GETTING STARTED GUIDE
# TPC-2230

Touch Panel Computer (6.5 in./12.1 in./15 in.)

This document describes how to install and begin using the TPC-2230 Touch Panel Computer.

## Conventions

⚠ This symbol denotes a caution, which advises you of precautions to avoid injury. When this symbol is marked on a product, refer to the *Safety Guidelines* section for information about precautions to take.

⚡ When this symbol is marked on a product, it denotes a warning advising you to take precautions to avoid electrical shock.

♨ When this symbol is marked on a product, it denotes a component that may be hot. Touching this component may result in bodily injury.

ⓘ Take precautions to avoid data loss, loss of signal integrity, degradation of performance, or damage to the model.

## Safety Guidelines

Before setting up the TPC-2230, read these safety instructions carefully.

Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.

Keep this equipment away from excessive humidity.

Place this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.

The openings on the enclosure are for air convection and protect the equipment from overheating. *Do not cover the openings.*

Make sure the power source voltage is correct before connecting the equipment to the power outlet.

**NATIONAL INSTRUMENTS™**

Position the power cord so that it cannot be stepped on. Do not place anything over the power cord.

All cautions and warnings on the equipment should be noted.

If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

Never pour any liquid into an opening. This may cause fire or electrical shock.

Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.

If one of the following situations arises, have service personnel check the equipment:

• The power cord or plug is damaged.
• Liquid has penetrated into the equipment.
• The equipment has been exposed to moisture.
• The equipment does not work well, or you cannot get it to work according to the user manual.
• The equipment has been dropped and damaged.
• The equipment has obvious signs of breakage.

Do not leave this equipment in an environment where the storage temperature may go below -30 °C (-22 °F) or above 80 °C (176 °F). Doing so could damage the equipment. The equipment should be in a controlled environment.

⚠ **Caution**   There is a danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

⚠ **Attention**   Il y a un risque d'explosion si la batterie est incorrectement remplacée. Ne remplacez la batterie qu'avec un type identique ou équivalent recommandé par le fabricant. Débarrassez-vous des batteries usagées conformément aux instructions du fabricant.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

⚠ **Caution**   The protection this equipment provides may be impaired if it is used in a manner not described in this manual.

⚠ **Attention**   La protection fournie par cet équipement risque d'être endommagée s'il n'est pas utilisé comme le décrit ce manuel.

# Electromagnetic Compatibility Guidelines

This hardware has been tested and found to comply with the applicable regulatory requirements and limits for electromagnetic compatibility (EMC) as indicated in the hardware's Declaration of Conformity (DoC)[1]. These requirements and limits are designed to provide reasonable protection against harmful interference when the hardware is operated in the intended electromagnetic environment. In special cases, for example when either highly sensitive or noisy hardware is being used in close proximity, additional mitigation measures may have to be employed to minimize the potential for electromagnetic interference.

While this hardware is compliant with the applicable regulatory EMC requirements, there is no guarantee that interference will not occur in a particular installation. To minimize the potential for the hardware to cause interference to radio and television reception or to experience unacceptable performance degradation, install and use this hardware in strict accordance with the instructions in the hardware documentation and the DoC[1].

If this hardware does cause interference with licensed radio communications services or other nearby electronics, which can be determined by turning the hardware off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the antenna of the receiver (the device suffering interference).
- Relocate the transmitter (the device generating interference) with respect to the receiver.
- Plug the transmitter into a different outlet so that the transmitter and the receiver are on different branch circuits.

Some hardware may require the use of a metal, shielded enclosure (windowless version) to meet the EMC requirements for special EMC environments such as, for marine use or in heavy industrial areas. Refer to the hardware's user documentation and the DoC[1] for product installation requirements.

When the hardware is connected to a test object or to test leads, the system may become more sensitive to disturbances or may cause interference in the local electromagnetic environment.

Operation of this hardware in a residential area is likely to cause harmful interference. Users are required to correct the interference at their own expense or cease operation of the hardware.

Changes or modifications not expressly approved by National Instruments could void the user's right to operate the hardware under the local regulatory rules.

**Notice** To ensure the specified EMC performance, operate this product with only shielded cables and accessories connected to USB and COM ports.

**Notice** To ensure the specified EMC performance, the length of cables connected to USB and COM ports must be no longer that 3 m (10 ft.).

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[1] The Declaration of Conformity (DoC) contains important EMC compliance information and instructions for the user or installer. To obtain the DoC for this product, visit ni.com/certification, search by model number or product line, and click the appropriate link in the Certification column.

# System Setup

Follow these steps to unpack and set up the TPC-2230:

1.  Unpack the TPC-2230. Be sure your kit includes the following items:

    •   The TPC-2230 HMI
    •   Ten panel mounting clamps
    •   Ten panel mounting screws (M4x30)
    •   Six panel mounting screws for limited space mounting (M4x20)
    •   Six GRANO panel mounting screws for limited space mounting (M4x16)
    •   One 3-pin power connector
    •   One HMI Resource Recovery USB
    •   One earth ground cable
    •   Two screws for optional mPCIe module

    If any items are missing or damaged, contact NI.

    ⚠ **Caution**   Be sure system power is off before plugging in or pulling out the CFast card.

    ⚠ **Attention**   Assurez-vous que le système est éteint avant de connecter ou de retirer la carte CFast.

2.  Verify that the CFast card containing Windows Embedded or another operating system is installed in the unit.

3.  Connect the power connector to a 24 VDC power line. Be sure to connect the positive, negative, and ground lines as shown in Figure 1. The power lines can be from either a power adapter or in-house power source. Connect GND_EARTH to chassis GND.

**Figure 1.**  Power Connector
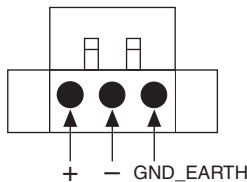
4. Connect the power connector to the power receptacle on the TPC-2230. The power receptacle pin assignment is shown in Figure 2. Note the position of the earth ground pin, marked *G*.

**Figure 2.** Power Receptacle and Pin Assignment



G    −    +
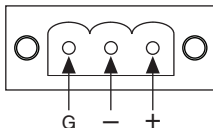
5. The system turns on immediately after you apply power.

## Touchscreen Configuration

The TPC-2230 touchscreen should be correctly calibrated and ready to use when you power on the system. For more information about configuration or to choose custom calibration options, refer to the *TPC-2230 User Manual* on ni.com/manuals.

## Panel Mounting

Follow these steps to mount the TPC-2230 in a panel:

1. Install the TPC-2230 in the panel opening. (Refer to the *Cutout Dimensions* section for cutout dimensions.)
2. Hook the clamps included in the accessory pack to the holes around the four sides of the bezel. Be sure to remove the protective inserts in the panel mounting holes.
3. Insert the screws included in the accessory pack into the clamps. To fasten the TPC-2230 to the panel, tighten the screws so they push against the mounting panel.

   - Use ten clamps and M4x30 screws to panel mount the 15 in. unit.
   - Use eight clamps and M4x30 screws to panel mount the 12 in. unit.
   - Use six clamps and M4x20 screws to panel mount the 6.5 in. unit.

**Note** Use GRANO screws if the CFast slot is blocked by one of the longer screws.

**Note** The mounting panel thickness should be less than 6 mm (0.236 in.).

# Preparing the Environment

Ensure that the environment in which you are using the TPC-2230 meets the following specifications.

| | |
|---|---|
| Operating temperature | -20 °C to 60 °C (-4 °F to 140 °F) |
| Storage temperature | -30 °C to 70 °C (-22 °F to 158 °F) |
| Humidity | 40 °C @ 10% to 95% relative humidity (noncondensing) |
| Vibration | 2 grms (5 Hz to 500 Hz) |
| Maximum altitude | 2,000 m |
| Pollution Degree | 2 |
| Indoor use only | |

**Note** The front bezel is compliant with IP66.

# Power

| | |
|---|---|
| Input voltage | 24 VDC ± 20% |
| Power consumption (typical) | |
| 6.5 in. | 19.2 W |
| 12.1 in. | 45.6 W |
| 15 in. | 40.8 W |

**Note** Providing power levels either below or above the stated range is not recommended.

# Cutout Dimensions

| | |
|---|---|
| 6.5 in.. | 189.1 × 142.1 mm (suggested) (7.44 × 5.59 in.) |
| 12.1 in. | 303 × 229 mm (suggested) (11.93 × 9.02 in.) |
| 15 in. | 374.5 × 298.5 mm (suggested) (14.74 × 11.75 in.) |

# Where to Go Next

For more information about using the TPC-2230, including the below categories, refer to the *TPC-2230 User Manual* at ni.com/manuals.

- I/O Ports
- Jumpers and connectors
- Specifications
- Serial Port Settings
- Features in Windows Embedded Standard 7

# Worldwide Support and Services

The National Instruments website is your complete resource for technical support. At ni.com/support you have access to everything from troubleshooting and application development self-help resources to email and phone assistance from NI Application Engineers.

Visit ni.com/services for NI Factory Installation Services, repairs, extended warranty, and other services.

Visit ni.com/register to register your National Instruments product. Product registration facilitates technical support and ensures that you receive important information updates from NI.

A Declaration of Conformity (DoC) is our claim of compliance with the Council of the European Communities using the manufacturer's declaration of conformity. This system affords the user protection for electromagnetic compatibility (EMC) and product safety. You can obtain the DoC for your product by visiting ni.com/certification. If your product supports calibration, you can obtain the calibration certificate for your product at ni.com/calibration.

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