

FOCUS PX

Getting Started Guide

Intended Use

The FOCUS PX phased array and conventional ultrasonic data acquisition instrument is designed to perform nondestructive inspections of industrial and commercial materials. Do not use the FOCUS PX for any purpose other than its intended use.

Instruction Manual

Before use, thoroughly review the *FOCUS PX User's Manual*. Use the product as instructed. The User's Manual contains essential information on how to use this Evident product safely and effectively. Keep the User's Manual in a safe, accessible location.

Safety Signal Words



DANGER

Indicates an imminently hazardous situation and calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, will result in death or serious personal injury.



WARNING

Indicates a potentially hazardous situation and calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in death or serious personal injury.



CAUTION

Indicates a potentially hazardous situation and calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, may result in minor or moderate personal injury, material damage, particularly to the product, destruction of part or all of the product, or loss of data.

Package Contents

The FOCUS PX comes standard with several key accessories:

- Transport case
- DC power adaptor (power supply)
- Power cord (model varies according to country)
- USB flash drive, which contains:
 - FocusPC software
 - Calculator software
 - FocusPC Viewer
 - FocusControl software development kit
 - FocusData software development kit
 - *FocusPC UT and Phased Array Data Acquisition and Analysis Software User's Manual*
 - *FocusPC UT and Phased Array Data Acquisition and Analysis Software Advanced User's Manual*
 - *FOCUS PX Getting Started Guide*
 - *FOCUS PX Phased Array and Conventional Ultrasonic Data Acquisition Instrument User's Manual*
- Crossover Ethernet cable (category 5e or higher) [5 m] (16.4 ft)
- Screwdriver for bumper removal
- Digital input cable (5 m) [16.4 ft]
- Digital output cable (5 m) [16.4 ft]
- Calibration certificate

NOTE

Make sure that the contents of the package are complete before using the FOCUS PX. If any items are missing or damaged, contact Evident.

Connections



CAUTION

To reduce the risk of electric shock, avoid touching the inner conductor of the connectors. Up to 200 V can be present on the inner conductor of the UT connectors, and up to 115 V can be present on the PA connector.

Figure 1 on page 3 shows the FOCUS PX front panel, which enables you to do the following:

- Connect a PA probe (or multiple PA and UT probes using a splitter)
- Connect the power earth connection to an appropriate cable or lug in a cabinet or on a suitable grounded structure
- Connect up to 8 conventional UT probes
- Turn on and off the FOCUS PX
- Get the FOCUS PX status using the indicators

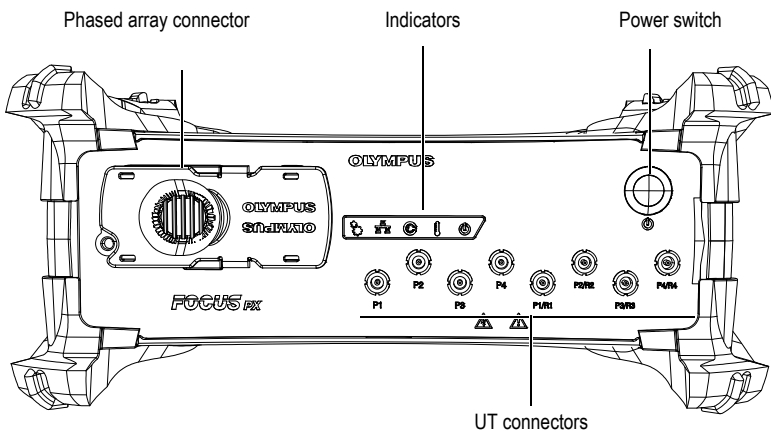


Figure 1 The FOCUS PX front panel

Figure 2 on page 4 shows the FOCUS PX rear panel, which enables you to do the following:

- Connect a scanner
- Connect input and output signals (encoders, alarms, etc.)
- Connect the FOCUS PX to an Ethernet network
- Connect the FOCUS PX to a table top power supply
- Connect the FOCUS PX to a suitable power source
- Synchronize multiple FOCUS PX

NOTE

A suitable power source is a dedicated safety extra low voltage (SELV) limited power source (LPS) in the range of 10 VDC to 24 VDC for the primary power source, and in the range of 15 VDC to 18 VDC for the auxiliary power source.

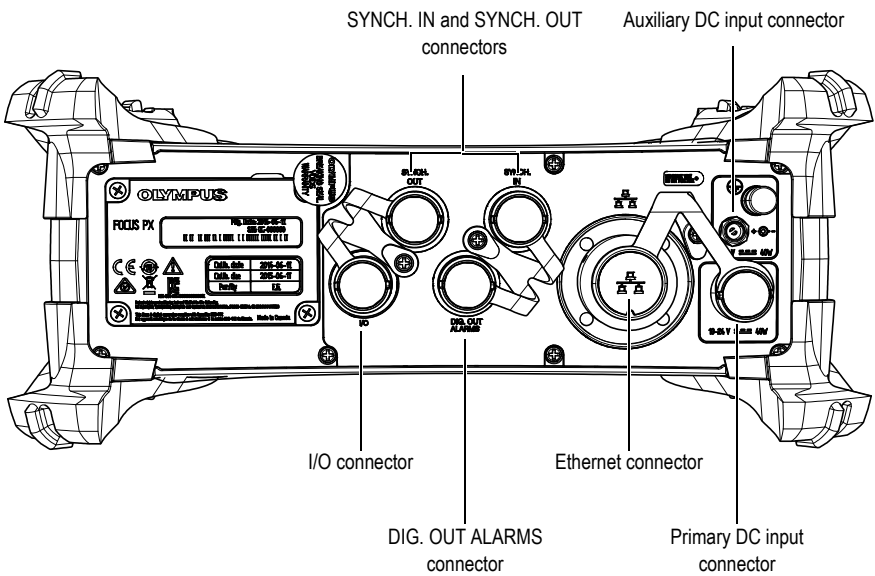


Figure 2 The FOCUS PX rear panel

NOTE

For more details about the FOCUS PX connectors, indicators, and switch, refer to the *FOCUS PX Phased Array and Conventional Ultrasonic Data Acquisition Instrument User's Manual*.

To Install a FOCUS PX

1. Install the FOCUS PX away from heat sources, leaving a minimum clearance of 5 cm (2 in.) on each side to allow heat dissipation.



CAUTION

To prevent water infiltration, use waterproof cables. Water infiltration could damage the FOCUS PX.

2. Using a category 5e Ethernet crossover cable, connect the FOCUS PX Ethernet connector to the network interface card of the inspection computer. The cable supplied with the FOCUS PX is a category 5e Ethernet crossover cable (Evident part no. 60ND0001).

NOTE

When using the FOCUS PX in harsh environments, select an Ethernet cable that has a high resistance to friction, tensile stress, and torsion.

3. Install FocusPC on the inspection computer, and then follow the wizard steps to configure the network card for connection to the FOCUS PX.



WARNING

To prevent the risk of an electric shock, Evident strongly recommends turning off the FOCUS PX before connecting and disconnecting the probes.



CAUTION

Probes can suffer permanent damage if fired without couplant. If the probes are not being used for inspection, the FOCUS PX should be turned off.

4. Using the appropriate cables, connect the probes to the phased array connector and/or to the UT connectors.
 5. Using the appropriate cables, connect each of the components required by your setup and your needs to the corresponding FOCUS PX connectors (for example, encoders, alarms, etc.).
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NOTE

For all the details on the connectors, refer to the *FOCUS PX Phased Array and Conventional Ultrasonic Data Acquisition Instrument User's Manual*.

6. Connect the DC power adaptor to the FOCUS PX instrument's DC input connector. Connect the other end of the power cord to a suitable power source.
 7. Turn on the FOCUS PX by pressing the power switch.
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To Connect Multiple FOCUS PX Instruments to a Computer



CAUTION

When three or more FOCUS PX instruments are stacked on top of each other, they must be supported by a rack or an appropriate mechanical device. If no such support is used, the assembly is unstable and may fall over, which could cause human injury or equipment damage.

1. Using category 5e Ethernet crossover cables, connect each FOCUS PX Ethernet connector to an input port of a gigabit Ethernet switch, and then connect the switch to the inspection computer.
-

NOTE

When using FOCUS PX instruments in harsh environments, select Ethernet cables that have a high resistance to friction, tensile stress, and torsion.

2. Turn on each FOCUS PX.
-

Automatic Start-Up Mode

The FOCUS PX has an automatic start-up mode (auto-boot) that can be used to remotely start the FOCUS PX. When this mode is enabled, you do not need to press the power switch to start the FOCUS PX. When this mode is enabled, the FOCUS PX starts up automatically when connected to the DC power adaptor. This mode is disabled by default.

To activate the auto-boot

1. Turn off the FOCUS PX, and then disconnect the DC power adaptor.
2. While pressing the power switch, connect the FOCUS PX to the DC power adaptor.
3. Wait for 5 to 10 seconds, and then release the power switch.
The power indicator light will blink two times.
4. To deactivate the auto-boot, repeat steps 1 to 3.

Indicators

Figure 3 on page 6 shows the FOCUS PX front panel indicators.

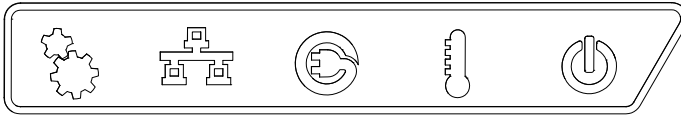




Figure 3 The FOCUS PX indicators


Mechanical indicator ()

This indicator is reserved for future use.

Ethernet indicator ()

When this indicator lights up green or orange, it indicates that the Ethernet link is established.


When this indicator flashes green or orange, it indicates there is activity on the Ethernet link. A green indicator corresponds to a 1000 megabits per second (Mbps) Ethernet connection, while an orange indicator corresponds to a 100 Mbps connection.

Power supply status indicator ()

When this indicator lights up green, it indicates that the instrument is powered by direct current through the DC power adaptor (primary DC input connector).


When this indicator lights up red, it indicates that the primary DC power supply is outside the 10 VDC to 24 VDC range. If the input voltage is found to be outside the allowable limits, contact the After-Sales Service.

When this indicator is turned off, it indicates that no power is available.

Temperature indicator ()

When this indicator lights up green, it indicates that the internal temperature is within the operating temperature range.

When the indicator lights up red, it indicates that the internal temperature is above the upper limit. The FOCUS PX will automatically shut down. You must wait for the FOCUS PX to cool down before turning it back on.

Power indicator ()

When this indicator lights up green, it indicates that the FOCUS PX is turned on.

When this indicator flashes green, it indicates that the FOCUS PX is either starting up or shutting down.

When this indicator flashes red three times after the power button has been pressed, it indicates that the FOCUS PX instrument's internal temperature is above the upper temperature limit. Wait for the FOCUS PX to cool down.

When this indicator flashes red continuously, it indicates that the FOCUS PX is in safe mode (flash memory error). Contact the After-Sales Service.

Integrating the FOCUS PX in an Automated System

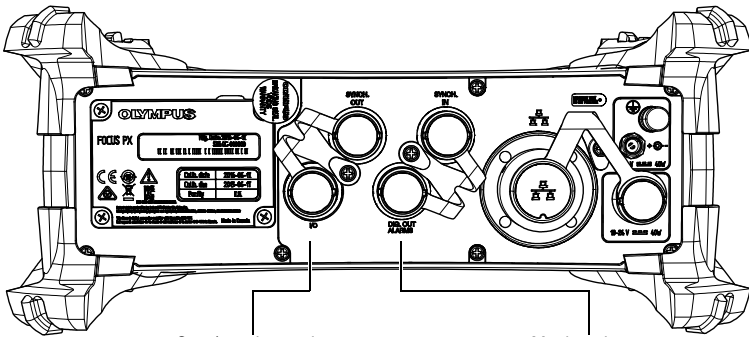
The FOCUS PX was designed with flexible programmable logic controller (PLC) and software integration features to enable easy integration into automated inspection systems (see Figure 4 on page 7).



Figure 4 Example of a fully automated inspection system¹

For PLC and scanner integration, the connectors on the rear panel enable the FOCUS PX to be interfaced with a PLC or a scanner to exchange the following commands (refer to the *FOCUS PX Phased Array and Conventional Ultrasonic Data Acquisition Instrument User's Manual* for more details):

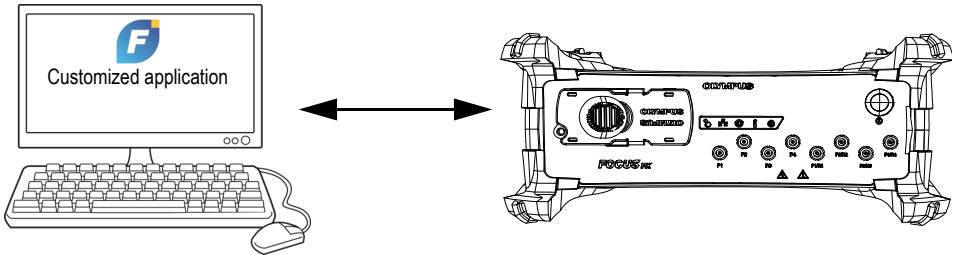
1. Photo courtesy of SCLEAD.



- Start/stop inspection
- Start/stop firing
- Receive top turn signal
- Reset encoder signal
- Receive encoder signal
- Connect a scanner
- Supply power to an external device

Monitor alarms

For software integration, the flexibility of FocusPC, FocusControl, and FocusData enables the creation of fully customized applications designed to precisely match your inspection requirements (refer to the *FocusPC UT and Phased Array Data Acquisition and Analysis Software User's Manual* for more details).



Equipment Disposal

Before disposing of the FOCUS PX, contact your local Evident distributor for disposal information and instructions.

Electrical Warnings



CAUTION

To avoid the risk of electric shock, do not touch the inner conductor of the connectors. Up to 200 V can be present on the inner conductor of the UT connectors, and up to 115 V can be present on the PA connector.

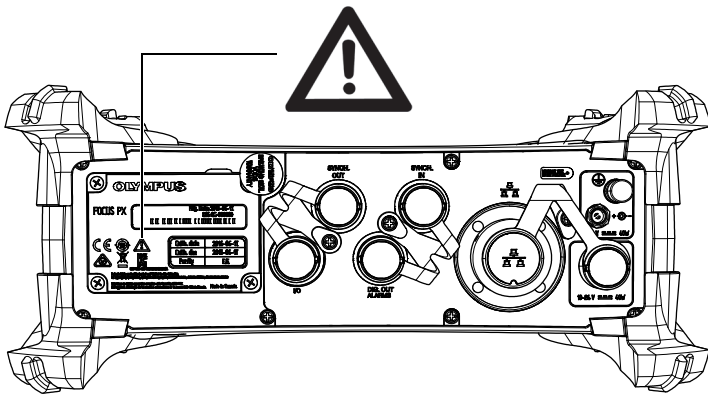


Figure 5 Warning symbol on rear panel

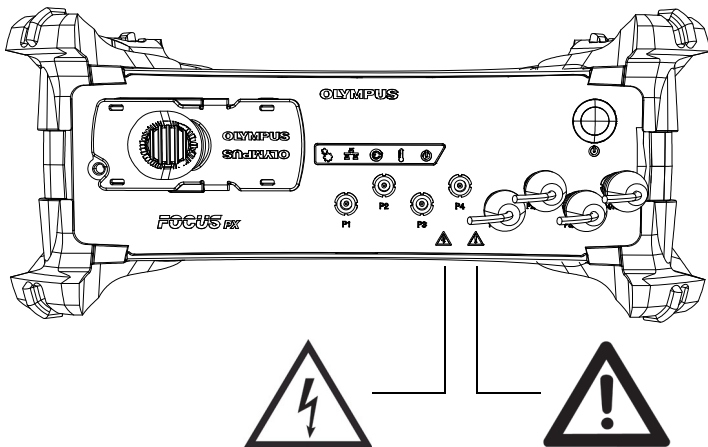


Figure 6 Warning symbols on front panel



WARNING

- Before operating this instrument using mains electricity, you must connect the protective earth terminal of the instrument to the protective conductor (mains) of the power cord. The mains plug shall only be inserted into a socket outlet provided with a protective earth contact. Never negate the protective action by using an extension cord (power cable) without a protective conductor (grounding).
- If there is any possibility that the ground protection could be impaired, you must make the instrument inoperative and secure it against any unintended operation.
- The instrument must only be connected to a power source corresponding to the type indicated on the rating label.

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