



# Stevens SDI-12 Xplorer

## Product User's Manual

Stevens Part #51139  
December 2012

## Contents

1. Product Overview .....	3
2. SDI-12 Xplorer Parts and Equipment .....	4
3. Installation .....	5
4. Using the Stevens SDI-12 Xplorer .....	6
4.1 Main Screen .....	6
4.2 Connection Setting.....	7
4.3 SDI-12 Command Interface Overview.....	8
4.4 Change Sensor Address.....	9
4.5 SDI-12 Sensor Commands for Supported Sensors .....	9
4.6 SDI-12 Sensor Commands for Other Sensors.....	11
4.7 Saving and Logging Sensor Data .....	12

## 1. Product Overview

The Stevens SDI-12 Xplorer (Part #51139) is a small form factor SDI-12 to USB converter which allows any standard SDI-12 sensor to be accessed and communicated with through a computer's USB port.

User-friendly sensor configuration, management, and data logging can be programmed through the included "SDI-12 Xplorer" Windows GUI utility software, which has built-in support for many different SDI-12 sensors.

Commands for other sensors can also be entered into the SDI-12 Xplorer, which will work with any SDI-12 sensor.

Additional sensor programming or special commands can be done through any terminal communication program while the sensor is connected to the SDI-12 Xplorer.

For additional information about the SDI-12 Xplorer, please visit the [Stevens Water website](#) or call Stevens at (800) 452-5272

## 2. SDI-12 Xplorer Parts and Equipment

The Stevens SDI-12 Xplorer ships with the main Xplorer SDI-12-to-USB converter, as well as a USB cable for connection to a computer.

**Note:** Since the SDI-12 Xplorer is powered by the computer's USB port no external power connection is necessary for sensors that require 150 mA or less to operate.

Included in the SDI-12 Xplorer box are the following items:



Stevens SDI-12 Xplorer main unit



USB communication and power cable

### **3. Installation**

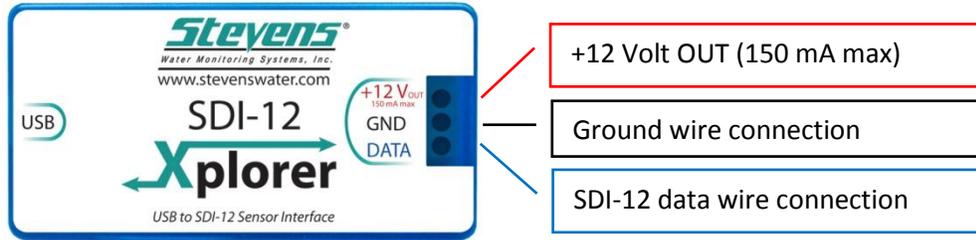
The SDI-12 Xplorer software can be downloaded from the Stevens Water website:

<http://www.stevenswater.com/software/downloads.aspx#sdi12explorer>

Once downloaded, unzip the file and install the software by running the “SDI12Explorer.msi” file. This will install the Xplorer utility software on your PC and allow you to use the SDI-12 Xplorer and interact with connected sensors.

## 4. Using the Stevens SDI-12 Xplorer

Once the SDI-12 Xplorer utility is installed, plug the USB cable into the computer's USB port and the other end into the SDI-12 Xplorer's USB port. Ensure that the SDI-12 sensor to configure is wired to the appropriate connections on the right side of the Xplorer enclosure box.



### 4.1 Main Screen

The SDI-12 Xplorer utility features a single screen, which has options for all functions of the product. Each is outlined in the following sections.

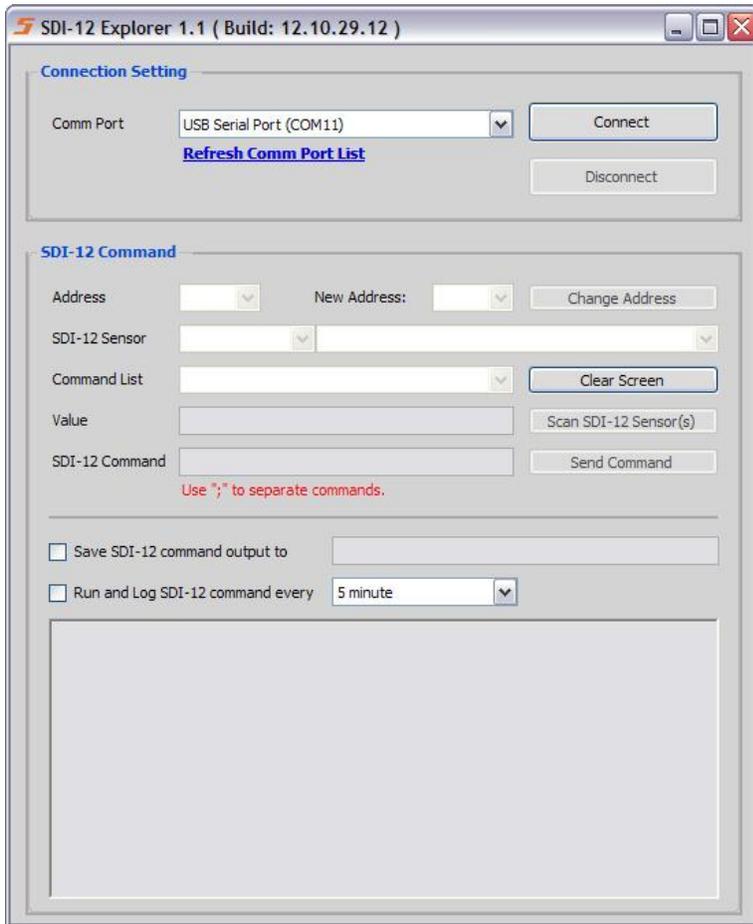


Figure 4.1: SDI-12 Xplorer main screen

## 4.2 Connection Setting

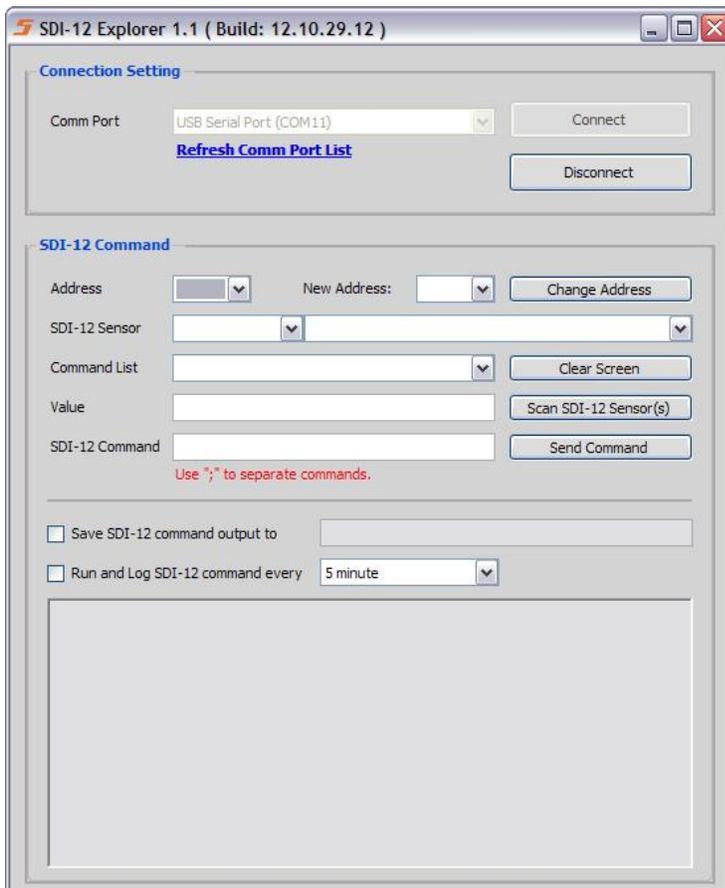
Under “Connection Setting” the SDI-12 Xplorer’s connection to the computer via USB port is made.



Figure 4.2.1: Select the computer’s USB Serial Port for connection

**Note:** When using the SDI-12 Xplorer for the first time, it may be necessary to select “Refresh Comm Port List” before the computer’s USB Serial Port is shown.

Once the USB Serial Port is selected, click on “Connect” to connect to the attached SDI-12 sensor. When a connection is made, the options under “SDI-12 Command” will become available.



SDI-12 Command interface is now available after connection is made to sensor.

Figure 4.2.2: New options are available once connection to sensor is made.

### 4.3 SDI-12 Command Interface Overview

Configuration or programming of the SDI-12 sensor takes place in the “SDI-12 Command” section of the utility software.

The following functions are available:

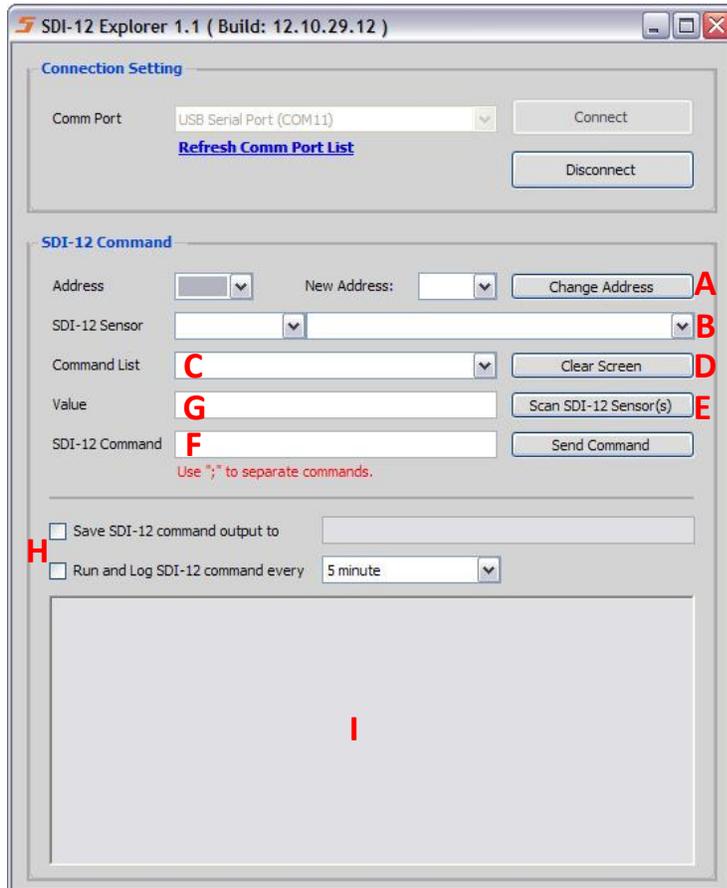


Figure 4.3: SDI-12 Xplorer command overview.

A.) Address and New Address: change which address the sensor is using for communication.

B.) SDI-12 Sensor: Select an SDI-12 Sensor from a list of pre-programmed sensors.

C.) Command List: Shows SDI-12 commands selectable from a drop down list. This list changes depending on sensor selected from B.

D.) Clears the text display screen at the bottom of the screen (I).

E. Scan for any SDI-12 sensors connected to the Xplorer. Will return address and other basic sensor information.

F. Enter custom SDI-12 commands to send to sensor.

G. For SDI-12 commands that require a value to be entered, it can be placed here.

H. The SDI-12 Xplorer utility can function as a basic data logger and save data from the sensor to a user-defined .CSV file. Any SDI-12 output data can be saved to a .CSV at any time.

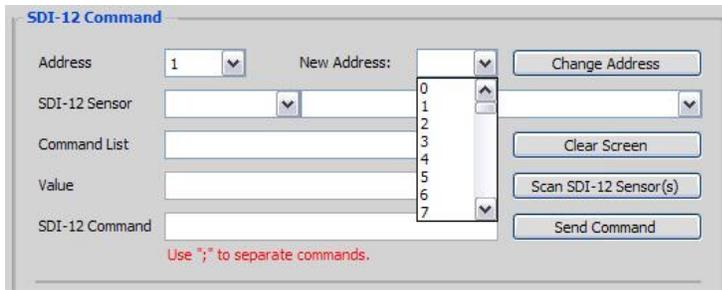
I. Returned SDI-12 data text window will display any data coming back after commands are sent to connected sensor

## 4.4 Change Sensor Address

The address of a SDI-12 sensor can be changed using this “Change Address” function.

This option is useful if more than one SDI-12 sensor will be connected to a single data logger or radio, as each sensor needs to be placed on its own SDI-12 address.

Simply select the current address in the “Address” drop down menu, the new desired address in the “New Address” drop down menu, and select “Change Address” to confirm the change.



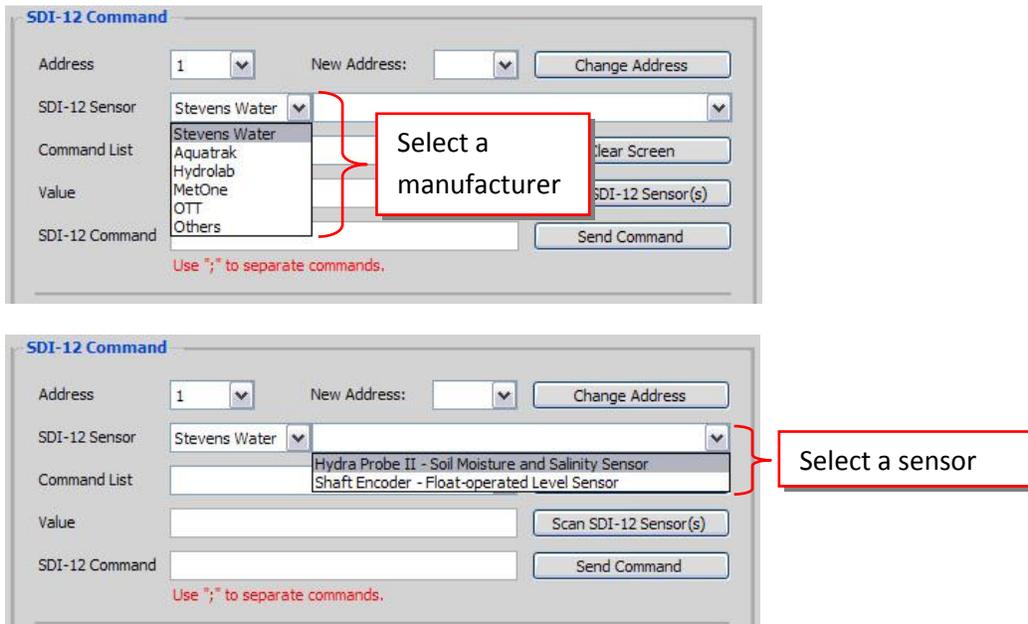
The screenshot shows the "SDI-12 Command" window. It features several input fields and buttons. The "Address" field is a dropdown menu currently set to "1". The "New Address:" field is another dropdown menu. A "Change Address" button is located to the right of the "New Address:" field. Below these are the "SDI-12 Sensor" dropdown menu, a "Command List" text input field, a "Value" text input field, and an "SDI-12 Command" text input field. A vertical list of numbers from 0 to 7 is visible, likely representing sensor addresses. Buttons for "Clear Screen", "Scan SDI-12 Sensor(s)", and "Send Command" are also present. A red note at the bottom states "Use \*; to separate commands."

Figure 4.4: Use the Address drop down boxes to change the SDI-12 Sensor’s address.

## 4.5 SDI-12 Sensor Commands for Supported Sensors

The SDI-12 Xplorer utility includes built-in SDI-12 commands for many manufacturers and sensors.

These can be selected from the drop down menus:



The first screenshot shows the "SDI-12 Command" window with the "SDI-12 Sensor" dropdown menu open. The list includes "Stevens Water", "Aquatrak", "Hydrolab", "MetOne", "OTT", and "Others". A red box highlights the "Stevens Water" option with the text "Select a manufacturer". The second screenshot shows the same window with the "SDI-12 Sensor" dropdown menu open to "Stevens Water". The list of sensors includes "Hydra Probe II - Soil Moisture and Salinity Sensor" and "Shaft Encoder - Float-operated Level Sensor". A red box highlights the "Hydra Probe II" option with the text "Select a sensor".

Figure 4.5: Sensor manufacturer drop down list.

The selections made in the SDI-12 Sensor drop down menu will give you a choice of built-in commands to give to the selected sensor.

As an example, if a user were to select “Stevens Water” and “Hydra Probe II – Soil Moisture and Salinity Sensor” from the SDI-12 Sensor drop down menu, the following SDI-12 commands are made available in the “Command List” drop down menu:

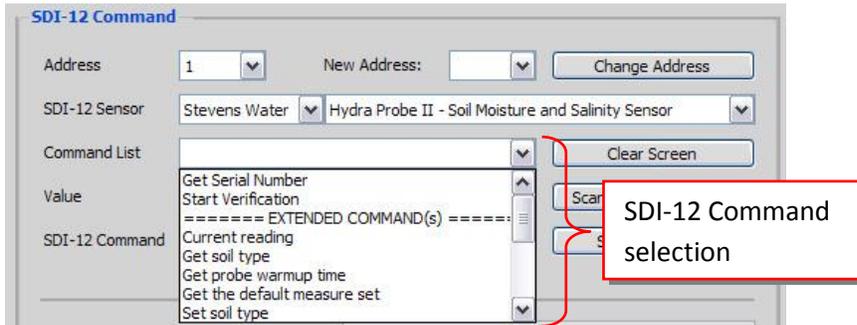


Figure 4.5-1: SDI-12 sensor command list.

These commands are specific and unique to every SDI-12 sensor, and the available commands are determined by the previously selected manufacturer and sensor.

Once a Command is selected from the drop down list, the command is automatically inserted into the SDI-12 Command text box. Clicking on “Send Command” will send the command to the sensor and return the results to the text box on the bottom of the SDI-12 Xplorer utility

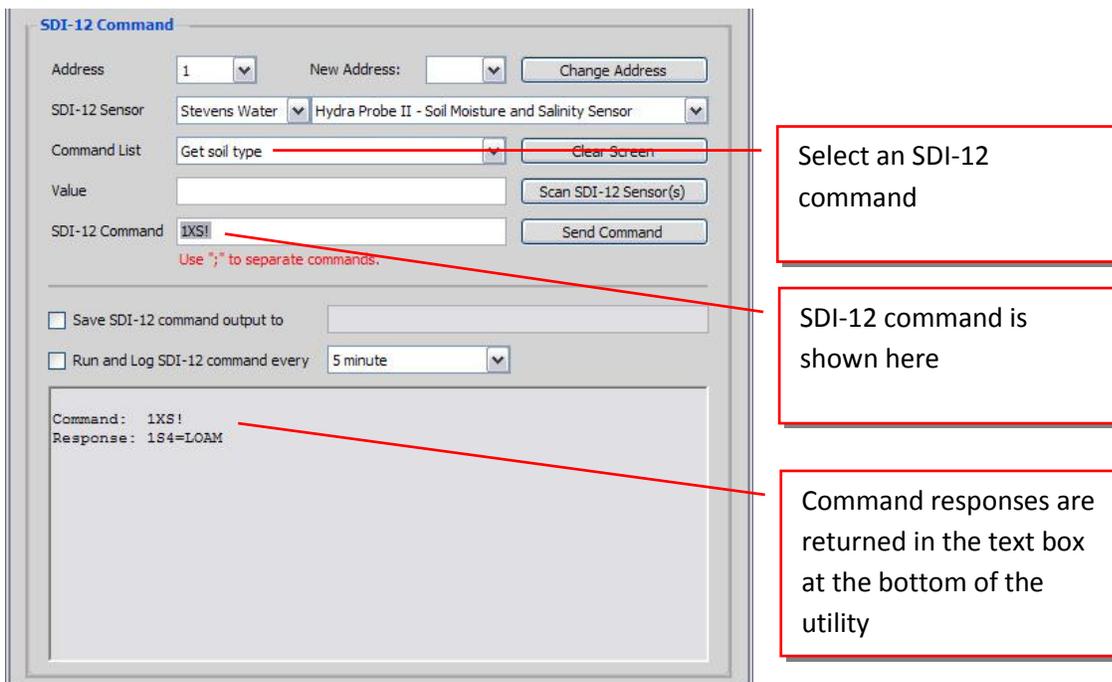


Figure 4.5-2: Selecting and sending SDI-12 commands to sensor.

## 4.6 SDI-12 Sensor Commands for Other Sensors

The SDI-12 Explorer works with any SDI-12 sensor, not just sensors that have been pre-loaded into the utility software.

To send SDI-12 commands to a sensor, connect to it following the same instructions from [Section 4.2](#).

Once connected to the sensor, SDI-12 commands can be entered into the “SDI-12 Command” text field and sent to the sensor. Returned data is shown in the text box at the bottom of the utility.

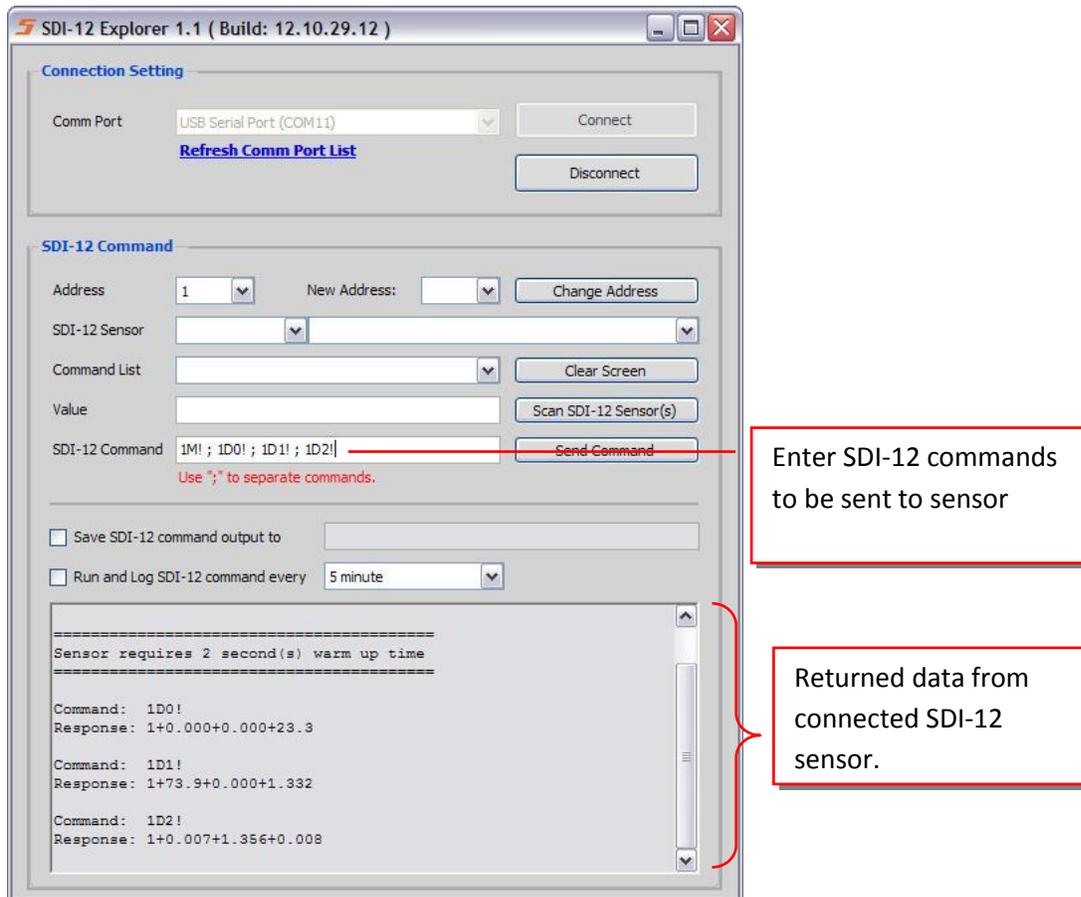


Figure 4.6: Manually entering SDI-12 commands to send to sensor.

For SDI-12 sensor commands specific to the sensor being used, please consult that sensor’s operators manual.

## 4.7 Saving and Logging Sensor Data

The Stevens SDI-12 Xplorer can be used to log data to a .CSV file on the computer for future analysis or review using other programs, such as *Microsoft Excel*.

Any data displayed in the text output window at the bottom of the utility window can also be saved to a .CSV file.

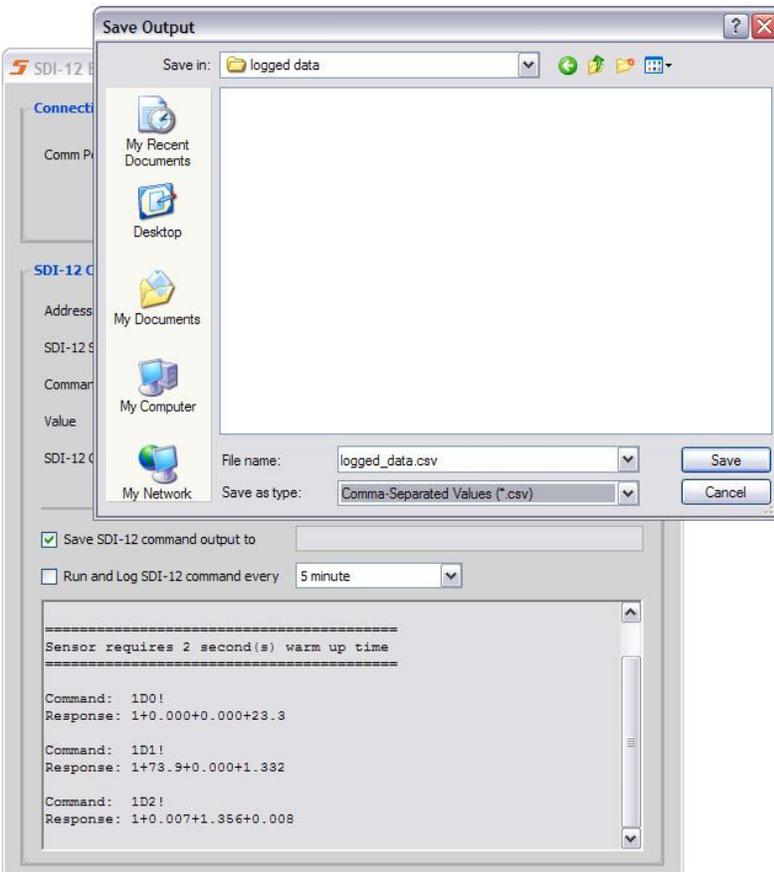


Figure 4.7-1: Select the directory where the .CSV file to be saved.

If you want to leave the sensor connected to the SDI-12 Xplorer and log data continuously at specified intervals, select the desired logging interval from the drop down menu box.

Intervals from 1 minute to 24 hours can be selected:

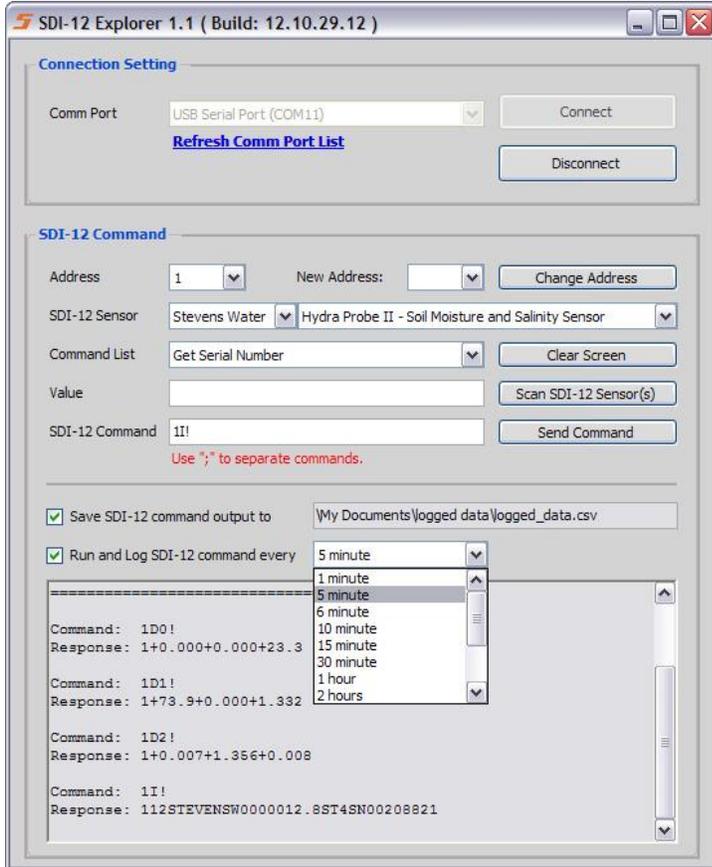


Figure 4.7-2: Selecting a logging interval for SDI-12 sensor data.