# MDLink® User's Guide

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AT THE HEART OF SAVING

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#### **Patents**

This device is covered by the following U.S. and foreign patents:

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5,792,190; 5,999,493; 5,402,884; 5,579,919; 5,749,902; 5,645,571; 6,029,085; 5,984,102; 5,919,212; 5,891,172; 5,674,266; 5,700,281; 5,891,173; 5,968,080; 6,263,239; 5,797,969; D402,758; D405,754; 5,909,138; 6,173,203; 6,088,616; 5,897,576; 5,955,956; 6,083,246; 6,064,909; 6,038,473; 5,868,794; 6,115,638; 6,366,809; 5,474,574; 6,246,907; 6,289,243; 6,411,846; 6,480,734; 6,658,290; EP00756878
```

Other U.S. and foreign patents pending.



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## **Overview**

MDLink software enables the Medical Director to modify several preprogrammed 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 and identifying the release version
- Uninstalling MDLink
- ◆ Using MDLink
- ◆ Identifying the AED internal model number and serial number
- 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 RescueLink and MDLink that are included with the AED. When legacy versions of RescueLink and 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.

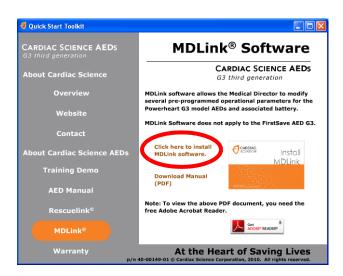
MDLink is compatible with Windows XP, Vista, and 7.

#### To install MDLink:

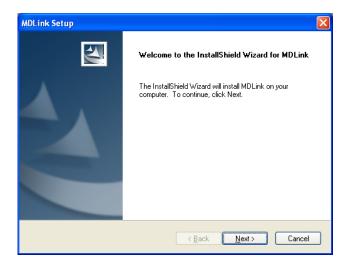
- Insert the QuickStart Tool Kit CD into the CD-ROM drive.
   The installation program automatically runs.
- 2. Click the M D Link Software link.

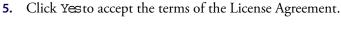


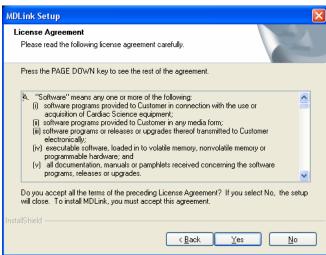
3. Click Click here to install MD Link software



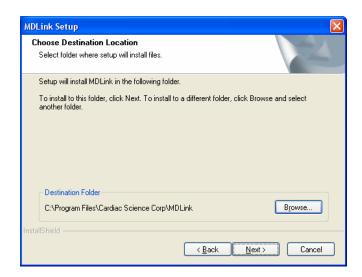
**4.** After the MDLink W elcom ewindow appears, click N ext to start the installation process.



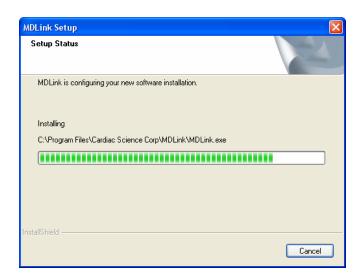




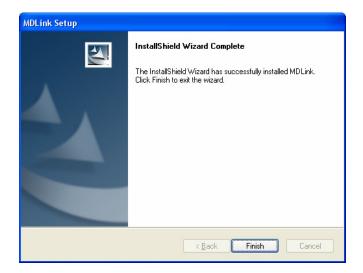
**6.** Click N ext to accept the destination folder or click B row se to choose a specific location.



7. The installation process begins.



8. Click Finish to complete the InstallShield Wizard.



# Set the COM port

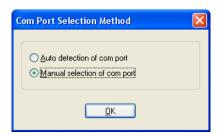
**Important:** The first time you run MDLink, MDLink automatically starts the COM port setup process. This process is done only for MDLink's first use.

Before proceeding, AED communication must be established. See *Connecting an AED to the computer* on page 13 for instructions.

- 1. Start MDLink by double-clicking the MDLink icon on the desktop.
- 2. In the dialog box that appears, enter the password rescue. Click O K.
- 3. In the M D Link10 dialog box, click O K to continue.



4. The Com Port Selection M ethod dialog box appears. Click O K to continue.



5. The Com PortUpdate dialog box appears. The default Com port is Com1. Check the More Com Portsbox to see more Com Port options.





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

## Use of MDLink with Windows Vista or Windows 7

For better performance of MDLink with Windows Vista or Windows 7, run the program with administrator access. Perform these steps for MDLink to set Administrator access. You can also use this procedure for Rescuelink.

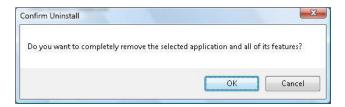
- 1. Log in as Administrator.
- 2. Select All Program sfrom the Startmenu, then select Cardiac Science Corp and right click Rescuelink or M D Link.
- Select Properties from the contextual menu.
- 4. Click the Compatibility tab.
- 5. Click Show settings for allusers
- Under Privilege Level, check the box Run this program as an adm inistrator.
- 7. Click Apply/O K to save the change and close the dialog box.

# **Uninstalling MDLink**

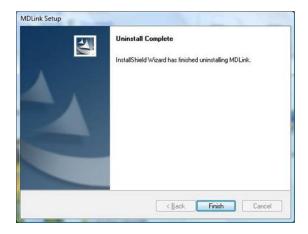
Note: The steps below can differ depending on the version of Windows.

If you need to remove MDLink from your computer:

- 1. Click the Windows Startmenu.
- 2. Click ControlPanel
- 3. Open Add or Rem ove Program s
- 4. Find M D Link and select it.
- 5. Click the Rem ove button.
- 6. Click O K in the confirmation dialog box.



7. The uninstaller for MDLink runs. When it completes the uninstallation, click Finish.



# **Using MDLink**

# Starting MDLink

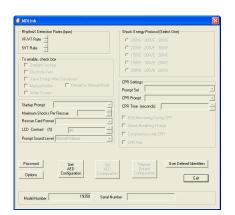
To start MDLink:

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

A password is required to use the MDLink software program. The software requires you to use the preset password, or one you choose, each time MDLink is used. Type the preset password rescue and click O K.



**Note:** You may change the password to limit access to MDLink. Change the preset password on the MDLink main window by using the **Password** command button (see *Password* on page 26).



After entering the password, the main MDLink window appears.

# 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:

- 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 for earlier models.
- **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:

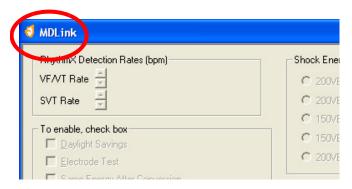
- 1. Install the IR to Serial cable as directed to the appropriate Com Port on the PC.
- **2.** Open the lid of the AED.
- 3. Place the AED with the IR port facing the eye of the IR to Serial cable about 3 inches (7.6 cm) to 5 inches (12.7 cm) from the IR eye. If the connection is not established, shield 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:

Click the M D Link icon in the upper left corner of the M D Link window.
 A menu appears.



2. Select About MD Link from the menu to see the release version.

# **Selectable options**

You can modify the following AED parameters with MDLink. The parameters may 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 a SVT rhythm is detected.  Note: The SVT rate must be set greater than or equal to the VF/VT rate.	No therapy for SVT (For 9200RD and 9210RD AED models the default SVT rate is 200 bpm)	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	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.	Enabled	Disabled Enabled
	If the feature is disabled, the AED skips this test during its periodic self-tests.		
	Caution: Use only Cardiac Science approved equipment		
	Using electrode pads, batteries cables, or optional equipment other than those approved by Cardiac Science may cause the AED to function improperly during a rescue and may void the Cardiac Science Limited Warranty.		
	Use only a Cardiac Science-approved simulator for testing. Sending electrical current from an AED to an un-approved device can damage the device.		
Same Energy After Conversion	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.	Enabled	Disabled Enabled
	When a shock during the first analaysis phase converts a VF/VT rhythm into a non-shockable rhythm but 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.		
	Disabling this feature allows the AED to increment the defibrillation pulse delivered to the next energy level after conversion.		
Manual	For Powerheart G3 Pro AEDs only:	Enabled	Disabled
Button	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.		Enabled
White	For Powerheart G3 Pro AEDs only:	Disabled	Disabled
Screen	Allows you to set the background of a G3Pro device's LCD to be white.		Enabled

Selectable Option	Description	Default	Selectable Option(s)
Remain in Manual Mode	For Powerheart G3 Pro AEDs only:  This feature maintains the AED in Manual Mode during a rescue under the following conditions:  Manual Mode option is enabled  Remain in Manual Mode option is enabled  Manual button is activated and confirmed (starts Manual Mode)  If this option is disabled (not selected), the AED returns to AED Mode once a shock is delivered.	Enabled	Disabled Enabled
Startup Prompt	For Powerheart G3 Plus models only: Allows you to select the initial voice prompt played after the device's lid is opened in rescue mode.  Note: MDLink does not display the enitre prompt. It displays only the second sentence: "Call 911" or "Call Emergency Services."	"Stay calm. Follow these voice instructions . Call 911*" *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"

Selectable Option	Description	Default	Selectable Option(s)
Maximum Shocks per Rescue	ou can set the maximum number of shocks the AED will administer during a single 99 scue.  Expending on the AED model, the number of defibrillation shocks per rescue can be to any number from 3 to 99, or 6 to 255. (A rescue attempt is defined as the time then the electrodes are placed on the chest of the patient until the lid is closed and e device powers down).	99	3 to 99 6 to 255
	For Powerheart G3 series models, the number of shocks can be set from 3 to 99. For 9110 and 9210 models, the number of shocks can be set from 6 to 255.		
Rescue Card Format	For AED models with the rescue card feature: Allows you to choose the type of data to be stored in the rescue card. Powerheart models 9110 and 9210 series AEDs come equipped with a PCMICA Rescue Data Card slot. An 8 megabyte Rescue Data Card can store up to 10 hours of ECG and event data, or up to 40 minutes of ECG, event data, and voice recording. You can store rescue event, ECG, and voice prompt data on the rescue data card.	ECG and Event Data	ECG and Event Data ECG, Event and Voice Recording
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%

Selectable Option	Description	Default	Selectable Option(s)
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 <b>Shock</b> 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	For AHA/ERC-2005 or 2010 compliant AEDs only. Allows you to set the sound volume of the voice prompts of the AED.	Normal Volume	Normal Volume Low Volume
CPR Settings	S		
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	Allows you to select a CPR prompt type.  Available prompt types depend on the Prompt Set selection.  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.	No Sound	Standard Mode:  No sound  "Continue CPR" (repeats every 30 seconds)  Beep (repeats every 30 seconds)  Enhanced Mode (for G3 Plus mdoels):  No sound  Metronome  Press
CPR Time (Seconds)	CPR Time is the duration in which the rescuer is allowed to perform CPR between shock analyses. Default settings depend upon the AED model and AHA/ERC-2005 or 2010 compliance.  For pre-AHA/ERC-2005 compliant AEDs: You can set the CPR time from 60 to 180 seconds. CPR Time begins after either a non-shockable condition is detected, or after three shocks are administered.  For AHA/ERC-2005 or 2010 compliant AEDs: You can set the CPR time from 60 to 180 seconds after each ECG analysis. CPR Time begins after either a non-shockable condition is detected, or after a shock is administered.	60 seconds (Pre-AHA) 120 seconds (AHA- compliant) 135 seconds (G3 Plus only)	60 to 180 seconds

Selectable Option	Description	Default	Selectable Option(s)
ECG Monitoring During CPR	For AEDs with pre-AHA/ERC-2005 Guidlines: When enabled, this allows the AED to continuously monitor the patient's ECG during CPR mode. The AED interrupts CPR if a shockable rhythm is detected. When CPR is interrupted, the AED prompts, "Do not touch patient. Analyzing rhythm." Only one interruption is allowed during a single CPR mode.  For AEDs with AHA/ERC-2005 or 2010 Guidelines: The AED is capable of monitoring the patient's ECG rhythm continuously throughout the rescue with the exception of during CPR modes. There is no ECG monitoring during CPR.	Disabled	Disabled Enabled
Check Breathing Prompt	For AEDs with pre-AHA/ERC 2005 Guidelines:  This feature enables the following voice prompts during CPR Mode: "Check for breathing. If not breathing give patient two breaths."  For AEDs with AHA/ERC-2005 or 2010 Guidelines:  This feature is not available.	Enabled or Not available	Disabled Enabled Not available
Compressions-only	For AEDs with AHA/ERC 2010 Guidlines only.  Excludes rescue breath prompts during CPR mode.	Disabled	Disabled Enabled
CPR First	For AEDs with AHA/ERC 2010 Guidlines only. When enabled, the AED provides CPR prompting first instead of analysis at the start of a new rescue.	Disabled	Disabled Enabled

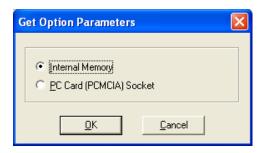
#### **Command buttons**

The command buttons include:

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



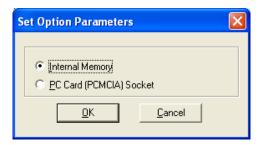
**Note:** When using the **Get** and **Set** configuration features, you may be warned that the AED is not compatible with the MDLink software version. To continue, click **OK** and the MDLink window reappears. Click **Get** or **Set** a second time and a different version of MDLink runs to complete the operation.



**Note:** The PC Card (PCMCIA) socket option applies only to 9110 and 9210 series AEDs and is not available in the 9300 series AEDs.

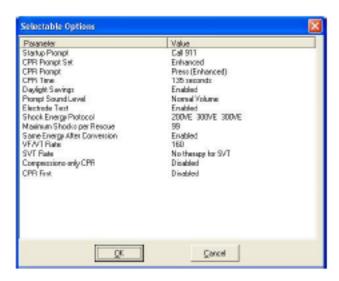
### **Set AED Configuration**

The SetAED 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 SetAED Configuration to store the selected parameters to the AED.



**Note:** The PC Card (PCMCIA) socket option applies only to 9110 and 9210 series AEDs and is not available in the 9300 series AEDs.

Before the selected parameters are stored, the Selectable O ptions window allows you to review all the parameters. If the parameters are correct, click O K. Click Cancel to return to the M D Link window.



After the desired location has been successfully updated with the selected parameters, click O K to return to the M D Link 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 Cancelto maintain the current settings. Click OK to Set Option Parameters. Then click OK again to close the final confirmation window.

### **Options**

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

#### **Select the Communications Port**

Select Com Portallows you to change the Com Port selected during installation. Choose Select Com Portand click O K.



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 M OZE COM POTTS for Com Port options COM 5 through COM 8. Click O K to return to the MD Link 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 O K.



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

#### **Password**

The Password command allows you to change the preset password.

Click the Password command button.

Type in the new password. Any keystroke is a valid password character. As you type, the characters appear as asterisks (\*).

To confirm the new password, re-type the new password and click O K.



A message appears confirming that you changed the password. If you did not type the password correctly the second time, you are prompted to re-enter the password.



#### **User Defined Identifiers**

The UserD efined 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 RescueLink rescue data.



- ◆ To retrieve identification information from the internal memory of the AED: Click G et.
- ◆ 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 C terand the identification information is erased from the AED.
- ◆ To clear the text box: Click ResetW indow. This does not affect the information stored in the AED.



Click O K to return to the M D Link window.

**Intellisense Battery Pack Identifier** The Battery Pack Identifier 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 RescueLink 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 onto 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 ResetW indow. This does not affect the information stored in the battery.



Click O K to return to the M D Link window.

#### Exit

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

## **AED** and battery identifiers

In addition to the operational parameters, you may define identifiers for the AED and the currently installed IntelliSense battery.

#### AED user information

MDLink may be used to define identification information about the AED that is stored in the internal memory of the AED. The identification information is archived with each rescue attempt and is displayed by RescueLink during the retrieval and display of rescue data.

### Battery pack identifier

MDLink may also be used to define a numeric identifier to be stored in the memory of the current IntelliSense battery pack. The battery identifier is archived with each rescue attempt and displayed by RescueLink during the retrieval and display of rescue data.

# Supplement: Activate Rescuelink online help for Windows Vista and 7

If you are installing or have previously installed Rescuelink on your computer and you are encountering problems launching Rescuelink help, install a patch from Microsoft for online help to be available.

- ◆ For Windows Vista, download the patch at:
  - http://go.microsoft.com/fwlink/?LinkID=82148
- For Windows 7, download the patch at:

http://go.microsoft.com/fwlink/?LinkID=166421

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