintained properly, it may not operate as intended, which may result in a failure to warn the operator of a hazardous situation.*



*Failure to follow all safety precautions and instruction may result in property damage, serious injury, or death. It is necessary to read, understand and follow all instructions shipped with the product.*

*The PreView® system is intended as an Object Detection System and should not be relied upon as the first line of defense for the safe operation of the equipment. It should be used in conjunction with established safety programs and procedures to augment the safe operation of the equipment, ground personnel, and adjacent property.*

*People's lives depend on the proper installation of this product in conformance with these instructions. Should the system become inoperative, it could jeopardize the safety or lives of those who depend on the system.*

*The PreView® Object Detection System is intended for commercial use. Proper installation of the object detection system requires a good understanding of equipment electrical systems and procedures, along with proficiency in the installation.*

# 1 Daily Maintenance

PreView® systems on operating equipment must be tested each day prior to equipment operation. The equipment operator must check for proper operation at the beginning of every shift or safety inspection period. A walk around test shall be performed every day to verify proper function of the system and to familiarize the operator with the detection pattern. More frequent inspections should be performed when:

- The equipment is operating in a particularly dirty or harsh environment.
- The operator has reason to suspect the system has been damaged.

This test should be performed with two people, the operator who remains in the cab, and the assistant who walks through the sensor(s) detection zone(s).

1. Move the equipment to an open field larger than the detection zone to test.
2. Clean the sensor face of any accumulation of dirt, mud, snow, ice, or debris.
3. Visually inspect the attached wiring and cables and verify that they are properly secured, not chafing or dangling free where they could become snagged or damaged. Inspect the PreView® Sensor and In-cab Display and verify that they are securely attached to the equipment.
4. Make sure the equipment has been secured and remains stationary then activate the sensor.
5. Verify the sensor is operational. Depending on In-cab Display, this may be: green Power LED (for display), green icon (in-cab video monitor), or beep (buzzer or SAS).
6. Assure the detection zone has been cleared of all obstacles. Any obstacles in the detection zone will interfere with the test.
7. The assistant should position themselves on the detection zone center line outside the detection zone and walk towards the sensor (at 3+ mph for Side Defender®II) while the operator notes when the warning activates, signifying the sensor has detected the assistant - identifying the detection zone limit.
8. Next, the assistant should walk from inside the detection zone away from the sensor along the center line of the detection zone while the operator notes when the warning stops.
9. The assistant should then move 1 meter to the left of the center line and walk towards the sensor again while the operator notes the warning.
10. Repeat the above step by moving another meter to the left and walking towards the sensor while the operator notes the warning until the assistant is no longer detected.
11. Repeat this test sequence for the right side.

For questions, call +1.844.787.2327 toll free in the USA. Call +1.208.323.1000 or send a fax request to +1.208.323.1034 for outside the USA, or submit an online request at [www.preco.com/contact-us/](http://www.preco.com/contact-us/)

## 2 Product Description



*To ensure compliance with the Radio Frequency (RF) exposure guidelines, this device must be used at least 20cm away from your body or nearby persons. Failure to observe this warning could result in the RF exposure levels exceeding the applicable limits.*

The PreView® PRECOLink Wireless Coordinator and End Device Functions as a bridge, converting messages received via J1939 CAN to wireless 802.15.4 and messages received via wireless 802.15.4 to CAN. This device eliminates the need for long and complex body harness installations, and has the capability to support single sensor to single display communication as well as multiple sensor to multiple display communication. External antenna provided to increase range, if necessary.



## 2.1 Auxiliary Input

PRECO Electronics® PreView® Systems are engineered to offer auxiliary output functions that can be used for additional alerts. The PRECOLink auxiliary input offers an auxiliary output from the End Device and wirelessly to the in-cab Coordinator, providing a user-friendly auxiliary output function at both the End Device and Coordinator.

## 2.2 Auxiliary Output

PRECOLink supports an auxiliary output signal that can be used for additional alerts from both the rear and side detection sensors.

This output is an Active Low (switch to ground). Examples of this function are an LED indicator in the side mirror when there is an object in the side blind zone and/or an external backup alarm when the rear sensor detects an object. Contact PRECO Electronics® for more information.

## 2.3 System Operation

Data LED – flashes blue when data is being communicated with the End Device. Power is required at both the Coordinator and End Device for data transmission

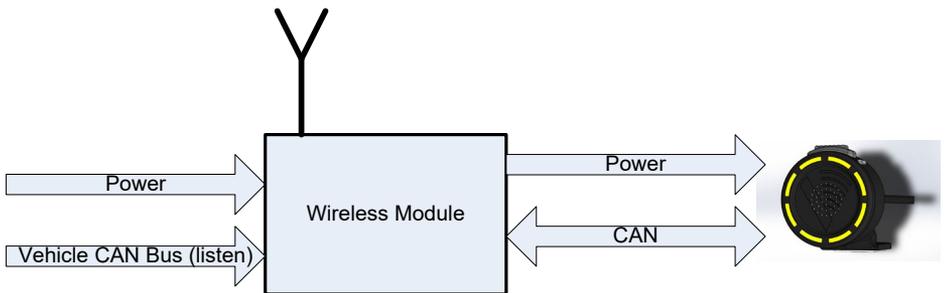
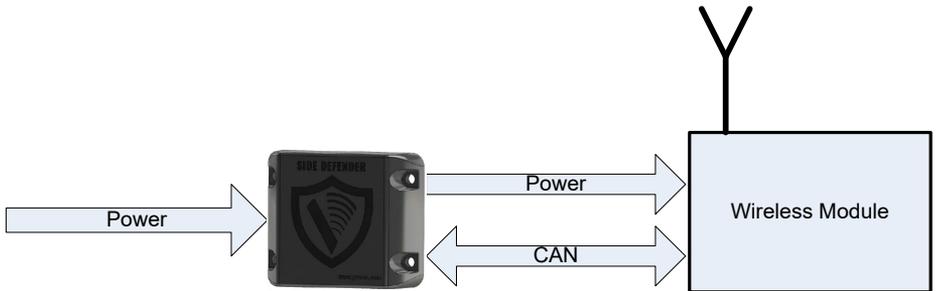
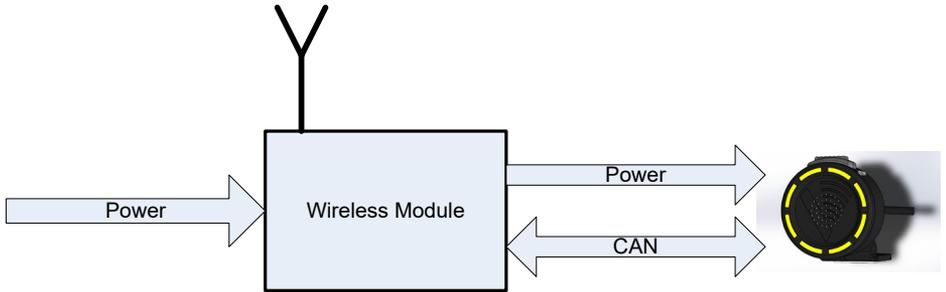
Signal LED – Flashes red. Speed of flash indicates signal strength with End Device. A fast flashing red LED indicates a strong connection. Power is required at both the Coordinator and End Device to establish a connection

Common connection scenarios:

There are multiple options for providing power to the PRECOLink. The Coordinator must be powered by ignition power either directly or through ignition power from the sensor to the Coordinator. When the PRECOLink devices are powered by the vehicle ignition, they will route power to the display and sensor. Power can also be provided directly to the sensor, which will power the PRECOLink. The End device can be powered by ignition power, reverse, such as a reverse light, or sensor power. If a sensor is connected to either the coordinator or end device, you can choose to power the sensor, which will then power the

PRECOLink. The opposite is true to power the sensor through the PRECOLink. If there is no sensor connected, power must be provided directly to the PRECOLink.

Refer to your installation guide and wiring diagram for your specific system power connections.



### 3 Installation



*If the PRECO Electronics® system is not installed properly, it may not operate as intended, which may result in a failure to warn the operator of a hazardous situation.*

#### 3.1 Before you Begin

Prior to installing the PreView® system with PRECOLink, take time to familiarize yourself with all of the all documentation, theory of operation, and system components.

#### 3.2 PRECOLink Install Location

##### Coordinator

Installs in the cab, secured behind the dash towards the left or right side of the vehicle. This allows the display to be installed at the preferred location in the cab, and the optional external antenna to be mounted outside the vehicle, if required. (refer to figure 1 for wiring connections)

##### End Device

Installs at the same side of the vehicle as the sensor (or sensors) are installed, and towards the same side of the vehicle as the Coordinator, allowing easy access to the sensor, and aligning the antenna to the coordinator. (refer to provided Cable Diagram for wiring). This allows the sensor to be installed in its designated location, while maintaining optimal communication between Coordinator and End Device. (refer to Sentry and Side Defender II User Manual for sensor installation location specifics).

The PRECOLink End Device is to be Installed in a location that provides signal strength of Medium to High and is not easily susceptible to damage. Signal strength is noted by the rate of the flashing red LED. A fast flashing red LED indicates a strong connection.

#### 3.3 System Connections



*If the PRECO Electronics® system is not wired properly, it may not operate as intended, which may result in a failure to warn the operator of a hazardous situation.*

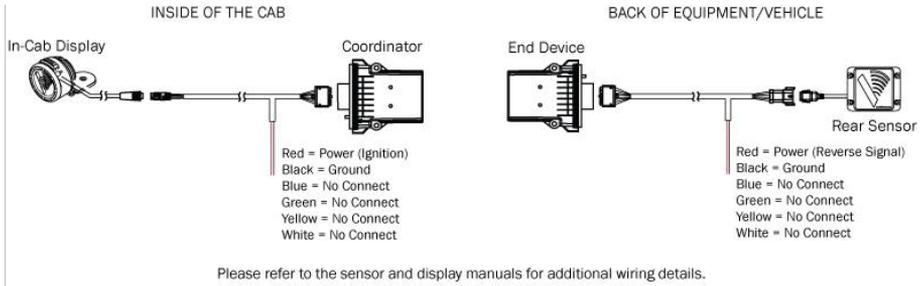
##### Coordinator

Locate the vehicle's ignition power and connect to the red wire on the sensor/display harness. If it is necessary to extend the power wire on the

supplied harness, use 20 AWG wire as a minimum. Connect the black ground wire to an existing dedicated ground location or create a new ground connection.

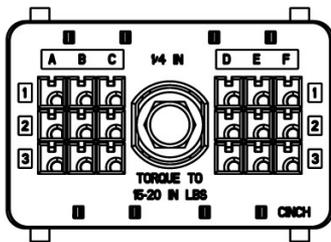
### End Device

Locate the vehicle’s ignition, reverse power source, or power from the sensor and connect to the red wire on the sensor harness. If it is necessary to extend the power wire on the supplied harness, use 20 AWG wire as a minimum. Connect the black ground wire to an existing dedicated ground location or create a new ground location.



**Figure 1 -Single Sensor with Display, System Wiring Connections. Please refer to your system specific wiring diagram for additional specifications.**

## 4 PRECOlink Pin Out



CONNECTOR PIN OUT		
SIGNAL NAME	PIN	WIRE COLOR
GROUND	1A	BLACK-WHITE
PWR INPUT (+)	2A	RED-WHITE
CHASSIS GND	1B	BLACK
CHASSIS PWR (+)	2B	RED-WHITE
CAN1 HIGH	1C	YELLOW
CAN1 LOW	2C	GREEN
CAN2 HIGH	1D	YELLOW-WHITE
CAN2 LOW	2D	GREEN-WHITE
AUXILIARY OUT		WHITE
AUXILIARY IN		BLUE

**Figure 2 -Wiring Connections**

# 5 Troubleshooting

Step 1: If signal strength is low, attempt moving either the Coordinator, End Device or both as close to the side of the vehicle as possible. If this fails to improve signal strength, rotate either the Coordinator, End Device or both, if possible.

Step 2: If Step 1 fails, connect the included x2 external antennas, one to the Coordinator and one to the End Device. Antennas must have the same orientation i.e., both pointing up or both pointing down, both pointing left or both pointing right. Antennas must be installed on the same side of the vehicle

# 6 Specifications

## PRECOLink Specifications

Wireless Communication Standard:	IEEE 802.15.4 (2.4GHz)
Transmission Power:	< +10dBm
Connector:	See Figure 2
Protection Rating:	IP67
Housing Material:	30% Glass Filled Polymer
Dimensions:	5.130" L x 4.550" W x 1.670" H (13 cm x 11.5 cm x 4.2 cm)
Weight:	TBD
Mating Connector Torque Screw	15 – 20 in-lbs (1.69 – 2.26 Nm).
Operating Temperature:	-40 °C to +85 °C
Storage Temperature:	-55 °C to +105 °C
Vibration:	25 G, random, all three axes
Shock:	50 G
Mounting:	Two 0.292" (7.42mm) diameter mounting holes.
Operating Characteristic Latency:	<50 ms
Electrical Specifications	Input - 9-33VDC discrete, protection from overvoltage Output - 500mA, active low, short circuit protection.
Frequency:	2.405GHz to 2.475GHz
Power Supply:	+7VDC to +30VDC, Reverse polarity and over-voltage protection.
Current:	<0.5 A
Communications Interface	
CAN Interfaces:	J1939 Compliant, 250/500K bits/sec
Visual Indicators:	SIGNAL (RED) and DATA (GREEN)

PRODUCT MANUFACTURED IN THE USA

# 7 Warranty Information

## MANUFACTURER STANDARD LIMITED WARRANTY AND LIMITATION OF LIABILITY

Manufacturer warrants that on the Date of Purchase this Product will conform to Manufacturer's published specifications for the product, which are available from Manufacturer on request, and Manufacturer warrants that the product is free from defects in materials and workmanship. This Limited Warranty for the sensor extends for sixty (60) months from the date of shipment. Manufacturer will, at its option, repair or replace any product found by Manufacturer to be defective and subject to this Limited Warranty.

This Limited Warranty does not apply to parts or products that are misused; abused; modified; damaged by accident, fire or other hazard; improperly installed or operated; or not maintained in accordance with the maintenance procedures set forth in Manufacturer's Installation and Operating Instructions.

To obtain warranty service, you must ship the product(s) to the specified Manufacturer location within thirty (30) days from expiration of the warranty period. To obtain warranty service, call Customer Service at +1.866.977.7236 or +1.208.323.1000 or fax your request to +1.208.323.1034. Customer Service will issue warranty authorization and further instructions. You must prepay shipping charges and use the original shipping container or equivalent.

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Manufacturer shall have no further obligation or liability with respect to the product or its sale, operation and use, and Manufacturer neither assumes nor authorizes the assumption of any other obligation or liability in connection with such product.

This Limited Warranty gives you specific legal rights, and you may also have other legal rights, which vary, from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.

Any oral statements or representations about the product, which may have been made by salesmen or Manufacturer representatives, do not constitute warranties. This Limited Warranty may not be amended, modified or enlarged, except by a written agreement signed by an authorized official of Manufacturer that expressly refers to this Limited Warranty.

## More PRECO Electronics® Safety Products

### PreView® Radar Blind Spot Monitoring

- **Sentry®** - 150° fully adjustable detection zone. Detects distance, relative velocity, and angle of up to 16 objects simultaneously from 0 to 30 m (98') away.
- **Sentry@X** – Narrow horizontal field of view with fully adjustable detection zone. Detects distance, relative velocity, and angle of up to 16 objects simultaneously from 0 to 30 m (98') away.
- **Side Defender®II** - 150° intelligent side object detection radar with VRU protection. Ignores stationary objects while warning of bicycles, vehicles and people in your side blind spots.
- **Xtreme** – Designed for equipment used in extreme mining conditions. Variable detection ranges up to 10 m (32') available.
- **Wireless** – WorkSight® sensor with wireless connection to a touch screen in-cab display. Customizable detection range up to 6 m (20').

### PreView® Camera Monitor Solutions

- **PreView® Plus** – 7” IP67 monitor supports 1 to 4 cameras with 1 to 24 radar sensors providing combined camera and radar technologies to deliver the most complete active blind spot monitoring solution available.
- **Monitor 5HD** – 5” heavy-duty IP67 monitor supports up to 3 cameras.
- **Monitor 5LD** – 5” monitor for closed cabs. Supports a single camera.
- **Mini Cam** – Compact cameras with 120°, 150°, or 180° field of view.
- **Heavy-Duty Cam** – IP67 Heavy- Duty camera with 118° field of view, IR LEDs, and built-in heater.

**PreView® VideoLink** – Make your existing camera system an active safety resource by adding visual and audible alerts from a PreView® Radar sensor to your in-cab monitor.

Proudly developed by



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