

PowerWaveSoftware.com

Help Me Connect Guide



1 Introduction

This document guides you through the process of downloading the correct software update package for your welding machine, and connecting your computer to the machine to enable communication for the update process. This connection method can also be used for all other Lincoln Electric software utilities that require communication with the machine.

2 Compatible Lincoln Electric Welding Machines

The following machines can be upgraded using the downloads from the website:

- **Power Wave**® 355(M), 455(M), 455(M)/STT, 655R, i400, C300
- **Power Wave**® AC/DC 1000
- **Power MIG**® 300 or 350MP
- **Invertec**® V350-PRO or V450-PRO

3 Getting Started

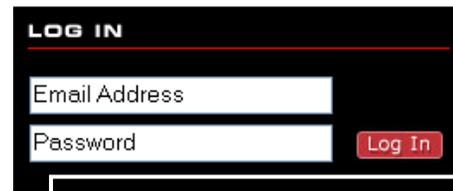
While connected to the Internet, go to <http://www.powerwavesoftware.com>. Log on to the website by typing in your e-mail address and password. If you do not have a login, you can create one by clicking on the “**Register today**” link.

Once logged in, click on your desired product family (e.g. “Power Wave®”) to navigate to that product’s download page. Then click on the “**Download**” link to begin downloading the update package for the selected product.

Before downloading begins, a dialog box will pop up asking for the location where the update package should be saved. Select a convenient location, such as the Desktop, to save the update package.

After this step, an Internet connection is no longer required.

Note: If you do not want the Update Utility to overwrite your existing Weld Sets (i.e. if you have a customer-specific Weld Set), or want to backup existing Weld Sets, the Update Utility will give you the option to do so.



4 Connecting to the Machine

The machine can be connected to your computer using two methods: over a network cable (Ethernet), or over a serial cable. The machine's serial port is a DB-25 female connector (25 pins), and the Ethernet port is an RJ-45 (8P8C) jack (resembles a wider telephone jack).

Please note that not all machine models have an Ethernet port. However, some models can be upgraded to utilize Ethernet by adding on the Communication Interface module, available from Lincoln Electric as K2207-2 or K2436-1, depending on the model.

If your machine has both a serial and an Ethernet port, then the preferred method of connection should be over the network (Ethernet port). The following sections discuss how to correctly connect over the network.

If you are connecting to the serial port, skip to section 6, "Connecting with a Serial Cable."

5 Ethernet Connection

Your computer can be physically connected to the machine over the network in one of the following ways:



Ethernet connection

- Direct connection between computer and machine with a **crossover cable**. *This is the most simple and preferred method.*
- Computer and machine connected to the same network **switch**.
- Computer and machine on the same corporate network (may include switches and **routers**)
- Computer on the same network as a FANUC[®] robot, which is connected to the machine. Please contact the Lincoln Electric Automation Division for assistance with connecting a machine to a FANUC[®] robot.

Once physically connected, you can launch the Update Package that you downloaded from the website, or any other Lincoln Electric software that communicates with the machine.

When the software application starts, it presents a choice for connecting through either a serial cable or Ethernet. Select the “Connect through Ethernet” option to connect over the network. The program then presents another two options that allow you to choose whether or not you know the IP address of the machine.

An IP address is a numeric identifier for a device on a network, similar to a phone number. All devices that participate on the network must have a unique IP address, which is composed of four numbers, each ranging from 0 to 255. For example, 192.168.1.100 is a valid IP address.

5.1 Known IP Address

If you know the IP address of the machine, select the corresponding option, and type the address into the text box, or use the pull-down list which remembers the last several addresses you entered. Click the “Connect” button to try to establish a connection to the given address. If the connection is established successfully, the program will continue with its next step. If you are using the System Update utility, follow the on-screen instructions to complete updating your machine.



If a connection could not be established successfully, the program will display an error. Some of the reasons that this may occur are:

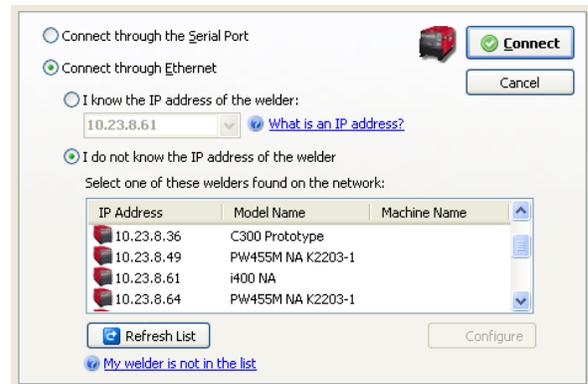
- Your computer's IP configuration prevents it from communicating with the machine's IP. Following the instructions for “Unknown IP Address” below may resolve this problem.
- The machine's IP may have changed. This can happen if the machine is configured to acquire an IP automatically, or if another user manually changed its IP.
- The cable between your computer and the machine may be damaged or not the correct type (on some computers, a direct connection to the machine requires a *crossover cable*). To verify a proper cable connection, check for a solid green or yellow light on or near your computer's Ethernet jack.
- Your computer and/or network may have a firewall or other security software that blocks the connection to the machine. Consult with your IT department to determine if this is the case.

5.2 Unknown IP Address

If you do not know the IP address of the machine, or are having trouble connecting with the “Known IP Address” method, select the “I do not know the IP address” option.

This will display a list of all machines that the program is able to detect on the network.

Note: The capability of detecting machines is only possible if directly connected with an Ethernet cable, or connected to the same Ethernet switch. If connected across one or more routers, you must know the exact IP of your machine in order to connect. If connected to a FANUC® robot, you must know the exact IP of the FANUC® robot controller.



For each machine found, the list contains the machine’s current IP address, model name, and machine name (used in Production Monitoring™), to help identify which machine you want to configure or connect to. Highlighting a machine in the list will make the machine rapidly blink its green status light for additional ease of identification. To connect to one of the machines in the list, highlight the machine, then click the Connect button.

If your machine fails to connect this way (the program gives a connection error), or if it does not appear in the list of found machines, the following solutions may resolve the issue:

- As stated earlier, your machine will not appear in the found list if it is connected a router or to a FANUC® robot.
- The machine may not appear in the list if its firmware is out of date. To connect to the machine in this case, you must either know the exact IP of the machine, or attempt to update the firmware through a serial cable.
- If the machine appears in the list but fails to connect, its firmware may be out of date. To connect to the machine in this case, you must modify its network settings to be compatible with the settings of your computer (see next section).

5.3 Modifying the Machine's Ethernet Settings (Advanced)

In some circumstances, it is necessary to change the machine's Ethernet settings, for example, when moving the machine from one network to another, or when the machine fails to connect when selected in the "found" list.

Caution: If the machine is currently part of a network, contact the network administrator before making changes to the welder's Ethernet settings.

If you need to change the machine's network settings (including IP address), highlight the machine in the list and click the Configure button. A network configuration window will pop up, allowing you to modify the machine's IP address, Subnet Mask, and Default Gateway. After entering the new settings, click the OK button. This will cause the machine to reset, and accept its new network settings. *Any welding will be interrupted if the machine resets.*



If your computer is directly connected to the machine with an Ethernet cable, you may click the "Suggest Settings" button. This will automatically generate the proper network settings for the machine that would make it ready to communicate with your computer. **Note that this should be regarded as a temporary measure only. If the machine was previously part of a network, you should note down its previous network settings and restore them after you are finished communicating directly with the machine.**

6 Connecting with a Serial Cable

6.1 Requirements

If your computer has a serial port, which is a DE-9 (9-pin) Male connector (also often referred to as DB-9), then you can connect to the machine with a 9-to-25 pin serial cable. This type of cable is available from Lincoln Electric's Automation Division as part number AD1207-2. It is also available from various electronics retailers and online stores by searching for the keywords "DB9 to DB25 modem cable."



Serial port on a computer

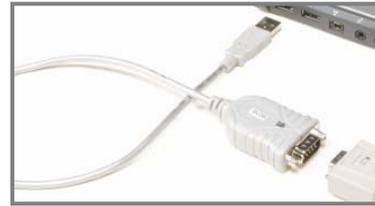
*Important: The serial cable **must not** be a **null modem** cable.*

If your computer does not have a serial port, you will need a USB-to-Serial adapter that converts one of your computer's USB ports to a serial port. This type of adapter can

also be found in various electronics stores. An online search for “USB to serial adapter” will also give numerous results. However, this adapter is not available through Lincoln Electric.



Serial modem cable



USB-to-Serial adapter

Note: If using a USB-to-Serial adapter, make sure the drivers for the adapter are properly installed before proceeding.

6.2 Connecting and Communicating

Connect the 25-pin end of the serial cable to the serial port on the machine. Note that the location of the port on the machine may vary between different models.

Connect the other end of the cable to your computer. If you are using a USB-to-Serial adapter, plug the serial cable into the adapter, then plug the adapter into one of the USB ports on your computer.



Launch the Update Package that you downloaded from the website, or any other Lincoln Electric software that is meant to communicate with the machine.

Make the selection to “Connect through the Serial Port,” then click the Connect button.

If using the System Update Utility, follow the on-screen instructions to complete the update of your machine.

