iCP installation guide

The Information Control Point (iCP) is the latest SmartFarm Technology by Phason Inc. The iCP is the ultimate on-farm data-management tool.

The iCP has all the power of a basic personal computer, but instead of using a standard monitor, keyboard, and mouse to interact with it, the iCP can be accessed remotely over a phone line or through wireless transfer.

The iCP's no-direct-interface design makes it ideal for applications where direct human interaction is not necessary or desired. The iCP is adaptable. If you decide you require a keyboard, mouse, and monitor, you can easily connect them.

iCP features

◆ No-direct-interface design—ideal for applications where no direct human interaction is desired

◆ Available keyboard, mouse, and monitor connections

◆ Automatic power-failure and 'auto-reset' response

◆ Built-in RS-232/485 communication converter

◆ 56K voice/fax/data modem—for optional remote access and management

◆ Network interface connector (10/100 Ethernet)—for optional wireless access and management

◆ Status LEDs

◆ Rugged enclosure (non-vented, corrosion resistant, water resistant, and fire retardant)

◆ Windows® XP Home

◆ Symantec pcAnywhere™ 11.0 host

Ratings

The required power supply is the Phason AC Transformer (ACT). One ACT can provide power for one iCP. For more information, see the ACT installation guide or contact your dealer.

◆ Input power: 24 VAC

◆ Alarm relay: 0.2 A at 250 VAC, 0.4 A at 24 VAC, 2.0 A at 30 VDC

iCP layout

COM colors
E - green
D - white/orange
C - orange
B - white/blue
A - blue
1 - white/green
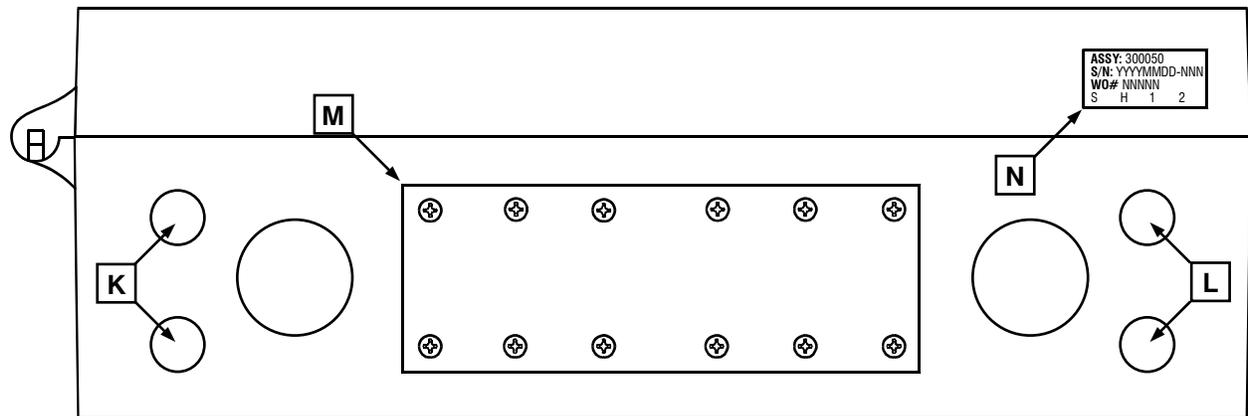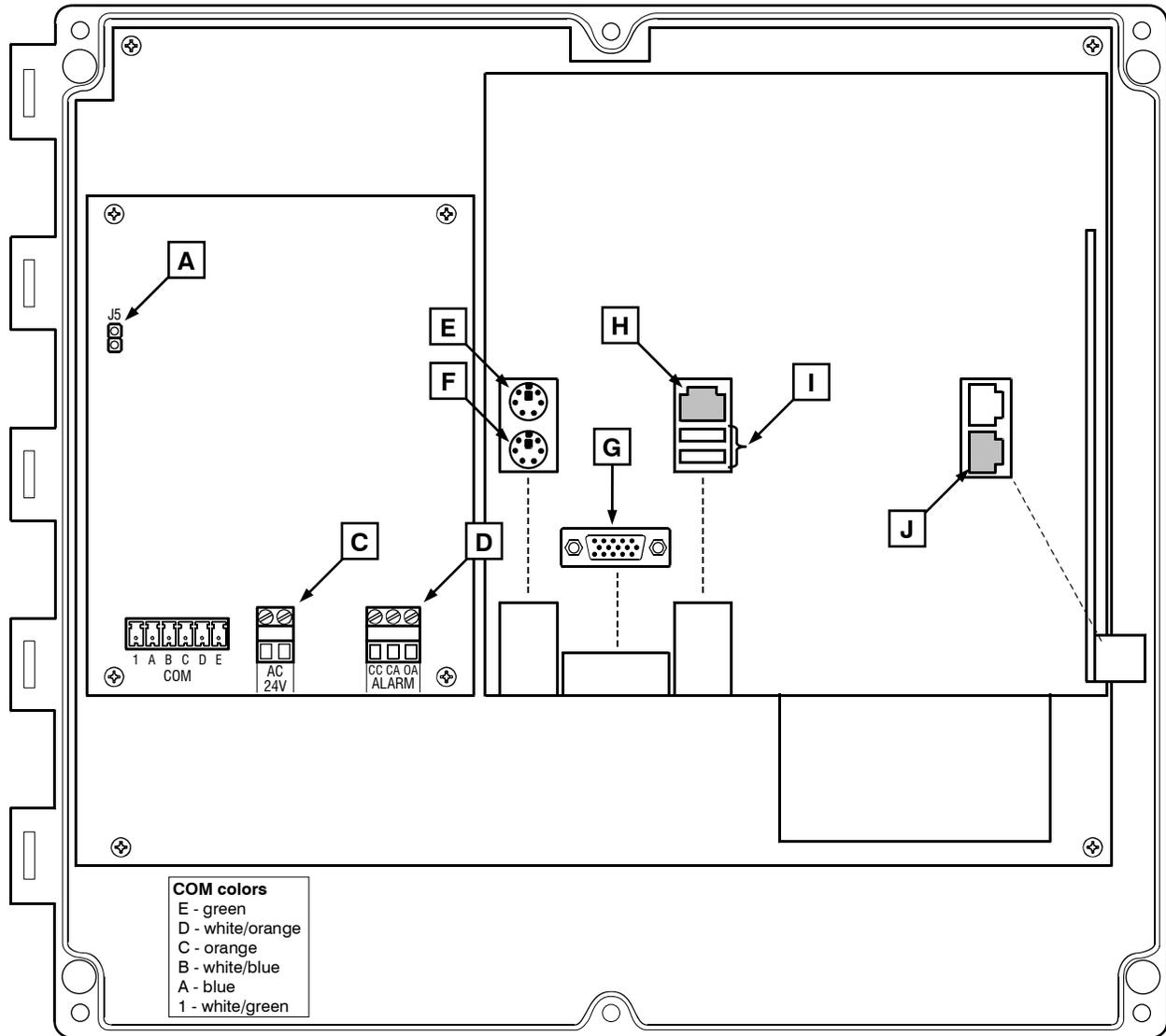
A	Auto-reset jumper—if you want to use the auto-reset feature, place the shunt on both pins. By default the shunt is on one pin and auto-reset is not enabled.
B	Communication socket—connect the communication wiring to this socket. *See also K*.
C	Incoming power terminal—connect the incoming power from the ACT to this terminal. *See also K*.
D	Alarm relay terminal—connect an external alarm system or alarm siren to this terminal. This is optional. *See also K*.
E	PS/2 mouse port—if you will be using a mouse or other pointing device, connect it to this port.
F	PS/2 keyboard port—if you will be using a keyboard, connect it to this port.
G	Video port—if you will be using a monitor, connect it to this port.
H	Network interface (10/100 Ethernet) port—if you will be using a router (wireless or other), connect it to this port. *See also L*.
I	USB ports—if you will be using a USB mouse or USB keyboard, connect it to one of these ports.
J	Modem port—if you will be using a remote phone line connection, connect the phone line to this port. *See also L*.
K	Electrical knockouts—use the strain reliefs provided to bring the communication, incoming power, and alarm wiring though these holes.
L	Electrical knockouts—if you are connecting a router or phone line, use the strain reliefs provided to bring the wiring though these holes.
M	Cover plate—if you are connecting a keyboard, mouse, and/or monitor, remove this plate and install the accessory plates.
N	Serial number label—if you need to contact Phason Customer Support or require warranty service, you will need to provide this number.

What you need to know before installing your iCP

The following items are included with the iCP:

◆ iCP installation guide

◆ Four strain reliefs

◆ Four mounting screws

In addition to the items included with the iCP, you need the following items:

◆ Phason AC Transformer (ACT)

◆ Enough power cable to go from the incoming power supply (ACT) to the iCP

◆ Unshielded twisted pair (UTP) communication cable, category 3 or category 5—for connecting Phason devices (scale heads, controls, and so on)

Understanding power surges and surge suppression

Power surges can be caused by external influences (outside the barn—for example, lightning or utility distribution problems) or they can be caused internally (inside the barn—for example, starting and stopping inductive loads such as motors).

One of the most common causes of power surges is lightning. When lightning strikes the ground, it produces an enormously powerful electromagnetic field. This field affects nearby power lines, which transmit a surge to any device connected to it, such as lights, computers, or environmental controls like your iCP. Lightning does not have to actually strike a power line to transmit a surge.

Surge suppression devices offer some protection from power surges. Because it is not possible to internally protect this product completely from the effects of power surges and other transients, Phason *highly recommend* that you install external surge suppression devices. For specific recommendations, see your electrical contractor. If you do not take these precautions, you acknowledge your willingness to accept the risk of loss or injury.

> If you do not install external surge suppression devices, you risk damage to the electronics inside your iCP, which may cause your iCP to fail.
>
> Because it is not possible to *completely* protect this product internally from the effects of power surges and other transients, we *highly recommend* that you install external surge suppression devices. For specific recommendations, see your electrical contractor.
>
> If you do not take these precautions, you acknowledge your willingness to accept the risk of loss or injury.

Routing data wires

Routing data wires in the same conduit as, or beside AC power cables, can cause electrical interference, erratic readings, and/or improper control. Data wires include **all** of the following:

◆ Temperature probe and humidity sensor cables

◆ Actuator feedback (potentiometer) wires

◆ Data communication wires, including RS-232/RS-485

◆ Any cable or wire that does not provide AC power

Guidelines for routing data wires

◆ Do not run the wires in the same conduit as AC power cables.

◆ Do not run the wires beside AC power cables or near electrical equipment.

◆ When crossing other cables or power lines, cross them at a 90-degree angle.

If in doubt, **do not run any wire or cable that is not an AC-power wire** inside the same conduit or beside other AC-power wires.

Mounting the iCP

When selecting a mounting location, follow the guidelines below.

◆ Select a location that is indoors and away from sources of moisture and heat.

◆ Do not mount the iCP in a room or hallway containing animals. An office is an ideal location.

◆ Mount the iCP on a solid, vertical surface with the electrical knockouts facing down.

Mount the enclosure on a sheltered, vertical surface, with the electrical knockouts facing down.

Use a screwdriver to tighten the screws in the enclosure. Do not use a drill or over tighten the screws; this can crack the enclosure and ruin the watertight seal.

Use the electrical knockouts for bringing wires or cables into or out of the enclosure. Use watertight strain reliefs or conduit connectors at all cable-entry points.

Do not make additional holes in the enclosure; this can damage the watertight seal or control components and void the warranty.

Failure to follow the mounting guidelines will void the warranty.

To mount the iCP

1. Select a location. Make sure you have enough cable and wire to reach all the peripheral devices (router, keyboard, mouse, and so on if applicable).

2. Remove the screws from the front cover and then swing it open.

3. Mount the enclosure to a wall using the four screws provided with the control. Insert the screws into the large holes in each corner of the box and then tighten.

Connecting peripheral devices

If you do not want to use remote (phone line) or wireless access as your only method of controlling the iCP, you can connect a keyboard, mouse, and monitor.

If you are connecting a keyboard, mouse, and/or monitor, you must remove the cover plate and route the cables through the accessory plates and gaskets. The order of the brackets and gaskets, as well as the suggested cable locations, is shown below.

Insert the cables through the brackets and gaskets as shown below. Refer to the diagram on page 2 for the location of the modem port.
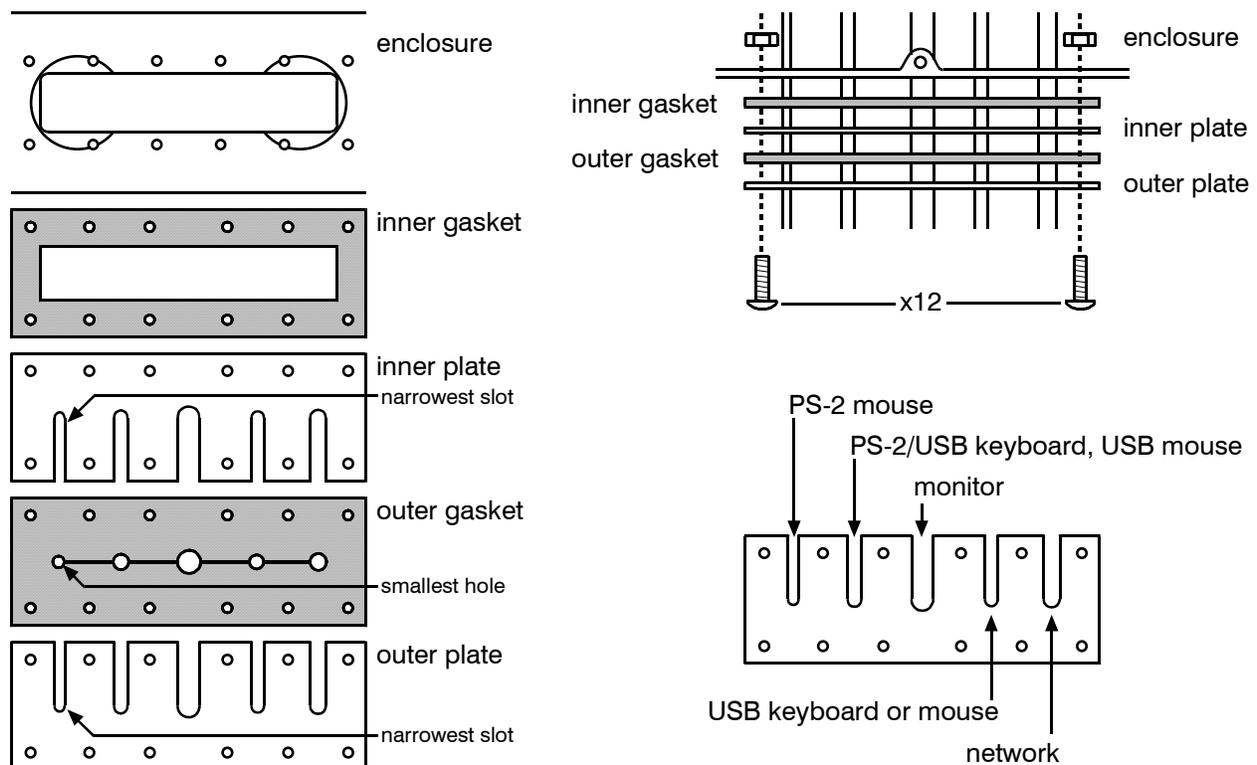

NOTE	Use all the screws and nuts to fasten the brackets and gaskets to the enclosure.
	Cover any unused cable holes using electrical tape. Place the tape on the inside plate on the side that touches the outer gasket.

Connecting a phone line

If you want to use remote communications and pcAnywhere over the phone line, you need to connect a phone line to the modem. Insert the phone cable through the strain relief noted in the diagram on page 2.

Connect the phone line as shown below. Refer to the diagram on page 2 for the exact location of the modem port.
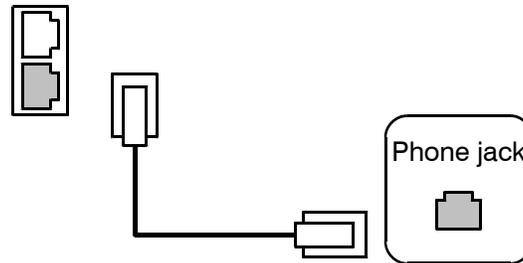
Connecting a router

If you want to use wireless or network communications, you need to connect a router to the network interface port. Insert the network cable through the strain relief noted in the diagram on page 2 or through the accessory bracket shown on page 6.

Connect the router as shown below. Refer to the diagram on page 2 for the exact location of the network interface port.
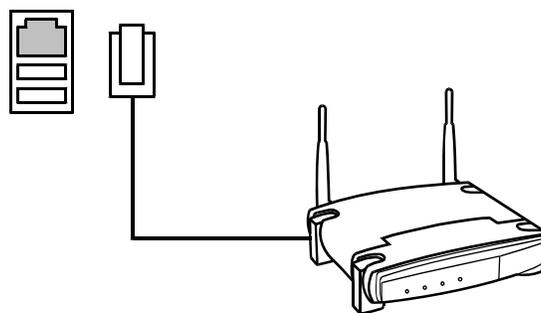
> **NOTE**
>
> Follow the router manufacturer's guidelines when installing the router.

Connecting the communications

A communication channel is a continuous line of cable connecting all the devices on the channel. All the devices must be connected in series. Phason uses two types of communication systems:

◆ Single-channel systems

◆ Multi-channel systems

Single-channel systems

All Phason systems, except OMNI-4000 use single-channel communications. You can connect up to 32 devices in series on a single-channel system. Single-channel systems connect together as shown below.
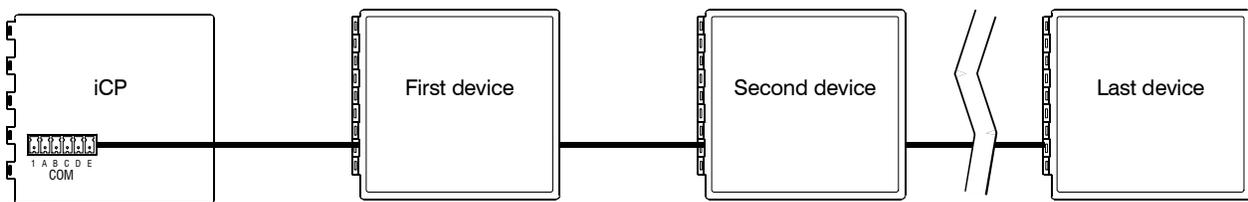
Multi-channel systems

The multi-channel OMNI-4000 system requires an OMNI Server. An OMNI Server has 8 communication channels and can communicate with up to 32 devices on each channel, for a total of 256 devices. The OMNI-4000 system connects together as shown below.
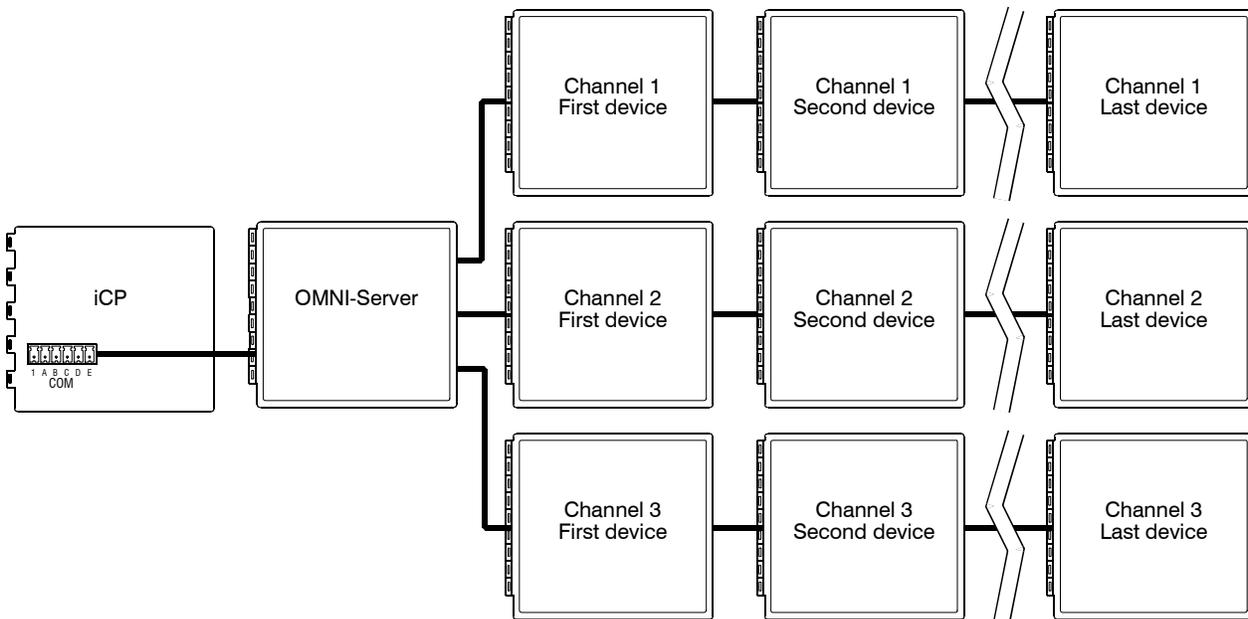
Connecting the devices to the communication channel

There are two steps to connecting the devices to the communication channel:

1. Connecting the communication wiring
2. Connecting the common reference wiring

> **NOTE** If you are using an OMNI-4000 system and OMNI Alarm Manager, see the OMNI Alarm Manager installation guide for additional installation information *before* connecting the communication wiring.

Connecting the communication wiring

Read **Connector alignment** below and **Common mistakes in communication wiring** on page 10 before connecting the communication wiring. For more information, see the installation guide for your controls.

Connector alignment

There are three possible connector types on Phason devices. The four-positions, **A B C D**, are common to all models. Some models have five positions and include **E** for common reference wiring. The six-position connectors that include position **1** are included on the RS-485A and OMNI Alarm Manager (OAM) only. The proper connector alignment is shown below.
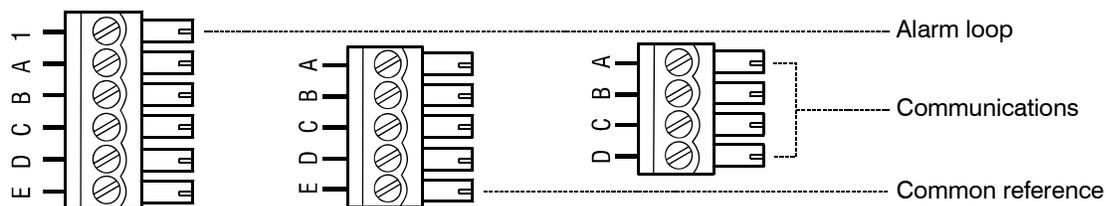
Using consistent wiring helps eliminate communication connection errors and makes troubleshooting much easier. Use the following wire colors when connecting all devices to the communication system.
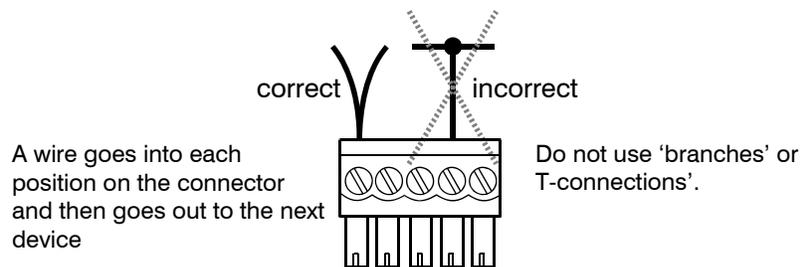
Wire function	iCP wire colors	First device	All remaining devices
1 alarm signal①	**1** white/green	**1** white/green	**1** white/green
A communication	**A** blue	**A** blue	**A** blue
B communication	**B** white/blue	**B** white/blue	**B** white/blue
C communication	**C** orange	**C** orange	**C** orange
D communication	**D** white/orange	**D** white/orange	**D** white/orange
E common reference②	**E** green	**E** green	**E** green
① For OMNI systems with an OMNI Alarm Manager only ② Not available on all models See **Common mistakes in communication wiring** below.			

Common mistakes in communication wiring

The following is a list of the most common communication wiring mistakes:

◆ *Not using the correct type of communication cable*—the communication cable must be unshielded twisted pair cable (UTP), category 3 or category 5. Phason does not recommend other types of wire.

◆ *Not continuing the communication wiring properly*—all the devices on the communication channel must be connected in series 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 below.

correct   incorrect

A wire goes into each position on the connector and then goes out to the next device

Do not use 'branches' or T-connections'.

◆ *Not terminating the last device on the communication channel*—on all systems, the last device on the communication channel must have the termination resistors in place or a termination module installed.

The termination resistors are located on the circuit board of all networkable devices, except the Supra (the Supra uses a Termination Module). You must remove the termination resistors from all devices, except the last one on the communication channel.

The termination resistors on OMNI Power Blocks are in sockets on the Micro Board and can be removed and replaced if necessary. Termination resistors on all other models must be removed using wire cutters. For more information about the location of termination resistors, see the installation guide for your specific product.

If you remove the termination resistors from the last device by mistake, you will have to install a Termination Module on that device. The Termination Module connects to the communication socket on the last device. For information about Termination Modules, contact your dealer or Phason Customer Support.

◆ *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.

To connect the communication wiring

1. Connect all the devices in series. For example, 'A' on the iCP to 'A' on the first device, to 'A' on the second device, and so on. Use the wires specified on page 9.

2. Remove the termination resistors from each device, *except for the last one on the communication channel.* The last device must have the termination resistors in place. For the location of the termination resistors, see the installation guide for that specific product.

Connecting the common reference wiring

The 'E' position on the communication connector is used for 'common reference' wiring. The common reference wire helps eliminate communication problems.

Instead of using separate cable for the common reference wiring, we recommend using the green wire from the communication cable.

Connect a wire from the 'E' on the iCP to 'E' on the first device, to 'E' on the second device, and so on. Use the wires specified on page 9. Follow the same guidelines for continuing the wiring properly as shown on page 10.

Using auto-reset and the alarm relay

The iCP alarm relay opens when there is a power failure. If the shunt is on both pins of jumper J5 (see item A in the diagram on page 2) the alarm relay also opens when there has been no serial communications for 12 hours. Serial communication is the method the iCP uses to communicate with the Phason devices.

When the alarm relay opens, the iCP power supply attempts to restart the iCP. This is called the 'auto-reset feature'. When the iCP detects serial communications again, the alarm relay closes.

> The STS status LED on the side of the iCP changes from green to red when there is an alarm condition.

> **NOTE**
> You do not need to connect the alarm relay to a siren or alarm system for the auto-reset feature to function. If you want the auto-reset to restart the iCP after there has been no serial communication for 12 hours, place the shunt on both pins of jumper J5 (see item A in the diagram on page 2).

Connecting to a normally closed alarm system

If you have an alarm siren or system that is normally a closed loop and opens on an alarm, connect the siren as shown below. For information about the type of alarm system you have: 'open on alarm' or 'closed on alarm', see your alarm system's user manual.

iCP only   **iCP and other Phason devices**

iCP   other device   iCP

CC CA OA
ALARM
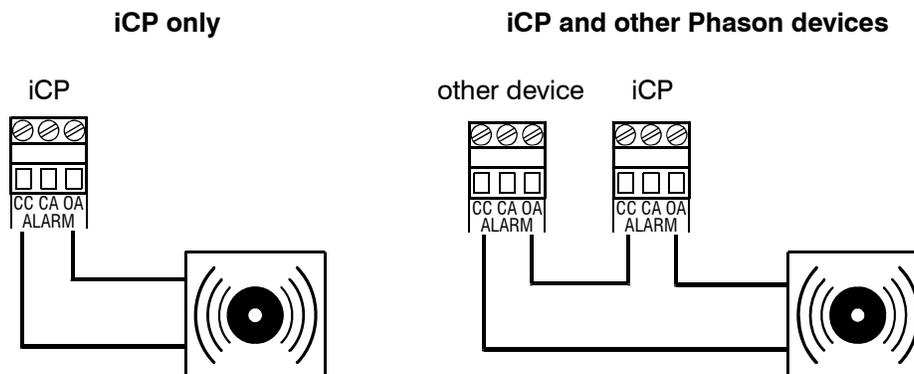
Connecting to a normally open alarm system

If you have an alarm siren or system that is normally an open loop and closes on an alarm, connect the siren as shown below. For information about the type of alarm system you have: 'open on alarm' or 'closed on alarm', see your alarm system's user manual.

iCP only   **iCP and other Phason devices**
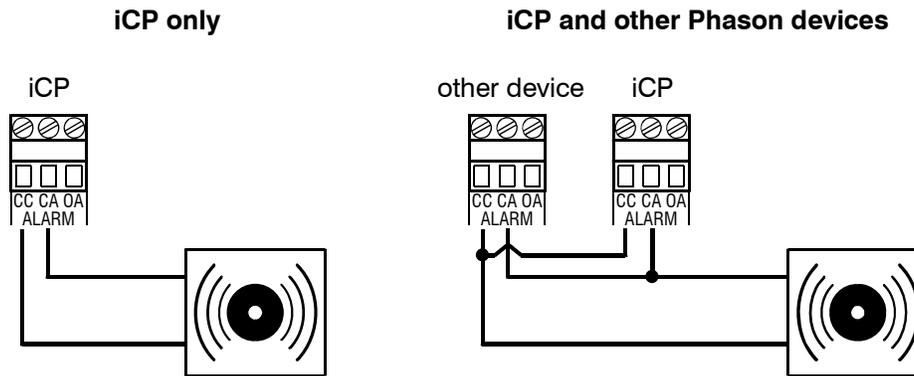
Connecting the incoming power

The required power supply is the Phason AC Transformer (ACT). One ACT can provide power for one iCP. For more information, see the ACT installation guide. Connect the ACT as shown below.
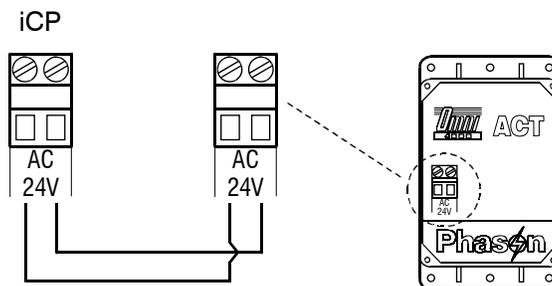
Limited warranty

This warranty applies only to the Phason Inc. (Phason) Information Control Point (iCP). If you need warranty service, return the product and original proof of purchase to your dealer.

Phason warrants the iCP subject to the following terms and conditions.

This warranty is valid only to the original purchaser of the product, for 90 days from the manufacturing date. The manufacturing date is stated in the first eight digits of the serial number in the form year-month-day.

Phason hereby warrants that should this product fail because of improper workmanship, Phason will repair the unit, effecting all necessary parts replacements without charge for either parts or labor.

Conditions

◆ Installation must be done according to our enclosed installation instructions.

◆ The product must not have been previously altered, modified, or repaired by anyone other than Phason.

◆ The product must not have been involved in an accident, misused, abused, or operated or installed contrary to the instructions in our user and/or installation manuals. Phason's opinion about these items is final.

◆ The person requesting warranty service must be the original purchaser of the unit, and provide proof of purchase upon request.

◆ All transportation charges for products submitted for warranty must be paid by the purchaser.

Except to the extent prohibited by applicable law, no other warranties, whether expressed or implied, including warranties of merchantability and fitness for a particular purpose, shall apply to this product. Any implied warranties are excluded.

Phason is not liable for consequential damages caused by this product.

Phason does not assume or authorize any representatives, or other people, to assume any obligations or liabilities, other than those specifically stated in this warranty.

Phason reserves the right to improve or alter the iCP without notice.