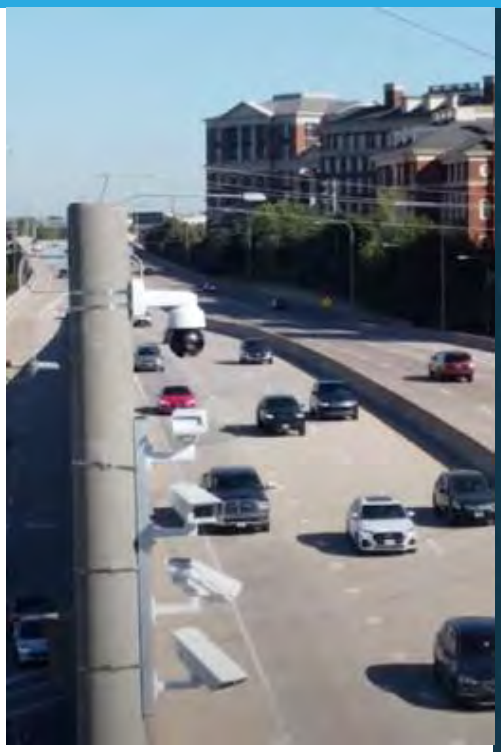
APPLIED® INFORMATION

WRONG WAY DETECTION (WWD) SOLUTION | AI-500-070C



INSTALLATION GUIDE

AI-500-070C

WWD SOLUTION

REVISION 1

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IMPORTANT: This installation is to be performed by qualified personnel only with at least IMSA Level I or II certification. All applicable codes, regulations and guidelines on the local, state, and federal levels need to be followed. If this installation guide inadvertently contradicts any local code or regulation, the local code or regulation needs to be followed.

Glance User Guide
For WWD Solution
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VIDEO LINKS

GLANCE TRAINING VIDEOS

The following links can be used in conjunction with the installation guide:

WWD Solution Installation

Glance Basic Training

NOTE: Access Glance training platform for a range of easy-to-follow video tutorials. The platform provides insight into the installation, configuration, and operation of the WWD Solution, as well as other Glance solutions.

https://appinfoinc.uqualio.com/directory/all-channels

BEFORE GETTING STARTED

WHAT IS NEEDED:

- Glance username and password.
- Tools for unit installation.
- Laptop or smartphone.

TOOLS NEEDED:

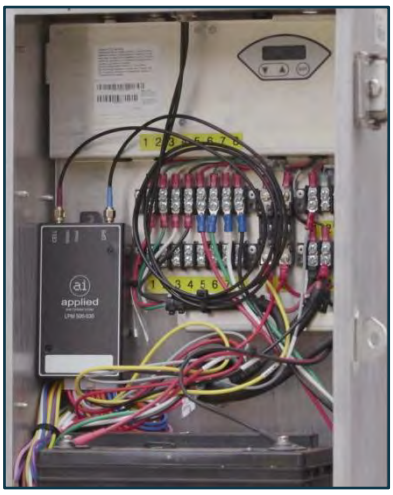
- ❖ Basic Hand Tools:
  - Crimper
  - Flat-head Screwdriver
  - Phillips Screwdriver
  - Wire Stripper
- ❖ Multimeter
- ❖ Basic Crimping Ends
  - Fork Terminals
  - Wire Ties
- ❖ Drill with Step Bit
- ❖ RTV Silicone
- ❖ Spare Wire
- ❖ Self-Tapping Screws

WHAT IS IN THE BOX

- ❖ 1x AI-500-070C Low Power Monitor.
- ❖ 1 x 950-005 Wrong Way Detection DIN Rail Assembly.
- ❖ 1x Adapter Kit Harness 5500-E36A-2.
- ❖ 1x 4G Permanent Mount Antenna (including antenna cables).
- ❖ 1x Mounting bracket.



INSTALLING THE UNIT



Sample Install orientation

PREPARATION FOR INSTALLATION

- Ensure that all local policies and procedures for traffic signal maintenance are followed.
- Prepare a safe workspace with regard to traffic safety, fall prevention, and other relevant factors, following all applicable local policies and procedures.
- Turn off all power to the cabinet, including solar power.
- Disconnect the battery.
- If you are replacing an existing monitoring unit, remove all components that are no longer used.

MOUNTING CONSIDERATIONS

- Choose mounting locations for both the antenna and for the device. In large cabinets, ensure the antenna cable is long enough to reach the device.
- Ensure that status LED lights (located between the two antenna connectors) can be seen easily once installed.
- Ensure that all connections are easily accessible.
- Keep the number of holes made to a minimum.
- Avoid piercing the outer housing of the cabinet (self-tapping screws should not go through the cabinet wall).
- Avoid mounting the unit on the cabinet wall, unless there is no alternative option.
- Ideally, use the provided Mounting Bracket to install the device.



Mounting Bracket

MOUNTING THE AI-500-070C

- Permanently install the unit, using self-tapping screws and the mounting bracket provided, in the chosen location inside the cabinet.

WIRING INSTRUCTIONS FOR WWD SOLUTION

These instructions assume that you are using the pre-wired DIN rail assembly, where most of the connections are already made.

IMPORTANT: Strip all wires just before installation to the correct length and apply a crimping sleeve/wire ferrule.

WIRING THE CONNECTIONS

- If the alarm is Active High, it should be wired to the WWD Alarm Input (Active High).

- There are two principal connections to be made, with a total of five wires: 120 V AC power supply (three wires; live, neutral, and ground) and the alarm input at WWD Common Ground and WWD Alarm Input (Active Low). Note that these are the standard alarm input connections of the camera. If the camera has a special configuration (unlikely), this might be different.

- Using the included installation schematics and the wiring diagram of your unit, connect all required wires to the appropriate connection points of the traffic signal unit.

- Properly protect all unused wires with shrink-wrap tubes or wire nuts.

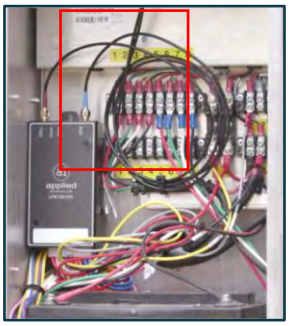
  IMPORTANT: This document assumes that this is a retrofit and that the wrong direction detection device is already properly installed and configured. For the configuration and setup of the camera, please refer to the camera documentation.

- If you are not sure how to wire certain connections, please contact your local Sales Engineer for additional support or contact Applied Information support at support@appinfoinc.com or 678.830.2170.

ANTENNA PLACEMENT AND TESTING OF SIGNAL STRENGTH

It is recommended that the cellular signal strength of the Cell/GPS antenna is tested prior to permanent antenna installation. This requires the following preliminary steps:

CHOOSING ANTENNA POSITIONING



- **Choose the installation location for the Cell/GPS antenna:**
  - Position the antenna at the top of the cabinet.
  - Verify that the antenna cables reach the monitoring device without strain.

CONNECTING THE ANTENNA AND POWERING THE UNIT



- **Connect the antenna cables to the appropriate position:**
  - GPS wire to the GPS port.
  - Cell wire to the Cell port.

- **Power the unit and WAIT for communication to start:**
  - Restore power to the cabinet and connect the batteries.
  - Observe the two green LEDs located between the antenna connectors:
    - Heartbeat (H)/beat should flash at regular intervals when the device is powered.
    - "Modem" should flicker irregularly while the unit is actively communicating.

NOTE: It may take as much as 30 seconds before communication starts.

VERIFYING SIGNAL STRENGTH IN GLANCE

The following steps will ensure that the device is able to communicate with the Glance platform.

- **Open web browser (Chrome recommended) using your phone, tablet, or laptop:**
  - Visit Glance at www.glance.appinfoinc.com
  - Enter Username and Password. (As previously mentioned, you should have received this from your AI Sales representative).

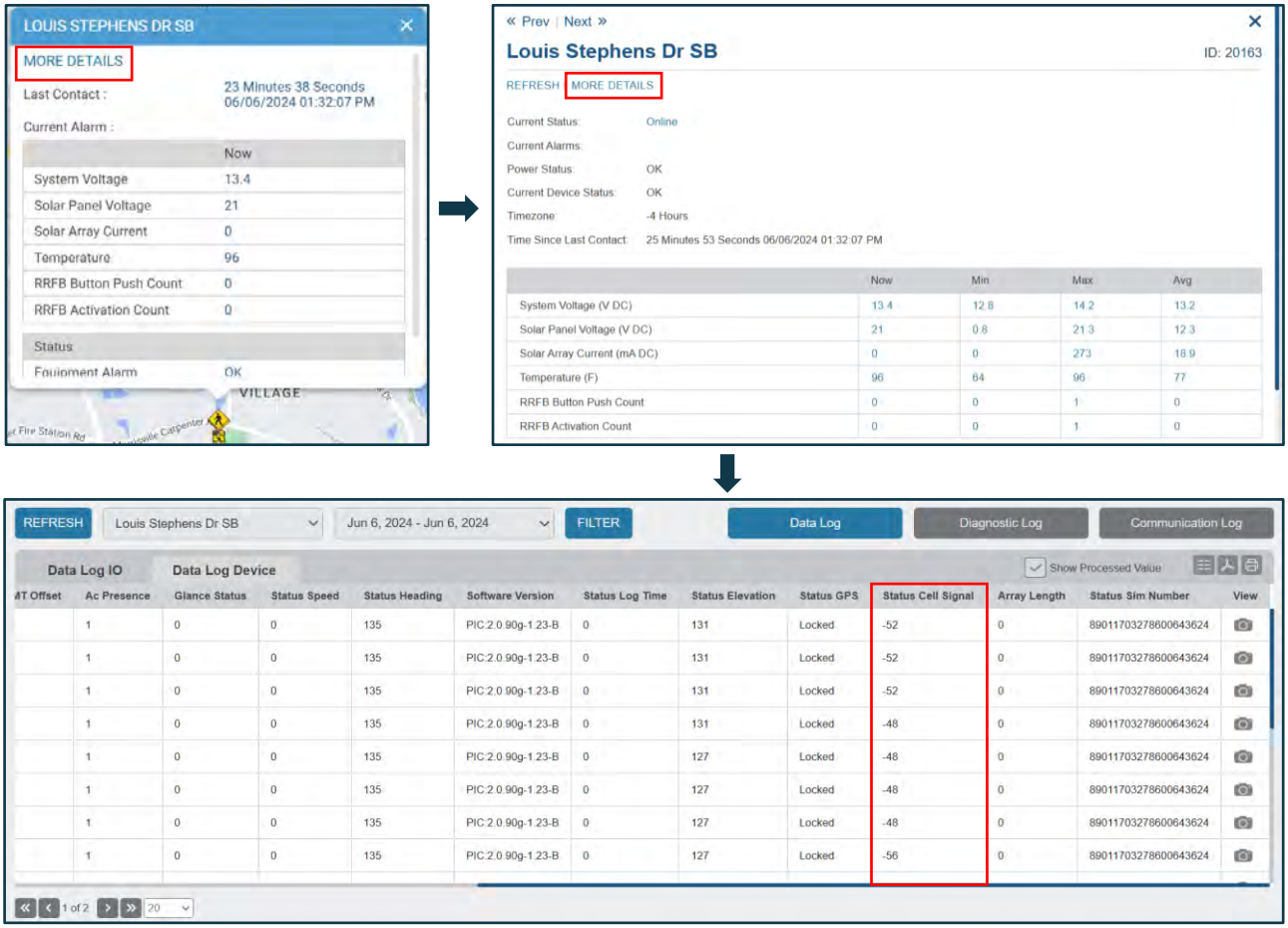
- **Observe reported signal strength in Glance:**
  - Navigate to the "Device Details" page of the device to be installed.
  - This can be done one of two ways:
    - Click on the device identification/name in the list of devices seen in the left-hand panel of the Glance home screen.
    - Locate the intersection in the map view and click on the device icon, then select "More Details."

- **Once on the "Device Details" page of the correct device:**
  - Click again on "More Details."
  - Go to the "Data Log Device" tab.

- **Determine the status of the cell signal strength:**
  - Scroll along the "Data Log Device" table to find recorded signal strength.

- **Signal should be better than -115 dBm:**
  - -100 to 0 dBm: Strong signal.
  - -115 to -100 dBm: Signal is low but sufficient.
  - -120 to -115 dBm: Signal is unreliable, service interruption possible.
  - Below -120 dBm: Signal is insufficient for operation.

IMPORTANT: Signal strength values are negative numbers (where a value closer to zero represents a stronger signal). For example, -60 dBm is much stronger than -120 dBm



NOTE: If the cell signal strength is within the desired range, mark the location of the antenna position for drilling purposes.

IMPROVING A WEAK SIGNAL

- **If the cell signal is not strong enough:**
  - Reposition the antenna.
  - Refresh the device from the Glance "Device Detail" page.
  - Refresh the Glance browser page.
  - Repeat as necessary until the desired signal range is achieved.

NOTE: If the desired cellular signal strength cannot be achieved, contact your local AI Sales Representative to discuss alternative mounting options or the use of a special antenna.

ANTENNA INSTALLATION

IMPORTANT: Position cloth, duct tape, plastic cup, or other means to catch metal shavings before drilling.

- **Permanent antenna installation procedure:**
  - Using the step drill, drill a hole into the cabinet at the marked location. Be sure to catch the metal shavings to avoid damaging other cabinet equipment.
  - Deburr the hole to avoid damaging the cables and to ensure a tight seal.
  - Run antenna cables through the newly made hole.
  - Apply a bead of Room Temperature Vulcanizing (RTV) silicone around the hole edge.
  - Mount the antenna on top of the silicone bead, to ensure the cabinet remains watertight.
  - Tighten the antenna mounting nut.



KNOCK-DOWN CALIBRATION

NOTE: If powering the device before mounting it, this may confuse the knock-down sensor. It is important to recalibrate this once the device is permanently installed.

- **Automatic initial calibration of the knock-down sensor:**
  - The knock-down sensor will automatically calibrate upon initial power up.
  - The device will be calibrated as "OK" in its current orientation, even if it is laying down or on its side. Should this happen, recalibration is required.

- **Forced re-calibration of the knock-down sensor:**
  - If the device is permanently mounted after initial startup, it needs to be recalibrated.
  - To do so, hold the calibration button down for 10 seconds. (The calibration button is located next to the two LEDs.).
  - The LEDs will start flashing rapidly, indicating that calibration data is now erased.
  - Remove power from the device.

- Power the device once mounted, which will trigger re-calibration in that orientation.

FUNCTIONAL TESTING

RECOMMENDED FUNCTIONAL TEST

- For a thorough test, on the next page, complete the entire check list and record your findings in the checklist.
- Investigate and correct all problems found.

AI-500-070C INSTALLATION CHECKLIST

NOTE: The device identification/name is displayed in the top-left corner of the device view in Glance. ("e.g., LOUIS STEPHENS DR SB" in the example on the right.).



Unit ID: _____

Unit Type: _____

Tested By: _____

Date: _____

CHECKLIST DESCRIPTION	✓
The device is powered on: "Heartbeat" LED flashes	
Cellular communication is enabled: "modem" LED flashes	
Device found on Glance	
Glance GPS Status reads "locked"	
Status Cell Signal reading in Glance is within specified limits	
Expected Power Voltage shown in Glance	
Cabinet Door Status shown in Glance (if no switch installed, status will always read "closed")	
Lamp Status reads "OK"	
Lamp failure simulated and failure reported via Glance	
Calibrated for knock-down in mounted position	
Knock-down sensor status verified in Glance "Good"	

I/O ALLOCATION AND WIRING HARNESS FOR 950-005 070C WWD DIN RAIL ASSEMBLY

For: **AI-500-070C WWD Solution**

Installed in: **ITS cabinet unit (RRFB, Speed Limit, or other)**

NOTE: Determining the correct connections requires advanced engineering experience. Incorrect wiring may damage the WWD Solution or the traffic signal unit and may result in injury or death. If in doubt, please contact your local Sales Engineer.

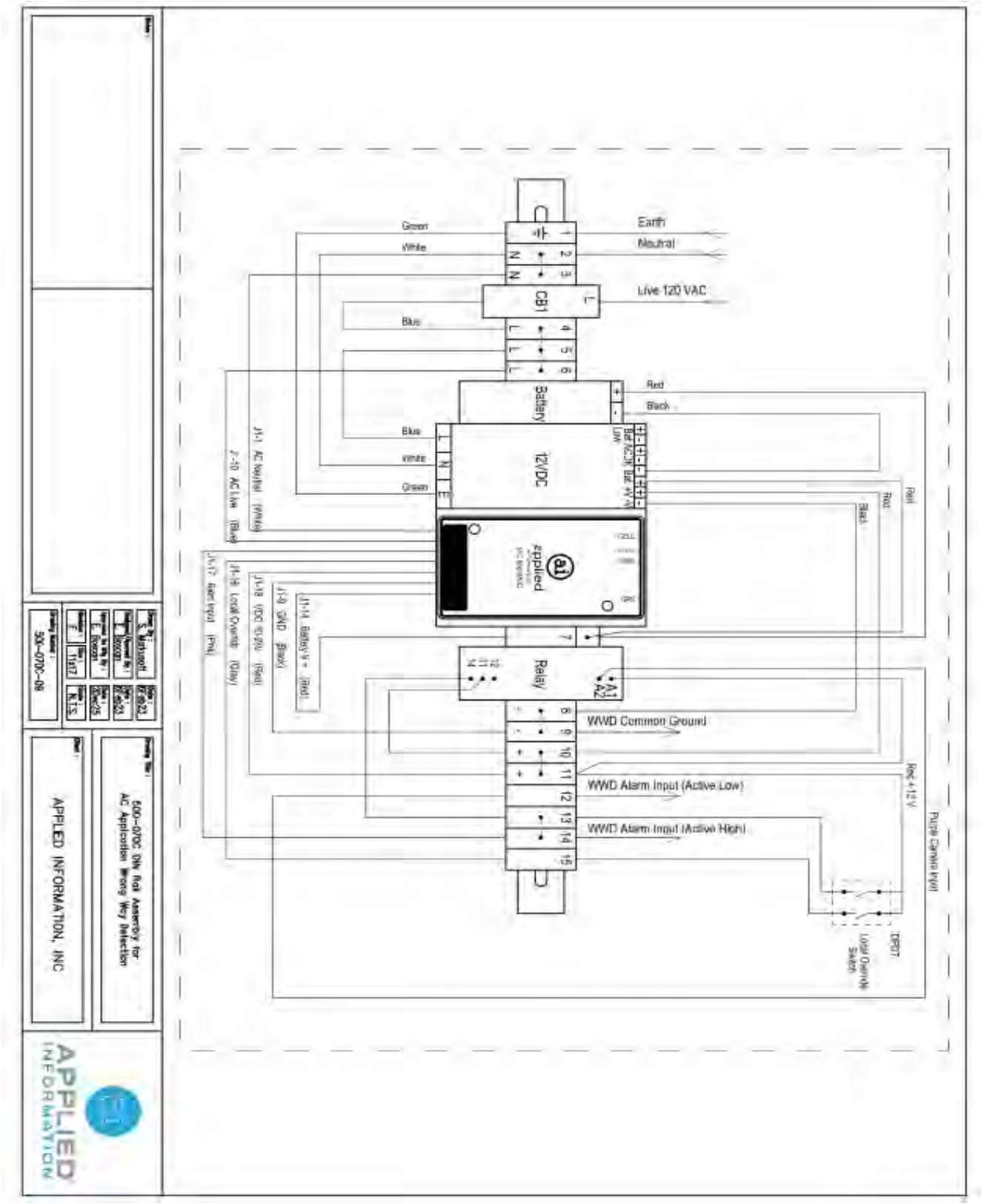
1. Most setups will not require all wires to be connected.
2. This I/O allocation table is for using the AI-500-070C WWD Solution as part of a Beacon Monitoring System.
3. It can be used by itself to monitor a solar beacon application.
4. It can be used with an external 12 V DC power supply to monitor an AC beacon system. (A 12 V DC power supply is available from AI to use for this application, part number 3889.).

LABEL ON WIRE	TYPE	FUNCTION	PIN	COLOR	DESCRIPTION
SYS PWR +10–28 V	Power	System Power (+10–28 V DC)	18	RED	Primary power input for Solar/DC option.
LOGIC GND (DC)	Power	Logic Ground (DC)	9	BLK	Logic ground (connect to GND of DC power source)
BATT V+	Analog	Backup Battery Voltage (+)	14	RED	Battery + (connect to actual backup battery)
AC LINE	Analog	AC line	10	BLU	AC Line voltage (use only if an AC application)
4–20 mA	Analog	4–20 mA	13	ORG	Not connected
4–20 mA	Analog	4–20 mA	12	ORG	Not connected
CAB DOOR ALARM	Input	Cabinet Door Alarm	7	YEL	Not connected
EQUIP ALARM	Input	Equipment Alarm	8	YEL	Not connected
ALERT INPUT	Input	WWD Alert Input	17	PNK	WWD Alert Input
Local Override	Input	WWD Local Override	16	GRY	WWD Local Override
AC AUX I/P	Input	AC aux input	11	BLU	Not connected
AC NEUTRAL		AC Neutral	1	WHT	AC Neutral reference for AC inputs
SOLAR CURRENT RETURN		Solar current return (-)	4	YEL	Not connected
AC/DC LAMP CURRENT		AC/DC Lamp Current Monitoring	3	BRN	Not connected
AC/DC LAMP CURRENT		AC/DC Lamp Current Monitoring	2	PUR	Not connected

RED = red, BLK = black, YEL = yellow, BRN = brown, ORG = orange, BLU = blue, PNK = pink, GRY = gray, PUR = purple, WHT = white, I/P = Input, O/P = Output

WIRING DIAGRAM FOR 950-005-070C WWD DIN RAIL ASSEMBLY

REV E



CUSTOMER FEEDBACK FORM

WE VALUE YOUR FEEDBACK

We value your input and are continuously working to improve our installation guides and overall user experience. Your input helps us enhance clarity, usability, and overall product support.

Please scan the QR code below or visit the link provided to share your feedback on the Glance WWD Solution Installation Guide.

LINK: https://bit.ly/3MHmh6U

Your responses are used solely to improve our documentation.