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# 19" HVPS-HC Module 2 Channel (Release R019)



## Manual



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..... **CONCEPT**

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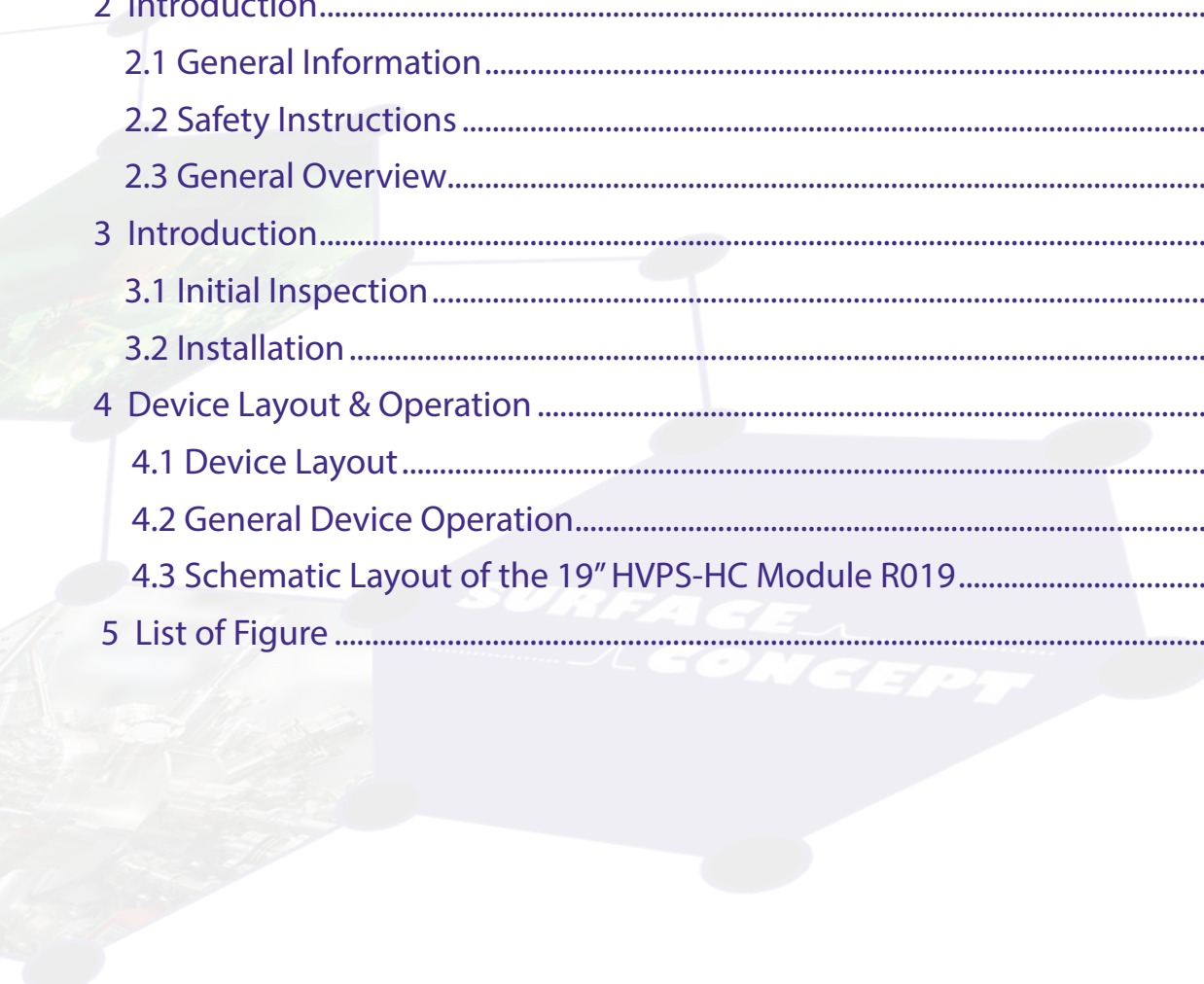
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User Manual for the  
19" HVPS-HC Module 2 Channel  
Release: R019  
Manual Version 2.0  
Printed on 2020-07-17

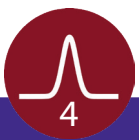


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## 2 Introduction

### 2.1 General Information

This manual is intended to assist users in the installation, operation and maintenance of Release Version 019 of the 19" HVPS-HC Module. It is divided into 5 chapters.

### 2.2 Safety Instructions

Please read this manual carefully before performing any electrical or electronic operations and strictly follow the safety rules given within this manual.

The following symbols may appear throughout the manual:



**Note**

The “note symbol” marks text passages that contain important information/hints about the operation of the device. Follow this information to ensure a proper operation of the device.



**Caution**

The “caution symbol” marks warnings, which are given to prevent an accidental damaging of the device. Do **NOT** ignore these warnings and follow them **strictly**. Otherwise no guarantee is given for arose damages.



The “high voltage symbol” marks warnings, given in context with the description of the operation/use of high voltage supplies and/or high voltage carrying parts. Hazardous voltages are present that can cause serious or fatal injuries. Therefore only persons with the appropriate training are allowed to carry out the installation, adjustment and repair work.

## 2.3 General Overview

The Surface Concept 19" HVPS-HC Module R019 is a 2 channel high voltage module especially designed for the Surface Concept 19" Basic Unit, a modular supply system.

The 19" HVPS-HC Module R019 provides two separate high voltages with a fixed polarity. There is a 2-fold fan-out for each HV channel to provide the output voltage to a second SHV connector for each channel.

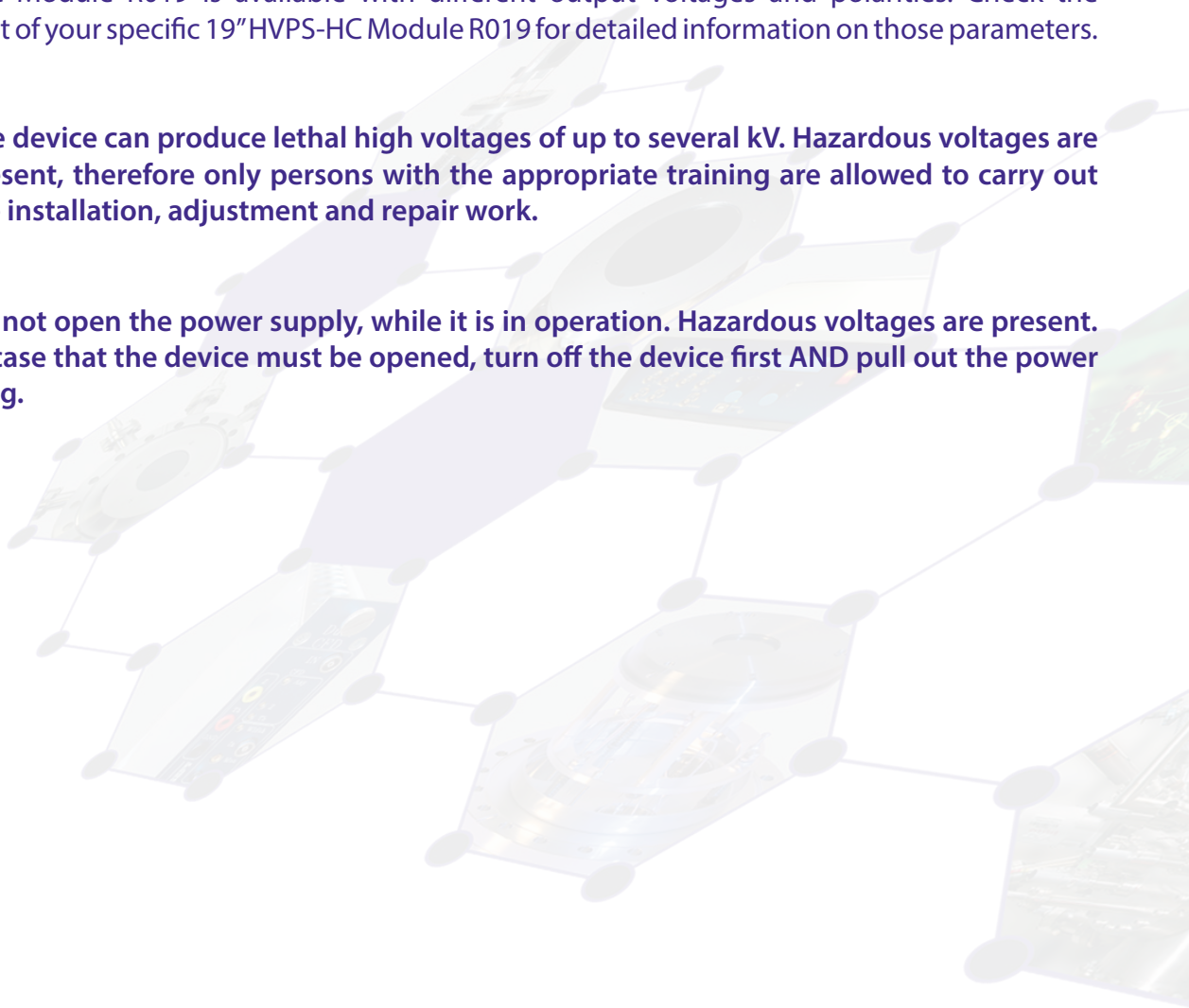
The 19" HVPS-HC Module R019 is available with different output voltages and polarities. Check the specification sheet of your specific 19" HVPS-HC Module R019 for detailed information on those parameters.



**The device can produce lethal high voltages of up to several kV. Hazardous voltages are present, therefore only persons with the appropriate training are allowed to carry out the installation, adjustment and repair work.**



**Do not open the power supply, while it is in operation. Hazardous voltages are present. In case that the device must be opened, turn off the device first AND pull out the power plug.**



# 3 Introduction

## 3.1 Initial Inspection

Visual inspection of the system is required to ensure that no damage has occurred during shipping. If there are any signs of damage, please contact SURFACE CONCEPT immediately. Please check the delivery according to the packing list (see **Table 1**) for completeness.

- 1x 19" HVPS-HV Module R019

Table1: Packing list for the 19" Basic Unit R019.

## 3.2 Installation

The general connection scheme of the 19" HVPS-HC Module R019 is as follows:

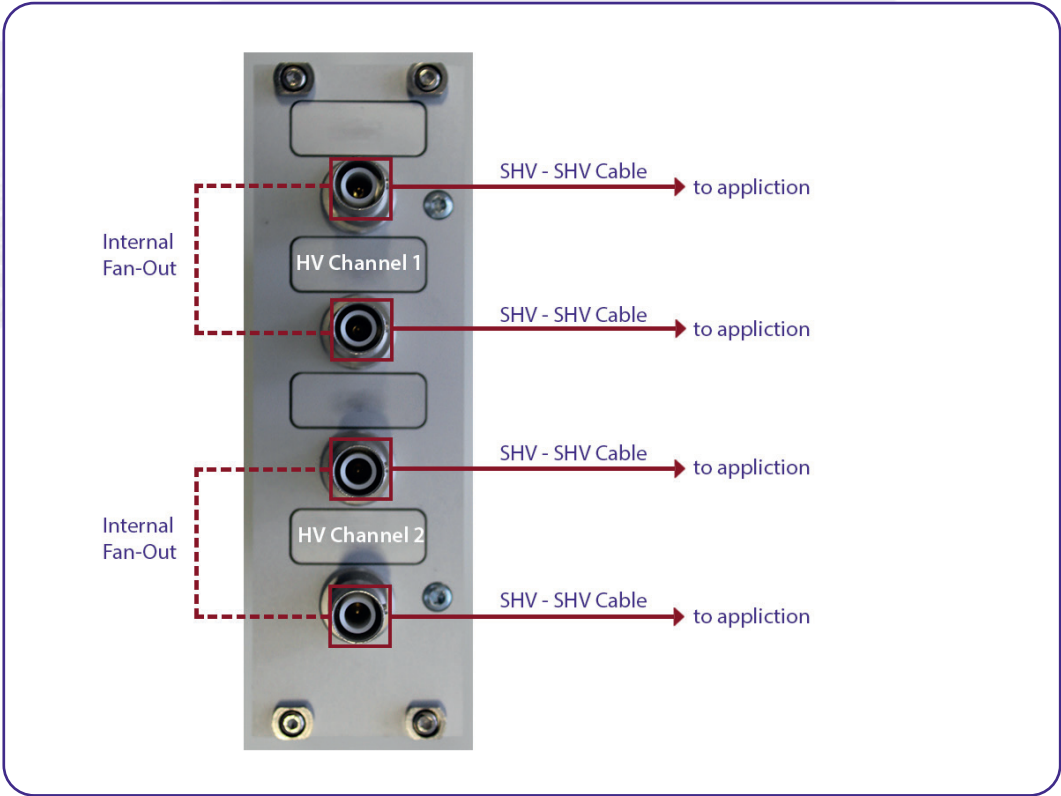


Figure 1: Connection scheme of the 19" HVPS-HC Module R019.



- Install the 19" HVPS-HC Module R019 into a free slot of the 19" Basic Unit (if not already installed).
- Use SHV cables to connect to your application.



**Finish the complete cabling of the 19" HVPS-HC Module R019 before switching on the 19" Basic Unit and switch off the device first before performing any changes to the cabling.**





## 4 Device Layout & Operation

### 4.1 Device Layout

The layout of the 19" HVPS-HC Module R019 is given below.



1. 2xSHV connector (a,b) with integrated fan-out for output of operation voltage for the first HV channel.
2. 2xSHV connector (a,b) with integrated fan-out for output of operation voltage for the second HV channel.

Figure 2: Layout of the 19" HVPS-HC Module R019.

## 4.2 General Device Operation

After switching on the 19" Basic Unit, the display shows the "Surface Concept" animated logo, while the device is scanning for the 19" HVPS-HC Module R019 and its specific settings. This can take up to several seconds. If the 19" Basic Unit is ready for operation, it switches into the standby mode and shows an empty mask for the voltage adjustment (see **Figure 3**).

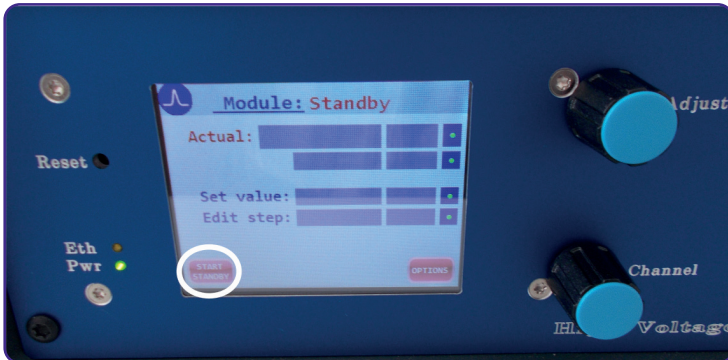


Figure 3: Standby mode.

Push the "Start/Standby" button in the lower left corner of the display to switch on the high voltage.

Alternatively one can press the "Channel" control knob.

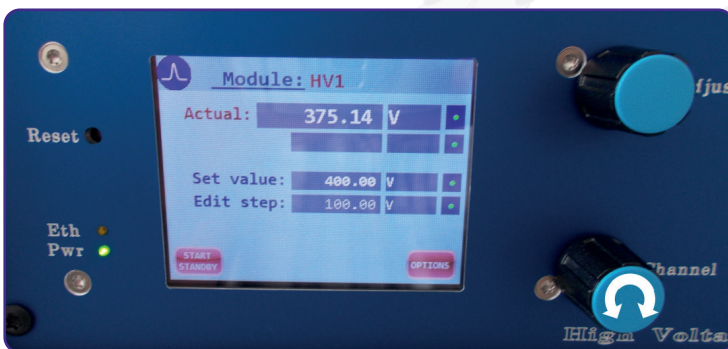


Figure 4: Operation mode.

After switching on the high voltage the device is in the so called operation mode. In operation mode the display shows the name of the selected channel in the top line (in this case "HV 1") as well as the output voltage of that channel.

The different HV channels can be selected by turning the "Channel" control knob.

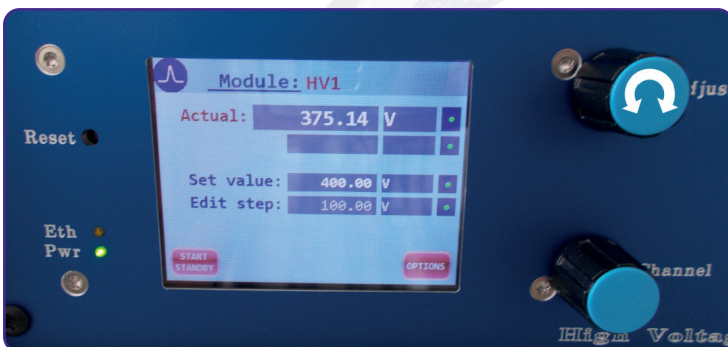
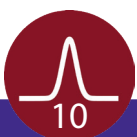


Figure 5: Operation mode – voltage adjustment.

The "Adjust" control knob is used to adjust the output voltage. Turn the "Adjust" control knob clockwise/counterclockwise to increase/decrease the value of the output voltage in a step width as defined in the line "edit step".

The line "set value" displays the nominal value for the output voltage as adjusted by the user. Voltage adjustment can only be made in this line.

The line "actual" displays the actual value for the output voltage on the output connector as measured by the device. The device always regulates the actual value of the output voltage to fit to the nominal value as set by the user. Hereby the voltage measurement is always a relative measurement between the two HV outputs of one channel. Additional reference voltages (e.g. in floating operation) are not measured and therefore are also not displayed (see the manual of the specific module for further details). Turn the "Adjust" control knob clockwise/counterclockwise while pushing it to increase/decrease the step width in the line "edit step".



Push the „Start/Standby“-button in the lower left corner of the display again to switch back to the "Standby" mode.

### 4.3 Schematic Layout of the 19" HVPS-HC Module R019

Figure 6 shows the schematic layout of the 19" HVPS-HC Module R019 and especially the layout of the HV outputs. An internal controller measures the output voltage and regulates it to the nominal value entered by the user or set as default value within the device. Hereby the voltage measurement is always a relative measurement. The output polarity is fixed defined (see the specific specification sheet for details on the max. output voltage and the polarity). The device comes with an integrated 2-fold fan-out for the output voltage of each channel. Figure 6 also shows the internal load and measuring resistors.

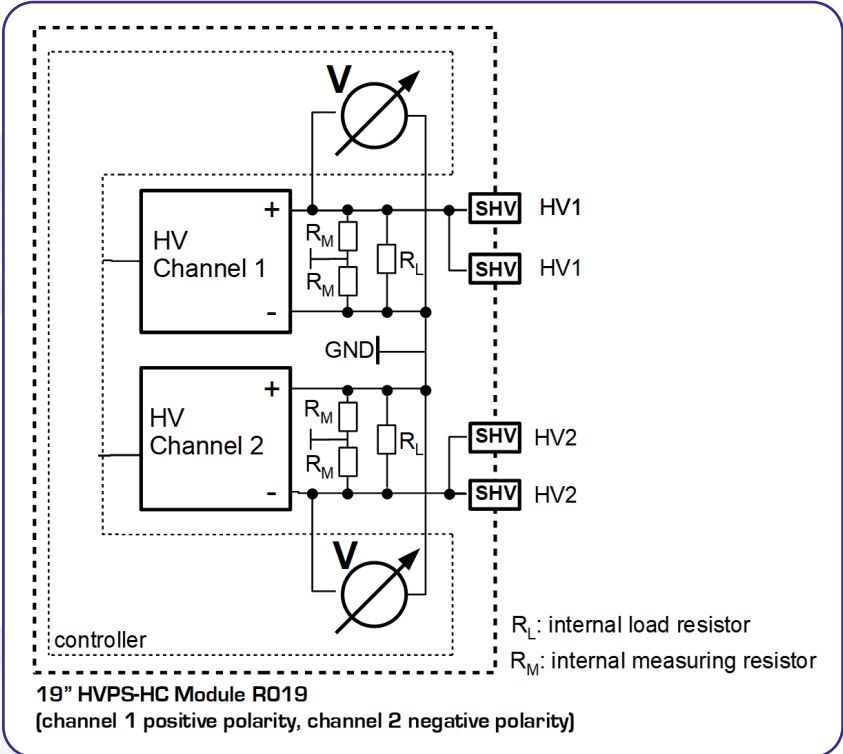


Figure 6: Schematic layout of the 19" HVPS-HC Module R019 exemplary in the connection layout with a positive HV polarity for HV channel 1 and a negative HV polarity for HV channel 2.

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# 5 List of Figure

Figure 1: Connection scheme of the 19" HVPS-HC Module R019.....7

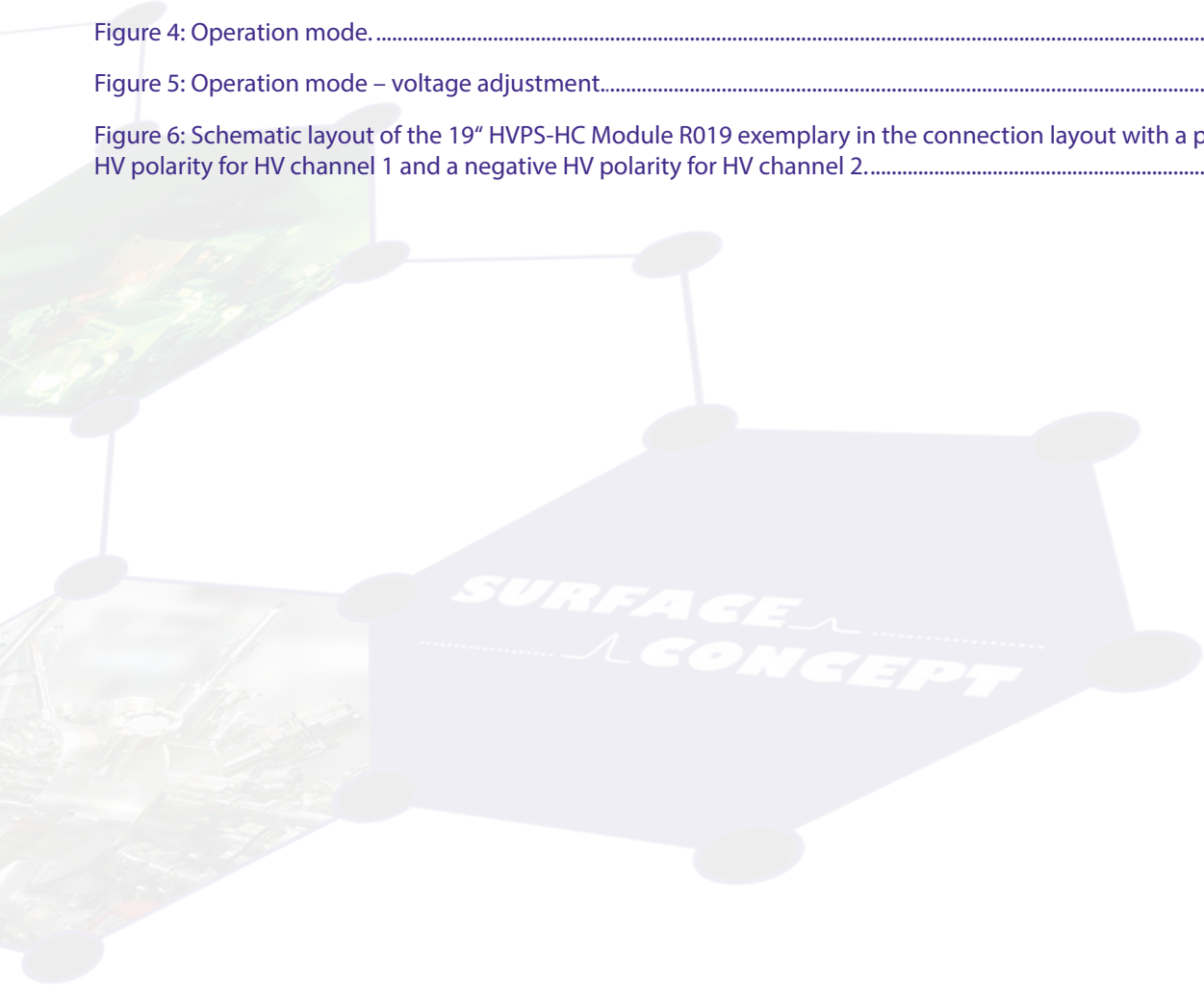
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Figure 6: Schematic layout of the 19" HVPS-HC Module R019 exemplary in the connection layout with a positive HV polarity for HV channel 1 and a negative HV polarity for HV channel 2..... 11





# EC Declaration of Conformity

Manufacturer

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Product Model

High Voltage Power Supply  
19" HVPS-HC Module

The above named products comply with the following European directive:

89/336/EEC

Electromagnetic Compability Directive, amended by 91/263/ EEC and 92/31/ EEC and 93/68/EEC

73/23/EEC

Low Voltage Equipment Directive, amended by 93/68/EEC

The compliance of the above named product to which this declaration relates is in conformity with the following standards or other normative documents where relevant:

EN 61000-6-2:2005+AC:2005

Electromagnetic compatibility (EMC):  
Generic standards - Immunity for industrial environments

EN 61000-6-4:2007+A1:2011

Electromagnetic compatibility (EMC):  
Generic standards - Emission standard for industrial environments

EN 61010-1: 2010

Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use

For and on behalf of Surface Concept GmbH

Mainz,.....01.10.2019.....  
(Date)

Legal Signature.....  
(Dr. Andreas Oelsner)

This declaration does not represent a commitment to features or capabilities of the instrument. The safety notes and regulations given in the product related documentation must be observed at all times.

