



# PCD Communication FAQs

## General Communications Questions

*What do I need to get started with communications?*

In order to communicate with the PCD, you need three components: WinPCD, a Pentium based computer (200 MHz or greater recommended) running Windows 98, NT, XP or 2000, a communications cable, and null modem adapter. The null modem adapter swaps pins 2 and 3 (transmit and receive) on a communication cable.

*Where can I find a communications cable?*

A 6' communications cable can be found at Radio Shack or other electronics supply stores. This cable should have a 9 pin male connection on one end and a 9-pin female on the other. The null modem adapter is also sold at Radio Shack. In some areas, there are communications cable specialty stores where you can buy an integral null modem cable, often at a lower cost.

*What port do I use?*

The PCD has a minimum of three ports, from which there are a total of two communications channels to the processor (CPU). The communications module (COM 2, 3, 4 or 5) provides one communication channel to the CPU. The CPU module also has a port, but this is used for downloading firmware to the device, and is inactive whenever there is a COM board installed. The port on the front is the other independent communication channel to the processor. The rear port is configurable for DNP, IEC Modbus ASCII or Modbus RTU, and can be set to any range address and baud rate, while the front port is set for Modbus ASCII, 9600 baud.

*What are my communication options for each port?*

- On Firmware versions prior to V2.4, there were two choices: either the back port set to Modbus ASCII protocol, or the front Opticon Connector port, requiring the optical cable.
- On Firmware versions V2.4 or later you have these same options, with the additional feature that if the rear port is set to DNP, you can change Communication Parameter 24 to "Enable", allowing the rear port to "Autodetect" Modbus commands from WinPCD and switch to Modbus on the fly. This allows communication through your rear port, even though it has been set up for SCADA. Reference the [DNP Implementation Details document](#).
- On firmware version 2.52 or later, on the units with the enhanced front panel, a 9 pin RS-232 serial port has replaced the front optical port. This port makes it easy to communicate locally for programming and event downloading, and leaves the rear port for SCADA.

*Why are there multiple ports on the COM card?*

The COM 3 and COM 4 cards have multiple ports. These are actually different connections for a single channel to the CPU. You cannot use more than one connection (more than one master) for the COM card, except when used as a "communication bridge". A communication bridge allows the user, in some cases, to use the COM card to convert RS-232 to RS-485, or to loop together several units using the fiber port. See the [PCD instruction manual](#) for further information on communication features.

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*How do I use the front Optical port on the PCD?*

If the PCD is connected to SCADA, it is possible to communicate through the front port so that DNP communications do not have to be interrupted to obtain data or change settings. The front port is ideal for this need. In the third quarter of 2002, the PCD was changed from a serial optical port on the front to a 9 pin serial port. If you have the optical port, you have two options:

1. Convert the front panel to the enhanced panel with an RS-232 port (CPU Type 2 and firmware upgrade required). The upgrade process takes around one hour, including a firmware upgrade.
2. Purchase an optical probe (ABB S#3D93347G02). With the optical probe, you will need a 25-pin male to 9-pin male adapter. No null modem adapter is required. You will also need a 9 V battery.

*I have all the equipment, but why can't I get WinPCD to communicate using the Autodetect function?*

The most common reasons for communications failure are:

- There is another application on your computer using the COM port. A common offender is the Palm Pilot. Exit the application by selecting the icon at the bottom task bar.
- You do not have the correct null modem cable, or your cable is bad
- Were there any installation or application errors observed in WinPCD? If there were, a reinstallation may be necessary.
- There can be a computer that just won't communicate. There may be a special configuration of the operating system that prevents WinPCD from operating properly. Try to install WinPCD on a different computer (with a different type OS), and try using WinPCD. If WinPCD still doesn't work, contact your IS dept or ABB.

*Someone has sent me a WinPCD database record (exported from their computer), but why can't I communicate using it?*

With the Enterprise Explorer screen up, highlight the database you imported, and select Edit – Configure from the top bar. Select the Communication tab. This needs to match what is shown in the PCD HMI, under Settings – Show (or Change) Settings – Communications.

- Is the Communication port the same as on your computer?
- Are the Baud Rate, Unit Address, and Protocol/Connection type the same?
- Select Search button if you are not sure of the communications parameters. This will search the various Com ports and unit addresses. Note that if you are using the front port, you must select "Use Front Port" on the search screen.

*What are the definitions for the Communications Settings in the PCD HMI?*

The PCD has a number of communication settings. The menu shows the parameters for the front port as "FP Baud" etc., and the rear port as "RP Baud" etc. Following these settings, a long list of Parameters is shown. These are all related to DNP and IEC protocol communication and do not need to be changed unless you are using DNP.

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*Why can't I edit the communication settings from WinPCD?*

**You can upload communication settings from the PCD, and send them back, but you cannot edit them. Changing settings while communicating to the device is not recommended because it will undoubtedly cause a communication failure, and can possibly lock up the PCD communication channel, requiring a reboot to continue communicating. Communication settings can be changed from the HMI. Note that the Communication Settings used are set up in the Enterprise Explorer screen as described above.**

*Can I change settings while the unit is on line?*

**You can change settings without removing the unit from service if done very carefully. Always follow your company's procedures!**

- **The settings you send will go into effect immediately after they are received.**
- **Make sure you do not set a pickup value that is below the load current. This will cause an overcurrent trip.**
- **It is not recommended to send settings while on line if the unit has any kind of programmable logic programmed (i.e. undervoltage tripping). The sequence in which it reloads to the device may cause an unexpected operation.**
- **Do not do any firmware upgrades while the unit is on line. Disconnect the control cable at the bottom of the unit, or as a minimum disconnect the lower connector on the DIO Type 2 card, which drives the actuators (Out A, Out B, Out C).**

Call 1-800-929-7947 x 5 or +1-407-732-2000 x 2510 for any other questions you may have.

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