# PCI Express
# ETAP Communication Interface Card

## PCIe-ETAP Series A Installation Instructions

Online Development Inc

**IMPORTANT!**

Before you proceed, STOP and REGISTER your module

On our website at

http://www.oldi.com/product-registration

# Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (Publication SGI-1.1, available from your local Rockwell Automation sales office or online at http://www.literature.rockwellautomation.com) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Online Development, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Online Development, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Online Development, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual we use notes to make you aware of safety considerations.

| | |
|---|---|
| **WARNING**  | Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss. |
| **IMPORTANT** | Identifies information that is critical for successful application and understanding of the product. |
| **ATTENTION**  | Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you:<br>• identify a hazard<br>• avoid a hazard<br>• recognize the consequence |
| **BURN HAZARD**  | Labels may be located on or inside the drive to alert people that surfaces may be dangerous temperatures. |

# Table of Contents

# Install the PCIe-ETAP Communication Interface Card

Before you install the card, be certain that you:

- know how to install hardware in your computer
- consult your computer's documentation for hardware installation instructions


This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating.

This equipment is considered Group 1, Class A industrial equipment according to EN5011. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

This equipment is supplied as open type equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.


Prevent Electrostatic Discharge

This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static
- Wear an approved grounding wrist strap
- Do not touch connectors or pins on component boards
- Do not touch circuit components inside the equipment
- Use a static-safe workstation, if available
- Store the equipment in appropriate static-safe packaging when not in use

## North American Hazardous Location Approval

**The following information applies when operating this equipment in hazardous locations:**

Products marked CL I, DIV 2, GP A, B, C, D are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only.

**WARNING** EXPLOSION HAZARD

- Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous.
- Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product.
- Substitution of components may impair suitability for Class I, Division 2.

## About the PCIe-ETAP EtherNet/IP Tap

The PCIe-ETAP EtherNet/IP tap provides EtherNet/IP connectivity. Use the tap to support these network topologies:

- Linear
- Star
- Device-level ring (DLR)

The tap is configured by default to support linear, star, and ring (as a non-supervisor ring node) topologies.

IMPORTANT When setting up a DLR, refer to Device-level Ring (DLR) Network Considerations below to avoid adversely impacting your network.

Refer to the EtherNet/IP Embedded Switch Technology Application Guide, publication Rockwell Automation ENET-AP005, for information on setting up EtherNet/IP network topologies.

### Linear and Star Network Considerations

When using the tap in a linear or star network, be sure that Ring Supervisor mode is not enabled. By default, the tap is configured to be a non-supervisor ring node.

**IMPORTANT** The jumper (JP1) is used for making the tap a ring supervisor in a DLR network. To avoid adversely impacting communication in a linear or star network, take these precautions:

- Make sure the JP1 remains in the OFF position. If the JP1 is in the ON position, the tap will be automatically enabled as a ring supervisor.

- Make sure the Ring Supervisor mode is not enabled in RSLinx Classic communication software or RSLogix 5000 programming software. When the JP1 is in the OFF position, the programming software controls whether the tap is a ring supervisor.

**Device-level Ring (DLR) Network Considerations**

When using the tap in a DLR network, consider whether the tap will be a ring supervisor. By default, the tap is configured to be a non-supervisor ring node. Use one of these methods for controlling supervisor functionality:

- Use RSLinx Classic communication software or RSLogix 5000 programming software to set the Ring Supervisor mode and other supervisor-related parameters. This is the default method. If you choose this option, follow the procedures outlined in the online help that accompanies the software to enable Ring Supervisor mode.
- Use the Jumper (JP1) to automatically enable Ring Supervisor mode with the current supervisor-related parameters stored in the tap's memory

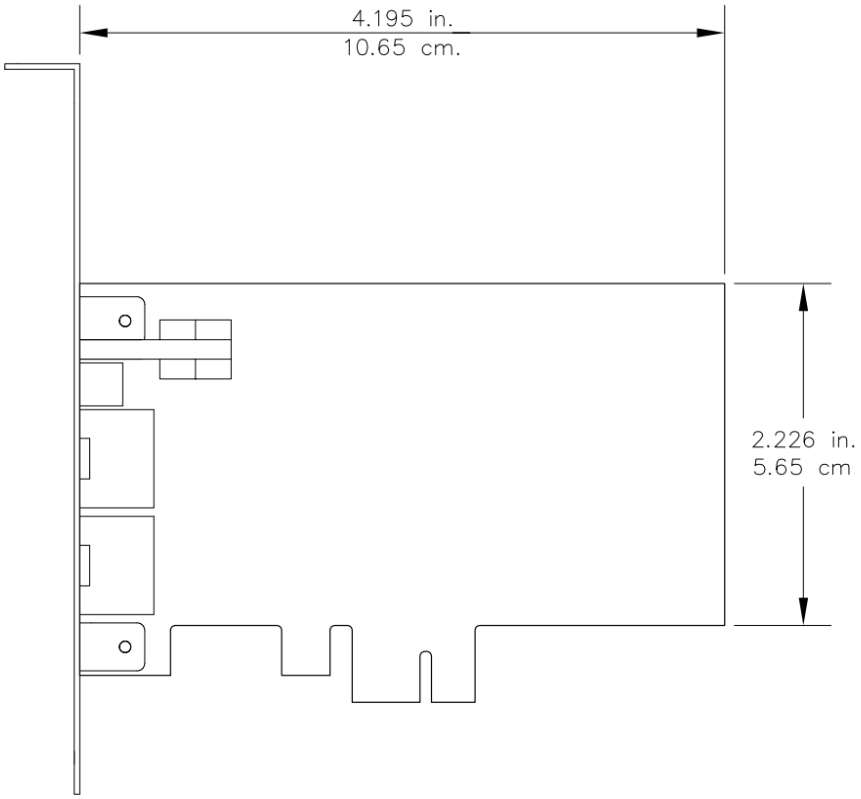
**IMPORTANT** Use these precautions when setting up a DLR network:

- Make sure at least one node is acting as supervisor before connecting the last link of a DLR network and physically closing the ring.
- Do not connect nodes that do not support a DLR as members of the ring.

To install the card, you need to:

1. Configure the card for your EtherNetIP Network
2. Access the computer's expansion slots
3. Insert the card into the computer

**Figure 1.1 PCIe-ETAP Card Dimensions**



## Configure the card for your EtherNetIP Network

**WARNING**

When used in a Class I, Division 2, hazardous location, this equipment must be mounted in a suitable enclosure with proper wiring method that complies with the governing electrical codes.

If you connect or disconnect the EtherNetIP cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations. Be sure that power is removed or the area is nonhazardous before proceeding.

To set the PCIe-ETAP card's EtherNetIP address, you use the two switches on the front of the card.

### Switch Settings

There are two(2) dip switches and one(1) jumper.

- These two switches which are accessible through hole in the front bracket.
- There is a jumper (JP1) on the PCIe-ETAP card

These function in the same manner as the 1783-ETAP.

- To specify the method of configuring Internet Protocol (IP) settings, such as the IP address
- To enable the Ring Supervisor with its current parameters
- To restore the factory default settings.

**Table 1**, on the next page, describes the connectors and indicators on the front of the PCIe-ETAP card.

**ATTENTION**

Do not connect different EtherNetIP networks to this card. If you attempt to connect a second network to this card, your communication system will operate erratically.

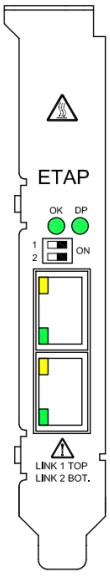



Figure 1 PCIe-ETAP Card's Ports and Indicators

**Table 1 Power-up Behavior**

| | | Switch 1 | Switch 2 | Jumper (JP1) JP1 |
|---|---|---|---|---|
| Internet Protocol Settings | IP setting to be configured by software[1] Or Uses the default IP address of 169.252.1 if the settings have not been configured by software | Off | Off | N/A |
| | Uses the IP settings acquired by a BOOTP server | On | Off | N/A |
| | Used the IP settings acquired by DHCP server | Off | On | N/A |
| Factory Default | Restore the factory default settings and then suspend operation | On | On | N/A |
| Ring supervisory mode | Enables Ring Supervisor mode with the current supervisor-related parameters[2] | The positions of switches 1 and 2 do not affect Ring Supervisor Module | | On |
| | Allows Ring Supervisor mode and supervisor-related parameters to be enabled and configured by software | | | Off |

1. RSLinx Classic communication software or RSLogix 5000 programming software is required.
2. For information about supervisor-related parameters, refer to the EtherNet/IP Embedded Switch Technology Application Guide, publication ENET-AP005.

**Observe these guidelines on use of the DIP switches:**

- Out of the box, the switches and jumper are in the OFF position. In this state, the tap is configured to be a non-supervisor ring node and will respond to the default IP address of 169.252.1.
  If your application does not require access to the tap's diagnostic information or configuration, no further action is required.
  Otherwise, select alternate DIP switch settings or configure the tap by using RSLinx Classic communication software or RSLogix 5000 programming software.
- When a switch is pushed to the left, it is in the OFF position.
- When a switch is pushed to the right, it is in the ON position.
- To select BOOTP, move switch 1 to the ON position and switch 2 to the OFF position.
- To select DHCP, move switch 1 to the OFF position and switch 2 to the ON position.
- To enable Ring Supervisor mode with the current supervisor-related parameters, move JP1 to the ON position.
- To restore the factory default settings and suspend operation, move both switch 1 and 2 to the ON position. When both switch 1 and 2 are in the ON position, the position of JP1 is ignored.
  When operation is suspended, the OK status indicator blinks red. To resume normal operation, move the switches and jumpers to the desired positions and then cycle power to the tap

## Insert the PCIe-ETAP Card into the Computer


When used in a Class I, Division 2, hazardous location, this equipment must be mounted in a suitable enclosure with proper wiring method that complies with the governing electrical codes.
If you insert or remove the card while host power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.
Be sure that power is removed or the area is nonhazardous before proceeding.

1. Handle the card so that you prevent electrostatic discharge.
2. Prior to installation, you have configured the PCIe-ETAP, refer the section **Configure the card for your EtherNetIP Network**
3. Access the Computer's PCI Express Local Bus Expansion Slots

   To install the card, you must access the computer's PCI Express local bus expansion slots. Follow these general steps, or refer to your computer's user guide for further instructions.

   a) Shut down the host computer.

   b) Remove the computer's cover.

   c) Select a vacant PCI Express local bus expansion slot.

   d) Loosen the screw (if present) on the back (rear bracket) of the computer.

   e) Remove the slot's expansion cover.

4. Insert the card into the edge connector and tighten the expansion slot screw.
5. Replace the computer cover.
6. Connect the copper EtherNet ports, for more information go to the section **Connect the EtherNetIP Media**

7. Turn on the computer to be certain that it comes up correctly.

| If the Computer | Then |
|---|---|
| Turns on | Continue |
| Hangs up | Either the card is not seated correctly in the PCI slot or you have a memory or I/O conflict. You should:<br>• remove and reinsert the card into the same PCI slot and try again<br>• remove and reinsert the card into a different PCI slot and try again<br>• remove all other non-essential cards and try again<br>If you continue to experience difficulty, contact Online Development Technical Support. Goto www.oldi.com and select **Support**. |

8. Download the EDS file

9. Refer to the section **Install the Driver in Windows**

## Connect the EtherNetIP Media

To connect the PCIe-ETAP card to an EtherNetIP network, follow the instructions in these publications:

| Resource | Description |
|---|---|
| EtherNet/IP Modules in Logix5000 Control Systems User Manual, publication ENET-UM001 | Provides details about how to configure your module. |
| EtherNet/IP Embedded Switch Technology Application Guide, publication ENET-AP005 | Provides information about using products with embedded switch technology to construct networks with linear and ring topologies. |
| Industrial Automation Wiring and Grounding Guidelines, publication 1770-2 | Provides general guidelines for installing a Rockwell Automation industrial system. |

## Install the Driver in Windows

On many systems, you will find that the driver is already installed so this installation is not required. If your system requests the installation of a driver for this device, the steps for this installation are shown below.

## Install the Driver for the First Time

Follow these steps to install the driver for the first time on a personal computer running Windows XP or Windows7.

1. Shut down the computer.
2. Insert the PCIe-ETAP card into an unused PCI express slot.

   Refer to the previous section in this document **"Install the PCIe-ETAP Communication Interface Card"** for installation information.
3. Restart the computer.
4. Save the contents of the **EXE** directory on your PC at location of your choice.
5. Start the **RUN…** command on the **Start** Menu and run the **PROWinxx.exe** in your folder containing the driver files. (The xxx portion shows version of the installer package. )
6. Click the **OK** button to start the installation procedure.
7. When the following dialog box is displayed, click the **Next** button.
8. After accepting the terms on the License Agreement, click on the check box and the **Next** button.
9. Click on the Install button to start install the drivers.
10. Click on the Finish button to exit the driver installation program.

## Install EDS

### Upload EDS from device

Once you have installed the drivers, you can upload the EDS from the module.

1. In **RSLinx** software, select **Communications | RSWho**

2. Drill down to the lowest level for the PCIe-ETAP device

3. Right-click the PCIe-ETAP node and select **"Upload EDS file from device"** and to retrieve the EDS file from the module.

The EDS is also available on the Online Development Inc Knowledgebase http://kb.oldi.com.

Use the EDS wizard in either RSLinx software to register the EDS file for the PCIe-ETAP card:

| Catalog Number | EDS File |
|---|---|
| PCIe-ETAP | Pcieetap.eds |

In Windows, select **Start → Programs → Rockwell Software → RSLinx → Tools → EDS Hardware Installation Tool**.

# Interpret the LED Indicators

The LED indicators on the card give you information about the card and the network when you're connected via the EtherNetIP connectors. **TABLE 2 INDICATORS AND LED** outline the states and explain what each state means to you and the action you should take, if any, to correct that state.

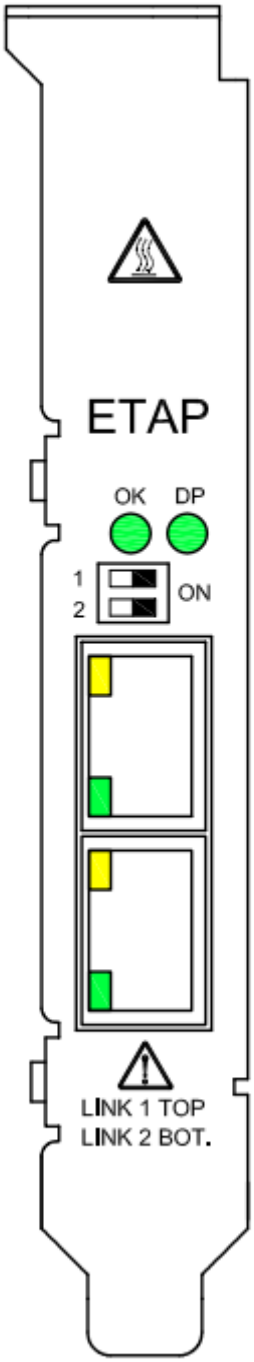
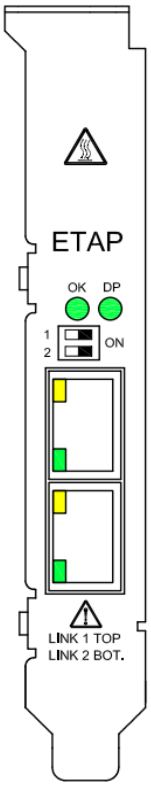


**Table 2 PCIe-ETAP - Indicators and LEDs**

The following LEDs can be monitored at the bracket location:




| Indicator | Status | Description |
|---|---|---|
| OK | Off | Tap is not powered. |
| | Flashing green | Tap is not configured. |
| | Solid green | Tap is powered, configured, and operating correctly. |
| | Flashing red | Recoverable fault, such as duplicate IP address or flash update in progress, is detected. |
| | Solid red | Unrecoverable fault detected. |
| DP (DevicePort) | Off | No internal Link to the host PC. Host port is disabled. |
| | Green ON | The internal link to the host PC exists (100Mbps). |
| | Flashing green | The internal link to the host PC exists and there is activity (100Mbps). |
| | Yellow (Solid or Flashing) | The internal link to the host PC is incorrectly set to 10Mbps - should always be set to 100Mbps. |
| LINK1, LINK2 | Both LEDs Off | One of these conditions exists:<br>• No link.<br>• Port administratively disabled.<br>• Port disabled because of rapid ring fault condition, and this tap is the active ring supervisor (LINK 2).<br>• Ring network has encountered a rare, partial network fault, and this tap is the active supervisor (LINK 2). |
| | Green ON | One of these conditions exists:<br>• A 100 Mbps (full or half duplex) link exists.<br>• The ring network is operating normally and this tap is the active supervisor (LINK 2). |
| | Flashing green | A 100 Mbps link exists and there is activity. |
| | Solid yellow | One of these conditions exists:<br>• A 10 Mbps (full or half duplex) link exists.<br>• Ring network is operating normally, and this tap is the active supervisor (LINK 2). |
| | Flashing yellow | A 10 Mbps link exists and there is activity. |

The LINK1 and LINK2 LEDs are built into the RJ-45 connector. There are two LEDs per RJ-45 connector, one green and one yellow.

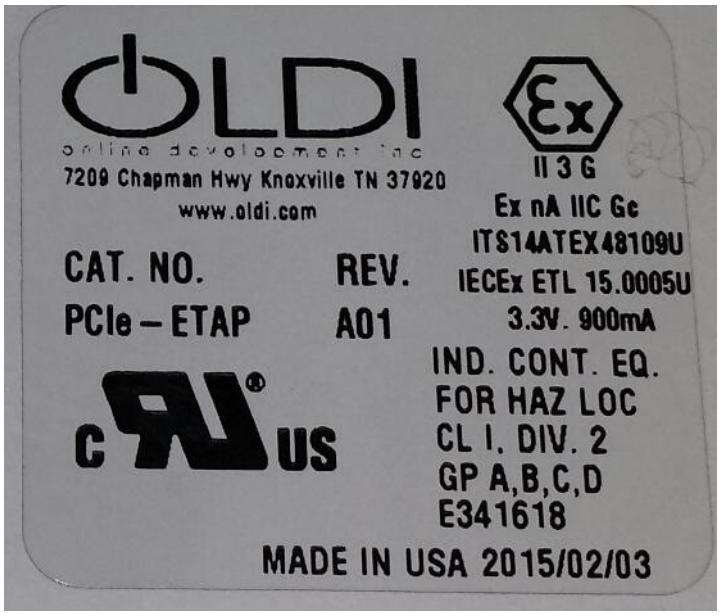
# Specifications

| | |
|---|---|
| PCI Express local bus | Compliant to PCI express revision 2.2.<br>The PCIe-ETAP card is compatible with 32-bit 5V and 3.3V PCI slots, Slot must provide 3.3V power. |
| Mechanical form factor, H x L | PCI Express 32-bit short card<br>10.7 cm (4.2 in.) x 16.5 cm (6.5 in.) L |
| Driver compatibility | Microsoft Windows XP with Service Pack 1 or higher<br>Window7 32-bit and 64-bit |
| Software compatibility | Rockwell Software RSLinx software, version 2.52.00 or later |
| Operational temperature | -25-…70 °C<br>The operating parameters describe the environment within the PCI slot. Refer to the documentation for your computer for environmental requirements. This card should not exceed those specifications. |
| Storage temperature | -40…85 °C |
| Relative humidity | 5...95% non-condensing |
| Vibration | 2g @ 10...500Hz |
| Operating shock | 30 g |
| Non-operating shock | 50 g |
| Emissions | EN 55011 (2007) |
| ESD immunity | IEC 61000-4-2:<br>6 kV contact discharges<br>8 kV air discharges |
| Radiated RF immunity | IEC 61000-4-3:<br>10V/m with 1 k Hz sine-wave 80%AM from 80 MHz...2700 MHz<br>10V/m with 200 Hz 50% pulse 100%AM at 900 MHz<br>10V/m with 200 Hz 50% pulse 100%AM at 1890 MHz |
| EFT/B immunity | IEC 61000-4-4:<br>± 2 kV at 5 kHz on communications ports |

| | |
|---|---|
| Surge transient immunity | IEC 61000-4-5:<br>± 2 kV line-earth (CM) on communications ports |
| Conducted RF immunity | IEC 61000-4-6:<br>10Vrms with 1 kH sine-wave 80% AM from 150kHz...80MHz |
| Power requirements | In US, this equipment must be powered from UL Listed Information Technology Equipment or UL Listed Industrial Control Equipment. In Canada, this equipment must be powered by an SELV source, CSA Certified Information Technology Equipment, or CSA Certified Process Control Equipment.<br>3.3 V dc, 900 mA max<br><br>Provision shall be made to prevent the rated voltage from being exceeded by transient disturbances of more than 140% of the rated voltage when applied in Zone 2 environments. |
| Wiring category[1] | 2 - on communications ports |
| Enclosure | For ATEX, this equipment shall be mounted in an ATEX certified enclosure with a minimum ingress protection rating of at least IP54 (as defined in IEC60529) and used in an environment of not more than Pollution Degree 2 (as defined in IEC 60664-1) when applied in Zone 2 environments.<br><br>For IECEx, this equipment shall be mounted in an IECEx approved enclosure with a minimum ingress protection rating of at least IP54 (as defined in IEC60529) and used in an environment of not more than Pollution Degree 2 (as defined in IEC 60664-1) when applied in Zone 2 environments. |

[1] Use this Conductor Category information for planning conductor routing. Refer to Industrial Automation Wiring and Grounding Guidelines, Rockwell Automation publication 1770-2.

| Software | Version |
|---|---|
| RSLinx Classic | 2.56 or later |
| RSLogix 5000 | 17.01 or later If you are using version 17.01, you need version 2.*x* of the add-on profile. Download it from http://www.rockwellautomation.com/support/downloads.html. |

| | |
|---|---|
| Certifications (when product is marked) | cUR UL Recognized Component Industrial Control Equipment<br><br>CE European Union 89/336/EEC EMC Directive, compliant with:<br>EN 61000-6-2; Industrial Immunity<br>EN 61000-6-4; Industrial Emissions<br>EN 55011 Industrial Scientific and Medical Equipment<br><br>IECEx certificate number**:** IECEx ETL 15.0005U<br><br>  |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