



PeakTech 1885, 1890 Programmable Switching Mode Power Instruction Manual

[Home](#) » [PeakTech](#) » PeakTech 1885, 1890 Programmable Switching Mode Power Instruction Manual 



Operation manual Programmable Switching Mode Power



Contents

- 1 Safety Precautions
- 2 Technical Specifications of Power Supplies
- 3 Introduction
- 4 Controls and Indicators
- 5 General Operation Principle
- 6 User Manual
- 7 PC connection
- 8 Documents / Resources
 - 8.1 References
- 9 Related Posts

Safety Precautions

This product complies with the requirements of the following directives of the European Union for CE conformity: 2014/30/EU (electromagnetic compatibility), 2014/35/EU (low voltage), 2011/65/EU (RoHS).

We herewith confirm that this product meets the essential protection standards, which are given in directions of council for adaptation of the administration regulations for UK of Electromagnetic Compatibility Regulations 2016 and the Electrical Equipment (safety) regulations 2016.



To ensure safe operation of the equipment and eliminate the danger of serious injury due to shortcircuits (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 correspond 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 ventilations slots of the cabinet to ensure that air is able to circulate freely inside.
- Do not insert metal objects into the equipment by the way of ventilation slots
- Do not place water-filled containers on the equipment (danger of short-circuit in case of knockover of the container)
- Do not operate the equipment near strong magnetic fields (motors, transformers etc.).
- Do not operate the meter before the cabinet has been closed and screwed safely as terminal can carry voltage.
- Replace a defective fuse only with a fuse of the original rating. Never short-circuit fuse or fuse holding.
- Check test leads and probes for faulty insulation or bare wires before connection to the equipment.
- Please use only 4mm-safety test leads to ensure immaculate function.
- 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.
- The measurement instrument is not to be operated unattended.
- Do not subject the equipment to direct sunlight or extreme temperatures, humidity or dampness.

- Do not subject the equipment to shocks or strong vibrations.
- Keep hot soldering irons or guns away from the equipment.
- Allow the equipment to stabilize at room temperature before taking up measurement (important for exact measurements).
- Use caution when working with voltages above 35V DC or 25V AC. These Voltages pose shock hazard.
- Periodically wipe the cabinet with a damp cloth and mild detergent. Do not use abrasives or solvents.
- The meter is suitable for indoor use only
- Do not store the meter in a place of explosive, inflammable substances.
- Opening the equipment and service – and repair work must only be performed by qualified service personnel
- Do not place the equipment face-down on any table or work bench to prevent damaging the controls at the front.
- Do not modify the equipment in any way

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.

Precautions For Use

1. The unit has a built-in Tracking O.V.P (Over voltage Protection) features. In the event of output voltage becoming 10% greater than the set value, the O.V.P. will be triggered and the output power will be cut off and >FAULT< warning appears.

When you get this warning , switch off the unit and remove all loading, switch the unit back on again and it should resume normal operation.

In the event this problem persists, the unit must be investigated by your agent.

2. This unit has a buzzer built inside. The buzzer will sound when over temperature/ overload/ over voltage has been triggered.

When you get this warning sound , switch off the unit and remove all loading.

Check your load and output settings.

Allow the unit to cool down for 30 minutes.

If you switch on the unit again, it should resume the normal operation.

In the event of this problem persists, the unit must be investigate by your agent.

Technical Specifications of Power Supplies

Specifications	P 1890	P 1885
Output voltage	1-20 V DC	1-40 V DC
Output current	0-10 A	0-5 A
Rated Output Power	200 W	
Ripple & Noise (p-p)	30 mVp-p	
Load Regulation	300 mV	200mV
Line Regulation	10 mV	
Input Voltage	100-240 V AC, 50/60 Hz	
Max. Input Power	285 W	
Power Factor	³ 0,9	
Display Meter	4 digits – Display LCD Ammeter, Voltmeter and Power Meter	
Meter's Accuracy	(+/- 1% + 5 counts for range V < 5V, I < 0.5A), (+/- 1% + 2 counts for range V ≥ 5V, I ≥ 0.5A)	
LCD Dimension	48 x 66 mm	
Cooling System	Thermostatic Control Fan	
Operating Temperature	0- 40°C	
Operating Temperature	-Tracking OVP (Over Voltage Protection), -Current Limiting, -Over Temperature Protection. D64	
Approvals	CE EMC — EN 55011, CE LVD — EN 61010	
Dimension (WxHxD)	193 x 98 x 215 (mm)	
Weight	3kg	
Accessory	-User's Manual, -PC Windows® software, Command Set, LabView ® Driver, -USB cable, RS-485 Connector and one 120ohms Resistor -USB to RS-485 Adapter	
Optional Accessory	-USB to RS-485 Adapter B78	
Remarks	-Adjustable Upper Voltage limit, -Power Factor Correction.B79	

Remote Programming Specifications

Communications Interface	USB (single device) and RS-485 (up to 31 Power Supplies).
Remote Programming Functionality	Full control of power supply functions and data readback.
Data Logging	Yes, with supplied software.
Baud Rate	9600bps

Introduction

This series of Programmable Switching Mode Power Supplies are designed for full remote programming with data logging functionality. Up to 31 power supplies can be connected via RS- 485. It is ideal for applications which require various groups of output settings and running periods for repetitive tests especially with multiple power supplies.

The front panel allows users to all programming and output settings as a stand alone laboratory power supply. Full command sets are given in this manual to facilitate the integration of your own control software.

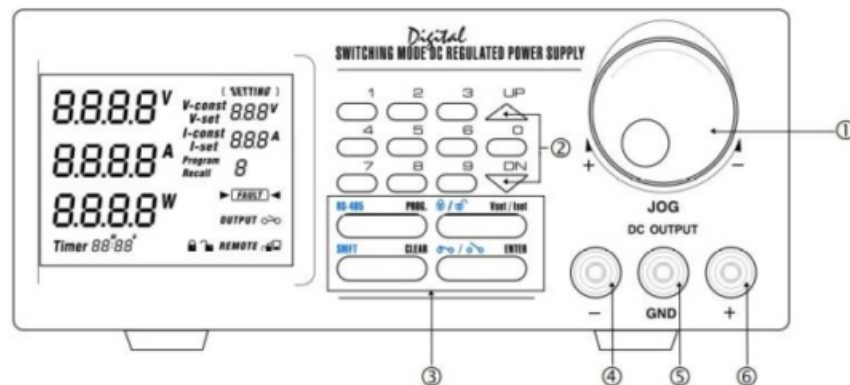
This series of power supplies have obtained the safety approval EN-61010 and EN-55011 EMC approval for scientific , industrial equipment of the CE directives.

Please keep this manual in a safe place and contact your vendor for any special requirement in optional accessories for RS-485.

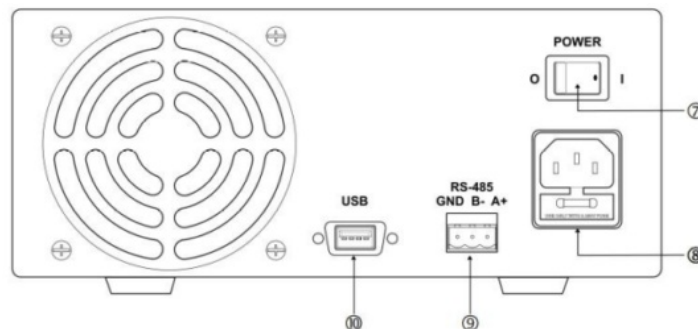
NOTE:

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.

Controls and Indicators



1. Jog Dial
2. Up & Down Key
3. Dual Function Control Key
4. Black colour negative polarity output terminal
5. Green colour ground terminal (connected to chassis).
6. Red colour positive polarity output terminal.



7. Power Switch
8. AC 100-240 V AC Power Socket with input power fuse.
9. RS-232 Port
10. RS-485 Port

General Operation Principle

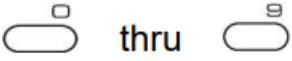
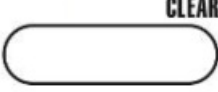
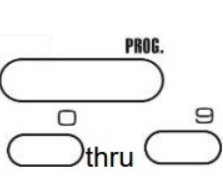
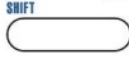
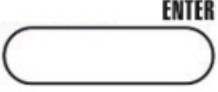
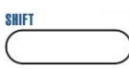
Note: This section contains a condensed overview of the unit. Read this section to quickly get started.

5.1 Quick Reference of Keypad Functions

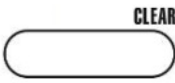
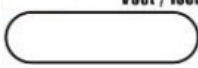
The front Keypad is organised as follow:

1. Number Keys, UP/DOWN Keys and Jog Wheel
2. 4 Dual Function Control Keys

The front panel functions are summarized as follow:

Keypad	Function	Section
Number Keys, UP/DOWN Keys and Jog Wheel		
	Press to select numerical values	6.2.2
	Press to ascend the numerical values	6.2.1
	Press to descend the numerical values	6.2.1
Jog Wheel	Rotate to adjust the voltage and current settings	6.2.1
Dual Function Control Keys		
	Press to access second function of the control keys	
	Press to terminate any input process and the unit will exit to normal operation	
	Press to use recall preset program features. Use  to exit the use of any preset program Use  thru  to specify the location of preset program to be used Use to  confirm	6.3.1 6.3.3
	Press  and  to enter RS-485 set menu	6.1.3
	Press  and  to Lock/Unlock the Keypad and Jog Wheel	6.1.2
	Press to confirm the new settings	
	Press   to Enable/Disable the output	6.1.1

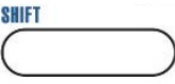
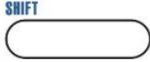
	Press to Enable the output at power up	6.1.5
	Press to Disable the output at power up	6.1.5
		
SPECIAL Function		
	Press to get to the Upper Voltage Limit Setting Use  thru  to input the numerical values	6.1.4

Keypad	Function	Section
	 Use to confirm	
	Switch between set output Voltage and output Current	

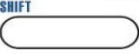
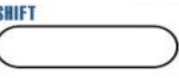
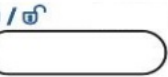
User Manual

6.1 Setting Operation Modes

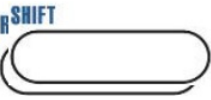
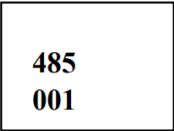
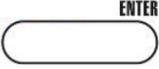
6.1.1. Enable/Disable Output

	Action	LCD Display	Description
1.	Press   Then 	OUTPUT 	Output ENABLE
2.	Press   Then 	OUTPUT 	Output DISABLE

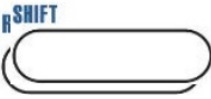
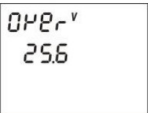
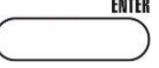
6.1.2 Lock/ Unlock the Keypad and Jog Dial

	Action	LCD Display	Description
1.	Press  Then 		Keypad and Jog Dial Locked
2.	Press  Then 		Keypad and Jog Dial Un Locked

6.1.3 RS-485 address setting

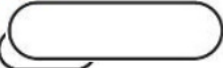
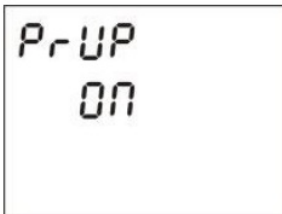
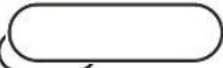
	Action	LCD Display	Description
1.	Press  Then 		This will enter into RS-485 address set menu.
2.	 to 		Use numbering keypad to key in address from 1 to 255 for RS-485 connection
3.	Press 		Press this key to confirm

6.1.4 Upper Voltage Limit Setting

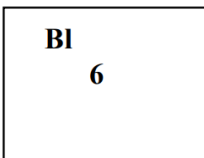
	Action	LCD Display	Description
1.	Press  Then 		This will enter into Upper Voltage Limit Adjustment. e.g. 25.6V present upper voltage limit.
2.	 to 		Use the number key to input your desired voltage
3.	Press 		Press this key to confirm

Note : Whenever to terminate the Upper Voltage Limit Setting, press “CLEAR” to return to normal operation.

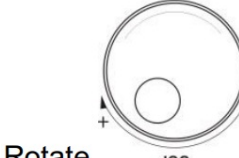
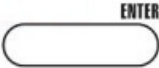
6.1.5 Output Enable/Disable at Power Up

	Action	LCD Display	Description
1.	Press  Then 		This will enable the output at power up. i.e. When you switch on the power supply, the output is also ON automatically with last set voltage value.
2.	Press  Then 		This will disable the output at power up. i.e. The output will be OFF at next power up. This is the default setting for safety reason !!

6.1.6 Adjust LCD brightness

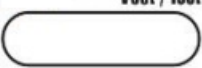
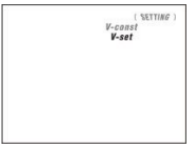
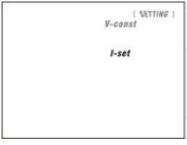
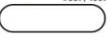
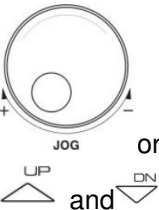
	Action	LCD Display	Description
1.	Press Then		Press  and  to enter into brightness set menu.
2.			Use JOG adjust LCD brightness. It has 10 level of brightness. 0 means LCD brightness off. 9 means the most brightest.
3.	Press 		Press this key to confirm

6.1.7 Enable/Disable SCPI

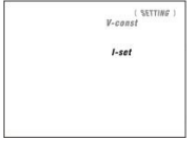
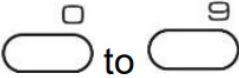
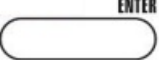
	Action	LCD Display	Description
1.	Press  Then 		Press and to enter into SCPI enable/disable menu
2.			Use JOG select between Y and N
3.	Press 		Press this key to confirm

6.2 Basic Operation

6.2.1 Setting of Voltage and Current by Jog Dial and UP & DOWN Key

	Action	LCD Display	Description
1.	 Press	 	Press to  switch between V-set and Iset .
2.	 Rotate Press  and 		Rotate JOG or Press  &  Key to set the v oltage/current level. Press Rotate JOG to switch between digit to be adjust.

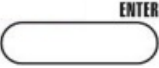
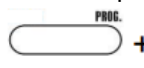
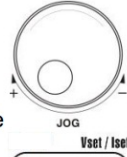
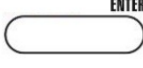
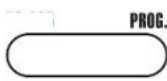
6.2.2 Setting of Voltage and Current Using Keypad

	Action	LCD Display	Description
1.	Press	 	Press  to switch between V-set and I- set .
2.			Setting voltage/current by pressing numbers on Keypad.
3.	 Press		Press this key to confirm

Note : whenever to terminate the settings of voltage and current, press “CLEAR” to return to the normal operation.

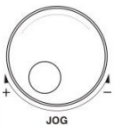
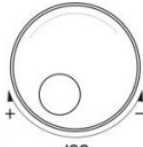
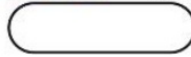
6.3 Using the Programming Features

6.3.1 Preset Program

	Action	LCD Display	Description
1.	Press  Then  thru 		Press  and then  thru  to select Preset program. e.g.  +  to select preset program 4
2.	Use  and  thru 		Use JOG and V-set/I-set adjust Voltage and Current setting if you want to adjust the preset value.
3.	Press 		Press this key to confirm
4.	Press  Then 		Press  and  to exit preset program.

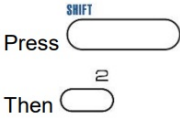
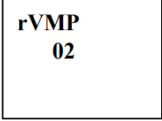
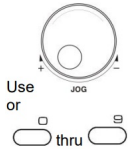
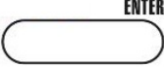
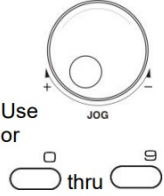
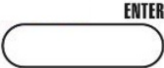
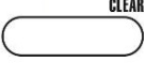
Note : whenever to terminate the Timed Program, press “CLEAR” to return to the normal operation.

6.3.2 Setting of Timed Program

	Action	LCD Display	Description
1.	Press  Then 		Press  and program step setting. to enter into timed
2.	Use  or  thru 		Use JOG or numbering Keypad to select step to be review.
3.	Press  and 		Use UP/DOWN key to move around voltage, current and time setting of step. The select part will flash to indicate it is under modification.
4.	Use  or  thru 		Use JOG or numbering keypad to modify the voltage, current and time.
5.	Press 		Press this key to confirm

Note : whenever to terminate the Timed Program, press “CLEAR” to return to the normal operation.

6.3.3 Run Timed Programming

	Action	LCD Display	Description
1.			Press  and  to enter in run menu.
2.			Use JOG or numbering keypad select number of steps to be run start from step 0. The minimum steps to be run is 2.
3.			Press this key next to set number of cycle to be run.
4.			Use JOG or numbering keypad select number of cycle to be run.
5.			Press this key to start running
6.			Press this key terminate the program running anytime.

Note : whenever to terminate the Preset Program, press “CLEAR” to return to the normal operation.

PC connection

The new SDP series can be connect use USB or RS-485. It is auto select between USB and RS485.

***Please do not connect both USB and RS-485 at the same.**

Connect Multiple Power Supplies to PC via RS-485

For multiple power supplies, use the RS-485 Interface through the RS-485 port at rear panel of the power supply. Up to 31 power supplies can be connected via RS-485.

You will need a USB to RS-485 Adapter and the connection shown in Figure 6a & 6b.

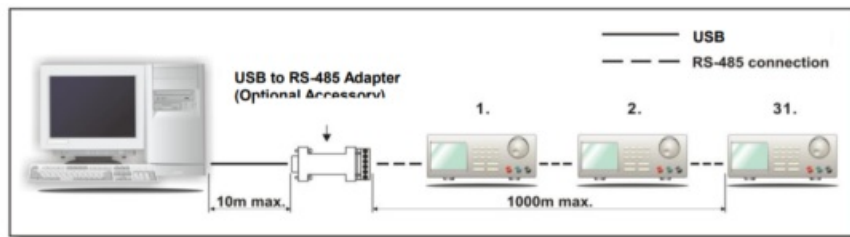


Figure 7a. Connection diagram for multiple power supply

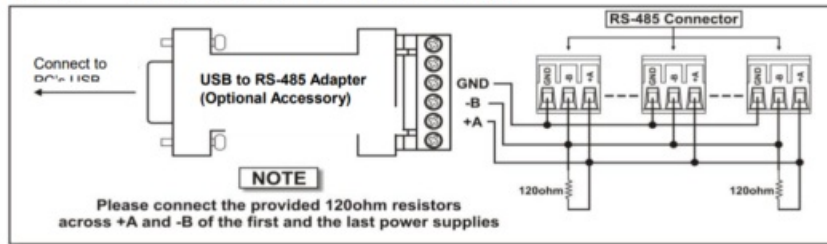


Figure 7b. Connection diagram between USB Adapter and RS-485 Connectors.

Important note:

- The SCPI command set is only available via the old RS232 or the new USB connection
- The PSCS software is only available for the RS485 interface

APPENDIX A COMMAND SET

Remarks in using the Remote Programming Mode The USB/485 interface is always ready for connection to PC for remote programming operation .

{ }- command data, [] – return data, [OK] = "OK", [CR] = 0dh

???? = 30h, 30h, 30h, 30h – 39h, 39h, 39h, 39h (4 bytes data)

??? = 30h, 30h, 30h – 39h, 39h, 39h (3 bytes data)

?? = 30h, 30h – 39h, 39h (2 bytes data)

<address> 30h, 30h – 3fh, 3fh (2 bytes data).

Bold – Input Command

Italic – Return Data from Power Supply

PS = Power Supply

Command Code & Return Data	Description
Input Command: SESS <address> <CR> Return Data from Power Supply: <i>[OK] [CR]</i>	Disable front panel keypad and make PS to Remote Mode
Input Command: ENDS <address> <CR> Return Data from Power Supply: <i>[OK] [CR]</i>	Enable front panel keypad and make PS to exit Remote Mode
Input Command: CCOM <address> <RS> {000-256} <CR> Return Data from Power Supply: <i>[OK] [CR]</i>	Change RS485 <RS> = 0 -> RS-232 <RS> = 1 -> RS-485
Input Command: GCOM <address> <CR> Return Data from Power Supply: <i>[RS] RS485 Address [??] [CR] [OK] [CR]</i>	Get the RS-485 address
Input Command: GMAX <address> <CR> Return Data from Power Supply: <i>Voltage [???] Current [???] [CR] [OK] [CR]</i>	Get maximum voltage and current of PS
Input Command: GOVP <address> <CR> Return Data from Power Supply: <i>Voltage [???] [CR] [OK] [CR]</i>	Get Upper Voltage Limit of PS
Input Command: GETD <address> <CR>	Get Voltage & Current reading from PS

Return Data from Power Supply: <i>Voltage [????] Current [????] [0] [CR] [OK] [CR] Voltage [????] Current [????] [1] [CR] [OK] [CR]</i>	PS in CV mode PS in C C mode
Input Command: GETS <address> <CR> Return Data from Power Supply: <i>Voltage [???] Current [???] [CR] [OK] [CR]</i>	Get Voltage & Current Set Value from PS
Input Command: GETM <address> <CR> Return Data from Power Supply: <i>Memory 1 Voltage [???] Current [???] [CR] Memory 2 Voltage [???] Current [???] [CR]</i> <i>.</i> <i>.</i> <i>Memory 9 Voltage [???] Current [???] [CR] [OK] [CR]</i>	Get All Preset Memory Values from PS
Input Command: GETM <address> location {1-9} <CR> Return Data from Power Supply: <i>Voltage [???] Current [???] [CR] [OK] [CR]</i>	Get Memory from Specific Preset of PS
Input Command: GETP <address> <CR> Return Data from Power Supply: <i>Program 00 Voltage [???] Current [???] Minute [??] Second [??] [CR] Program 01 Voltage [???] Current [???] Minute [??] Second [??] [CR]</i> <i>.</i> <i>.</i> <i>Program 19 Voltage [???] Current [???] Minute [??] Second [??] [CR] [OK] [CR]</i>	Get all the Timed Program Memory of PS
Input Command: GETP <address> program {00-19} <CR> Return Data from Power Supply: <i>Voltage [???] Current [???] Minute [??] Second [??] [CR] [OK] [CR]</i>	Get Timed Program Memory from Specific Program of PS
Input Command: GPAL <address> [CR] Return Data from Power Supply: <i>Reading voltage [#####] V [ON] Reading current [#####] A [ON]</i>	Get LCD Display Information

Reading watt [####] W [ON] Timer minute [####] second [##] timer [ON] colon [ON] m [ON] s [ON] Setting voltage [###] V-const [ON] V-bar [ON] V [ON] Setting current [##] I-Const [ON] I-bar [ON] A [ON] Program [#] Program [ON] P-bar [ON] SETTING [ON] Key lock [ON] Key open [ON] FAULT [ON] Output on [ON] Output off [ON] Remote [ON] [CR] [OK] [CR]	
Input Command: VOLT <address> voltage {000-XXX} <CR> Return Data from Power Supply: [OK] [CR]	Set Voltage Level XXX- Max. Output Rating Voltage = XX.X V Current = X.XX V
Input Command: CURR <address> current {000-XXX} <CR> Return Data from Power Supply: [OK] [CR]	Set Current Level
Input Command: SOVP <address> voltage {000-XXX} <CR> Return Data from Power Supply: [OK] [CR]	Set Upper Voltage Limit of PS
Input Command: SOUT <address> 1 <CR> Return Data from Power Supply: [OK] [CR]	Disable Output of PS
Input Command: SOUT <address> 0 <CR> Return Data from Power Supply: [OK] [CR]	Enable Output of PS
Input Command: POWW <address> location {1-9}0 <CR> Return Data from Power Supply: [OK] [CR]	Enable the output when switch on the power supply.
Input Command: POWW <address> location {1-9}1 <CR> Return Data from Power Supply: [OK] [CR]	Disable the output when switch on the power supply.
Input Command: PROM <address> location {1-9} Voltage {000-XXX} Current {000-XXX} <CR> Return Data from Power Supply: [OK] [CR]	Set Voltage and Current values of Preset Memory
Input Command:	

PROP <address> location {00-19} Voltage {000-XXX} Current {000-XXX} Minute {00-99} Second {00-59} <CR> Return Data from Power Supply: [OK] [CR]	Set Voltage, Current and Time period of Timed Program
Input Command: RUNM <address> location {1-9} <CR> Return Data from Power Supply: [OK] [CR]	Recall Preset Memory 1-9
Input Command: RUNP <address> times {000-256} <CR> Return Data from Power Supply: [OK] [CR]	Run Timed Program (000 = run infinite times)
Input Command: STOP <address> <CR> Return Data from Power Supply: [OK] [CR]	Stop Timed Program

This manual is according the latest technical knowing. Technical changings, 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 1 year.

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**PeakTech Prüf- und
Messtechnik GmbH – Gerstenstieg 4 –
DE-22926 Ahrensburg / Germany**

 +49-(0) 4102-97398 80



+49-(0) 4102-97398 99



info@peaktech.de



www.peaktech.de

Documents / Resources



[PeakTech 1885, 1890 Programmable Switching Mode Power](#) [pdf] Instruction Manual
1885, 1890, 1885 1890 Programmable Switching Mode Power, 1885 1890, Programmable Swit
ching Mode Power, Switching Mode Power, Mode Power, Power

References

- [User Manual](#)

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