

## Product Datasheet - Technical Specifications



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# PeakTech®

## Prüf- und Messtechnik

 Spitzentechnologie, die überzeugt



**PeakTech®** 1565 / 1570 / 1575  
/

1590 / 1595

**Bedienungsanleitung /  
Operation manual**

**DC – Schaltnetzteile mit USB-Schnittstelle /  
Switching Mode DC Power Supplies with  
USB-interface**

## **1. Safety Precautions**

This product complies with the requirements of the following European Community Directives: 2004/108/EC (Electromagnetic Compatibility) and 2006/95/EC (Low Voltage) as amended by 2004/22/EC (CE-Marking).

To ensure safe operation of the equipment and eliminate the danger of serious injury due to short-circuits (arcing), the following safety precautions must be observed.

Damages resulting from failure to observe these safety precautions are exempt from any legal claims whatever.

- \* Do not use this instrument for high-energy industrial installation measurement.
- \* Prior to connection of the equipment to the mains outlet, check that the available mains voltage corresponds to the voltage setting of the equipment.
- \* Connect the mains plug of the equipment only to a mains outlet with earth connection.
- \* Do not place the equipment on damp or wet surfaces.
- \* Do not cover the ventilation slots of the cabinet to ensure that the air is able to circulate freely inside.
- \* Do not insert metal objects into the equipment by way of the ventilation slots.
- \* Do not place water filled containers on the equipment (danger of short-circuit in case of knock over of the container).
- \* Do not exceed the maximum permissible input ratings (danger of serious injury and/or destruction of the equipment).
- \* Do not exceed maximum load ratings of 40 A (P 1565), 60 A (P 1570), 20 A (P 1575), 30 A (P 1580), 15 A (P 1585), otherwise it may damage the power supply.
- \* Never use the power supply for the load requiring higher current than the designed value otherwise it may damage the power supply.
- \* Replace a defective fuse only with a fuse of the original rating. Never short-circuit fuse or fuse holding.
- \* To avoid electric shock, do not operate this product in wet or damp conditions. Conduct measuring works only in dry clothing and rubber shoes, i. e. on isolating mats.
- \* Never touch the tips of the test leads or probe.
- \* Comply with the warning labels and other info on the equipment.
- \* Do not subject the equipment to direct sunlight or extreme temperatures, humidity or dampness.
- \* Do not subject the equipment to shocks or strong vibrations.
- \* Do not operate the equipment near strong magnetic fields (motors, transformers etc.).
- \* Never short the remote sensing terminals.
- \* Keep hot soldering irons or guns away from the equipment.
- \* Use caution when working with voltages above 35 V DC or 25 V AC. These Voltages pose shock hazard.
- \* Periodically wipe the cabinet with a damp cloth and mild detergent. Do not use abrasives or solvents.
- \* The power supply is suitable for indoor use only
- \* Do not operate the power supply before the cabinet has been closed and screwed safely as terminal can carry voltage.
- \* Do not store the power supply in a place of explosive, inflammable substances.
- \* Do not modify the equipment in any way
- \* Do not place the equipment face-down on any table or work bench to prevent damaging the controls at the front.
- \* Opening the equipment and service – and repair work must only be performed by qualified service personnel
- \* **Measuring instruments don't belong to children hands.**

## **Cleaning the cabinet**

Prior to cleaning the cabinet, withdraw the mains plug from the power outlet. Clean only with a damp, soft cloth and a commercially available mild household cleanser. Ensure that no water gets inside the equipment to prevent possible shorts and damage to the equipment.

## **1.1. Introduction**

The models **PeakTech**<sup>®</sup> 1565 / 1570 / 1575 / 1580 and 1585 Switching Mode DC Power Supplies provide high power output with its small size and lightweight. They are suitable for a variety of uses, especially for DC operated radio equipment.

Please read through this operation instruction carefully and follow the instructions to prevent from abuse or misuse. This manual must be kept for reference at anytime in need.

### **NOTE:**

Laboratory Power Supplies are not designed for charging batteries. Any use of this type can cause serious damage to the device, which are exempt from any legal claims whatever.

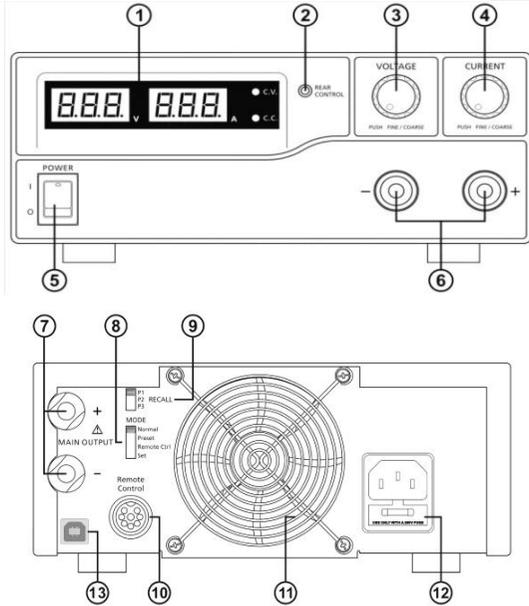
## **Operation with inductive loads**

Please note that our power supplies are designed for resistive or capacitive loads. When using an inductive load, e.g. Electric motors, it may damage the power supply. The power supply has protective functions against short circuit and overload, but it is not a protection against inductive reverse voltages, which can be caused by electric motors or batteries.

## **2. Features**

- \* Lightweight and Small Size: Switching mode power supply has the advantages of lightweight and small size. Comparing with linear mode power with the same power output, it is much lighter and smaller.
- \* High Efficiency: The unit is operated with efficiency over 85 % (P 1565/1570); 87 % (P 1575); 86 % (P 1580); 88% (P 1585) under the best condition.
- \* Overload Protection: The constant current limiting protection is adopted to prevent from overload. The overload indicator will be lighted up when the unit is overloaded.
- \* Over Temperature Protection: The over temperature circuitry is functioned when the unit is over a certain high temperature to prevent the unit from damage by the high temperature. When the circuitry is functioned, the output voltage and current will drop down to a safety value.
- \* Over Voltage Protection: The over voltage circuitry the unit and the loading equipment form damage by abnormal high output voltage.
- \* High RFI Stability: The high protection circuitry against RFI (Radio Frequency Interference) provides a stable operation.
- \* Variable Voltage Output: The variable range of output voltages enables good fits with various uses.

### 3. Controls and Indications (P 1565 / P 1575 / P 1585)

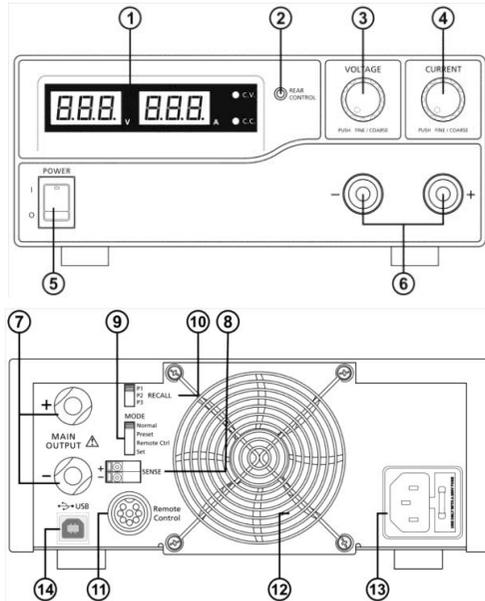


1. LED panel meter display with CC/CV Indicator
2. Rear Control Indicator (**lights up when using Preset/ Remote Control/ Set mode**)
3. Output Voltage Control Knob (**control both the main and auxiliary output voltage**)
4. Output Current Control Knob (**control both the main and auxiliary output current limit**)
5. Power ON/OFF Switch
6. Aux. output terminal (max 5A)

**Note:** The total rated current is 40 A (P 1565); 20 A (P 1575) ; 15 A (P 1585) (Aux.+Main)

7. Output Terminal
8. Mode Selection Switch (**Normal, Preset, Remote Control, Set Modes**)
9. Recall Selection Switch
10. Remote Control Terminal
11. Cooling Fan Air Intake Grille
12. AC Input Plug
13. USB port. For access to computer to run cyclical operation with programmable voltage, current, period time and cycle.

## 4. Controls and Indications (P 1570 and P 1580)



1. LED panel meter display with CC/CV Indicator
2. Rear Control Indicator (**lights up when using Preset/ Remote Control/ Set mode**)
3. Output Voltage Control Knob (**control both the main and auxiliary output voltage**)
4. Output Current Control Knob (**control both the main and auxiliary output current limit**)
5. Power ON/OFF Switch
6. Aux. output terminal (max 5A)

**Note:** The total rated current is 60 A (P 1570) resp. 30 A (P 1580) (Aux.+Main)

7. Output Terminal
8. Remote Sensing Terminal (**P 1570 only**)
9. Mode Selection Switch (**Normal, Preset, Remote Control, Set Modes**)
10. Recall Selection Switch
11. Remote Control Terminal
12. Cooling Fan Air Intake Grille
13. AC Input Plug
14. USB port: For access to computer to run cyclical operation with programmable voltage, current period time and cycle.

## **5. Installation**

1. Make grounding the unit to prevent from electric shock at high voltage caused by leakage or lightning.
2. Do not place the unit in high humid, dusty and/or sunshiny places.
3. Place the unit in a location where allows free air circulation.
4. Couple with an AC outlet directly, as source via distribution cables may heat plugs and cable.
5. Put the unit horizontally for accurate meter readings.

For Indoor Use Only.

- \* Do not use the unit for the equipment requiring higher current input respectively starting current than the designed value otherwise damages the unit.
- \* Do not replace the fuse before ceasing problems and the assigned value of fuse must be used in place. (P 1565/1575/1585 = T4L250V; P 1570/1580 = T8AL250V)
- \* If the external flexible cable or cord of this power supply is damaged, it shall be replaced by a special cord or assembly available from the manufacturer or his service agent.

### **5.1. Safety Precautions**

- \* Never touch the unit when your hands are wet.
- \* Never operate the unit if foreign materials such as metallic objects, water, or other debris have fallen inside. Contact your dealer for check and repair.
- \* Never allow foreign objects to touch the DC Power Output Terminals.
- \* Laboratory Power Supplies are not designed for charging batteries. Any use of this type can cause serious damage to the device, which are exempt from any legal claims whatever.

### **5.2. Connection and Operation**

1. Make sure the AC power source fits the input of voltage unit labelled and plug it in the AC outlet.
2. Turn ON the unit and adjust the output voltage to match with the input voltage of the equipment. Then turn OFF the unit.
3. Connect the equipment to the unit. Red (+) is connected to the positive polarity input of the equipment and Black (-) is connected to the negative polarity input of the equipment.
4. First turn ON the unit and then turn the equipment ON.
5. When and operation is finished, turn off the equipment first and then turn OFF the unit.

## **6. Additional Functions**

The following steps explain how to use the special features: remote sensing and remote control. You can use the features at the same time or separately. F position (rear panel).

### **6.1. Remote Sensing (P 1570)**

Take note of the warnings, wrong disconnection sequence will damage the Power Supply

Warning: Never short the Remote Sensing Terminal

Always disconnect Remote Sensing Terminal first.

**Connection:**  
equipment.

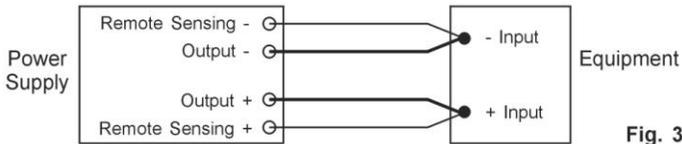
1. First complete the power connections between power supply and equipment.
2. Check and make sure the power connections are secure.
3. Then make connections between Remote Sensing and equipment.

**Warning!:**

Never short the Remote Sensing Terminal

Never connect the Remote Sensing Terminal in reverse polarity

Fig.3 Showing connection between Remote Sensing, Power output and Equipment.



**Fig. 3**

**The remote sensing wire should be AT LEAST 22 AWG (0,33 mm<sup>2</sup>) wire size.**

**Disconnection: Wrong disconnect sequence will damage power supply**

1. First disconnect the remote sensing connections.
2. Then disconnect the power connections between the power supply and equipment.

### **6.2. Control Mode Selection**

There are 4 modes, Normal, Preset, Set and Remote Control mode for the power supply.

**Slide the Mode Selection Switch (8) P 1565/1575/1580 or (9) P 1570 to your desired Mode.**

The power supply is factory preset to Normal Mode with maximum current level CC.

### **6.3. Normal Mode**

This is the factory preset mode and the power supply output V, I are controlled by the dual action volume knobs.

Push the knobs to toggle the coarse and fine tuning, notice the subtle changes in brightness of related LED.

Adjust the knobs to your desired values by trying coarse and fine tuning.

To check the preset current level, just turn the Current Knob lightly in any direction.

The display will resume its normal brightness after few seconds to double confirm your adjustment.

## **6.4. Preset Mode**

1. In this mode, the Rear Control Light is on to indicate panel V & I controls are de-activated.
2. There are 3 preset output P1/ P2/ P3 at the Recall Selection Switch (9) P 1565/1575/1585 or (10) P 1570/1580.
3. The preset values are factory set as following table.
4. End user can set his own output rating, please refer to paragraph 6.5.

<b>Recall No.</b>	<b>Output Voltage</b>	<b>Output Current</b>
P 1	5V	maximum
P 2	13,8V	maximum
P 3	PeakTech 1565: 16V PeakTech 1570: 16V PeakTech 1575: 32V PeakTech 1580: 25V PeakTech 1585: 55V	maximum

## **6.5. Set Mode**

First enter into the Set Mode by pushing Switch (8) to Set Mode slot.  
The power supply is then ready to be preset.

### **6.5.1. To define the preset output P1/ P2/ P3**

1. Select the Recall Switch to the position P1, P2 or P3 which you want to set
2. Adjust the front panel voltage control knob to set your desired voltage value
3. Adjust the front panel current control knob to set your desired current limit value
4. Repeat the procedure for remaining recalls P1, P2, P3 if desired.
5. Move Mode Switch from Set to Preset position to confirm your settings.

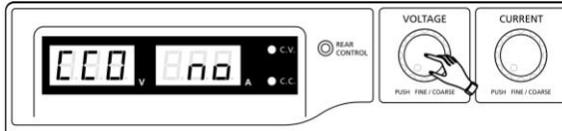
#### **Remarks:**

All the set values in the presets will be kept even after the power supply has been turned off. Always check output voltage of Presets before connect to Load. To check the preset values, move Mode Switch to Preset position. Move the Recall Switch to P1, P2 or P3. The V and I settings of corresponding RECALL P1, P2, P3 will be show on the panel meters.

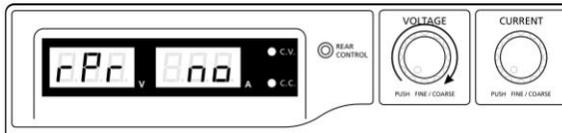
### **6.5.2. To reset the 3 preset output P1/P2/P3 to factory setting**

In session 6.51., you learning how to set 3 preset output to you preferred value. In case you need to reset it to factory default, you can do it in MENU mode.

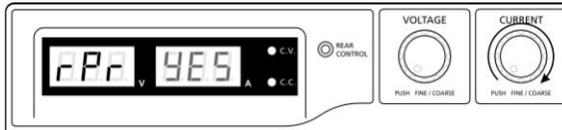
Press and hold Voltage Control Knob for 30s to enter MENU mode.



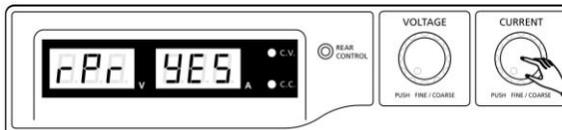
When it is showing “CCO”, rotate Voltage Control Knob until Voltage meter shows “rPr”.



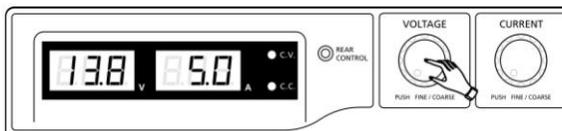
The Current meter is showing “no” at this time. Then rotate Current Control Knob until Current meter shows “YES”.



Press Current Control Knob once to confirm. The “YES” will be lighted after preset output being reset to factory default value.



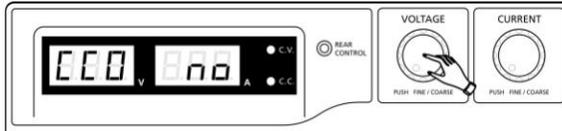
Finally press Voltage Control Knob to exit MENU mode



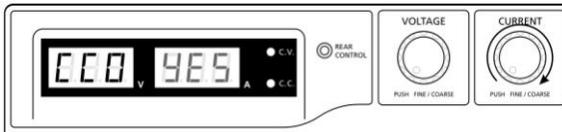
### 6.5.3. Manually zeroing Current Meter Offset

The power supply will auto-zeroing the current meter offset when powered up. In case it is needed to reset current meter to zero during test and you do not want to restart power supply. You can manually reset it to zero in menu mode.

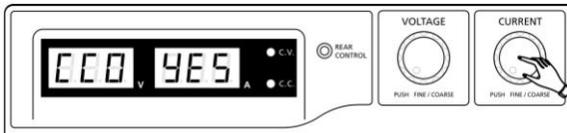
Press and hold Voltage Control Knob for 30s to enter MENU mode. It shows



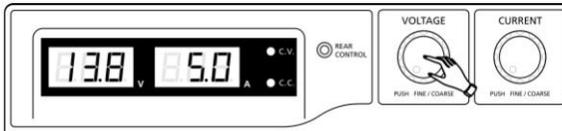
Rotate Current Control Knob until the Current meter showing



Then press Current Control Knob once to confirm. The “YES” will be lighted after successful zeroing current meter offset.



Finally, press Voltage Control Knob to exit MENU mode.



### 6.6. Remote Control Mode

To control the output voltage and current by remote control connector (10)

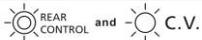
## 7. Using the power supply

1. This series has 4 models. Make sure you have used the correct one. They have different output voltage range and current as following:

Model Number	Output Voltage Range	Total Rated Current
PeakTech® 1565	1 – 16 V	0 - 40 A
PeakTech® 1570		0 - 60 A
PeakTech® 1575	1 – 32 V	0 - 20 A
PeakTech® 1580		0 - 30 A
PeakTech® 1585	1 ~ 60 V	0 - 15 A

2. Make sure that the correct model is selected before operation.
3. Make sure the Mode Switch is at Normal Position.
4. The power supply will perform a series of self checks when it is switched on. The LED and other indicators on the front panel will be on by turn. When the cooling fan is being checked, a high speed wind noise can be heard. After the self checks, the CV, V and A LED indicators are lit up displaying voltage and 0.0 current. To find out about the set CC current level, just turn the current control knob one click in either direction. The current display returns to 0.0 after a few seconds.

### Below table to show the self test sequence

Self test display and Sequence	Test contents
	To show software version
	Segment check
	C.V. Indicator check
	C.C. Indicator check
	Rear control indicator check
	Return to C.V.
	Start to check
	Over voltage protection check
	Over load protection check
	Over temperature protection check
	Fan check
	Output off (remote control mode)

## **8. Using the control knobs**

1. The rotary encoder control knobs have fine and coarse tuning with clicking movement. Push the knobs to toggle between coarse and fine tuning, notice the subtle changes in brightness of related LED. Adjust the knobs to your desired values by trying coarse and fine tuning. The display will resume its normal brightness after few seconds to confirm your adjustment.
2. Connect the equipment to the power supply. Red (+) is connected to the positive polarity input of the equipment and Black (-) is connected to the negative polarity input of the equipment.
3. Switch on the power supply first and the panel meter & green CV Indicator should light up again.
4. Switch on the equipment and the panel meter & green CV Indicator should still remain in green.
5. You can now operate the equipment. When an operation is finished, switch off the equipment first and then switch off the power supply.

## **9. Remote Control Mode**

### **9.1. Remote Control Mode (P 1565 / 1575 / 1585)**

There are two methods for remote control of current and voltage adjustment.

Both methods require current remote control part to be set up in order for remote control mode to be functional, otherwise unit will be in CC mode all the time.

#### **Method A:**

Using two external variable DC voltage sources.

<b>Remote Socket Pin Assignment for external variable voltage source</b>		
PIN	Functions	Remarks
1	Internal DC +5V	Less than 50 mA
2	Voltage Adjustment	0 – 5 V
3	Current Adjustment	0 – 5 V
4	Ground	
5	Output OFF	Short to Ground
6	N.A.	
7	N.A.	
8	N.A.	

CC current setting by remote control.

Short circuit the main output with **12AWG (3,3mm<sup>2</sup>)** wire.

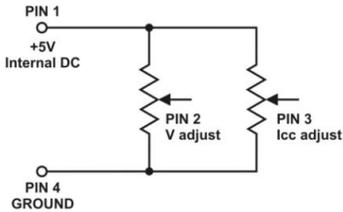
Adjust the CC current using external power supply connected to Pin 3.

Output voltage setting by remote control

Check the output voltage range of the power supply by varying the external voltage source connected to Pin 2.

**Method B:**

Using two 0-5K Ohm variable resistors



**Remark:** variable resistors 5KOhm

Remote Socket Pin Assignment for variable resistor		
PIN	Functions	Remarks
1	Internal DC +5V	Resistor end
2	Voltage Adjust	Variable part of resistor
3	Current Adjust	Variable part of resistor
4	Ground	Another resistor end
5	Output OFF	Short to Ground
6	N.A.	
7	N.A.	
8	N.A.	

CC current setting by remote control.

Short circuit the main output with **12AWG (3,3mm<sup>2</sup>)** wire.

Adjust the CC current setting using the 0-5k Ohm variable resistor.

Output voltage setting by remote control

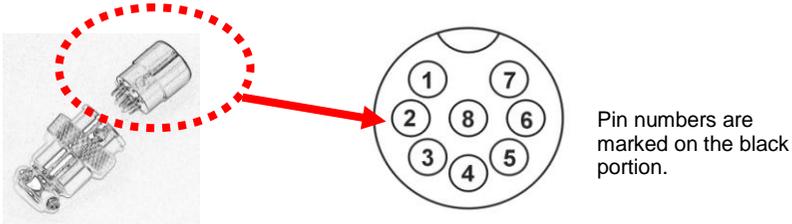
Check the output voltage range of the power supply by adjusting the 5Kohm variable resistor.

### 9.2. Remote Output ON/OFF Control (PeakTech 1565/1575/1585)

This remote output on/off control can be activated in any of the modes Normal, Preset, Remote and Set mode.

1. By default, Pin 5 is open and output is on.
2. Shorting Pin 5 to Pin 4 (ground) and output is off.
3. When output is off, the C.V. & C. C. LED's will flash. The current output voltage and current setting will show on the panel meter.
4. You can also adjust the output by voltage & current control knob to your desired value, when output is off.

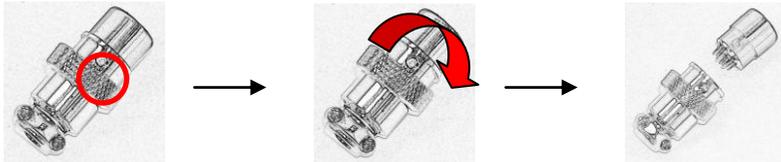
**Remark:** using the 8pin remote plug provided and connect with **22AWG (0,33mm<sup>2</sup>)** wires.



### 9.3. Remote Control (PeakTech 1570/1580)

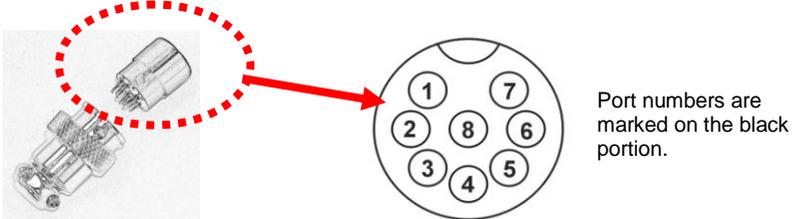
You can use the voltage and current remote control at the same time or separately. Set up the provided remote connector plug.

a.) Remove the black portion of the remote control connector plug by removing the screw.

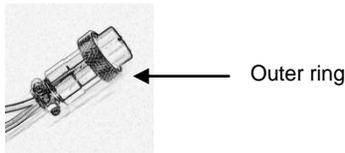


1. Remove the screw
2. Rotate the black portion
3. Black portion / silver portion

b.) Solder 3 wires **22AWG (0,33mm<sup>2</sup>)** to PORT 1, 2 & 4 of black portion.



- c.) Make sure the load is disconnected and the power supply is OFF.
- d.) Plug the remote connector plug into the remote control terminal of the power supply.
- e.) Secure the remote connector plug to the terminal socket by locking connector ring.



Then, you can choose either method A or B below to use the remote control feature:

**Method A:**

Using Voltage Source

A variable external voltage source of 0 – 5 V is fed into the remote control terminal to adjust the output voltage level.

**Warning:**

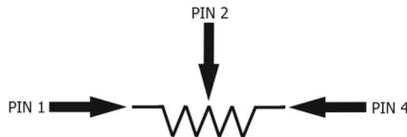
Do not input higher than 5 V, otherwise the Over Voltage Protection (OVP) will be triggered.

1. Make sure the load is disconnected and the power supply is OFF.
2. Use Only wires from port 2 and 4. Then, connect port 2 to positive polarity of the external voltage source and port 4 to negative polarity of the external voltage source.
3. Switch on the power supply.
4. Vary the external input voltage 0 – 5 V to check and verify for the full output voltage range of power supply.
5. Switch off the power supply.

**Method B:**

Using 5 kΩ Variable Resistor

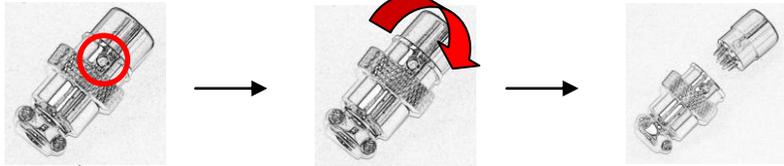
1. Make sure the load is disconnected and the power supply is OFF.
2. Prepare a 5 kΩ variable resistor and use wires from port 1, 2 and 4.



3. Switch on the power supply.
4. Adjust the 5 kΩ variable resistor from one end to other end to check and verify for the full output voltage range of power supply.
5. Switch off the power supply.

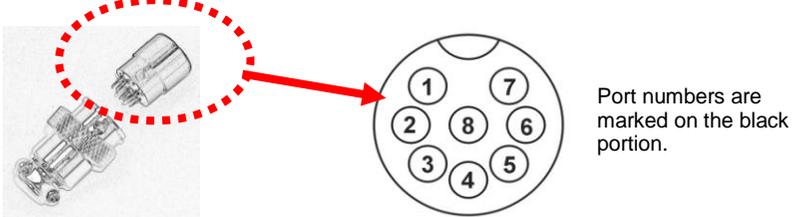
### 9.4. Current Remote Control

a.) Using the same connector plug in section 9.1. Remove the black portion of the remote control connector plug by removing the screw.

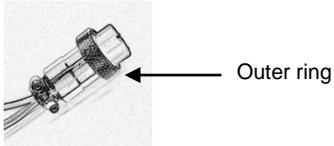


1. Remove the screw
2. Rotate the black portion
3. Black portion / silver portion

b.) Solder 3 wires **22AWG (0,33mm<sup>2</sup>)** to PORT 1, 3 & 4 of black portion as shown.



- c.) Make sure the load is disconnected and the power supply is OFF.
- d.) Plug the remote connector plug into the remote control terminal of the power supply.
- e.) Secure the remote connector plug to the terminal socket by locking connector ring.



Then, you can choose either method A or B below to use the remote control feature:

### **Method A:**

#### Using Voltage Source

A variable external voltage source of 0 – 5 V is fed into the remote control terminal to adjust the output voltage level.

### **Warning:**

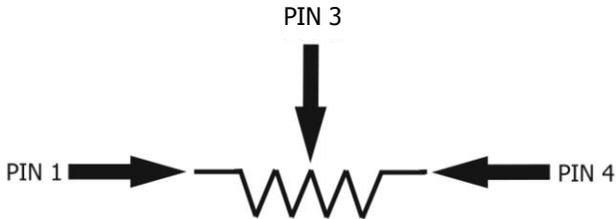
Do not input higher than 5 V, otherwise it may damage the unit.

1. Make sure the load is disconnected and the power supply is OFF.
2. Use Only wires from port 3 and 4. Then, connect port 3 to positive polarity of the external voltage source and port 4 to negative polarity of the external voltage source.
3. Use a **8AWG (8,35mm<sup>2</sup>)** wire to short circuit the main output terminal in the rear panel.
4. Switch on the power supply.
5. Vary the external input voltage 0 – 5 V to check and verify for the full output current range of power supply.
6. Switch off the power supply and disconnect the **8AWG (8,35mm<sup>2</sup>)** wire.

### **Method B:**

#### Using 5 kΩ Variable Resistor

1. Make sure the load is disconnected and the power supply is OFF.
2. Prepare a 5 kΩ variable resistor and use wires from port 1, 3 and 4.



3. Use a **8AWG (8,35mm<sup>2</sup>)** wire to short circuit the main output terminal in the rear panel.3.
4. Switch on the power supply.
5. Adjust the 5 kΩ variable resistor from one end to other end to check and verify for the full output current range of power supply.
6. Switch off the power supply and disconnect the **8AWG (8,35mm<sup>2</sup>)** wire.

### 9.5. Remote Control Mode (P 1570 / 1580)

There are two methods for remote control of current and voltage adjustment. Both methods require current remote control part to be set up in order for remote control mode to be functional, otherwise unit will be in CC mode all the time.

**Method A:**

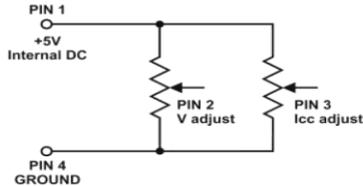
Using two external variable DC voltage sources.

PIN	Funktionen	Beschreibung
1	Internal DC +5V	Less than 50mA
2	Voltage Adjust	0 ~ 5 V
3	Current Adjust	0 ~5 V
4	Ground	
5	Output OFF	Short to Ground
6	N.A.	
7	N.A.	
8	N.A.	

Check the output voltage range of the power supply by varying the external voltage source. Short circuit the main output with **8AWG (8,35mm<sup>2</sup>)** wire to check the display for CC setting varying the external voltage source.

**Method B:**

Using two 0-5K Ohm variable resistors



**Remark:** variable resistors 5KOhm

PIN	Function	Remarks
1	Internal DC +5V	Resistor end
2	Voltage Adjust	Variable part of resistor
3	Current Adjust	Variable part of resistor
4	Ground	Another resistor end
5	Output OFF	Short to Ground
6	N.A.	
7	N.A.	
8	N.A.	

Check the output voltage range of the power supply by adjusting the 5Kohm variable resistor. Short circuit the main output with **8AWG (8,35mm<sup>2</sup>)** wire to check the display for CC setting by adjusting the variable resistor.

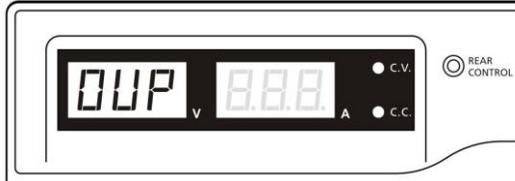
## 10. Specifications

Model	P 1565	P 1570	P 1575	P 1580	P 1585
<b>Output</b>					
Variable Output Voltage	1 – 16V DC	1 – 16V DC	1 – 32V DC	1 – 32V DC	1 – 60V DC
Variable Output Current	0 - 40A	0 – 60 A	0 - 20A	0 – 30A	0 – 15A
<b>Voltage Regulation</b>					
Load (0-100%)	50mV				
Line (170 – 264V AC Variation)	20mV				
<b>Current Regulation</b>					
Load (10-90% Rated Voltage)	150mA	200mA	100mA	150mA	100mA
Line (170 – 264V AC Variation)	50mA				
<b>Ripple &amp; Noise</b>					
Ripple & Noise (rms)	5mV				
Ripple & Noise (Spitze-Spitze) Voltage	50mV				100mV
Current Ripple & Noise (rms)	70mA	100mA	30mA	40mA	15mA
<b>Meter Type &amp; Accuracy</b>					
Voltage Meter	3-stellige LED-Anzeige (+/-0,2% + 3 dgt.)				
Current Meter	3-stellige LED-Anzeige (+/-0,2% + 3 dgt.)				
<b>General</b>					
Input Voltage	220 – 240V AC 50/60Hz				
Full Load Input current	3,15A	4,7A	3,1A	4,5A	4,5A
Efficiency	85,50%	85,00%	87,00%	86,00%	88%
Switching Frequency	65 - 85kHz	65 - 85kHz	75 - 85kHz	75 - 95kHz	65 – 85kHz
Transient Response Time (50-100% Load)	1,5ms				
Power Factor Control (PFC)	Power Factor Correction >0,95 at optimal Load				
Cooling Method	Thermostatic Control Fan from Zero to full speed				
Protections	Überlast, Kurzschlusschutz im CC-Modus, Überspannungsschutz, Übertemperaturschutz				
Special Functions	3 User defined VI preset, Remote control V, I and output on-off				
Operation Temperature	0 ... +50°C; RH < 70 %				
Storage Temperature	-10 ... +60°C; RH < 80 %				
Dimensions (BxHxT) in mm	200x90x255	200x90x325	200x90x255	200x90x315	200x90x275
Weight	2,6kg	3,2kg	2,6kg	3,2kg	3,2kg

## **11. Faults and Trouble Shooting**

### **11.1. OVP: Over Voltage Protection**

This unit has a built-in tracking over voltage protection feature. In the event of output voltage becoming greater than the set value (see specified range from specifications table), protection will be triggered and the output power will be cut off and OUP warning appears as below.



To reset the warning, switch off the unit and remove all loading.  
Switch the unit back on again and it should resume normal operation.  
If this problem persists, please contact and consult with your agent.

### **11.2. OTP: Over Temperature Protection**

There is a thermo sensor inside the unit to monitor and to prevent the unit to gets too hot inside. At OTP, there is no output and the following warning will appear on the LED display.  
When you get this warning, switch off the unit and remove all loading.



Check your load and output setting. Allow the unit to cool down for at least 30 minutes.  
Check if any of the ventilation is blocked, check enough clearance around power supply.  
Listen carefully for the short wind noise from the cooling fan when you turn on the unit again.  
If you cannot hear this routine self test wind noise on switch on, the fan is fault and do not use the power supply, contact your agent.

### **11.3. OLP: Over Load Protection**

Normally the overload protection is sustained by the CC constant current mode. When the CC mode fails and goes undetected, it may cause serious damage to your test piece or load.

The OLP is to minimize the extent of damage to your loads as power supplies do fail some day.

Switch off your power supply as soon as you see this warning as shown below.



To reset this warning, switch off the unit and remove all loading.

Switch the unit back on again and double check with caution.

If this problem cannot be fixed, please contact and consult with your agent.

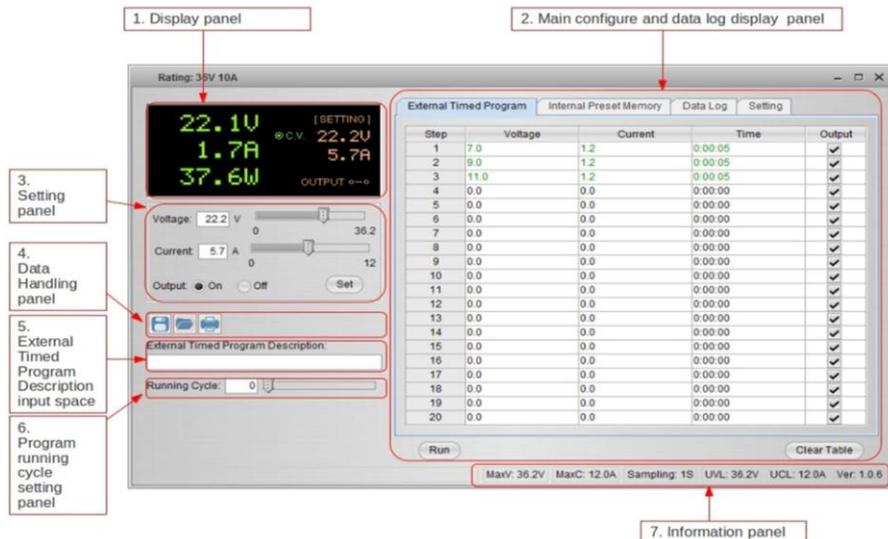
## 12. PC Interface Control

Support OS: Windows XP/Vista/7 (32bits/64bits)

Driver: Silicon Lab CP210x USB driver

(Included in CDROM folder “USB CP210x Drivers V6.5 for Win\_XP\_S2K3\_Vista\_7”)

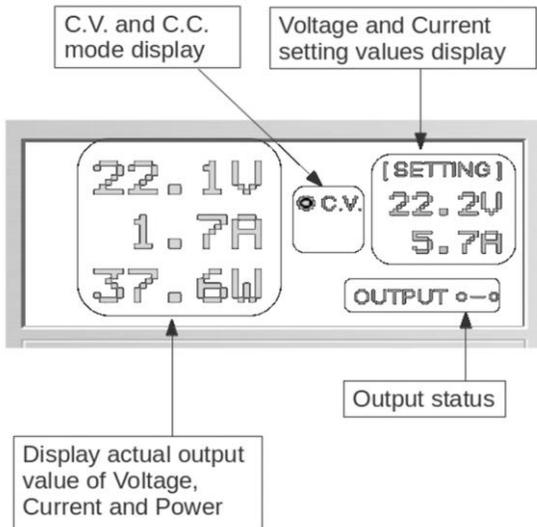
### 12.1. Main Display



The Main interface divided into 7 panels.

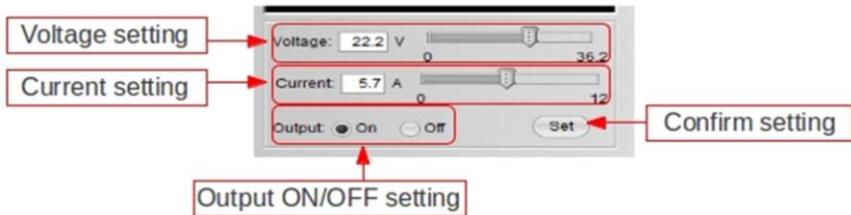
1. Display panel – use to display real-time information of power supply.
2. Main configuration and data log display panel – use to change general setting of program and display data log.
3. Voltage and Current setting panel – use to set incident output value and output On/Off.
4. Data handling panel – use to save, load and print data.
5. External Timed Program Description input space – use to enter description of External Timed Program.
6. Program running cycle setting panel – use to set running cycle for External Timed Program.
7. Information panel – use to display Maximum voltage/ current, Sampling time, upper voltage/ current limit and software version.

## 12.2. Display panel



The display show following information

- Output Voltage value
- Output Current value
- Output Power value
- Output On/Off status
- C.V./ C.C. Model
- Setting values



## 12.3. Set output value and On/Off status

You can directly type the desired output voltage & output current and then click "Set" button to set the value. Or you can use slide bar to adjust the value.

## 12.4. External Timed Program

External Timed Program   Internal Preset Memory   Data Log   Setting

Step	Voltage	Current	Time	Output
1	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
2	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
3	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
4	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
5	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
6	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
7	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
8	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
9	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
10	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
11	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
12	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
13	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
14	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
15	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
16	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
17	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
18	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
19	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>
20	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>

Run   Clear Table

External Timed Program is completely controlled by PC, PC counts the time and changes voltage and current of power supply.

Select External Timed Program tab to switch to the External Timed Program tab.

- Double click on the cell that you would like to set value. For example Step 2 voltage.
- Slide the bar to configure the value.

Step	Voltage	Current	Time	Output
1	10.0	1.00	0:00:15	<input checked="" type="checkbox"/>
2	20.0 	0.00	0:00:00	<input checked="" type="checkbox"/>
3	0.0	0.00	0:00:00	<input checked="" type="checkbox"/>

-Set time for this step to be running. The time range is between 0 to 9hours 59 minutes 59 seconds. You can click up/down button to change value or directly input value. If the time value is set to 0, this step will be skipped.

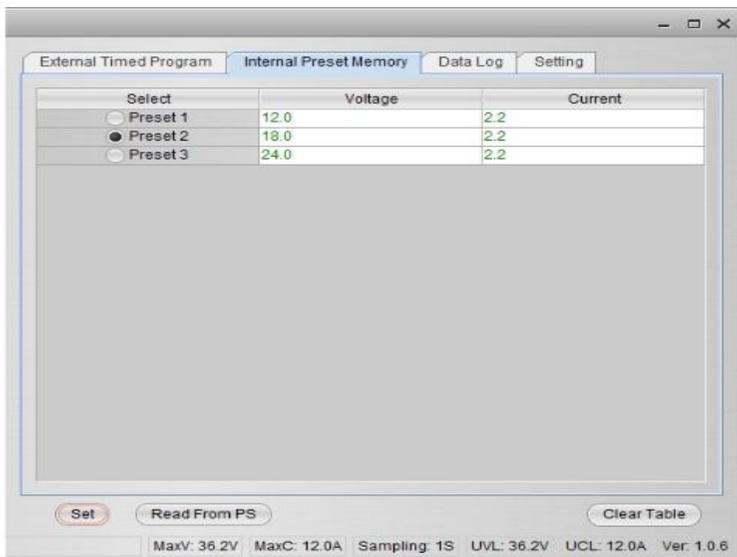
ent	Time	Out
	0:00:05	✓
	9:59:59 9:59:59	✓
	0:00:03	✓
	0:00:00	✓

-Select running cycle between 0-999. You can use slide bar to select or directly input value in text box. Input 0 means run the program forever.

Running Cycle:  

- Click on  button to start running cycle.
- In between program running cycle, click  button to stop program.
-  Click to clear the setting.

## 12.5. Internal Preset Memory



Select	Voltage	Current
<input type="radio"/> Preset 1	12.0	2.2
<input checked="" type="radio"/> Preset 2	18.0	2.2
<input type="radio"/> Preset 3	24.0	2.2

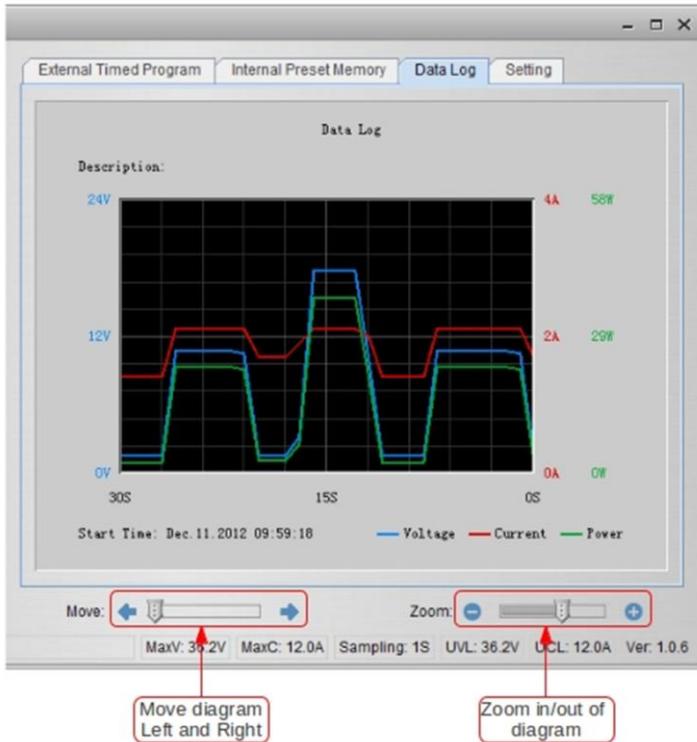
MaxV: 36.2V MaxC: 12.0A Sampling: 1S UVL: 36.2V UCL: 12.0A Ver: 1.0.6

The PC interface remote mode really eliminates the tedious process in keying in groups of entries on the power supply. Because all the data are displayed together in the monitor, possibility of wrong entry is greatly reduced. Data of different groups can be classified, stored, exported and retrieved for use at any time. Furthermore, retrieved data will be in red color if they exceed the present preset limits of voltage in upper voltage level or current limiting value.

- Clear Table ----- Delete all data on the Display Table to ready for new data entry.
- Read for PS ----- Get data from the Power Supply.

## 12.6. Data Log

Data Log window



Data log window is used to display output Voltage, Current and Power against time in graphical view.

You can move the diagram left and right by adjust "Move:" slide bar.

You can zoom in/out the diagram by adjust "Zoom:" slide bar.

You can save the data in CSV file for analysis later.



Click to save Data log to CSV file.

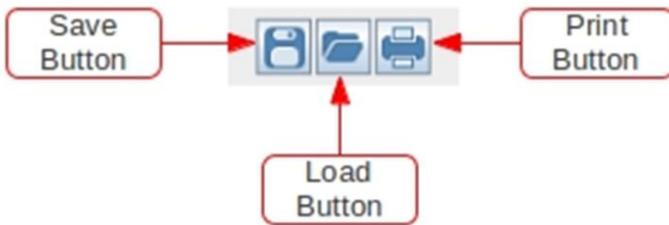


Click to open and load data from CSV file to program for analysis.



Click to print the setting to print.

## **12.7. Save, Load and print setting**



In previous session, the above 3 buttons are used to save, load and print log data. In addition, these buttons can be used to save, load and print setting for External Timed Program and Internal Preset Memory.

First, select tab in Main configure and data log display panel.

When "External Timed Program" tab is being selected, the buttons are used to save and load the setting of External Timed Program.



Click to save External Timed Program setting to CSV file.



Click to open and load setting from CSV file to program.



Click to print the setting to print.

If you want to add description for your setting, input the description in following "External Timed Program Description:" space to before save.

External Timed Program Description:

When “Internal Preset Memory” tab is being selected, the buttons are used to save and load the setting of Internal Preset Memory.



Click to save Internal Preset Memory setting to CSV file.

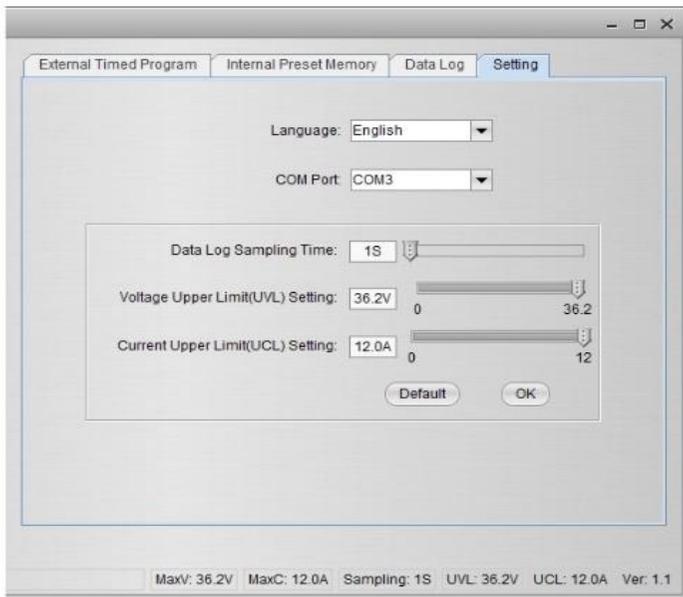


Click to open and load setting from CSV file to program.



Click to print the setting to print

## **12.8. Setting**



In the setting page, you can do general setting for the program.

You can select language for the program

You can select the COM Port for power supply connected

You can set sampling time for data log by adjust slide bar

You can set your output voltage upper limit (UVL) value to further safeguard your low voltage applications.

You can set your output current upper limit (UCL) value to further safeguard your low current applications.

## 12.9. Command Set

### Command line format

**COMMAND**<parameter1><parameter2>... [CR]

Remark:

Command code & return value	Function	Example
Input Command: <b>GMAX</b> [CR]  Return value: <voltage><current>[CR] OK[CR]	Get PS maximum Voltage & current value  <voltage>=??? <current>=???	Input command: <b>GMAX</b> [CR]  Return value: 180200[CR] OK[CR]  Meaning: Maximum Voltage is 18.0V Maximum Current is 20.0A
Input Command: <b>SOUT</b> <status>[CR]  Return value: OK[CR]	Switch on/off the output of PS  <status>=0/1 (0=ON, 1=OFF)	Input command: <b>SOUT0</b> [CR]  Return value: OK[CR]  Meaning: Switch on the output of PS
Input Command: <b>VOLT</b> <voltage>[CR]  Return value: OK[CR]	Preset Voltage value <voltage>=000<??><Max-Volt  *Max-Volt value refer to product specification	Input command: <b>VOLT127</b> [CR]  Return value: OK[CR]  Meaning: Set Voltage value as 12.7V
Input Command: <b>CURR</b> <current>[CR]  Return value: OK[CR]	Preset Current value <current>=000<??><Max-Curr  *Max-Curr value refer to product specification	Input command: <b>CURR120</b> [CR]  Return value: OK[CR]  Meaning: Set Current value as 12.0A
Input Command: <b>GETS</b> [CR]  Return value: <voltage><current>[CR] OK[CR]	Get PS preset Voltage & Current value  <voltage>=??? <current>=???	Input command: <b>GETS</b> [CR]  Return value: 150180[CR] OK[CR]  Meaning: The Voltage value set at 15V and Current value set at 18A

<p>Input Command: <b>GETD</b>[CR]</p> <p>Return value: &lt;voltage&gt;&lt;current&gt;&lt;status&gt; [CR] OK[CR]</p>	<p>Get PS Display values of Voltage, Current and Status of CC/CV</p> <p>&lt;voltage&gt;=???? &lt;current&gt;=???? &lt;status&gt;=0/1 (0=CV, 1=CC)</p>	<p>Input command: <b>GETD</b>[CR]</p> <p>Return value: 150016001[CR] OK[CR]</p> <p>Meaning: The PS Display value is 15V and 16A. It is in CC mode.</p>
<p>Input Command:</p> <p><b>PROM</b> &lt;voltage0&gt;&lt;current0&gt; &lt;voltage1&gt;&lt;current1&gt; &lt;voltage2&gt;&lt;current2&gt;[CR]</p> <p>Return value: OK[CR]</p>	<p>Save Voltage and Current value into 3 PS memory locations</p> <p>&lt;voltageX&gt;=??? &lt;currentX&gt;=??? (X is memory location number start from 0 to 2)</p>	<p>Input command: PROM111111022122033133[CR]</p> <p>Return value: OK[CR]</p> <p>Meaning: Preset Memory 0 as 11.1V and 11.1A Preset Memory 1 as 2.2V and 12.2A Preset Memory 2 as 3.3V and 13.3A</p>
<p>Input Command: <b>GETM</b>[CR]</p> <p>Return value: &lt;voltage0&gt;&lt;current0&gt;[CR] &lt;voltage1&gt;&lt;current1&gt;[CR] &lt;voltage2&gt;&lt;current2&gt;[CR] OK[CR]</p>	<p>Get saved Voltage and Current value from 3 PS memory locations</p> <p>&lt;voltageX&gt;=??? &lt;currentX&gt;=??? (X is memory location number start from 0 to 2)</p>	<p>Input command: <b>GETM</b>[CR]</p> <p>Return value: 111111[CR] 122122[CR] 133133[CR] OK[CR]</p> <p>Meaning: PS return following preset value from 3 memory locations; Memory 0 is 11.1V and 11.1A Memory 1 is 12.2V and 12.2A Memory 2 is 13.3V and 13.3A</p>
<p>Input Command: <b>RUNM</b>&lt;memory&gt;[CR]</p> <p>Return value: OK[CR]</p>	<p>Set Voltage and Current using values saved in memory locations</p> <p>&lt;memory&gt;=0/1/2</p>	<p>Input command: <b>RUNM</b>1[CR]</p> <p>Return value: OK[CR]</p> <p>Meaning: Set Voltage and Current using values saved in memory location 1</p>

<p>Input Command: <b>GOVP</b>[CR]</p> <p>Return value: &lt;voltage&gt;[CR] OK[CR]</p>	<p>Get preset upper limit of output Voltage</p> <p>&lt;voltage&gt;=???</p>	<p>Input command: <b>GOVP</b>[CR]</p> <p>Return value: 111[CR] OK[CR]</p> <p>Meaning: The preset upper limit of output Voltage is 11.1V</p>
<p>Input Command: <b>SOVP</b>&lt;voltage&gt;[CR]</p> <p>Return value: OK[CR]</p>	<p>Preset upper limit of output Voltage</p> <p>&lt;voltage&gt;=000&lt;??&gt;&lt;Max-Volt *Max-Volt value refer to product specification</p>	<p>Input command: <b>SOVP</b>151[CR]</p> <p>Return value: OK[CR]</p> <p>Meaning: Preset upper limit of output Voltage as 15.1V</p>
<p>Input Command: <b>GOCP</b>[CR]</p> <p>Return value: &lt;current&gt;[CR] OK[CR]</p>	<p>Get preset upper limit of output Current</p> <p>&lt;current&gt;=???</p>	<p>Input command: <b>GOCP</b>[CR]</p> <p>Return value: 111[CR] OK[CR]</p> <p>Meaning: The preset upper limit of output Current is 11.1A</p>
<p>Input Command: <b>SOCP</b>&lt;current&gt;[CR]</p> <p>Return value: OK[CR]</p>	<p>Preset upper limit of output Current</p> <p>&lt;current&gt;=000&lt;??&gt;&lt;Max-Curr *Max-Curr value refer to product specification</p>	<p>Input command: <b>SOCP</b>151[CR]</p> <p>Return value: OK[CR]</p> <p>Meaning: Preset upper limit of output Current as 15.1A</p>

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*Reproduction of all kinds (photocopy, microfilm or other) only by written permission of the publisher. This manual considers the latest technical knowing. Technical changing which are in the interest of progress reserved.*

*We herewith confirm, that the units are calibrated by the factory according to the specifications as per the technical specifications. We recommend to calibrate the unit again, after one year.*

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