Inspirstar Profile Editor
For Inspirstar IS02
Programmable Microcurrent Stimulator™

User's Guide

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1 Software Installation

1.1 System Requirements

- **Supported Operating Systems:** Windows Server 2003 SP2; Windows XP SP3; Windows Vista SP1; Windows 7, Windows 8, Windows 10
- **Required Software:**
  Microsoft .NET Framework 4.0 Redistributable Package
  > Note: The setup.exe will install the required software in your PC if necessary.
- Disk Space Requirements: 850 MB (x86), 2 GB (x64)
- One available USB port
- CD drive
- Minimum size of 800x600 for the PC display, 1024x768 or above recommended
- Adobe Acrobat Reader for the on-line help documents.

1.2 Install Inspirstar Profile Editor

1. Insert the CD-ROM to the CD drive of the PC. The setup for Inspirstar Profile Editor shall start.
2. If the setup does not start automatically, you can run the setup.exe by double clicking the setup.exe in the root directory of the CD-ROM.
3. Follow the instructions in Setup window to finish the installation.

NOTE

If you do not have Microsoft .NET Framework v4.0 installed in your PC, you will be prompted to install the .NET Framework first. Then the installer will guide you to install Profile Editor.

1.3 Install USB Device Driver

You need to install the Windows device driver for Inspirstar IS02 or the Inspirstar USB adaptor. You can use one of the following methods to install the driver.

Install From Inspirstar Folder

Click the "USB Driver\Install USB Driverr" from Inspirstar's program folder. The folder is accessed from Windows Start -> All Programs -> Inspirstar.

Install from Profile Editor

Start Inspirstar Profile Editor from desktop or start menu, click on menu Tools -> Install USB Driver to start the installation.

After a successful installation of the driver, your computer will have a new serial port (COM) when Inspirstar IS02 or the Inspirstar USB Adaptor is inserted into a USB port of the PC.

1.4 Start Inspirstar Profile Editor

You can start Inspirstar Profile Editor from Start -> All Programs -> Inspirstar, if the default installation folder was used.

You will be prompted to enter the license key at the first time when you start the Profile Editor.

If you don't have a license key, click button [Send Email ...] to Inspirstar or your distributor for a license key. You need to provide the Installation code shown on the screen for the license key.

After you receive the license key, enter the user name and license key into the boxes and click [Register License]

To ensure to enter the license key accurately, copy the license key in the email then click

Paste key

After the license key is registered, you can register another key for another feature or continue by click button Close .

1.5 Software Update

Inspirstar Profile Editor connects to the Internet to check for available software updates and product news. If you are prompted for network access permission, please allow the access of the internet. The software does not send any information to the internet server.

2 Introduction and Concepts

2.1 Profile Work Flow

Inspirstar Profile Editor does one main task: to program protocols into Inspirstar IS02 Programmable Microcurrent Stimulator™ (PMS). The workflow is straight forward as illustrated in Figure 1 Profile Work Flow.

Step 1

Create a Profile

Step 2

Edit the protocols and frequency pairs in the profile

Step 3

Write the profile to Inspirstar PMS
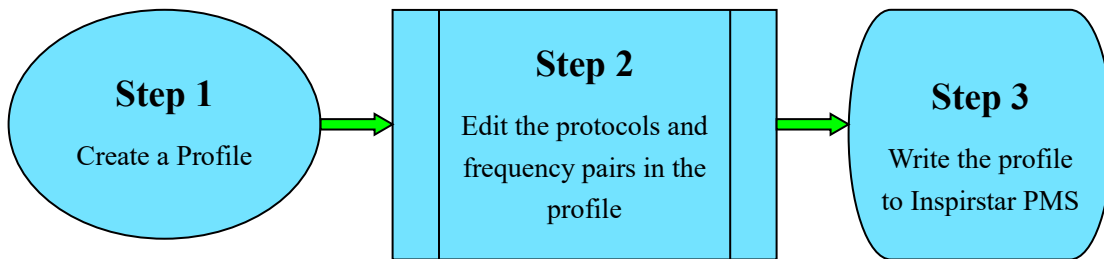
Figure 1 Profile Work Flow

2.2 Therapy Profiles

Inspirstar IS02 supports two therapy profiles: factory profile and user profile. The Factory Profile holds five factory therapy protocols that have been pre-programmed into Inspirstar IS02. The User Profile holds five or more user therapy protocols. Each therapy protocol has one or more frequency pairs. When you program an Inspirstar IS02, you are writing therapy protocols into the user profile in the Inspirstar IS02. If the protocol in the user profile is valid, Inspirstar IS02 will use the user protocol instead of the factory protocol. See Figure 2 the Structure of a Profile.

Therapy Profile

Protocol **1**	Protocol **2**	Protocol **3**	Protocol **4**	Protocol **5**
Frequency Pair 1	Frequency Pair 1	Frequency Pair 1	Frequency Pair 1	Frequency Pair 1
Frequency Pair 2	Frequency Pair 2	Frequency Pair 2	Frequency Pair 2	…
Frequency Pair 3	…	Frequency Pair 3	Frequency Pair 3	…
…	…	Frequency Pair 4	Frequency Pair 4	…
…	…	…	Frequency Pair 5	
		…	…	
			…	
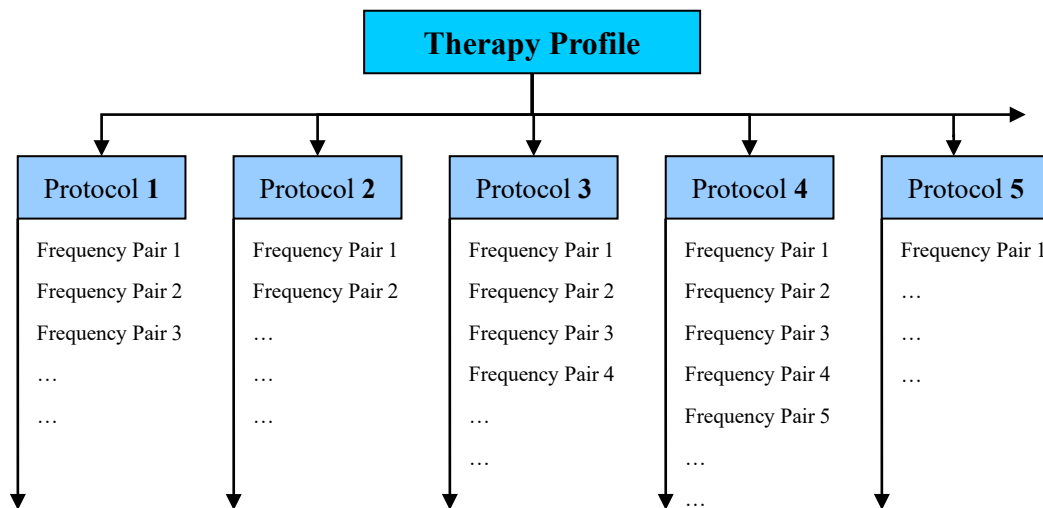
Figure 2 the Structure of a Therapy Profile

2.3 Therapy Protocols

2.3.1 Frequency pairs

A therapy protocol has one or more frequency pairs. Each frequency pair defines the frequency, current intensity, and other parameters of the output waveform of the two output channels. The therapy time of a protocol is the total therapy time of all frequency pairs of the protocol. The frequency pairs will be executed in sequence when a protocol is started.

2.3.2 Waveform and Parameters

Inspirstar IS02 outputs current pulses. The waveform and parameters is illustrated in Figure 3 Waveform and Parameters. Both channels have the parameters marked on the CH1 waveform (at the top).
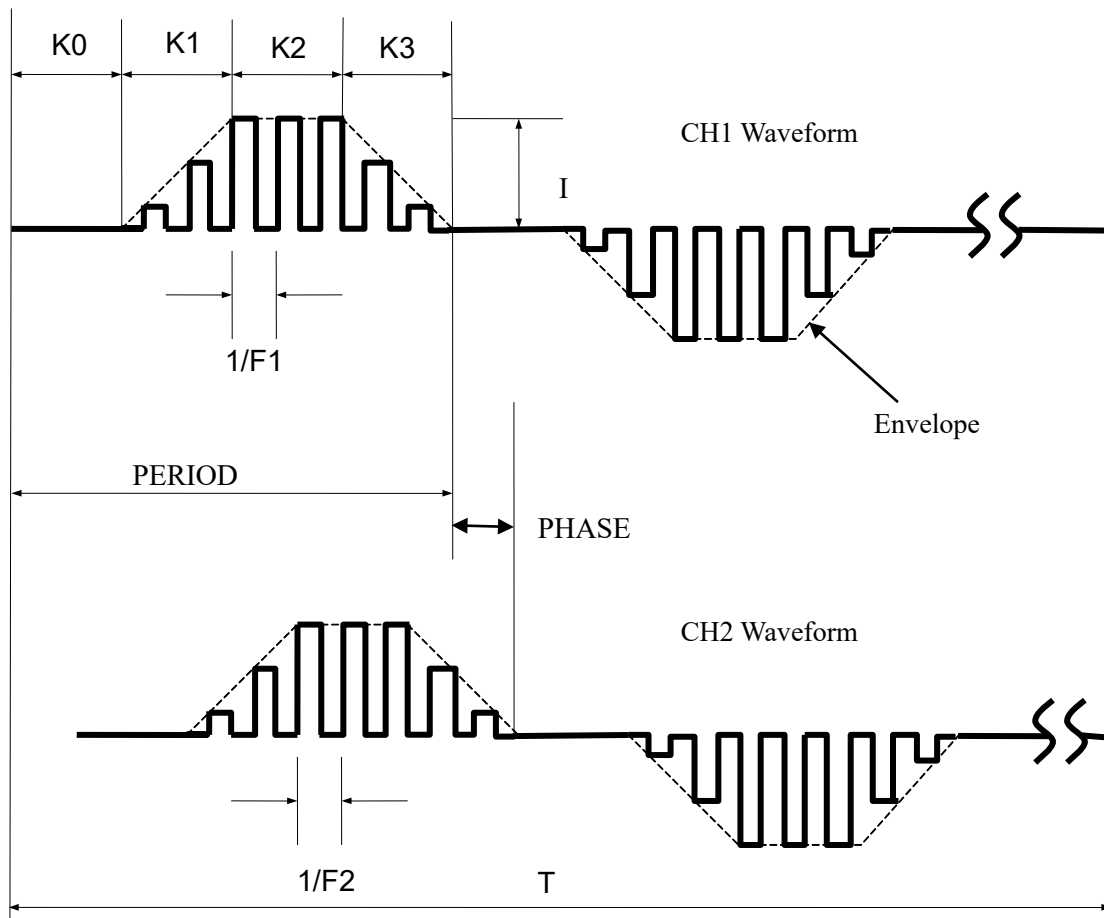
Figure 3 Waveform and Parameters

PERIOD: Period of the modulated pulse. The pulse can be modulated by the carrier frequency F. The period is programmable from 4 ms to 60000 ms. The outline of the waveform is often referred to as the envelope of the waveform, when the pulse is modulated, as shown in dotted lines in the figure.

F: frequency of the carrier, also called chopper frequency.

T: Therapy time in minutes, programmable from 1 minute to 60 minutes for each frequency pair. The waveform will be repeated during the therapy time.

I: peak current intensity of the pulse, expressed in µA.

K: duty cycle of the waveform. The pulse is composed of four segments for their nature in the waveform.

   K0: off period, there is no output current at this period, or i=0.

   K1: current ramp up period, current ramps up to the peak current intensity I from 0 µA.

   K2: peak current plateau period, the output current reaches the programmed peak value and maintains at the peak value for the period.

   K3: current ramp down period, current ramps down from the peak current intensity I to 0 µA.

   Each segment is programmable from 0% to 100% of the period of the envelope. When a

period has 0% duty, the period will be eliminated.

Polarity:the polarity of the pulse is programmable to be alternative, always positive, or always negative. In alternative mode, the output polarity will change the polarity.

Phase: is the relationship of the waveforms of the two channels. Channel 1 is used as the reference. A phase of 180 degrees equals to one period of channel 1. The phase of Channel 2 determines the time of the start point of the period of channel 2. When phase is 0 degree, the waveform of channel 2 is aligned with the waveform of channel 1. When the phase is 180 degrees, the waveform of channel 2 starts one period later than CH1.

HINT

Examples are provided to demonstrate how the parameters can be used in a protocol. To open "Waveform Examples.profile", use menu File -> Open Examples in Profile Editor window.

3 Profile Editor

3.1 Start Inspirstar Profile Editor

To start the Inspirstar Profile Editor,
- Click Windows Start -> All Programs -> Inspirstar -> Profile Editor.
- Or browse to a profile file in Windows Explorer, double click on the file with extension .profile.

3.2 Window Layout

The window of Inspirstar Profile Editor is shown in the following picture. The window is organized in five areas. Explanation of the areas is as follows from the top to the bottom of the window.
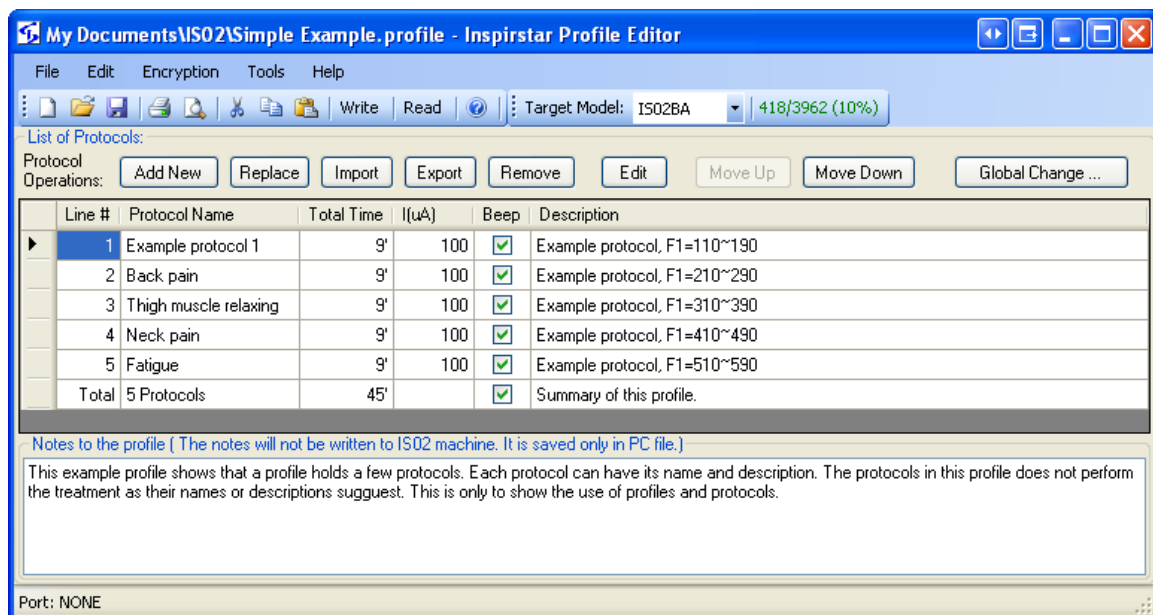
Figure 4 Profile Editor Window

Menus and Tool Bars
You can use the menus and tool bars to perform actions on profiles and protocols. More explanation on menus and tool bars can be found in section 3.8 Menus and Tool Bars on page 47.

Protocol Operation Tools
Most frequently used tools for protocols manipulation are shown above the protocol list.

Protocols List

The protocols in the profile are listed in the box. The values in some cells in the table can be changed directly in the table.

Notes to the Profile

The notes can include any useful information related to this profile and protocols in it. The notes will not be written to IS02. It is saved only in PC file.

Status Bar

The bottom of the window features a status bar to show you the status of the profile, such as the COM port that is used to connect to Inspirstar IS02, and other informative messages.

3.3 Register Software License

To register a license for a new software feature, or to check existing software license, use menu Help -> Register License, the following window will pop up. The window will pop up when you try to use a feature that you don't have a license.

Figure 15 License Registration Window

If you don't have a license or want to purchase a new license, click on button [Send Email ...], your

email client software will pop up with a email draft to sales@inspirstar.com. The user name and the installation code is populated in the email body. You can add some other information then send the email for a software license.

3.4 Start with a Profile

A therapy profile can be started from several sources for editing.

3.4.1 To Create a New Profile from Scratch

Use the menu command File -> New Profile; or click on the New Profile icon on the tool bar, to start a blank profile. The blank profile has 5 blank protocols added automatically.

3.4.2 To Open an Existing Profile

Use the menu command File -> Open Profile; or click the Open Profile icon on the tool bar, to load an existing profile.

3.4.3 To Save a Profile

Use the menu command File -> Save Profile; or click the Save Profile icon on the tool bar, to save the current profile.

To save the profile to a different name, use the menu command File -> Save Profile As, and give a different name for the file.

3.4.4 To Create a Profile from an Existing Profile

To create a profile from the protocols in current profile, use menu command File -> Create Profile From, the following dialog will pop up.
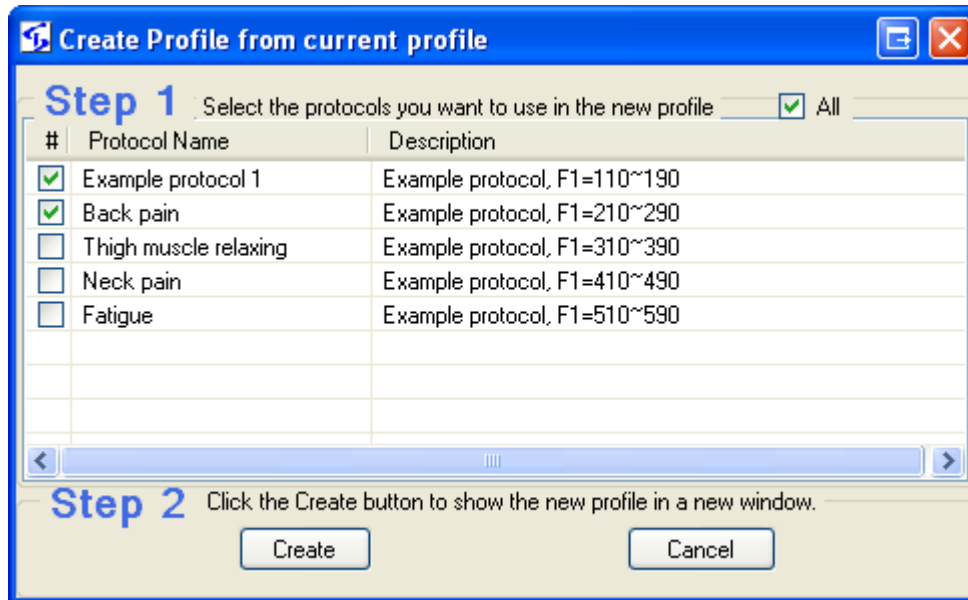
Check the box before the protocols to select the protocols you want in the new profile, then click Create, a new profile will be created with the selected protocols.

3.4.5 To Print a Profile

To print the current profile, use menu command File -> Print or tool bar button 🖨, the Print dialog will pop up.

To Preview the print of current profile, use menu command File -> Print Preview or tool bar button 🔍, the Print Preview window will show up. By default, only the details of protocols are not printed.

Simple Example.profile Print Preview

Print Current Page Print Page Setup Zoom ▾ ⏮ ◀ 1 of 1 ▶ ⏭ ✕ Close

Simple Example.profile
Notes:This example profile shows that a profile holds a few protocols. Each protocol can have its nam
names or descriptions sugguest. This is only to show the use of profiles and protocols.

Line #	Protocol Name	Total Time	I(uA)	Beep	Description
1	Example protocol 1	9'	100	True	Example protocol, F1=110~190
2	Back pain	9'	100	True	Example protocol, F1=210~290
3	Thigh muscle relaxing	9'	100	True	Example protocol, F1=310~390
4	Neck pain	9'	100	True	Example protocol, F1=410~490
5	Fatigue	9'	100	True	Example protocol, F1=510~590
Total	5 Protocols	45'		True	Summary of this profile.

To print the profile with details of protocols, check the menu item File -> Print with Protocols.

File	Edit	Encryption	Tools	Help

New Profile   Ctrl+N   Write
Create Profile From
Open Profile   Ctrl+O   nport
Open Examples
Close Profile   Ctrl+F4   l Time
                              9'
Save Profile   Ctrl+S   9'
Save Profile As   9'
Print   Ctrl+P   9'
Print Preview   9'
✓ Print with protocols   45'
✓ Print with Frequency Lines
Page Setup   itten to
Recent Profiles   ▶   s a few
Exit   uggues
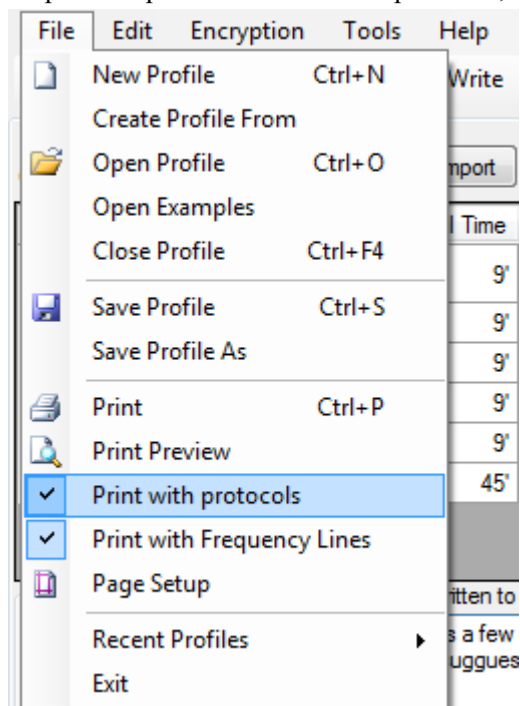
The details of protocols will be printed after the summary of the profile as illustrated below.
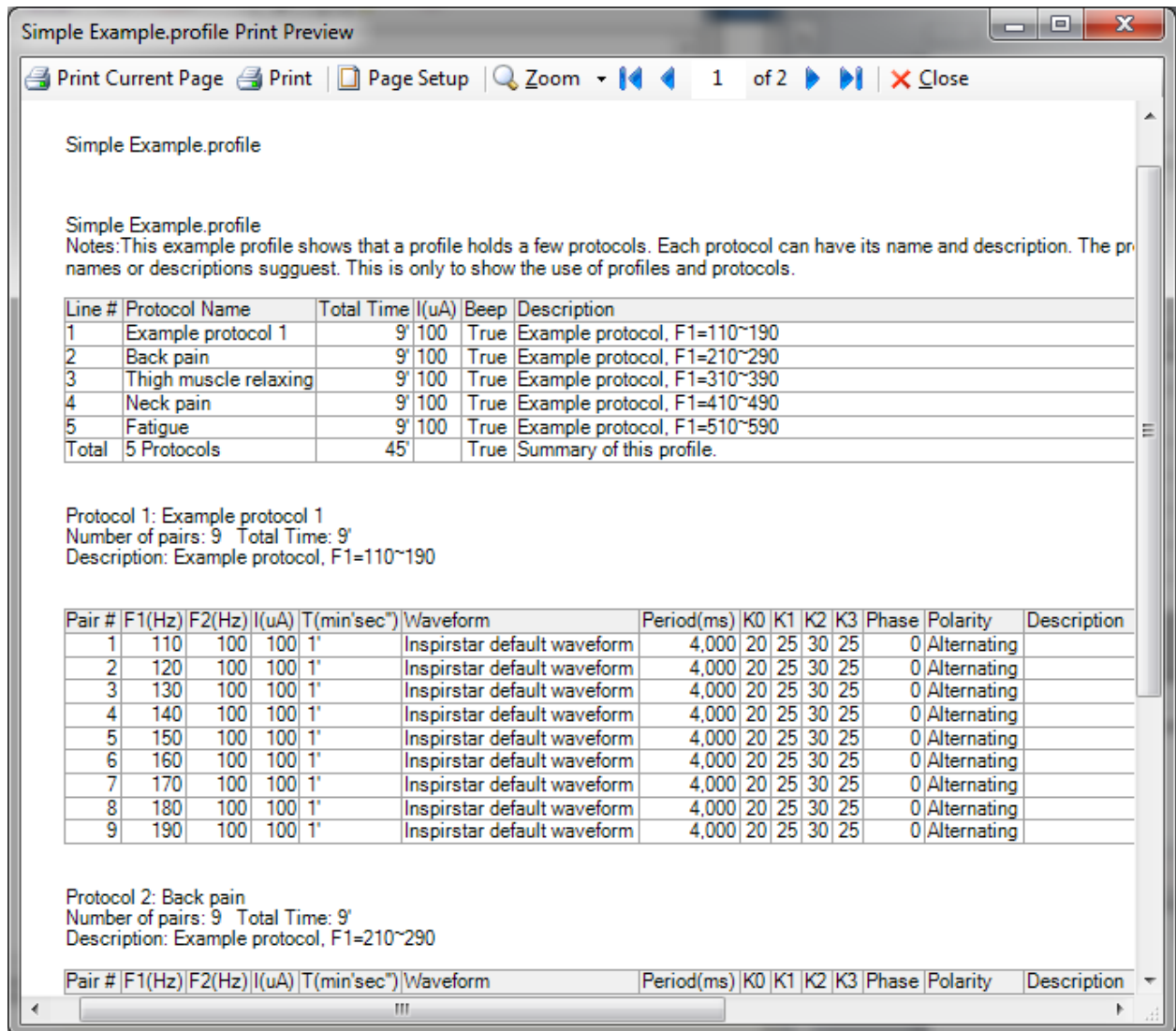
To change the orientation of the page, or adjust the margins on page, click on menu File -> Page Setup or click on the Page Setup button on the Print Preview window.
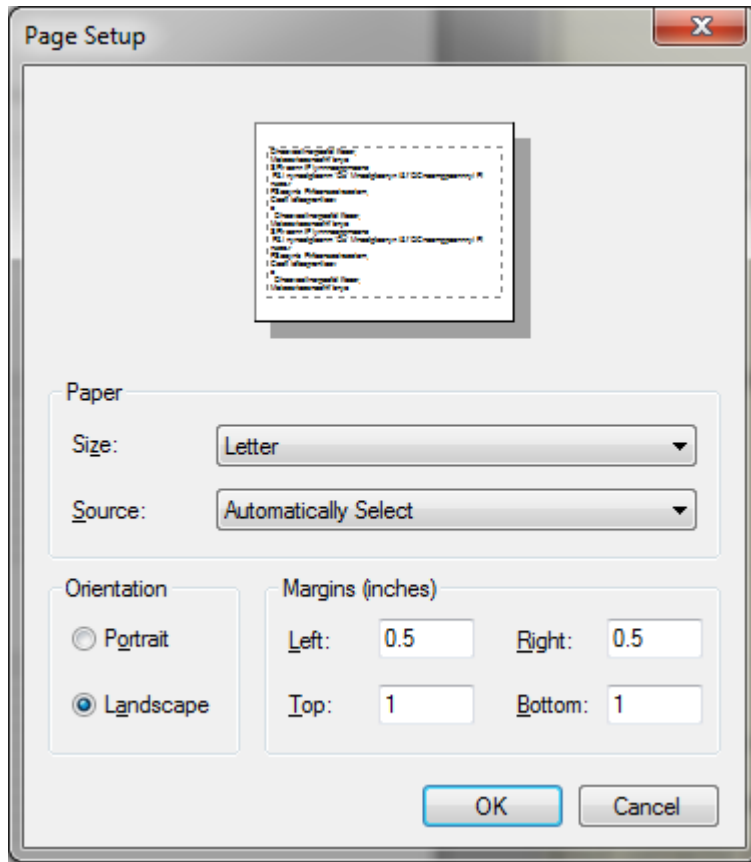
3.4.6 To Copy the contents of Profile to Excel Spreadsheet

To copy the contents of the Profile as displayed on Profile Editor to Excel spreadsheet, select the cells to be copied, then use the Copy button on tool bar or press Ctrl+C. <mark>Do not click the row header for selection. Selecting by row header will select the protocols, not the cell contents.</mark>
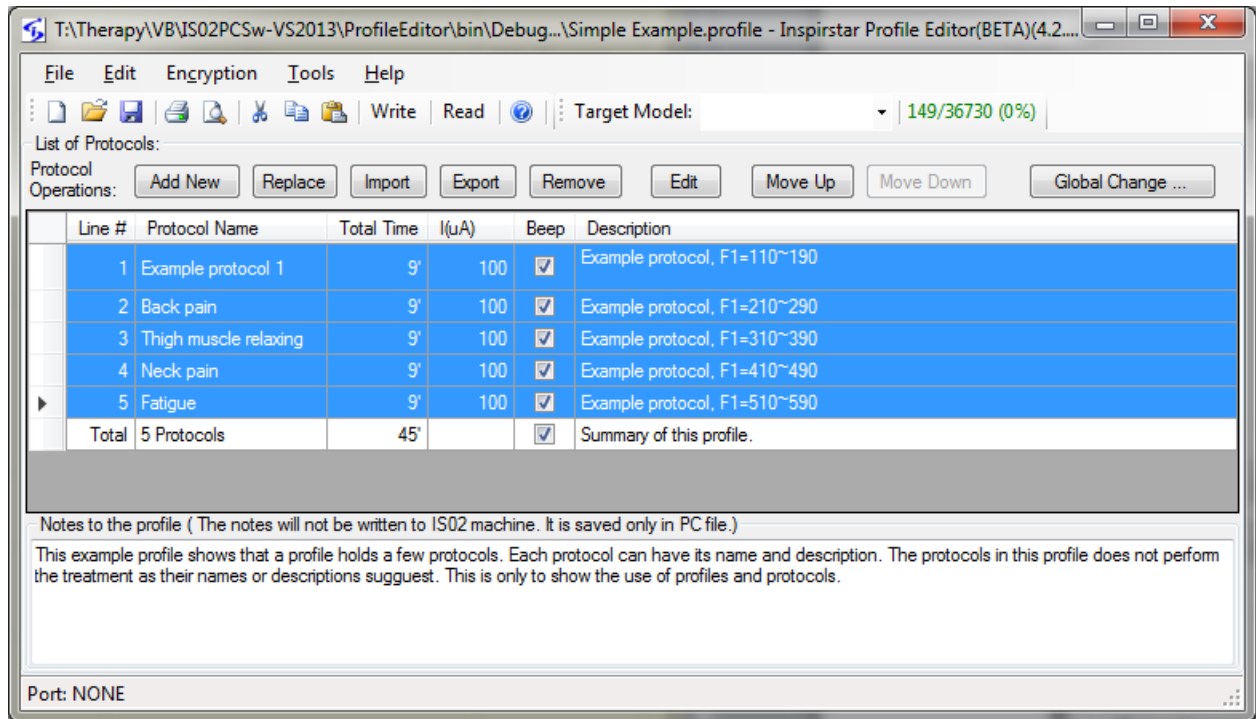
Paste the contents into Excel spreadsheet
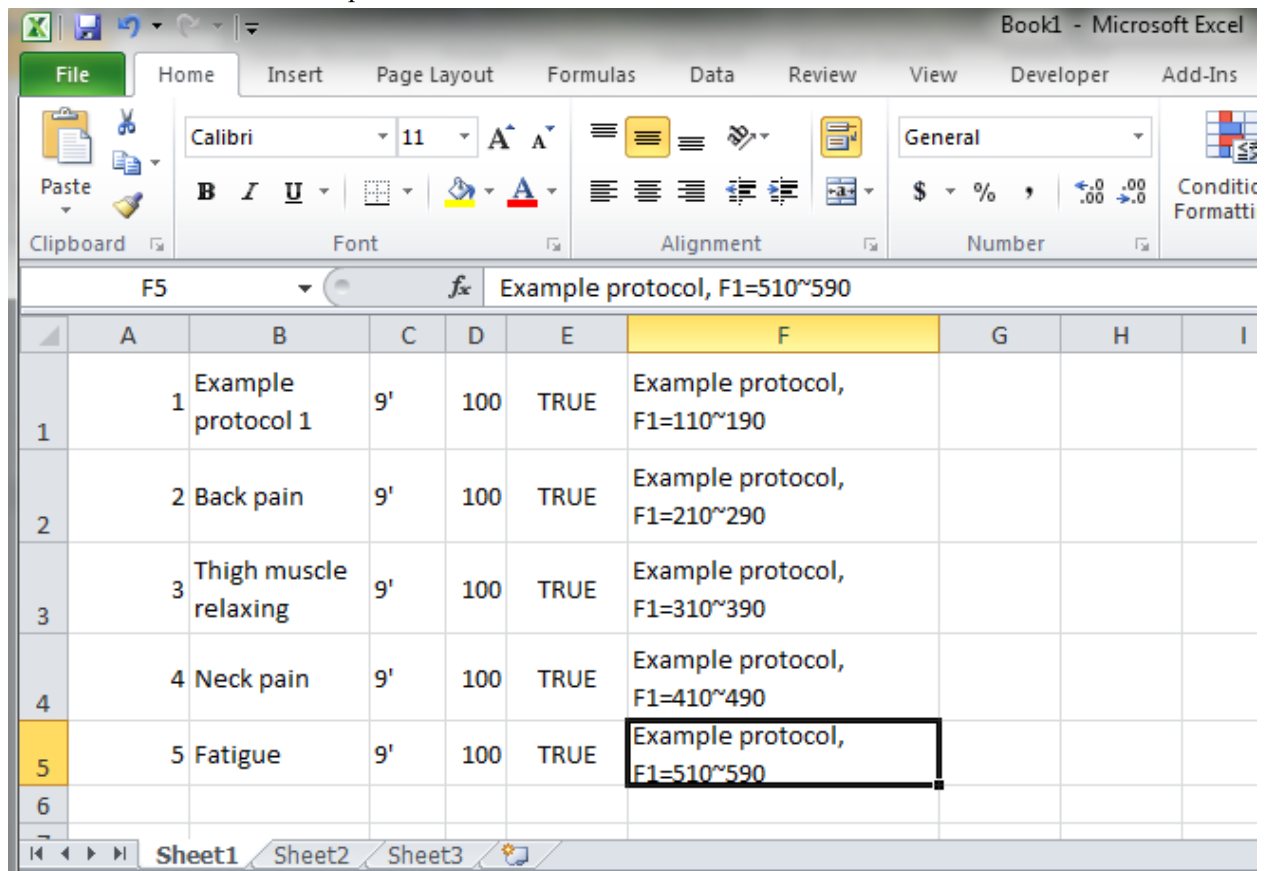
3.5 Organize Protocols in a Profile

The protocols in the profile are listed in the table in the Profile Editor Window. Operations are provided to help organizing the protocols in the profile.

3.5.1 To Select Protocols

All protocols in the profile are listed in the List of Protocols table. You can select one protocol or multiple protocols for edit operations such as cut, copy, move and export. Selected protocols are highlighted.

Line	Protocol Name
1	Sample protocol 1
2	Back pain
3	Thigh muscle relaxing
4	Neck pain
5	Fatigue

- To select one protocol, click the <mark>row header</mark> of the protocol. The selected row becomes **current row** and is marked with an arrow.

Line	Protocol Name
1	Sample protocol 1
2	Back pain
3	Thigh muscle relaxing
4	Neck pain
5	Fatigue

- To select multiple protocols in consecutive range, click the row header of the first protocol with the left mouse button, then hold down the **SHIFT** key on the keyboard, and then click the row header of another protocol in the list. The protocols between the two clicks will be selected.

Line	Protocol Name
1	Sample protocol 1
2	Back pain
3	Thigh muscle relaxing
4	Neck pain
5	Fatigue
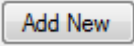
- To select multiple protocols in scattered locations, hold down the **CTRL** key on the keyboard, then click the row headers of the protocols you want to select.

Line	Protocol Name
1	Sample protocol 1
2	Back pain
3	Thigh muscle relaxing
4	Neck pain
5	Fatigue

- To select all protocols in the list, use menu command Edit -> Select All; or press **CTRL+A**.
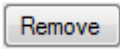
3.5.2 To Add a Blank Protocol

To add a blank protocol into the profile,

- Click on tool bar button Add New , the blank protocol will be added after the current row.

- Or Press Insert key, the blank protocol will be added after the current row.
- Or Press Ctrl + "+" key, the blank protocol will be added after the current row.

3.5.3 To Remove a Protocol

To remove a protocol from the profile,

- Select the protocol to be removed, click on tool bar button Remove , the selected protocol will be removed from the profile.
- Or select the protocol to be removed, Press Delete key, the selected protocol will be removed from the profile.
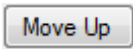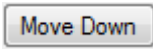
NOTE

If the protocol to be removed is not blank, you are prompted to confirm the operation.

3.5.4 To Move a Protocol

The protocols in the profile can be moved up and down to your desire. The IS02 machine uses protocol number to refer to a certain protocol so the locations of protocol in the profile is important. To move a protocol in the profile,

1. Click the row header to select a single protocol or multiple protocols in the profile.

2. Click on tool button Move Up to move the selected protocols up by one line, or button

   Move Down to move the selected protocols down by one line.

Another way to move a protocol is through the Cut and Paste features. This allows you to move a protocol within a profile, or between two profiles.

NOTE

If you did not give a name to the protocols, the protocols will be named as "Protocol #" where # is the line number of the protocol. After the protocol is moved up or down, the moved protocol will have a new number. If all protocols have numbers as the name, it would be hard to distinguish if the protocol has been moved. It's recommended to give a name to each protocol.

3.5.5 To Sort Protocols

The protocols in the profile can be sorted in Profile Editor for display purpose. Click the column header to sort protocols for that property in ascend and descent order.

The sorting is for display only. The actual order is not changed unless you Renumber all the protocols. Click the right mouse button on the protocol list to either Renumber the protocols as in the displayed order or unsort all the protocols in their storage order in the profile.
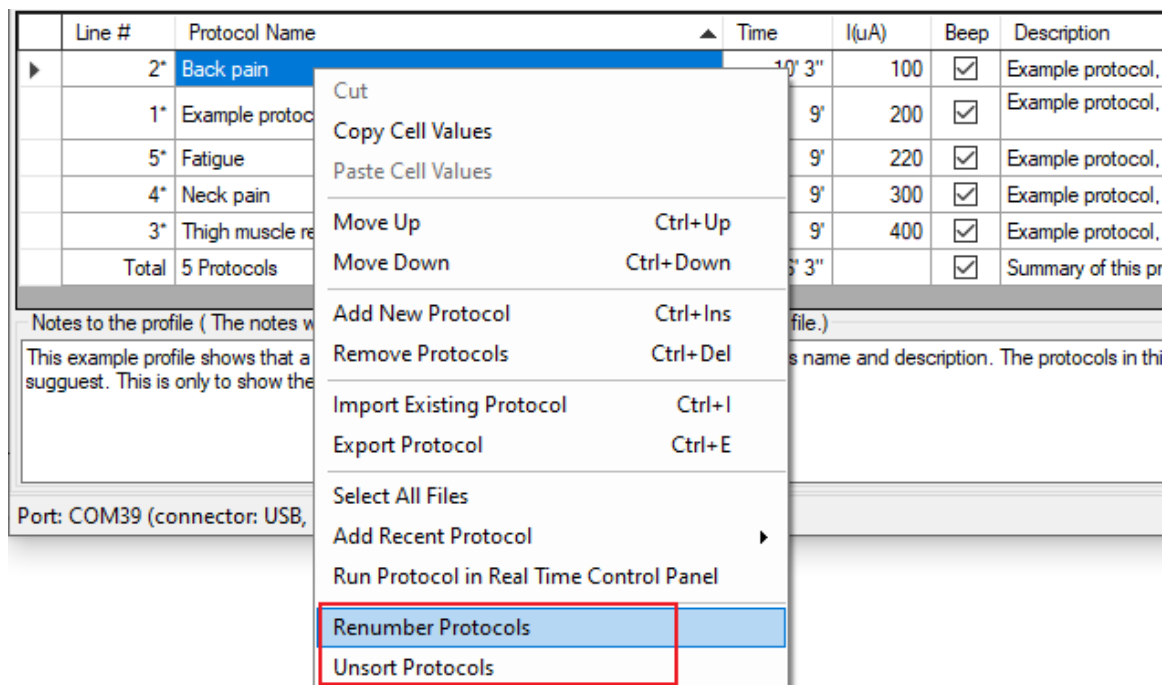
3.5.6 To Cut, Copy and Paste a Protocol

The protocols in the profile can be moved up and down to your desire. The IS02 machine uses protocol number to refer to a certain protocol so the locations of protocol in the profile is important. To move a protocol in the profile,

1. Click the row header to select a single protocol or multiple protocols in the profile.

2. Click on tool button ✂, or press Ctrl-X to cut the selected protocols off the profile. The selected protocols will be removed from the profile to the Windows clipboard.

3. Click on tool button , or press Ctrl-C to copy the selected protocols. The selected protocols will be copied to the Windows clipboard.

4. Click on tool button , or press Ctrl-V to paste protocols from Windows clipboard into the profile.

3.5.7 To Export a Protocol to a File

You can export a protocol in the profile to a protocol file in disks for other uses. To export a protocol,
1. Click the row header to select a protocol in the profile.

2. Click on tool button Export, a file browsing dialog opens up. Browse to the folder and give a name for the protocol file. By default, the protocol name is used as the protocol file name.
3. Click SAVE to save the protocol file.

3.5.8 To Export All Protocols to a folder

You can export all protocol in the profile to a folder in disks. To export a protocols,
1. Click the row header to select more than two protocols in the profile. To select all protocols, click on the top left corner of the table.

2. Click on tool button Export, a file browsing dialog opens up. Browse to a folder to hold all the protocols. By default, the profile name is used as the folder name.
3. Click SAVE to start exporting all protocols to files. Exported protocols will be numbered in the same order as they are in the profile and will be named with their protocol name.

3.5.9 To Import an Existing Protocol

If you have got protocol files in disk, you can import them into the profile. To import an existing protocol into the profile,

- Click on tool bar button Import, then browse to select an existing protocol file and select OK. The protocol in the protocol file will be imported to the profile after the current line, i.e. the operation is "insert after".
- Drag-Drop operation: use the Windows Explorer to browse to the protocol file or profile file to be imported, hold the mouse button to drag the file into the Profile Editor window, and then drop the file into the List of Protocols. The protocol in the dragged file will be imported at the insertion point that was highlighted by a red line.

NOTE

You can import a protocol file, or a profile that contains multiple protocols. When the file contains multiple protocols, all protocols will be imported in the same sequence as in the existing profile file.

TIP

You can add a recently used protocol file by right click the table and select a file in the list.
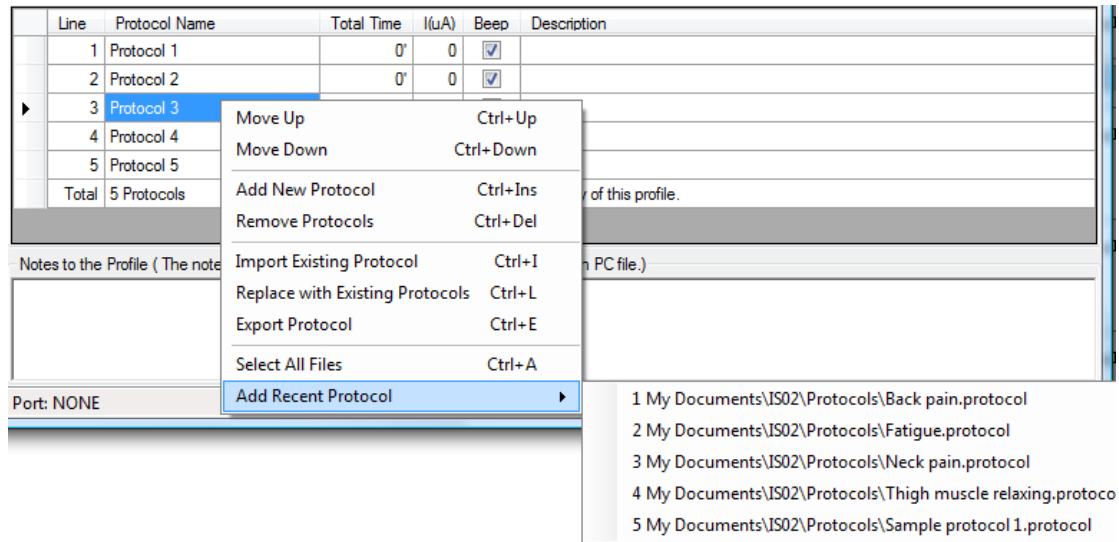
3.5.10 To Move a Protocol between Profiles

To move or duplicate a protocol to another profile, you can choice the following methods.

Through Cut, Copy and Paste:
1. Click the row header to select a single protocol or multiple protocols in the first profile.

2. Click on tool button   , or press Ctrl-C to copy the selected protocols. The selected protocols will be copied to the Windows clipboard.

3. Open another profile or start a new profile.

4. Click on tool button   , or press Ctrl-V to paste the protocols from Windows clipboard into the profile.

Through Drag and Drop:
1. Click the row header to select a single protocol in the first profile.
2. Hold down the left mouse button and move the mouse pointer to the new profile window.
3. The new profile window will display a red line to indicate the insertion point.
4. Use the Ctrl key to change to move or to copy the protocols.
5. Release the mouse button. The protocols are dragged will be dropped to the new profile

window.

Through Export and Import:

1. Click the row header to select a single protocol in the first profile.

2. Click on tool button [Export], or press Ctrl-E to export the selected protocol to a disk file.

3. Open another profile or start a new profile.

4. Click on tool button [Import], or press Ctrl-I to import the protocol file which was exported from the previous step.

You can open two Profile Editor windows and copy and paste protocols between the two profiles.

3.6 Change a Protocol

3.6.1 Make changes in Profile Editor

The information of each protocol listed in the table can be changed. The information is: Protocol Name, Protocol Description, Protocol Total Time, Protocol Output Current Intensity and the option to beep at the end of protocol.

3.6.1.1   To Change the Protocol Name

- Click to select the cell under column header of "protocol name" of the row of the protocol.
- Type in the new name;
- Or press F2 to edit the name;
- After it's done, press Enter or move the cursor to another cell in the table. The name of the protocol has been changed.

The protocol name can also be assigned or changed in the Protocol Editor window.

3.6.1.2   To Change the Protocol Description

- Click to select the cell under column header of "Description" of the row of the protocol.
- Type in the new description;
- Or press F2 to edit the description;
- After it's done, press Enter or move the cursor to another cell in the table. The description of

the protocol has been changed.

NOTE

When the profile is written into IS02 machine, the description of the protocol will be truncated to 255 characters, although the limit for the description in the disk file is much longer.

3.6.1.3   To Turn off the Beep of Protocol

The beep that sounds at the end of the protocol running in IS02 machine can be turned off.
- Click to uncheck the box under column header of "Beep" of the row of the protocol.
- Or click to uncheck the box under column header of "Beep" of the last row (the Total line) to make changes to all the protocols.

NOTE

The beep option can only be changed in Profile Editor window.

3.6.1.4   To Change the Output Current Intensity

To change the output current intensity of a single protocol:
- Click to select the cell under column header of "I(uA)" of the row of the protocol.
- Type in the new value for the current;
- Or press F2 to edit the value of the current;
- After it's done, press Enter or move the cursor to another cell in the table. The output current intensity of the protocol has been changed.

To change the output current intensity of all protocols in the profile:
- Click to select the cell under column header of "I(uA)" of the last row (the Total line).
- Type in the new value for the current.
- After it's done, press Enter or move the cursor to another cell in the table. The output current intensity of all protocol in the profile have been changed.

NOTE

When the current is changed with this way in Profile windows, all waveforms of both channels in the protocol will have the same current intensity. In order to achieve non-uniform current intensity for waveforms. you need to use the Protocol Editor window to make the changes.

3.6.1.5   To Change the Therapy Time

To change the therapy time of a protocol:
- Click to select the cell under column header of "Total Time" of the row of the protocol.

- Type in the new value for the therapy time.
- Or press F2 to edit the value of the therapy time.
- After it's done, press Enter or move the cursor to another cell in the table. The therapy time of the protocol has been changed.

NOTE

The time can be entered in different format. Below are valid formats:

Entered	Interpreted as
1'20"	1 minute 20 seconds
1:20	1 minute 20 seconds
1:20:30	1 hour 20 minutes 30 seconds
1	1 minute
20"	20 seconds

NOTE

Because the therapy time of a protocol is the total time of all frequency pairs in the protocols, the change will be made to all frequency pairs proportionally. For example, a protocol has 12 minutes of therapy time from these frequency pairs:

Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")
1	110	100	150	1'
2	120	100	150	2'
3	130	100	150	3'
4	140	100	150	1'
5	150	100	150	1'
6	160	100	150	1'
7	170	100	150	1'
8	180	100	150	1'
9	190	100	150	1'
new				

After the therapy time is changed to 15 minutes with this method, all frequency pairs in the protocol will have new time as

Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")
1	110	100	150	1'15"
2	120	100	150	2'30"
3	130	100	150	3'45"
4	140	100	150	1'15"
5	150	100	150	1'15"
6	160	100	150	1'15"
7	170	100	150	1'15"
8	180	100	150	1'15"
9	190	100	150	1'15"
new				

The new time for each frequency pair equals the old time x 15/12, or 1 minute will becomes 1 minute and 15 seconds.

3.6.2 Make Changes with Protocol Editor

To make changes to waveform parameters such as frequency, polarity, duty cycle, etc, you need to use Protocol Editor. To bring up the Protocol Editor window,

1. Click to select a protocol for editing.

2. Click on tool button **Edit**, or double click the line of the protocol, the Protocol Editor window will pop up. See 4 Protocol Editor for more details.

3. The title of the Protocol Editor shows the protocol number in the profile and the protocol name.
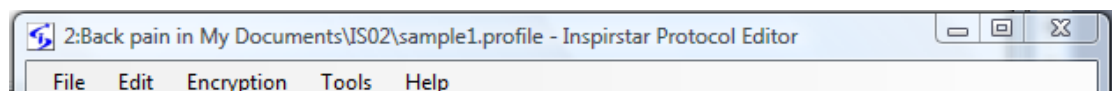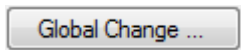
4. You can click on the Previous button on the tool bar to edit the previous or next protocol in the profile; or entering the new protocol number to jump to protocol.
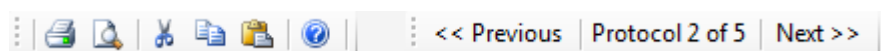
5. when you are done, close the Protocol Editor window.

3.6.3 Make Changes with Global Change

You can change the parameters of the frequency pairs to all or some protocols of the profile:

1. Click **Global Change ...** to bring up the Global Change window.

2. In Step 1, check the boxes of the parameters that you want to change and change the values;

3. In Step 2, check the protocols that you want to apply the new values to.

4. Click [Apply] to apply the changes to the selected protocols.

NOTE

It would be easier to change parameters in all protocols from the parameters of a frequency pair if you use the Global Change from the Protocol Editor. See 4.6.4 Using Global Change for details.

3.7 Work with IS02

3.7.1 Connect Inspirstar IS02 to PC

You need a spare USB port on your computer for Inspirstar USB adaptor. The Inspirstar USB

Adaptor can be used with either 4-pin connector or circular connector to connect to Inspirstar IS02. Plug the USB connector of the adaptor into the USB port on your PC, as shown in the following picture.

CAUTION

Use only the Inspirstar USB Adaptor. Using other USB adaptors or converters will not work and may damage devices.

3.7.1.1   Use the Circular Connector

The circular connector is available on IS02BA. The circular connector is called miniature DIN circular connector, or most of times mini DIN for short. It has the same shape as S-video connector, or PS/2 mouse/keyboard connector. Insert the circular connector into the COMM port on the top side output panel, and connect the DB9 connector of the other end of the cable to Inspirstar USB Adaptor, as shown in the following pictures.
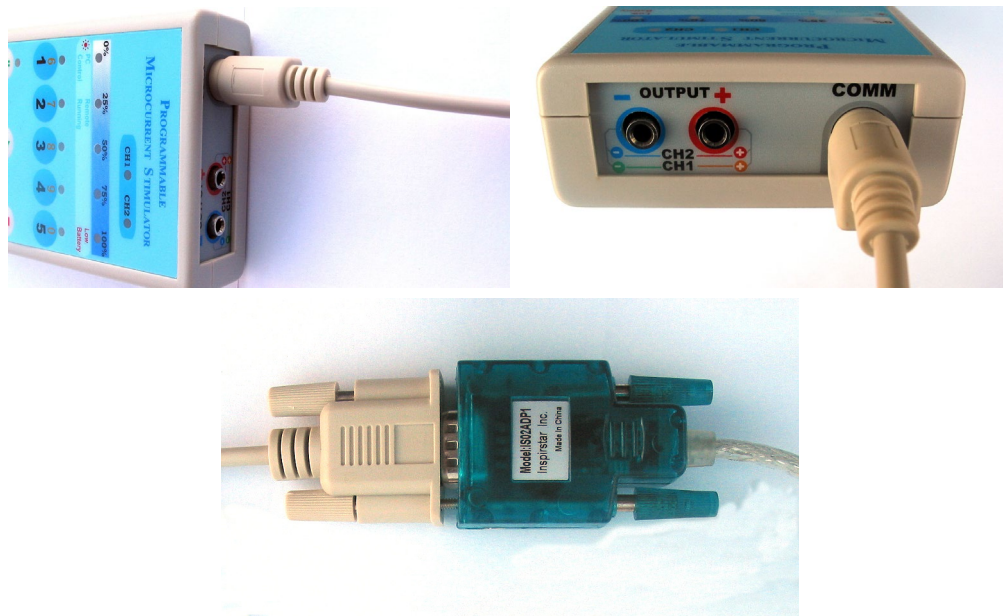
Figure 5 Connect Circular Connector to Inspirstar IS02BA

3.7.1.2   Use the 4-pin Header

The connection to Inspirstar IS02AA and IS02BA is through the connection holes in the battery compartment. Open the battery compartment of Inspirstar IS02AA/BA, remove the batteries, you will see four holes in line at the center of the battery compartment. Align the four pin header from Inspirstar USB adaptor to the four holes; insert the header vertically and firmly with care. See the following pictures. The LED above key 1 will be flashing after the header is properly inserted. The other end of the 4-pin cable needs to be connected to the Inspirstar USB Adaptor, as shown in the following pictures.
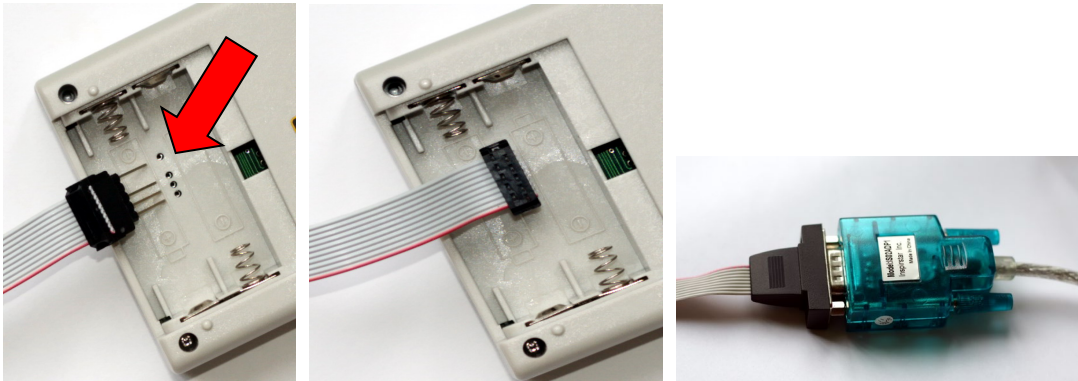
Figure 6 Connect 4-Pin Header to Inspirstar IS02AA and IS02BA

CAUTION

Please keep the 4-pin header away from metal surfaces to avoid short to the USB power. If you see a power failure message on your Windows, you need to unplug the USB plug from your PC and then re-insert it to recover from the failure.

3.7.1.3   Use USB Connector

Newer IS02 models including IS02LCD, IS02PRO and IS02BAs use micro-USB connector for PC connection. Plug in a micro-USB data cable into the USB port on the rear side of. Note some micro-USB cables are for charge only and can't be used for communication.
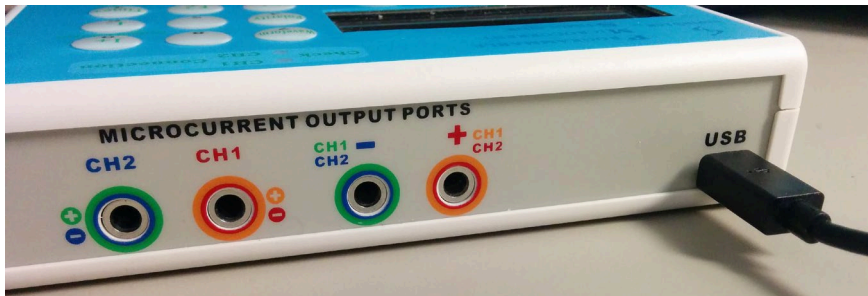
Figure 7 Micro-USB cable connection to IS02 (IS02PRO shown)

3.7.2 Read and Write Profile to IS02

3.7.2.1 To Read Profile from Inspirstar IS02

Note

You need to connect Inspirstar IS02 to the PC before you start Read Profile. See "3.7.1 Connect Inspirstar IS02 to PC" on how to make the connection.

In Profile Editor Window, use the command "Read From…" in Tools menu to read the profile in an Inspirstar IS02; or click the Read button on the tool bar. The following dialog will show up.
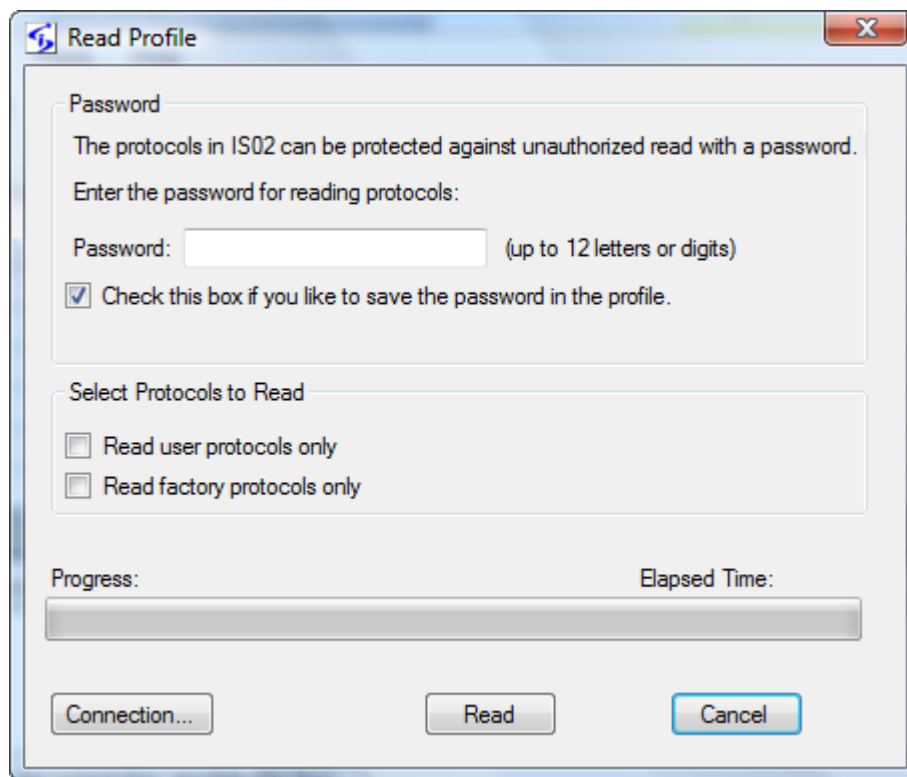
Figure 8 Read Profile

Password: If the user profile was written into Inspirstar IS02 with a password, the same password is required for reading the user profile. You have the option to save the password in the profile. You don't need to provide the password if you just want to read factory protocols (see options below).

Select Protocols to Read: You have the option to select the protocols to be read into the

profile. By default, both checkbox for user protocols and factory protocols are cleared. This means that the five protocols in the profile will be either a user protocol, if there is one, or a factory protocol, if the user protocol is empty. You can select to read either only the user protocols or only the factory protocols by checking these two options.

Read: Click the [Read] button to start the read operation. The dialog will be closed and the profile will be displayed in Inspirstar Profile Editor window for viewing or changing.

Connection: invokes the Communication Setup window.

3.7.2.2   To Write Profile to Inspirstar IS02

In Profile Editor Window, use the command "Write to…" in Tools menu to write the profile to Inspirstar IS02; or click the [Write] button on the tool bar. The following dialog will show up.

Figure 9 Write Profile

Password: If you want to protect your protocols in Inspirstar IS02, you can provide a password in the password box. You have the option to save the password in the profile.

Programming Information: If you have a Inspirstar IS02 model IS02BA or later, you can configure the memory so your profile can fit into.

Detect Model : to detect the model connected to the PC and retrieve the current memory configuration.

Config Memory... to invoke the memory configuration window so you can change the memory size to fit your protocol.

Write protocols with description: When checked, the description of the protocols and the description of the frequency pairs will be written into IS02. If your protocol does not fit into IS02 memory, unchecked this box. Note that the description of the profile is not written into IS02 regardless of this setting.

Clear the batch protocols in IS02: When checked, the slots of the batch protocols in IS02 device will be cleared when the new profile is written. If the batch protocols is not cleared, the protocol numbers that were programmed with the previous therapy profile in the batch protocols may refer to totally different protocols after the new therapy profile is written into IS02.

Connection... to setup the communication connection.

Write: Click the Write button to start the write operation. The dialog will be closed after the profile is written into Inspirstar IS02 successfully.

<mark>**Note**</mark>
Anytime when the "Write" operation is executed, all 5 protocols in this profile are written into the units and the 5 old protocols in the units are replaced.

3.7.2.3   To Erase Profile in Inspirstar IS02

In Profile Editor Window, use menu Tools -> Erase Profile In IS02... to bring up the following dialog, then click the Erase button to erase the user profile in IS02.
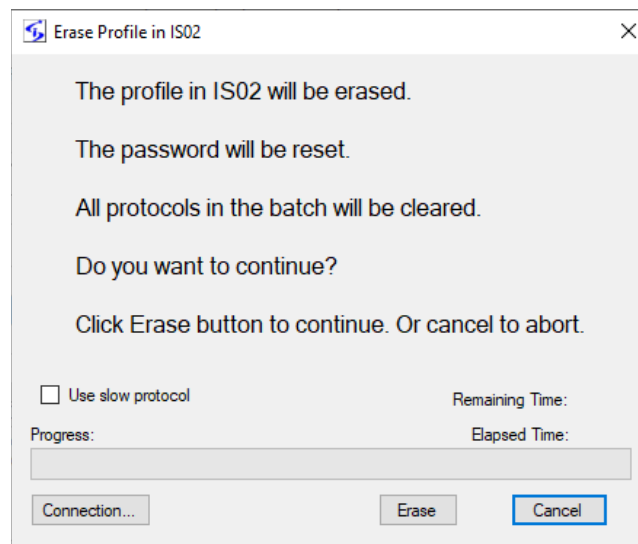
Figure 10   Erase Profile

This feature will erase the user profile regardless if it is password protected.

3.7.3 Configure Memory

You can configure the memory in Inspirstar IS02 model IS02 to fit your profile. In Main

Window, use command "Memory Configuration" from Tools menu, or click the

[Config Memory...] button in the Write Profile widow to invoke this window:
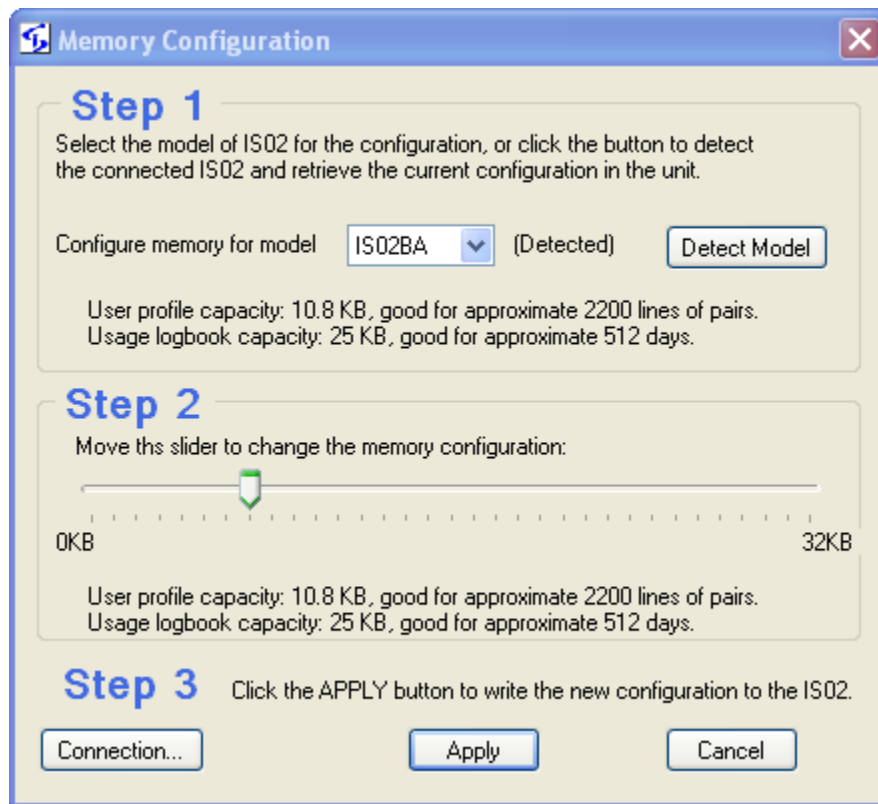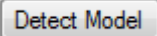
Figure 11   Memory Configuration

[Detect Model]: If an Inspirstar IS02 is connected to the PC when the Memory Configuration is invoked, the memory configuration in the IS02 will be displayed on the window, and is marked as "(Detected)". You can click button "Detect Model" to refresh or detect the model and memory configuration of IS02.

Move the slider to add extra memory for protocols. The total memory capacity for protocols and for logbook is shown on the screen. Click the Apply button to write the new memory configuration into IS02.

3.7.4 Change IS02 Settings

Use menu command Tools -> Change IS02 Settings to bring up the following dialog. These settings are for the whole machine and will be applied to all protocols.
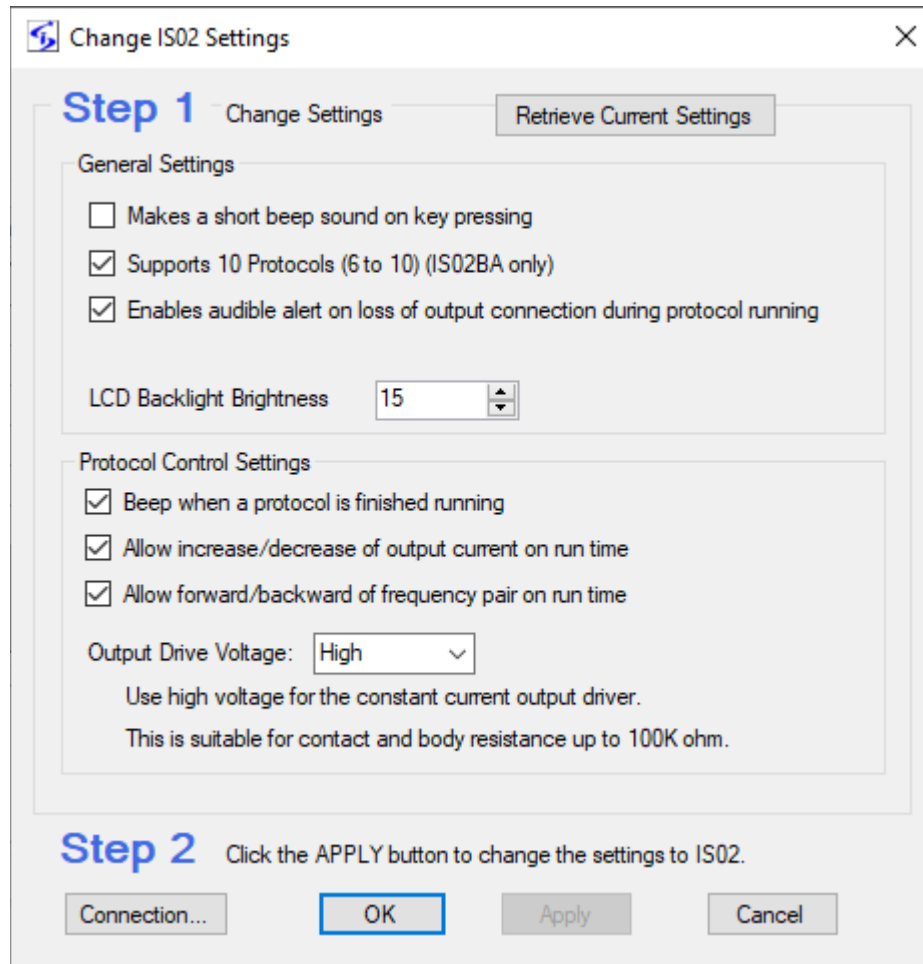
Figure 12   Change IS02 Settings

You can change the following options to IS02BA, IS02LCD and IS02PRO.

➢ General Settings:

   ✓ Short beep on key press

       When checked, there will be a short beep when a key is pressed on IS02.

   ✓ Supports 10 Protocols

       When checked, IS02BA will allow the user to select and run protocol 6 to protocol 10, if the protocols are programmed in the machine. This option is applicable to IS02BA only.

   ✓ Enables audible alert on the loss of output connection during protocol running

       Short beeping sounds will be raised to remind the user to check the output connections when the output has lost connection for more than 10 seconds. This feature needs firmware version 1.65.5 or above. It's not supported on IS02BA.

➢ Protocol Control Settings:

   ✓ Beep when a protocol is finished running

       When checked, there will be a long beep when a protocol is finished running on

IS02.

✓ Allow increase/decrease of output current on run time

When checked, IS02BA will allow the user to change the output current on protocol run time by using key 4 and key 5. The first press of Key 4 or Key 5 will show the current intensity. The followed press of key 4 will decrease the current intensity by 20uA. The followed press of key 5 will increase the current intensity by 20uA.

On IS02LCD and IS02PRO, this option will enable to use Current+ and Current- key to change the output current.

✓ Allow forward/backward of frequency pair on run time
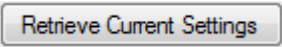
When checked, IS02BA will allow the user to change the sequence of the frequency pairs on protocol run time by using key 1 and key 2. The first press of Key 1 or Key 2 will show the number of the frequency pair. The followed pressing of key 1 will backward by one the frequency pair in the protocol. The followed press of key 2 will forward by one the frequency pair in the protocol.

On IS02LCD and IS02PRO, this option will enable to use SKIP and HOLD to change the running frequency pair.

✓ Output drive voltage

All Inspirstar IS02 models has a constant current driver to be able to drive a connection resistance up to 100K ohms. For applications with very good connection or low resistance electrodes, the voltage can be tuned down to save battery life.

Note

You can use button [Retrieve Current Settings] to retrieve the current settings from a connected IS02.

Note

Only IS02 with firmware version of 0.80 or greater supports these options.

3.7.5 Setup Communication

Profile Editor will automatically search the IS02 connection on all available communication ports.

The Inspirstar USB Adaptor will show up in Windows as a serial communication port. The Communication Setup window lists all the available serial ports of the PC, including the existing serial ports. Click on the pull down arrow to select the serial port for the Inspirstar USB Adaptor. When port option [✓ Include only COM ports for USB adapters] is checked, Profile Editor will search only the ports for the USB adapters, and the detection is faster. When the option is not checked, the COMs for Bluetooth or other devices are included in IS02 detection,

thus will slow the detection process.

You can select the serial port that was assigned to the Inspirstar IS02 USB adaptor cable when the cable was plugged into the PC. You can use the Auto detection option ☑ Auto detection if you are not sure what port number was assigned to the USB adaptor. Inspirstar Profile Editor will scan all serial ports for Inspirstar IS02 if Auto detection option is checked.

Click the Detect button to start the searching for Inspirstar IS02. The search result will be shown on the Communication Setup window, as shown below.
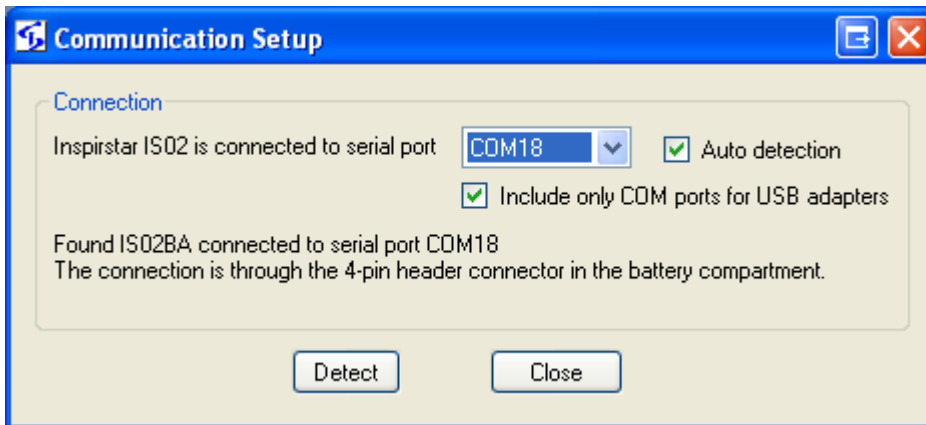
The window can be invoked from either
1. Tools menu -> Setup Communication; or

2. The Connection... button from the window of operations that need to connect to Inspirstar IS02, such as Write Profile to, Product Information, etc.

It's always recommended to check the Auto Detection. This communication setup is used for all operations that require a connection to Inspirstar IS02.

If no IS02 could be detected, the following window will pop up to remind you for the cable connections. Click on the picture to switch to other connection type and hints.
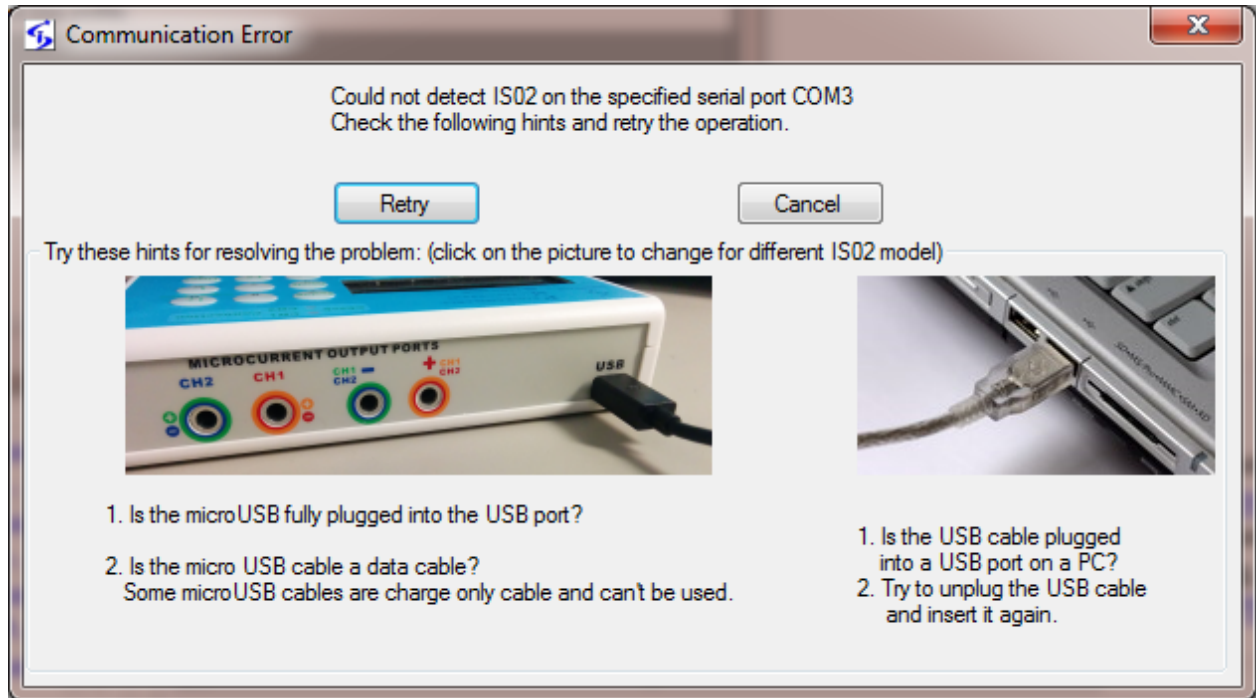
Figure 13   Hints For Communication Problems

3.7.6 Retrieve Product Information

To retrieve product information of the IS02 unit, use the Product Information tool in the Tools menu. The Product Information window shows the model number, serial number, and the version of firmware. If the IS02 model is IS02BA, IS02LCD, IS02PRO or newer models, the battery status will be shown. You need to change to new batteries if the battery status is in the red region.
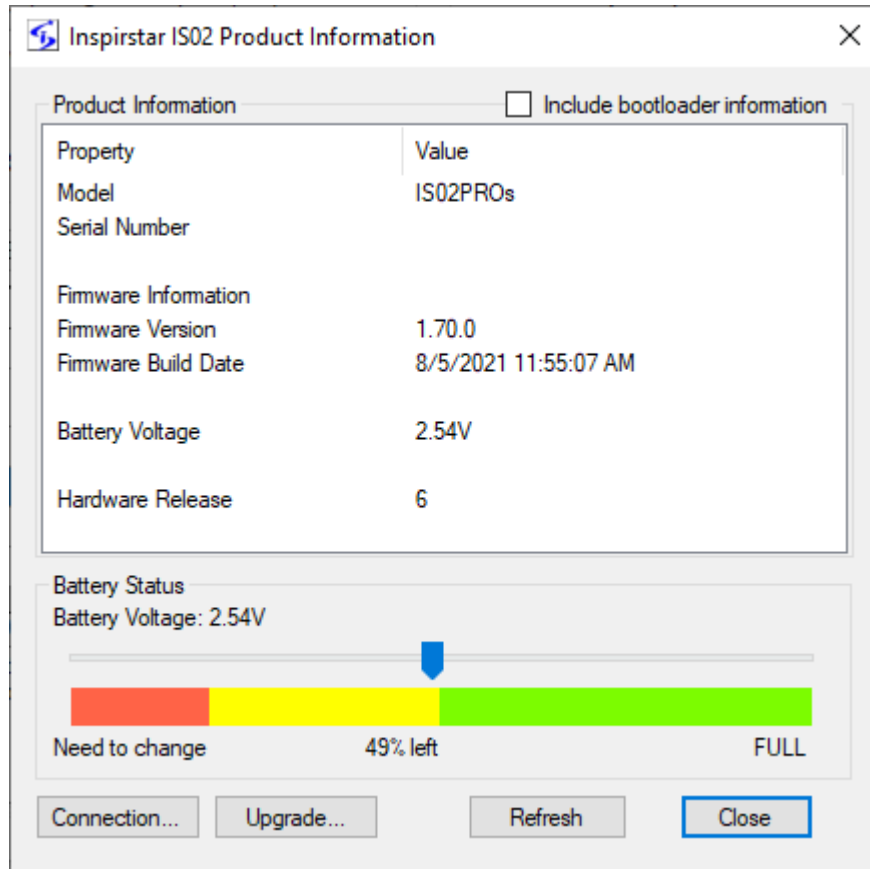
Figure 14   Product Information

To upgrade the firmware, click the Upgrade button.

To retrieve the version information of the bootloader, check "Include bootloader information" then click Refresh.

3.7.7 Upgrade IS02 Firmware

The firmware in IS02BA, IS02LCD, IS02PRO and newer models can be upgraded to a newer version through the programming communication port. The firmware in model IS02AA can not be upgraded in this way.

The firmware usually comes with the new Profile Editor software package. The new firmware is installed in this folder by default:

C:\Program Files\Inspirstar\IS02\Firmwares

If you receive a new firmware file by email or download it from web site, it's better to save the file into the default location, which is C:\Program Files\Inspirstar\IS02\Firmwares. A firmware file must have .update as its extension name. The file name usually contains the model name, hardware release and firmware release.

To start firmware upgrade,

- You will be prompted to upgrade the firmware when Profile Editor is instructed to communicate with a connected IS02 machine and if a newer version of firmware is available. We suggest you perform the firmware upgrade.
- You can double click the firmware update file to bring up the firmware upgrade window.
- Use menu command in Profile Editor window: Tools -> Firmware Upgrade.
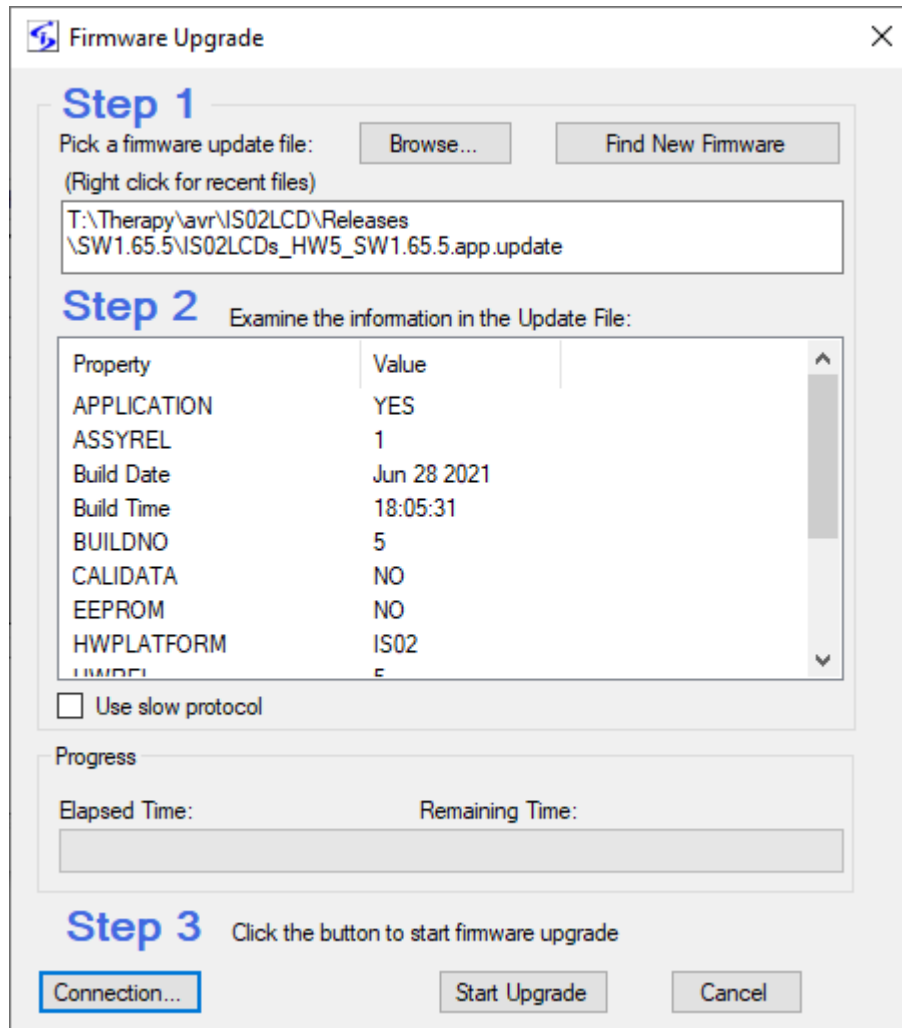
Figure 15   Firmware Upgrade

Follow the steps in the window to finish the upgrade:

Step 1: Click the Find New Firmware button to find the latest firmware version for your IS02 device. Or use the Browse button to locate the .update file manually, after you select the proper update file and click Open in the file browse window, the firmware information will show up in the Step 2 window.

You need to look at bottom label under the IS02 machine for the correct model name, or use Tools -> Product Information to see the hardware information. Look for model name and hardware release number in the Product Information window. The firmware update file must match the model name and hardware release number.

For example, you have a model of IS02BA of hardware release number 4. You need to look for update files with a file name IS02BA_HW4_SWx.xx_x.*.update.

Step 2: Examine the information in the update file. Key information to look at is model name MODEL, hardware release number HWREL, the SWREL for firmware version and its build number BUILDNO.

Step 3: Click button Start Upgrade to start the upgrade process.

Caution

During firmware upgrade, do not disconnect the communication port or remove the batteries. Doing so will end up with a non-functional IS02 unit. For IS02BA, if LED 1 to LED 5 are all turned on, the firmware in the IS02 is not completed or damaged. You need to restart and complete the above firmware upgrade steps to bring the IS02 back to functional.

3.7.8 Register Software License

To check existing software license or to register a license for a new software feature, use menu Help -> Register License, the following window will pop up. The window will pop up when you try to use a feature that you don't have a license.
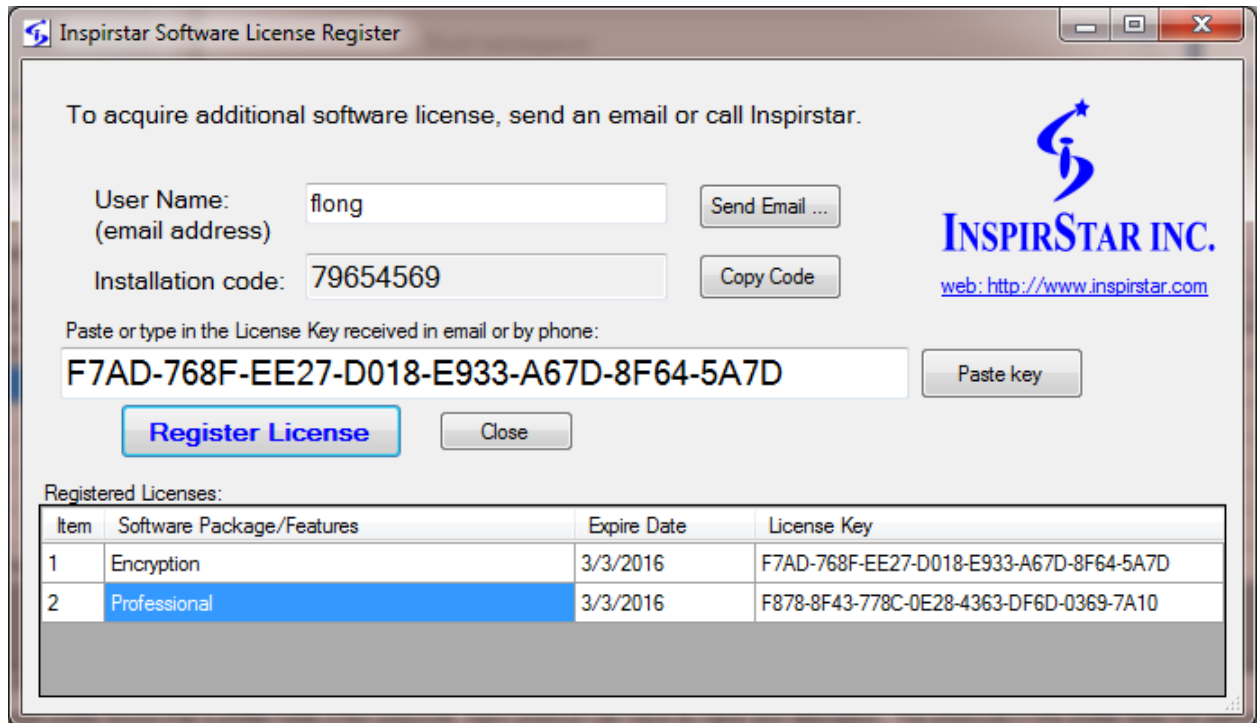
Figure 16 License Registration Window

If you don't have a license or want to purchase a new license, click on button , your email client software will pop up with a email draft to sales@inspirstar.com. The user name and the installation code is populated in the email body. You can add some other information then send the email for a software license.

3.8 Menus and Tool Bars

3.8.1 File Menu

The Profile menu has utilities for operations on profiles.

New Profile: Start an empty profile with five protocols. There are no frequency pairs in each protocol. You will be prompted to save the current profile if it has been modified.
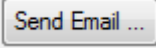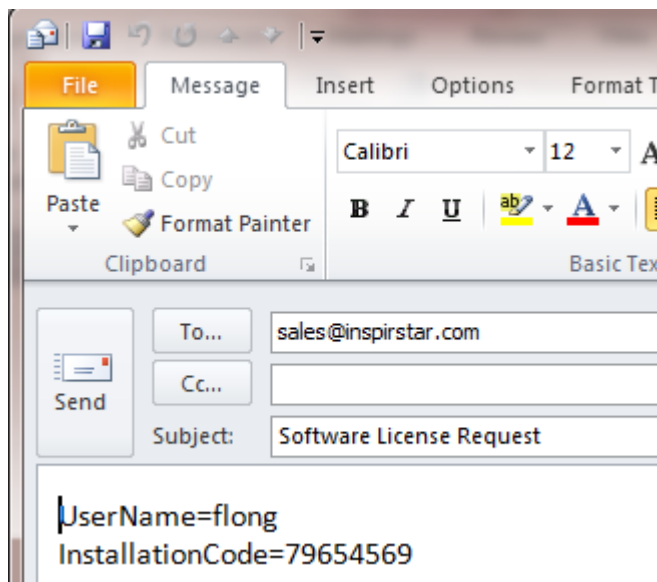
Create Profile From: Create a new profile by using existing protocols from the current opened profile. A new profile window will pop up.

Open Profile: Open an existing profile. By default, a profile has the extension name of ".profile". You will be prompted to save the current profile if it has been modified.

Open Examples: Open example profiles. A few example profiles are installed.

Close Profile: Close the current profile and start a new profile. You will be prompted to save the current profile if it has been modified.

Save Profile: Save the current profile to a file. By default, a profile has the extension name of ".profile".

Save Profile As: Save the current profile with a different name. By default, a profile has the extension name of ".profile".

Print: Print current profile on a printer.

Print Preview: Preview the printing result of the current profile screen before printing.

Print with Protocols: Print the profile with all protocols when this menu item is checked.

Print with Frequency Lines: Print all frequency lines for each protocol.

Page Setup: Setup the page formats for printing.

Recent Profiles: List of most recently used (MRU) profiles. Click one of the files in the list to open it.

Exit: Exit Inspirstar IS02 Profile Editor. You will be prompted to save the current profile if it has been modified.

3.8.2 Edit Menu

The Edit Menu Menu has editing commands and utilities for protoocls

Cut: Remove the selected protocols and put them into Windows Clipboard for paste.

Copy: Copy the selected protocols to Windows Clipboard.

Paste(Insert): Insert the protocols in Windows Clipboard before the selected protocols.

Select All: Select all protocols listed in this window.

Global Find: Find frequency pairs with certain parameters.

Global Change: Change one or more parameters of all frequency pairs in selected protocols.

3.8.3 Tools Menu

Read Profile From IS02…: Read the profile from IS02. The current profile will be overwritten. You will be prompted to save the current profile if it has been modified. For details, please refer to 3.7.2.1 To Read Profile from Inspirstar IS02 on page 34.
Write Profile To IS02…: Write the current profile to Inspirstar IS02. For details, please refer to 3.7.2.2 To Write Profile to Inspirstar IS02 on page 35.
Erase Profile In IS02…: Erase the user profile in IS02. For details, please refer to 3.7.2.3 To Erase Profile in Inspirstar IS02 on page 37.
Memory Configuration…: allocates more or less memory for protocols.
Change IS02 Settings…: changes the settings in Inspirstar IS02 PMS.
Product Information…: shows the model number, serial number, firmware version, battery status etc.
Firmware Upgrade…: upgrades the firmware for Inspirstar IS02 PMS.
Setup Communications: setup the port and communications between PC and Inspirstar IS02 PMS.
Run Profile in Real Time Control Panel: Run this profile in Real Time Control Panel.

3.8.4 Help Menu

Contents/Index/Search: Open the on-line user's guide for Inspirstar Profile Editor.
User's Manuals: Opens the manual of Inspirstar IS02.
Check for Updates: connects to internet and checks it there is a software update.
Check for News: connects to internet and checks it there is a news from Inspirstar Inc.
Register License: Register software license
About: About the version of Profile Editor.

3.8.5 Tool Bars

Place you mouse pointer on the icons on the tool bar for one second, you will see the associated menu command for the icon.

3.8.6 Shortcut Keys

Most of the menu commands have shortcut keys for quick access. The shortcut keys are shown at the right side of the each menu items, if there is a shortcut available to that menu command.

Table 1   Profile Editor Shortcut Keys

Operation	Shortcut Keys	Operation	Shortcut Keys
Profile Commands		**Protocol Commands**	

Operation	Shortcut Keys	Operation	Shortcut Keys
New Profile	Ctrl+N	Import	Ctrl+I
Open Profile	Ctrl+O	Export	Ctrl+E
Save Profile	Ctrl+S	Replace	Ctrl+L
Close Profile	Ctrl+F4	Add New	Insert
Print	Ctrl+P	Remove	Delete
		Move Up	Ctrl+ Up
Write Profile to	Ctrl+W	Move Down	Ctrl+ Down
Read Profile from	Ctrl+R	Edit Protocol 1	Ctrl+1
		Edit Protocol 2	Ctrl+2
Edit Commands		Edit Protocol 3	Ctrl+3
Cut	Ctrl+X	Edit Protocol 4	Ctrl+4
Copy	Ctrl+C	Edit Protocol 5	Ctrl+5
Paste(Insert)	Ctrl+V	Edit Protocol 6	Ctrl+6
Select all	Ctrl+A	Edit Protocol 7	Ctrl+7
Global Find	F3	Edit Protocol 8	Ctrl+8
Global Change	Ctrl+G	Edit Protocol 9	Ctrl+9

4 Protocol Editor

4.1 Start Protocol Editor

To start the Inspirstar Protocol Editor,

- To edit a protocol in a profile, you need to start the Protocol Editor from a Profile Editor. Select a protocol in the Profile Editor window and click on Edit button, or double click the line of the protocol.
- To start with a blank standalone protocol, use Windows Start -> All Programs -> Inspirstar -> Protocol Editor;
- To edit a standalone protocol file in disk, browse to a protocol file using the Windows Explorer; double click on the file with extension .protocol.

4.2 Window Layout

The Protocol Editor window is shown in the following picture. Explanation of the windows areas is as follows from the top to the bottom of the window.
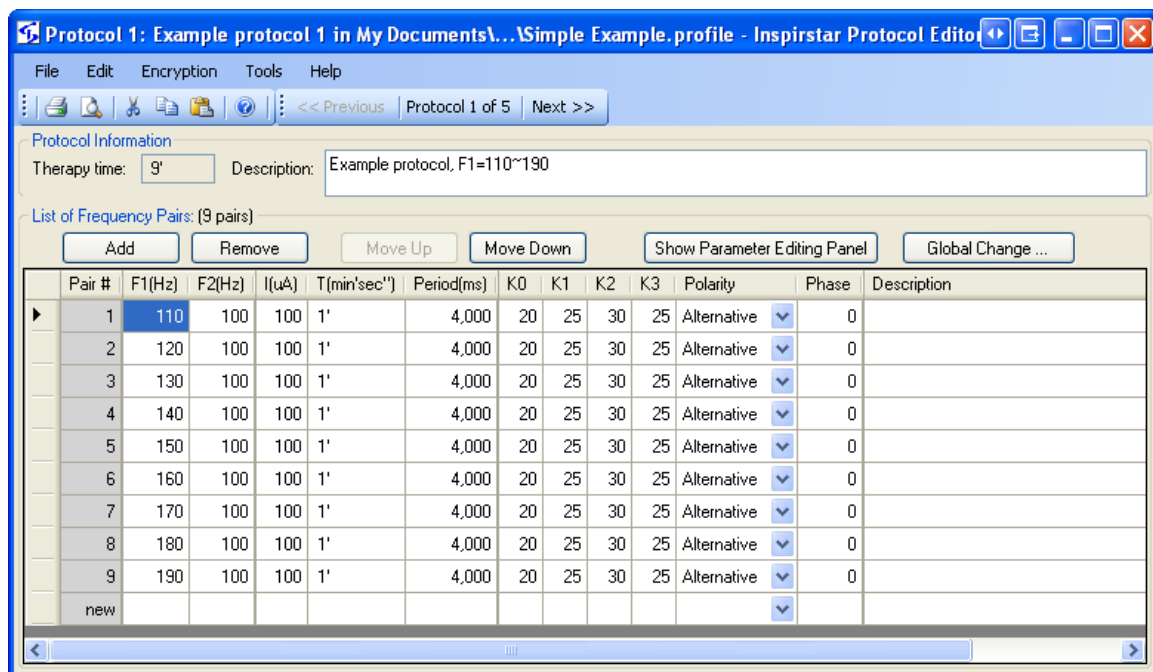

Figure 17   Protocol Window

Menus and Tool Bars

You can use the menus and tool bars to perform actions on this protocol and frequency pairs. More explanation on menus and tool bars can be found in section 4.8 Menus and Tool Bars

Frequency Pairs Operation Tools

Most frequently used tools for frequency pair manipulation are shown above the frequency pair list.
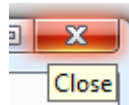
Frequency Pair List

The frequency pairs in the protocol are listed in the box. The values in some cells in the table can be changed directly in the table.
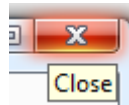
4.3 Start with a Protocol

4.3.1 To Edit a Protocol in a Profile

To start the Protocol Editor in a profile,
1. Click to select a protocol for editing.

2. Click on tool button Edit, or double click the line of the protocol, the Protocol Editor window will pop up.
3. After you finish editing the protocol, you may click menu command File -> Close and back to Profile, or directly click the X Close of the window. The changes to the protocol will be saved when you save the profile.

4.3.2 To Edit a Standalone Protocol

TO edit a standalone protocol, do one of the following:
- Use the menu command File -> Open Protocol; or click the Open Protocol icon on the tool bar, to load an existing protocol.
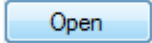
- Use Windows Explorer to browse to a protocol file, double click the protocol to open it. A protocol file ends with extension name .protocol.

4.3.3 To Merge a Protocol

You can merge the frequency pairs in another protocol in the current protocol. When a protocol is merged with the current protocol, all the frequency pairs in the merged

protocol will be inserted before the current line.

To merge a protocol with menu commands,
1. Select a line in current protocol window. This is the line that the frequency pairs in the merged protocol will be inserted before.
2. Use the menu command File -> Merge Protocol, then file open dialog, browse to

   the protocol file in disk to be merged, click button [Open].

To merge a protocol with Windows Drag and Drop,
1. Use Windows Explorer to browse to the protocol file to be merged, drag (click the file and hold it and move the mouse) it into the frequency pair list table. A red line will indicate the point for the frequency pair to be inserted at.
2. Drop the file by releasing the mouse button. All the frequency pairs in the protocol file will be merged (inserted) in the current protocol.

To merge a protocol with Copy, Cut and Paste feature,
1. In Profile Editor window, select a protocol and do copy (Ctrl+C) or cut (Ctrl+X).
2. Switch to Protocol Editor window, select the line for the merge, then do paste (Ctrl+V), the protocol in Windows clipboard will be inserted to the current protocol.

Caution

If the merged file is a profile with multiple protocols, all protocols in the profile will be merged into current protocol.

4.3.4 To Save a Protocol

When the protocol belongs to a profile, you can only export the protocol to a disk file.

To export the current protocol to a disk file,
- Use the menu command File -> Export Protocol As, and give a new name for the file.

When the protocol is a standalone protocol, you can save it with its current filename, or save it with a new name.

To save the current protocol,
- Use the menu command File -> Save Protocol; or click the Save Protocol icon

  on the tool bar, to save the current protocol.

To save the current protocol with a new name,

- Use the menu command File -> Save Protocol As, and give a new name for the file.

4.3.5 To Print a Protocol

To print the current protocol, use menu command File -> Print or tool bar button 🖨, the Print dialog will pop up.

To Preview the print of current protocol, use menu command File -> Print Preview or tool bar button 🔍, the Print Preview window will show up.
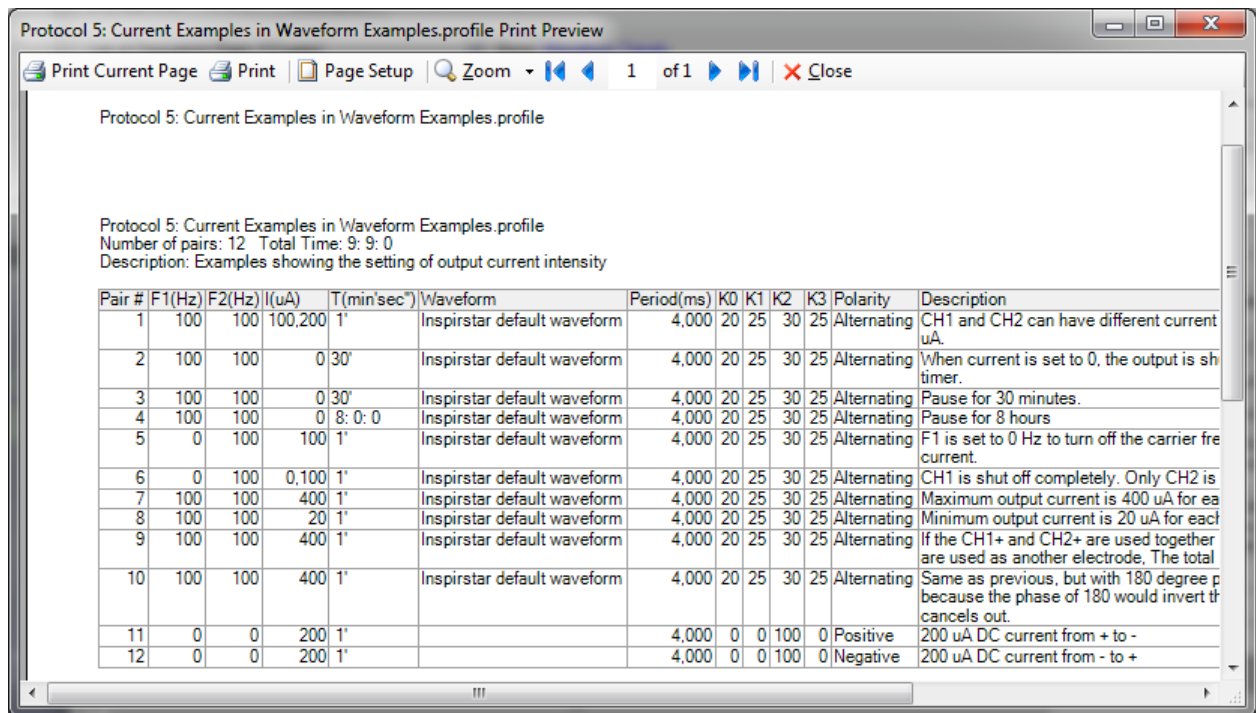
To change the orientation of the page, or adjust the margins on page, click on menu File -> Page Setup or click on the Page Setup button on the Print Preview window.
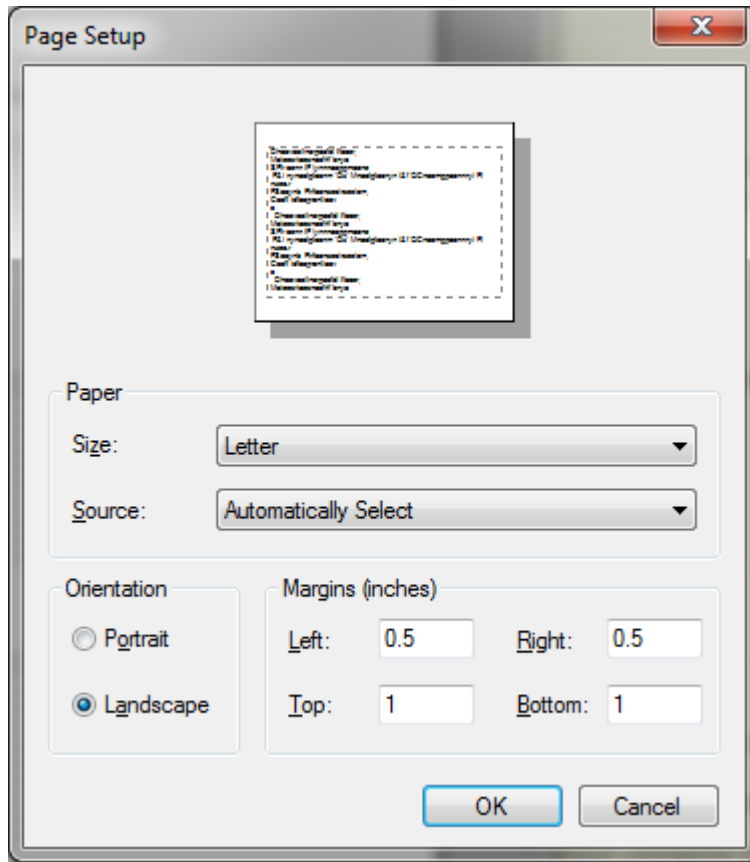
4.4 Organize Frequency Pairs in a Protocol

4.4.1 To Select Frequency Pairs

All frequency pairs of the current protocol are listed in the frequency pair table. Each line in the table shows the parameters of one frequency pair. The number of the frequency pairs is shown in the title List of Frequency Pairs: (7 pairs) .

You can select one frequency pair to edit its parameters. Or you can select one or multiple frequency pairs in the list for operations such as cut, copy, remove and export. Selected frequency pairs will be highlighted. The current line is marked with an arrow. The insertion point is always at the current row.

Pair #	F1(Hz)
1	100
2	200
▶ 3	300
4	400
5	500
6	600
7	700

- To select one frequency pair, click the row header of one pair. The selected row will be highlighted. The current row will be marked with an arrow.

Pair #	F1(Hz)
1	100
2	200
3	300
4	400
▶ 5	500
6	600
7	700

- To select multiple frequency pairs in consecutive range, click the row header of the first pair with the left mouse button, then hold down the **SHIFT** key on the keyboard, and then click the row header of another frequency pair in the list. The frequency pairs between the two clicks will be selected.

Pair #	F1(Hz)
1	100
2	200
3	300
4	400
5	500
▶ 6	600
7	700

- To select multiple frequency pairs in scattered locations, hold down the **CTRL** key on the keyboard, then click the row headers of the frequency pairs you want to select.

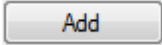| Pair #	F1(Hz)
1	100
2	200
3	300
▶ 4	400
5	500
6	600
7	700
new	

- To select all frequency pairs in the list, use command "Select All frequency pairs" in the Frequency Pairs menu; or press **CTRL+A**.

4.4.2 To Add a New Frequency Pair

To add a frequency pair in the middle of the list,
1.   Select a frequency pair as the reference,
2.   Do one of the following,

- Click on tool bar button [Add]
- Or Press Insert key
- Or Press Ctrl + "+" key

3.   The reference frequency pair will be duplicated and added after the current line.

To add a new frequency pair at the end of the protocol,
1.   Move the cursor to last row of the table,
2.   Enter new values in any of the blank cells. And press enter or move the cursor off the cell.

To add a group of frequencies like 12,34,56/78,90
1.   Move the cursor to F1 cell of a row,
2.   Enter frequencies of F1 followed by frequencies of F2, for example **12,34,56/78,90**. And press enter or move the cursor off the cell.

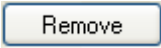|	Pair #	F1(Hz)	F2(Hz)	I(uA)	T(m
	1*	100	100	100	1'
✎	2*	6/78,90	100	100	1'
	new				

3.   6 lines will be added with the combination of the F1 frequencies with F2 frequencies

	Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")	Waveform	Period(ms)	K0	K1	K2	K3	Phase	Polarity	Description
	1*	100	100	100	1'	Sharp	2,500	0	5	95	0	0	Alternating	
	2*	12	78	100	1'	Sharp	2,500	0	5	95	0	0	Alternating	Begin of Group 12,34,56/78,90
▶	3*	12	90	100	1'	Sharp	2,500	0	5	95	0	0	Alternating	Body of Group 12,34,56/78,90
	4*	34	78	100	1'	Sharp	2,500	0	5	95	0	0	Alternating	Body of Group 12,34,56/78,90
	5*	34	90	100	1'	Sharp	2,500	0	5	95	0	0	Alternating	Body of Group 12,34,56/78,90
	6*	56	78	100	1'	Sharp	2,500	0	5	95	0	0	Alternating	Body of Group 12,34,56/78,90
	7*	56	90	100	1'	Sharp	2,500	0	5	95	0	0	Alternating	End of Group 12,34,56/78,90
	new													

4.4.3 To Remove Frequency Pairs
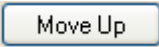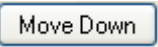
To remove frequency pairs from the protocol,
1.   Select the frequency pairs in the list,
2.   Do one of the following,

- Click on tool bar button [Remove]
- Or Press Delete key
- Or Press Ctrl + "-" key
3. All selected frequency pairs will be removed.

4.4.4 To Move Frequency Pairs

You can change the order of frequency pairs in a protocol by using buttons or editing commands.

Use [Move Up] or [Move Down] buttons

1. Select the frequency pairs you want to change the order,

2. Click the [Move Up] or [Move Down] button.

You can select multiple frequency pairs and move them all together. This method can only be used to move frequency pairs within a protocol.

Use cut and paste
1. Select the frequency pairs you want to move,
2. Cut (Ctrl+X) the selected frequency pairs into clipboard.
3. Select a line for the new position,
4. Paste (Insert, Ctrl+V) the frequency pairs from clipboard.

This method can be used to move frequency pairs within a protocol and between protocols.

Use Export and Import methods
1. Select the frequency pairs you want to move
2. Use menu command Edit -> Export Selected Frequency Pairs ," to export the selected frequency pairs into a file.
3. Select a line for the new position,
4. Use menu command Edit -> Import Frequency Pairs to import the exported frequency pairs.

This method can be used to move frequency pairs between protocols, and between profiles.

TIPS

You can open multiple instances of Inspirstar Protocol Editor so you can cut and paste frequency pairs between protocols.

4.4.5 To Cut, Copy and Paste Frequency Pairs

To cut, copy and paste frequency pairs from/to Windows clipboard,

1. Click the row header to select a single frequency pair or multiple frequency pairs in the protocol.

2. Click on tool button [scissors icon], or press Ctrl-X to cut the selected protocols off the protocol. The selected frequency pairs will be removed from the protocol to the Windows clipboard.

3. Click on tool button [copy icon], or press Ctrl-C to copy the selected frequency pair. The selected frequency pairs will be copied to the Windows clipboard.

4. Click on tool button [paste icon], or press Ctrl-V to paste frequency pair from Windows clipboard into the protocol.

4.4.6 To Import Frequency Pairs

If you have export frequency pairs to a file in disk, you can import the frequency pairs into the protocol.

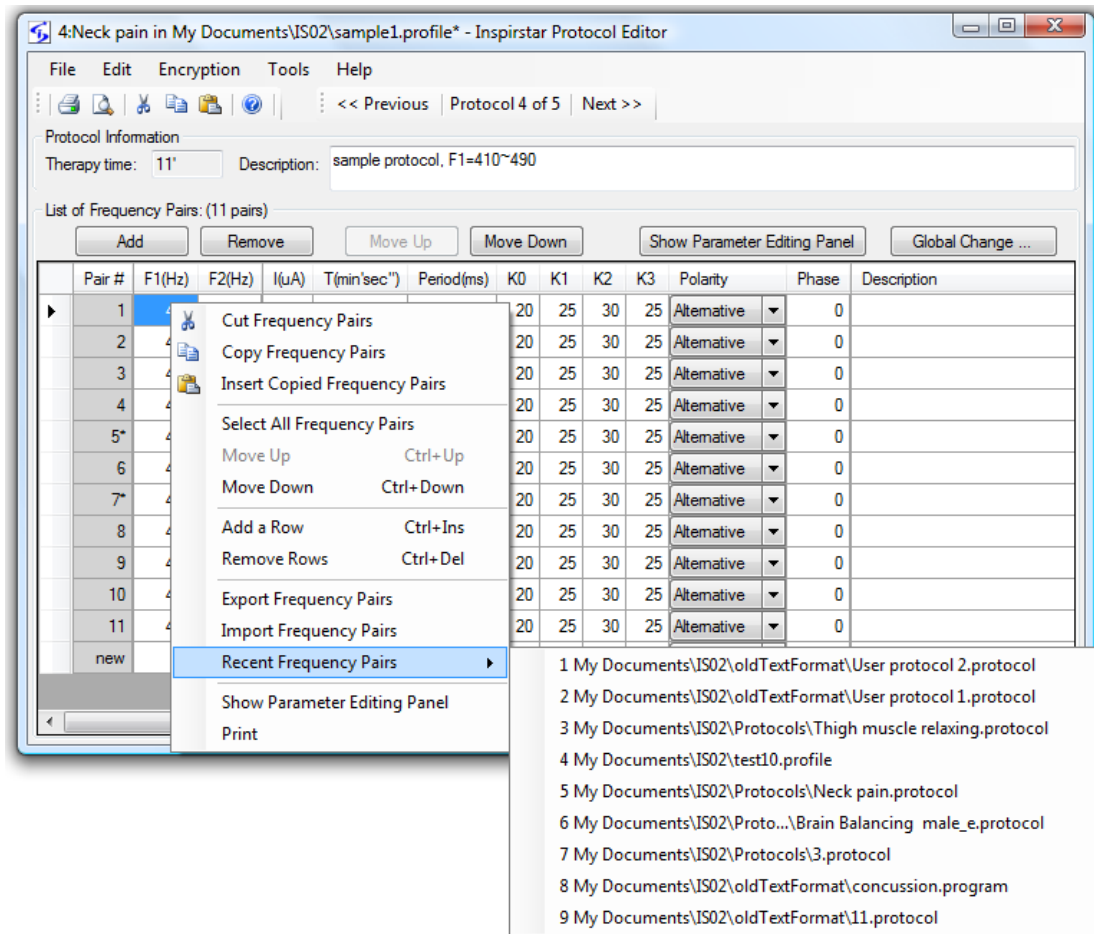To import frequency pairs into the protocol,
- With menu command,
    1. Use menu command Edit -> Import Frequency Pairs,
    2. Browse to select an exported frequency pair file,
    3. Select OK. The frequency pairs in the file will be imported to current protocol after the current line, i.e. the operation is "insert after".
- With Drag-Drop operation
    1. Use the Windows Explorer to browse to the file to be imported,
    2. Hold the mouse button to drag the file into the Protocol Editor window, there will be a red line for the insertion point in the table when the file is in the table area.
    3. Drop the file into the table of frequency pairs. The frequency pairs in the dragged file will be imported at the insertion point that was highlighted by a red line.

NOTE

You can import a protocol file, or a profile that contains multiple protocols. When the file contains multiple protocols, all frequency pairs will be imported in sequence.

TIPS

You can import a recently used protocol file with a right click the table and select a file in the list.

4.4.7 To Export Frequency Pairs to a File

You can export frequency pairs in the protocol to a protocol file in disk for other uses. To export a frequency pairs,

1. Click the row header to select a frequency pair or multiple frequency pairs.
2. Use menu command Edit -> Export Selected Frequency Pairs, a file browsing dialog opens up.
3. Browse to a folder and give a name for the protocol file. By default, the frequency F1 and F2 are used in the file name.
4. Click SAVE to finish exporting the frequency pairs.

4.4.8 To Move Frequency Pairs between Protocols or Profiles

To move or duplicate frequency pairs between protocols or profiles, you can choice the following methods.

Through Cut, Copy and Paste:

1. Click the row header to select frequency pairs in the first protocol.

2. Click on tool button , or press Ctrl-C to copy the selected frequency pairs. The selected frequency pairs will be copied to the Windows clipboard.

3. Open another protocol, or move to another protocol in the same profile.

4. Click on tool button , or press Ctrl-V to paste the frequency pairs from Windows clipboard into the second protocol.

Through Export and Import:

1. Click the row header to select frequency pairs in the first protocol.

2. Use menu command Edit -> Export Selected Frequency Pairs, or press Ctrl-E to export the selected frequency pairs to a disk file.

3. Open another protocol, or move to another protocol in the same profile.

4. Use menu command Edit -> Import Frequency Pairs, or press Ctrl-I to import the protocol file which was exported from the previous step.

<mark>NOTE</mark>

You can open two Protocol Editor windows and copy and paste frequency pairs between the two protocols.

4.4.9 To Repeat Frequency Pairs

To repeat some frequency pairs in a protocol,

1. Select rows of frequency pairs for the repeat, for example, row 2,3 and 4

Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec'')
1*	110	100	100	1'
2*	120	100	100	1'
3*	130	100	100	1'
4*	140	100	100	1'
5*	150	100	100	1'

2. Right click in the box, a context menu will pop up. Select Repeat Selected Rows.

3. A loop is created for the selected rows.

4. To change the number of times to repeat, select cell "for 1 times", and type in a new number.

5. To change the last row in the loop, select the "To" cell in the repeat row, and type in a new number.

HINT

To see more examples about repeat or loops, open the example profile "Loop Examples.profile" from menu File -> Open Examples in Profile Editor window.

4.4.10 To Copy/Paste Contents of Frequency Pairs to/from Excel Spreadsheet

The contents of protocol can be selectively copied and pasted between Excel spreadsheet.

To copy cells to Excel Spreadsheet:

1. Select the cells to be copied. Do not select row headers.

Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")
1	100	200	100	1'
2	0.1	999.9	100	1'
3	0.1	999.9	100	1'
4	0	150	100	1'
5	0	100	0,100	1'
new				

2. Use menu command Edit -> Copy, or press Ctrl-C to copy the selected cells.
3. Open Excel spreadsheet, select the cell to be pasted to.
4. Press Ctrl+V to paste the contents into spreadsheet.

	A	B	C
1			
2		100	200
3		0.1	999.9
4		0.1	999.9
5		0	150
6		0	100
7			
8			

To copy cells from Excel Spreadsheet:

1. Create contents in Excel spreadsheet, with the same structure as in Protocol Editor. Select the contents to be copied. Press Ctrl+C.

	A	B	C
1		F1	F2
2		110	200
3		120	200
4		130	200
5		140	200
6		150	300
7		160	300
8		170	300
9		180	300
10			

2. In Protocol Editor, locate the starting cell to be pasted into.

Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")
1	100	200	100	1'
2	0.1	999.9	100	1'
3	0.1	999.9	100	1'
4	0	150	100	1'
5	0	100	0,100	1'
new				

3. Press Ctrl+V to paste the contents. New values will be pasted into the existing lines and replace the old values. New lines will be added when the pasted values has reached the end of protocol.

Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")
1	100	200	100	1'
2	0.1	999.9	100	1'
3	0.1	999.9	100	1'
4*	110	200	100	1'
5*	120	200	0,100	1'
6*	130	200	0,100	1'
7*	140	200	0,100	1'
8*	150	300	0,100	1'
9*	160	300	0,100	1'
10*	170	300	0,100	1'
11*	180	300	0,100	1'

4.4.11 To Include other protocols

The Include feature allows to run a group of protocols as one line in a protocol. Right click a row in Protocol Editor to include other protocols as one of the "sub protocol".
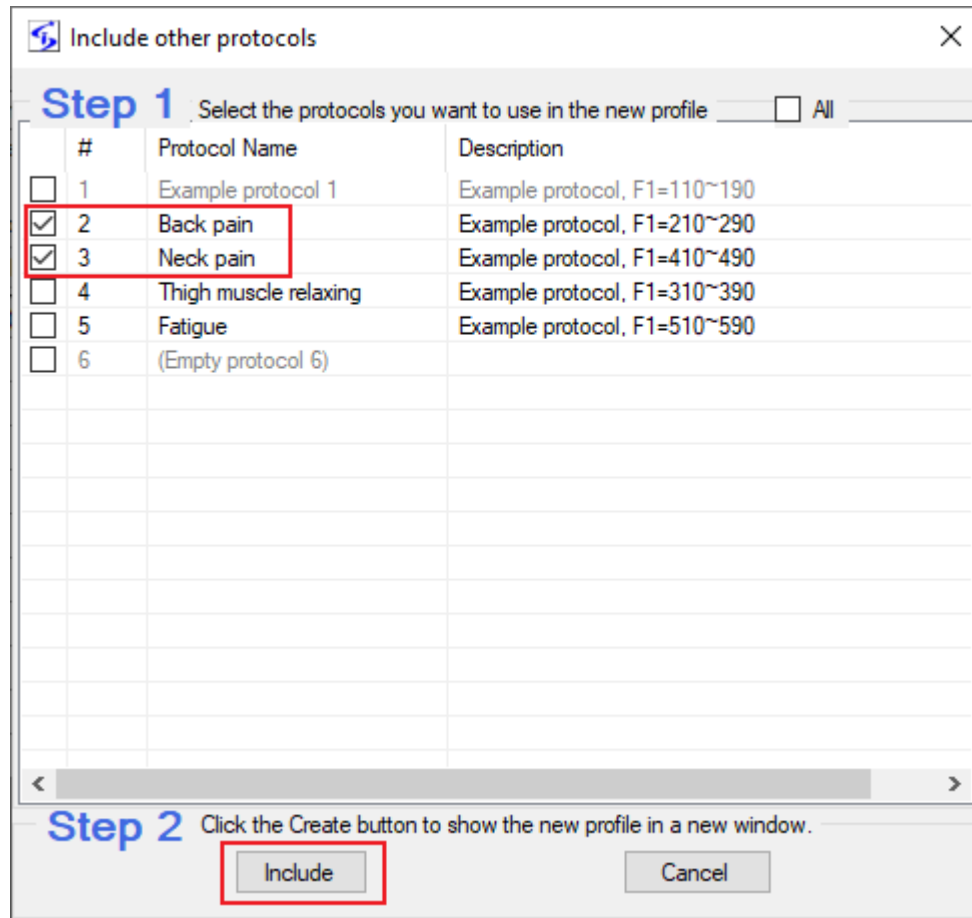
To include other protocols in this protocol,

1. Click one of the cell of the row for the included protocol.

		Add		Remove		Move Up		Move Down			Show Parameter Editing Panel					Global
	Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")	Waveform		Period(ms)	K0	K1	K2	K3	Phase	Polarity
▶	1	110	100	100	1'	Inspirstar default ...		4000	20	25	30	25	0	Alternating
	2	120	100	100	1'	Inspirstar default ...		4000	20	25	30	25	0	Alternating

2. Click the right mouse button for the context menu, select Include other Protocols

✂	Cut	
📋	Copy	
📋	Paste	
	Select All Frequency Pairs	
	Move Up	Ctrl+Up
	Move Down	Ctrl+Down
	Add a Row	Ctrl+Ins
	Remove Rows	Ctrl+Del
	Repeat Selected Rows	Ctrl+R
	Include other Protocols	
	Export Frequency Pairs	
	Import Frequency Pairs	
	Recent Frequency Pairs	▶
	Run in Real Time Control Panel	
	Show Parameter Editing Panel	
	Print	
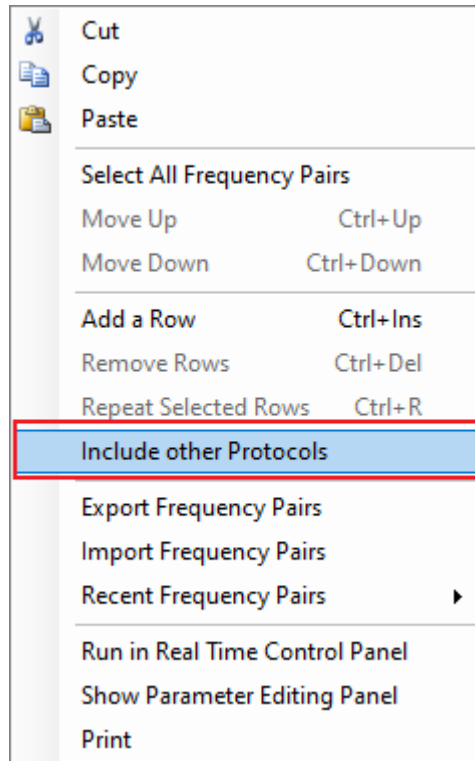
3. Select the protocols to be included, then click Include button.

4. The selected protocols will be included in this protocol. The name of the included protocol is shown in the "waveform" column.

Pair #	F1(Hz)	F2(Hz)	I(uA)	T(min'sec")	Waveform	Period(ms)	K0	K1	K2	K3	Phase	Polarity	Description
▶ 1	Include	#2	100	27'	Back pain								include protocol #2 "Back pain"
2	Include	#3	100	9'	Neck pain								include protocol #3 "Neck pain"
3	110	100	100	1'	Inspirstar default ...	4000	20	25	30	25	0	Alternating	

NOTE

If an "include" loop is made because the included protocol also includes the including protocol, the IS02 device will ignore the included protocol during running.

NOTE

The IS02 device needs to have firmware version 1.70 or higher for this Include feature. The feature is not supported for IS02BA and IS02AA.

HINT

To see more examples about repeat or loops, open the example profile "Batch(include) examples.profile" from menu File -> Open Examples in Profile Editor window.

The header of the row of protocols will have green background color if the protocol has included other protocols. The protocol line # will be displayed as Bold black if the protocol has been included by other protocols. Hoover the mouse pointer to the Line # cell to show the tips for the protocol. See illustration below.

Line # ▲	Protocol Name	Time	I(uA)	Beep	Description
1	simple include	2'30"	100	☑	including one protocol
2	multiple inlcudes	6'10"	100	☑	including multiple protocols, mixed with its own frequencies
3	nested includes	7'	100	☑	including a protocol which also included multiple protocols, mixed with its own frequencies
4	Morning treatment	3'	100	☑	a simple batch to run two treatment protocols
		6'	100	☑	a batch to run another batch and some other treatment protocols
		6'	100	☑	a batch to run another batch and some other treatment protocols
		9'	100	☑	a batch to run other nested batch protocols or simple batch protocols, or simple protocols
8	All treatments	10'30"	100	☑	a batch to run all batch protocols
9	(Empty protocol 9)	0'	0	☑	a reserved empty protocol slot for future batch protocols. Best to be placed from protocol number 1 to number 10 for easy access, especially for IS02BAs.

Protocol 4
Double-Click to edit the protocol.
This protocol has included other protocols.
This protocol has been included by 2 other protocol(s).

4.5 Find Frequency Pairs

To find frequency pairs with certain parameters in the protocol or in the profile, you can use the Global Find tool from Edit menu. The following dialog will show up.

Step 1: Check the parameters that you want to find, and give the value of the parameters. For example, the above window finds all the pairs with CH1 current of 0uA.

Step 2: Optional to specify the protocols as the find range. Use button Show Find Range or Hide Find Range to toggle the protocol selections. Check the protocols to be searched.

Step 3: Click the Find button to start the search. The found pairs is listed in the bottom box of the dialog. Click a row of the found pairs to see the containing protocol of the pair.

4.6 Change Parameters of Frequency Pairs

4.6.1 Using the Table

You can change the parameters for each frequency pair directly in the list table.

To select a cell
The selected cell is highlighted. The following example shows that the current Intensity of pair #2 is selected for editing.

Pair #	F1(Hz)	F2(Hz)	I(uA)
1	100	2.8	100
2	200	19	150

To change the value
You can enter the value into the cell when the cell is selected. The old value will be cleared. To edit the old value in the cell, you can press F2 to enter into edit mode to change the value.

The row header will be changed to pencil symbol [pencil] when a cell of the row is in editing.

After you finish editing the cell, you can simply move to other cells with arrow keys or press enter.

To change different values for CH2
Only the frequency for channel 2 is shown in a separate cell. All other parameters of ch1 and ch2 are sharing a cell. To use different values for channel 2, type in two values in the cell, separate the values with a comma. The first value is for channel 1, and the second value is for channel 2.

TIPS
You can use the parameter panels to change the values for channel 2. You will see how the two values are displayed in the cell. You can use the same format to enter values for both CH1 and CH2 directly in the table.

To change the polarity
With mouse: Click on the drop down arrow to select the desired polarity setting
With keyboard: Press F2 to enter into edit mode, then use up and down arrow to select the desired polarity setting.

4.6.2 To use Random Frequency for F1 or F2

The frequency for CH1 and CH2 can be specified as certain frequency within the range that IS02 supports. The frequency can also be specified as "Random Frequency". A random frequency is specified with a range of frequencies, and IS02 will choose one of the frequencies randomly at protocol run time.

Normal Frequency: F1 is 100Hz, F2 is 100Hz.

Random Frequency for F1: frequency low end is 100Hz, high end is 200Hz. Default granularity is 1 Hz. So the actual frequency at run time will be one chosen out of 101 frequencies.

Random Frequency for F1: frequency low end is 100Hz, high end is 200Hz, with 20Hz. So the actual frequency at run time will be one chosen out of 6 frequencies, namely 100, 120, 140, 160, 180, 200Hz.

HINT

To see more examples about random frequency, open the example profile "Random Frequency Examples.profile" from menu File -> Open Examples in Profile Editor window.

TIPS

You can repeat the Random Frequency to get different frequencies at run time for the same setting. See "To Repeat Frequency Pairs" for more details on repeat or loop.

4.6.3 Using Parameters Editor Panel

4.6.3.1   Parameters Editor Panel Overview
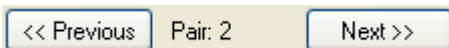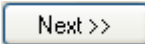
Click button Show Parameter Editing Panel to bring up the parameter editor panel as shown below. The panel will stay on top of the protocol window.
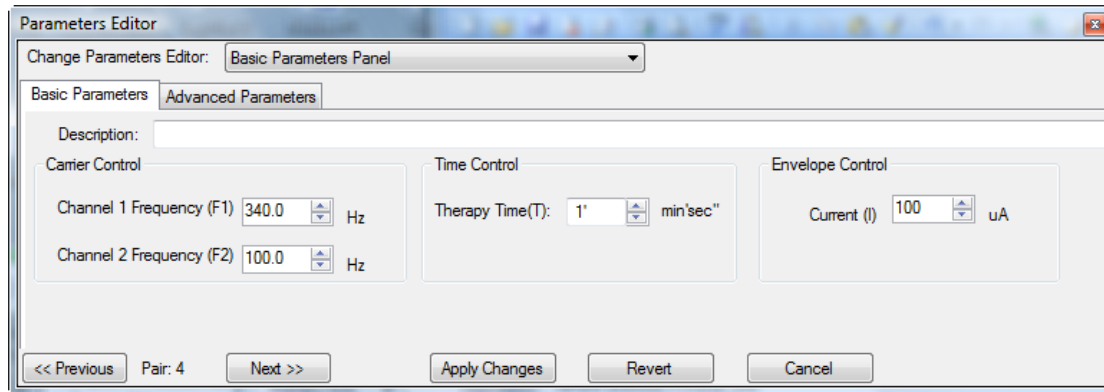
The parameter editor panel accommodates three different types of sub panels for your convenience on viewing or changing the parameters of a frequency pair. To switch between panels, click and choose from the drop down list on the top of the panel.
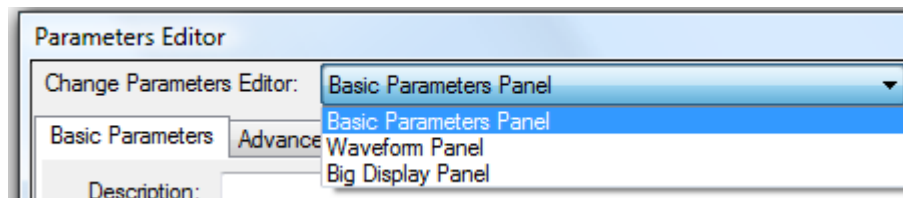
To change the parameters for a frequency pair in the parameters panel, you need to select the frequency pair in the frequency pair list box. The parameters for the selected frequency pair will be shown in the parameters panel for editing.

The sequence number (or pair number) of the frequency pair being shown is listed above the parameter panel like this . You can use button or to browse the frequency pair in the protocol.
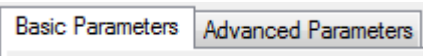
The changes will be applied to the frequency pair when you do one of the following,
- Press ENTER key after entering new values;
- Click on the button.
- Click on the Protocol Editor window;
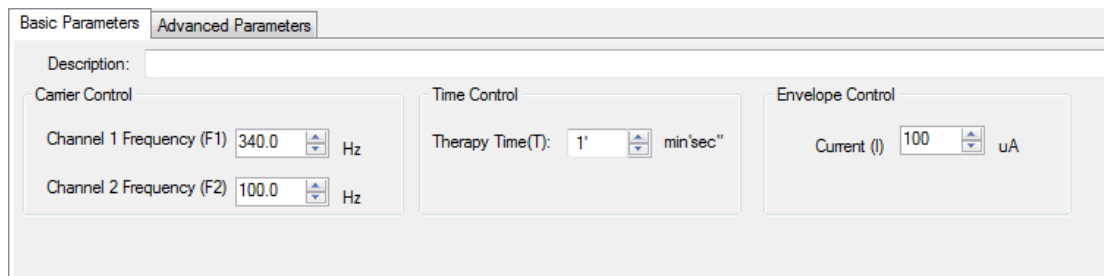- Click on the button or .

4.6.3.2   Basic Parameters Panel

There are two parameter pages on the parameters panel: Basic Parameters page and

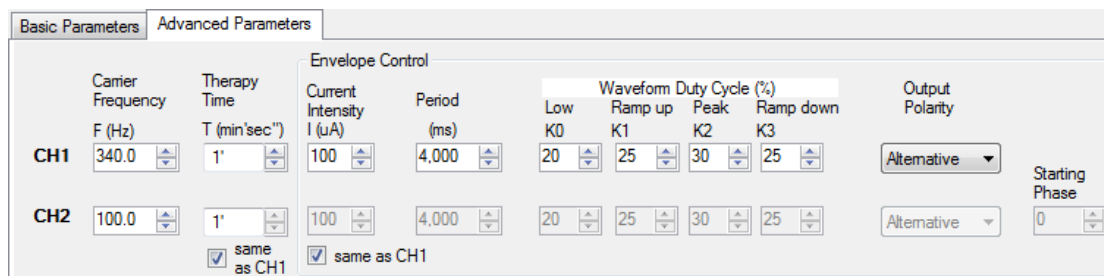Advanced Parameters page: | Basic Parameters | Advanced Parameters |

The Basic Parameters page allows you to change the most commonly used parameters of a protocol. You can change the carrier frequencies for each channel, the therapy time of the frequency pair, the envelope current and period for both channels, and the description of the pair, as shown in the following picture.

Usually the other parameters are the same for both channel 1 and channel 2. If they are not, you will be prompted to use the Advanced Parameter page for those parameters. You can click on the link to switch to the Advanced Parameters page, or click on tab for the Advanced Parameters page.

Advanced Parameters page lists all parameters for each channel. The page is shown as the following picture:
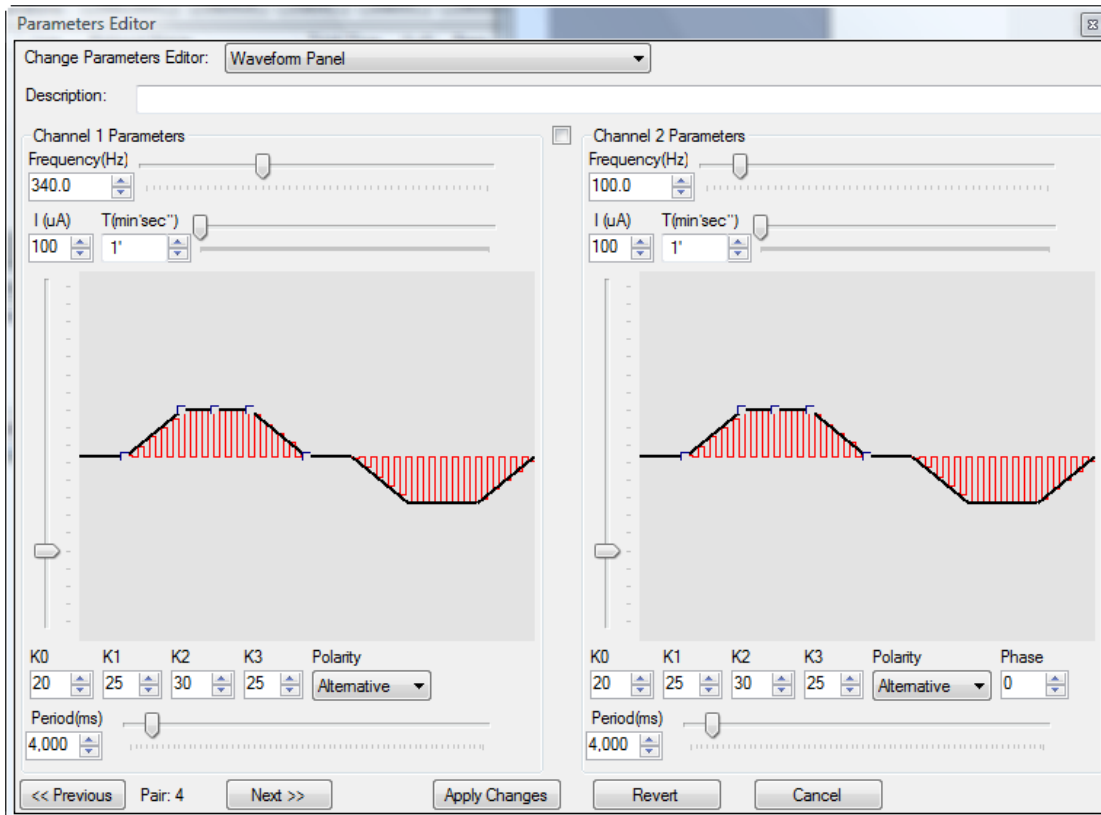

You can enter new values for each parameter, or use the up-down arrow to change the value.

4.6.3.3   Waveform Panel

The waveform panel provides visual display for the output waveform from IS02. You can see how the parameters change the output waveform.
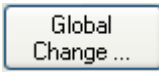
4.6.3.4　Big Display Panel

The big display panel shows selected parameters in very big format. This is useful when you want to see the parameters from distance. The panel also allows you to point the mouse at the digits and change the value with mouse wheel or click.
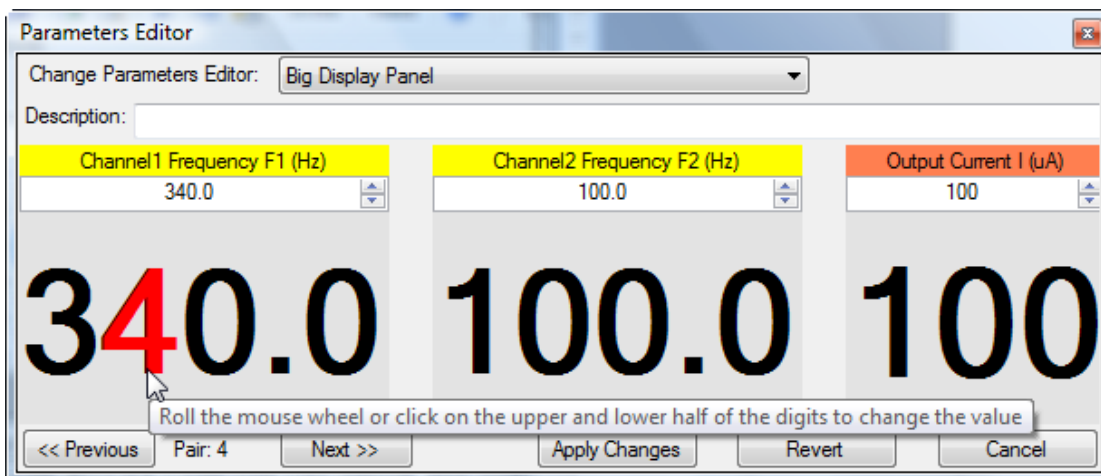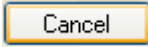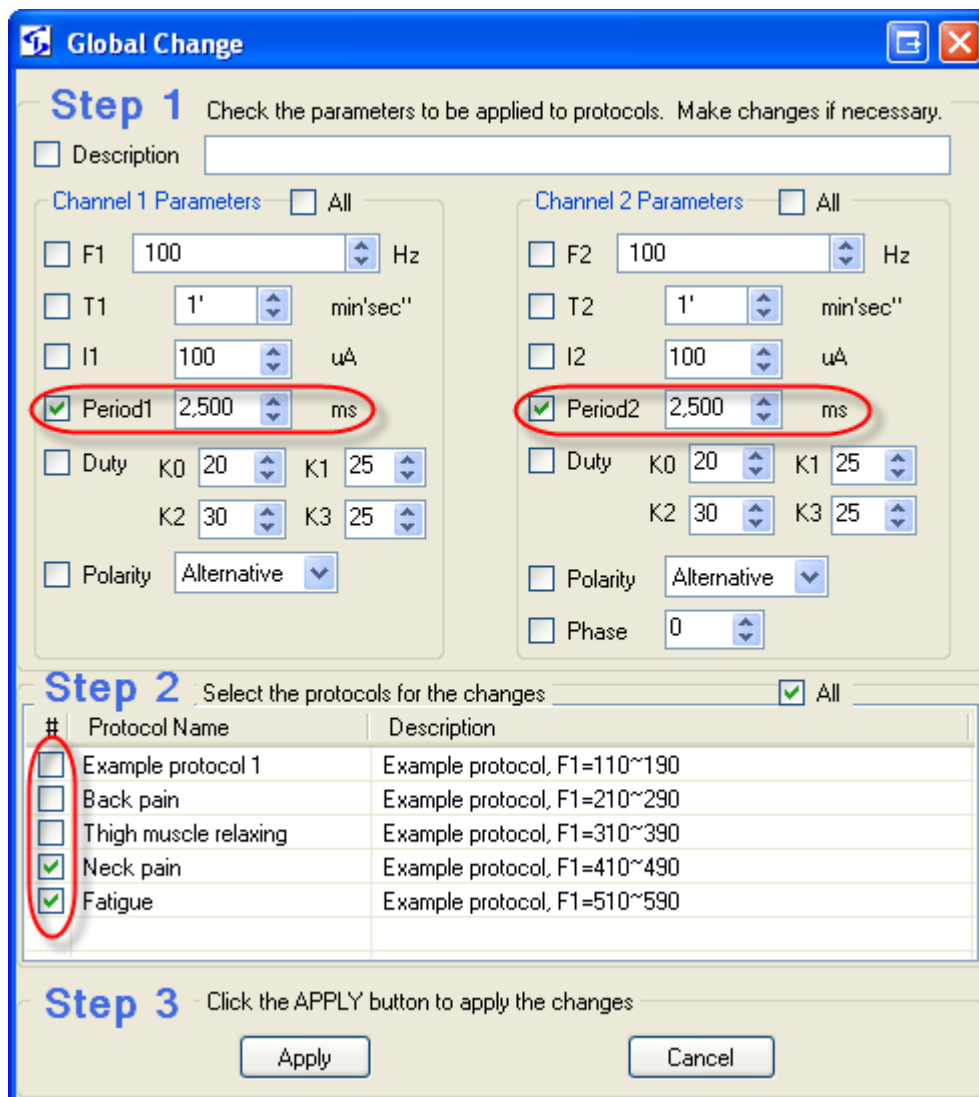
4.6.4 Using Global Change

To apply the parameters of the current pair to the other pairs in the protocol or the profile of the protocol, you can use the Global Change tool.

Step 1: Select the frequency pair that contains the parameters you want to apply to other pairs.

Step 2: Invoke the Global Change tool by clicking button [Global Change ...]; or select menu Tools -> Global Change. The Global Change window will show up as in Figure 18   Global Change.

Step 3: Follow the three steps in the window. When you have selected the parameters and protocols to apply, click on the [Apply] button to apply the change. Or [Cancel] to close the window without changing anything.

Figure 18   Global Change

The above example changes the period for both CH1 and CH2 to 2500ms for protocol 4 and protocol 5 in the profile.

4.6.5 To Change Default Parameters

When a line is inserted, the parameters of previous line will be carried over as the base for a new line. When a new line is added to a blank protocol, the line will have default parameters. The default parameters can be modified and saved for future use.

Browse to C:\Program Files\Inspirstar\IS02\Predefined\DefaultPair.protocol, and double click to open the protocol file.
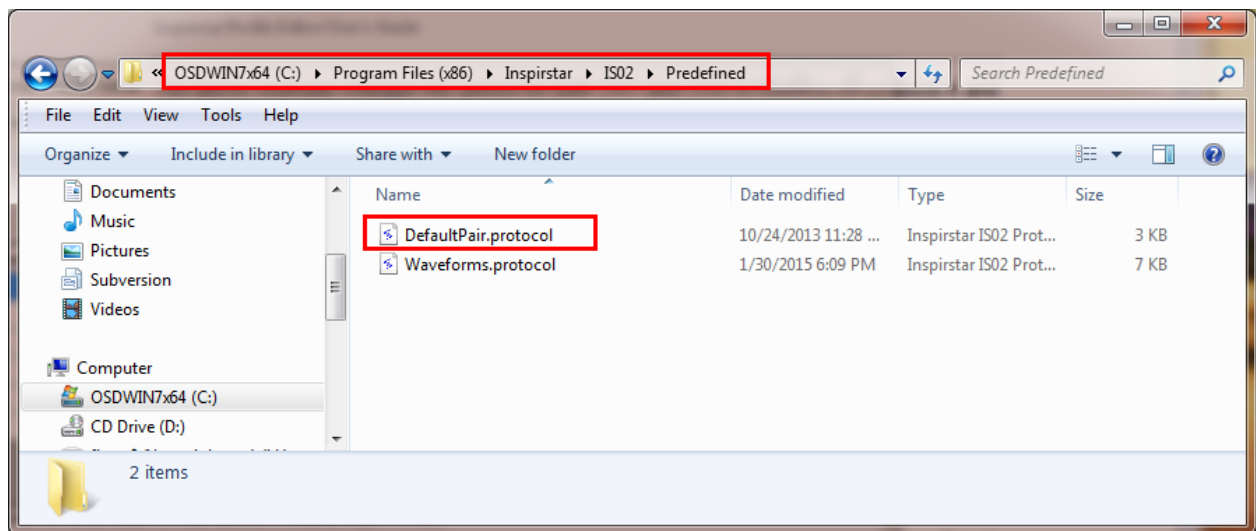
The first line in the DefaultPair.protocol gives the default parameters of a new line in a blank protocol. Change the parameters in the first line with new default parameters and save the file, the new parameters will be used as default.This default is shared for all users on the same computer.
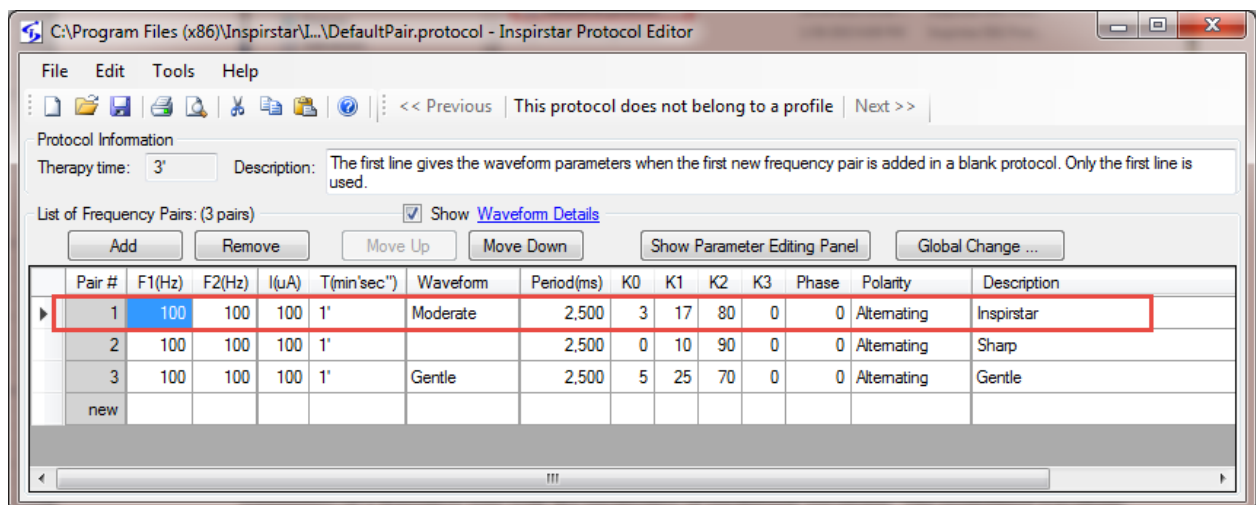
To save the new default parameters just for you on this computer, save the DefaultPair.protocol file to folder Documents\IS02\Predefined in your document library.
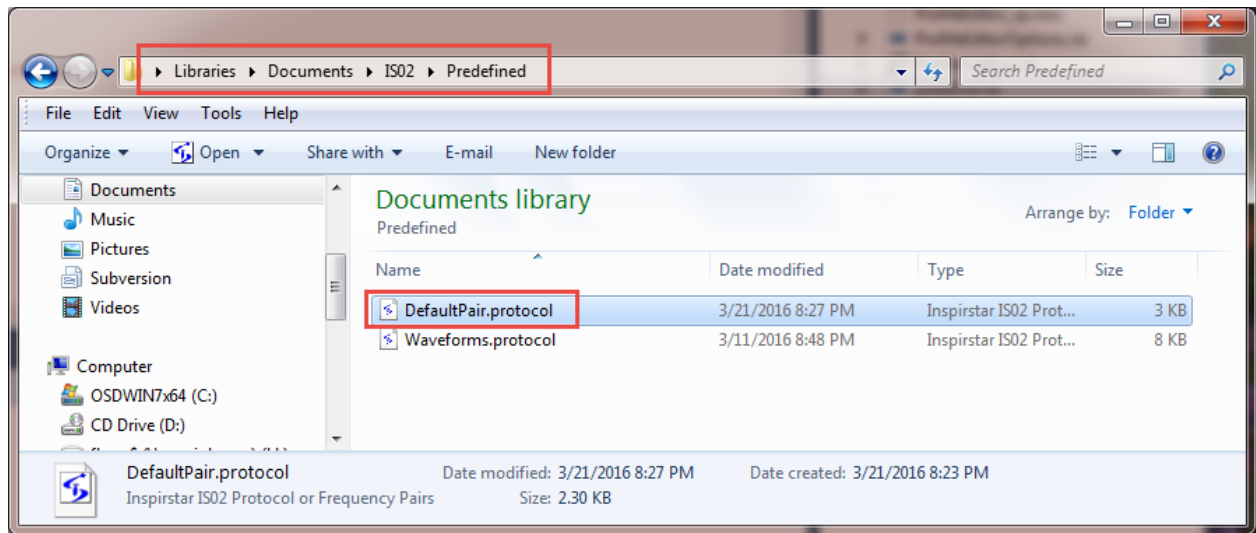
4.7 Manage Predefined Waveforms

A waveform can be pre-defined and given a name for ease of use. Protocol Editor will compare the parameters of a frequency pair with the parameters of predefined waveform. The predefined waveform name is displayed for the frequency pair when the parameters are matched. A predefined waveform is defined by the parameters of period, duty cycles K, phase and polarity.

4.7.1 To change parameters to a predefined waveform

In Protocol Editor window, select the cell under Waveform, and click the dropdown arrow to see all the pre-defined waveforms, select the desired waveform, the parameters of the waveform will be applied to the line.

4.7.2 To Show or hide waveform parameters

To show or hide the details of waveform parameters, check or uncheck the Show Waveform Details at the top of the waveform list.
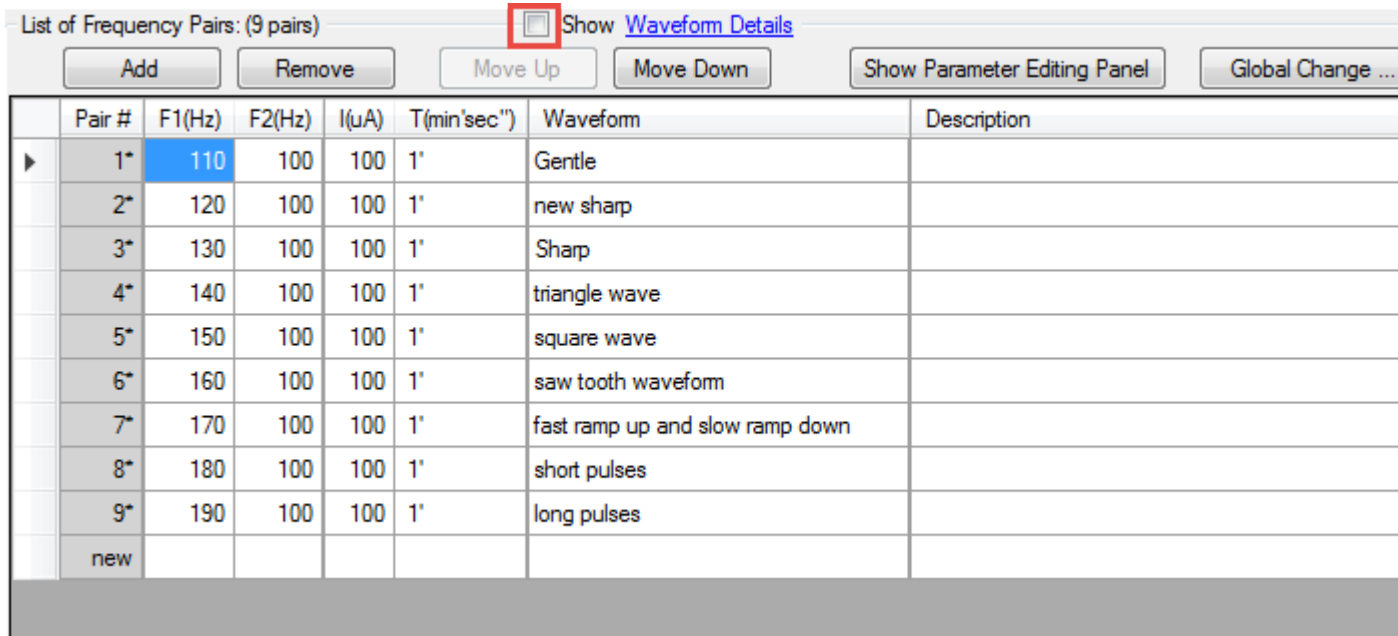
4.7.3 To select the parameters in a waveform

To select the defining parameters for a predefined waveform name, click on the Waveform Details, then check or uncheck the parameters to be used in a waveform.
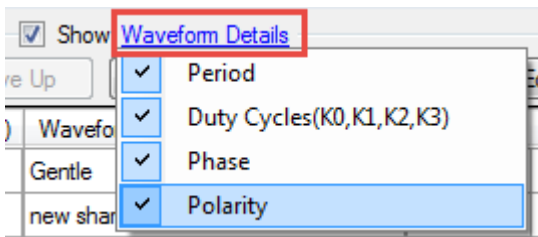
4.7.4 To define a new waveform

Click on the cell under the waveform column, type in the new waveform name and press Enter, this waveform will be added as a pre-defined waveform.
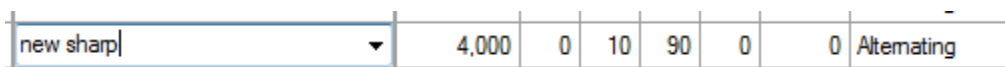
You will be asked to confirm to define this new waveform, press YES to confirm.
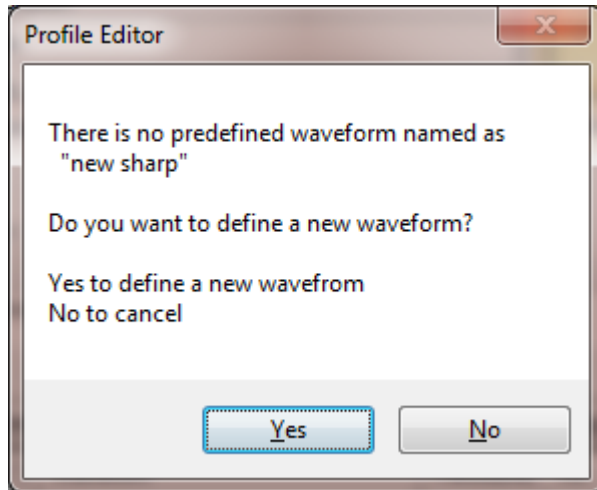
The new waveform will be saved in Users\Documents\IS02\Predefined\Waveforms.protocol.
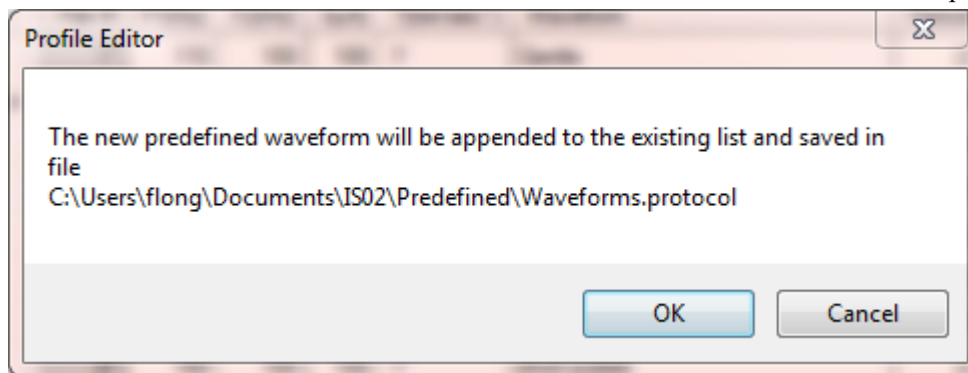
4.7.5 Manage Predefined Waveforms

To change the name or remove a predefined waveform, select menu Tools -> Edit Predefined Waveforms
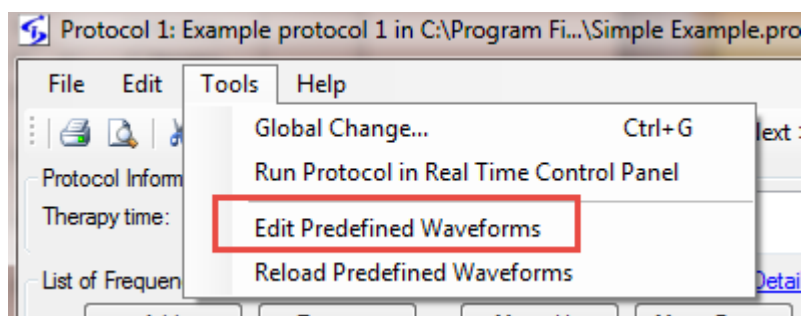
The predefined waveforms are listed as a protocol. Each line is one predefined waveform. The waveform name is given as the description of the line.
To change the name of a waveform, change the description of the line.
To remove a waveform, select the waveform line and click Remove button.

To change the parameters of the waveform, change the period, K, phase or polarity of the waveform. To change the order of the waveforms, move the l
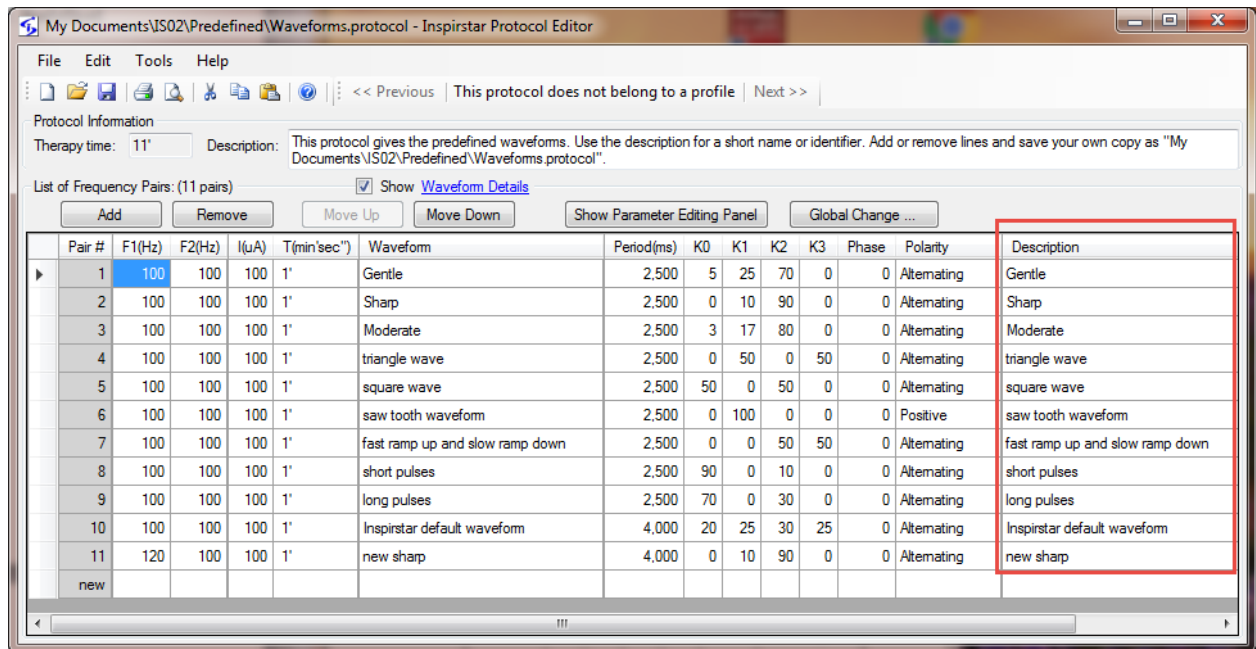
After the window is closed and waveforms.protocol is saved, the changes to the predefined waveform will be applied.

4.8 Menus and Tool Bars

4.8.1 File Menu

This menu has utilities for operations on protocols.

When the protocol belongs to a profile, the File menu has the following commands:

Merge Protocol: Import a protocol and merge with the current protocol to a new protocol.

Previous Protocol: Change to edit the previous protocol in the same profile.

Next Protocol: Change to edit the next protocol in the same profile.

Export Protocol: Export the current protocol to a file.

Print: Print current protocol on a printer.

Print Preview: Preview the printing result of the current protocol on a printer.

Page Setup: Setup the page formats for printing.

Close and back to Profile: Close this protocol window and go back Main Window. The information of this protocol is automatically saved in the profile.

When the protocol is a stand alone protocol, the File menu has the following commands:

New Protocol: Start an blank protocol. You will be prompted to save the current protocol if it

has been modified.

Open Protocol: Open an existing protocol. By default, a protocol has the extension name of ".protocol". You will be prompted to save the current protocol if it has been modified.

Merge Protocol: Import a protocol and merge with the current protocol to a new protocol.

Close Protocol: Close the current protocol and start a new protocol. You will be prompted to save the current protocol if it has been modified.

Save Protocol: Save the current protocol to a file. By default, a protocol has the extension name of ".protocol".

Save Protocol As: Save the current protocol with a new name. By default, a protocol has the extension name of ".protocol".

Print: Print current protocol on a printer.

Print Preview: Preview the printing result of the current protocol screen before printing.

Page Setup: Setup the page formats for printing.

Recent Protocols: List of most recently used (MRU) protocol files. Click one of the files in the list to open it.

Exit: Exit Inspirstar IS02 Protocol Editor. You will be prompted to save the current protocol if it has been modified.

4.8.2 Edit Menu

This menu has editing commands and utilities for frequency pairs.

Cut: Remove the selected frequency pairs and put them into Windows Clipboard for pasting.

Copy: Copy the selected frequency pairs to Windows Clipboard.

Paste(Insert): Insert the frequency pairs in Windows Clipboard before the selected frequency pair.

Select All Frequency Pairs: Select all frequency pairs of the protocol.

Export Selected Frequency Pairs: Export the selected frequency pairs to a file.

Import Frequency Pairs: Insert the frequency pairs in a file before the selected frequency pair.

Global Find: Find frequency pairs with certain parameters.

Global Change: Change one or more parameters of all frequency pairs in selected protocols.

TIPS

The saved files have the same extension name as '.protocol' when you save a protocol or export frequency pairs.

4.8.3 Tools Menu

Global Change…: Apply the parameters of the current frequency pair to part of or all the protocols in the current protocol or all protocols in the profile. For details, please refer to 4.6.4 Using Global Change.

Run Protocol In Real Time Control Panel: Run this protocol in Real Time Control Panel.

4.8.4 Help Menu

Contents/Index/Search: Open the on-line user's guide for Inspirstar Profile Editor.
About: About the version of Profile Editor.

4.8.5 Tool Bars

Place you mouse pointer on the icons on the tool bar for one second, you will see the associated menu command for the icon.

4.8.6 Shortcut Keys

Most of the menu commands have keyboard shortcut keys for quick access. The shortcut keys are shown at the right side of the each menu items, if there is a shortcut available to that menu command.

Table 2   Profile Editor Shortcut Keys

Operation	Shortcut Keys	Operation	Shortcut Keys
Protocol Commands		**Frequency Pair Commands**	
New Protocol	Ctrl+N	Import	Ctrl+I
Open Protocol	Ctrl+O	Export	Ctrl+E
Save Protocol	Ctrl+S	Add	Insert
Close Protocol	Ctrl+F4	Remove	Delete
Print	Ctrl+P	Move Up	Ctrl+ Up
Merge Protocol	Ctrl+M	Move Down	Ctrl+ Down
Edit Commands			
Cut	Ctrl+X		
Copy	Ctrl+C		
Paste(Insert)	Ctrl+V		
Select all	Ctrl+A		
Global Change	Ctrl+G		

5 Real Time Control Panel

5.1 Start Real Time Control Panel

The Real Time Control Panel is not enabled when the software package is shipped to you. To enable this feature, please send an email to sales@inspirstar.com, or give a call to Inspirstar. The number can be found at www.inspirstar.com.

To start the Real Time Control Panel,
- Click program from Windows Start -> All Programs -> Inspirstar -> Real Time Control Panel,
- Or in Profile Editor window, click menu command Tools -> Real Time Control Panel.

5.2 Window Layout

The Real Time Control Panel is shown in the following picture. Explanation of the areas in the panel is as follows from the top to the bottom of the panel.
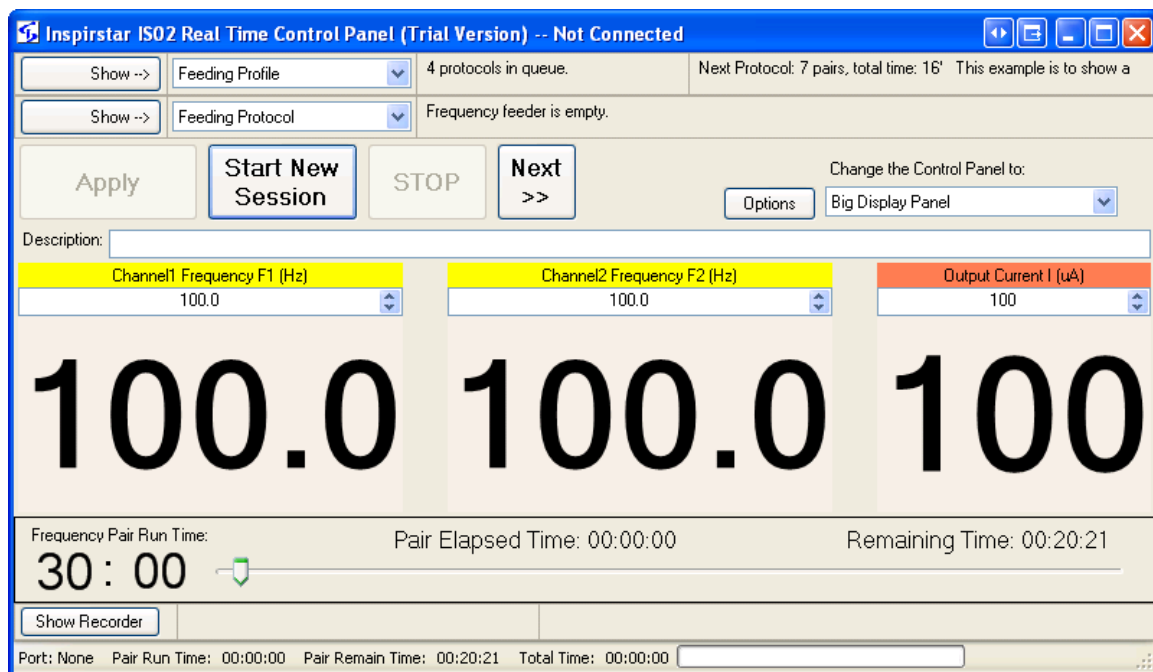

Figure 19   Real Time Control Panel

Profile Feeder
The profile feeder feeds protocols to the protocol feeder. You can load a profile with the profile

feeder and run the whole profile in real time.

Protocol Feeder
The protocol feeder feeds frequency pairs to the control panel. You can load a protocol with the protocol feeder and run it in real time.

Control Buttons
Provides controls to start, pause or stop the running.

Parameters Panel
Displays the parameters for the output waveform. You can change the parameters in real time to change the output waveform.

Pair Run Time Control
Displays the run time of the current running pair and the remaining time of current run pair. You can drag the handle to increase or decrease the remaining time.

Protocol Recorder
All the finished frequency pair of the session will be recorded automatically in the Protocol Recorder. You can save the finished protocol to a file for future use or reference.

5.3 Real Time Session Control

5.3.1 Real Time Work Flow

A brief work flow of using Real Time Control Panel is as the following:
1. Start a new session,
2. Change the parameters using the parameters panel,
3. Finish the session, and save the recorded protocol.

5.3.2 To Start a Session
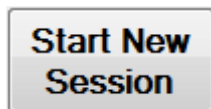
Click on button **Start New Session** to start a new session. The panel will search for a connected IS02BA machine and takes control of the IS02BA. When connected, the current waveform will be started and the button will be changed to PAUSE **PAUSE**.

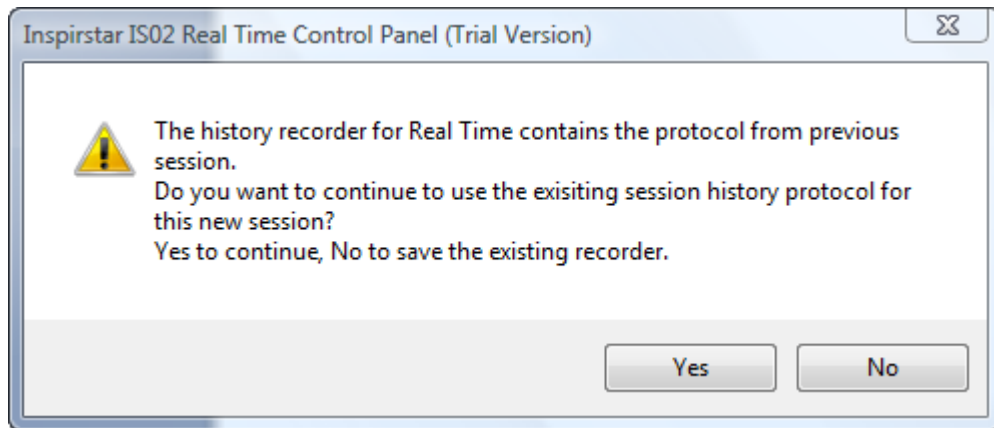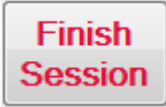You may be asked whether to continue to use the protocol recorder for the new session. Click on YES to continue using the existing recorded protocol, i.e., the new protocol will be appended to the end of the existing finished protocol. Click NO to save the existing finished protocol in the recorder.

5.3.3 To Finish a Session

To finish a session, you need to stop the current waveform by clicking on . The button will be changed to , click on the button to finish the session.

5.4 Run Profiles or Protocols

5.4.1 To Run a Profile in Real Time

To run a profile in Real Time Control Panel,

1. Open the profile with Profile Editor;
2. Use menu command Tools -> Run Profile in Real Time Control Panel.
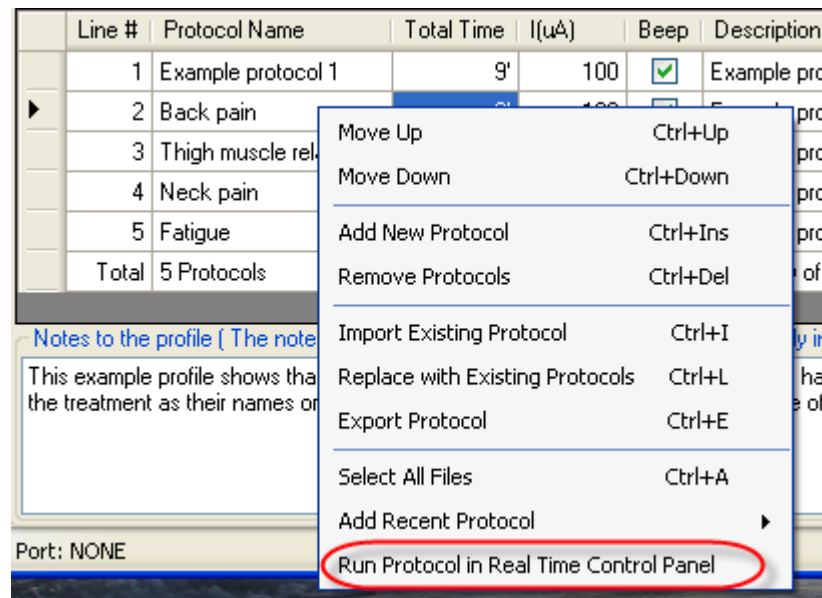   The Real Time Control Panel will start and load the profile in the Profile Feeder of the panel.

5.4.2 To Run a Protocol in Real Time

To run a protocol in a profile in Real Time Control Panel,

1. Open the profile with Profile Editor;
2. Select the protocol to run, then right click and select Run Protocol in Real Time Control

Panel.

The Real Time Control Panel will start if not started and load the protocol into the Protocol Feeder of the panel.

5.5 Make Real Time Changes to Output

When parameters of the waveform are changed, the output waveform will be changed in 3 seconds. You can change the delay time through Options.

5.5.1 Parameters Panels

There are different parameter panels for real time parameter setting. To switch the parameter panels, click on the drop down menu and select a panel.
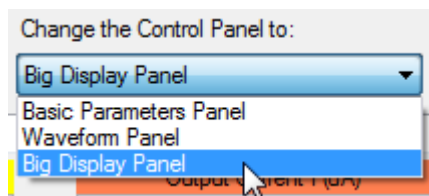
5.5.1.1   Big Display Panel

Click on the highlighted digits to change the value of the digit. Click on the top half to increase the value, click on the bottom half to decrease the value. Or roll the mouse wheel forward or backward to increase or decrease the value.

5.5.1.2   Basic Panel

Change the values of the parameters; click the mouse to some blank area to apply the changes.
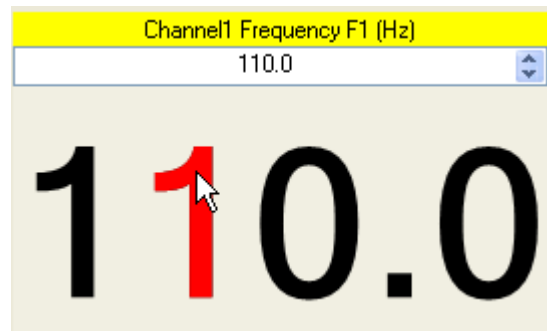
5.5.1.3   Waveform Panel

Change the values of the parameters; click the mouse to some blank area to apply the changes.

5.5.2 To Change Frequencies

Move the cursor to one of the digit of F1 or F2, the digit will be highlighted. Click on the top half of the digit to increase it by one, or bottom half to decrease by one.

5.5.3 To Change Output Current

Move the cursor to one of the digit of output current, the digit will be highlighted. Click on the top half of the digit to increase it by one, or bottom half to decrease by one.
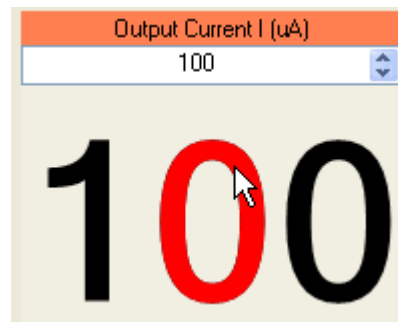
5.5.4 To Change Run Time

If the frequency pair comes from the feeding protocol in the Protocol Feeder, the pair will have the run time set in the protocol. You can add to reduce the run time of the pair.
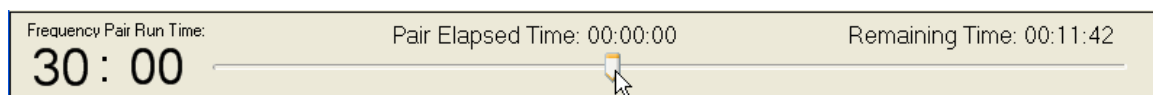
- To **add** more time to the current running pair, drag the handle of the run time bar to the **left**, the remaining time will be increased.

- To **reduce** the remaining time to the current running pair, drag the handle of the run time bar to the **right**, the remaining time will be decreased.

5.6 Options

Click on button ⎡Options⎤ to bring up the option window.

Figure 20 Real Time Options

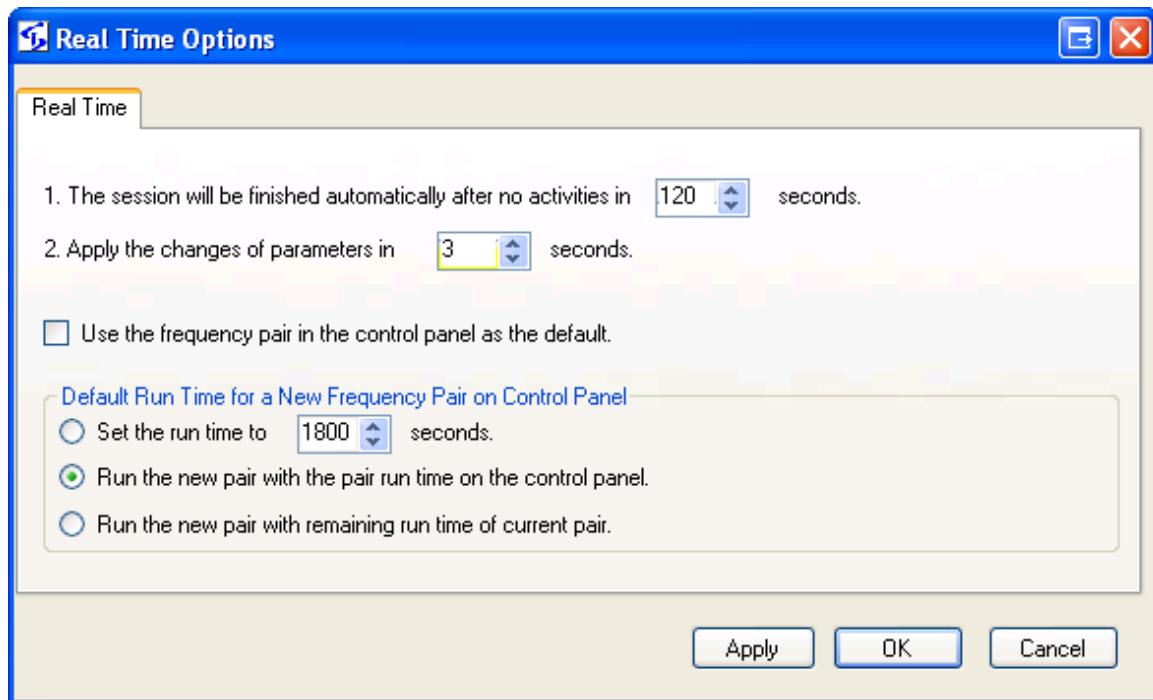The Real Time Control Panel will start with the default parameters set in the option. To set the default parameters, first you set the parameters through the parameter panels, then click Options button. In the Real Time Options window, check the box ☑ Use the frequency pair in the control panel as the default. , click OK to set the options. The parameters of the current waveform will be used as the default values.

When a frequency or current is changed, the new settings will be used to run. The run time for this new setting can have three options:

- Fixed run time: The run time will always reset to the number of seconds in the option windows.
- Previous run time: for example, if the pair was to run 3 minutes, the new setting will run another 3 minutes.
- Remaining time: continue the previous settings, do not restart the timer. For example, if the previous pair has run for 1 minute out of the 3 minutes, the new settings will run for the

remaining 2 minutes.

5.7 Communications
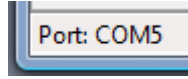
Click on the Port text at the bottom left corner to bring up the communication setup window.

6 Protocol Encryption

6.1 About Protocol Encryption

Protocols can be encrypted by Protocol Author. **Protocol Author** is the person who composes the protocol and encrypts it. When a protocol is encrypted, all or part of the parameters of the protocol will not be shown to Protocol Users. **Protocol Users** are those persons who receive the encrypted protocols from Protocol Authors and want to use the protocols on their IS02 units. Protocol Users may need to provide authorization code obtained from Protocol Authors when they use the encrypted protocols. **Authorization Code** is the code or a USB key that is required to present when the encrypted protocol is going to written into IS02 units. Protocol Authors can choose the method of authorization.

Protocol Authors can share the encrypted protocols on their web site, by email, or on online forums.

6.2 To Encrypt Protocols

6.2.1 To Apply Encryption to Protocols

1. Compose your protocols in Profile Editor; or load your existing protocols in Profile Editor or Protocol Editor.
2. Click Encrypt Protocols in menu Encryption.
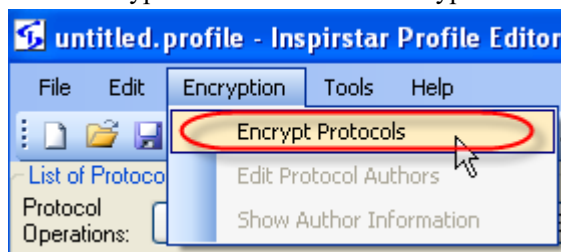
3. Select an existing author file, and enter the author password.
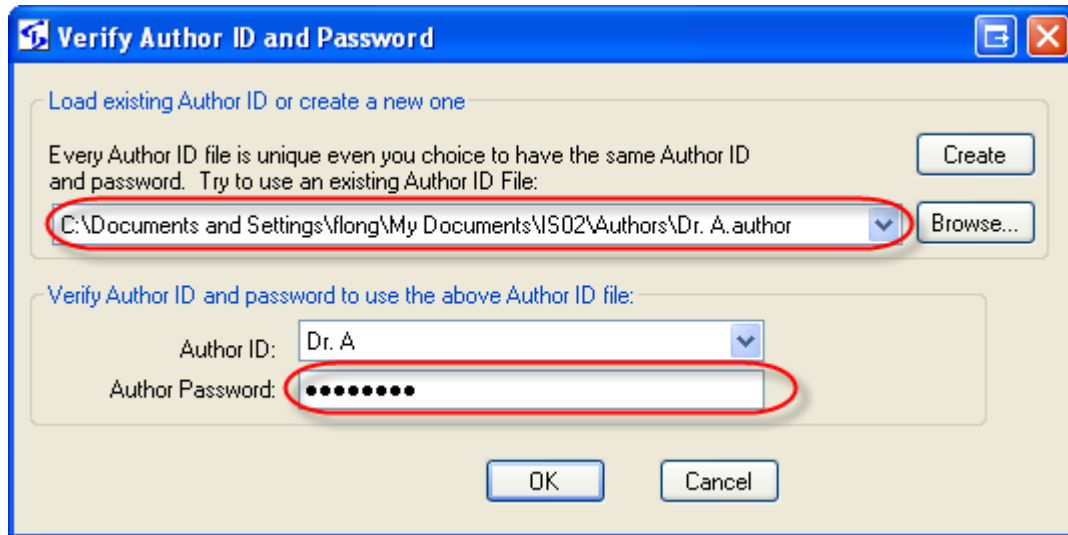
4. If you don't have an author file, click Create to create a new author file. If you already have an author file, try to re-use that author file. Author files are unique even they have the same author ID and author password.

5. Enter the author ID and password that you want to use, enter some author information for the users of your encrypted protocol, then save it into an author file.
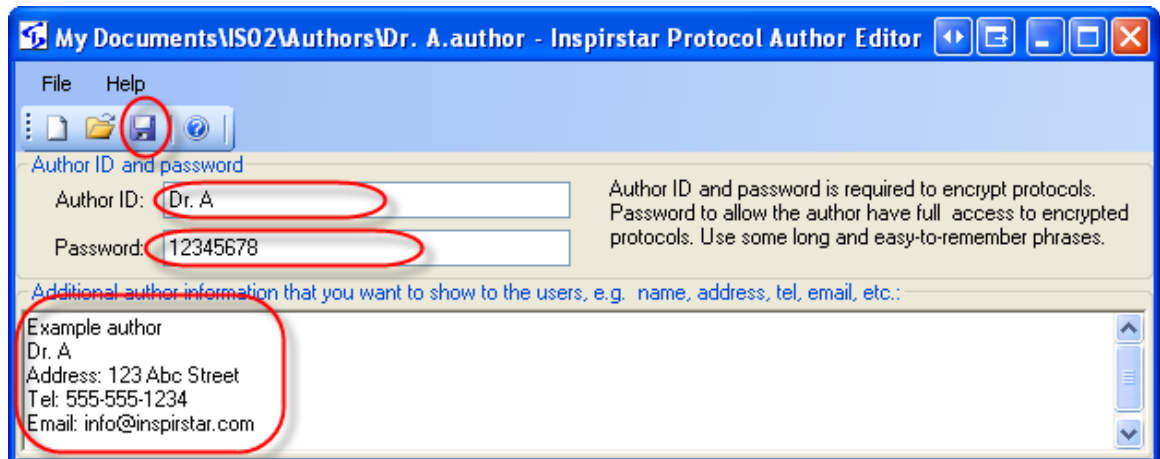
6. The Protocol Encryption window will pop up. Follow the 4 steps on the window.
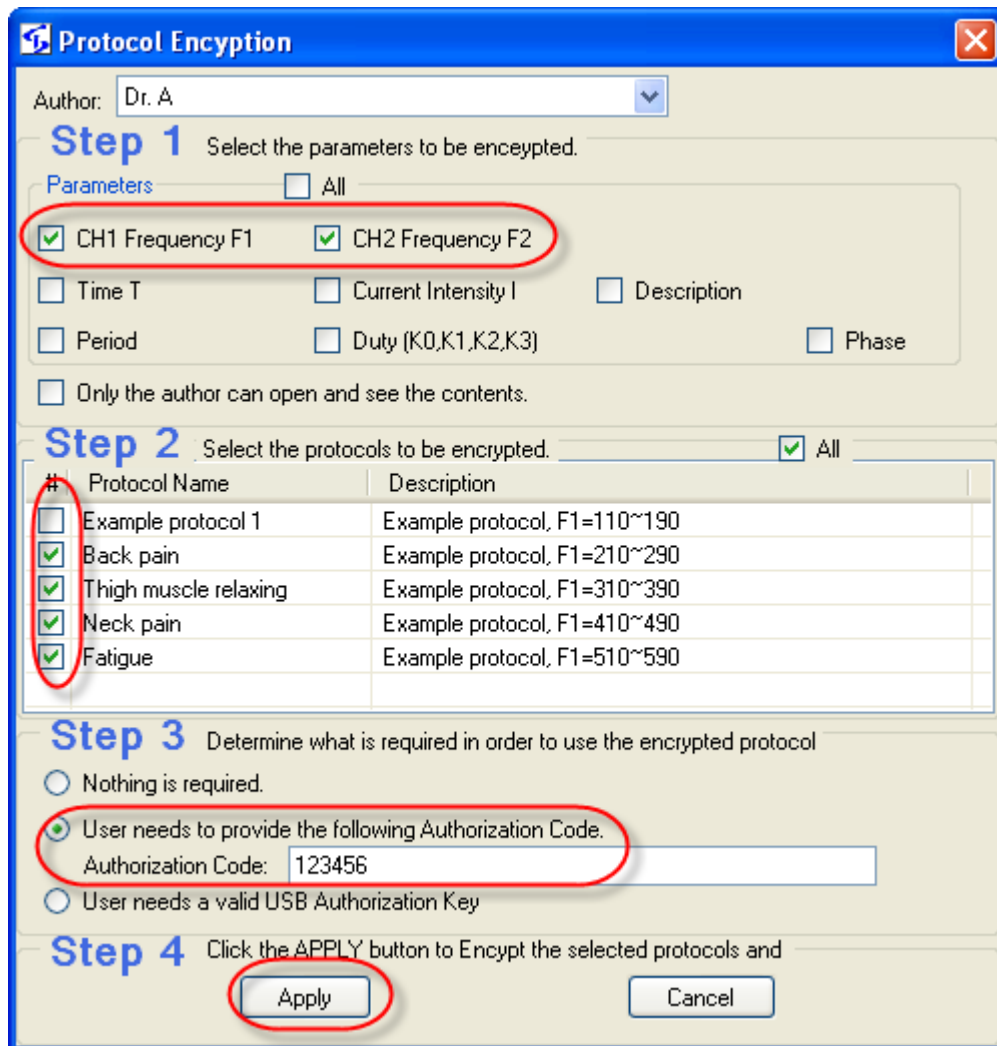
Step 1: select the parameters to be encrypted.

Step 2: Select the protocols that you want encrypt in the profile.

Step 3: Select the authorization method from three options:

- Nothing is required. No authorization is required to use the encrypted protocols. Users can write the protocol to IS02 although some information in the protocol is not visible to them.
- Use Authorization Code: Users need to enter the authorization code in order to write the protocols into IS02. Enter the authorization code in the box, and send the code to the users of your encrypted protocols.
- Use Authorization Key: Users need the USB authorization key from you in order to use the encrypted protocols. See section **Error! Reference source not found.**.

Step 4: Click button Apply. The selected protocols will be encrypted.

6.2.2 To Remove Encryption from Encrypted Protocols

Only Protocol Authors can remove encryption from encrypted protocols.

1. Follow the steps as in Apply Encryption to Protocols until you see the Protocol Encryption window.
2. In the window, uncheck all parameters, select the protocols you want to remove the encryption, and select the authorization method to Nothing.

3. Click Apply, you will be asked to confirm that the encryption will be removed. Click YES to remove the encryption.

6.3 To Use Encrypted Protocols

Encrypted protocols can be added to a profile as normal protocols. All the operations to a normal protocol, such as copy, cut, paste, move up and down, import, and export, can be used on encrypted

protocols. However, when you want to write the profile with encrypted protocols into IS02 unit, proper authorization is required.

1. The profile with encrypted protocols will have two more columns than normal profile.

Line #	Protocol Name	Total Time	I(uA)	Beep	Author	Authorization Code
1	Dr.A's Good	8'	100	☑	Dr. A	<not required>
2	Dr.A's Better	5'	100	☑	Dr. A	<enter the code here>
3	Dr.A's Best	3'	100	☑	Dr. A	<USB Key Required>

2. Protocol 1 is encrypted but no Authorization Code is required. This protocol can be written into IS02 the same as unencrypted protocols.

3. Protocol 2 is encrypted and an authorization code is required. Move the cursor to the column Authorization Code and enter the code.

Line #	Protocol Name	Total Time	I(uA)	Beep	Author	Authorization Code
1	Dr.A's Good	8'	100	☑	Dr. A	<not required>
2	Dr.A's Better	5'	100	☑	Dr. A	1234
3	Dr.A's Best	3'	100	☑	Dr. A	<USB Key Required>

Enter codes for other authors if there is more than two authors.

4. Protocol 3 is encrypted and a USB key is required. Plug into a spare USB port of the computer. The USB needs to be plugged when the Write process begins.

6.4 Authorization

6.4.1 To Distribute Authorization Code

Authorization Codes can be given to Protocol Users by all means, such as paper mails, emails, or over telephone. It's the choice of the Protocol Authors.

6.4.2 To Distribute USB Authorization Keys

USB Authorization Keys can be purchased from Inspirstar. Contact sales@inspirstar.com for details.

The USB keys will be used to authorize for your author ID. The key is valid for all encrypted protocols that are encrypted by the same Author ID.

When you purchase the keys from Inspirstar, you need to provide your Author ID file. Inspirstar will associate the keys you purchased with your Author ID file. You will receive the USB keys and a key file. You need to give the USB key and the key file to your protocol users. Your protocol users need to copy the key file in to "KeyFiles" folder in the installed directory, by default it is "C:\Program Files\Inspirstar\IS02\KeyFiles"; or the user data directory in "My Documents\IS02\KeyFiles". At your

option, Inspirstar can put your key files in the software package so that your protocol users do need to copy the key file manually.

7 IS02 Remote Keypad

Inspirstar IS02 Remote Keypad allows you to use Windows PC to control a connected IS02. Note: this feature is not available on the old IS02BA models.

7.1 Start IS02 Remote Keypad

To start the Inspirstar Remote Keypad,
- In Profile Editor, select menu Tools -> IS02 Remote Keypad. The Remote Keypad is in sharing connection mode.
- Or to use Windows Start menu -> Inspirstar -> Inspirstar Remote Keypad. The Remote Keypad is in standalone mode.

Both ways will start Inspirstar Remote Keypad but there is slight difference on how the connection can be shared between Remote Keypad and Profile Editor. When in sharing connection mode, the Profile Editor can still read/write to IS02 when Remote Keypad is connected to IS02. When in standalone mode, the Profile Editor can't access to the same IS02 unit that is under control of Remote Keypad.

7.2 Remote Keypad Window Layout

Inspirstar Remote Keypad shows the keypad for IS02PRO by default before connection to IS02 is made.
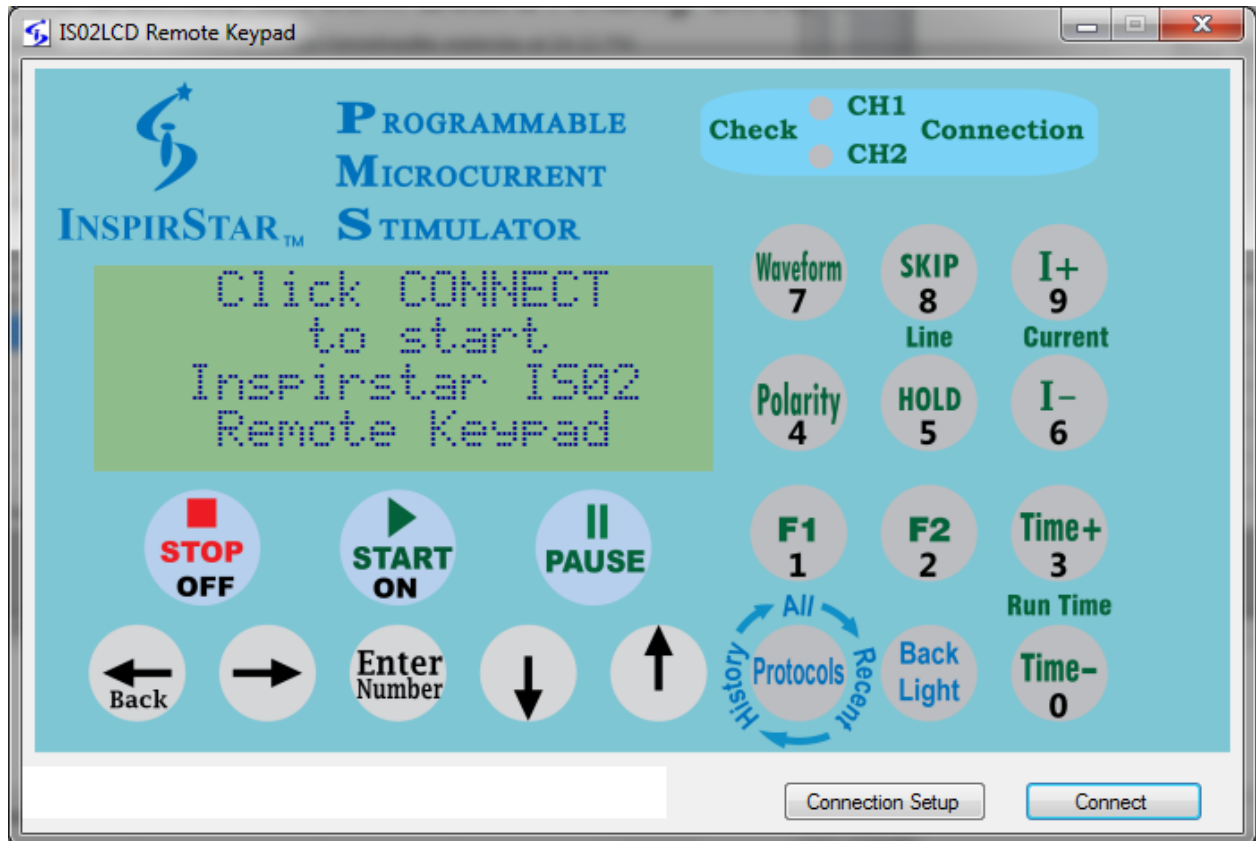
Click on Connect button to make connection to the IS02 or IS02 connected to USB port. Once connected, the keypad will be changed to the same keypad layout as the connected IS02 model.

7.3 Operate with Remote Keypad

After connected to IS02, the Remote Keypad can be used to see the LCD information and to control the operation of IS02.

- LCD window will display the same message as on IS02.
- You can click on the keys on the keypad image to operate the IS02. You can also press the keys on actual IS02 keypad. Both ways will have the same effects.
- The CH1/CH2 connection LED on Remote keypad is not going to be flashed when the actual LEDs on IS02 are flashing.
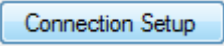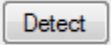
NOTE

Hold down the mouse button when clicking on the keys on the screen to emulate the Hold and Repeat operation of the physical keys on IS02 devices.

After connected, the IS02 unit will not power off. You need to disconnect Inspirstar Remote Keypad to allow IS02 unit to be able to power off.

7.4 Connection to IS02

By default, Inspirstar Remote Keypad will detect connected IS02 units. When you have more than one IS02 connected to PC USB ports, you may want to specify the port of connection so you can control the exact unit through Inspirstar Remote Keypad.

Click the [Connection Setup] button on the Remote Keypad to bring up the connection setup window as below, select the port of IS02 and click [Detect] button. The model name and serial number of the detected IS02 unit will be shown on the dialog. Change the port number if this is not the unit you want to control.

8 Questions and Answers

8.1 How to restore Inspirstar IS02 to its factory default profile?

Inspirstar IS02 will be restored back to its factory profile if you write a blank user profile to it with a blank password, i.e. entering nothing in the password box. The blank user profile is a new profile that has no frequency pairs in all the five protocols.

8.2 What to do if I forgot the password?

You can restore the IS02 to its factory default. See "7.1 How to restore Inspirstar IS02 to its factory default profile?" However, you will loss your previous user profile in Inspirstar IS02. If you have the profile for that unit, you can open the profile to get the password if you selected to save the password in the profile.

8.3 How to print a profile?

You can print the profile with the Print command in File menu of Profile Editor, or print a protocol with the Print command in Protocol Editor.

8.4 Can two channels run in different period and phase?

It depends on how the two channels are used.

1. The two channels are connected to only one pair of gloves.
In this case, one electrode (glove) is connected to the positive terminals of both channels, i.e. the two buttons on the glove are connected to the one phone jack of Inspirstar IS02. This connection will effectively short the two positive terminals together. So the two channels must be running in same period, same polarity and same phase, in another word, the two channels run synchronously. In this mode, there are only two effective terminals for two channels.

2. The two channels are connected to four electrodes.
The four electrodes can two pairs of gloves, or other means of electrodes. In this case, the positive and negative electrodes of one channel are separated from the electrodes of the

other channel. The two channels are totally independent so they can run in different period, polarity and phase.

Inspirstar IS02 and Inspirstar IS02 Profile Editor do not know the external connection you desire to use. There will be no warning if the period and phase are different for the two channels. You might not get what you want if the connection does not meet the requirement of the protocol.

8.5 Can two channels run in different current intensity?

Yes, the two channels can have different current intensity and wave form duty cycles, no matter if the two channels are used with two electrodes (gloves) or four electrodes. However, the period, polarity and phase depends on the application, see "7.4 Can two channels run in different period and phase?" for more details.

8.6 How to turn off the modulating frequency?

The modulating frequency F1 and F2 will be turned off when the frequency is set to 0 Hz.

8.7 How to turn off one channel?

The channel output current will be turned off when the therapy time (T1 or T2) of the channel is set to 0 minutes. Note that you need to use Advanced Parameters page to set T1 and T2 separately.

8.8 How to change the period for all frequency pairs in the protocol?

Global Change tool is for making changes to part of or all frequency pairs in the profile. See "4.6.4 Using Global Change" for more details.