

# User Guide for Remote Control of SICRIT® SC-30 Control Unit



## System Requirements for Remote Operation

For remote control of the SICRIT® SC-30 Control Unit, the software settings of the SC-30 must be checked, and the Plasmion Suite software must be installed on the remote PC. The connection is established via the Ethernet port on the rear side of the device (see Figure 1).

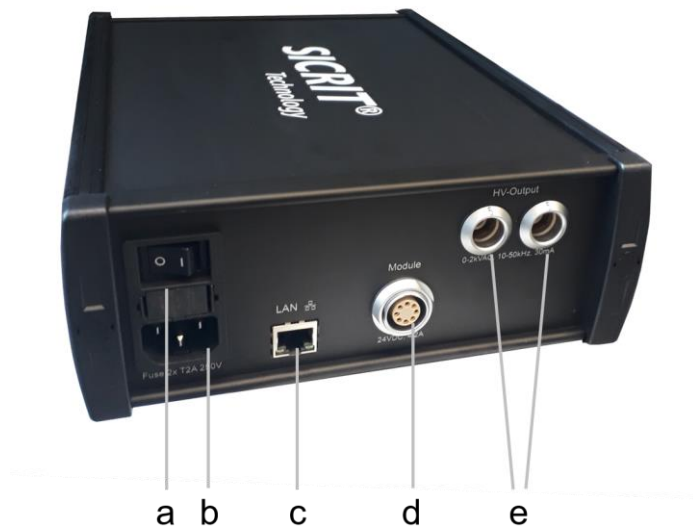


Figure 1: SICRIT® SC-30 rear view with c) ethernet port.

### SC-30 Control Unit

- Firmware version 2.7 or higher.

To run the Plasmion Suite, you'll need to have access to a PC that meets the following requirements:

#### Hardware

- Dual Core CPU @ 2000 MHz
- 8 GB RAM
- 512 GB HDD/SSD space
- Network access to use SC30 device via LAN

#### Software

- Windows 7 Home or higher (Windows 10 Pro recommended)
- .NET Framework 4.7.2

## Configuration of the SC-30 Control Unit

For configuration of the SC-30 Control Unit please follow these steps:

- To check the actual software status of the Control Unit, turn on the device
- Switch to the *status* menu by using the rotary encoder
- Check the configured IP address and firmware version

For remote control of the SC-30, the firmware version must be **2.7 or higher**

If you need a suitable firmware version, please get in contact with Plasmion.

- To update your firmware version, please remove the SD card from the SD card slot on the front side
- Replace the .bin file of the installed firmware by the file *FW\_SC30\_027.bin* (see Fig. 2)

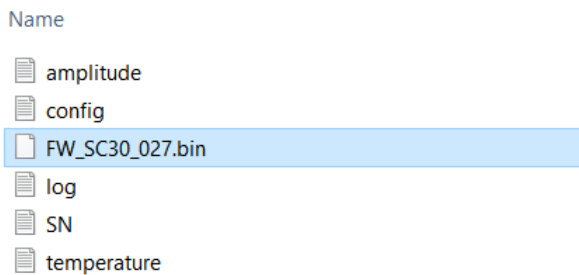


Figure 2: Configuring the firmware of the SC-30 Control Unit.

If there is the need for use of a specific IP address for the SC-30 Control Unit, the IP address can be set in the *config.txt* file on the SD card (see Fig. 3)

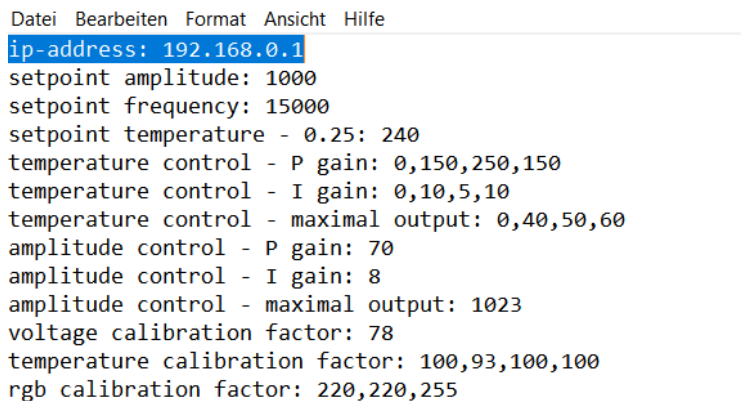


Figure 3: IP settings in the config-File.

## Installation and Startup of the Plasmion Suite

The Plasmion Suite Software can be run by user after the software has been licensed by Plasmion. To get your software licensed, please follow these steps:

- Download the Plasmion Suite folder
- Open the PlasmionSuite.exe
- Make a note of the hardware ID that is displayed in the window that pops up (see Fig. 4)
- Request a license by contacting [support@plasmion.de](mailto:support@plasmion.de) and providing the Hardware ID
- Once you have a license file for your Hardware-ID, please place it in the same folder as the PlasmionSuite.exe main program file. It must retain the file extension “.license”.

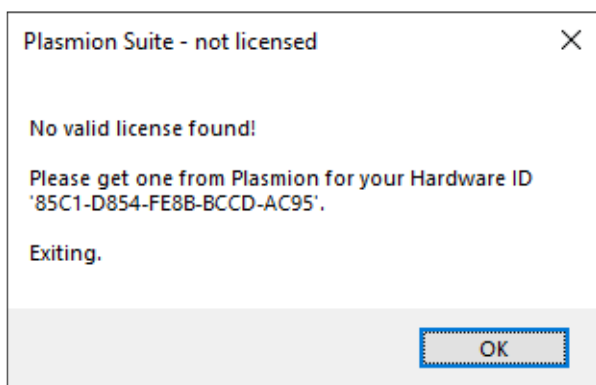


Figure 4: Hardware License window.

After licensing, the Plasmion Suite can be run, and the start screen will be displayed (see Figure 5)

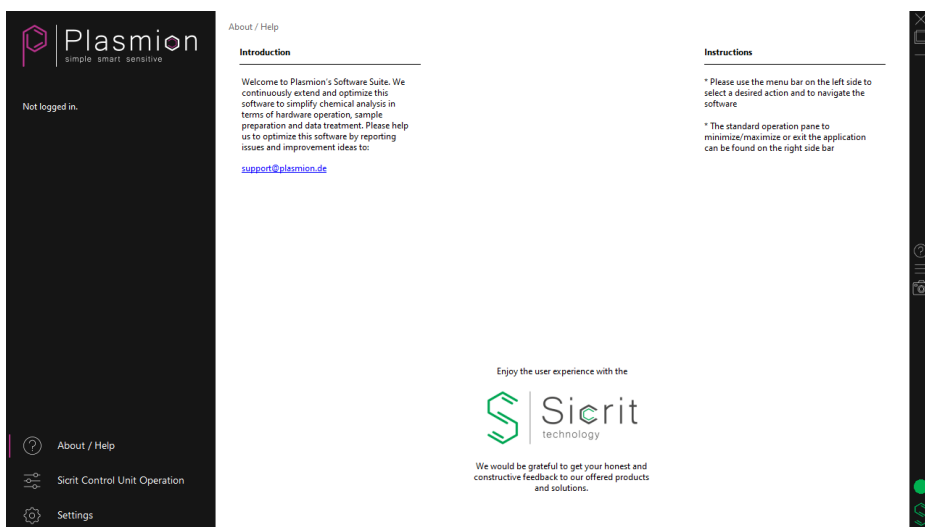
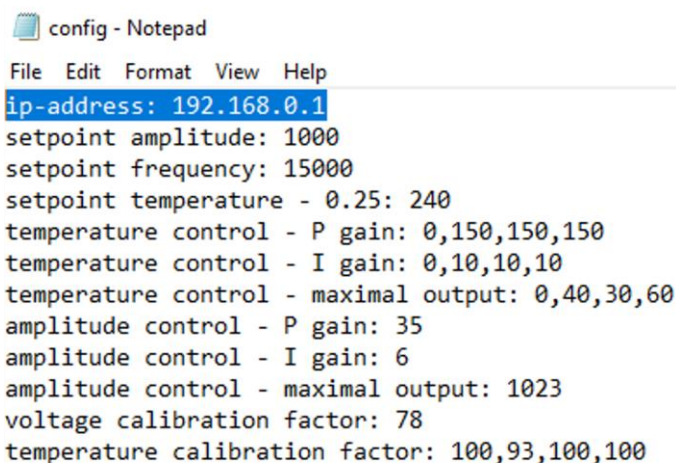


Figure 5: Start screen of the Plasmion Suite with menu bar on the left side.

## Operating the SC-30 Control Unit remotely via the Plasmion Suite

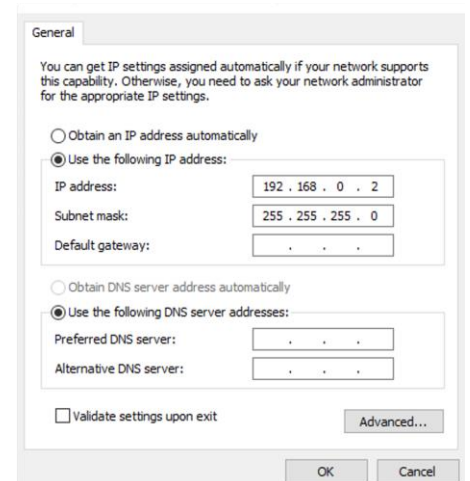
- Connect the SC-30 Control Unit via LAN cable with the PC
- Set IP address on your PC to match SC-30 Control Unit settings (Fig.6). If necessary, change the IP address to follow your organization IT policy.
- Turn on SC-30 Control Unit
- Start the Plasmion Suite Software
- Click on “Settings” in the menu bar on the left sight
- Enter the IP address of the SC-30 device (see Fig. 6). By pressing the “Test” button you can check if the communication can be successfully established
- Save the settings

### A – SC-30 Control Unit Settings



```
config - Notepad
File Edit Format View Help
ip-address: 192.168.0.1
setpoint amplitude: 1000
setpoint frequency: 15000
setpoint temperature - 0.25: 240
temperature control - P gain: 0,150,150,150
temperature control - I gain: 0,10,10,10
temperature control - maximal output: 0,40,30,60
amplitude control - P gain: 35
amplitude control - I gain: 6
amplitude control - maximal output: 1023
voltage calibration factor: 78
temperature calibration factor: 100,93,100,100
```

### B – PC Ethernet Adapter Settings



General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address:

Subnet mask:

Default gateway:

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server:

Alternative DNS server:

Validate settings upon exit

Advanced...

OK Cancel

Figure 6: Matching IP address settings for both SC-30 Control Unit (A) and PC (B).

Settings  
Control Unit

**Connection settings**

IP address:

Port number:

Connect on startup

Connection successful.

**Default values**

Amplitude (V):

Frequency (Hz):

Temperature (°C):

**Actions on connect**

Lock manual device controls

Update date & time

Use default values to start device

Workflow

**Common**

Show industrial workflow

Show laboratory workflow

Show web database

Use bold font for menu items

Dark mode

**Industrial**

**Laboratory**

Show Auto-Sampler software

Show Mass Spectrometry software

Show automatic workflow

Show breath analysis

Embedded Software

**Auto-Sampler**

AS Software  ...

PAL Sample Control  ...

**Mass Spectrometry**

MS Software  ...

**Custom**

...

...

...

Figure 7: Setting IP address and testing of communication with SC-30 Control Unit.

After these initial configuration steps, the SC-30 Control Unit can now be remotely controlled.

For operation of the SICRIT® Ion Source and additional modules, you can choose between different settings within the *Settings Menu* regarding default values and start procedures.

### Default values

You can define specific HV and temperature values which will be automatically loaded after connection with the control unit.

#### Amplitude

Specifies a default amplitude to be used at the ion source; range 0V - 2500V, in 50V steps.

#### Frequency

Specifies a default frequency to be used at the ion source; range 10kHz - 50kHz, in 250 Hz steps.

#### Temperature

Specifies a default temperature to be used by the add-on module; range 0°C – 500°C, in 1°C steps

Settings  
Control Unit

**Connection settings**

IP address:

Port number:

Connect on startup

Connection successful.

**Default values**

Amplitude (V):

Frequency (Hz):

Temperature (°C):

**Actions on connect**

Lock manual device controls

Update date & time

Use default values to start device

Workflow

**Common**

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AS Software  ...

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MS Software  ...

**Custom**

...

...

...

Figure 8: Setting default values for ion source and add-on modules. For HV output, 1500 V and 15000 Hz are recommended. Please note, depending on the specific heater add-on, the temperature might differ.

## Actions on Connect

You can define specific actions which will be automatically executed after connection with the control unit.

### *Lock manual device controls*

Determines whether the control unit's manual controls (on the actual device) will be automatically locked once a connection to it is established (Plasmion logo will be displayed).

### *Update date & time*

Determines whether the control unit's date and time values (on the actual device) will be automatically updated to the current PC system values once a connection to it is established.

### *Use default values to start device*

If enabled, the high-voltage output of the control unit will be automatically enabled once a connection has been established, along with the heater, if one is connected. The temperature of the heater will be set according to the default temperature.

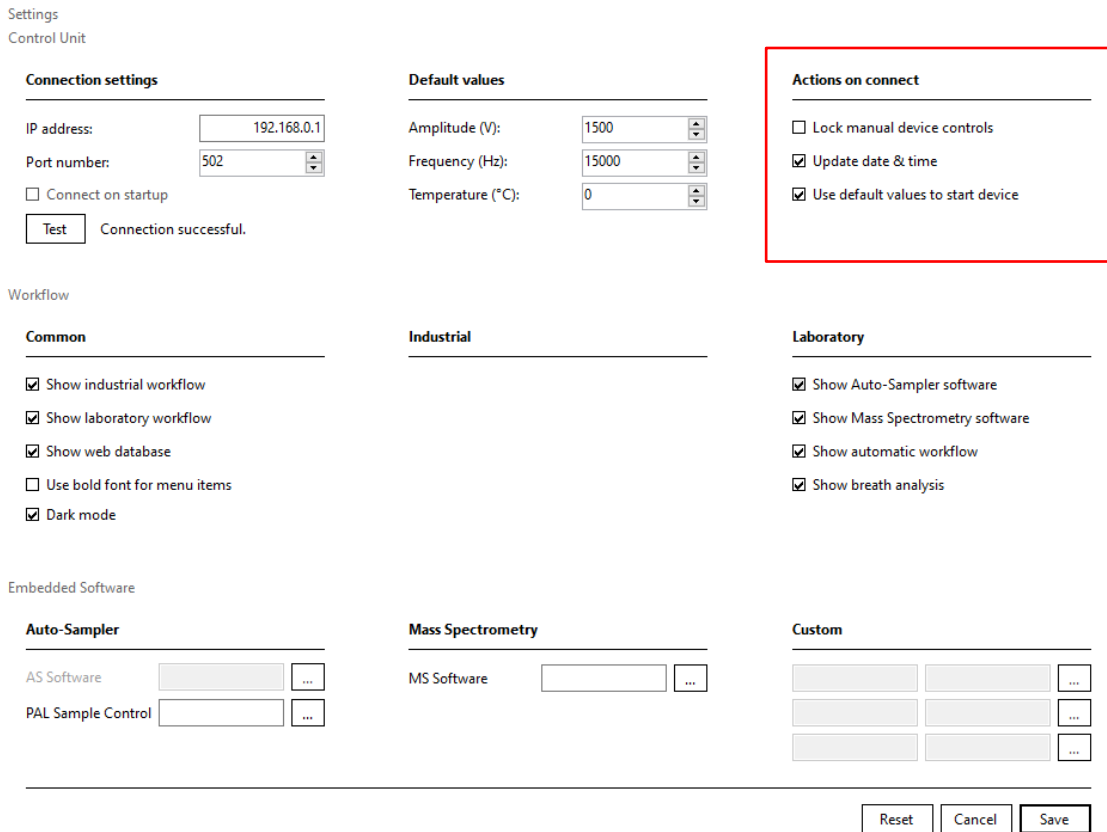


Figure 9: Setting actions on connect.

After definition of the start-up settings, you can switch to the *SICRIT Control Unit Operation* menu.

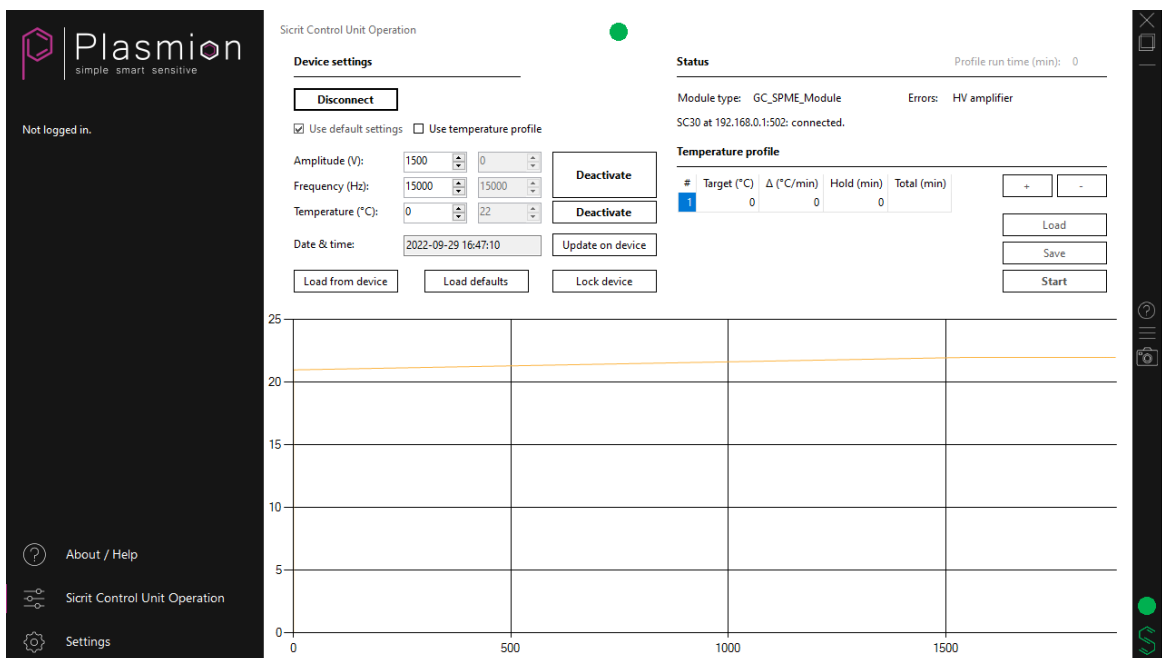


Figure 10: Control Unit Operation window for Remote Operation.



In this window, the status of the SC-30 Control Unit is displayed and HV and add-on module outputs can be set. Furthermore, there is the possibility to create temperature profiles for programmed heating of the connected heater module.

All default values can be changed in the central *Settings*.

If the *“Use default settings”* checkbox under the *“Connection”* heading is checked and a connection is established, all the default values will be set on the device as shown in the user interface immediately after connecting, otherwise the settings will only be applied after the user presses the *“Set”* button.

The number boxes under the *“Device settings”* heading show the current settings on the left and the current measured values on the right. To restore the default values to the user interface the *“Load defaults”* button can be used; please note, this only restores the default values to the user interface, not the control unit – to apply them to it, please press the *“Activate”* button. To load the actual values from the control unit, please press the *“Load from device”* button.

For remote operation, please follow these steps

- Press the connect button to establish the connection with the control unit
- If the HV and/or temperature output is not automatically activated (depending on the default settings), set the target values, and activate them by the *“Activate”* buttons

The status label and error textbox under the **“Status”** heading inform the user about the current state of the SC-30 control unit, connected add-on module, and any errors in communication with it etc., while a small traffic light like symbol in the top right reflects the current connection status.

The lower part of the windows displays the temperature curve of the connected add-on module.

The app also allows the user to run a preconfigured temperature profile using the SC-30 control unit. For this, the user can set up to 15 points to build a curve that the device will follow. The user can add or remove points by using the *“+”* and *“-”* buttons. A temperature profile (\*.tpro) can be saved and loaded with the *“Save”* and *“Load”* buttons respectively, pressing the *“Start”* button runs it on the device. The blue line in the graph on the right side denotes the temperature profile points as set, the orange one shows the actual temperatures as measured on the device.