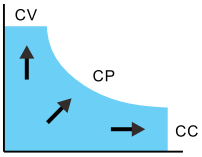
Wide Range

iDRC

DSP-WR series
DSP-WE series
DSP-WA series
DSP-WAe series

Wide range input • Wide range output

Wide Range Programmable DC Power Supply



MHz

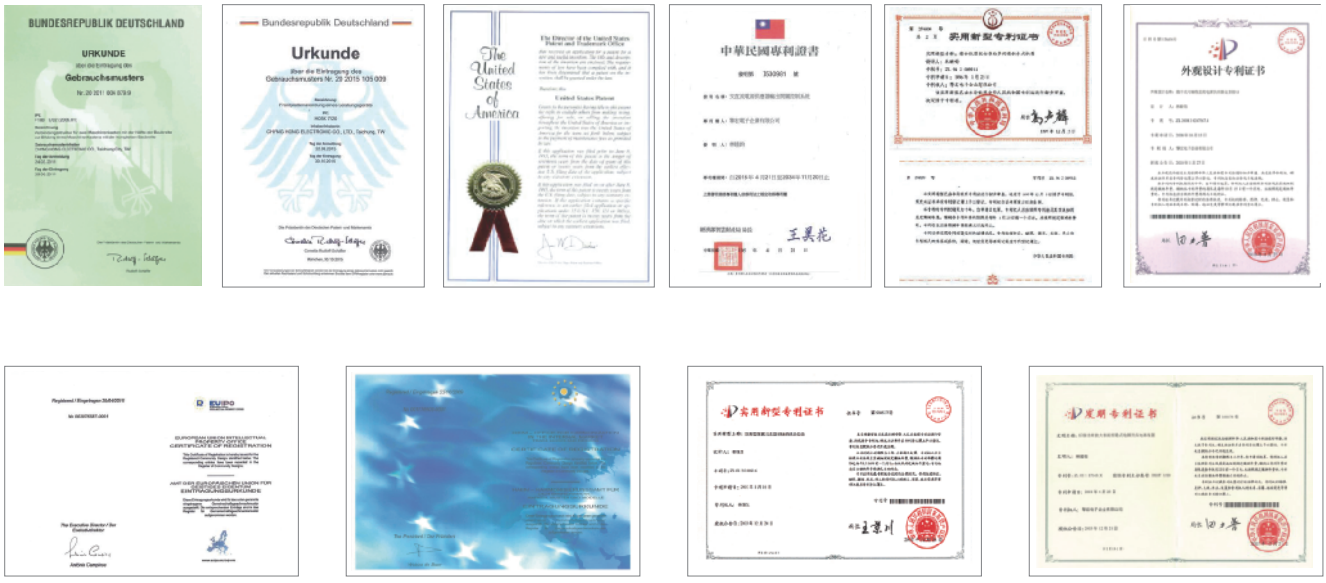
LXI

CE

RoHS COMPLIANT

Innovation

After decades of research and development, IDRC obtained 158 patents up to September 2017. Which includes more than 27 invention patents.
The DSP-WR is applied with around 18 patents such as “HOME/BACK” multifunction key, Output-switch control system, Synchronization circuitry ... those makes DSP-WR significantly ahead of the other similar products.



DSP-WR Patents

China	ZL 2014 2 0064432.4 , ZL 2014 2 0539916.X , ZL 2014 3 0130259.9 , ZL 2014 3 0490203.4 , ZL 2014 3 0490204.9 , ZL 2015 2 0136770.9 , ZL 2015 2 0150534.2 , ZL 2015 2 0229375.5 , ZL 2015 2 0573475.X , ZL 2015 2 0573543.2 , ZL 2015 3 0435062.0 , ZL 2015 3 0432790.6 , ZL 2016 2 0353605.3 , ZL 2016 2 0358539.9 , ZL 2016 2 0639352.6 , ZL 2016 3 0005985.7 , ZL 2016 3 0060739.1 , ZL 2016 3 0135663.4 , ZL 2016 2 0154125.4
Germany	Nr 10 2015 002 824.3 , Nr 20 2016 101 440.9 , Nr 20 2016 102 507 , Nr 20 2016 102 535 , Nr 20 2013 011 929.2 , Nr 20 2014 100 958.2 , Nr 20 2015 103 504 , Nr 20 2015 105 008 , Nr 20 2015 105 009 , Nr 20 2014 104 818.9 , Nr 20 2015 102 036 , Nr 20 2015 103 503
European union	002468934-0001 , 002597591-0001 , 002597617-0001 , 002844431-0001 , 002847640-0001 , 002941997-0001 , 003076587-0001 , 003935154-0001 , 033004233-0001
Taiwan	D170155 , D172385 , D172386 , D174708 , D177237 , D177781 , D180503 , I 472141 , I 530981 , M512157 , M486210 , M490169 , M500915 , M504972 , M505753 , M512253 , M520767 , M524947 , M524948 , M524949
United States	US D770,396 US D771,577 US 8410362B1, US 9,240,730 B2 , US 9,287,769 B1 , US 9,287,769 B1 , US 9,489,011 B2 , US 9,513,500 B2 , US 9,513,500 B2 , US 9,538,679 B1 , US D735,149S , US D779,837 S , US D782,417 S , US D782,424 S , US D785,710 S , US D785,711 S , US 9,621,066 B2 , US 9,632,548 B1 , US 9,674,973 B1 , US 9,681,564 B2

note: The certifications received till Sep. 2017

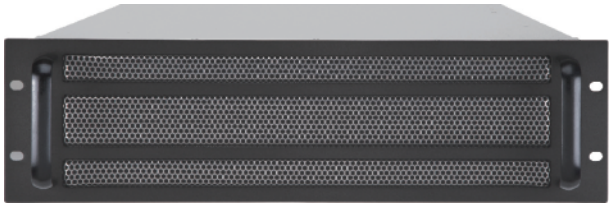
DSP-WR Series

- 5" touchscreen 800x480
- CV / CC / CP control
- Output resistance simulation
- 18 models available

DSP-WE Series

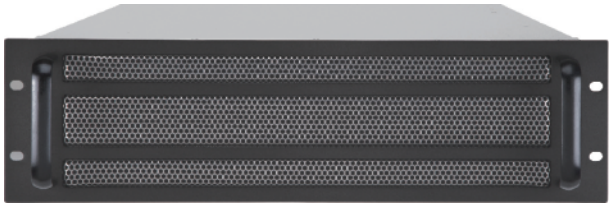
- 4.3" touchscreen 480x272
- CV / CC control
- Economic models
- 18 models available

DSP-WA Series



- Remote control w/o display
- CV / CC / CP control
- Slave unit for DSP-WR
- Appropriate for ATE
- 18 models available

DSP-WAe Series



- Remote control w/o display
- CV / CC control
- Slave unit for DSP-WE
- Appropriate for ATE
- 18 models available

Features Input & Output

- Wide range output, output voltage from 0~80V up to 0~1500V, output current from 0~30A up to 0~540A.
- The ratio of V max. x A max. to rated power is 3 to 1.
- Wide range input, input voltage range 180~460Vac (47~63Hz).
- User definable output priority, Constant Voltage , Constant Current or Constant Power.
- All the models including 5kW are input with 3-phase. Identical phase current keeps the 3-phase AC mains balanced. meets the power distribution regulations arond the world.
- 3U height
- Output power 5kW . 10kW . 15kW, in total 18 models available for selection.
- Built-In patented Synchronization Circuit, simply construct 10 units to become a 150kW single power supply.
- Maximum output current up to 5400A.
- With the optional pre-assambled rack cabinet, unnecessary slave unit(s) can be power off to save energy.
- Active power factor correction, PF > 0.95.
- Efficiency > 95%+

Electrical

- MHz switching frequency, output ripple and noise are extremely low.
- Multiple 32bit ARM base CPU, embedded system, ready for use within 10 seconds after turn on.
- Use Wide-Bandgap power semiconductors such as SiC MOSFET SBD... Lower temperature higher efficiency better performance.
- Adjustable output voltage, current and power.
- 18bit DAC for setting and 24bit ADC for measurement.
- Programmable output slew rate of voltage, current and power.

Operation

- Large-size touchscreen, various operating modes, independent V & A encoder for quick adjustment.
- Three background colors of screen for selection.
- Patented Multi-function keys, innovated HOME/RETURN key.
- Patented “Two tact switches” controlled output ON/OFF button, the output enabled when both switches are triggered, output disabled if one of them is triggered, prevent the accidental operation.
- Three sets of memories can be stored and recalled in the front panel.
- Free controlling software.
- Data logging with timestamp.

Safety

- Non-gap stacking, no ventilation holes at the cover and bottom plate of the power supply.
- Built-in timer, output time can be set as desired.
- Programmable output ramp up and ramp down protecting the device under test.
- User definable power ON mode (LAST/OFF).
- Internal resistance simulation.
- Programmable over voltage protection and over current protection.
- Upgrading firmware without opening the case, the unit will never become a brick even failed of upgrade.
- Up to 8000 sets of programmed memories those combined by V/A/W/Time can be stored, min. time 1ms.
- Built-In RTC, time is still reliable even when not connecting to a time server.
- Network time synchronization function allows user to assign to the preferable time server.
- Remote sense function, maximum compensate voltage up to 5V.
- CE approved
- Filled Transport Packages approved
- Vibration Test approved

Interface

- • Built-In 2 LAN (LXI) ports, saves the cost of an extra switch hub.
- • Multi-purposed slot for optional interfaces, GPIB/Serial Port/Isolated Analog.
- • LXI approved
- • LAN interface response time 3ms.
- • Support SCPI commands.
- • Provide IVI-COM driver.
- • Provide IVI-COM driver
- • Alarm signal output and InterLock mechanism prevent the integrated system from harming its operator.
- • Optional isolated analog programming, 0~5V or 0~10V for setting and monitoring the output V/A/W.
- • USB host port for load or save the programmed sequence.

*1 : The ratio varies by model.

*2 : It is only allowed to power off the last unit(s).

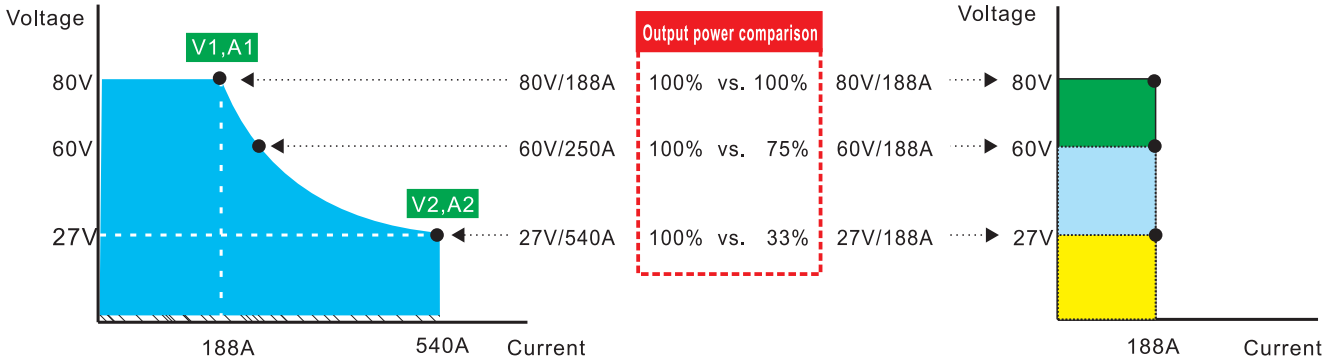
*3 : The efficiency varies by model and input voltage.

*4 : MHz switching frequency is not applicable for every model.

*5 : USB flash drive format FAT16(2GB) / FAT32(32GB) USB 2.0

Output Characteristic

Compare with the conventional design, the DSP-WR has more flexibility with numerous of V/A combination to satisfy various of requirement. A wide range output power supply can take place of 3~5 models of conventional design.



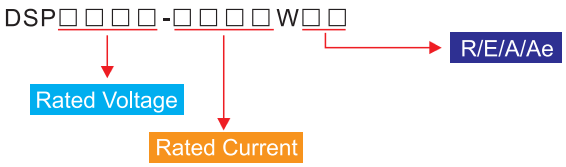
Wide range 80V/15kW power output range

Conventional 80V/15kW power output range

Models and Rating table

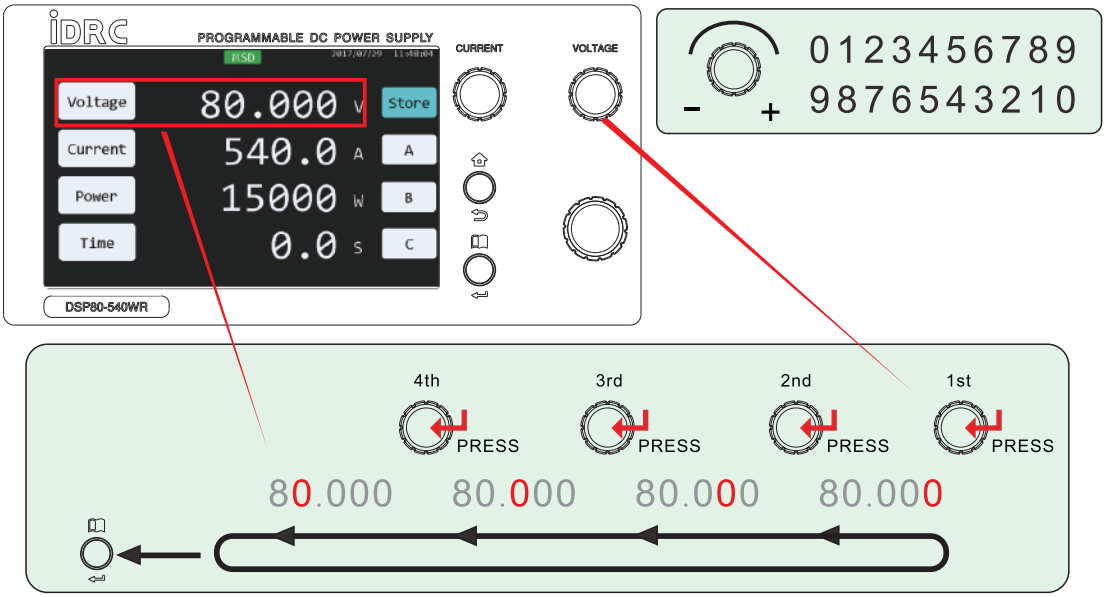
Output Power (W)	DSP-W□□ Series	Max. Voltage	Current @Max. Voltage	Max. Current	Voltage @Max. Current
		V1	A1	A2	V2
5kW	DSP80-180W□□	80 V	62.5 A	180 A	27.77 V
	DSP250-60W□□	250 V	20 A	60 A	83.33 V
	DSP350-42W□□	350 V	14.28 A	42 A	119.04 V
	DSP500-30W□□	500 V	10 A	30 A	166.66 V
	DSP650-23W□□	650 V	7.69 A	23 A	217.39 V
10kW	DSP80-360W□□	80 V	125 A	360 A	27.77 V
	DSP250-120W□□	250 V	40 A	120 A	83.33 V
	DSP350-84W□□	350 V	28.57 A	84 A	119.04 V
	DSP500-60W□□	500 V	20A	60 A	166.66 V
	DSP650-46W□□	650 V	15.38A	46 A	217.39 V
	DSP1000-30W□□	1000 V	10A	30 A	333.33 V
15kW	DSP80-540W□□	80 V	187.5A	540 A	27.77 V
	DSP250-180W□□	250 V	60A	180 A	83.33 V
	DSP350-126W□□	350 V	42.85A	126 A	119.04 V
	DSP500-90W□□	500 V	30A	90 A	166.66 V
	DSP650-69W□□	650 V	23.07A	69 A	217.39 V
	DSP1050-42W□□	1050 V	14.28A	42 A	357.14 V
	DSP1500-30W□□	1500 V	10A	30 A	500 V

Ordering information



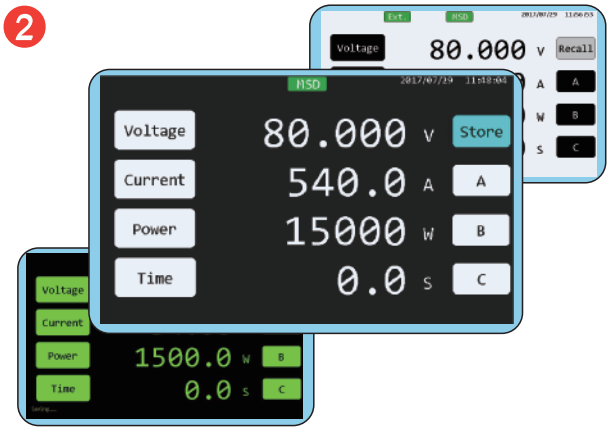
R : DSP-WR : 5" touchscreen, full function models
E : DSP-WE : 4.3" touchscreen, economic models
A : DSP-WA : ATE purposed (CV/CC/CP) or slave unit for DSP-WR
Ae : DSP-WAe : ATE purposed (CV/CC) or slave unit for DSP-WE

1



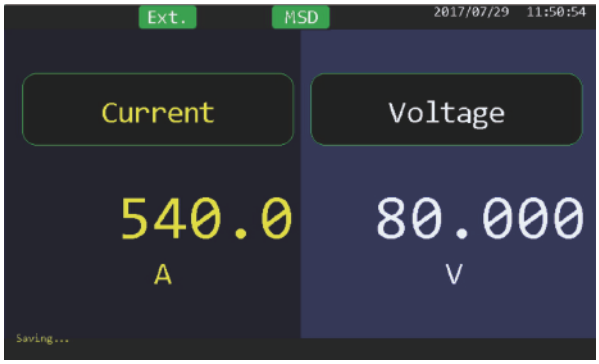
Not only modern but also classical, DSP-WR keeps the traditional setting method,
Individual Voltage, Current and Power knobs, press to select the digit and rotate to change value.

2



Complete Mode:
Voltage, Current, Power and Time settings in same screen. Three sets of memories for quick Store/Recall.

3



Simple Mode:
Only Voltage and Current are adjustable, the constant power will be forced to rated power.

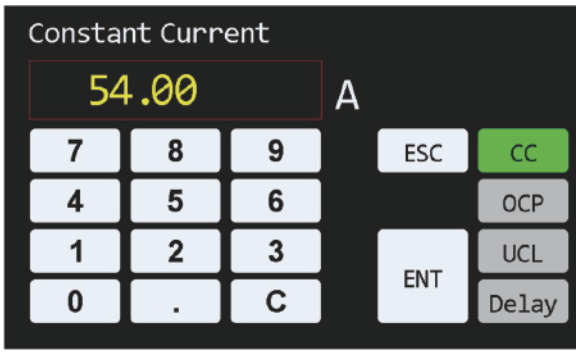
4

High quality power switch with safety guard prevent the accidental operation sufficiently.

5

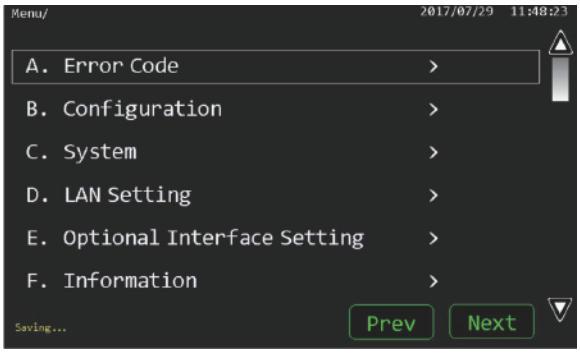
ARM Cortex-A9(note) graphical microprocessor Smooth operation, fast response

6



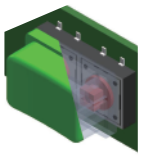
Entering the desired value on touchscreen virtual ten keys.Output voltage, OVP and UVP settings in the same screen.

7



All the functions and parameters are detailed display in the screen.

8



Patented Output-Switch Control System

9

Equipped with high quality 12 x 12 cm speed controlled fan.Rated speed: 4500rpm, Air flow: 150CFM
Reduces acoustic noise effectively.
Ensure the cooling capacity sufficiently.

10

High resolution TFT :
800 x 480 WVGA
Resistive touchscreen

11

USB TYPE A connector
For connecting to most of USB flash discs up to 32GB, quick and easy loading the stored data to DSP-WR.

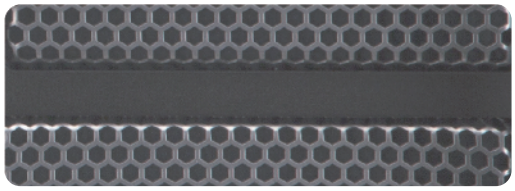
12

Easy to identify labeling
Not necessary to Check and obtain the max. combinative values of voltage V.S. current
1. From datasheet.
2. From user manual.
3. Calculation

13

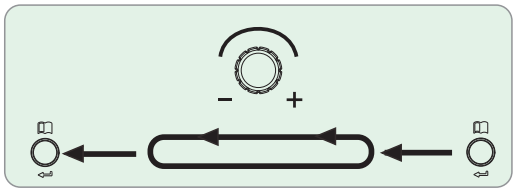
Innovated HOME key
Press the HOME key shortly the display will return to the previous page, press and hold the HOME key for 1.5 seconds the display will return to main page.

14



◎The ventilation net is made of stainless steel, not requires plating or coating, more friendly to the environment.
◎Designed with Hexagon shapeventilation. Lower temp. longer life time.

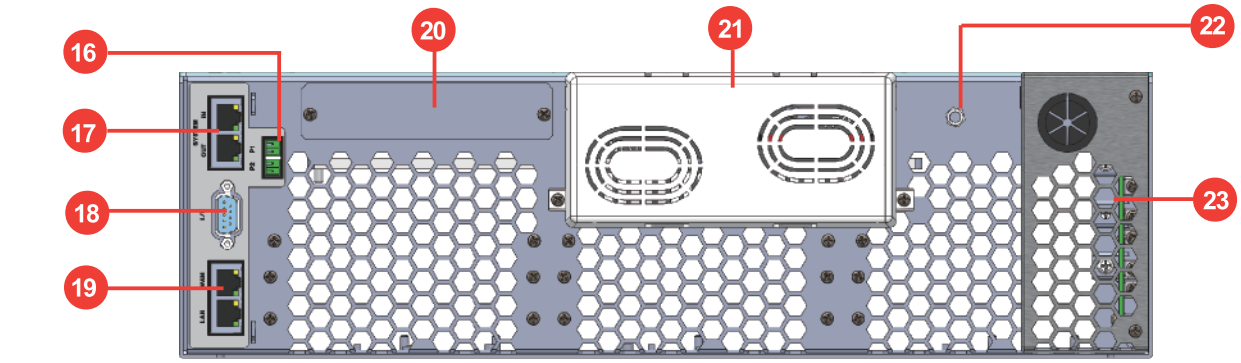
15

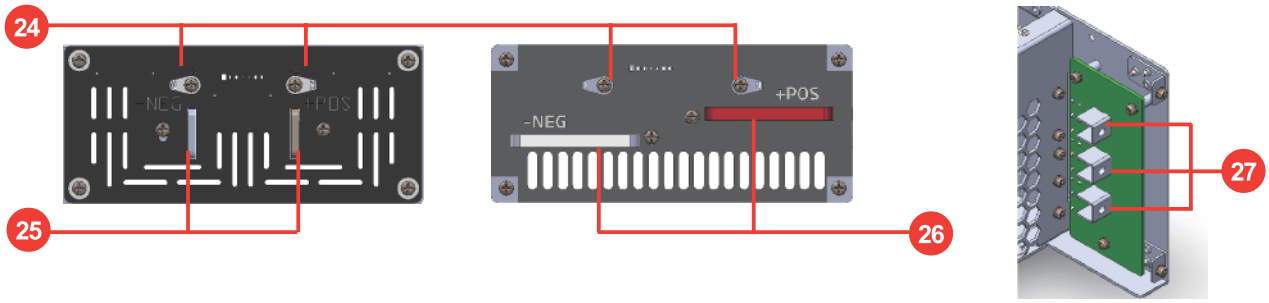


The setting MENU can be edit or set by both touchscreen and the rotating knob.

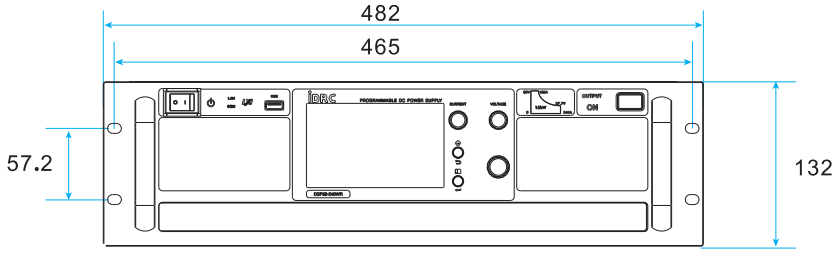
Rear Panel

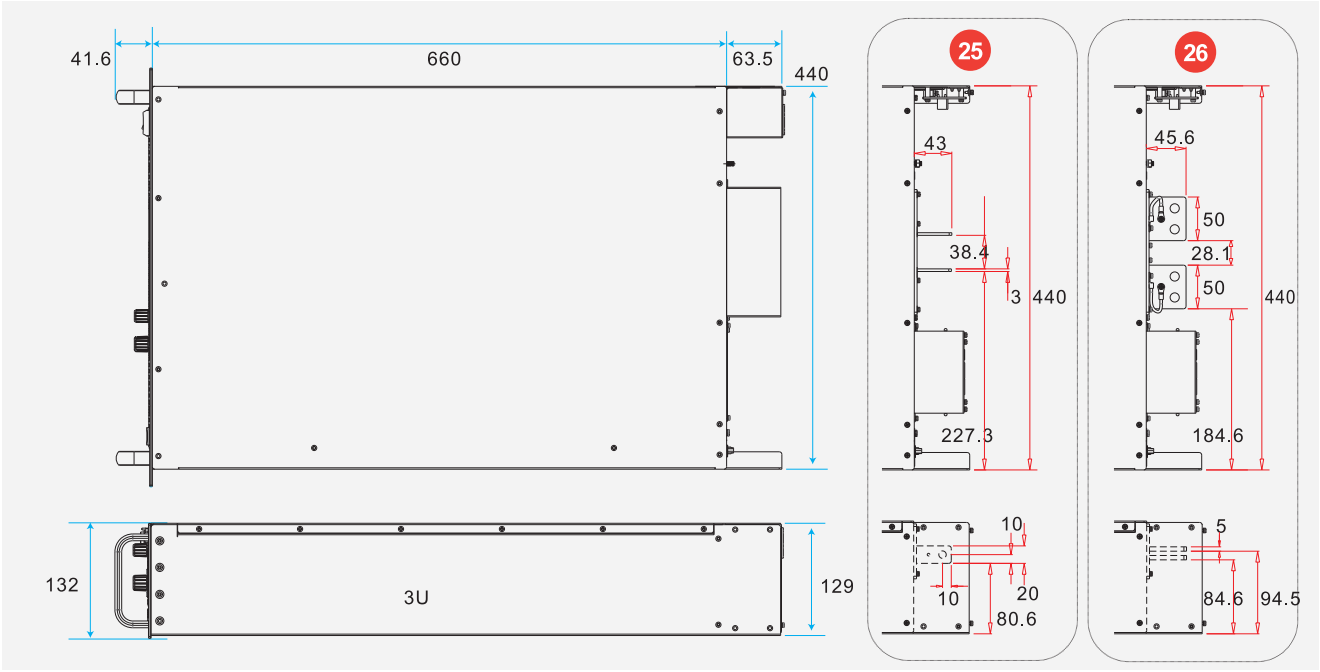
16 Current sharing
17 System IN/OUT
18 Auxiliary control
19 LAN (LXI) connector
20 Slot for optional interfaces
21 Output protective cover
22 Ground Terminal (earth terminal)
23 Input protective cover
24 Remote Sense/Compensation terminal
25 Output terminals
26 Output terminals (80V/10kW,80V/15kW)
27 AC Input terminals





Dimension Diagrams (mm)

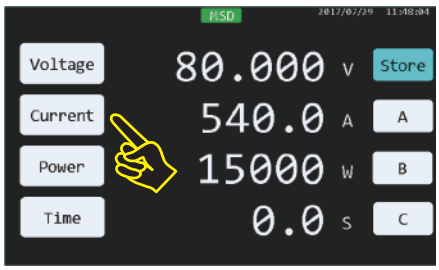




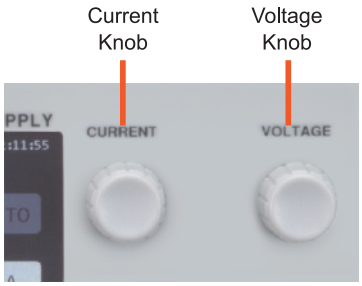
Various control & operating

DSP-WR provides various interfaces for option.

1 Touchscreen



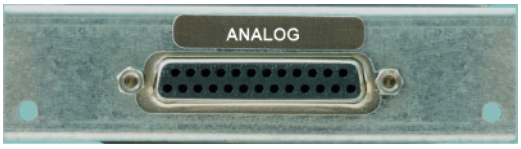
2 Independent knobs



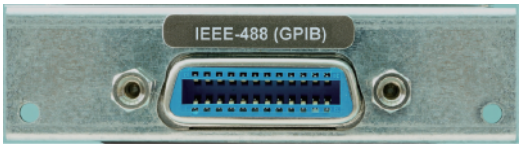
3 MENU editing knob

4 LXI interface (STD)

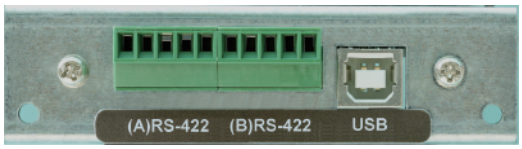
5 Isolated analog interface (OPT)



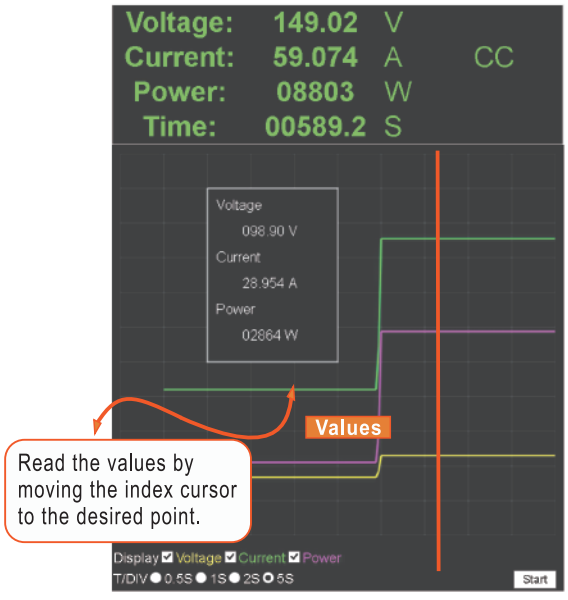
6 GPIB interface(OPT)



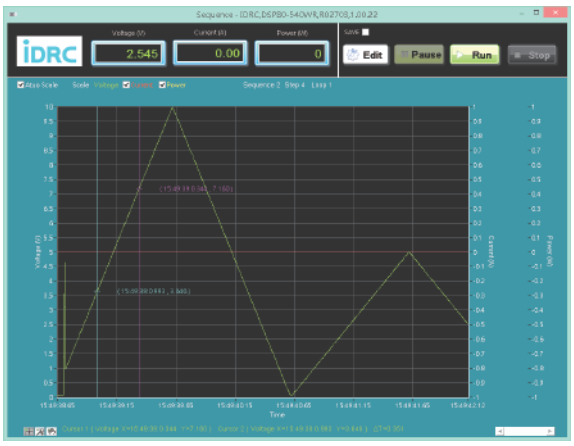
7 RS-422 & 485 / USB interface (OPT)



8 LXI Web browser



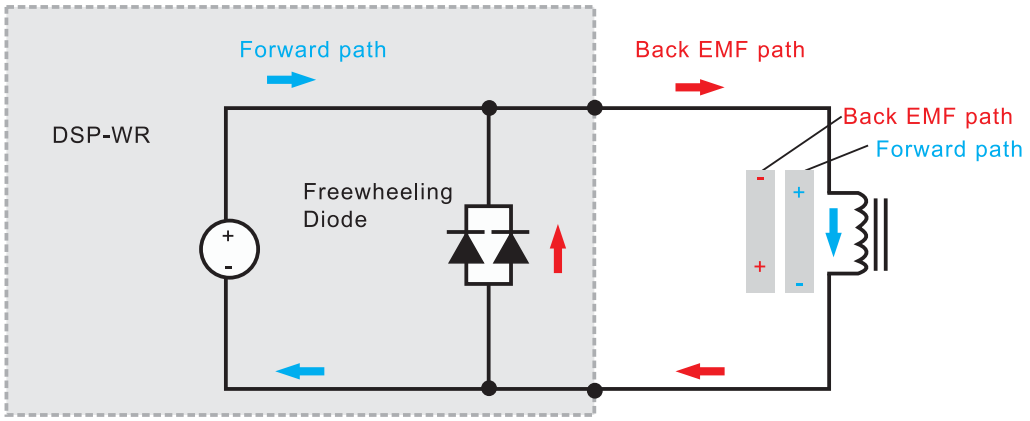
9 PC software



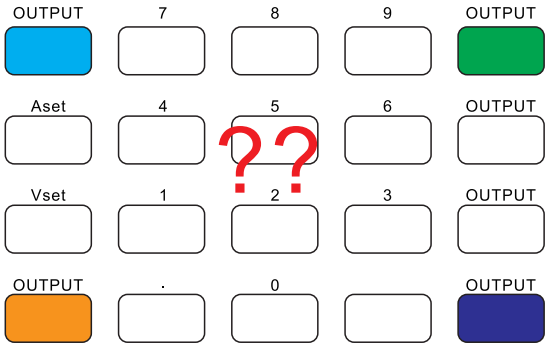
*2:Due to the continuous improvement of our products, the descriptions in this catalog may differs to the actual product we've shipped.

Design for Safety

When the DC power supply is powering an inductive load such as an inductor or DC motor, a back EMF may generated once the output voltage goes down or turning off. The built-In freewheel diodes protects DSP-WR from damages by back EMF.



Clear and definite OUTPUT ON/OFF control



VS.

In the conventional design, some power supplies positioned "OUTPUT" key into the matrix of keys with different functions. This always take times for user on looking for the desired key.

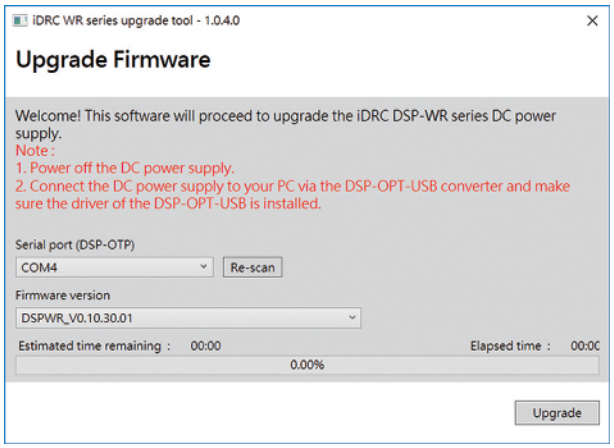
Such kind of keys are usually made of silicon rubber. Besides the sense of pressing is not clear enough, it also requires an auxiliary indication for the user to be aware of the power supply is under controlled or not.
Moreover, the keys sometimes get stuck and resulting in errors.

iDRC is always designing products in consideration for the interest of users.
Separate the identical function from the others in the limited space of front panel.
Insisting on using the tact switch for "OUTPUT" control, positioning it independently, make it clear and definite.

DSP-WR Intelligent firmware updating

The firmware upgrading can be conducted easily. Just download the upgrading tool, connect your DSP-WR to your PC and some clicks, your DSP-WR will has the most updated firmware.

RISK FREE
The DSP-WR units will not become a brick whether the power line or the communication interrupt during the firmware upgrading.



Techniques Comparison

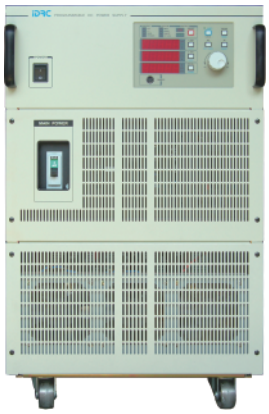
Efficiency **15%** higher

Size **1/5** of previous design

Weight **1/2** of previous design

Output response **15** times faster

Previous design



DSP-WR

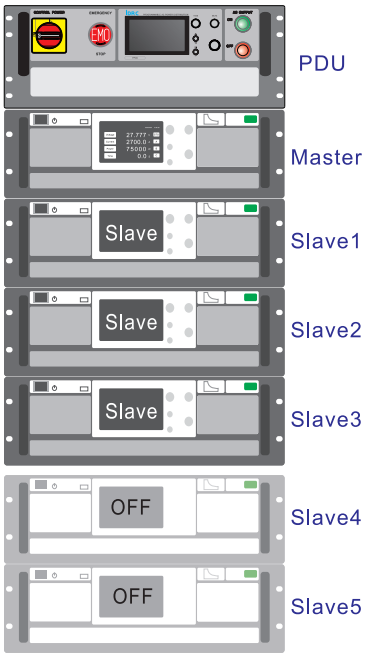
Master/Slave control

The pre-assembled rack cabinet with Power Distribution Unit is available for selection when use multi units in parallel.

- **Maximum 10 units in one cabinet.**
  Up to 150kW
  Up to 5400A (80V models)
- Master unit detects automatically the numbers of Slave units been connected. Surplus slave unit(s) can be powered off to save energy.
- **Non-gap stacking, superior power density.**
  90kW in 18U rack, 150kW in 30U rack
- **Aggregated display**
  Master unit controls and displays the actual current of entire system power.
- **Ultra speed synchronization**
  Up to several Mbps of synchronization.
  Extremely low ripple and noise.
- **Smart PDU**
  -Power ON/OFF in order.
  -Monitoring power quality and power consumption.
  -Remote control.

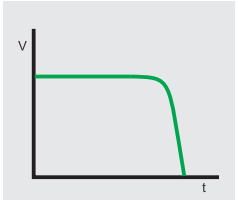
<<See detail about PDU in page 16>>

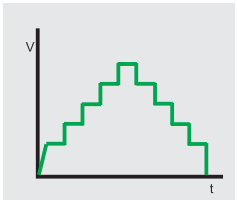
3U-15kW

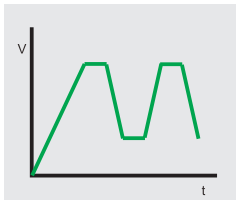


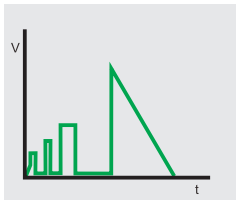
Output ripple frequency

The multi-phase interleaved design uplifted the output ripple frequency.
Higher frequency leads the DC power supplies faster response and lower ripple.
1MHz makes the DSP-WR become the highest switching frequency of the programmable DC power industry.
The following figure demonstrates the output ripple frequency V.S. transient response time.



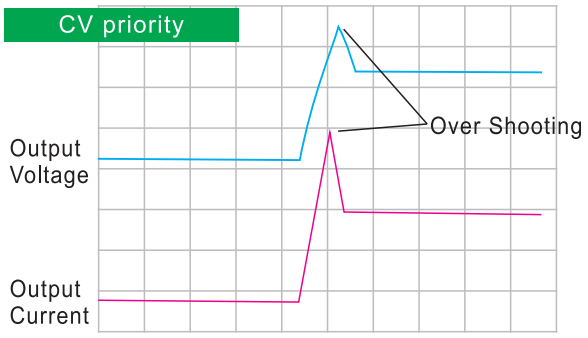


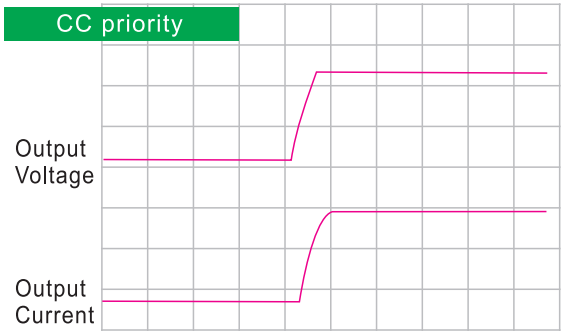




CV-CC-CP priority output mode

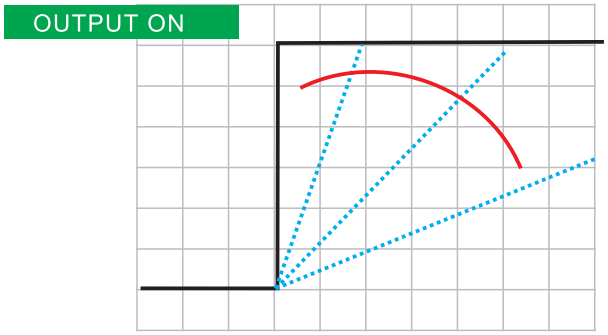
Constant Current priority output mode, eliminated the overshooting when testing the capacitive load or DIODE.
The DC power supply is limited and constantly inject the desired current to the device under test without any spike.

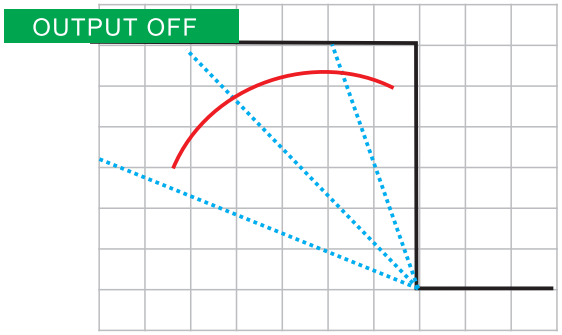




Adjustable ramp up/down

Adjustable ramp up when output ON and ramp down when output OFF, time range 0.1~99.9s

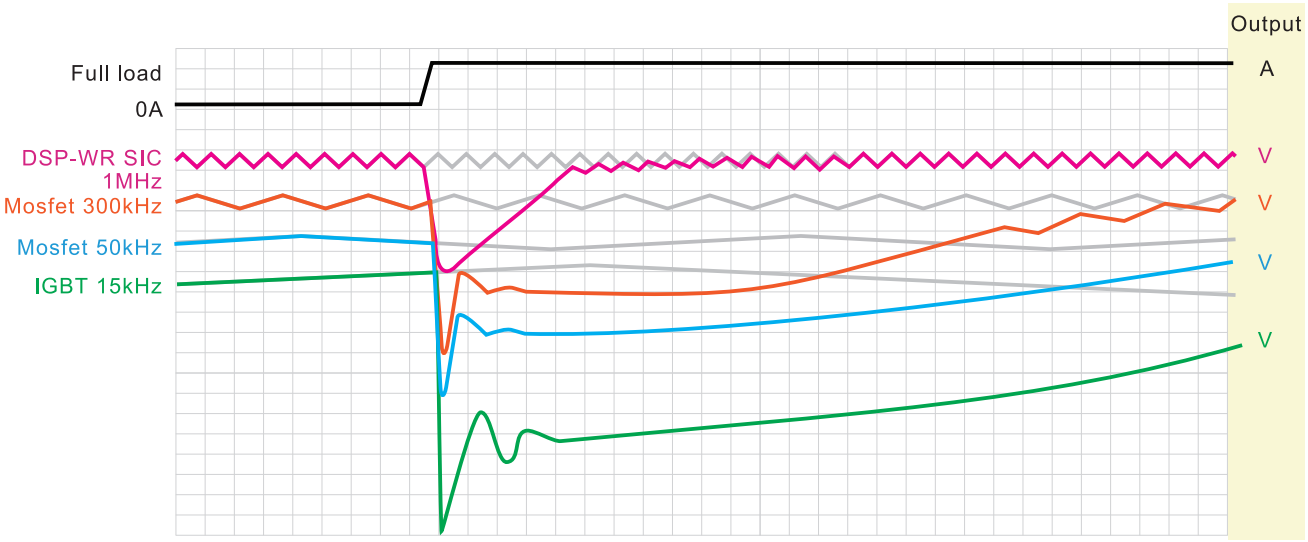




*1. Ramp down time when output off may different according to load.

Output ripple frequency

The multi-phase interleaved design uplifted the output ripple frequency.
Higher frequency leads the DC power supplies faster response and lower ripple.
1MHz makes the DSP-WR become the highest switching frequency of the programmable DC power industry.
The following figure demonstrates the output ripple frequency V.S. transient response time.



5kW(3U) Specifications

Model number	DSP80-180W□□	DSP250-60W□□	DSP350-42W□□	DSP500-30W□□	DSP650-23W□□
Rated Voltage	80V	250V	350V	500V	650V
Rated Current	180A	60A	42A	30A	23A
Constant voltage					
Rated value	0~80V	0~250V	0~350V	0~500V	0~650V
Settable range	0~84V	0~262.5V	0~367.5V	0~525V	0~682.5V
Overvoltage protection (OVP)	0%~110% of rated output voltage				
Voltage @ Rated Current	27.77V	83.33V	119.04V	166.66V	217.39V
Programming resolution	5 digits				
Programming accuracy (*2)	±0.1% of rated voltage				
Meter resolution	5 digits				
Meter accuracy (*2)	± 0.1% of rated voltage				
Line regulation (*6)	± 0.02% of rated voltage (with local sense)				
Load regulation (*7)	± 0.05% of rated voltage (with local sense)				
Ripple & noise (*3)(*4) Vpp	< 180mV	< 270mV	< 288mV	< 315mV	< 720mV
(with local sense) Vrms	< 15mV	< 36mV	< 50mV	< 63mV	< 180mV
Full load up	<30ms				
Full load down	<80ms				
No load down	<30s	<10s	<10s	<10s	<10s
Transient Response (*5)	< 1.5ms				
Remote compensation	5V				
Temperature coefficient for set values	100ppm/℃ of rated output voltage, after a 30 minutes warm-up				
Constant current					
Rated value	0~180A	0~60A	0~42A	0~30A	0~23A
Settable range	0~189A	0~63A	0~44.1A	0~31.5A	0~24.15A
Over current protection (OCP)	0%~110% of rated output current				
Voltage @Max. Current	62.5A	20A	14.28A	10A	7.69A
Programming resolution	5 digits				
Programming accuracy (*2)	±0.2% of rated current				
Meter resolution	5 digits				
Meter accuracy (*2)	±0.2% of rated current				
Line regulation (*6)	±0.05% full scale				
Load regulation (*7)	±0.15% full scale				
Ripple & noise (*3)(*4)(with local sense) Arms	72mA	20mA	16mA	15mA	15mA
Temperature coefficient for set values	100ppm/℃ of rated output voltage, after a 30 minutes warm-up				
Constant power(The DSP-WE / DSP-WAe series is not supporting the function.)					
Rated value	0~5kW	0~5kW	0~5kW	0~5kW	0~5kW
Settable range	0~5100W				
Over power protection (OPP)	0%~110% of rated output power				
Programming resolution	5 digits				
Programming accuracy	< 1% of rated power				
Meter resolution	5 digits				
Meter accuracy (*2)	± 0.5% of rated power				
Line regulation (*6)	< 0.05% of rated power				
Load regulation (*7)	< 0.75% of rated power				
Temperature coefficient for set values	100ppm/℃ of rated output voltage, after a 30 minutes warm-up				
Internal resistance(The DSP-WE / DSP-WAe series is not supporting the function.)					
Adjustment range	0~0.4444Ω	0~4.1667Ω	0~8.3333Ω	0~16.667Ω	0~28.261Ω
Programming resolution	0.0001Ω	0.0001Ω	0.0001Ω	0.001Ω	0.001Ω
Programming Accuracy (*2)	≤2.3% of max. resistance				
Input					
Nominal input rating	200~415V 50Hz/60Hz 3-phase 3 wires				
Input voltage range	180~460VAC				
Input frequency range	47Hz~63Hz				
Current (Maximum)	20A/phase (Input 3-phase 180V)				
Inrush current	33A/phase (Input 3-phase 460V)				
Input Power (Maximum)	6kVA	6kVA	6kVA	6kVA	6kVA
Efficiency	86~95% varies by model (*1)				
Insulation					
Primary - Chassis	DC 2500V				
Primary - Secondary	DC 2500V				
Secondary - Chassis	DC750V	DC750V	DC750V	DC1000V	DC1500V
Leak current	< 3.5 mA				
Power Factor	0.95 typ.				
Weights and dimensions					
Dimensions(WxHxD)	482 x 132 x 765.1 mm，3U				
Weight (kg)	27.5	26	26	26	26

10kW(3U) Specifications

Model number	DSP80-360W□□	DSP250-120W□□	DSP350-84W□□	DSP500-60W□□	DSP650-46W□□	DSP1000-30W□□
Rated Voltage	80V	250V	350V	500V	650V	1000V
Rated Current	360A	120A	84A	60A	46A	30A
Constant voltage						
Rated value	0~80V	0~250V	0~350V	0~500V	0~650V	0~1000V
Settable range	0~84V	0~262.5V	0~367.5V	0~525V	0~682.5V	0~1050V
Overvoltage protection (OVP)	0%~110% of rated output voltage					
Voltage @ Rated Current	27.77V	83.33V	119.04V	166.66V	217.39V	333.33V
Programming resolution	5 digits					
Programming accuracy (*2)	±0.1% of rated voltage					
Meter resolution	5 digits					
Meter accuracy (*2)	± 0.1% of rated voltage					
Line regulation (*6)	± 0.02% of rated voltage (with local sense)					
Load regulation (*7)	± 0.05% of rated voltage (with local sense)					
Ripple & noise (*3)(*4) (with local sense) Vpp	< 288mV	< 270mV	< 288mV	< 315mV	< 720mV	< 1440mV
Vrms	< 23mV	< 36mV	< 50mV	< 63mV	< 180mV	< 315mV
Full load up	<30ms					
Full load down	<80ms					
No load down	<30s	<10s	<10s	<10s	<10s	<10s
Transient Response (*5)	< 1.5ms					
Remote compensation	5V					
Temperature coefficient for set values	100ppm/°C of rated output voltage, after a 30 minutes warm-up					
Constant current						
Rated value	0~360A	0~120A	0~84A	0~60A	0~46A	0~30A
Settable range	0~378A	0~126A	0~88.2A	0~63A	0~48.3A	0~31.5A
Over current protection (OCP)	0%~110% of rated output current					
Voltage @Max. Current	125A	40A	28.57A	20A	15.38A	10A
Programming resolution	5 digits					
Programming accuracy (*2)	±0.2% of rated current					
Meter resolution	5 digits					
Meter accuracy (*2)	±0.2% of rated current					
Line regulation (*6)	±0.05% full scale					
Load regulation (*7)	±0.15% full scale					
Ripple & noise (*3)(*4)(with local sense) Arms	144mA	40mA	32mA	29mA	29mA	20mA
Temperature coefficient for set values	100ppm/°C of rated output voltage, after a 30 minutes warm-up					
Constant power(The DSP-WE / DSP-WAe series is not supporting the function.)						
Rated value	0~10kW	0~10kW	0~10kW	0~10kW	0~10kW	0~10kW
Settable range	0~10200W					
Over power protection (OPP)	0%~110% of rated output power					
Programming resolution	5 digits					
Programming accuracy	< 1% of rated power					
Meter resolution	5 digits					
Meter accuracy (*2)	± 0.5% of rated power					
Line regulation (*6)	< 0.05% of rated power					
Load regulation (*7)	< 0.75% of rated power					
Temperature coefficient for set values	100ppm/°C of rated output voltage, after a 30 minutes warm-up					
Internal resistance(The DSP-WE / DSP-WAe series is not supporting the function.)						
Adjustment range	0~0.2222Ω	0~2.0833Ω	0~4.1667Ω	0~8.3333Ω	0~14.130Ω	0~33.333Ω
Programming resolution	0.0001Ω	0.0001Ω	0.0001Ω	0.0001Ω	0.001Ω	0.001Ω
Programming Accuracy (*2)	≤2.3% of max. resistance					
Input						
Nominal input rating	200~415V 50Hz/60Hz 3-phase 3 wires					
Input voltage range	180~460VAC					
Input frequency range	47Hz~63Hz					
Current (Maximum)	40A/phase(Input 3-phase 180V)					
Inrush current	66A/phase (Input 3-phase 460V)					
Input Power (Maximum)	12kVA	12kVA	12kVA	12kVA	12kVA	12kVA
Efficiency	86~95% varies by model (*1)					
Insulation						
Primary - Chassis	DC 2500V					
Primary - Secondary	DC 2500V					
Secondary - Chassis	DC750V	DC750V	DC750V	DC1000V	DC1500V	DC1500V
Leak current	< 3.5 mA					
Power Factor	0.95 typ.					
Weights and dimensions						
Dimensions(WxHxD)	482 x 132 x 765.1 mm, 3U					
Weight (kg)	36.3	34.8	34.8	34.8	34.8	34.8

15kW(3U) Specifications

Model number	DSP80-540W□□	DSP250-180W□□	DSP350-126W□□	DSP500-90W□□	DSP650-69W□□	DSP1050-42W□□	DSP1500-30W□□
Rated Voltage	80V	250V	350V	500V	650V	1050V	1500V
Rated Current	540A	180A	126A	90A	69A	42A	30A
Constant voltage							
Rated value	0~80V	0~250V	0~350V	0~500V	0~650V	0~1050V	0~1500V
Settable range	0~84V	0~262.5V	0~367.5V	0~525V	0~682.5V	0~1102.5V	0~1575V
Overvoltage protection (OVP)	0%~110% of rated output voltage						
Voltage @ Rated Current	27.77V	83.33V	119.04V	166.66V	217.39V	357.14V	500V
Programming resolution	5 digits						
Programming accuracy (*2)	±0.1% of rated voltage						
Meter resolution	5 digits						
Meter accuracy (*2)	± 0.1% of rated voltage						
Line regulation (*6)	± 0.02% of rated voltage (with local sense)						
Load regulation (*7)	± 0.05% of rated voltage (with local sense)						
Ripple & noise (*3)(*4) Vpp	< 288mV	< 270mV	< 288mV	< 315mV	< 720mVpp	< 1440mV	< 2160mV
(with local sense) Vrms	< 23mV	< 45mV	< 50mV	< 63mV	< 170mVrms	< 315mV	< 360mV
Full load up	<30ms						
Full load down	<80ms						
No load down	<30s	<10s	<10s	<10s	<10s	<10s	<10s
Transient Response (*5)	< 1.5ms						
Remote compensation	5V						
Temperature coefficient for set values	100ppm/°C of rated output voltage, after a 30 minutes warm-up						
Constant current							
Rated value	0~540A	0~180A	0~126A	0~90A	0~69A	0~42A	0~30A
Settable range	0~567A	0~189A	0~132.3A	0~94.5A	0~72.45A	0~44.1A	0~31.5A
Over current protection (OCP)	0%~110% of rated output current						
Voltage @Max. Current	187.5A	60A	42.84A	30A	23.07A	14.29A	10A
Programming resolution	5 digits						
Programming accuracy (*2)	±0.2% of rated current						
Meter resolution	5 digits						
Meter accuracy (*2)	±0.2% of rated current						
Line regulation (*6)	±0.05% full scale						
Load regulation (*7)	±0.15% full scale						
Ripple & noise (*3)(*4)(with local sense) Arms	216mA	60mA	45mA	44mA	44mA	32mA	24mA
Temperature coefficient for set values	100ppm/°C of rated output voltage, after a 30 minutes warm-up						
Constant power(The DSP-WE / DSP-WAe series is not supporting the function.)							
Rated value	0~15kW	0~15kW	0~15kW	0~15kW	0~15kW	0~15kW	0~15kW
Settable range	0~15300W						
Over power protection (OPP)	0%~110% of rated output power						
Programming resolution	5 digits						
Programming accuracy	< 1% of rated power						
Meter resolution	5 digits						
Meter accuracy (*2)	± 0.5% of rated power						
Line regulation (*6)	< 0.05% of rated power						
Load regulation (*7)	< 0.75% of rated power						
Temperature coefficient for set values	100ppm/°C of rated output voltage, after a 30 minutes warm-up						
Internal resistance(The DSP-WE / DSP-WAe series is not supporting the function.)							
Adjustment range	0~0.1481Ω	0~1.3889Ω	0~2.7778Ω	0~5.5556Ω	0~9.4203Ω	0~25.000Ω	0~50.000Ω
Programming resolution	0.0001Ω	0.0001Ω	0.0001Ω	0.0001Ω	0.0001Ω	0.001Ω	0.001Ω
Programming Accuracy (*2)	≤2.3% of max. resistance						
Input							
Nominal input rating	200~415V 50Hz/60Hz 3-phase 3 wires						
Input voltage range	180~460VAC						
Input frequency range	47Hz~63Hz						
Current (Maximum)	60A/phase (Input 3-phase 180V)						
Inrush current	99A/phase (Input 3-phase 460V)						
Input Power (Maximum)	18kVA	18kVA	18kVA	18kVA	18kVA	18kVA	18kVA
Efficiency	86~95% varies by model (*1)						
Insulation							
Primary - Chassis	DC 2500V						
Primary - Secondary	DC 2500V						
Secondary - Chassis	DC750V	DC750V	DC750V	DC1000V	DC1500V	DC1500V	DC1500V
Leak current	< 3.5 mA						
Power Factor	0.95 typ.						
Weights and dimensions							
Dimensions(WxHxD)	482 x 132 x 765.1 mm, 3U						
Weight (kg)	45.1	43.6	43.6	43.6	43.6	43.6	43.6

Specifications

Environment	
Operating environment	Indoor use
Operating temperature	0ºC ~ 50ºC
Operating humidity	30%RH ~ 80%RH (no condensation) Max 80% RH up to 30°C, linear decrease to 50% RH at 40°C
Storage temperature	-20ºC ~ 70ºC
Storage humidity	10%RH ~ 80%RH (no condensation)
Altitude	Up to 2000m
Cooling method	Forced air cooling using the speed controlled fan
Ground polarity	Capable of Negative ground or Positive ground
Memory & Sequence	
Number of memory	3 sets (operating in front panel)
Maximum step number	500 steps per each Sequence
Maximum Sequence number	16
Step time settable range	0.001 sec ~ 999999.999sec
Standard Interface	
LAN interfaces	1 x LXI 1.4 for communication
Auxiliary control	Function : Interlock , External output ON/OFF , Shut OFF , Alarm signal output, Output voltage downward signal
Optional Analog Interface	
Status indicators	CV State, CC State , CP State , CR State , ON/OFF State
Voltage control	0% ~ 100% of rated output voltage in the range of 0V ~ 5V or 0V ~ 10V
Voltage control accuracy(*2)	±0.2%
Current control	0% ~ 100% of rated output current in the range of 0V ~ 5V or 0V ~ 10V
Current control accuracy(*2)	±0.2%
Power control	0% ~ 100% of rated output current in the range of 0V ~ 5V or 0V ~ 10V (DSP-WE & DSP-WAe not applicable)
Power control accuracy(*2)	±0.2% (DSP-WE & DSP-WAe not applicable)
Monitoring output	0~5V or 0~10V output for monitoring V/A/W
Monitoring accuracy (*2)	±2%
Reference output	0~5VDC or 0~10VDC (max=5mA)

*1. Warranted at 0ºC ~ 50ºC of ambient temperature and warmed up more than 30 min. ,
Humidity: Under 80% RH, with 2%~100% of rated voltage, 1%~100% of rated current,
measured at the output terminals with local sensing.

*2. Accuracy specifications warranted at 23ºC ± 5ºC

*3. Ripple and Noise (rms value) Measurement bandwidth up to 300 kHz

*4. Ripple and Noise (peak value) measurement bandwidth up to 20 MHz

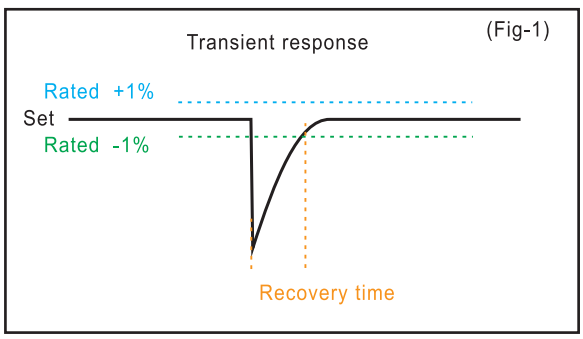
*5. Time for output voltage recover within ±1% of rated value when load changes from 10% to 90% (Fig-1)

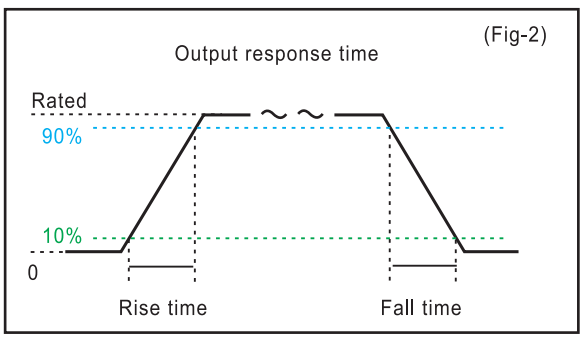
*6. Constant load (0~100%), Input changes between 180 ~ 264VAC or 342 ~ 460VAC

*7. CV : Constant Input (Full input range), current changes 10% ~ 90%
CC : Constant Input (Full input range), voltage changes 10% ~ 100%
CP : Constant Input (Full input range), voltage changes 10% ~ 90%, current changes 10% ~ 90%

*8. Output response UP time : Time for output voltage rises from 10% to 90% of rated voltage. (Fig-2)
Output response Down time : Time for output voltage falls from 90% to 10% of rated voltage.

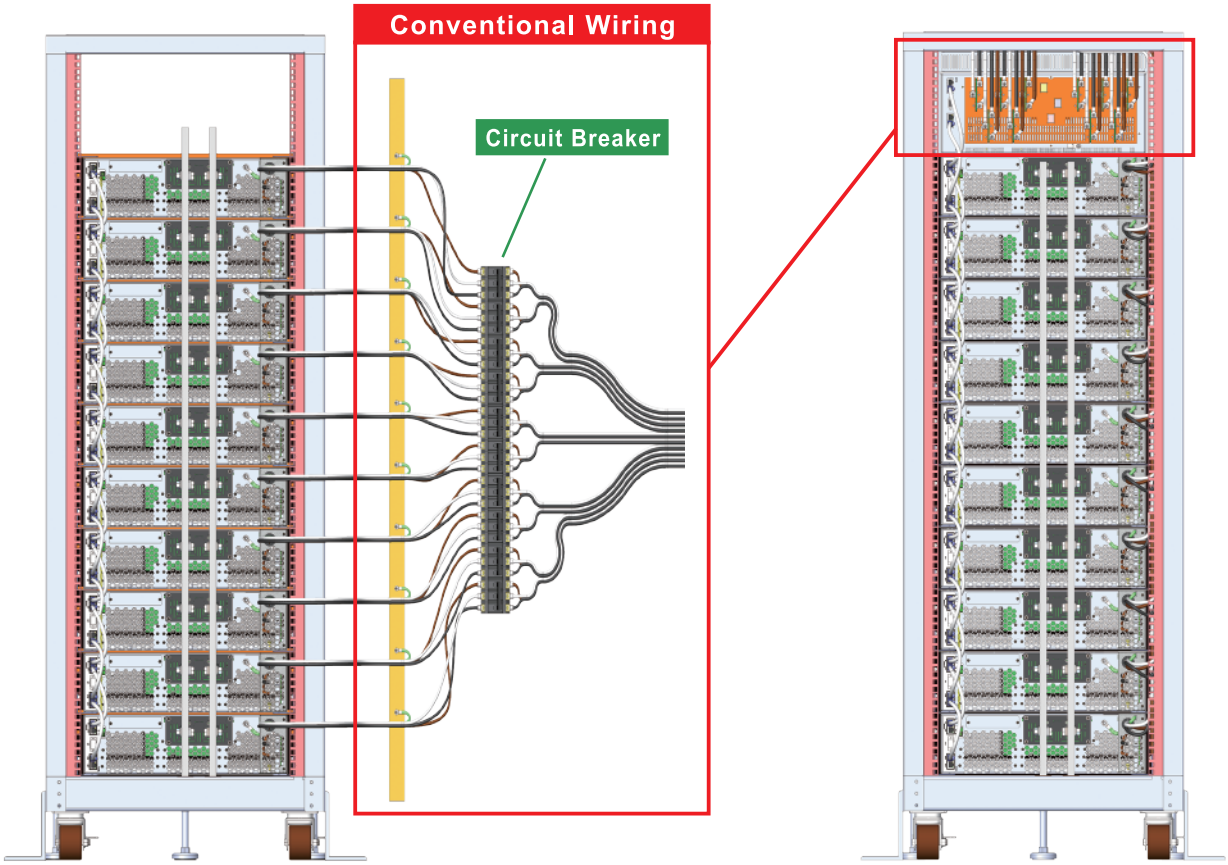
*9. DSP-WR series, Internal resistance setting resolution is 1mΩ, settable digits varies by model,
for example:
DSP80-180WR, settable range 0.0001Ω ~ 0~0.4444Ω
DSP1500-30WR, settable range 0.001Ω ~ 0~50.000Ω

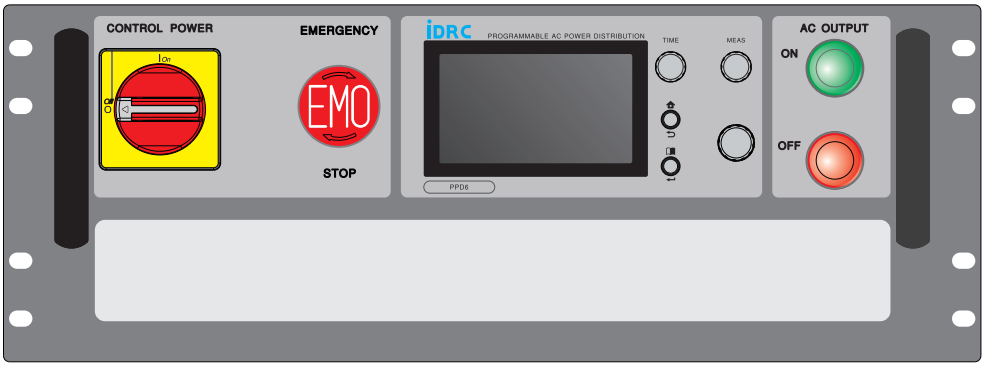




Smart Power Distribution Unit PDU6 / PDU10 description

When you require a high power such as 90kW or 150kW, it is more than convenient to install multi units into rack cabinet with iDRC Smart PDU which is designed with the most up to date digital control technique.





World's First

- Ultimate flexibility to fit 10 units.
- Up to 150kW in one cabinet.
- Equipped 5" touchscreen.
- Built-in Power meter.
- Built-in power consume monitoring.

Thorough Safety

- Emergency stop button compliant with SEMATEC.
- Distinct AC ON/OFF button.
- Lockable power switch.
- Interlock prevents dangers.

Controlled via LAN

- Number of Power ON units.
- DC output ON/OFF.
- Operating data store/read.
- Real time monitoring.

Advanced Design

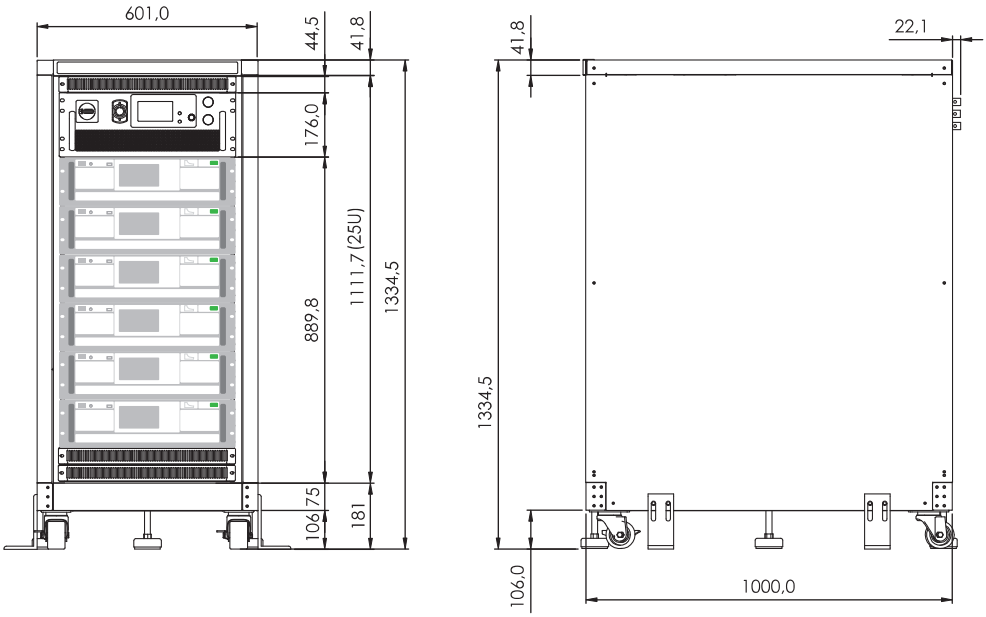
- AC input range 3 phase 180~460Vac
- Digitized control, definable power on numbers.

Environmental Care

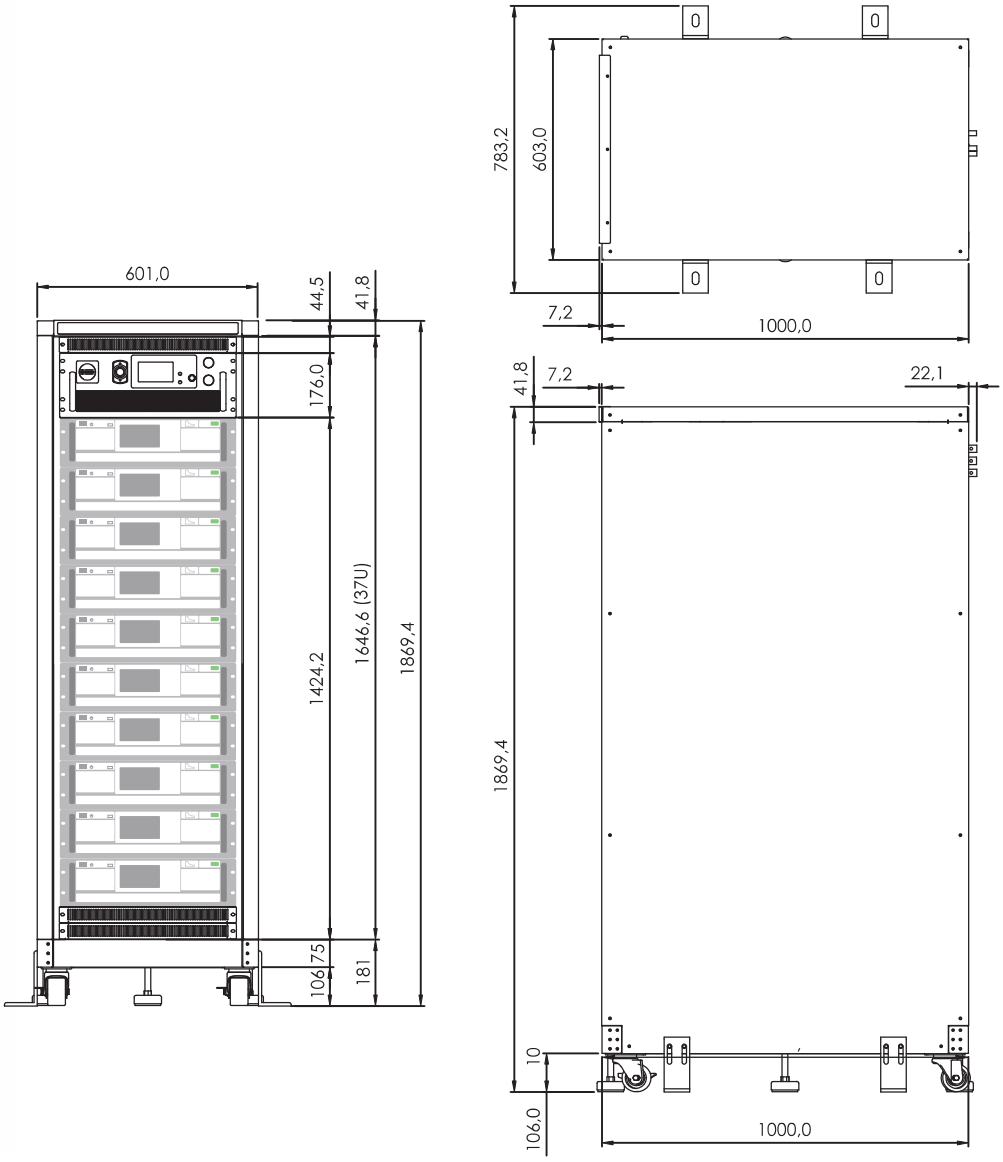
- Power off the surplus units to save energy.
- Stainless steel case without plating and painting.

PDU6 / PDU10 Dimension Diagrams (mm)

90kW 25U



150kW 37U



The DC power supplies in above schematic may vary depending on the actual purchase order.

Quick reference charts

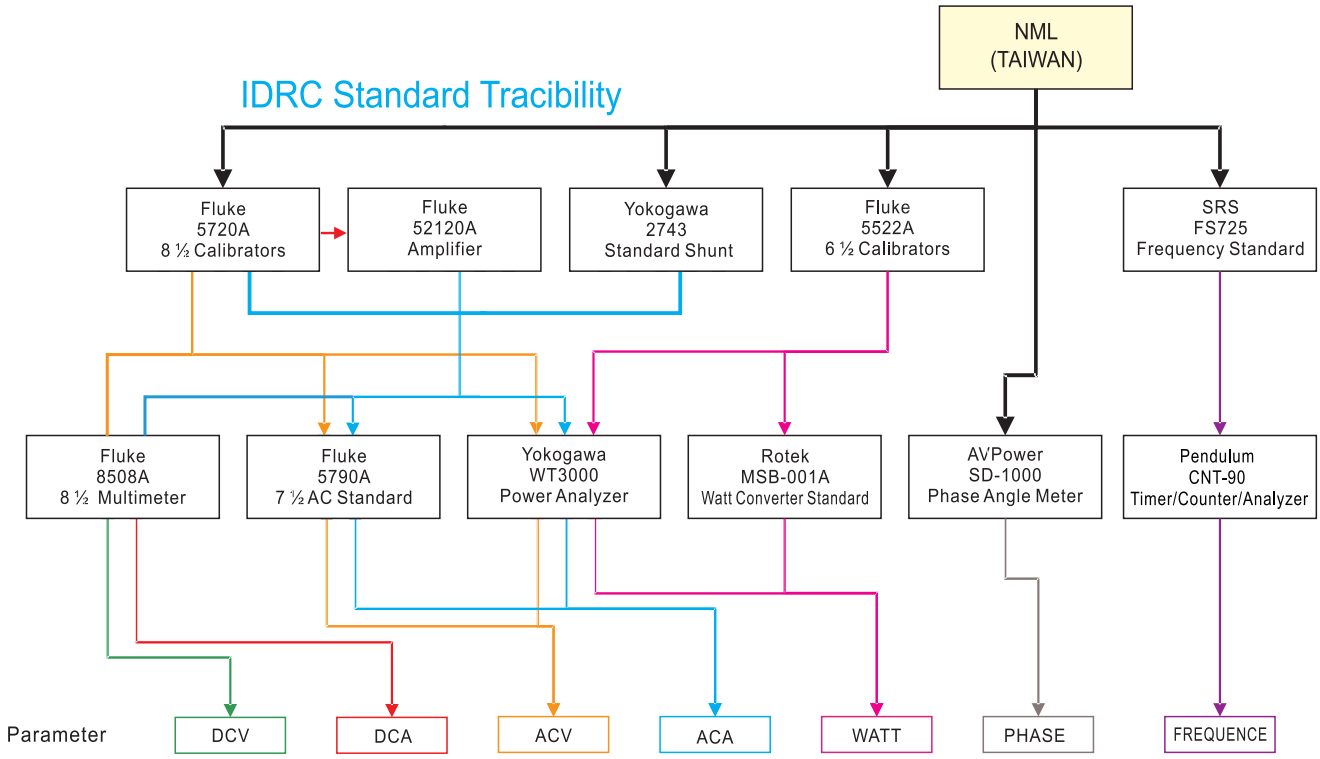
Series	DSP-WR	DSP-WE	DSP-WA	DSP-WAe
Symbol	R	E	A	Ae
Voltage range	80V~1500V	80V~1500V	80V~1500V	80V~1500V
Models	18	18	18	18
LCD size	5"	4.3"	X	X
LCD resolution	800x480	480x272	X	X
Output ON priority	CV,CC,CP	CV,CC	CV,CC,CP	CV,CC

Function	Series symbol
Touch screen	R E
Front USB	R E
CV adjust	R E A Ae
CC adjust	R E A Ae
CP adjust	R A
CR adjust	R A
Internal resistance	R A

Function	Series symbol
Voltage slew rate	R E A Ae
Current slew rate	R E A Ae
Power slew rate	R A Ae
Operating Mode - Simple mode	R E
Operating Mode - Complete mode	R E
Operating Mode - Sequence mode	R E
Operating Mode - Insertion mode	R E

Guaranty

We are very concerned about the quality of our products, hence, whether during development or production, we have used a great deal of highly-precise instruments such as :
FLUKE 5720A、FLUKE 5522A、FLUKE 52120A、FLUKE 5790A、FLUKE 8508A、
CROPICO MTS1A、AVPower SD-1000、BALLANTINE 1620A、AGILENT 53132A、Lecroy WR66Zi、
AudioPrecision APx525、ROTEK MSB-001A、VALHALLA 2575A...and so on. (note)



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