

RAZEL IPC™ SOFTWARE

RAZ-IPC

USER'S MANUAL

DOC-121

Rev. 2.0

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CHAPTER 1 | INTRODUCTION

General Software Information

IPC (Infusion Pump Controller) is a Microsoft Windows® based software program used to control the RAZEL R-100EC, RAZEL R-220, MED Associates PHM-111EC, or MED Associates PHM-220 pumps. The program allows the user to design an infusion protocol and then send the commands to the pump. The program contains a list of commonly used syringes that is organized by manufacturer, type and size. If a syringe is not on the list, its cross-sectional area can easily be entered. The user can create a new protocol by entering a protocol name and selecting the syringe that is to be used from a pull-down menu.

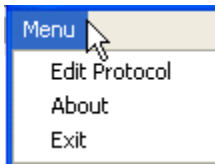
The IPC software has an Edit Protocol screen that allows the user to add or remove steps to the protocol. With the feature, the user can enter infusion, withdrawal and pauses, with initial flow rates, final flow rates, and either volume infused or duration of infusion. The steps can be saved, and new ones can be entered. The IPC software has a Run screen that displays a real-time graphic of the syringe, the protocol being used, the syringe size that was selected from the pull-down menu, the total volume infused and withdrawn and an indicator of which step in the protocol is currently being executed. The IPC Software allows the user to control up to 24 infusion pumps.

To display the installed version of IPC Software, select **Menu | About**.

CHAPTER 2 | CREATING OR EDITING A PROTOCOL

When the IPC program is first opened the IPC Run Protocol screen will appear and the Menu will appear as shown in Figure 2.1.

Figure 2.1 - Menu Options



Select **Edit Protocol** to create a new protocol or edit or delete an existing protocol. This menu selection will bring up the screen shown in Figure 2.2. The protocol named Protected Example is intended to be used as an example and cannot be changed or deleted.

Figure 2.2 – IPC Edit Protocol Screen

IPC Edit Protocol
— □ ×

Menu

Protocol: Protected Example New

Protocol Infused: cc Delete

Protocol Drawn: cc Exit

Syringe

Name:

Cross Section: sqcm

Capacity: cc

Step

Pump Type: R-220 ← It is important to select the correct Pump Type because the R-100/PHM-111 and R-220/PHM-220 can run at different rates

Select Procedure: Loop To: Loop Count: Append

Prompt Text:

Mode:

Dose and Time Rate and Dose Start Rate:

Rate and Time Rates and Dose End Rate:

Dose (cc): HR: MIN: SEC: Select Step:

Insert Replace Remove

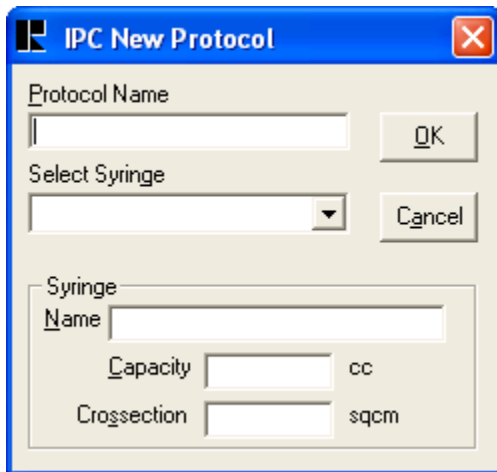
Protocol Steps

Step	Procedure	Start(cc/hr)	End(cc/hr)	Infuse(cc)	Drawn(cc)	HR:MI:SE	Loop To	Count
> 1	Prompt	0	0	0	0	00:00:00	0	0
2	Infuse	180	300	1	0	00:00:15	0	0
3	Pause	0	0	0	0	00:00:10	0	0
4	Withdraw	240	0	0	1	00:00:15	0	0
5	Loop Back	0	0	2	2	00:01:20	2	2

Creating a New Protocol

To create a new protocol click **New** and the screen shown in Figure 2.3 will appear.

Figure 2.3 - New Protocol Screen



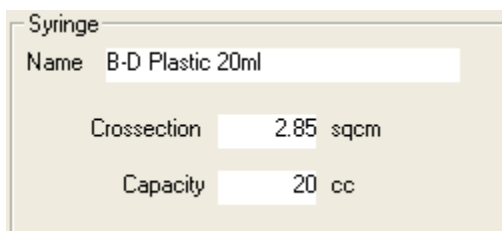
The screenshot shows a dialog box titled "IPC New Protocol" with a close button (X) in the top right corner. The dialog contains the following fields and controls:

- Protocol Name:** A text input field with an "OK" button to its right.
- Select Syringe:** A pull-down menu with a "Cancel" button to its right.
- Syringe section:** A group box containing:
 - Name:** A text input field.
 - Capacity:** A text input field followed by the unit "cc".
 - Crosssection:** A text input field followed by the unit "sqcm".

Enter the desired **Protocol Name** and select the syringe from the **Select Syringe** pull-down menu. The pull-down menu contains many commonly used syringe types, but if the brand or size of the syringe being used is not on the list, select **User Defined** from the pull-down menu. This will enable the Syringe portion of the screen. Enter the name, capacity (cc) and cross-sectional area (cm²) of the syringe. When the correct entries have been made, select **OK**. The screen shown in Figure 2.2 will reappear with the new protocol name in the **Protocol** field.

The **Syringe** section of the Edit Protocol screen (upper right corner), shown in Figure 2.4, displays the name, cross-sectional area and capacity of the syringe selected for the protocol. The dose and rate or time are all calculated using this syringe data and therefore cannot be changed once the protocol is created. If this information is incorrect, it cannot be changed. A new protocol must be created.

Figure 2.4 - Syringe Display Section of the Edit Protocol Screen



The screenshot shows the "Syringe" section of the Edit Protocol screen. It contains the following information:

- Syringe Name:** B-D Plastic 20ml
- Crosssection:** 2.85 sqcm
- Capacity:** 20 cc

Adding Steps to a Protocol

The **Step** section of the Edit Protocol screen (Figure 2.5) contains the steps of the protocol.

The type of pump (R-100, R-220, PHM-111, or PHM-220) needs to be selected first because each pump type can support different rates.

Figure 2.5 - Step Section of the Edit Protocol Screen

The **Select Procedure** pull-down menu options and their functions are as follows:

- **Infuse:** Adds a user-defined infusion to the protocol. Select the infusion mode in the **Mode** area of the screen. The necessary fields will be enabled based on the mode selection. Enter the infusion parameters into the enabled fields. For further explanation of the Mode area of the screen, see below.
- **Withdraw:** Adds a user-defined withdrawal to the protocol. Select the withdrawal mode in the **Mode** area of the screen. The necessary fields will be enabled based on the mode selection. Enter the infusion parameters into the enabled fields. For further explanation of the Mode area of the screen, see below.
- **Pause:** Adds a pause (duration is user-defined) to the protocol. Selecting **Pause** from the pull-down menu will enable the **HR**, **MIN** and **SEC** fields only. Enter the pause duration in these fields.
- **Prompt:** Adds a prompt to the protocol. Enter the content of the prompt in the **Prompt Text** field. The prompt will be displayed when the protocol is run.

- Loopback:** Loops the protocol back to a user-defined step for a user-defined number of times. Selecting **Loopback** from the pull-down menu enables the **Loop To** and **Loop Count** fields. Loop To refers to the step in the protocol that should be returned to. For instance, in the Protected Example, the protocol steps (shown in Figure 2.6) are Prompt, Infuse, Pause, Withdraw and Loopback, in that order. The Loopback command Loops To Step 2 and the Loop Count is 2. Therefore, once the steps 1 - 4 are executed, the protocol will Loopback to Step 2, then Steps 3 and 4 will also be executed. This will be repeated once more, and the protocol will be completed. The command that is selected to **Loop To** cannot be removed from the protocol unless the **Loop To** command is changed or removed. So, for this example, Step 2 could not be deleted unless Step 5 was either edited to Loop To another step or removed from the protocol.

Once all of the necessary fields are completed for the step, click **Append** and step will appear in the **Protocol Steps** area of the screen, shown in Figure 2.6.

Add as many steps as necessary. When the protocol is complete, select **Menu | Run Protocol**.

Figure 2.6 – Protocol Steps of the Protected Example

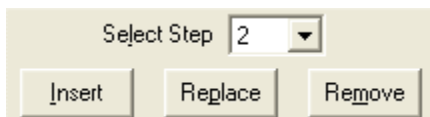
Protocol Steps									
	Step	Procedure	Start(cc/hr)	End(cc/hr)	Infuse(cc)	Drawn(cc)	HR:MI:SE	Loop To	Count
>	1	Prompt	0	0	0	0	00:00:00	0	0
	2	Infuse	180	300	1	0	00:00:15	0	0
	3	Pause	0	0	0	0	00:00:10	0	0
	4	Withdraw	240	0	0	1	00:00:15	0	0
	5	Loop Back	0	0	2	2	00:01:20	2	2

Editing a Protocol

To edit an existing protocol, select the protocol name from the **Protocol** pull-down menu in the upper left corner.

A Protocol Step can be changed by selecting the step to edit from the **Select Step** pull-down menu. Select the step to edit, make the necessary changes, and click **Replace**.

Figure 2.7 - Select Step Section of the Edit Protocol Screen



Removing a Step from a Protocol

To remove a step from an existing protocol, select the step from the **Select Step** pull-down menu and click **Remove**. The step will disappear from the **Protocol Steps** display.

Inserting a Step into a Protocol

A new step may be added between the two existing steps. Select the step from the **Select Step** pull-down menu that the new step should be inserted before. Make the necessary selections for this step and click **Insert**. The new step will appear on the **Protocol Steps** display.

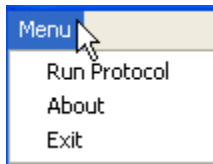
Deleting a Protocol

Select the protocol to delete from the **Protocol** pull-down menu and click **Delete**. A verification message will appear. Click **Yes** to delete the protocol and **No** to cancel.

CHAPTER 3 | RUNNING A PROTOCOL

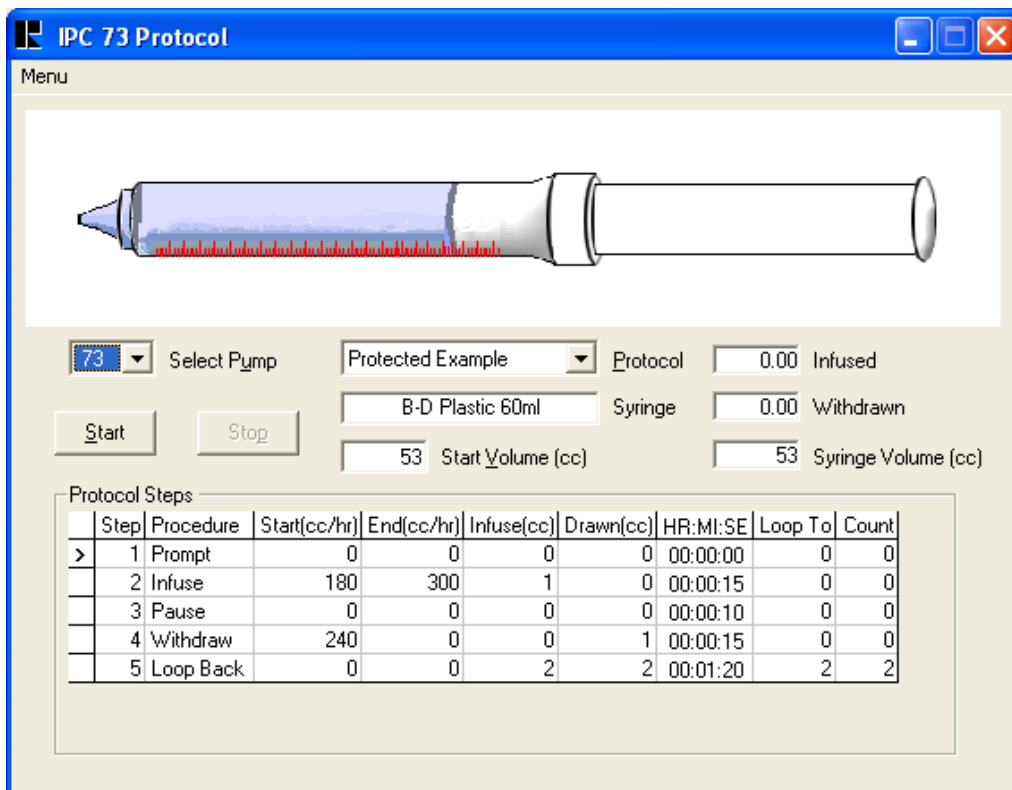
From the IPC Edit Protocol screen (shown in Figure 2.2) the Menu options will be as shown in Figure 3.1.

Figure 3.1 - Menu Options from the Edit Protocol Screen



Select **Run Protocol** and the screen shown in Figure 3.2 will appear.

Figure 3.2 – IPC Run Protocol Screen



Begin by selecting the pump to be run from the **Select Pump** pull-down menu. Refer to the RAZEL R-100EC, RAZEL R-220, MED Associates PHM-111EC, or MED Associates PHM-220 User’s Manual for further information on setting the Pump Number. Each pump in the system needs a unique Pump ID.

Next select the protocol to be run from the **Protocol** pull-down menu. The **Syringe**, **Infused**, **Withdrawn** and **Syringe Volume (cc)** fields are for display purposes only.

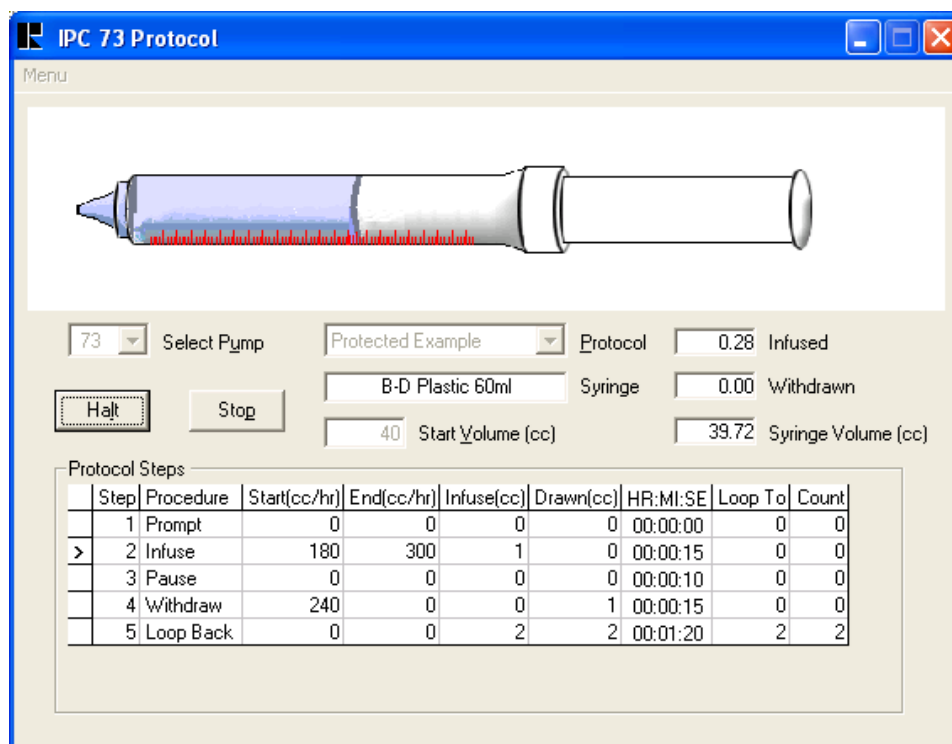
These values cannot be changed. A new protocol must be selected or created in order to change the syringe selected. The values displayed in the Infused and Withdrawn fields of the IPC program are reset if STOP and the START are selected.

The initial fluid volume in the syringe should be entered in the **Start Volume (cc)** field. It will also determine the position of the plunger in the syringe graphic at the top of screen. The Start Volume (cc) will also determine the value displayed in the **Syringe Volume (cc)** field.

The **Syringe Volume (cc)** field is updated in real-time. When the protocol is completed this field will display the end volume of the syringe.

When the correct Pump, Protocol and Start Volume have been selected, click **Start** to begin the protocol. Once the protocol has begun running, the display will appear as shown in Figure 3.3.

Figure 3.3 - Running a Protocol



An arrow in the leftmost column of the **Protocol Steps** area of the screen indicates which step is currently being executed. Also note that the Pump Number is displayed at the top of the screen, above the menu. This is helpful when running several pumps simultaneously.

Notice that the Start button is now labeled **Halt**. Click the Halt button to stop the protocol at the step that is being executed. The protocol is Halted if the Automatic Shut-Off Switch on the pump is activated (see Pump User’s Manual for more details). At this time the **Start Volume (cc)** may be changed if necessary. To resume the protocol from the same step, select **Resume**. Click **Stop** to end the protocol and return to Step 1.

CHAPTER 4 | RUNNING MULTIPLE PUMPS

The IPC Software allows the user to run up to 24 RAZEL R-100EC, RAZEL R-220, MED Associates PHM-111EC, or MED Associates PHM-220 Infusion Pumps. To do this, each pump must be connected to the computer via a USB cable and the USB drivers must be installed for each. When the RAZEL IPC Software is opened, the Select Pump pull-down menu will display the Pump Numbers of each pump in ascending order. **Refer to the RAZEL R-100EC, RAZEL R-220, MED Associates PHM-111EC, or MED Associates PHM-220 User's Manual for further information on setting the Pump Number.**

Select the pump to operate with the Select Pump field. To run another pump concurrently, another application of the IPC Software must be opened. The Select Pump pulldown menu will now display each pump except any selected in other running instances of the RAZEL IPC application.

APPENDIX A | CONTACT INFORMATION

Please contact Med Associates, Inc. for information regarding any of our products.

For Technical questions, email support@med-associates.com.

For Sales questions, email sales@med-associates.com.

Visit our website at www.med-associates.com.