

MDLink[®] User's Guide

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AT THE HEART OF SAVING
LIVES[®]

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Overview

The G3 family including MDLink® software enables the Medical Director to modify several pre-programmed operational parameters and to define User Identifiers for Automated External Defibrillators (AEDs) and associated battery packs manufactured by Cardiac Science Corporation.

This manual includes the following instructions:

- ◆ Installing MDLink
- ◆ Uninstalling MDLink
- ◆ Using MDLink
- ◆ Obtaining AED operating parameters
- ◆ Modifying parameters
- ◆ Restoring default parameters



Caution: Unavailable features.

The AED is programmed with software that has been tested to work with versions of MDLink that are included with the AED. When legacy versions of MDLink are used to communicate with this AED, there may be features described in this manual that are not available on all AED models or cannot be edited. The software in most cases will give an error message when incompatibilities occur. Contact your local Cardiac Science representative for more information.

Intended use

MDLink is intended for use only by a Physician or persons licensed by State law. In addition, the MDLink user must be familiar with using computer programs that run in the Microsoft® Windows® environment and with the AED and related accessories and documentation.

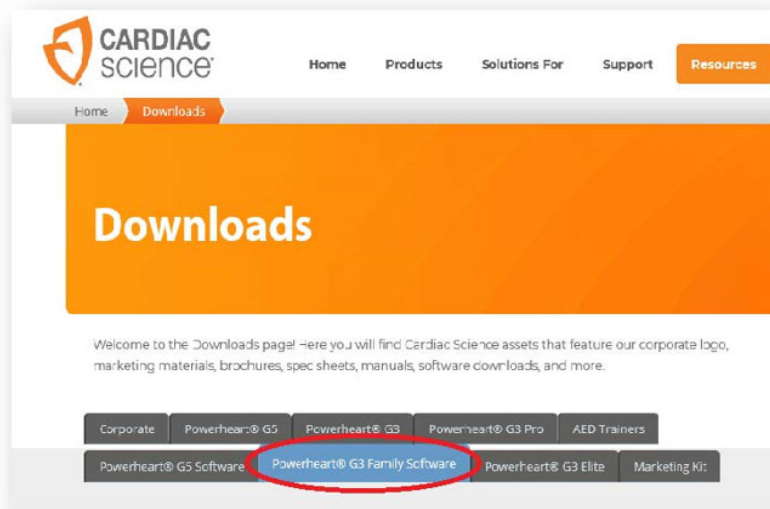
Installing MDLink

Important: If you are upgrading MDLink, uninstall the previous version before installing the latest version.

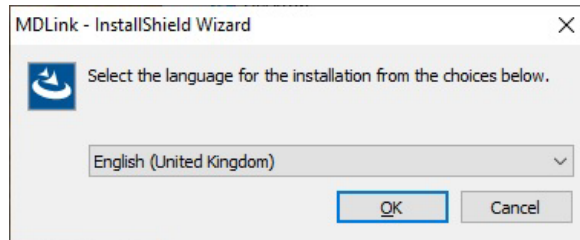
MDLink is compatible with Windows 10(64 bit).

To download and install MDLink:

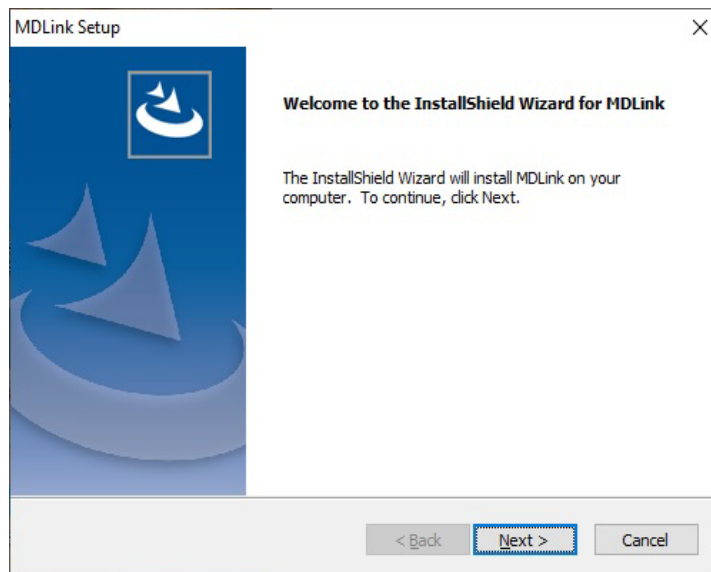
1. Go to <https://www.cardiacscience.com/downloads/>
2. Click on the Powerheart® G3 Family Software tab.
3. Click MDLink.



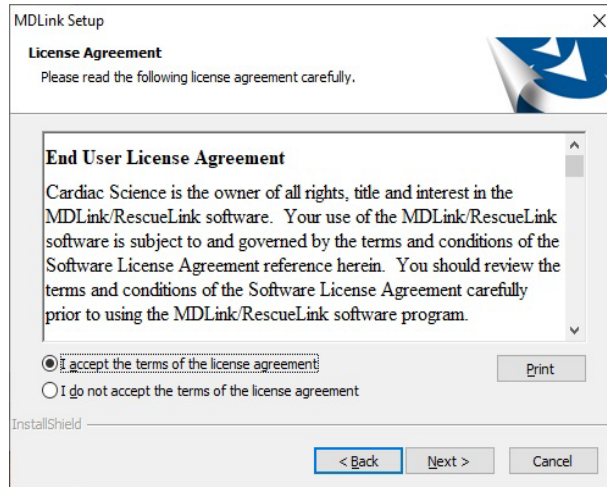
4. Use the drop-down menu to select the desired software language.



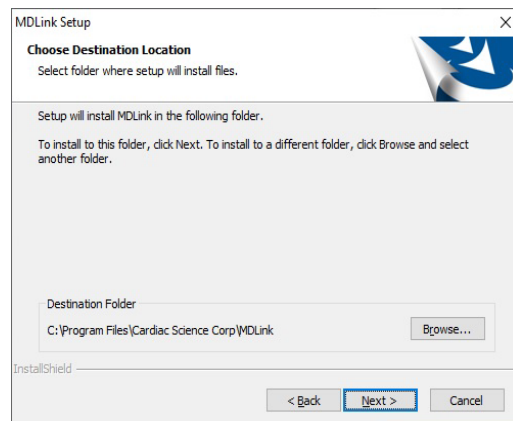
5. The MDLink Welcome window appears, click Next to start the installation process.



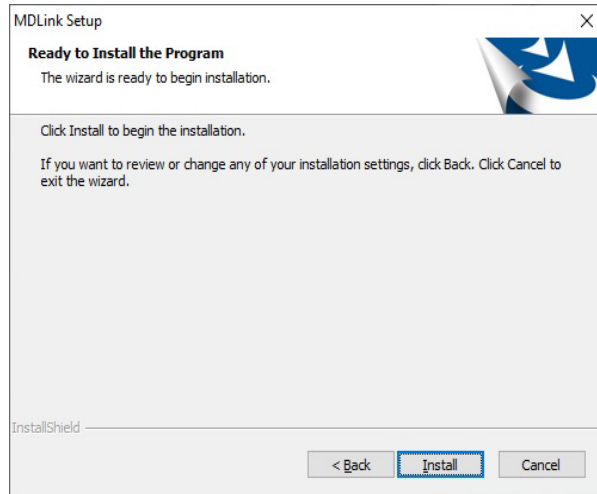
6. Accept the terms of the License Agreement.
7. Click Next.



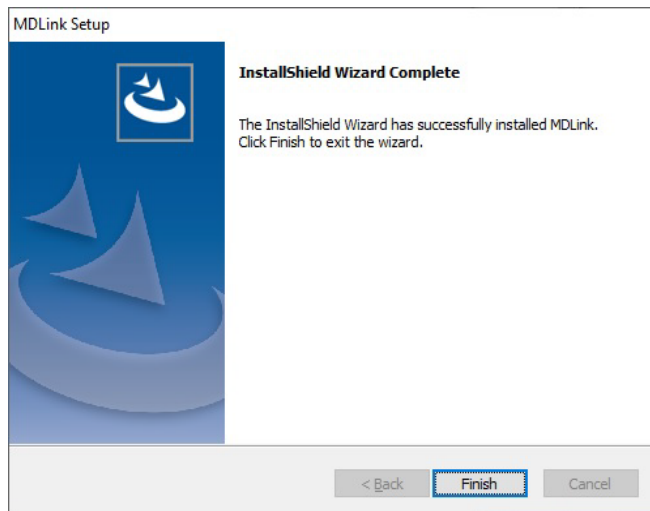
8. Click Browse to choose a specific location or click Next to accept the destination folder.



9. Click Install to begin installing the program.



10. Click Finish to complete the InstallShield Wizard.




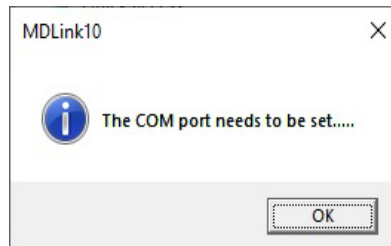
Setting the COM port

Important: The first time you run MDLink, MDLink automatically starts the COM port setup process. This process is done only for MDLink's first use.

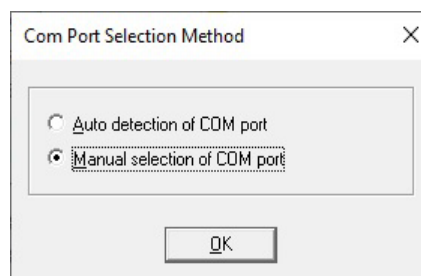
Before proceeding, AED communication must be established. See [Connecting an AED to the computer](#) on page 13 for instructions.

To start MDLink:

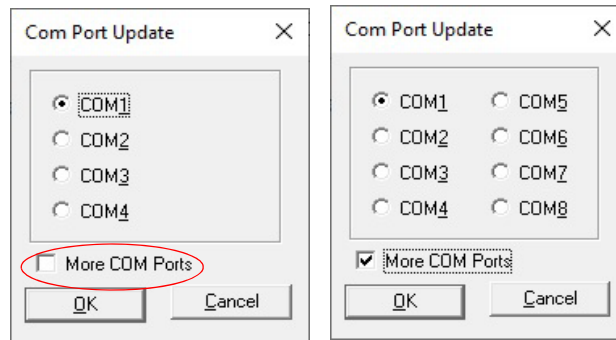
1. On the desktop, double-click the MDLink icon. 
2. A dialog box appears, enter the password - rescue
Click OK.
3. In the MDLink10 dialog box, click OK to continue.



4. The Com Port Selection Method dialog box appears.
Click OK to continue.



- The Com Port Update dialog box appears. The default Com port is Com1. Check the More Com Ports box to see more Com Port options.



- Click OK to establish and verify communications with the AED. If no error message appears, communication has been successfully established.
- The main MDLink window appears.

Running MDLink with Administrator Access

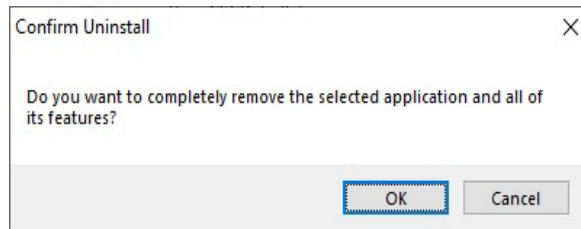
Perform these steps to set Administrator access:

- Log in as Administrator.
- Go to the Start Menu, select All Programs, then select Cardiac Science Corp and right click MDLink.
- From the contextual menu select Properties.
- Click the Compatibility tab.
- Click Show settings for all users.
- Under Privilege Level, check the box Run this program as an administrator.
- Click Apply/OK to save the change and close the dialog box.

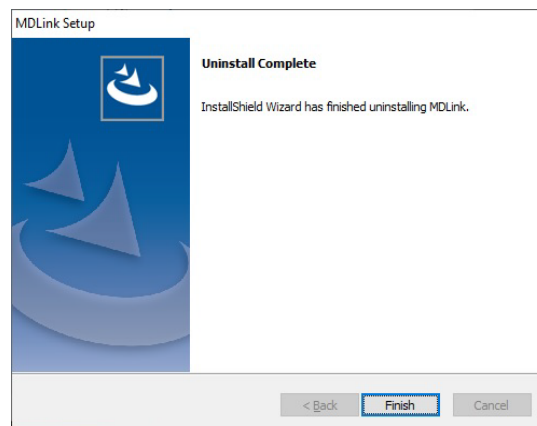
Uninstalling MDLink

Note: The steps below can differ depending on the version of Windows.
To uninstall MDLink:

1. Click the Windows Start menu.
2. Click Control Panel.
3. Open Add or Remove Programs.
4. Find MDLink and select it.
5. Click the Remove button.
6. Click OK in the confirmation dialog box.



7. The uninstaller for MDLink runs. When it is complete, click Finish.



Using MDLink

Starting MDLink

To start MDLink:

- ◆ Double-click the MDLink icon located on the Windows desktop, or
- ◆ Double-click the MDLink.exe file. Locate the file in the installation directory specified during installation.



The main MDLink window appears.

The screenshot shows the MDLink configuration window. The window title is "MDLink" and it has a close button (X) in the top right corner. The window is divided into several sections:

- RhythmX Detection Rates (bpm):** Contains two spinners for "VF/VT Rate" and "SVT Rate".
- To enable, tick box:** Contains five checkboxes: "Daylight Savings", "Electrode Test", "Same Energy After Conversion", "Manual Button", and "Remain in Manual Mode". There is also a checkbox for "White Screen".
- Shock Energy Protocol (Select One):** Contains five radio button options: "200VE 300VE 300VE", "200VE 200VE 300VE", "150VE 200VE 200VE", "150VE 150VE 200VE", and "200VE 200VE 200VE".
- CPR Settings:** Contains a dropdown for "Prompt Set", a dropdown for "CPR Prompt", a spinner for "CPR Time (seconds)", and two checkboxes: "Compressions-only CPR" and "CPR First".
- Buttons:** "Options", "Get AED Configuration", "Set AED Configuration", "Restore Default Configuration", "User-Defined Identifiers", and "Exit".
- Model and Serial Numbers:** "Model Number" is set to "19350" and "Serial Number" is empty.

Connecting an AED to the computer

A communications link must be established between the AED and the PC to transfer settings. The method varies by AED model.

For serial cable connection:

1. Connect one end of the serial communication cable (the RJ-11 end of the cable) to the AED serial connector. The AED serial connector is located under the AED lid behind the rubber data access door for G3 models and on the side of the AED under a rubber access door.
2. Connect the other end of the serial communication cable (or the USB serial adapter cable) to the appropriate Com Port on the PC.
3. The connector on the serial communication cable has a 9-pin connector. If the Com Port uses a 25-pin connector, attach a 9-pin adapter to the serial communication cable before connecting it to the PC.
4. Open the lid of the AED to establish communication to the PC through the cable.

For infrared (IR) connection:

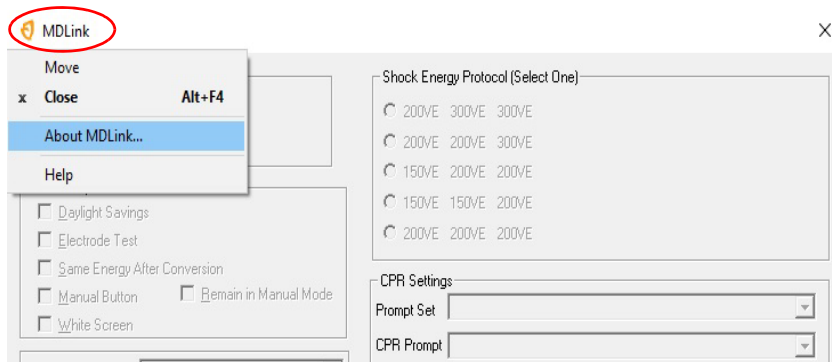
1. Install the IR to Serial cable as directed to the appropriate Com Port on the PC.
2. Open the lid of the AED.
3. Place the AED with the IR port facing the eye of the IR to Serial cable about 3 inches (7.6 cm) to 5 inches (12.7 cm) from the IR eye. If the connection is not established, shield the connection and/or move the IR eye closer.
4. Open the lid of the AED to establish communication to the PC.

Identifying the release version

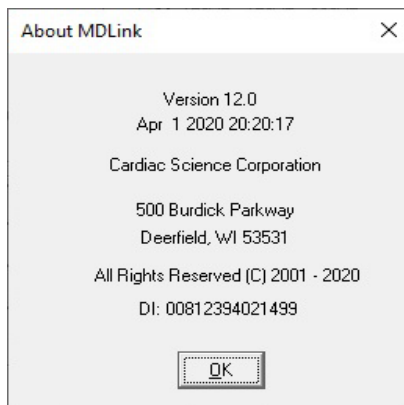
If you call Cardiac Science Technical Support, you will need to provide the software version of MDLink.

To identify the MDLink software version:

1. Click the MDLink icon in the upper left corner of the MDLink window. A menu appears.



2. Select About MDLink from the menu to see the release version.



Selectable options

You can modify the following AED parameters with MDLink. The applicable parameters will be stored directly to the AED.

Note: Some features described in this manual may not apply to your AED.

Selectable Option	Description	Default	Selectable Option(s)
VF/VT Rate	The RHYTHMx detection rate for Ventricular Fibrillation (VF)/Ventricular Tachycardia (VT) rhythms can be set from 120 to 240 bpm. All VF/VT rhythms at or above this rate will be classified as shockable. All rhythms below this rate will be classified as non-shockable.	160 bpm	120 to 240 bpm
SVT Rate	SVT Rate is designed to reduce the risk of shocking an SVT rhythm based on rate alone, by differentiating between SVT and VT rhythms. You can select the SVT Rate between 160 to 300 bpm, or "No therapy for SVT." All rhythms with rates between the VF/VT Rate and SVT Rate will be windowed through a number of SVT Discrimination criteria to classify them into VF/VT or SVT. Rhythms classified as SVT between the two set rates are not classified as shockable. All rhythms at or above the SVT Rate are classified as shockable. If "No Therapy for SVT" is selected, the AED will not advise defibrillation therapy if an SVT rhythm is detected. Note: The SVT rate must be set greater than or equal to the VF/VT rate.	No therapy for SVT	160 to 300 bpm, No therapy for SVT Off (Not Available)
Daylight Savings	This feature enables Daylight Savings Time using the pre-2007 calendar year settings. (Shifting the internal clock forward 60 minutes the first Sunday in April and shifting back 60 minutes the first Sunday in October).	Enabled	Disabled Enabled

Selectable Option	Description	Default	Selectable Option(s)
Electrode Test	<p>When this feature is enabled, as part of a periodic self-test, the AED checks to see if the pads have the correct electrical impedance. If they do not, the Rescue Ready indicator changes to red.</p> <p>If the feature is disabled, the AED skips this test during its periodic self-tests.</p> <p>Caution: Use only ZOLL Medical approved equipment</p> <p>Using electrode pads, batteries, cables, or optional equipment other than those approved by ZOLL Medical may cause the AED to function improperly during a rescue and may void the ZOLL Medical Limited Warranty.</p> <p>Use only a ZOLL Medical-approved simulator for testing. Sending electrical current from an AED to an unapproved device can damage the device.</p>	Enabled	Disabled Enabled
SameEnergy After Conversion	<p>The AED delivers the same energy level as the previous defibrillation shock when the patient assumes (or converts to) a non-shockable rhythm and then reverts back again to a shockable cardiac rhythm.</p> <p>When a shock during the first analysis phase converts a VF/VT rhythm into a non-shockable rhythm and the patient reverts to VF/VT during CPR and before the second analysis phase, the energy will increment to the next level regardless of the setting of this option.</p> <p>Disabling this feature allows the AED to increment the defibrillation pulse delivered to the next energy level after conversion.</p>	Enabled	Disabled Enabled
Manual Button	<p>For Powerheart G3 Pro AEDs only:</p> <p>Allows you to turn off the manual override functionality. If you attempt to use the manual override button with this feature disabled, a NO MANUAL BUTTON symbol appears on the AED’s screen.</p>	Enabled	Disabled Enabled
White Screen	<p>For Powerheart G3 Pro AEDs only:</p> <p>Allows you to set the background of a G3 Pro device’s LCD to be white.</p>	Disabled	Disabled Enabled

Selectable Option	Description	Default	Selectable Option(s)
Remain in Manual Mode	<p>For Powerheart G3 Pro AEDs only:</p> <p>This feature maintains the AED in Manual Mode during a rescue under the following conditions:</p> <ul style="list-style-type: none"> • Manual Mode option is enabled • Remain in Manual Mode option is enabled • Manual button is activated and confirmed (starts Manual Mode) <p>If this option is disabled (not selected), the AED returns to AED Mode once a shock is delivered.</p>	Enabled	Disabled Enabled
Startup Prompt	<p>For Powerheart G3 Plus models only:</p> <p>Allows you to select the initial voice prompt played after the device's lid is opened in rescue mode.</p> <p>Note: MDLink does not display the entire prompt. It displays only the second sentence: "Call 911" or "Call Emergency Services."</p>	"Stay calm. Follow these voice instructions . Call 911*" <ul style="list-style-type: none"> *The emergency services number varies by country. 	None "Stay calm. Follow these voice instructions. Call 911" "Stay calm. Follow these voice instructions. Call Emergency Services"
Maximum Shocks per Rescue	<p>You can set the maximum number of shocks the AED will administer during a single rescue.</p> <p>The number of defibrillation shocks per rescue can be set to any number from 3 to 99. (A rescue attempt is defined as the time when the electrodes are placed on the chest of the patient until the lid is closed and the device powers down).</p>	99	3 to 99 255

Selectable Option	Description	Default	Selectable Option(s)
LCD Contrast (%)	For Powerheart G3 Pro AEDs only: Allows you to set the contrast of a G3 Pro device's LCD.	40%	1% to 100%
Shock Energy Protocol	The AED follows guidelines recommended by the American Heart Association (AHA) and the International Liaison Committee on Resuscitation (ILCOR). Upon detecting a shockable cardiac rhythm, the AED advises the user to press the Shock button to deliver one defibrillation pulse followed by the rescuer performing CPR. (For Automatic AEDs, the shock is delivered automatically after the appropriate voice prompt instructions). After the CPR Time is complete, the AED performs another ECG analysis. If required, another shock is delivered either by pressing the shock button or delivered automatically. Each shock is delivered in a pre-programmed sequence of escalating energy. Using the MDLink option, the energy protocol for the AED can be set with one of the following protocols: 200VE, 300VE, 300VE (Standard High VE) 200VE, 200VE, 300VE (Standard Low VE) 150VE, 200VE, 200VE (Ultra Low VE B) 150VE, 150VE, 200VE (Ultra Low VE A) 200VE, 200VE, 200VE (Non-escalating Low VE) (Actual energy output is determined by patient impedance.)	Standard High VE: 200VE, 300VE, 300VE	Protocols 1-5
Prompt Sound Level	Allows you to set the sound volume of the voice prompts of the AED.	Normal Volume	Normal Volume Low Volume
CPR Settings			
Prompt Set	For Powerheart G3 Plus AEDs only: Allows you to choose the CPR prompt set.	Enhanced	Standard Enhanced

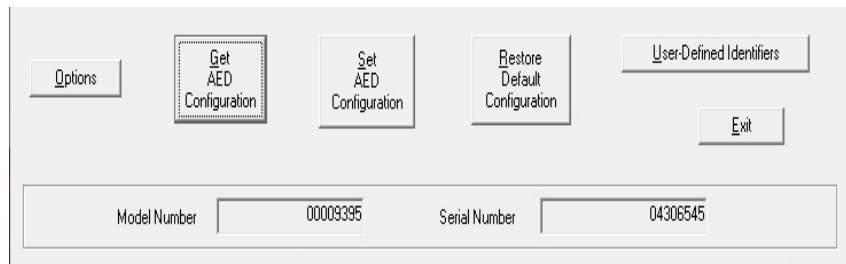
Selectable Option	Description	Default	Selectable Option(s)
CPR Prompt	<p>Allows you to select a CPR prompt type.</p> <p>Available prompt types depend on the Prompt Set selection.</p> <p>You can select a "Continue CPR" verbal prompt or a beep tone to be repeated at 30 second intervals while the AED is operating in CPR mode during a rescue attempt. On some models, you can select an audible metronome sound or a spoken "Press" to provide a 100 compressions per minute cadence. On any model, you may also choose to have no sound prompting.</p>	No Sound	<p>Standard Mode:</p> <ul style="list-style-type: none"> No sound "Continue CPR" (repeats every 30 seconds) Beep (repeats every 30 seconds) <p>Enhanced Mode (for G3 Plus and G3 Elite models):</p> <ul style="list-style-type: none"> No sound Metronome Press
CPR Time (Seconds)	CPR Time is the duration in which the rescuer is allowed to perform CPR between shock analyses.	<p>120 seconds (AHA-compliant)</p> <p>135 seconds (G3 Plus and G3 Elite)</p>	60 to 180 seconds
Compressions-only CPR	Excludes rescue breath prompts during CPR mode.	Disabled	<p>Disabled</p> <p>Enabled</p>

Selectable Option	Description	Default	Selectable Option(s)
CPR First	For AEDs with AHA/ERC (European Resuscitation Council) 2010 Guidelines only. When enabled, the AED provides CPR prompting first instead of analysis at the start of a new rescue.	Disabled	Disabled Enabled

Command buttons

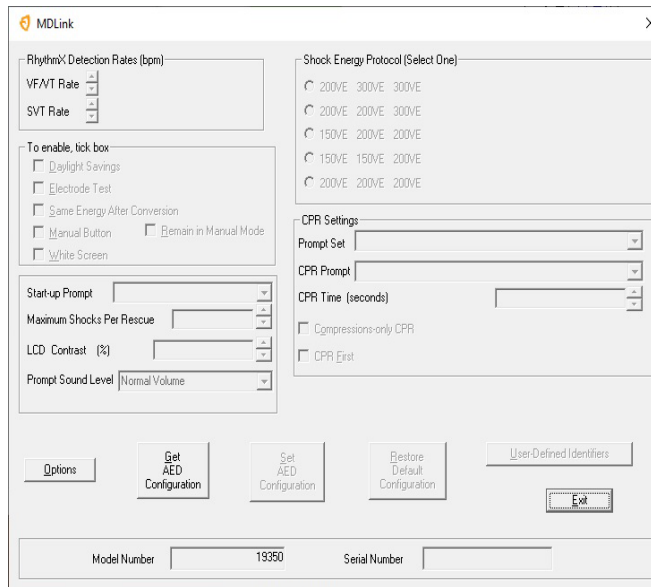
The command buttons include:

- ◆ Get AED Configuration
- ◆ Set AED Configuration
- ◆ Restore Default Configuration
- ◆ Options
- ◆ User Defined Identifiers
- ◆ Exit



Get AED Configuration

The Get AED Configuration command allows you to retrieve the operating parameters from the internal memory of the connected AED. When MDLink is launched, Set AED Configuration, Restore Default Configuration, and User Defined Identifiers buttons are disabled.



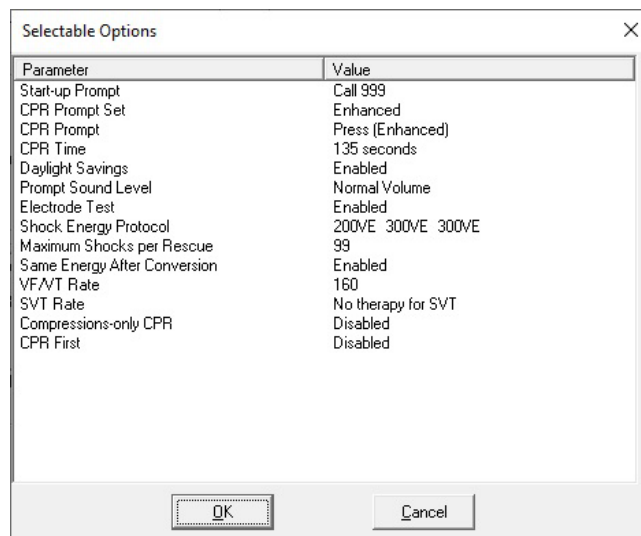
After MDLink successfully retrieves the parameters, click OK to return to the MDLink window. Set AED Configuration, Restore Default Configuration and User Defined Identifiers buttons will be enabled.



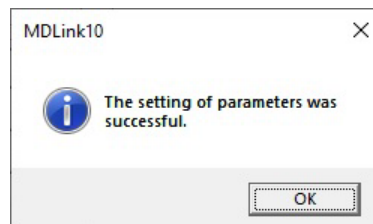
Set AED Configuration

The Set AED Configuration command allows you to store the selected parameters in the internal memory of the AED. Set the desired values for all parameters and then click Set AED Configuration to store the selected parameters to the AED.

Before the selected parameters are stored, the Selection Option window allows you to review all the parameters. If the parameters are correct, click OK. Click Cancel to return to the MDLink window.



After the AED has been successfully updated with the selected parameters, click OK to return to the MDLink window.



Restore Default Configuration

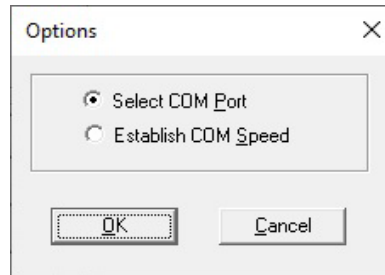
The Restore Default Configuration button allows you to reset all parameters to the factory default configuration. After selecting this button, the Selectable Options window appears with the factory default list of parameters. Click OK to display the default parameters for your specific AED; click Cancel to maintain the current settings. Click OK to Set Option Parameters. Then click OK again to close the final confirmation window.

Options

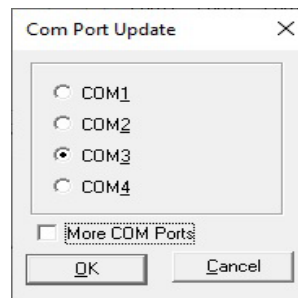
The Options command allows you to select the communications port or establish the communication speed. The Options window appears when you click the Options button.

Select the Communications Port

Select Com Port allows you to change the Com Port selected during installation. Choose Select Com Port and click OK.



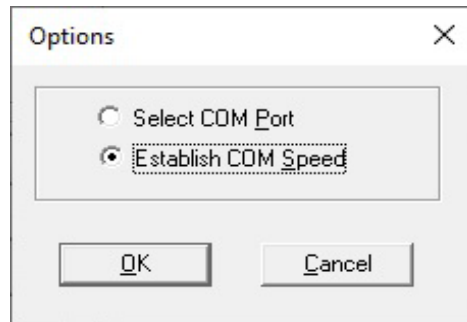
Select the communications port that the PC will be using to transfer data to or from the AED. If using a USB-Com adapter, select the check box More Com Ports for Com Port options Com5 through Com8. Click OK to return to the MDLink window.



Establish Communication Speed

The AED and the PC automatically find a compatible data transfer speed the first time MDLink is used. Use Establish Com Speed to verify that communications are functioning properly.

To execute, select Establish Com Speed and click OK.



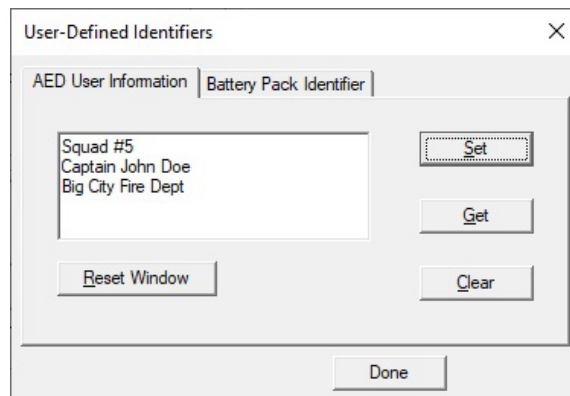
The data transfer speed between the PC and the AED is established and MDLink returns to the MDLink window.

User Defined Identifiers

The User Defined Identifiers option allows you to define identification information for the AED or the currently installed IntelliSense™ battery.

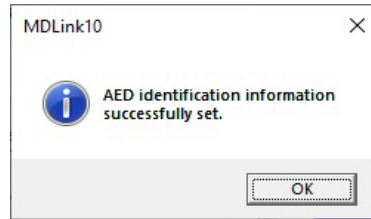
AED User Information

This window allows you to define AED identification information. You may type up to 45 characters of device identification information to be stored within the internal memory of the AED. This information is archived with each rescue attempt and will be displayed with rescue data.



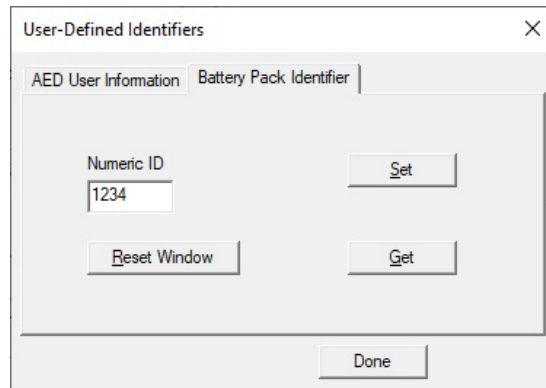
- ◆ To retrieve identification information from the internal memory of the AED: Click Get.
- ◆ To enter new or change existing AED identification information: Type the information onto the window and click Set to store the information in the internal memory of the AED.
- ◆ To erase AED identification information: Click Clear and the identification information is erased from the AED.
- ◆ To clear the text box: Click Reset Window. This does not affect the information stored in the AED.

Click OK to return to the MDLink window.



IntelliSense Battery Pack Identifier

This window allows you to give the battery an identifier number. Any number from 1 to 65,000 may be entered and stored within the memory of the IntelliSense battery. This information is archived with each rescue attempt and will be displayed with rescue data.

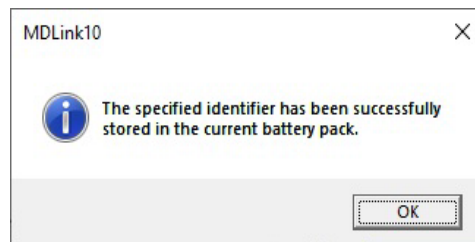


To retrieve battery identification information: Click Get.

Note: MDLink prompts you if an identification number is not assigned to the battery.

To enter a new identification number: Type the information into the window and click Set to store the information in the battery memory. If the battery already contains an identifier, you can cancel the Set command or overwrite the current identifier.

To clear the Numeric ID text box: Click Reset Window. This does not affect the information stored in the battery.



Click OK to return to the MDLink window.

Exit

When you are finished using MDLink, select Exit to close the program.



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