

## Contents

1.	Introduction.....	2
2.	HW Set up.....	2
3.	Adding new sensors .....	4
4.	Adding new sensors .....	6
5.	Executing SDI-12 commands .....	6
6.	Logging.....	6
7.	Adding custom sensors .....	6
8.	Trouble shooting .....	6
9.	History .....	7

# 1. Introduction

The SDI-12 COMMANDER LITE is a serial terminal program, focusing on setting up and testing SDI-12 sensors or sensor networks using a PC and the TBS03 USB to SDI-12 converter or the TBS06 RS232 to SDI-12 converter.

It provides a SDI-12 command library for all Tekbox SDI-12 sensors. Furthermore it can be user-configured for any other SDI-12 sensor.

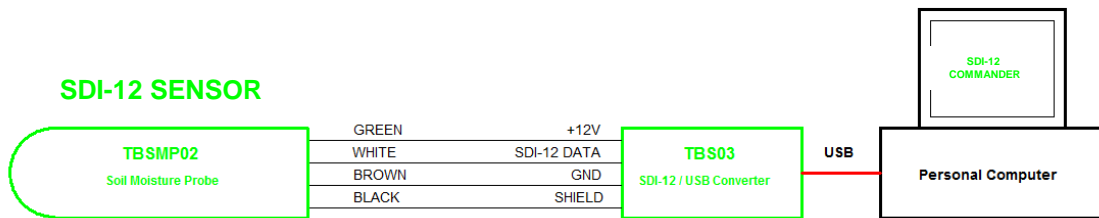
# 2. HW Set up

## Step 1)

Open *SDI12\_commander\_lite.zip* and unzip the contents to your hard drive.

## Step 2)

Connect a SDI-12 sensor to the TBS03 USB to SDI-12 converter or a TBS06 RS232 to SDI-12 converter according to Picture 1. Of course, more sensors can be added.



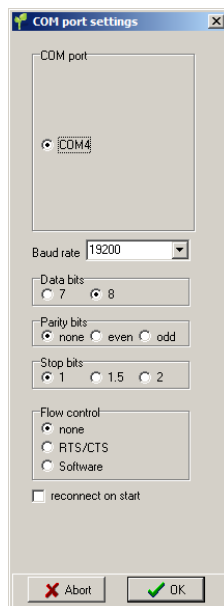
Picture 1 – hardware set up

## Step 3)

Execute *SDI12\_commander\_lite.exe*

## Step 4)

Open “Settings”, “COM Port” and a COM Port settings pop-up window will open. Click the button next to the displayed COM Port. IF the pop-up window shows more than one COM Port number, use the hardware manager of Windows to find out which COM Port number was assigned to your SDI-12 converter.



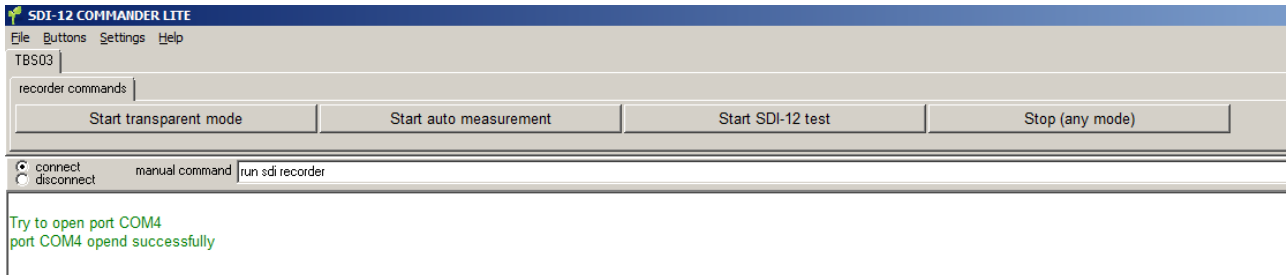
Picture 2 – COM Port settings

# SDI-12 COMMANDER LITE MANUAL



All other settings are default for the TBS03: Baud rate: 19200, 8 Bits, no parity, 1 Stop Bit, no flow control. When using a TBS06, RS232 to SDI-12 converter, depending on its configuration, it may be necessary to adjust the Baud rate accordingly.

Close the COM Port window by clicking the “OK” button and click the “connect” button. A message in the log window will confirm successful connection to the SDI-12 converter.

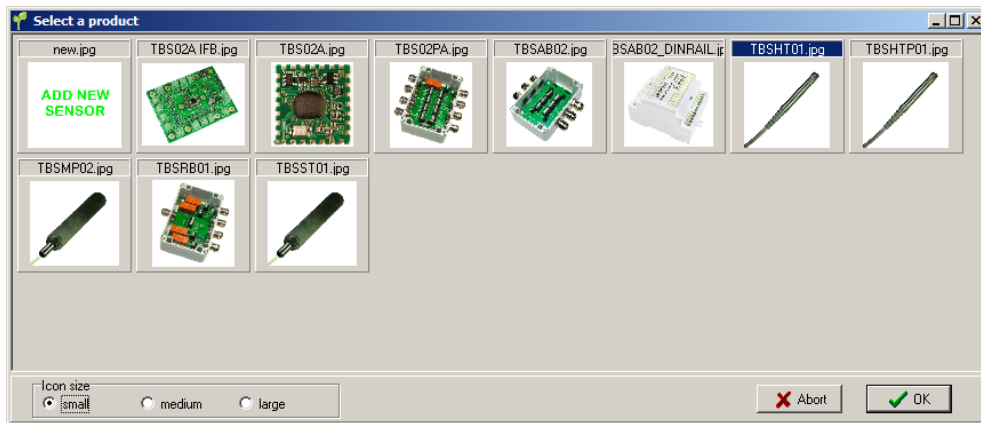


Picture 3 – COM Port activated

### Step 5)

Select one or more Sensors:

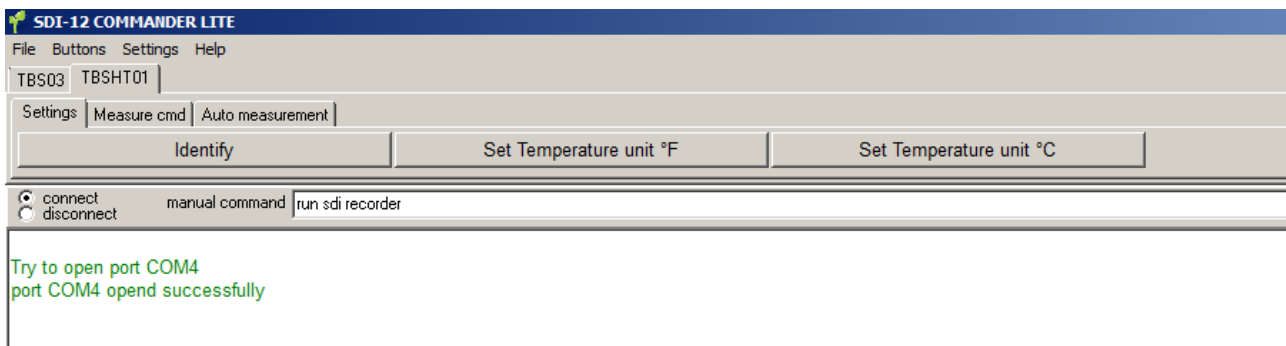
In the File Menu, press “ADD SENSOR TO THE NETWORK” and select a sensor from the pop up window:



Picture 4 – sensor selection window

Select a preconfigured sensor by clicking at a picture or click on “ADD NEW SENSOR” and press the “OK” button. The main window will show tabs with predefined command buttons for the selected sensor then.

**Note: The Auto measurement tab only works with TBS03 ordered with “auto measurement option”**

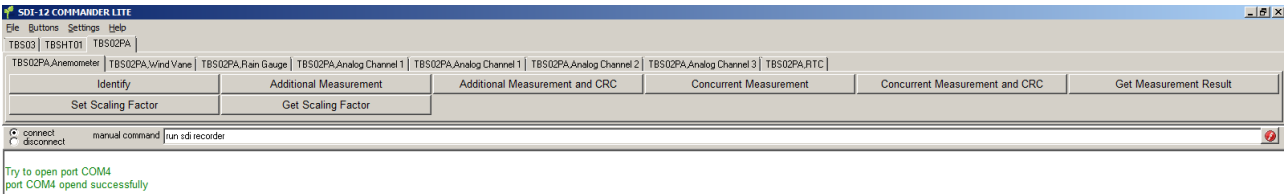


Picture 5 – Tabs with predefined SDI-12 commands

The left upper Tab indicates the corresponding sensor. By default, address 0 will be assigned to the first selected sensor.

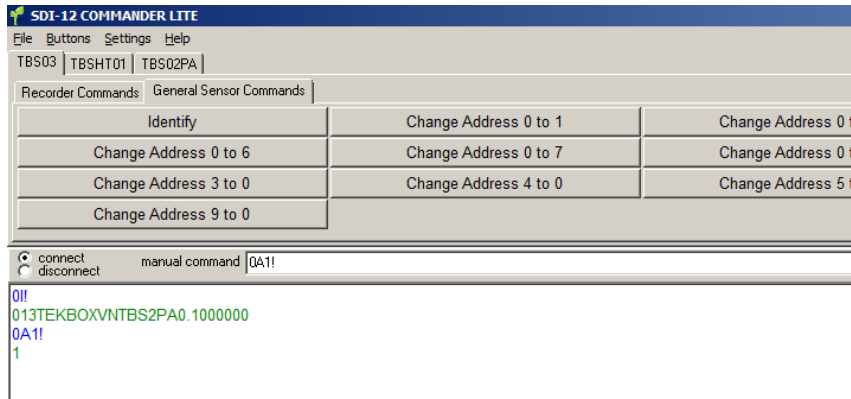
To add another sensor, click the file menu and repeat the procedure. Another folder will be added to the tabs.

# SDI-12 COMMANDER LITE MANUAL



Picture 6 – main window showing two sensor tabs

Add as many sensors as you need. If you use several sensors in parallel, each sensor must have an individual address: 0 to 9, a to z or A to Z. The sensor address can be easily programmed with the SDI-12 commander using the change address command. Sensors with SDI-12 interface are factory default set to address 0. In order to set the sensor to a different address, connect the sensor to the TBS03, open the tab “General Sensor Commands” and press a “Change Sensor Address” button. Connect a single sensor only, when setting an address.



Picture 7 – Example: changing address of a TBS02PA device; first issuing an identify command 0! to check presence of the TBS02PA at address 0; next issuing a change address command 0A1! to change the sensor address from address 0 to address 1

When setting up/controlling a network of sensors, the sensor addresses need to be assigned within the SDI-12 commander as well. In order to assign the sensor address to a sensor tab, click the tab and then click the “Buttons” menu, select “change sensor address” and enter the sensor address. You can save a network configuration in the “file” menu.

### 3. Adding new sensors

In the File Menu, press “Add sensor to the network” select “ADD NEW SENSOR” and press the “OK” button. Select the Tab corresponding with the new sensor in the main menu. Click the “Buttons” menu and click “edit buttons”.

In the “Edit Sensors and Buttons” pop up window, SDI-12 commands can be assigned to sensors (Tabs), pages and buttons. Furthermore, the sensor name and address can be edited.

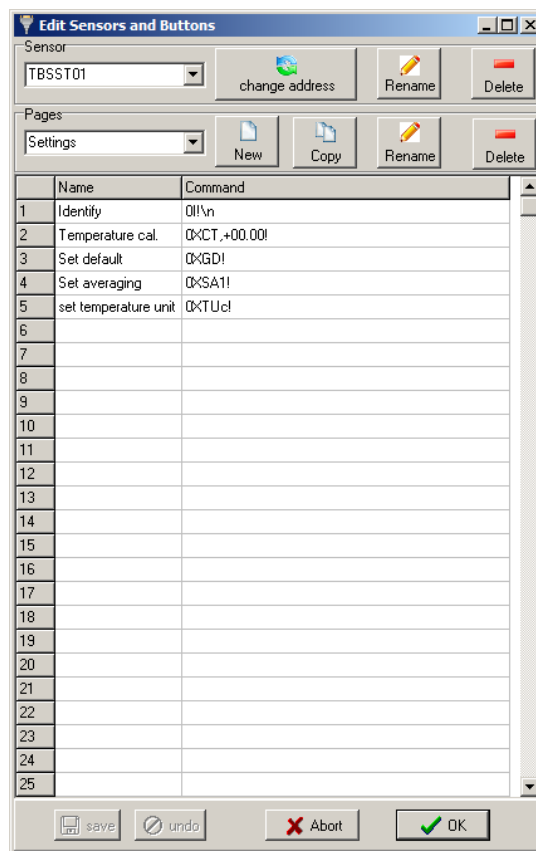
Pages serve to sort SDI-12 commands according to user preferences. In order to make a new page, press the “New” button and enter a page name into field popping up. Then press the “Save” button.

Use the “Page” field to select pages for editing.

The buttons can be defined in the two columns of the “Edit Sensors and Buttons” window. Enter the text that you want to have displayed on the button into the “Name” column. Enter the corresponding SDI-12 command into the “Command” column.

It is recommended to enter the SDI-12 commands using the character “a” for the address. The SDI-12 commander will then replace the “a” character with the selected address, when sending the string. Every SDI-12 command must end with a “!”

It is not required to enter any characters for <CR><LF>. The SDI-12 commander will automatically append carriage return / line feed to every SDI-12 string.



Picture 8 – button configuration window

Alternatively, button files can be created manually by using Wordpad or a similar editor. The button files must be saved as *Sensor name.btn* files to the “template” folder of the SDI-12 Commander Lite directory. Pictures of new sensors can be saved to the “products\_jpeg” folder.

Example of a \*.btn file:

```
[Settings]
Identify=aI!
Set Temperature unit °F=aXF!
Set Temperature unit °C=aXC!
[Measure cmd]
Identify=aI!
Rel. Humidity=aM!
Rel. Humidity+Temp=aM1!
Temperature=aM2!
Dew point=aM3!
Abs. Humidity=aM5!
estd. cloud height=aM6!
All parameters=aM7!
Hum+Temp+Dew=aM4!
Read Data=aD0!
[Auto measurement]
r. Humidity=run auto aM! 200
Dew point=run auto aM3! 200
R. humidity & Temperature=run auto aM1! 200
Temperature=run auto aM2! 200
r. Humidity+Temp+DP=run auto aM4! 200
All parameters=run auto aM7! 200
```

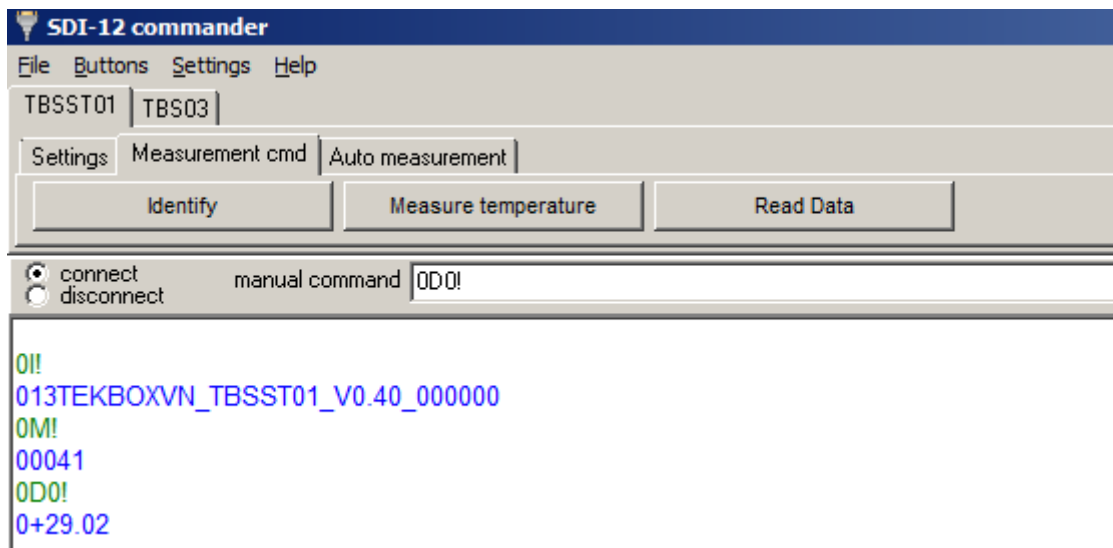
Tabs are placed in [ ] brackets. The button text and the associated SDI-12 command are separated with a “=” character. The address is represented by the “a” character and will be replaced by the actual address at run time according to the address assigned to the buttons.

## 4. Adding new sensors

Click the tab of the sensor that you want to remove from your network. Then click “Buttons”, “Remove Sensor”.

## 5. Executing SDI-12 commands

Ensure that all sensors have a unique SDI-12 address configured and that all sensor tabs have the corresponding address assigned. Click the Tab of the sensor that you would like to use and simply press the buttons with the commands that you want to issue.



Picture 9 – SDI-12 commands/response issued by pressing buttons

Sent strings are displayed in green color. Received commands are displayed in blue color.

The SDI-12 commander can also be used to transmit manually entered commands. Enter the string into the “manual command” – line and press the enter button or click the “execute command” button to the right of the command line.

## 6. Logging

The contents of the communication can be logged by clicking “File”, “save session”. The contents of the log window can be cleared by clicking “File”, “clear Log”.

## 7. Adding custom sensors

To add a custom sensor, click “new sensor” in case that you like to create a button file from scratch, or use an existing button file and modify it. Then click “save button file (YOUR\_SENSOR\_NAME)”, and save it into the template folder. After that, a dialog will ask you to select a picture representing the sensor. After selecting the picture, your custom sensor is added to the template folder.

You can change sensor pictures or add more photos, by modifying the contents of the “user\_icons” folder. Icons in this folder are shown upon saving new button files. Alternatively you can save new pictures into the “products\_jpeg” folder

## 8. Trouble shooting

**SDI-12 COMMANDER LITE MANUAL**

In case of problems with connecting to the TBS03, ensure that the COM port settings in the settings menu correspond with the COM Port assigned and shown in Windows HW manager. Check if the connect/disconnect buttons are set to *connect*. If this will not help, close the SDI-12 commander, unplug the TBS03 from USB, reconnect and then restart the SDI-12 commander.

## 9. History

Version	Date	Author	Changes
V 1.0	23.05.2013	Mayerhofer	Creation of the document