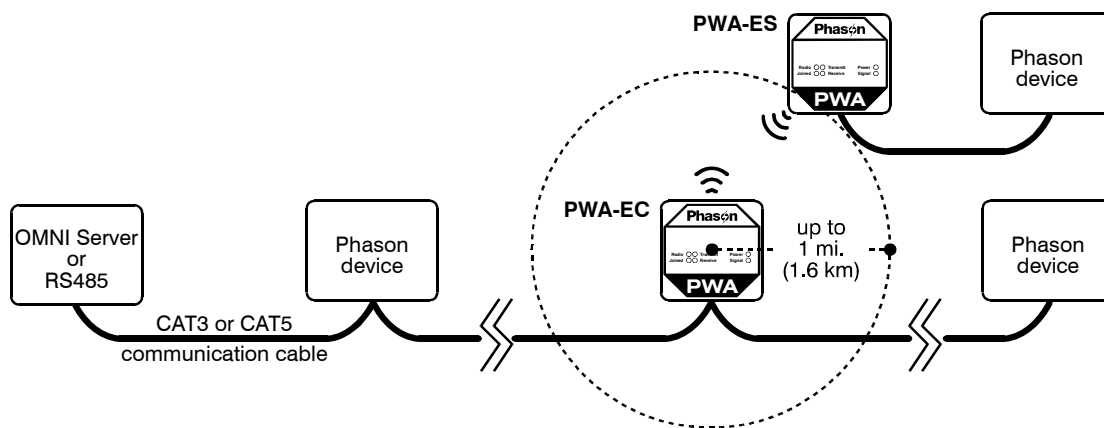


## PWA installation guide

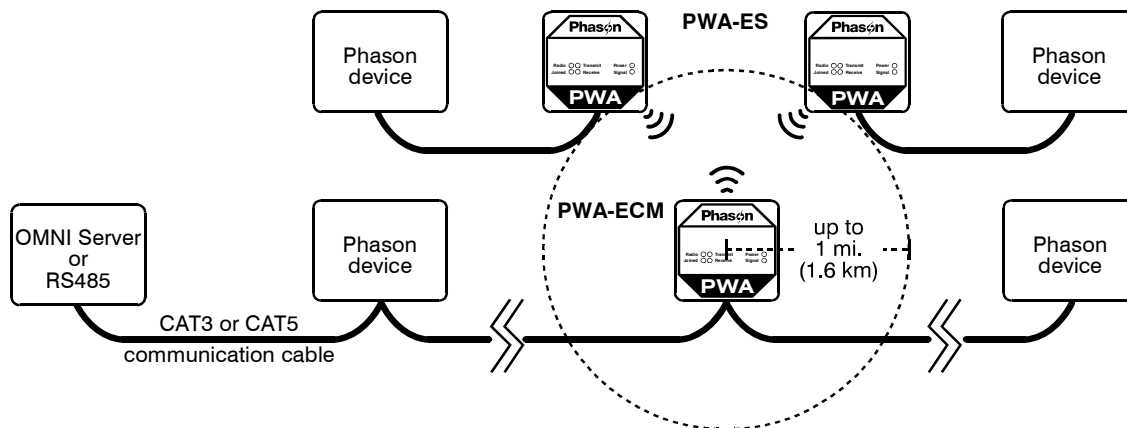
The Phason Wireless Adapter (PWA) is for customers who want to avoid running communication cable between barns, or to remote, hard-to-get-to devices. The Wireless Adapter is ideal for devices that are normally mounted outside or in remote locations, such as Feed Level Sensors. The PWA works with all Phason networkable devices, except Power Blocks.

There are three models of Phason Wireless Adapters.

- ◆ **PWA-EC** – *Single-point coordinator unit.* The single-point coordinator unit communicates with the RS485 Converter (or OMNI Server), and one standard unit.



- ◆ **PWA-ECM** – *Multi-point coordinator unit.* The multi-point coordinator unit communicates with the OMNI Server and up to 32 standard units. This unit works with OMNI-Select systems only.

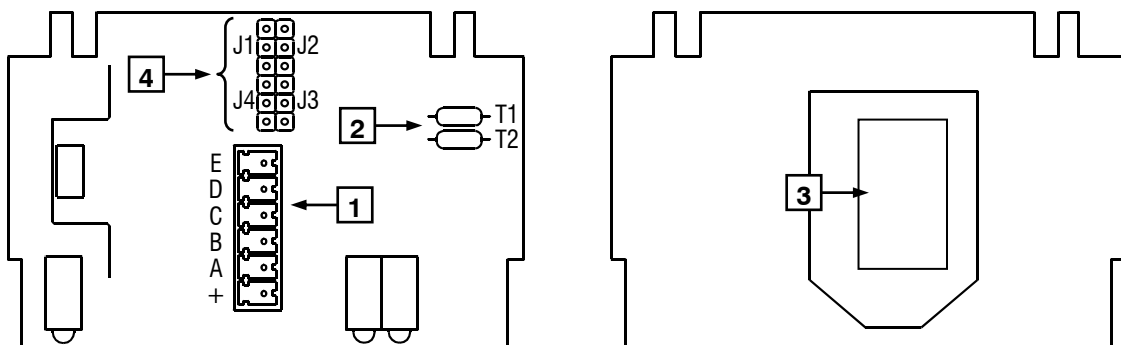


- ◆ **PWA-ES** – *Standard unit.* The standard unit works with either the single or multi-point coordinator. The standard unit is designed to be connected to a Phason device, such as a Feed Level Sensor, Local Environment Monitor, or See Level Sensor.

## Installing wireless adapters

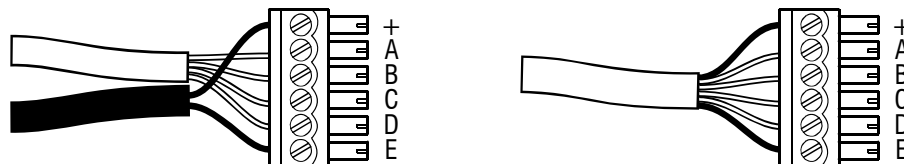
1. Mount the PWA on a sheltered, vertical surface with the electrical knockouts facing down.
2. Connect the communication wiring. *If necessary*, remove the termination resistors. Read the **Circuit board layout** and **Common mistakes in communication wiring** sections for information.
3. Connect the 9 to 14 VDC power wiring. Read the **Circuit board layout** and **Options for** sections for more information.
4. Fasten the cover on the enclosure.

### Circuit board layout



- 1 Communications and power connection** – connect the communications (A, B, C, D) and the DC power (+, E) to the connector.

When connecting the communication and power, you can use two cables—one for communication and one for power, or you can use a single cable if additional wires are available.



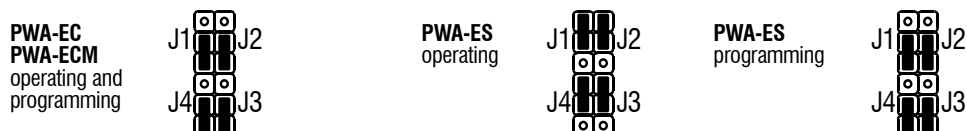
- 2 Termination resistors** – if there are any devices after this one, remove *only these two* resistors using wire cutters. For more information, read **Common mistakes in communication wiring** on page 3.

- 3 Adapter information label** – Make sure the address on the circuit board matches the one on the label on the outside of the enclosure.

Single-point (PWA-EC and ES) models are "paired", meaning they have been programmed at the factory to communicate with each other. If you have to replace either model, note the information on the label; you will need it when ordering a replacement.

RF: ## PAN: ### CH: #  
MDL: PWA-ECM V: #####  
DATE: YYYY-MM-DD  
#####ADDRESS#####

- 4 Jumpers** – make sure the jumpers are in the correct positions. If you are programming a PWA-ES, you need to switch the jumpers to the programming positions. When finished programming, switch the jumpers back to the operating positions. For more information, read Programming on page 5.

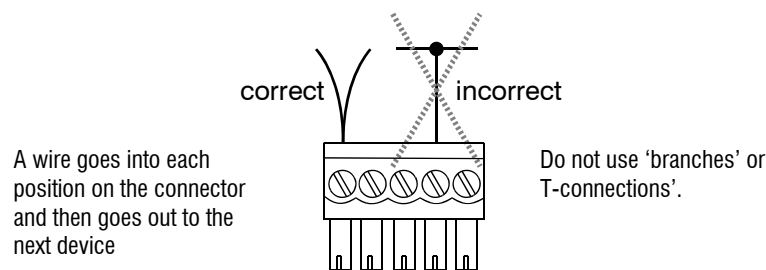


## Common mistakes in communication wiring

- ◆ **Not using the correct type of communication cable** – the communication cable must be twisted pair cable, category 3 (CAT3) or category 5 (CAT5). You can use either unshielded twisted pair (UTP) or shielded twisted pair (STP) cable. Phason does not recommend other types of wire.

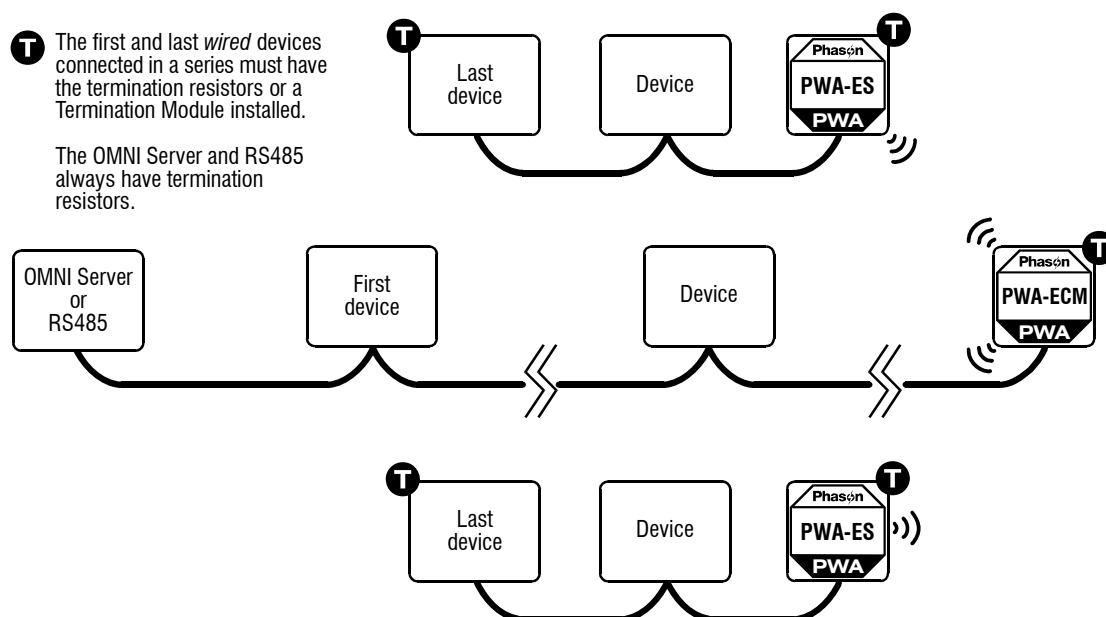
There are additional guidelines to follow when using STP cable. For more information, read **Using shielded twisted pair (STP) cable** on page 4.

- ◆ **Not continuing the communication wiring properly** – all the devices on the communication channel must be connected in series (in a daisy-chain) and the wire must be continued properly from one device to the next. When continuing the communication wiring from one device to the next, the wires must be connected as shown in the following diagram.



- ◆ **Not terminating the last wired device** – the last wired device in a series must have the termination resistors in place. If you remove the termination resistors by mistake, you will have to install a Termination Module. For information about Termination Modules, contact your dealer or Phason Customer Support.

The following example shows which devices would have termination resistors removed, and which devices would have them installed.



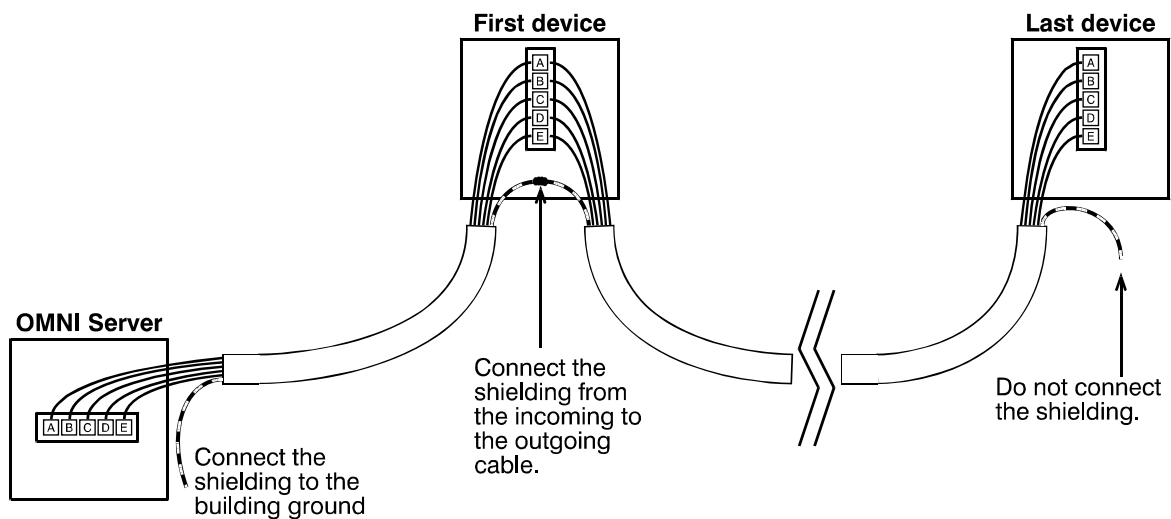
- ◆ **Running the communication cable in the same conduit as, or beside AC power cables** – routing communication cable in the same conduit as, or beside AC power cables, can cause electrical interference and communication failures. Follow the guidelines below when routing communication cable.
  - ◆ Do not run the cable in the same conduit as AC power cables.
  - ◆ Do not run the cable beside AC power cables or near electrical equipment.
  - ◆ When crossing other cables or power lines, cross them at a 90-degree angle.

### Using shielded twisted pair (STP) cable

The advantage of using STP cable is that it can improve communications by reducing electromagnetic interference. The drawback of STP cable is that it requires more care during installation. If the shielding is connected incorrectly, shielded cable can cause more problems than it solves.

When installing shielded cable, you must connect the shielding to the building ground at one end only. Phason recommends connecting the cable to the building ground near the RS485 Converter or OMNI Server.

When connecting the devices along the communication channel (daisy-chain), connect the shielding of the incoming cable to the shielding of the outgoing cable. Do not connect the shielding to the device or to anything else. At the last device on the daisy chain, do not connect the shielding; leave it unconnected.



## Options for powering wireless adapters

All PWA models require 9 to 14 VDC and draw 75 mA of current.

- ◆ **Draw power from a Phason device:** You can draw power from the nearest Phason device. For example, if you are connecting the PWA-ES to a Local Environment Monitor (LEM), you can draw power from that device.

Connect the wires from the **+** and **-** DC terminals on the Phason device to the **+** and **E** terminals on the PWA connector. If there are additional wires in the communication cable, you may use those wires instead of running a second cable.

- ◆ **Phason Regulated Power Supply (RPS):** The RPS is the same power supply required for powering Phason devices, such as the LEM mentioned above. If the RPS has available capacity (it has a 15 W maximum output), you can use it to power the PWA.

Connect the wires from the **+** and **-** DC terminals on the RPS to the **+** and **E** terminals on the PWA connector.

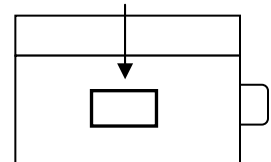
- ◆ **Phason Power Supply Adapter (PA12-800):** The PA12-800 is a low-cost, basic kit that can supply power for up to five PWAs.

Connect the **+** and **-** wires from the adapter to the **+** and **E** terminals on the PWA connector.

## Programming wireless adapters

**Single-point** (PWA-EC and ES) models have been "paired", meaning they have been programmed at the factory to communicate with each other.

If you need to replace either unit, note the information on the adapter label; you will need to order a preprogrammed replacement or program a replacement using the information.



**Multi-point** (PWA-ECM and multiple ES) models do not require pairing, as long as they are at their factory settings. You can program an ES model if it has been changed from the factory settings.

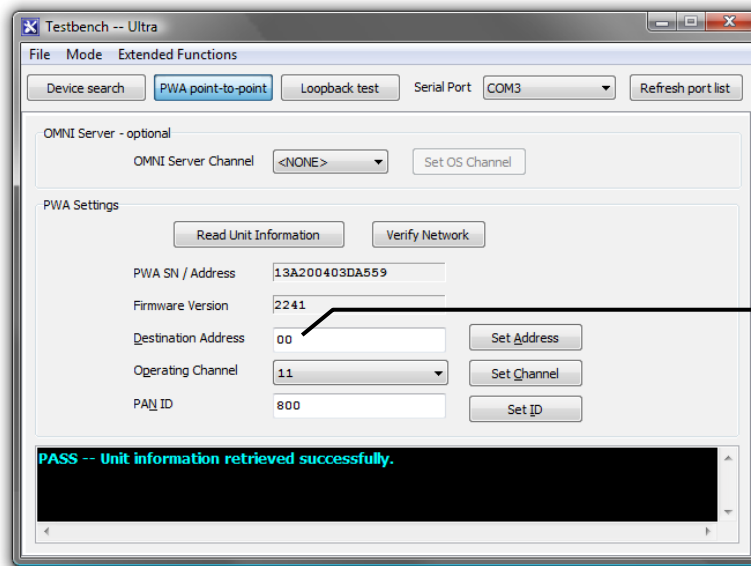
### Programming cable

You can program PWAs at the computer using the RS485 Converter, PWA Programming Cable, and Test Bench Ultra utility that came with your Phason software. If you need to order a programming cable, contact your dealer or Phason and order part number K250049.

### To program PWAs

1. Connect the programming cable connector labeled RS485 to the converter.
2. Connect the programming cable connector labeled PWA to the wireless adapter.

3. Connect the programming cable wires labeled POWER to a power source. For more information, read **Options for powering wireless adapters** on page 5.
4. On the computer, start Test Bench Ultra.
5. Click **PWA**.
6. Click **Refresh port list**.
7. Beside *Serial Port*, select the port to which the RS485 Converter is connected.
8. Click **Read Unit Information** and then wait for the program to read the information from the PWA. This can take up to 10 seconds.



This example is a PWA-ES, which always has a destination address of 0 0.

9. Enter the information you need to program.
  - ◆ If you are programming an **ES** unit, set the *Operating Channel* and *PAN ID* to match the label on your EC unit. Click **Set** (Channel or ID) after entering each piece of information.

In the example to the right, you would set the PAN ID to 805 and the channel to 10.

<b>PAN:</b> 805 <b>CH:</b> 10
<b>MDL:</b> PWA-EC <b>V:</b> 2141
<b>DATE:</b> 2010-05-08
13A200403DF655

- ◆ If you are programming an **EC** unit, set the *Operating Channel*, *PAN ID*, and *Destination Address* to match the label on your ES unit. Click **Set** (Address, Channel, or ID) after entering each piece of information.

In the example to the right, you would set the PAN ID to 803, the channel to 11, and the destination address to 13A200403DF565.

<b>RF:</b> 06 <b>PAN:</b> 803 <b>CH:</b> 11
<b>MDL:</b> PWA-ES <b>V:</b> 2141
<b>DATE:</b> 2010-05-08
13A200403DF565

10. If you have your other units installed, you can verify your network by clicking **Verify Network**.

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