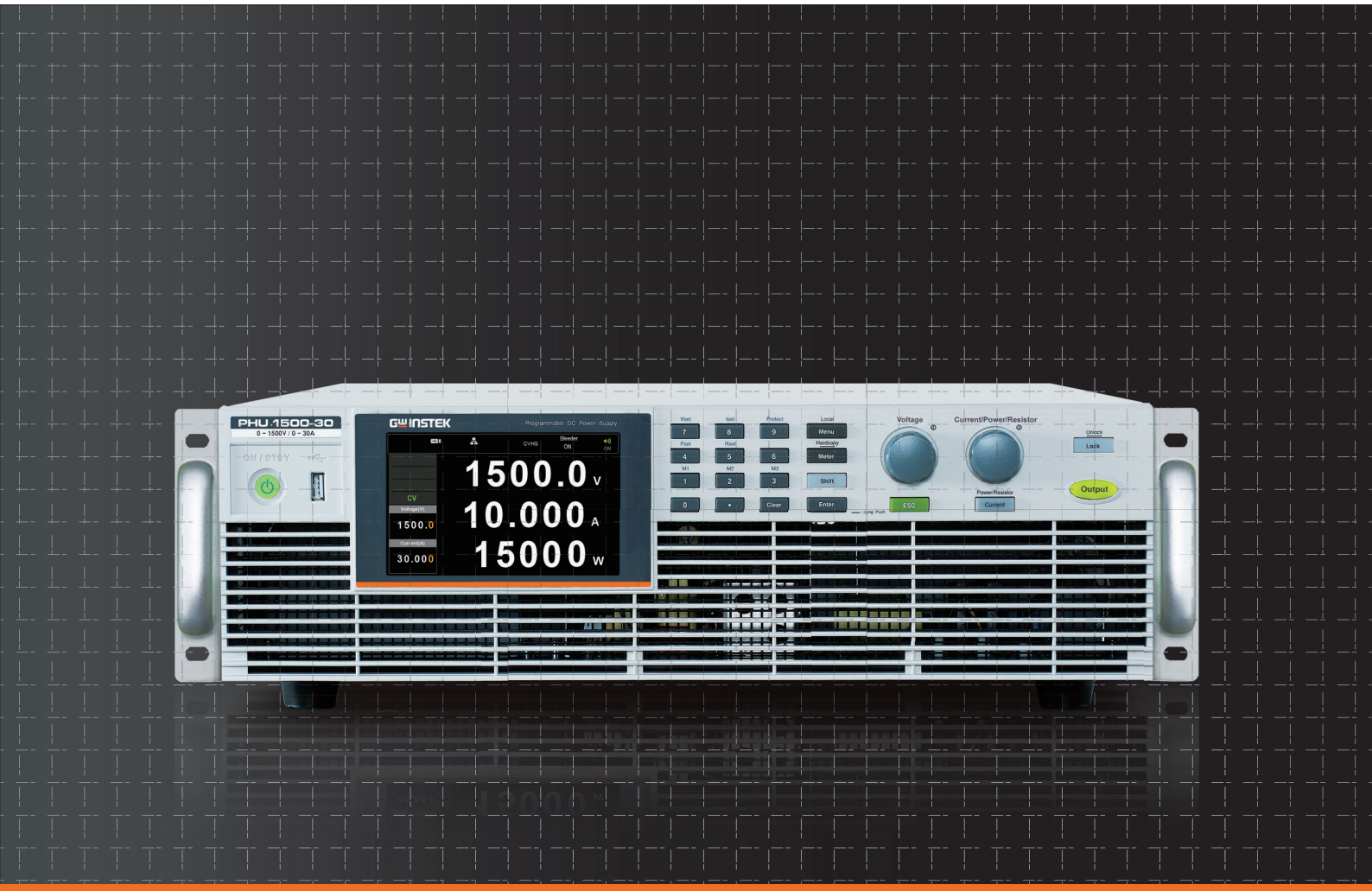


PHU-Series

Multi-Range High Power DC Source

FEATURES

- Voltage Output : 80 V/200 V/500 V/750 V/1000 V/1500 V
- Power Output : 5 kW/10 kW/15 kW
- Maximum Current Output : 510 A
- C.V/C.C Priority Mode
- Adjustable Voltage/Current Rise and Fall Time
- AWS (Advanced Web Control)
- APC (Adaptive Parallel Connection)
- Parallel Connection (Maximum 10 Units)
- High Efficiency and High-power Density
- Bleeder Control Function
- Internal Resistance Function
- Panel Lock Function
- Three Sets of Preset Function
- Protection : OVP, OCP, OHP, UVL, AC Fail, FAN Fail
- Standard : USB, LAN, Isolated Analog Control
- Option: RS-232&485 or GPIB or CAN Bus or DeviceNet or Any Bus
- 3 U Height and 19” Rack Mount Size

GW INSTEK
Simply Reliable

Prestige / Harmony / Universal

The PHU Series is a single channel programmable DC power supply with multi-range output feature which offers a wide range of voltage and current combinations for greater flexibility. The circuit design adopts SiC (silicon carbide) components to achieve high power density characteristics which can generate 15 kW high output and keep the compact size at just 3 U height.

PHU's wide voltage and current range, along with its high-power characteristics, can cover a broader range of testing applications such as photovoltaic systems, electric vehicles (EVs), and automotive electronics, etc. The launch of PHU high-power DC power supplies enhances the completeness of the DC power supply product line of GW Instek, and to provide customers with more comprehensive and integrated solutions.

The AWS (Advanced Web Server) function allows the user to operate devices directly through a web browser, without needing to install any complicated software or drivers. This functionality allows users to complete tasks more efficiently, saving time and increasing productivity.

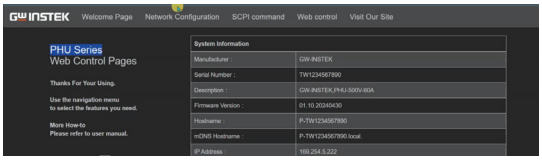
The unique APC (Adaptive Parallel Connection) feature offers adaptability in parallel connection, allowing users to make the best choice according to their needs. For instance, users can opt for a 15 kW model and a 10 kW model, to combine both to reach a 25 kW capacity within their budget constraints. Up to 10 PHU units can be connected to reach 150 kW without the need for additional power distribution for control.

For industry interface, PHU provides a variety of embedded industrial interface options to meet user needs, eliminating the need for users to prepare additional interfaces. The available ports including EtherCAT, CANopen, Modbus, Profinet and DeviceNet, etc. Except the standard built-in programmable sequence function, PHU also offers a variety optional functions including Datalogger, MPPT (Maximum Power Point Tracking), Solar Array Simulator, AH/WH Meter and Battery Simulation to meet customer's requirements.

There are a total of 18 models, consisting of 3 power capacities (5 kW/10 kW/15 kW) and 6 voltages (80 V/200 V/500 V/750 V/1000 V/1500 V) to meet all customer needs.

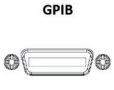
Medium Voltage				High Voltage				High Current			
Model	V	A	W	Model	V	A	W	Model	V	A	W
PHU 500-30	500	30	5 kW	PHU 1000-15	1000	15	5 kW	PHU 80-170	80	170	5 kW
PHU 500-60	500	60	10 kW	PHU 1000-30	1000	30	10 kW	PHU 80-340	80	340	10 kW
PHU 500-90	500	90	15 kW	PHU 1000-45	1000	45	15 kW	PHU 80-510	80	510	15 kW
PHU 750-20	750	20	5 kW	PHU 1500-10	1500	10	5 kW	PHU 200-70	200	70	5 kW
PHU 750-40	750	40	10 kW	PHU 1500-20	1500	20	10 kW	PHU 200-140	200	140	10 kW
PHU 750-60	750	60	15 kW	PHU 1500-30	1500	30	15 kW	PHU 200-210	200	210	15 kW

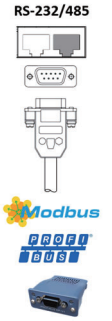
A. AWS (ADVANCED WEB SERVER)



AWS is a powerful function that simplifies operations. With AWS, users can operate devices directly through a web browser,without needing to install any complicated software or drivers. This functionality allows users to complete tasks more efficiently, saving time and increasing productivity. Simply connect to the LAN port, enter the IP address through any web browser, and you can perform tasks such as device control, parameter settings, and function toggling without needing to install or learn any additional software.

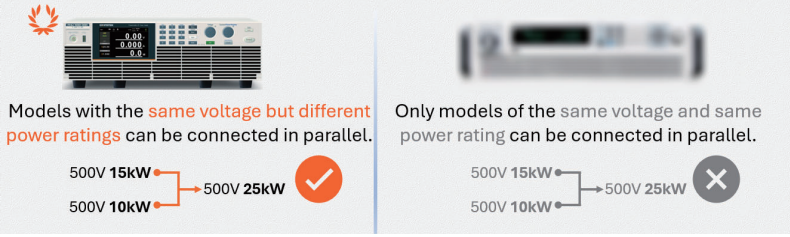
B. INDUSTRY INTERFACE





PHU provides a variety of embedded industrial interface options to meet user needs, eliminating the need for users to prepare additional interfaces.

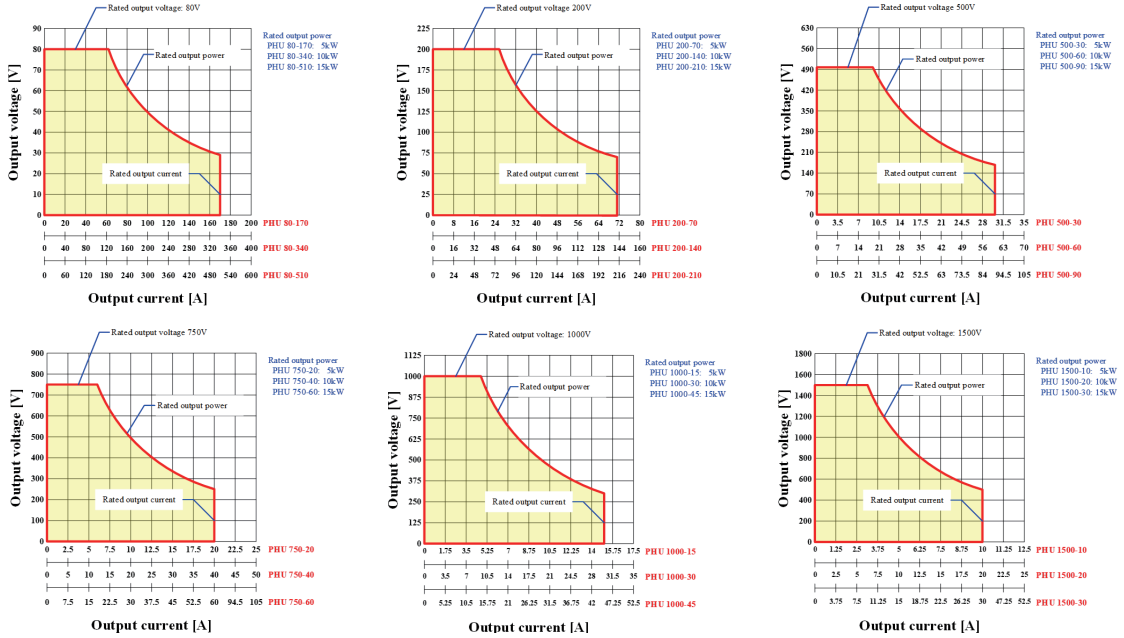
C. APC (ADAPTIVE PARALLEL CONNECTION)



It is easy to set up the master-slave in the parallel connection function.

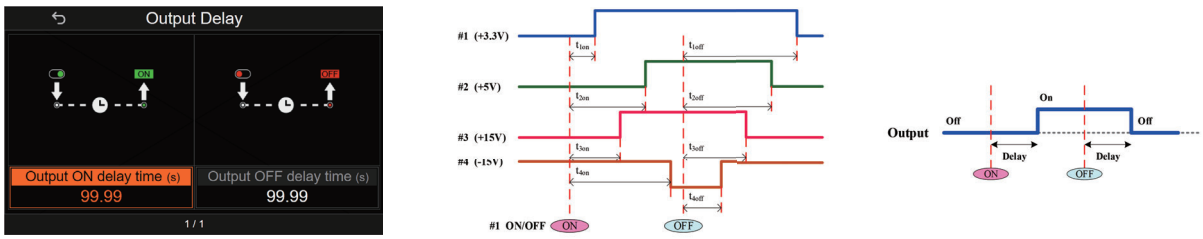
The unique APC (Adaptive Parallel Connection) feature offers adaptability in parallel connection, allowing users to make the best choice according to their needs. For instance, users can opt for a 15 kW model and a 10 kW model, to combine both to reach a 25 kW capacity within their budget constraints. Up to 10 PHU units can be connected to reach 150 kW without the need for additional power distribution for control.

D. MULTI-RANGE OUTPUT



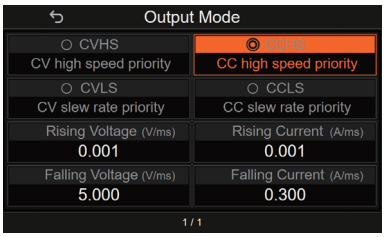
This feature enables the power supply to automatically adapt to higher output voltages when there is a smaller current or handle higher currents when there is a lower voltage. It allows the use of a single source to address multiple voltage and current combinations.

E. OUTPUT ON/OFF DELAY

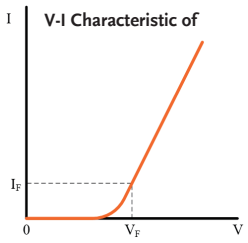


The output ON/OFF delay feature enables the setting of a specific time delay for output on after the power supply output is turned on, and a specific time delay for output off after the power supply output is turned off.

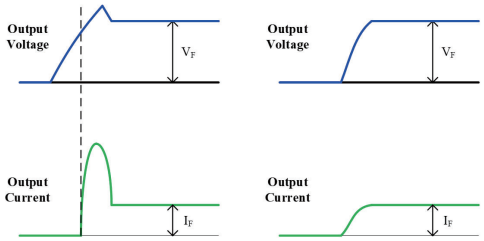
F. CC/CV PRIORITY



CV Priority

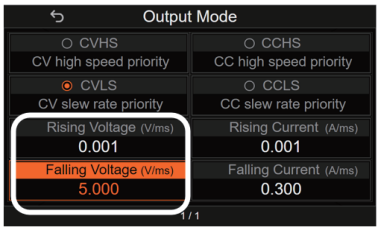


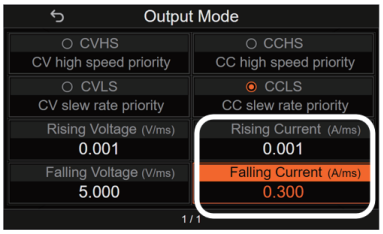
CC Priority

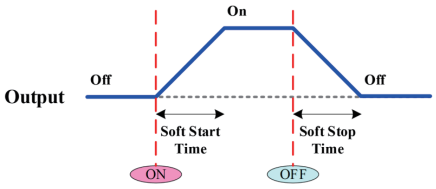


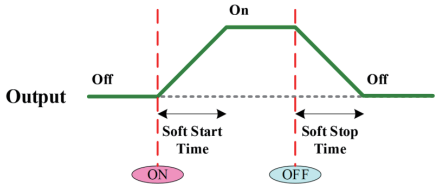
The PHU-Series has CV and CC priority modes. The CC priority mode can prevent inrush current and surge voltage from occurring at turn-on to protect DUT.

G. SLEW RATE CONTROL (SOFT START/STOP)







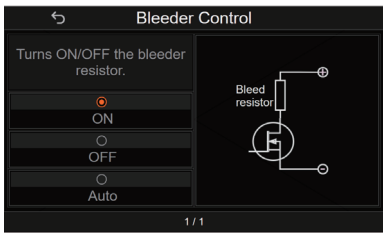


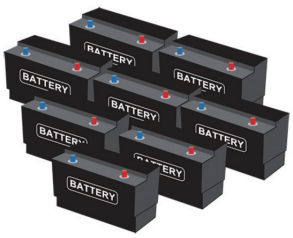
The default voltage (or current) rising speed when starting/stopping the output is set as the highest speed. PHU provides the function for the user to set the speed per their request for applications.

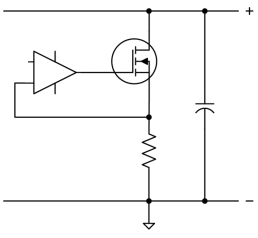
In CVLS (Constant Voltage Low Speed) mode, the user can set the parameter to control the voltage rising when starting the output and the voltage falling when stopping the output.

In CCLS (Constant Current Low Speed) mode, the user can set the parameter to control the current rising when starting the output and the current falling when stopping the output.

H. BLEED CIRCUIT ON/OFF CONTROL



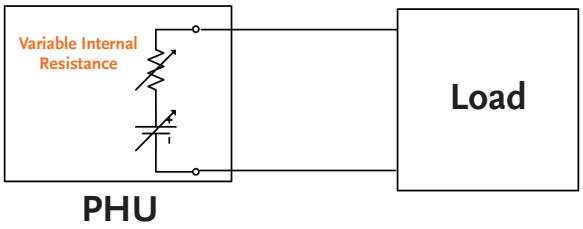


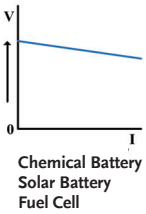


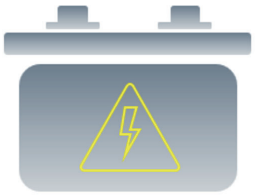
The bleeder circuit is a power supply circuit designed to discharge the electric charge stored in the power supply filter capacitors when the equipment is turned OFF, primarily for safety reasons to protect the DUT.

The bleed function can be disabled for specific purposes, such as battery applications.

I. VARIABLE INTERNAL RESISTANCE

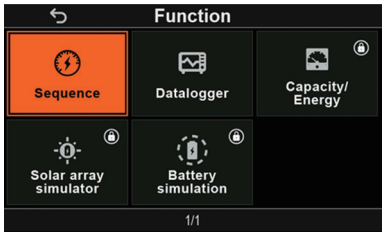






The internal resistance of the power supply can be user-defined in software. When the internal resistance is set it can be seen as a resistance in series with the positive output terminal. This allows the power supply to simulate power sources that have internal resistances such as lead acid batteries.

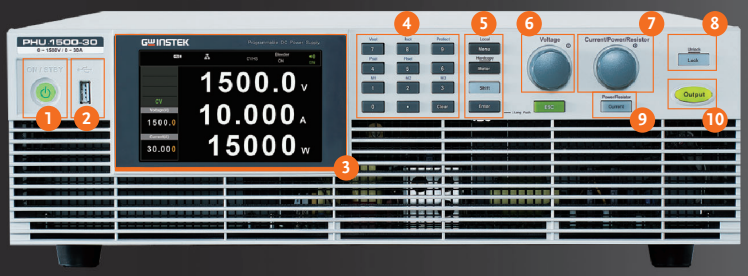
J FUNCTION

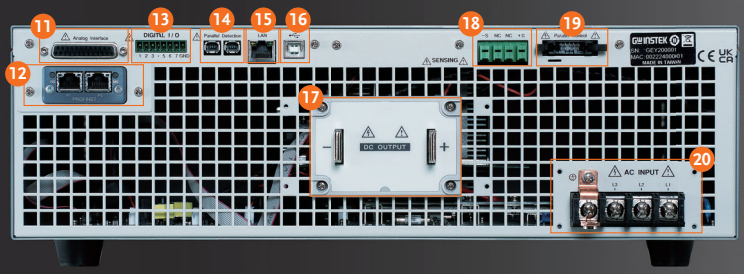


Except the standard built-in programmable sequence function, PHU also offers a variety of optional functions including Datalogger, Capacity/Energy, Solar Array Simulator, and Battery Simulation to meet customer's requirements.

PANEL INTRODUCTION

CE | USB | GPIB | Analog Control | LAN | Digital I/O | RS-232C | RS-485 | CAN | Ether CAT | Profinet | Modbus | Devicenet





1. Power Switch
2. USB A Port
3. Display Area
4. Number Button
5. Function Button
6. Voltage Adjust Knob
7. Current/Power/Resistance Adjust Knob
8. Panel Lock
9. Current/Power/Resistance Switch
10. Output Switch
11. Analog Control
12. Anybus Connection Port
13. Digital I/O
14. Interconnect for Parallel Connection
15. LAN Port
16. USB B Port
17. DC Output Terminal
18. Remote Sense
19. Parallel Control
20. AC Input

SPECIFICATIONS(PHU-5 kW Series)

Model		PHU	80-170	200-70	500-30	750-20	1000-15	1500-10
Rated output voltage (*1)		V	80	200	500	750	1000	1500
Rated output current (*2)		A	170	70	30	20	15	10
Rated output power		W	5000	5000	5000	5000	5000	5000
Output power ratio		—	2.72	2.8	3	3	3	3
Constant Voltage Mode								
Line regulation (*3) [0.01 % of Vo_rated]		mV	8	20	50	75	100	150
Load regulation (*4) [0.02 % of Vo_rated]		mV	16	40	100	150	200	300
Ripple and noise (*5)	p-p (*6)	mV	200	300	350	800	1600	2400
	r.m.s. (*7)	mV	16	40	70	200	350	400
Temperature coefficient		ppm/°C	100 ppm/°C from rated output voltage, following 30 minutes warm-up					
Remote snese compensation voltage	5 % of Vo_rated	V	4	10	25	37.5	50	75
Rise time (*8)	Rated load	ms	30	30	30	30	30	30
	No load	ms	30	30	30	30	30	30
Fall time (*9)	Rated load	ms	80	80	80	80	80	80
	No load	ms	1000	1000	1000	1200	1000	1200
Transient response time (*10)		ms	1.5	1.5	1.5	1.5	1.5	1.5
Constant Current Mode								
Line regulation (*3) [0.05 % of Io_rated]		mA	85	35	15	10	7.5	5
Load regulation (*11) [0.1 % of Io_rated]		mA	170	70	30	20	15	10
Ripple and noise (*12)	r.m.s.(*7)	mA	170	50	16	16	8	8
Temperature coefficient		ppm/°C	100 ppm/°C from rated output current, following 30 minutes warm-up					
Protection Function								
Over voltage protection (OVP)	Setting range	V	5.00 V to 88.00 V	5.00 V to 220.00 V	5.00 V to 550.00 V	5.0 V to 825.0 V	5.0 V to 1100.0 V	5.0 V to 1650.0 V
	Setting accuracy	mV	80	200	500	750	1000	1500
Over current protection (OCP)	Setting range	A	5.00 A to 187.00 A	5.00 A to 77.00 A	3.000 A to 33.000 A	2.000 A to 22.000 A	1.500 A to 16.500 A	1.000 A to 11.000 A
	Setting accuracy	mA	340	140	60	40	30	20
Over power protection (OPP)	Setting range	W	100 W to 5500 W	100 W to 5500 W	100 W to 5500 W	100 W to 5500 W	100 W to 5500 W	100 W to 5500 W
	Setting accuracy	W	50	50	50	50	50	50
Over voltage limit (OVL)	Setting range	V	0.00 V to 84.00 V	0.00 V to 210.00 V	0.00 V to 525.00 V	0.0 V to 787.5 V	0.0 V to 1050.0 V	0.0 V to 1575.0 V
Under voltage limit (UVL)	Setting range	V	0.00 V to 84.00 V	0.00 V to 210.00 V	0.00 V to 525.00 V	0.0 V to 787.5 V	0.0 V to 1050.0 V	0.0 V to 1575.0 V
Over current limit (OCL)	Setting range	A	0.00 A to 178.50 A	0.00 A to 73.50 A	0.000 A to 31.500 A	0.000 A to 21.000 A	0.000 A to 15.750 A	0.000 A to 10.500 A
Under cuttent limit (UCL)	Setting range	A	0.00 A to 178.50 A	0.00 A to 73.50 A	0.000 A to 31.500 A	0.000 A to 21.000 A	0.000 A to 15.750 A	0.000 A to 10.500 A
Power unit fail (PUF)	Operation		Turn the output off					
Incorrect sensing connection protection (SENSE)	Operation		Turn the output off					
Low AC input protection (AC-FAIL)	Operation		Turn the output off					
Shutdown (SD)	Operation		Turn the output off					
Power limit (POWER LIMIT)	Operation		Over power limit					
	Value (fixed)		Approx. 102 % of rated output power					
Other Functions								
Voltage Slew Rate	Setting range	V/s	0.01 to 160.00	0.01 to 400.00	0.1 to 1000.0	0.1 to 1500.0	0.1 to 2000.0	0.1 to 3000.0
	Resolution	mV	10	10	100	100	100	100
Current slew rate	Setting range	A/s	0.01 to 340.00	0.01 to 140.00	0.001 to 60.000	0.001 to 40.000	0.001 to 30.000	0.001 to 20.000
	Resolution	mA	10	10	1	1	1	1
Internal resistance	Setting range	Ω	0.000 to 0.471	0.000 to 2.857	0.00 to 16.67	0.00 to 37.50	0.0 to 66.7	0.0 to 150.0
	Resolution	mΩ	1	1	10	10	100	100
Front Panel								
Display			TFT-LCD, 5", 800 pt x 480 pt					
Voltage accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Current accuracy [0.2 % of Io_rated]		mA	340	140	60	40	30	20
Power accuracy [1 % of Po_rated]		W	50	50	50	50	50	50
Voltage resolution		V	0.01	0.01	0.01	0.1	0.1	0.1
Current resolution		A	0.01	0.01	0.001	0.001	0.001	0.001
Power resolution		W	0.1	0.1	0.1	0.1	0.1	0.1
Buttons			Menu, Local, Exit, Clear, Enter, Lock, Current, Shift Output, Numeric Keypad					
Rotary knob			Turn the knob to increase or decrease the value					
USB port			Type A USB connector					
Programming and Measurement (Digital Interface)								
Output voltage programming range	0 % to 105 %	V	0 to 84	0 to 210	0 to 525	0 to 787.5	0 to 1050	0 to 1575
Output current programming range	0 % to 105 %	A	0 to 178.5	0 to 73.5	0 to 31.5	0 to 21	0 to 15.75	0 to 10.5
Output power programming range	0 % to 102 %	W	0 to 5100	0 to 5100	0 to 5100	0 to 5100	0 to 5100	0 to 5100
Output voltage programming accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Output current programming accuracy [0.2 % of Io_rated]		mA	340	140	60	40	30	20
Output power programming accuracy [1 % of Po_rated]		W	50	50	50	50	50	50
Output voltage programming resolution		mV	10	10	10	100	100	100
Output current programming resolution		mA	10	10	1	1	1	1
Output power programming resolution		W	0.1	0.1	0.1	0.1	0.1	0.1
Output voltage measurement accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Output current measurement accuracy [0.2 % of Io_rated]		mA	340	140	60	40	30	20
Output power measurement accuracy [1 % of Po_rated]		W	50	50	50	50	50	50
Output voltage measurement resolution		mV	10	10	10	100	100	100
Output current measurement resolution		mA	10	10	1	1	1	1
Output power measurement resolution		W	0.1	0.1	0.1	0.1	0.1	0.1

SPECIFICATIONS(PHU-5 kW Series)			
Input Characteristics for PHU-C Series			
Norminal input rating			Single Phase, 3-Phase, 200 V models: 180 Vac to 265 Vac (Covers 200 Vac / 230 Vac)
Input frequency range			47 Hz to 63 Hz
Maximum input current	**200 Vac**	**A**	32 A (L1, L2)
Inrush current	**200 Vac**	**A**	Less than 50 A
Maximum input power		**VA**	6000
Power factor	**Rated Power**		> 0.95
Efficiency (*14)	**200 Vac**	%	86 to 94
Hold-up time			10 ms or greater
Input Characteristics for PHU-D Series			
Norminal input rating			3-Phase, 400 V models: 342 Vac to 528 Vac (Covers 380/400/415/440/460/480 Vac)
Input frequency range			47 Hz to 63 Hz
Maximum input current	**400 Vac**	**A**	16 A (L1, L2)
Inrush current	**400 Vac**	**A**	Less than 25 A
Maximum input power		**VA**	6000
Power factor	**Rated Power**		> 0.95
Efficiency (*14)	**400 Vac**	%	87 to 94
Hold-up time			10 ms or greater
Interface Capabilities			
USB			Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB Class: CDC(Communications Device Class)
LAN			MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask
Isolated Analog Control Interface			V_{set} / I_{set} = 0 V to 5 V or 0 V to 10 V | V_{mon} / I_{mon} = 0 V to 5 V or 0 V to 10 V
Factory Option			RS-232&485 or GPIB or CAN Bus or DeviceNet or Isolated Digital I/O
Isolated Analog Control Interface			
Vout voltage programming			0 % to 100 %, 0 V to 5 V Accuracy: ± 1 % of rated V_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated V_{out}
Iout voltage programming			0 % to 100%, 0 V to 5 V Accuracy: ± 1 % of rated I_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated I_{out}
Pout voltage programming			0 % to 100%, 0 V to 5 V Accuracy: ± 1 % of rated P_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated P_{out}
Internal resistance voltage programming			0 % to 100%, 0 V to 5 V Accuracy: ± 1 % of maximum R_{int}, or 0 V to 10 V Accuracy: ± 1 % of maximum R_{int}
Output voltage monitor			0 V to 5 V or 0 V to 10 V, Accuracy: ± 1 %
Output current monitor			0 V to 5 V or 0 V to 10 V, Accuracy: ± 1 %
Reference voltage			Voltage reference for 0 V to 5V or 0 V to 10V
Alarm Input			Turn off the PHU output with a High (4.5 V to 5 V)
Output on/off control			Possible logic selections: Turn the output on using a LOW (0 V to 0.5 V) or short-circuit, turn the output off using a HIGH (4.5 V to 5 V) or open-circuit Turn the output on using a HIGH (4.5 V to 5 V) or open-circuit, turn the output off using a LOW (0 V to 0.5 V) or short-circuit
Alarm clear control			Clear alarms with a High (4.5 V to 5 V)
CV/CC/CP/ALM/PWR ON/OUT ON indicator			Photocoupler open collector output; Maximum voltage 30 V, maximum sink current 8 mA
Environmental Conditions			
Operaing temperature			0 °C to 50 °C
Storage temperature			-25 °C to 70 °C
Operating humidity			20 % to 85 % RH; No condensation
Storage humidity			90 % RH or less; No condensation
Altitude			Maximum 2000 m
General Specifications			
Weight	**Main unit only**	**kg**	Less than 21 kg
Dimensions (W×H×D)		**mm**	442 mm × 130 mm × 675 mm
Cooling			Forced air cooling by internal fan
EMC			Complies with the European EMC directive 89/336/EEC for Class A test and measurement products
Safety			Complies with the European Low Voltage Directive 73/23/EEC and carries the CE-marking
Withstand voltage			Chassis and output terminal; chassis and AC input; AC input and output terminal: AC 1500 V or DC 2130 V 1 minute
Insulation resistance			Chassis and output terminal; chassis and AC input; AC input and output terminal: 100 MΩ or more (DC 500 V)

Notes:
*1.Minimum voltage is guaranteed to maximum 0.2 % of the rated output voltage.
*2.Minimum current is guaranteed to maximum 0.4 % of the rated output current.
*3.At 180 Vac to 265 Vac or 342 Vac to 528 Vac, constant load.
*4.From No-load to Full-load, constant input voltage. Measured at the sensing point in Remote Sense.
*5.For 80 V, 200 V models: Measure with JEITA RC-9131B (1:1) probe. For 500 V, 750 V, 1000 V and 1500 V models: Measured with (100:1) probe.
*6.Measurement frequency bandwidth is 10 Hz to 20 MHz.
*7.Measurement frequency bandwidth is 5 Hz to 1 MHz.
*8.From 10 % to 90 % of rated output voltage, with rated resistive load.
*9.From 90 % to 10 % of rated output voltage, with rated resistive load.
*10.Time for output voltage to recover within 1 % of its rated output for a load change from 10 % to 90 % of its rated output current.
Voltage set point from 10 % to 100 % of rated output.
*11.For load voltage change, equal to the unit voltage rating, constant input voltage.
*12.The ripple is measured at 20 % to 100 % output voltage and full output current.
*13.For output power change from 10 % to 90 %, constant input voltage.
*14.At rated output power.

SPECIFICATIONS(PHU-10 kW Series)

Model		PHU	80-340	200-140	500-60	750-40	1000-30	1500-20
Rated output voltage (*1)		V	80	200	500	750	1000	1500
Rated output current (*2)		A	340	140	60	40	30	20
Rated output power		W	10000	10000	10000	10000	10000	10000
Output power ratio		—	2.72	2.8	3	3	3	3
Constant Voltage Mode								
Line regulation (*3) [0.01 % of Vo_rated]		mV	8	20	50	75	100	150
Load regulation (*4) [0.02 % of Vo_rated]		mV	16	40	100	150	200	300
Ripple and noise (*5)	p-p (*6)	mV	200	300	350	800	1600	2400
	r.m.s. (*7)	mV	16	40	70	200	350	400
Temperature coefficient		ppm/℃	100 ppm/℃ from rated output voltage, following 30 minutes warm-up.					
Remote snese compensation voltage	5 % of Vo_rated	V	4	10	25	37.5	50	75
Rise time (*8)	Rated load	ms	30	30	30	30	30	30
	No load	ms	30	30	30	30	30	30
Fall time (*9)	Rated load	ms	80	80	80	80	80	80
	No load	ms	1000	1000	1000	1200	1000	1200
Transient response time (*10)		ms	1.5	1.5	1.5	1.5	1.5	1.5
Constant Current Mode								
Line regulation (*3) [0.05 % of Io_rated]		mA	170	70	30	20	15	10
Load regulation (*11) [0.1 % of Io_rated]		mA	340	140	60	40	30	20
Ripple and noise (*12)	r.m.s. (*7)	mA	340	100	32	32	22	22
Temperature coefficient		ppm/℃	100 ppm/℃ from rated output current, following 30 minutes warm-up.					
Protection Function								
Over voltage protection (OVP)	Setting range	V	5.00 V to 88.00 V	5.00 V to 220.00 V	5.00 V to 550.00 V	5.0 V to 825.0 V	5.0 V to 1100.0 V	5.0 V to 1650.0 V
	Setting accuracy	mV	80	200	500	750	1000	1500
Over current protection (OCP)	Setting range	A	5.00 A to 374.00 A	5.00 A to 154.00 A	5.00 A to 66.00 A	4.000 A to 44.000 A	3.000 A to 33.000 A	2.000 A to 22.000 A
	Setting accuracy	mA	680	280	120	80	60	40
Over power protection (OPP)	Setting range	W	200 W to 11000 W	200 W to 11000 W	200 W to 11000 W	200 W to 11000 W	200 W to 11000 W	200 W to 11000 W
	Setting accuracy	W	100	100	100	100	100	100
Over voltage limit (OVL)	Setting range	V	0.00 V to 84.00 V	0.00 V to 210.00 V	0.00 V to 525.00 V	0.0 V to 787.5 V	0.0 V to 1050.0 V	0.0 V to 1575.0 V
Under voltage limit (UVL)	Setting range	V	0.00 V to 84.00 V	0.00 V to 210.00 V	0.00 V to 525.00 V	0.0 V to 787.5 V	0.0 V to 1050.0 V	0.0 V to 1575.0 V
Over current limit (OCL)	Setting range	A	0.00 A to 357.00 A	0.00 A to 147.00 A	0.00 A to 63.00 A	0.000 A to 42.000 A	0.000 A to 31.500 A	0.000 A to 21.000 A
Under cuttent limit (UCL)	Setting range	A	0.00 A to 357.00 A	0.00 A to 147.00 A	0.00 A to 63.00 A	0.000 A to 42.000 A	0.000 A to 31.500 A	0.000 A to 21.000 A
Power unit fail (PUF)	Operation		Turn the output off.					
Incorrect sensing connection protection (SENSE)	Operation		Turn the output off.					
Low AC input protection (AC-FAIL)	Operation		Turn the output off.					
Shutdown (SD)	Operation		Turn the output off.					
Power limit (POWER LIMIT)	Operation		Over power limit.					
	Value (fixed)		Approx. 102 % of rated output power					
Other Functions								
Voltage Slew Rate	Setting range	V/s	0.01 to 160.00	0.01 to 400.00	0.1 to 1000.0	0.1 to 1500.0	0.1 to 2000.0	0.1 to 3000.0
	Resolution	mV	10	10	100	100	100	100
Current slew rate	Setting range	A/s	0.1 to 680.0	0.01 to 280.00	0.01 to 120.00	0.01 to 80.00	0.001 to 60.000	0.001 to 40.000
	Resolution	mA	100	10	10	10	1	1
Internal resistance	Setting range	Ω	0.000 to 0.235	0.000 to 1.428	0.00 to 8.33	0.00 to 18.75	0.00 to 33.33	0.0 to 75.0
	Resolution	mΩ	1	1	10	10	10	100
Front Panel								
Display			TFT-LCD, 5", 800 pt x 480 pt					
Voltage accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Current accuracy [0.2 % of Io_rated]		mA	680	280	120	80	60	40
Power accuracy [1 % of Po_rated]		W	100	100	100	100	100	100
Voltage resolution		V	0.01	0.01	0.01	0.1	0.1	0.1
Current resolution		A	0.01	0.01	0.001	0.001	0.001	0.001
Power resolution		W	1	1	1	1	1	1
Buttons			Menu, Local, Exit, Clear, Enter, Lock, Current, Shift Output, Numeric Keypad					
Rotary knob			Turn the knob to increase or decrease the value					
USB port			Type A USB connector					
Programming and Measurement (Digital Interface)								
Output voltage programming range	0 % to 105 %	V	0 to 84	0 to 210	0 to 525	0 to 787.5	0 to 1050	0 to 1575
Output current programming range	0 % to 105 %	A	0 to 357	0 to 147	0 to 63	0 to 42	0 to 31.5	0 to 21
Output power programming range	0 % to 102 %	W	0 to 10200	0 to 10200	0 to 10200	0 to 10200	0 to 10200	0 to 10200
Output voltage programming accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Output current programming accuracy [0.2 % of Io_rated]		mA	680	280	120	80	60	40
Output power programming accuracy [1 % of Po_rated]		W	100	100	100	100	100	100
Output voltage programming resolution		mV	10	10	10	100	100	100
Output current programming resolution		mA	10	10	1	1	1	1
Output power programming resolution		W	1	1	1	1	1	1
Output voltage measurement accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Output current measurement accuracy [0.2 % of Io_rated]		mA	680	280	120	80	60	40
Output power measurement accuracy [1 % of Po_rated]		W	100	100	100	100	100	100
Output voltage measurement resolution		mV	10	10	10	100	100	100
Output current measurement resolution		mA	10	10	1	1	1	1
Output power measurement resolution		W	1	1	1	1	1	1

SPECIFICATIONS(PHU-10 kW Series)			
Input Characteristics for PHU-C Series			
Norminal input rating			3-Phase, 200 V models: 180 Vac to 265 Vac (Covers 200 Vac / 230 Vac)
Input frequency range			47 Hz to 63 Hz
Maximum input current	200 Vac	A	56 A (L1), 32 A (L2, L3)
Inrush current	200 Vac	A	Less than 100 A
Maximum input power		VA	12000
Power factor	Rated Power		> 0.95
Efficiency (*14)	200 Vac	%	86 to 94
Hold-up time			10 ms or greater
Input Characteristics for PHU-D Series			
Norminal input rating			3-Phase, 400 V models: 342 Vac to 528 Vac (Covers 380/400/415/440/460/480 Vac)
Input frequency range			47 Hz to 63 Hz
Maximum input current	400 Vac	A	28 A (L1), 16 A (L2, L3)
Inrush current	400 Vac	A	Less than 50 A
Maximum input power		VA	12000
Power factor	Rated Power		> 0.95
Efficiency (*14)	400 Vac	%	87 to 94
Hold-up time			10 ms or greater
Interface Capabilities			
USB			Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB Class: CDC(Communications Device Class)
LAN			MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask
Isolated Analog Control Interface			V_{set} / I_{set} = 0 V to 5 V or 0 V to 10 V | V_{mon} / I_{mon} = 0 V to 5 V or 0 V to 10 V
Factory Option			RS-232&485 or GPIB or CAN Bus or DeviceNet or Isolated Digital I/O
Isolated Analog Control Interface			
Vout voltage programming			0 % to 100 %, 0V to 5 V Accuracy: ± 1 % of rated V_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated V_{out}
Iout voltage programming			0 % to 100 %, 0 V to 5 V Accuracy: ± 1 % of rated I_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated I_{out}
Pout voltage programming			0 % to 100 %, 0 V to 5 V Accuracy: ± 1 % of rated P_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated P_{out}
Internal resistance voltage programming			0 % to 100 %, 0 V to 5 V Accuracy: ± 1 % of maximum R_{int}, or 0 V to 10 V Accuracy: ± 1 % of maximum R_{int}
Output voltage monitor			0 V to 5 V or 0 V to 10 V, Accuracy: ± 1 %
Output current monitor			0 V to 5 V or 0 V to 10 V, Accuracy: ± 1 %
Reference voltage			Voltage reference for 0 V to 5V or 0 V to 10V
Alarm Input			Turn off the PHU output with a High (4.5 V to 5 V)
Output on/off control			Possible logic selections: Turn the output on using a LOW (0 V to 0.5 V) or short-circuit, turn the output off using a HIGH (4.5 V to 5 V) or open-circuit Turn the output on using a HIGH (4.5 V to 5 V) or open-circuit, turn the output off using a LOW (0V to 0.5 V) or short-circuit
Alarm clear control			Clear alarms with a High (4.5 V to 5 V)
CV/CC/CP/ALM/PWR ON/OUT ON indicator			Photocoupler open collector output; Maximum voltage 30 V, maximum sink current 8 mA
Environmental Conditions			
Operaing temperature			0 °C to 50 °C
Storage temperature			-25 °C to 70 °C
Operating humidity			20 % to 85 % RH; No condensation
Storage humidity			90 % RH or less; No condensation
Altitude			Maximum 2000 m
General Specifications			
Weight	Main unit only	kg	Less than 30.5 kg
Dimensions (W×H×D)		mm	442 mm × 130 mm × 675 mm
Cooling			Forced air cooling by internal fan
EMC			Complies with the European EMC directive 89/336/EEC for Class A test and measurement products
Safety			Complies with the European Low Voltage Directive 73/23/EEC and carries the CE-marking
Withstand voltage			Chassis and output terminal; chassis and AC input; AC input and output terminal: AC 1500 V or DC 2130 V 1 minute
Insulation resistance			Chassis and output terminal; chassis and AC input; AC input and output terminal: 100 MΩ or more (DC 500 V)

Notes:
*1.Minimum voltage is guaranteed to maximum 0.2 % of the rated output voltage.
*2.Minimum current is guaranteed to maximum 0.4 % of the rated output current.
*3.At 180 Vac to 265 Vac or 342 Vac to 528 Vac, constant load.
*4.From No-load to Full-load, constant input voltage. Measured at the sensing point in Remote Sense.
*5.For 80 V, 200 V models: Measure with JEITA RC-9131B (1:1) probe. For 500 V, 750 V, 1000 V and 1500 V models: Measured with (100:1) probe.
*6.Measurement frequency bandwidth is 10 Hz to 20 MHz.
*7.Measurement frequency bandwidth is 5 Hz to 1 MHz.
*8.From 10 % to 90 % of rated output voltage, with rated resistive load.
*9.From 90 % to 10 % of rated output voltage, with rated resistive load.
*10.Time for output voltage to recover within 1 % of its rated output for a load change from 10 % to 90 % of its rated output current.
Voltage set point from 10 % to 100 % of rated output.
*11.For load voltage change, equal to the unit voltage rating, constant input voltage.
*12.The ripple is measured at 20 % to 100 % output voltage and full output current.
*13.For output power change from 10 % to 90 %, constant input voltage.
*14.At rated output power.

SPECIFICATIONS(PHU-15 kW Series)

Model		PHU	80-510	200-210	500-90	750-60	1000-45	1500-30
Rated output voltage (*1)		V	80	200	500	750	1000	1500
Rated output current (*2)		A	510	210	90	60	45	30
Rated output power		W	15000	15000	15000	15000	15000	15000
Output power ratio		—	2.72	2.8	3	3	3	3
Constant Voltage Mode								
Line regulation (*3) [0.01 % of Vo_rated]		mV	8	20	50	75	100	150
Load regulation (*4) [0.02 % of Vo_rated]		mV	16	40	100	150	200	300
Ripple and noise (*5)	p-p (*6)	mV	200	300	350	800	1600	2400
	r.m.s. (*7)	mV	16	40	70	200	350	400
Temperature coefficient		ppm/℃	100 ppm/℃ from rated output voltage, following 30 minutes warm-up.					
Remote snese compensation voltage	5 % of Vo_rated	V	4	10	25	37.5	50	75
Rise time (*8)	Rated load	ms	30	30	30	30	30	30
	No load	ms	30	30	30	30	30	30
Fall time (*9)	Rated load	ms	80	80	80	80	80	80
	No load	ms	1000	1000	1000	1200	1000	1200
Transient response time (*10)		ms	1.5	1.5	1.5	1.5	1.5	1.5
Constant Current Mode								
Line regulation (*3) [0.05 % of Io_rated]		mA	255	105	45	30	22.5	15
Load regulation (*11) [0.1 % of Io_rated]		mA	510	210	90	60	45	30
Ripple and noise (*12)	r.m.s.	mA	510	150	48	48	26	26
Temperature coefficient		ppm/℃	100 ppm/℃ from rated output current, following 30 minutes warm-up.					
Protection Function								
Over voltage protection (OVP)	Setting range	V	5.00 V to 88.00 V	5.00 V to 220.00 V	5.00 V to 550.00 V	5.0 V to 825.0 V	5.0 V to 1100.0 V	5.0 V to 1650.0 V
	Setting accuracy	mV	80	200	500	750	1000	1500
Over current protection (OCP)	Setting range	A	5.00 A to 561.00 A	5.00 A to 231.00 A	5.00 A to 99.00 A	5.00 A to 66.00 A	4.5 A to 49.500 A	3 A to 33.000 A
	Setting accuracy	mA	1020	420	180	120	90	60
Over power protection (OPP)	Setting range	W	300 W to 16500 W	300 W to 16500 W	300 W to 16500 W	300 W to 16500 W	300 W to 16500 W	300 W to 16500 W
	Setting accuracy	W	150	150	150	150	150	150
Over voltage limit (OVL)	Setting range	V	0.00 V to 84.00 V	0.00 V to 210.00 V	0.00 V to 525.00 V	0.0 V to 787.5 V	0.0 V to 1050.0 V	0.0 V to 1575.0 V
Under voltage limit (UVL)	Setting range	V	0.00 V to 84.00 V	0.00 V to 210.00 V	0.00 V to 525.00 V	0.0 V to 787.5 V	0.0 V to 1050.0 V	0.0 V to 1575.0 V
Over current limit (OCL)	Setting range	A	0.00 A to 535.50 A	0.00 A to 220.50 A	0.00 A to 94.50 A	0.00 A to 63.00 A	0.000 A to 47.250 A	0.000 A to 31.500 A
Under cuttent limit (UCL)	Setting range	A	0.00 A to 535.50 A	0.00 A to 220.50 A	0.00 A to 94.50 A	0.00 A to 63.00 A	0.000 A to 47.250 A	0.000 A to 31.500 A
Power unit fail (PUF)	Operation		Turn the output off.					
Incorrect sensing connection protection (SENSE)	Operation		Turn the output off.					
Low AC input protection (AC-FAIL)	Operation		Turn the output off.					
Shutdown (SD)	Operation		Turn the output off.					
Power limit (POWER LIMIT)	Operation		Over power limit.					
	Value (fixed)		Approx. 102 % of rated output power					
Other Functions								
Voltage Slew Rate	Setting range	V/s	0.01 to 160.00	0.01 to 400.00	0.1 to 1000.0	0.1 to 1500.0	0.1 to 2000.0	0.1 to 3000.0
	Resolution	mV	10	10	100	100	100	100
Current slew rate	Setting range	A/s	0.1 to 1020.0	0.01 to 420.00	0.01 to 180.00	0.01 to 120.00	0.01 to 90.00	0.001 to 60.000
	Resolution	mA	100	10	10	10	10	1
Internal resistance	Setting range	Ω	0.000 to 0.157	0.00 to 0.95	0.00 to 5.56	0.00 to 12.50	0.00 to 22.22	0.0 to 50.0
	Resolution	mΩ	1	10	10	10	10	100
Front Panel								
Display			TFT-LCD, 5", 800 pt x 480 pt					
Voltage accuracy [0.1% of Vo_rated]		mV	80	200	500	750	1000	1500
Current accuracy [0.2% of Io_rated]		mA	1020	420	180	120	90	60
Power accuracy [1% of Po_rated]		W	150	150	150	150	150	150
Voltage resolution		V	0.01	0.01	0.01	0.1	0.1	0.1
Current resolution		A	0.01	0.01	0.01	0.001	0.001	0.001
Power resolution		W	1	1	1	1	1	1
Buttons			Menu, Local, Exit, Clear, Enter, Lock, Current, Shift Output, Numeric Keypad					
Rotary knob			Turn the knob to increase or decrease the value.					
USB port			Type A USB connector					
Programming and Measurement (Digital Interface)								
Output voltage programming range	0 % to 105 %	V	0 to 84	0 to 210	0 to 525	0 to 787.5	0 to 1050	0 to 1575
Output current programming range	0 % to 105 %	A	0 to 535.5	0 to 220.5	0 to 94.5	0 to 63	0 to 47.25	0 to 31.5
Output power programming range	0 % to 102 %	W	0 to 15300	0 to 15300	0 to 15300	0 to 15300	0 to 15300	0 to 15300
Output voltage programming accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Output current programming accuracy [0.2 % of Io_rated]		mA	1020	420	180	120	90	60
Output power programming accuracy [1 % of Po_rated]		W	150	150	150	150	150	150
Output voltage programming resolution		mV	10	10	10	100	100	100
Output current programming resolution		mA	10	10	10	1	1	1
Output power programming resolution		W	1	1	1	1	1	1
Output voltage measurement accuracy [0.1 % of Vo_rated]		mV	80	200	500	750	1000	1500
Output current measurement accuracy [0.2 % of Io_rated]		mA	1020	420	180	120	90	60
Output power measurement accuracy [1 % of Po_rated]		W	150	150	150	150	150	150
Output voltage measurement resolution		mV	10	10	10	100	100	100
Output current measurement resolution		mA	10	10	10	1	1	1
Output power measurement resolution		W	1	1	1	1	1	1

SPECIFICATIONS(PHU-15 kW Series)			
Input Characteristics for PHU-C Series			
Norminal input rating			3-Phase, 200 V models: 180 Vac to 265 Vac (Covers 200 Vac / 230 Vac)
Input frequency range			47 Hz to 63 Hz
Maximum input current	**200 Vac**	**A**	56 A (L1, L2, L3)
Inrush current	**200 Vac**	**A**	Less than 100 A
Maximum input power		**VA**	18000
Power factor	**Rated Power**		> 0.95
Efficiency (*14)	**200 Vac**	%	86 to 94
Hold-up time			10 ms or greater
Input Characteristics for PHU-D Series			
Norminal input rating			3-Phase, 400 V models: 342 Vac to 528 Vac (Covers 380/400/415/440/460/480 Vac)
Input frequency range			47 Hz to 63 Hz
Maximum input current	**400 Vac**	**A**	28 A (L1, L2, L3)
Inrush current	**400 Vac**	**A**	Less than 50 A
Maximum input power		**VA**	18000
Power factor	**Rated Power**		> 0.95
Efficiency (*14)	**400 Vac**	%	87 to 94
Hold-up time			10 ms or greater
Interface Capabilities			
USB			Type A: Host, Type B: Slave, Speed: 1.1/2.0, USB Class: CDC(Communications Device Class)
LAN			MAC Address, DNS IP Address, User Password, Gateway IP Address, Instrument IP Address, Subnet Mask
Isolated Analog Control Interface			V_{set} / I_{set} = 0 V to 5 V or 0 V to 10 V | V_{mon} / I_{mon} = 0 V to 5 V or 0 V to 10 V
Factory Option			RS-232&485 or GPIB or CAN Bus or DeviceNet or Isolated Digital I/O
Isolated Analog Control Interface			
Vout voltage programming			0 % to 100%, 0 V to 5 V Accuracy: ± 1 % of rated V_{out}, or 0~10 V Accuracy: ± 1 % of rated V_{out}
Iout voltage programming			0 % to 100 %, 0 V to 5 V Accuracy: ± 1 % of rated I_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated I_{out}
Pout voltage programming			0 % to 100 %, 0 V to 5 V Accuracy: ± 1 % of rated P_{out}, or 0 V to 10 V Accuracy: ± 1 % of rated P_{out}
Internal resistance voltage programming			0 % to 100 %, 0 V to 5 V Accuracy: ± 1 % of maximum R_{int}, or 0 V to 10 V Accuracy: ± 1 % of maximum R_{int}
Output voltage monitor			0 V to 5 V or 0 V to 10 V, Accuracy: ± 1 %
Output current monitor			0 V to 5 V or 0 to 10 V, Accuracy: ± 1 %
Reference voltage			Voltage reference for 0 V to 5 V or 0 V to 10 V
Alarm Input			Turn off the PHU output with a High (4.5 V to 5 V)
Output on/off control			Possible logic selections: Turn the output on using a LOW (0 V to 0.5 V) or short-circuit, turn the output off using a HIGH (4.5 V to 5 V) or open-circuit Turn the output on using a HIGH (4.5 V to 5 V) or open-circuit, turn the output off using a LOW (0 V to 0.5 V) or short-circuit
Alarm clear control			Clear alarms with a High (4.5V to 5V)
CV/CC/CP/ALM/PWR ON/OUT ON indicator			Photocoupler open collector output; Maximum voltage 30 V, maximum sink current 8 mA.
Environmental Conditions			
Operaing temperature			0 ˚C to 50 ˚C
Storage temperature			-25 ˚C to 70 ˚C
Operating humidity			20 % to 85 % RH; No condensation
Storage humidity			90 % RH or less; No condensation
Altitude			Maximum 2000 m
General Specifications			
Weight	**Main unit only**	**kg**	Less than 40 kg
Dimensions (W×H×D)		**mm**	442 mm × 130 mm × 675 mm
Cooling			Forced air cooling by internal fan
EMC			Complies with the European EMC directive 89/336/EEC for Class A test and measurement products
Safety			Complies with the European Low Voltage Directive 73/23/EEC and carries the CE-marking
Withstand voltage			Chassis and output terminal; chassis and AC input; AC input and output terminal: AC 1500 V or DC 2130 V 1 minute
Insulation resistance			Chassis and output terminal; chassis and AC input; AC input and output terminal: 100 MΩ or more (DC 500 V)

Notes:
*1.Minimum voltage is guaranteed to maximum 0.2 % of the rated output voltage.
*2.Minimum current is guaranteed to maximum 0.4 % of the rated output current.
*3.At 180 Vac to 265 Vac or 342 Vac to 528 Vac, constant load.
*4.From No-load to Full-load, constant input voltage. Measured at the sensing point in Remote Sense.
*5.For 80 V, 200 V models: Measure with JEITA RC-9131B (1:1) probe. For 500 V, 750 V, 1000 V and 1500 V models: Measured with (100:1) probe.
*6.Measurement frequency bandwidth is 10 Hz to 20 MHz.
*7.Measurement frequency bandwidth is 5 Hz to 1 MHz.
*8.From 10 % to 90 % of rated output voltage, with rated resistive load.
*9.From 90 % to 10 % of rated output voltage, with rated resistive load.
*10.Time for output voltage to recover within 1 % of its rated output for a load change from 10 % to 90 % of its rated output current.
Voltage set point from 10 % to 100 % of rated output.
*11.For load voltage change, equal to the unit voltage rating, constant input voltage.
*12.The ripple is measured at 20 % to 100 % output voltage and full output current.
*13.For output power change from 10 % to 90 %, constant input voltage.
*14.At rated output power.

ORDERING INFORMATION

5 kW	
PHU 80-170	80 V, 170 A, 5000 W Programmable DC Power Supply PHU 80-170-C (Input Voltage 3P3W 200 V) PHU 80-170-D (Input Voltage 3P4W 380 V)
PHU 200-70	200 V, 70 A, 5000 W Programmable DC Power Supply PHU 200-70-C (Input Voltage 3P3W 200 V) PHU 200-70-D (Input Voltage 3P4W 380 V)
PHU 500-30	500 V, 30 A, 5000 W Programmable DC Power Supply PHU 500-30-C (Input Voltage 3P3W 200 V) PHU 500-30-D (Input Voltage 3P4W 380 V)
PHU 750-20	750 V, 20 A, 5000 W Programmable DC Power Supply PHU 750-20-C (Input Voltage 3P3W 200 V) PHU 750-20-D (Input Voltage 3P4W 380 V)
PHU 1000-15	1000 V, 15 A, 5000 W Programmable DC Power Supply PHU 1000-15-C (Input Voltage 3P3W 200 V) PHU 1000-15-D (Input Voltage 3P4W 380 V)
PHU 1500-10	1500 V, 10 A, 5000 W Programmable DC Power Supply PHU 1500-10-C (Input Voltage 3P3W 200 V) PHU 1500-10-D (Input Voltage 3P4W 380 V)

10 kW	
PHU 80-340	80 V, 340 A, 10,000 W Programmable DC Power Supply PHU 80-340-C (Input Voltage 3P3W 200 V) PHU 80-340-D (Input Voltage 3P4W 380 V)
PHU 200-140	200 V, 140 A, 10,000 W Programmable DC Power Supply PHU 200-140-C (Input Voltage 3P3W 200 V) PHU 200-140-D (Input Voltage 3P4W 380 V)
PHU 500-60	500 V, 60 A, 10,000 W Programmable DC Power Supply PHU 500-60-C (Input Voltage 3P3W 200 V) PHU 500-60-D (Input Voltage 3P4W 380 V)
PHU 750-40	750 V, 40 A, 10,000 W Programmable DC Power Supply PHU 750-40-C (Input Voltage 3P3W 200 V) PHU 750-40-D (Input Voltage 3P4W 380 V)
PHU 1000-30	1000 V, 30 A, 10,000 W Programmable DC Power Supply PHU 1000-30-C (Input Voltage 3P3W 200 V) PHU 1000-30-D (Input Voltage 3P4W 380 V)
PHU 1500-20	1500 V, 20 A, 10,000 W Programmable DC Power Supply PHU 1500-20-C (Input Voltage 3P3W 200 V) PHU 1500-20-D (Input Voltage 3P4W 380 V)

15 kW	
PHU 80-510	80 V, 510 A, 15,000 W Programmable DC Power Supply PHU 80-510-C (Input Voltage 3P3W 200 V) PHU 80-510-D (Input Voltage 3P4W 380 V)
PHU 200-210	200 V, 210 A, 15,000 W Programmable DC Power Supply PHU 200-210-C (Input Voltage 3P3W 200 V) PHU 200-210-D (Input Voltage 3P4W 380 V)
PHU 500-90	500 V, 90 A, 15,000 W Programmable DC Power Supply PHU 500-90-C (Input Voltage 3P3W 200 V) PHU 500-90-D (Input Voltage 3P4W 380 V)
PHU 750-60	750 V, 60 A, 15,000 W Programmable DC Power Supply PHU 750-60-C (Input Voltage 3P3W 200 V) PHU 750-60-D (Input Voltage 3P4W 380 V)
PHU 1000-45	1000 V, 45 A, 15,000 W Programmable DC Power Supply PHU 1000-45-C (Input Voltage 3P3W 200 V) PHU 1000-45-D (Input Voltage 3P4W 380 V)
PHU 1500-30	1500 V, 30 A, 15,000 W Programmable DC Power Supply PHU 1500-30-C (Input Voltage 3P3W 200 V) PHU 1500-30-D (Input Voltage 3P4W 380 V)

ACCESSORIES

AC Input terminal cover x 1, DC Output terminal cover x 1, Handle x 2, Sensing connector x 1, sensing connector cover x 1, Digital I/O control connector x 1, Parallel control dummy connector x 1, DC Output terminal screws x 2, Safety Guide

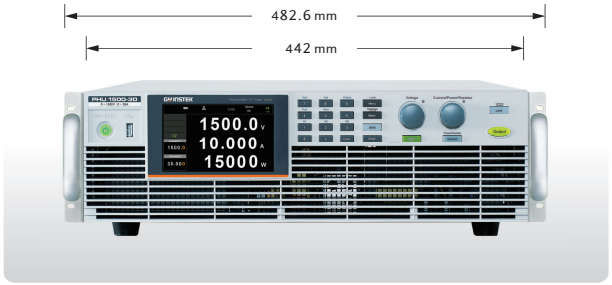
OPTIONAL

PHU-IF01	GPIB interface
PHU-IF02	RS-232&RS-485 interface card (RJ45)
PHU-IF03	Isolated Digital interface card
PHU-IF04	CANbus interface card
PHU-IF05	DeviceNet interface card
PHU-IF06	Anybus Riser card

OPTIONAL ACCESSORIES

PHU-PC01	Parallel operation cable kit for 2 units x 1
PHU-PC02	Parallel operation cable kit for 3 units x 1
PHU-PC03	Parallel operation cable kit for 4 units x 1
PHU-PC04	Parallel operation cable kit for 5 units x 1
PHU-PC05	Parallel operation cable kit for 6 units x 1
PHU-PC06	Parallel operation cable kit for 7 units x 1
PHU-PC07	Parallel operation cable kit for 8 units x 1
PHU-PC08	Parallel operation cable kit for 9 units x 1
PHU-PC09	Parallel operation cable kit for 10 units x 1
GPW-021	Input power cord, 10 AWG/4C, 3 m, UL/CSA (PHU-C-5kW, PHU-D-5kW, PHU-D-10kW, PHU-D-15kW)
GPW-022	Input power cord, 6 AWG/4C, 3 m, UL/CSA (PHU-C-10kW, PHU-C-15kW)
GTL-133	Load cable, 1.5 m, 100 A
GTL-218	Load cable, 1.5 m, 200 A
GTL-219	Load cable, 3 m, 200 A
GTL-220	Load cable, 1.5 m, 300 A
GTL-221	Load cable, 3 m, 300 A
GTL-222	Load cable, 1.5 m, 400 A
GTL-223	Load cable, 3 m, 400 A

Specifications subject to change without notice. PHU_E_BH1-202503



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