

SETUP Guide

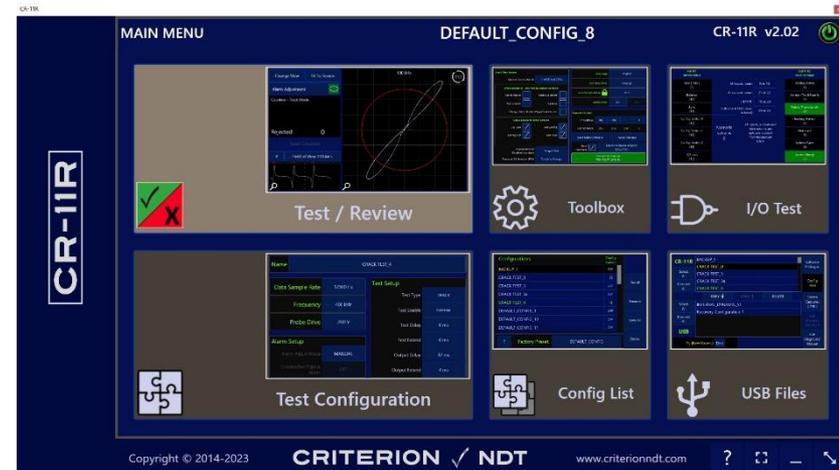
CR-11R Eddy Current Test Instrument

Rev. 02



Table of Contents

- ✓ [Minimum Requirements](#) 3
- ✓ [Specifications](#) 4
- ✓ [Mounting Dimensions](#) 5
- ✓ [Windows Environment Setup](#) 6
- ✓ [Hardware Setup](#) 7
- ✓ [Software Setup](#) 8
- ✓ [PC >> CR-11R Network](#) 9
- ✓ [Contact Information](#) 10



The CR-11R hardware unit (coil controller box which includes the Electromagnetic Probe Controller (EPC)), and the CR-11R software user interface program are both referred to as the CR-11R within this manual – separated by context.

- ✓ See the CR-11R Manual for additional details about software operation. Once the software provided for the CR-11R has been installed, a shortcut to the manual will be on the desktop, or can be found in the “CR11R/Prog” folder (typically C:\CR11R\Prog\CR-11R MANUAL (current rev).pdf)

Recommended PC specs (for the customer supplied computer)

- ✓ **Dedicated PC:** Having a dedicated PC for the CR-11R application will ensure the highest reliability.
- ✓ **Operating System:** Windows 10
- ✓ **Network:** Dedicated 100Mb/s port for connection to the CR-11R. If using the Remote Control feature, a second dedicated 100Mb/s port is required.
- ✓ **Performance:** Disable Wi-Fi, disconnect outside networks, and turn off Windows updates can help to ensure timely operation without interruption.
- ✓ **Storage:** SSD with >10GB free space
- ✓ **Interface:** CR-11R software has been developed for use with a single touch touchscreen. A mouse and keyboard work great.
- ✓ **Processor:** 64bit i5 quad core 2.8GHz or better
- ✓ **USB:** 3 – USB 2.0 or better for file transfer via memory device and keyboard/mouse connections.

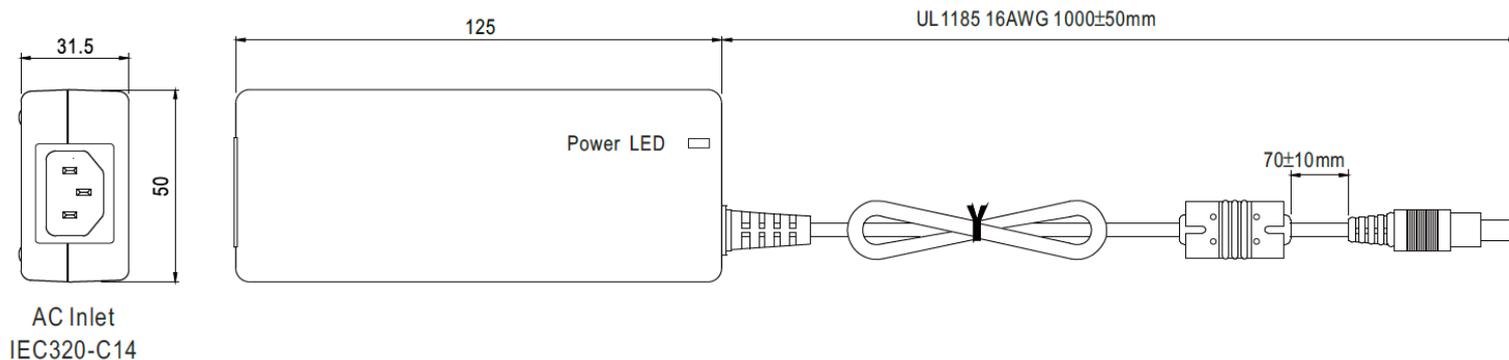
Minimum Requirements (for the customer supplied computer)

- ✓ **Operating System:** Windows 7 SP1 (Windows 8.1 or later preferred) with .NET Framework 4.7.1 or later
- ✓ **Ethernet Port:** Dedicated 100MB/s port for connection to the CR-11R (to reduce risk of USB related delays, avoid the use of USB to Ethernet adapters in production environments)
- ✓ **Storage:** SSD with minimum 4GB free space
- ✓ **RAM:** 8GB
- ✓ **Processor:** 64bit quad core 2.4GHz or better
- ✓ **USB:** 1 – USB 2.0 or better for file transfer via memory device

CR-11R Specifications

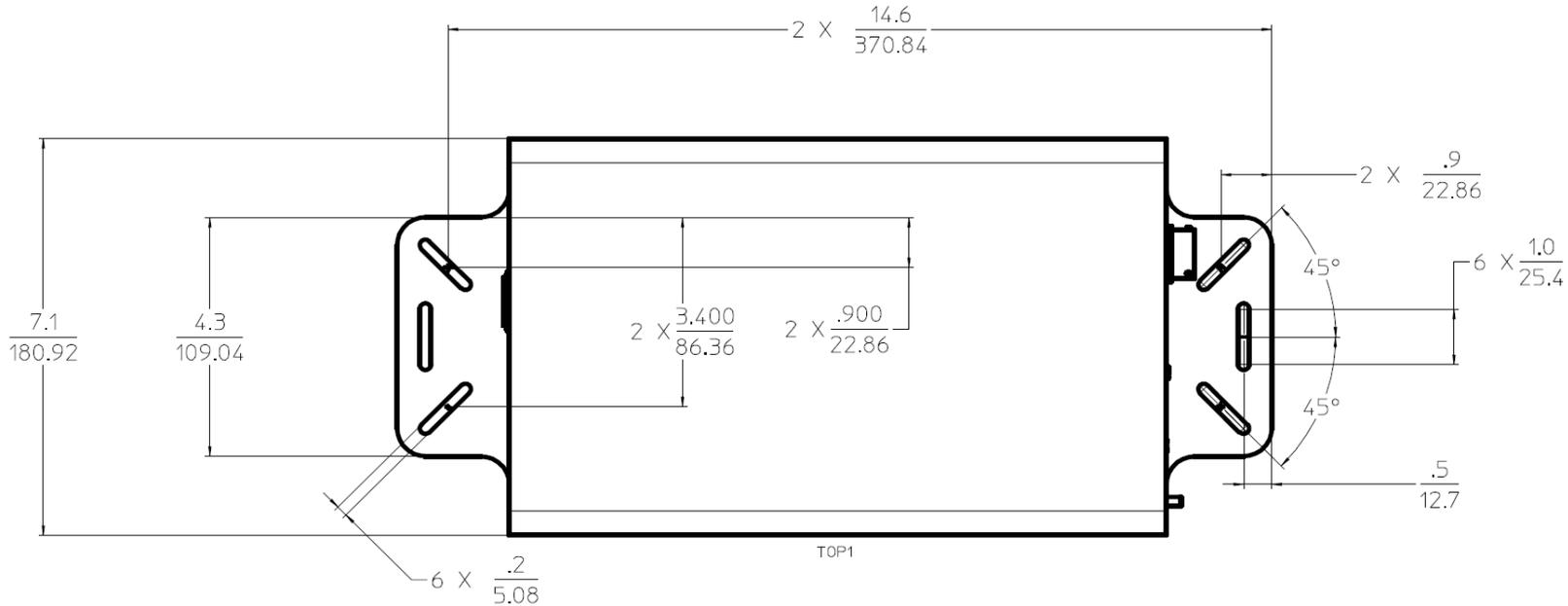
- ✓ Dimensions: See [page 5](#)
- ✓ Mounting pattern: See [page 5](#)
- ✓ Weight: 8 lbs.
- ✓ Enclosure type: Aluminum
- ✓ Shipping weight: ~10 lbs. (8 lbs. + cables, test coils, packaging materials)
- ✓ Discrete I/O: Yes (see Industrial I/O section for details)
- ✓ Universal AC Power: Yes (100-240VAC 50/60Hz)
 - ✓ 13 watts typical
 - ✓ 20 watts maximum
- ✓ Interface: Ethernet 100Mbps (TCP/IP custom protocol for use with Criterion NDT CR-11R software)
- ✓ Auto MDI-X: Yes
- ✓ Environment:
 - Operating Temperature: -10°C to +45°C
 - Storage Temperature: -20°C to +60°C
 - Humidity: 20-90% non-condensing

Power Supply Dimensions (mm)



CR-11R Mounting/Dimensions ($\frac{\text{in}}$ / $\frac{\text{mm}}$)

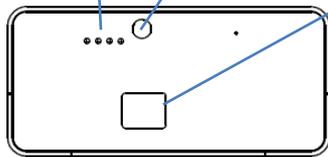
[Return to Table of Contents](#)



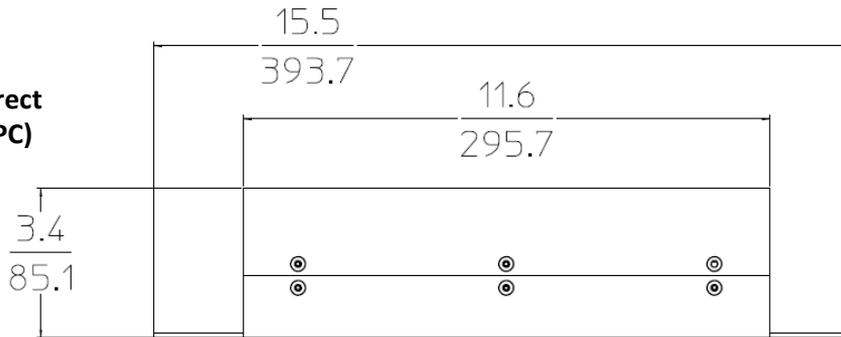
Status LEDs

Power input

Ethernet (direct connect to PC)



LEFT1

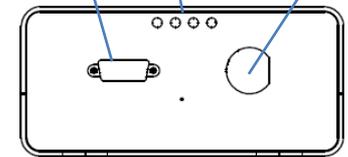


FRONT1

HD26 (Discrete I/O)

Status LEDs

Probe/Coil connector



RIGHT2

Windows Environment Setup (customer owned PC used with CR-11R)

[Return to Table of Contents](#)

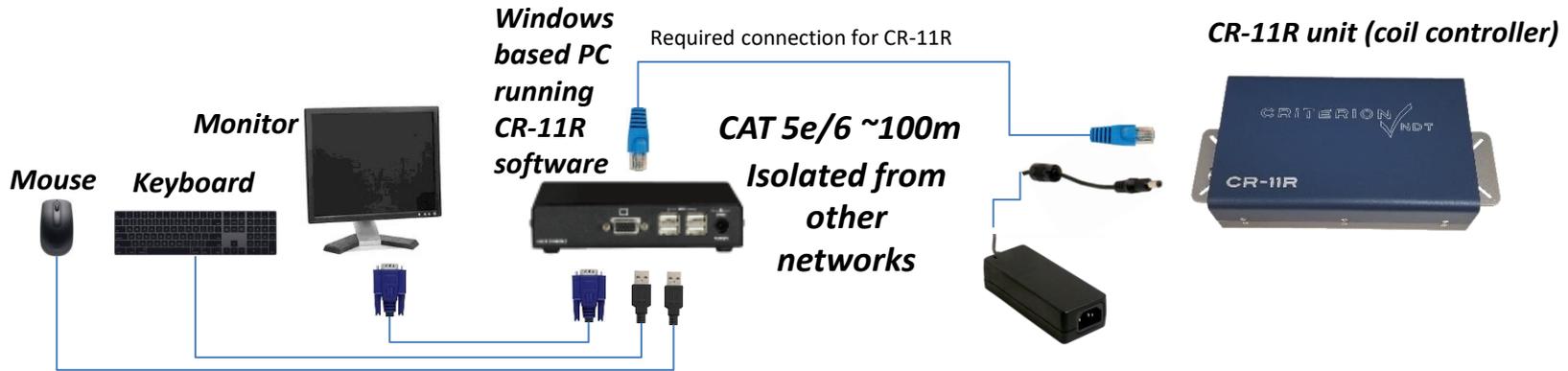
- ✓ In order to make Windows more responsive, there are a number of steps that can be taken. However, only a few should be necessary.
1. In Power Options, ensure the PC does not go to sleep. If the display is using a USB touchscreen, ensure that “USB selective suspend” for that touchscreen input is disabled, and that the Power Management setting for that connection in “Device Manager” has the “Allow the computer to turn off this device to save power” option deselected.
 2. Ensure that Windows regional settings are set to ‘English’, ‘United States’. The languages supported within our software are not impacted or helped by changing a regional setting, but some of the default settings for other regions also change punctuation, date/time, and number formats which can negatively impact the CR-11 software.”
 3. It is acceptable to use a USB to Ethernet adapter for non-critical (non-production) demonstration purposes only. (USB will not keep up with high sample rate testing)
 - If such an adapter is used, ensure that its power management settings have also been set to the highest performance, and that it’s USB selective suspend feature is OFF (disabled) to avoid loss of connection with the CR-11R unit.
 - When using a USB to Ethernet adapter, avoid using a wireless USB mouse on the same USB controller interface, as some will consume much more USB resources than a wired mouse. Which may result in communication issues with the Ethernet adapter.
 4. There are a number of services which can be turned off to potentially increase the performance of a Windows PC which is not connected to the internet, and whose sole purpose is to run the CR-11R software and related activities. Some of these services may be required if any additional programs are running on the same machine (Criterion NDT recommends a dedicated PC). The list below is for Windows 7, other OS versions may have slightly different names for the same functions. Review each before disabling services to ensure compatibility.

<ul style="list-style-type: none"> • Indexing Service • Microsoft FTP Service • Security Center • Themes 	<ul style="list-style-type: none"> • UPnP Device Host • Windows Media Player Network Sharing • Windows Search • Windows Update 	<ul style="list-style-type: none"> • SysMain (Windows 10) • SuperFetch (Windows 7)
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 5. Once the CR-11R software is running in the production environment (with all other programs and timing parameters set to their nominal values and running in a standard production mode), check the resource monitor to ensure that the PC being used is not overburdened by the combination of tasks that it is expected to perform. An overburdened PC can lead to unexpected operation which may result in errors.

CR-11R Setup – pg. 1 of 2 (Hardware)

[Return to Table of Contents](#)

- ✓ Connect the CR-11R directly to an available network port on your Windows based PC using a CAT-5 (or better) Ethernet cable.
- ✓ Power up the CR-11R using the supplied power supply module.



Communication between CR-11R and PC:

- The CR-11R Ethernet port has a static IP address (192.168.1.2).
- The CR-11R communicates with a PC's Ethernet adapter set to a static IP address (192.168.1.3) which does not use DHCP.

- ✓ The CR-11R includes a medical grade 12VDC power supply which provides an earth ground path through the building's AC plug. The shield inside the probe cable along with any metal body probe/coil will also be tied to earth ground via this method.
- ✓ The CR-11R includes a ground stud with 8-32 threads for additional noise reduction if needed.
- ✓ The CR-11R does not have an internal fan for cooling. To cool the internal components, ensure that the chassis is attached to a surface which can help wick heat away from it, and/or have some amount of room temperature (or cooled) air flow around the CR-11R.
- ✓ Criterion NDT recommends using a dedicated PC to operate the CR-11R software.

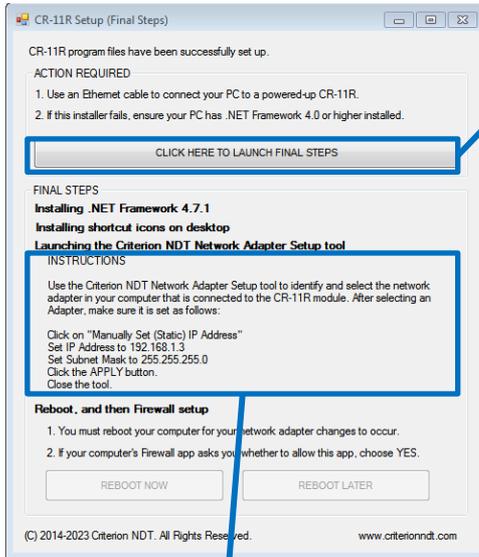
**NOTE: Do not hot swap the ethernet cable between two different PCs.
Power down the CR-11R before connecting it to a different PC or NIC within the same PC.**

CR-11R Setup – pg. 2 of 2 (Software)

[Return to Table of Contents](#)

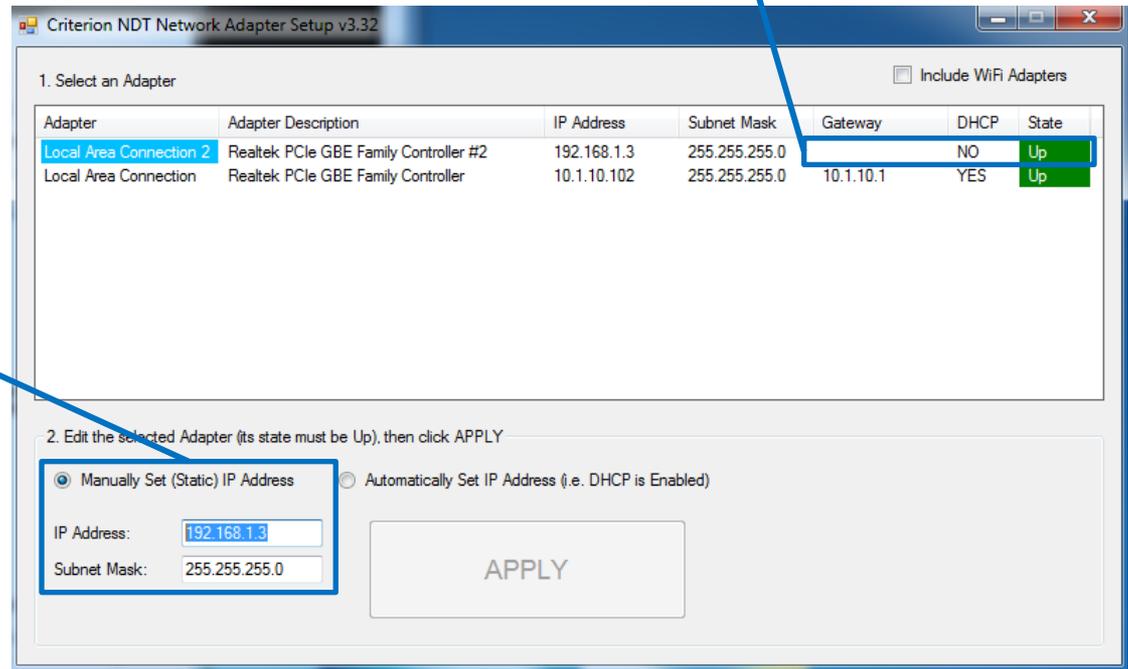
✓ Using the self extracting setup tool to install software and establish communication with the CR-11R unit:

1. After launching the CR-11R Installer, the folder structure will be created and files will be transferred, then the following screen will be displayed:



Final steps:

2. Verifies that a compatible .NET Framework version (minimum 4.7.1) is installed, and provides an update if needed. If .NET Framework needed updating, restart the PC at the end of that process, then restart the CR-11R installer.
3. Launches the “Criterion NDT Network Adapter Setup” tool to assist with IP Address configuration.
4. Identify the adapter which is connected to the CR-11R unit. It will be listed as “Up” if the cable is connected and the CR-11R unit is powered on. It will have no Gateway, and DHCP will be set to “NO”.



5. Set the IP Address of the Adapter to “192.168.1.3” and select “APPLY”.
6. Close the Criterion NDT Network Adapter Setup tool (using the) and complete the installer by selecting one of the reboot options and cycle power on the CR-11R unit (pull plug).
7. Go to ‘Display Settings’ and verify that ‘Scale and Layout’ is set to “100%”
8. Launch “CR-11R.exe” from the desktop shortcut
9. Upon first launch, the software will set up some additional files and folder structure within the CR11R folder on the C: drive. **Select ‘OK’ to dismiss the messages**

CR-11R Troubleshooting (PC >> CR-11R Network)

Network connection problem between the PC running CR-11R software and the CR-11R hardware unit:

- ***If this is the first time this CR-11R and this PC have been connected together:***
 - Review '[Communication between CR-11R and PC](#)' page 7.
 - Use the Criterion Network Adapter Setup tool to verify that the network adapter connected to the CR-11R unit is set to 192.168.1.3
 - Verify that the connection is listed as 'UP'. If not, check the CR-11R units power supply (ensure that the LEDs are ON to indicate power)
 - Check the Ethernet cable (try a known good cable).
 - ***If this unit has been running for some time and has experienced a connection problem:***
 - Restart the system, then run the Criterion Network Adapter Setup tool to verify the connection is UP and set to the correct IP Address. If it is set to 192.169.1.2, change the adapter name to something other than "Local Area Connection 2", set the IP Address to 192.168.1.3, then restart the computer.
 - Go to the Properties for the network adapter which is used for CR-11R communication and select the Power Management tab. Ensure that the "Allow the computer to turn off this device to save power" option is deselected.
 - ***When attempting to set the IP Address with the Criterion Network Adapter Setup tool, the IP Address fails to be set after selecting Apply, and reverts back to what it was previously set to.***
 - This problem can be caused by an attempt to use a different network adapter than was previously used with that IP Address (PC – motherboard issue)
 - **Solution 1:** Reconnect the CR-11R and any other network devices to the same physical locations they were previously connected to.
 - **Solution 2:** Clear disconnected network adapters from Windows:
 1. Go to a command prompt by selecting Run, or searching for "cmd.exe", right click on 'cmd' and choose run as administrator.
 2. Type "**set devmgr_show_nonpresent_devices=1**", **Enter**.
 3. Type "**devmgmt.msc**", **Enter** (to open the device manager).
 4. Within the device manager, select **View**, and then select **Show Hidden Devices**.
 5. Expand the **Network Adapters** tree.
 6. Select then **Uninstall** all of the adapters of the same type that are connected to the CR-11R. Do not check the box to remove the software; just uninstall the adapters so that after rebooting, the same drivers will be assigned to the same adapters again, but will have cleared credentials with regards to the specific IP Address linked to specific adapter names.
 7. After rebooting, use the CriterionNetworkAdapterSetup tool to reassign the IP Addresses as desired.
- NOTE:** If you have other network devices connected (and can identify which drivers are being used with them, and they are working properly), there is no need to uninstall their drivers. The objective is to clear the credentials which tie the physical port to the adapter name and IP address which are needed for CR-11R.
- ***The network connection failed message appeared, and the "Retry" button doesn't seem to help.***
 - In some cases, your Windows PC may have determined that the network port was not properly closed such as when a surprise disconnect of the CR-11R from power loss or cable disconnection has occurred without first closing the CR-11R app. Windows has a default timeout period before the network resource will become available again. The default timeout period is typically 2 minutes.

✓ **If you are unable to resolve issues, please reach out to us. We are happy to help.**

Contact Information

[Return to
Table of
Contents](#)

Criterion NDT, Inc.

3702 West Valley Highway North

Suite 202

Auburn Washington 98001, USA

Phone: 253-929-8800

Fax: 253-929-8851

www.criterionndt.com

