

SENDEF

iPSU Series Constant Voltage Programmable DC Power Supplies

- Software Controlled
- IP connectivity with SCPI support
- Touch Screen TFT LCD for monitoring and manual operation
- Long term data acquisition
- Current limiting function with cutoff / warn&continue options
- 19" Rack Mount (Full/Half Rack) / Bench top
- Single/Multi Channel options



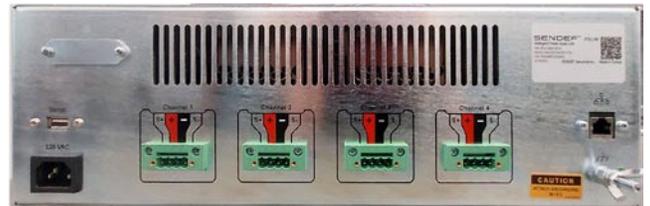
SENDEF Power Solutions

iPSU M60-48-4C

iPSU-M60-48-4C is a 48VDC constant voltage, 4 channel, software controlled DC power supply unit, a **cost effective** solution for power needs in industrial automation and automated test systems.

Each output channel can be controlled/monitored by either SCPI or the software provided. Turn-on/off times, current limits and the action in over current situation can be set and monitored remotely. Long term data acquisition is also possible for all individual channels through the software.

Touch screen TFT display on the front panel provides instant access to the settings. The display also comprises detailed information about the status of each output channel, current/voltage measurements, uptime, session lmax/lmin and current/time graph for each channel, etc.



Features

- 48VDC constant voltage
- 4 output channels
- Manual/Software Controlled
- IP connectivity with SCPI support
- Multi-function 4.3" Touch Screen TFT LCD for monitoring and manual operation
- Long term data acquisition by provided software/SCPI
- Adjustable current limiting function for each output channel (with cutoff / warn&continue options)
- Sequential turn On/Off output channels (up to 999.9 seconds with 0.1 sec resolution)
- Output voltage and output current measurement for each channel (0.05% accuracy)
- Wide range input (85-265VAC)
- Local / Remote indicator
- Last-Settings memory
- 19" Rack Mount/Benchtop
- Indicator lights for power input and outputs
- PDU Manager Software (See below)

* Specifications and features mentioned in this datasheet may be mutually exclusive and may change according to the configuration. Please check before ordering.

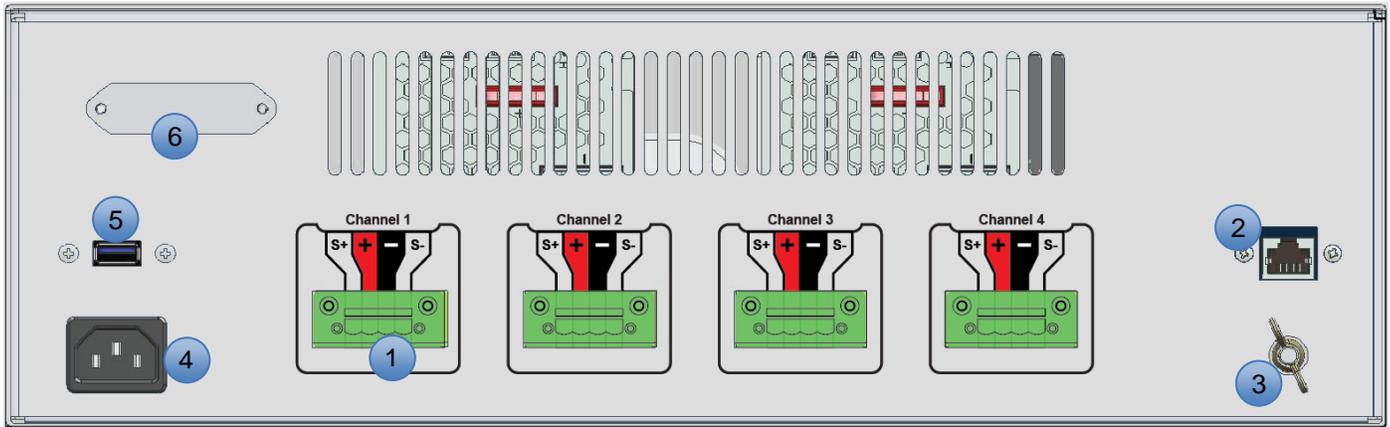
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Front Panel



1. Touch screen TFT LCD display
2. Manual On/Off push buttons (always override) with channel status indicators
3. Power switch
4. Removable rack mount brackets

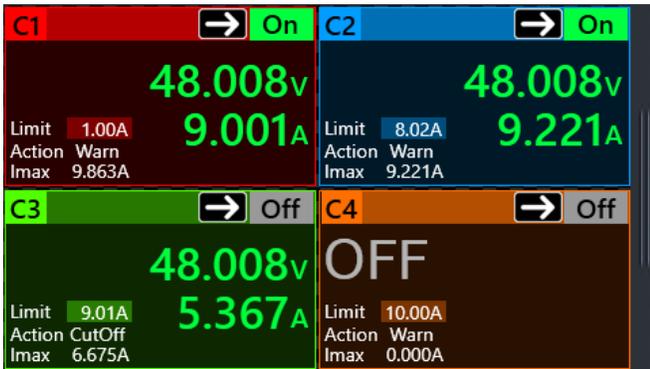
Rear Panel



1. Power outlets with sense pins
2. Ethernet Interface
3. Chassis ground screw
4. AC power inlet
5. USB port
6. Calibration potentiometers cover

Display

Multifunction 4.3" touch screen TFT LCD display in the front panel, provides instant monitoring and configuration screens. Some of the screens...:

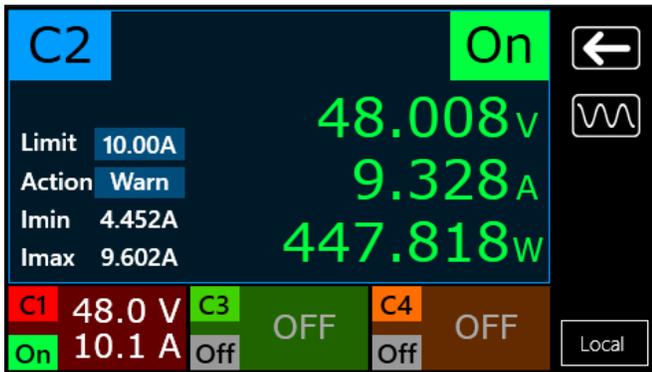


Measurements Screen

Main screen for monitoring all the channels together. Touching channel area turns on/off related channel.

Sliding configuration menu is located on the right.

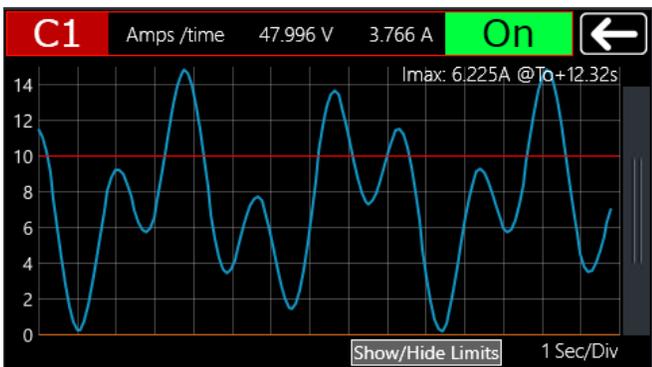
Right arrow touch buttons switches to zoom screens for desired channel.



Zoom Screens

Individual output channels may be zoomed for more focused and detailed information.

Basic information for the remaining channels are also displayed in this screen.



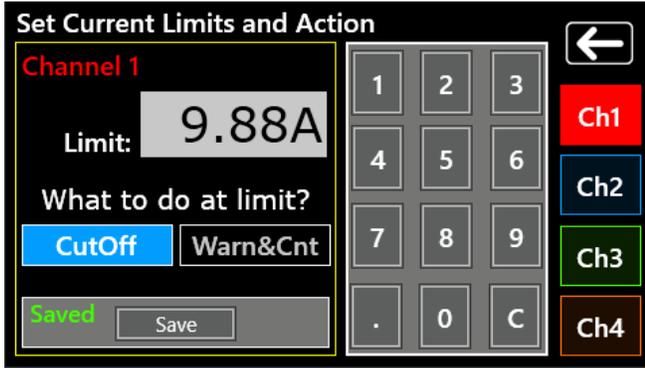
Graph Screen

The current/time graph is accessible through zoom screens.

Session Imax and Imax_time are displayed on the upper right of the graph.

Current value at any time can be seen by touching desired point on the graph after turning the channel off.

Display(cont.)



Limit Settings Screen

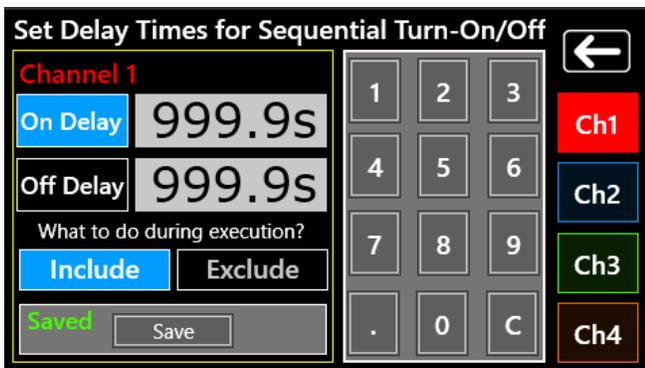
Current limits can be assigned to each channel.

The limit action may be

CutOff: Interrupt the output
or

Warn and Continue: Notify visually but do not cut off power

* When the absolute maximum current level is exceeded, the channel is put into CutOff state regardless of the limit/action setting.

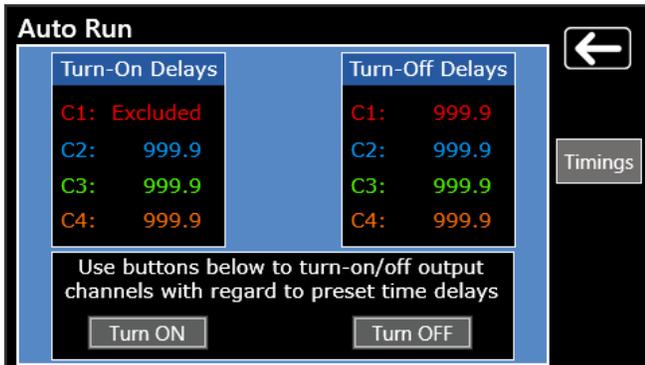


Delay Times Settings Screen

Output channels may be turned ON or OFF sequentially with respect to defined delay times.

Delay times can be set between 0.1 to 999.9 Seconds with 100 mSec resolution.

Channels can be included or excluded from the sequential operation.



Auto Run Screen

The Auto Run screen is used for initiating the sequential turn ON and OFF operation.

In this screen the previously saved delay times (if the channel is included) are shown to the user before starting the operation.

If there are channels which are included in the Turn-On sequence but already turned-on, a warning pop-up is displayed. In that pop-up, the user can cancel the operation or continue execution by automatically turning-off those channels first and start sequential turn-on.

Specifications (Based on *i-PSU-M60-48-4C*)

OUTPUT RATING		
1. Rated output voltage	V	48
2. Total rated output current	A	60
3. Number of output channels	---	4
4. Rated output current per channel	A	18A/Ch1&Ch2, 12A/Ch3&Ch4
5. Rated output power(*1)	W	3200

INPUT CHARACTERISTICS		
1. Input voltage/freq. (*2)	---	85~265VAC, continuous, 47~63Hz, Single Phase
2. Maximum Input current at 100% load (100/200 VAC)	A	27A/14A
3. Power Factor (Typ)	---	0.98 @ 100VAC 0.94 @ 200VAC, rated output power.
4. Efficiency at 100 Vac/200VAC, rated output (*3)	%	81/83
5. Inrush current	A	80A

CONSTANT VOLTAGE		
1. Max. Line regulation	---	0.02% of rated output voltage
2. Max. Load regulation	---	0.02% of rated output voltage +2mV
3. Ripple and noise (p-p, 20MHz)(*4)(*5)	mV	40mV max
4. Ripple r.m.s. 5Hz~1MHz (*3)(*4)	mV	15mV
5. Temperature coefficient	%/°C	0.02%/°C
6. Temperature stability	---	0.02% of rated Vout
7. Remote sense compensation/wire	V	0.3
8. Transient response time	mS	Time for output voltage to recover within 0.5% of its rated output for a load change 10~90% of rated output current. Output set-point: 10~100%, Local sense. Less than 8mS.
9. Start up delay	Sec	Less than 4 Sec
10. Hold-up time	mS	20ms typical, rated output power

PROTECTIVE FUNCTIONS		
1. Over Current Protection	---	Programmable current limit. Over 10A switch channel OFF and ON to reset protection
2. Over-voltage protection (OVP)	---	Output shut-down. Reset by AC input recycle

READBACK		
1. Voltage readback accuracy	%	0.05% at 48V
2. Current readback accuracy	%	0.05% at 10A (channel max load)

Specifications (Based on *i-PSU-M60-48-4C*) (cont.)

FRONT PANEL		
1.Front Panel Buttons Indications	---	Output channel ON/OF push buttons and status leds
2.Touch Screen Display	---	Output channel ON/OFF
	---	Output voltage by channel
	---	Output current by channel
	---	Current Limit and limit behavior adjustment
	---	Sequential On/Off timer adjustment
	---	Zoom into preferred channel
	---	Live current graph with 1/10, 1, 10 seconds resolution
	---	IP network parameter adjustment

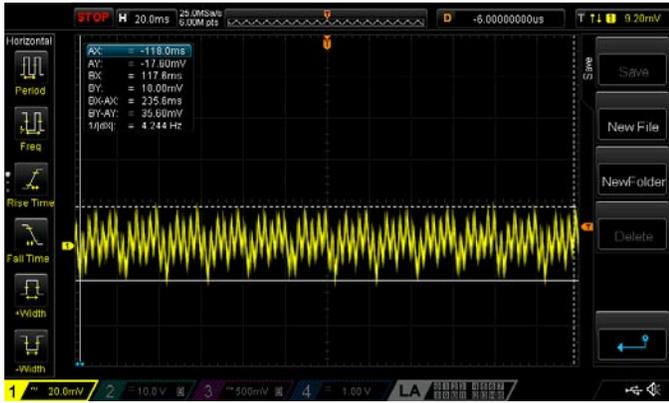
ENVIRONMENTAL CONDITIONS		
1.Operating temperature	---	-10~60°C
2.Storage temperature	---	-30~85°C
3.Operating humidity	%	20~90% RH (no condensation).
4.Storage humidity	%	10~95% RH (no condensation).
5.Altitude	---	Operating: 2000m

MECHANICAL		
1.Cooling	---	Forced air cooling by internal fans. Air flow direction: from sides to power supply rear
2.Weight	kg	22kg
3.Dimensions (WxHxD)	mm	428 x 133 x 556 (Without handles, connectors and busbars)

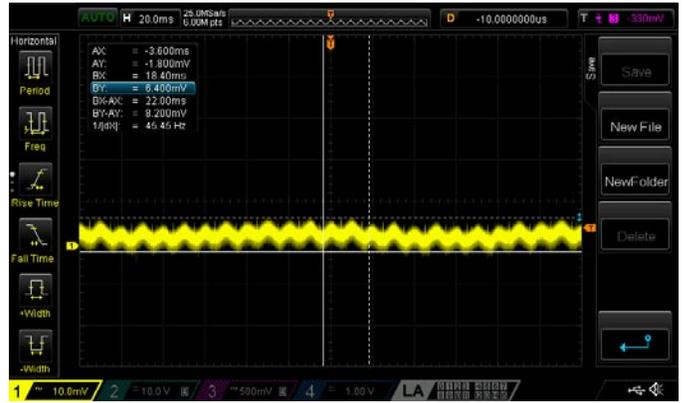
SAFETY/EMC		
1. Applicable standards: Safety	---	IEC 62368-1
1.2. Withstand voltage	VAC	Output to ground 500 for 1 minute, Input to ground 2,000, Input to output 2,000
1.3. Insulation resistance	MOhm	>100 at 25°C, 70%RH & 500Vdc
2. Conducted emmission	---	EN55032-B
3.Radiated emission	---	EN55032-B
4. EMC compliance	---	
4.1. ESD	---	EN61000-4-2, Air ± 8kV and contact ± 4kV
4.2. Radiated Susceptibility	---	EN61000-4-3, 80M -1GHz: 10V/m , 1.4 - 2.0GHz: 3V/m, 2.0 - 2.7GHz: 1V/m
4.3. Electrical Fast Transient Burst	---	EN61000-4-4, ± 2kV
4.4. Surge	---	EN61000-4-5, Normal ± 2kV, Common ± 4kV
4.5. Conducted Susceptibility	---	EN61000-4-6, 10Vrms
4.6. Magnetic Fields	---	EN61000-4-8, 30A/m

- *1. Total output power is limited to 2880 Watts by software. 3200 Watts output is achievable in air conditioned environments.
- *2. For cases where conformance to various safety standards (UL, IEC etc.) is required, to be described as 100-240Vac (50/60Hz).
- *3. At 100/200V input voltage and maximum output power.
- *4. The ripple is measured at 100% output current.
- *5. Measured with JEITA RC-9131A (1:1) probe.

Ripple

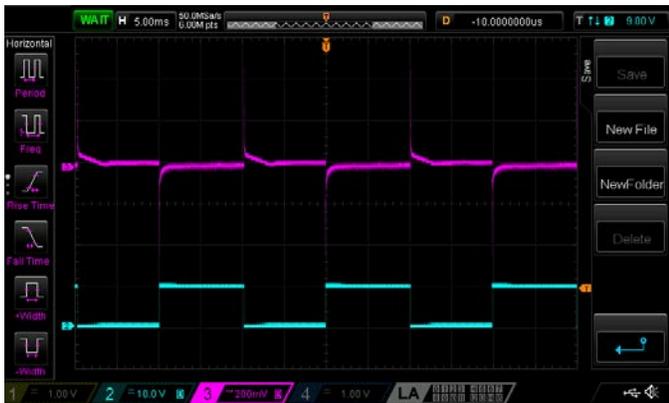


Channels 1/2

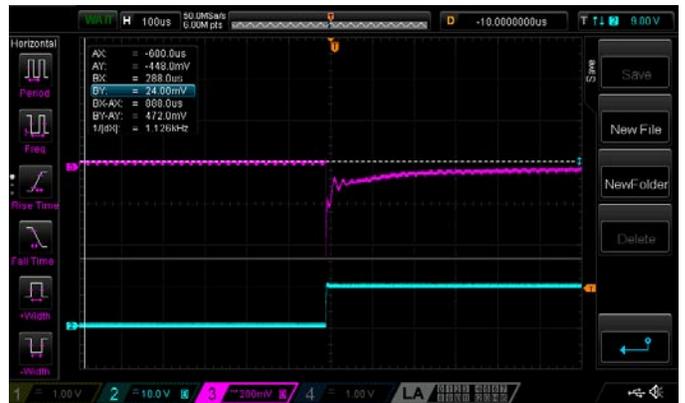


Channels 3/4

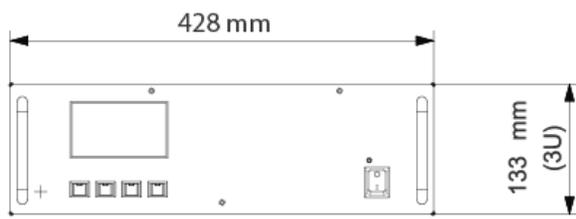
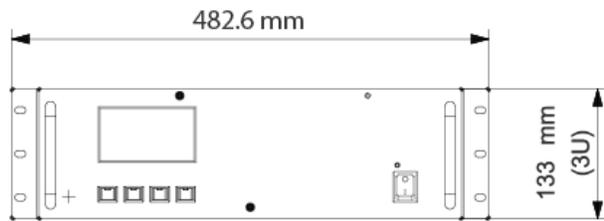
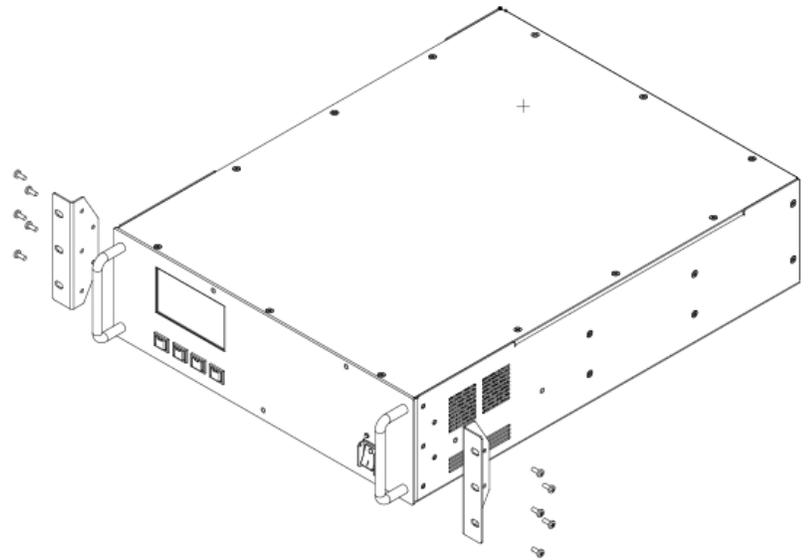
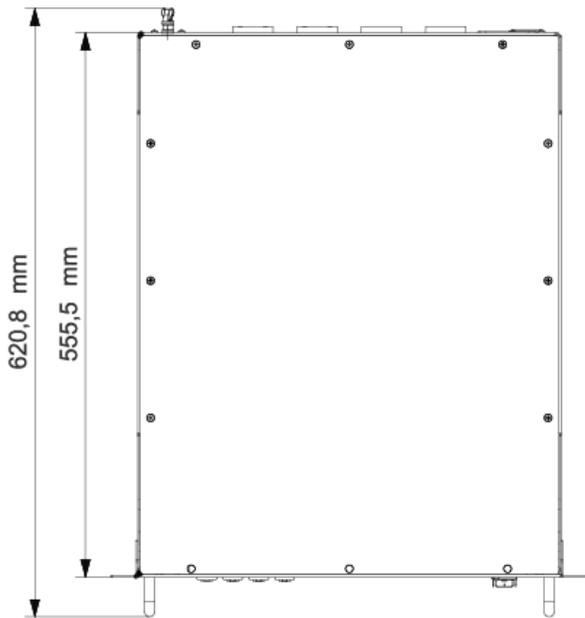
Transient Response



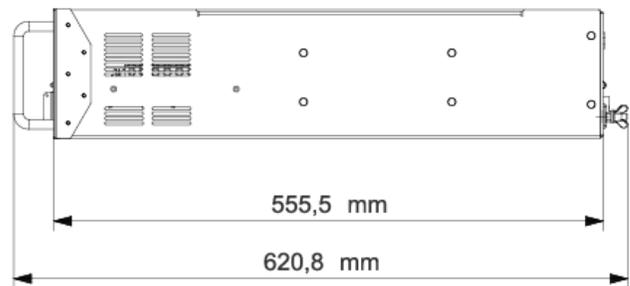
All Channels



Mechanical Outline*

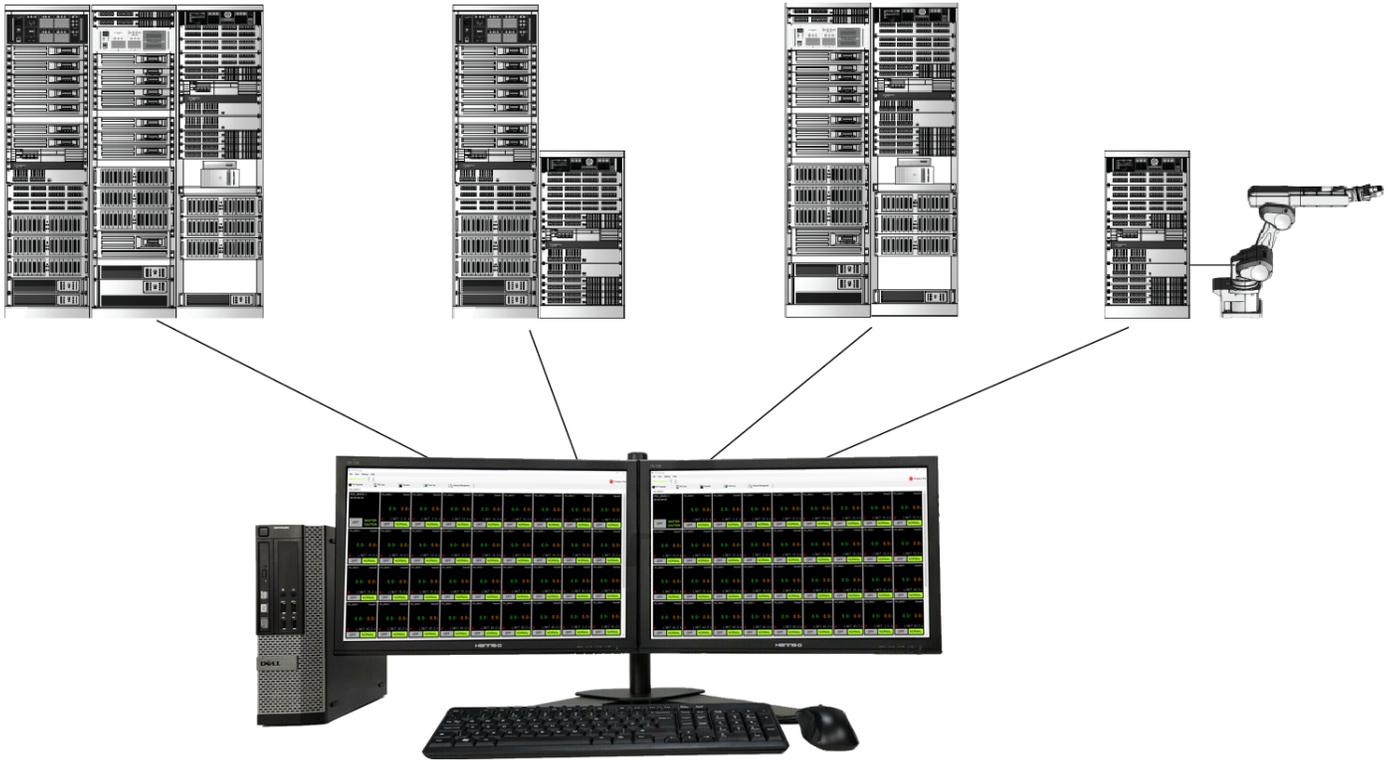


Without Rack-Mount Brackets



* Drawings are for reference only. Not to scale. The design depends on the model and the options.

PDU Manager Software

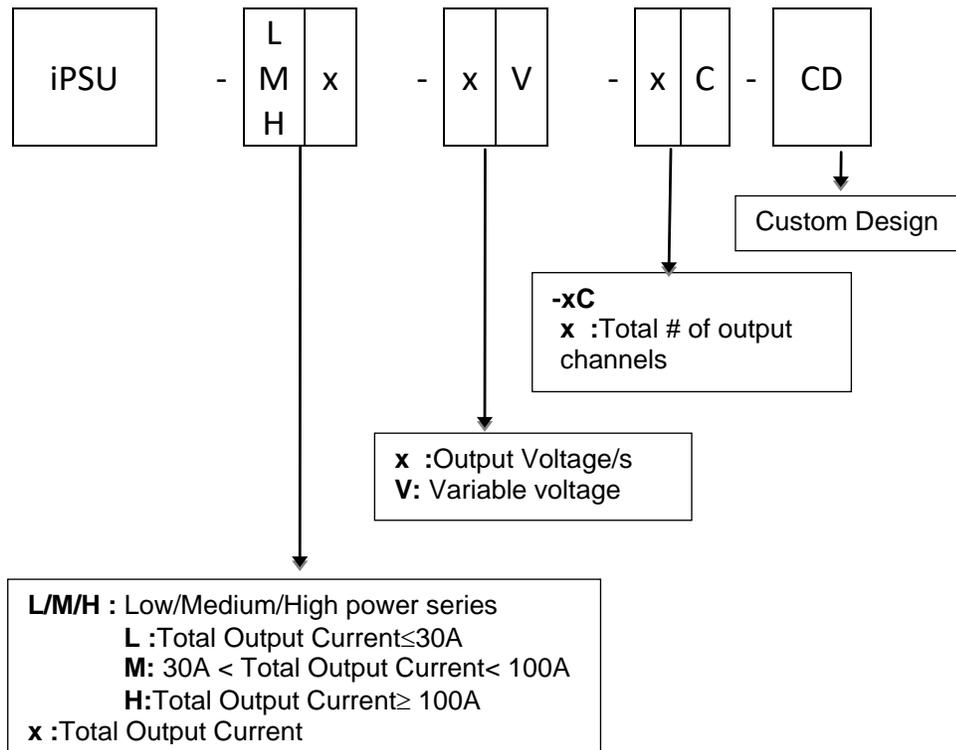


PDU Manager Software controls multiple iPSUs (and SENDEF iPDUs) for fully automated, combined operation. Comprehensive set of scenarios provide user to plan, execute and control complex power operations from a single management unit.

Long term, detailed data acquisition is a plus for analyzing individual events and power planning.

*Besides the management software, SCPI protocol on the SENDEF iPS and iPD Units is always ready for the user to integrate those units into their own environment.

iPSU Series Part Number Guide



SENDEF

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