KIKUSUI

P X T S E R I E S

High-Capacity Wide-Range DC Power Supply

PXT Series

NEW

Maximum 20 kW output in a 3U size
Supports a maximum voltage of 1500 V
Select input voltage from 200 Vac (3-phase) or 400 Vac (3-phase)
Bleeder ON/OFF function
Output ON/OFF delay function
One-control parallel operation function (up to 25 units of the same model)
Touch panel for intuitive operation
LAN, USB, RS232C, external analog control (isolated type) standard

https://global.kikusui.co.jp/

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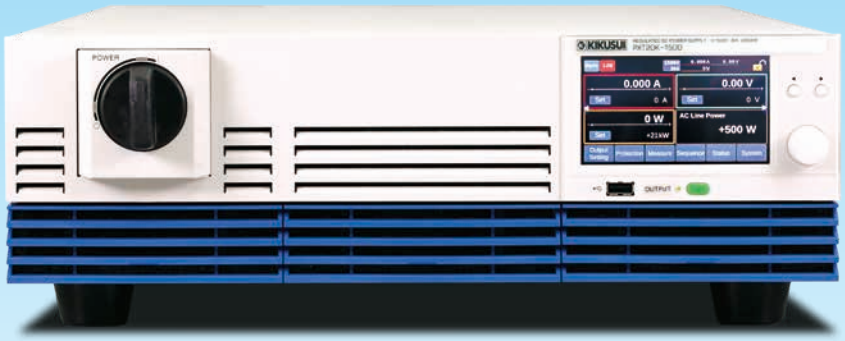
Excellent size and versatility. This high-capacity DC power supply is an optimal solution.

The PXT Series of high-performance, high-capacity, wide-range DC power supplies offers a maximum rated output of 20 kW in a compact 3U size. In addition to variable internal resistance, bleeder ON/OFF, and output ON/OFF delay functions, the PXT series has various communication interfaces (LAN, USB, and RS232C as standard). It can be used as a standalone device or integrated into testing equipment. Furthermore, the excellent heat dissipation design guarantees an ambient operating temperature of 50°C, making the unit suitable for harsh, high-temperature testing environments. The PXT Series is also highly scalable, and its capacity can be increased to 500 kW in parallel operation (up to 25 units).

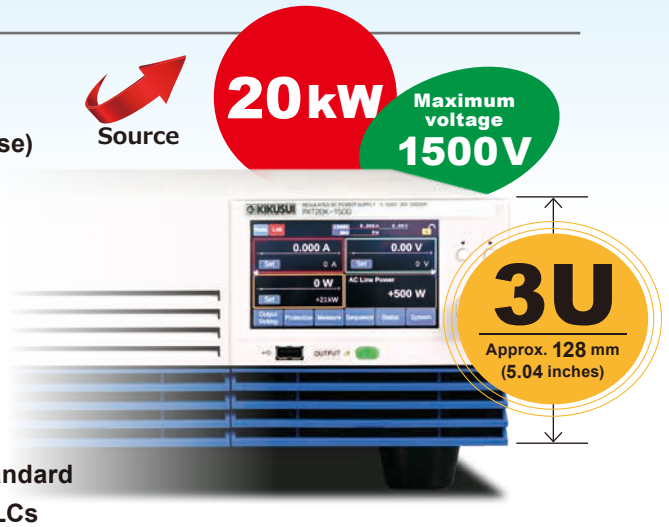


High-Capacity Wide-Range DC Power Supply

PXT Series

NEW

Features



- **Maximum 20 kW output in a 3U size**
- **Supports a maximum voltage of 1500 V**
- **Select input voltage from 200 Vac (3-phase) or 400 Vac (3-phase)**
- **Bleeder ON/OFF function**
- **Output ON/OFF delay function**
- **Full-load continuous operation is possible even at ambient temperatures as high as 50 °C (122 °F)**
- **One-control parallel operation function (up to 25 units of the same model)**
  *Please contact us if you wish to operate more than 10 units in parallel.
- **Touch panel for intuitive operation**
- **LAN, USB, RS232C, external analog control (isolated type) standard**
- **External control I/O is standard for both NPN and PNP type PLCs**

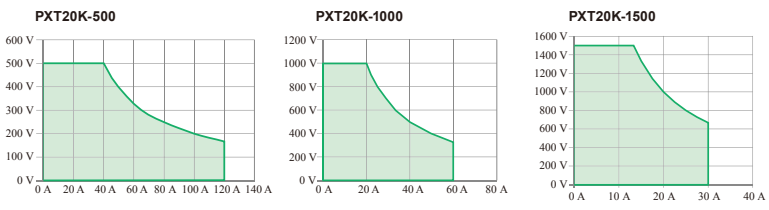
Lineup / Main Specifications

Specifications	Output			Ripple noise	Power fluctuation		Load variation		Input current	Weight
Model	CV	CC	Rated power	CV	CV	CC	CV	CC	AC 200 V (3-phase 3-wire) / 400 V (3-phase 3-wire)	Approx.
	V	A	kW	mVrms	mV	mA	mV	mA	A	kg(lbs)
PXT20K-500	0 to 500	120	20	100	±100	±240	±250	±240	80/40	38(83.78)
PXT20K-1000	0 to 1000	60	20	250	±200	±120	±750	±120	80/40	38(83.78)
PXT20K-1500	0 to 1500	30	20	300	±300	±60	±750	±60	80/40	37(81.57)

● Output Power Range

2.25 to 3 times mains-powered operation

The PXT series has an operating range of 2.25 to 3x power ratio, which allows for a wide range of voltage and current setting combinations. For example, the PXT20K-500 can seamlessly operate from 500 V-40 A to 166.6 V-120 A within the rated output power range of 20 kW.



Conceptual diagram of operating area

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● Space and Cost-Saving

Comparison of PAT500-80TM (40 kW) and PXT20K-500 x 2 units (40 kW)

Rated power.....40 kW
Rated output voltage....500 V
Rated output current....80 A
Weight.....Approx. 180 kg(396.83 lbs)
Dimensions.....433(17.05)(MAX445(17.52))W×
735(28.94)(MAX835(32.87))H×
765(30.12)(MAX945(37.20))D mm(inches)

Approx. 60% lighter

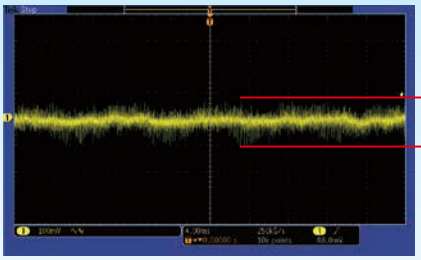
Approx. 1/3 smaller

Rated power.....40 kW
Rated output voltage....500 V
Rated output current....240 A
Weight.....Approx. 76 kg(167.55 lbs)
Dimensions.....430(16.93)(MAX455(17.91))W×
256(10.08)(MAX320(12.60))H×
720(28.35)(MAX980(38.58))D mm(inches)

● Low Ripple Noise

This switching-type power supply has low ripple noise.

*PXT20K-500: Specified value 700 mVp-p (100 mVrms)

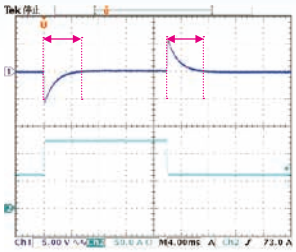


PXT20K-500 | Output voltage: 500 V, Output current: 40 A, Output power: 20 kW | Div: 100 mV, Resistance load, Oscilloscope bandwidth 20 MHz

● Excellent Transient Response Characteristics

A transient response of 6 ms or less* ensures high-quality output waveforms even when the current changes abruptly.

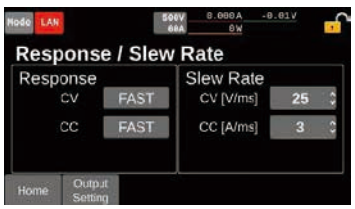
*The time required for the output voltage to return within ± (0.1 % + 10 mV) of the rated output voltage when the CV mode response is set to FAST. The output current fluctuation value is 50 % to 100 % of the maximum current at the set output voltage.



PXT20K-500 | Output voltage: 120 V, Output current: 60 A ↔ 120 A (Rated current 50 % ↔ 100 %), Div: 4 ms

● Optimized for Different Purposes and Applications, with Selectable Response Speeds

Required response speed of power supply equipment varies depending on test conditions and load specifications. The PXT series can change the response speed of the power supply as desired to suit the application.



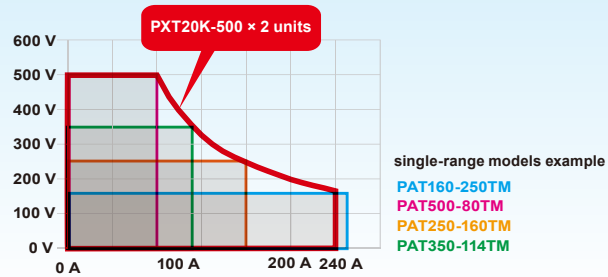
Model	Operation Mode	Slew rate
PXT20K-500	CV [V/ms]	0.125 / 1.25 / 12.5 / 25
	CC [A/ms]	0.03 / 0.3 / 3 / 6
PXT20K-1000	CV [V/ms]	0.250 / 2.50 / 25.0 / 50
	CC [A/ms]	0.015 / 0.15 / 1.5 / 3
PXT20K-1500	CV [V/ms]	0.375 / 3.75 / 37.5 / 75
	CC [A/ms]	0.0075 / 0.075 / 0.75 / 1.5

● Fast No-Load Fall Time

The PXT series achieves a no-load fall time of 750 ms.
This contributes to shorter takt time.

● Excellent Versatility Thanks to Wide-Range Output

Covers multiple single-range models!



● Bleeder ON/OFF Function

Turning the bleeder function on quickly discharges the electrical charge accumulated in the load when the OUTPUT was turned off and allows the output voltage to be lowered. A battery connected to the output terminal will be discharged when the bleeder function is on, even if the OUTPUT is turned off. In such cases, unnecessary discharge can be prevented by turning the bleeder function off.

Item	Description
Enable	Turns the bleeder function on. Sink current flows when the output is off.
Disable	Disables the bleeder function. Prevents unintended discharge when output is turned off. However, a low sink current will still flow due to the resistance inside the PXT series. The reference values of the internal resistance are as follows: PXT20K-500: approx. 55 kΩ PXT20K-1000: approx. 220 kΩ PXT20K-1500: approx. 560 kΩ

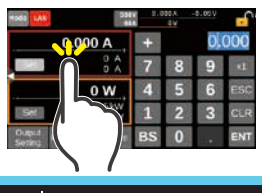
● Priority Operation Mode

Mode of operation can be set, as constant voltage (CV), constant current (CC), or constant power (CP), when output is turned on. Overshoot can be prevented by setting CC mode priority when batteries, power supplies, etc. are connected.

● Equipped with Touch Panel Display

By pressing or swiping a finger on the display, on-screen items can be selected, or numerical values set.
The display is pressure-sensitive and can be operated even with gloves.

Press / Long press



Swipe

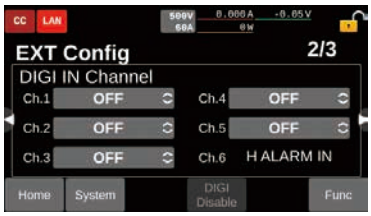
● External Control Function

The EXT CONT connector on the rear panel can be used to control the PXT series with external devices. The general-purpose digital input and output terminals can be assigned any function, facilitating system construction in combination with other measurement devices. Digital I/O standard for both NPN and PNP type PLCs. Analog I/O is isolated from output terminals as standard, allowing safe analog control from PLC.

Terminal No.	Method	I/O	Name	Description
1	Digital	O	OUT Ch.1	General-purpose output terminal
2	Digital	O	OUT Ch.2	General-purpose output terminal
3	Digital	O	OUT Ch.3	General-purpose output terminal
4	–	–	DO COM	Digital output common
5	–	–	DI COM	Digital input common
6	Digital	I	IN Ch.1	General-purpose input terminal
7	Digital	I	IN Ch.2	General-purpose input terminal
8	Digital	I	IN Ch.3	General-purpose input terminal
9	–	O	+12 V OUT	12 V reference voltage available for digital input
10	–	–	–	Not used
11	–	–	A COM	Analog signal common
12	Analog	O	VMON	Voltage monitor
13	Analog	O	IMON	Current monitor
14	Digital	O	OUT Ch.4	General-purpose output terminal
15	Digital	O	OUT Ch.5	General-purpose output terminal
16	Digital	O	OUT Ch.6	General-purpose output terminal
17	–	–	DO COM	Digital output common
18	–	–	DI COM	Digital input common
19	Digital	I	IN Ch.4	General-purpose input terminal
20	Digital	I	IN Ch.5	General-purpose input terminal
21	Digital	I	H ALARM IN	HIGH alarm EXT HIGH occurrence
22	–	–	12 V COM	12 V reference voltage common
23	–	–	A COM	Analog signal common
24	Analog	I	EXT CV	Voltage control in the constant voltage mode
25	Analog	I	EXT CC/CP	Current control in the constant current / power modes

Method	Function
Analog input	Setting of voltage and current values
Analog output	Monitoring of voltage and current values
General-purpose isolated digital input (Ch.1 to ch.5) *Photocoupler isolated input (Supports both current sink and source)	• Output ON/OFF from DC OUTPUT terminal • LOW alarm generation / deactivation • Start / Stop totalizer measurement • Reset totalized value • Measurement trigger input • Preset memory recall
Digital input (Ch.6)	HIGH alarm generation (Fixed)
General-purpose isolated digital output (Ch.1 to ch.6) *Semiconductor relay output	• Monitor output status of DC OUTPUT terminal • Power-on monitor • Alarm monitoring • Operating mode monitoring • Preset memory monitoring

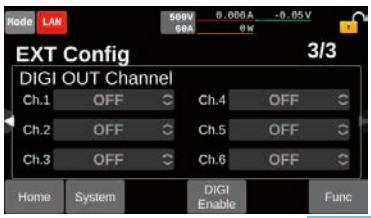
General-purpose isolated digital input terminals are available from Ch.1 to Ch.5. Any setting value from the items listed on the right can be selected.



- ►OFF
- ►OUTPUT ON
- ►OUTPUT OFF
- ►OUTPUT CTRL
- ►L ALARM IN
- ►ALARM CLR
- ►SEQ RUN
- ►SEQ PAUSE
- ►INTEG CTRL
- ►INTEG RESET
- ►ACQUIRE TRIG
- ►SEQ TRIG IN
- ►MEM1 RECALL
- ►MEM2 RECALL

* Ch.6 is fixed at “H Alarm IN”.

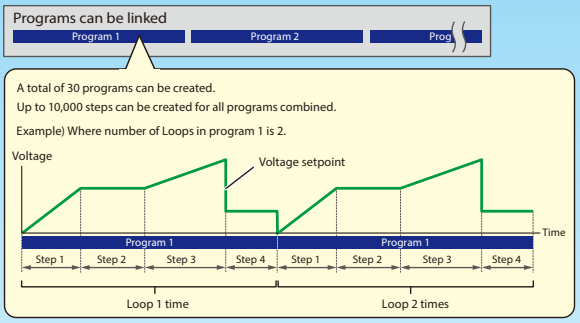
General-purpose isolated digital output terminals are available from Ch.1 to Ch.6. Any setting value from the items listed on the right can be selected.



- ►OFF
- ►OUTPUT ON
- ►POWER ON
- ►H ALARM OUT
- ►L ALARM OUT
- ►CC STATUS
- ►CV STATUS
- ►SEQ TRIG OUT
- ►SEQ STATUS
- ►EXT DIN BUSY
- ►MEM1 ACT TIME
- ►MEM2 ACT TIME
- ►RELAY DRIVE

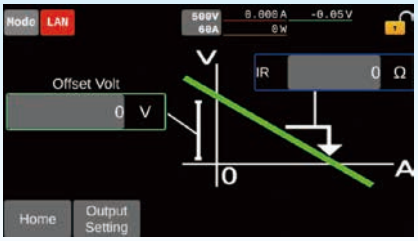
● Sequence Function

Preset operations can be run continuously. Total of 30 programs, and up to 10,000 steps can be created for all programs. Programs stored in the unit’s memory, and data can be exported to a USB memory stick from the front panel.



● Variable Internal Resistance Function

Function can change the output voltage value in constant voltage operation, according to the output current value based on the set resistance value. Simple simulation of Internal resistance of rechargeable batteries and wire harnesses etc.



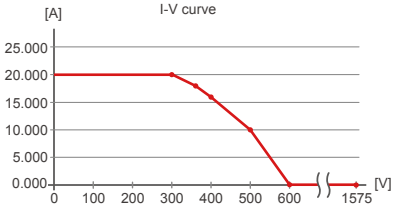
Item	PXT20K-500	PXT20K-1000	PXT20K-1500
Setting range	0 Ω to 5250 mΩ	0 mΩ to 21000 mΩ	0 Ω to 63000 mΩ
Setting resolution	1 mΩ	2 mΩ	5 mΩ

● I-V Characteristic Function

By registering multiple arbitrary points on the I-V characteristics, arbitrary I-V characteristics can be set for each CC and CV operation mode. Arbitrary points can be registered from 3 to 100, making it possible to simulate the I-V characteristics of rechargeable batteries and other devices.

PXT20K-1500 CC mode setting example

Score	Voltage [V]	Current [A]
1	0	20.000
2	300	20.000
3	360	18.000
4	400	16.000
5	500	10.000
6	600	0.000
7	1575	0.000



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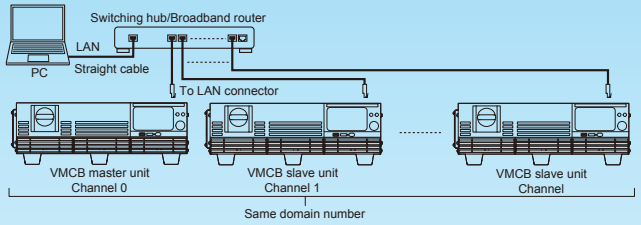
● Equipped with Standard LAN Interface and VMCB Function

The PXT series is equipped with LAN, USB, and RS232C interfaces as standard features. By using the feature of virtual multi-channel bus (VMCB), it allows you to control remotely and monitoring for 1-to-N as well as N-to-M for large-scale networks. This feature can also be used to save communication ports or to synchronize the control timing of multiple PXT series units (up to 8 units). The PXB series manufactured by our company can also be mixed and matched for multi-channel connection.

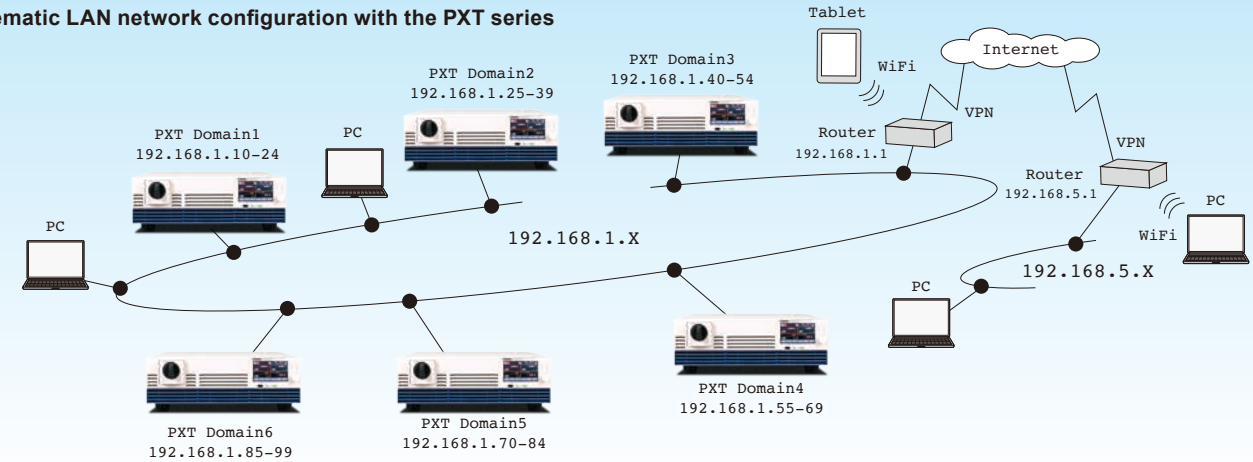
When connecting the VMCB master unit via LAN



Communication monitoring function

This function monitors the communication status.
For example, the alarm will be activated and the output will be turned off when the LAN cable is disconnected and the communication is not being confirmed within the specified time of setting. This function protects the operation from the uncontrolled condition, and it improves the system reliability.

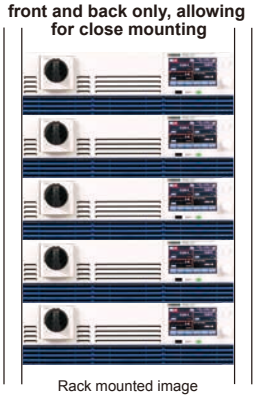
Schematic LAN network configuration with the PXT series



● **Security for LAN connections**
Access to the built-in web server can be restricted with a password. Also, when using VXI-11, HiSLIP, and SCPI-RAW for control, host restrictions can be set with the IP address. It is possible to prevent access from any terminal other than the ones registered as a host (up to 4 hosts can be registered).

● Up to 25 Units can be Operated in Parallel, Achieving 500 kW*

Intake and exhaust on the front and back only, allowing for close mounting



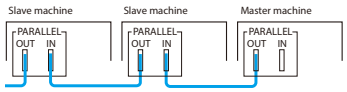
Rack mounted image

Including master machine, up to 25 units (500 kW) can be operated in parallel. Connection is with one-control parallel operation, and the panel of the master machine can control and display the entire system. With the automatic recognition function, the need for complicated settings is eliminated, allowing the construction of high-capacity systems.

* Parallel operation is possible between models with different input rated voltages.

● Please contact us if you wish to operate more than 10 units in parallel.

Connection conceptual diagram



PC01-PXB

● Selectable Power Input

Full output at rated power regardless of input voltage. Choose from 3-phase 3-wire 200 V or 400 V models. No output limitation for either input voltage.

● Reliable and Solid Performance Even Under High Temperatures

Solid performance under operating temperatures of 0°C to 50°C (32 °F to 122 °F). Exhibits full performance even in environments with severe ambient temperatures, such as when installed in equipment.

● Safety Protection Function

- OVP (Over voltage protection)
- OPP (Over power protection)
- UVP (Under voltage protection)
- OCP (Over current protection)
- WDOG (Communication error protection)
- EXT LOW (External input alarm detection)

Specifications

Unless specified otherwise, the specifications are for the following settings and conditions.
● The product is warmed up for at least 30 minutes.
The used terminology is as follows:
● TYP: These are typical values that are representative of situations where the product operates in an environment with an ambient temperature of 23 °C (73.4 °F). These values do not guarantee the performance of this product. ● setting: Indicates a setting. ● reading: Indicates a readout value. ● rating: Indicates a rated value.
● Open: Indicates equivalence to the state in which the DC OUTPUT terminals are opened. ● Vout: Indicates an output voltage.

● Output rating

Item	PXT20K-500	PXT20K-1000	PXT20K-1500
Rated power		20000 W	
Rated voltage *1	0 V to 500 V	0 V to 1000 V	0 V to 1500 V
Rated current *1	120 A	60 A	30 A

*1. Limited by the maximum output power.

● Output voltage

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
Maximum settable voltage		525 V	1050 V	1575 V
Setting accuracy		±(0.2 % of setting + 0.1 % of rating)		
Setting resolution		0.05 V	0.1 V	0.1 V
Power fluctuation *1		±100 mV	±200 mV	±300 mV
Load variation *2		±250 mV	±750 mV	±750 mV
Remote sensing Maximum compensation voltage (reciprocating) (TYP)		10 % of rating		
Internal resistance setting upper limit		5250 mΩ	21000 mΩ	63000 mΩ
Internal resistance setting resolution		1 mΩ	2 mΩ	5 mΩ
Response switching		FAST, SLOW		
Slew rate switching		25 V/ms	50 V/ms	75 V/ms
		12.5 V/ms	25.0 V/ms	37.5 V/ms
		1.25 V/ms	2.50 V/ms	3.75 V/ms
		0.125 V/ms	0.250 V/ms	0.375 V/ms
Slew rate setting accuracy		±(20 % of setting +2.5 ms)		
Transient response *3		6 ms or less		
Ripple noise *4	p-p *5	700 mV	1500 mV	1750 mV
	rms *6	100 mV	250 mV	300 mV
Rise time *7	Full load *8	25 ms		
	No load	25 ms		
Fall time *9	Full load *8	25 ms		
	No load	750 ms		

*1. 180 Vac to 252 Vac for 200 Vac input, 342 Vac to 504 Vac for 400 Vac input. At the constant load.
*2. The amount of change that occurs when the load is changed from no load to full load (rated output power/rated output voltage) with rated output voltage. The value is measured at the sensing point.
*3. The amount of time required for the output voltage to return to a value within the rated output voltage ± (0.1 % + 10 mV) when the response setting of the CV mode is FAST. The load current fluctuation is 50 % to 100 % of the maximum current with the set output voltage.
*4. In the case where the CV mode response setting is FAST and having the rated output current. Values measured using JEITA RC-9131C probe and 100:1 probe.
*5. Measurement frequency band: 10 Hz to 20 MHz
*6. Measurement frequency band: 10 Hz to 1 MHz
*7. Applicable to the case where the CV mode response setting is FAST and the rated output voltage changes from 10 % to 90 %.
*8. For a pure resistance.
*9. Applicable to the case where the CV mode response setting is FAST and the rated output voltage changes from 90 % to 10 %.

● Output current

Item	PXT20K-500	PXT20K-1000	PXT20K-1500
Maximum settable current *1	126 A	63 A	31.5 A
Setting accuracy	±(0.75 % of rating)		
Setting resolution	0.01 A	0.005 A	0.002 A
Power fluctuation	±240 mA	±120 mA	±60 mA
Load variation	±240 mA	±120 mA	±60 mA
Rise time (Short-circuit) (TYP) *2	25 ms	25 ms	25 ms
Fall time (Short-circuit) (TYP) *3	25 ms	25 ms	25 ms
Response switching	FAST, SLOW		
Slew rate switching (TYP) *1	6 A/ms	3 A/ms	1.5 A/ms
	3 A/ms	1.5 A/ms	0.75 A/ms
	0.3 A/ms	0.15 A/ms	0.075 A/ms
	0.03 A/ms	0.015 A/ms	0.0075 A/ms
Slew rate setting accuracy	±(20 % of setting +2.5 ms)		

*1. During parallel operation, this will be the value multiplied by the number of units in the configuration.
*2. In the case that the CC mode response setting is set to FAST: Applied in response to changes from 10 % to 90 % of rated output current.
*3. In the case that the CC mode response setting is set to FAST: Applied in response to changes from 90 % to 10 % of rated output current.

● Output power

Item	PXT20K-500	PXT20K-1000	PXT20K-1500
Maximum settable power *1	21000 W		
Setting accuracy *2	±(0.5 % of power rating + 0.5 % of current rating × Vout)		
Setting resolution	2 W		

*1. During parallel operation, this will be the value multiplied by the number of units in the configuration.
*2. Equal to or higher than 5 % of the rated power is guaranteed. Less than 5 % of the rated power is guaranteed as a TYP value.

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Specifications

● 200 V three-phase three-wire input

Specifications for models having an input voltage rating of 200 Vac.

Item	PXT20K-500	PXT20K-1000	PXT20K-1500
Nominal input rating	200 Vac to 240 Vac, 50 Hz to 60 Hz		
Input voltage range	180 Vac to 252 Vac		
Input frequency range	47 Hz to 63 Hz		
Input current (MAX) *1	80 A (When Input voltage is 180 V)		
Input power (MAX) *1	24 kVA		
Inrush current (TYP) *2	90 A		
Power factor (TYP) *1	0.96		
Output hold time	10 ms or more		

*1. At the rated output power for the rated output current.
*2. Maximum peak current value when the POWER switch is turned on. (Excluding the surge current to the input filter capacitor.)

● 400 V three-phase three-wire input

Specifications for models having an input voltage rating of 400 Vac.

Item	PXT20K-500	PXT20K-1000	PXT20K-1500
Nominal input rating	380 Vac to 480 Vac, 50 Hz to 60 Hz		
Input voltage range	342 Vac to 504 Vac		
Input frequency range	47 Hz to 63 Hz		
Input current (MAX) *1	40 A (When Input voltage is 342 V)		
Input power (MAX) *1	24 kVA		
Inrush current (TYP) *2	70 A		
Power factor (TYP) *1	0.96		
Output hold time	10 ms or more		

*1. At the rated output power for the rated output current.
*2. Maximum peak current value when the POWER switch is turned on. (Excluding the surge current to the input filter capacitor.)

● Display

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
Voltmeter	Maximum display	±600.00 V	±1200.00 V	±1800.00 V
	Display accuracy	±(0.1 % of reading + 0.2 % of rating)		
Ammeter	Maximum display	±168.000 A	±84.000 A	±42.000 A
	Display accuracy	±(0.75 % of rating)		
Wattmeter	Maximum display *1	±24.000 kW		
	Display accuracy	Display the integrated value of voltmeter and ammeter		
Operation display	Output ON / OFF	The OUTPUT LED on the front panel lights in green		
	Operation mode	Indicate the followings on the upper left part of the display CV: Green CV icon CC: Red CC icon CP: Orange CP icon		
	Remote (LAN)	Indicate the followings on the upper left part of the display Not connected: Red LAN icon Preparing for connection: Orange LAN icon Connected: Green LAN icon		
	Alarm	Indicate the details of activated protection function on the display		
	SCPI error	Indicate the error occurring at present on the display		
	POWER off	Indicate residual charge warning and an instruction to turn off the display, then reboot		
	Key lock	Indicate the key lock status on the upper right part of the display		
	Sensing	When sensing is enabled, indicate the sensing icon on the upper right part of the display		
	During parallel operation	Displaying the slave state on the slave unit		
	External control	When digital input/output is enabled, indicate the EXT icon on the upper right part of the display		
	While a sequence is running	Indicate the RUN icon on the upper right part of the display		
	Synchronization state	Indicate the Sync icon on the upper right part of the display		
	Output delayed	Indicate a yellow mark on the upper left part of the display		

*1. The unit will be W if it is less than 10 kW.

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Specifications

● Protection specifications LOW alarm

An alarm not requiring a reboot to be cleared.

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
OVP (overvoltage protection)	Protection operation	Output off, indicate “OVP” on the display. SLV OVP is displayed on the slave unit.		
	Setting range	50 V to 550 V	100 V to 1100 V	150 V to 1650 V
	Setting accuracy	±(0.1 % of setting + 0.2 % of rating)		
	Setting resolution	0.05 V	0.1 V	0.1 V
OCP (overcurrent protection)	Protection operation	Output off, indicate “OCP” on the display. SLV OCP is displayed on the slave unit.		
	Setting range *1	12 A to 132 A	6 A to 66 A	3 A to 33 A
	Setting accuracy	±(0.75 % of rating)		
	Setting resolution	0.01 A	0.005 A	0.002 A
OPP (overpower protection)	Protection operation	Output off, indicate “OPP” on the display. SLV OPP is displayed on the slave unit.		
	Setting range *1	2 kW to 24 kW		
	Setting accuracy	±(1.0 % of power rating + 1.0 % of current rating × Vout)		
	Setting resolution	2 W		
UVP (undervoltage protection)	Protection operation	Output off, indicate “UVP” on the display. SLV UVP is displayed on the slave unit.		
	Setting range	0 V to 500 V	0 V to 1000 V	0 V to 1500 V
	Selectable	Enable/Disable		
	Setting accuracy	±(0.1 % of setting + 0.2 % of rating)		
	Setting resolution	0.05 V	0.1 V	0.1 V
Watchdog Alarm (Communication error protection)	Protection operation	Output off, indicate “WDOG” on the display		
	Setting range	1 s to 3600 s		
	Selectable	Enable/Disable		
External Alarm LOW Level (external input alarm detection)	Protection operation	Output off, indicate “EXT LOW” on the display		

*1. During parallel operation, this will be the value multiplied by the number of units in the configuration.

● Protection Specifications HIGH alarm

An alarm requiring a reboot to be cleared.

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
Reverse Alarm (Reverse-connection detection protection)	Protection operation	Output off, indicate “REVE” on the display		
OHP (Overheat protection)	Protection operation	Output off, indicate “OHP” on the display. SLV OHP is displayed on the slave unit.		
Line OVP (Grid overvoltage protection)	Protection operation	Output off, indicate “LOVP” on the display. SLV LOVP is displayed on the slave unit.		
	Setting range	Input voltage rating 200 Vac model: 200 V to 258 V Input voltage rating 400 Vac model: 380 V to 516 V		
Line UVP (Grid undervoltage protection)	Protection operation	Output off, indicate “LUVP” on the display. SLV LUVP is displayed on the slave unit.		
	Setting range	Input voltage rating 200 Vac model: 175 V or less. Input voltage rating 400 Vac model: 333 V or less.		
Line Frequency Error (Grid abnormal frequency protection)	Protection operation	Output off, indicate “FREQ” on the display. SLV FREQ is displayed on the slave unit.		
	Detection value	42 Hz/68 Hz		
External Alarm HIGH Level (External input alarm detection)	Protection operation	Output off, indicate “EXT HIGH” on the display		
Parallel Communication Error (Parallel operation communication error detected)	Protection operation	Output off, indicate “PARA COM” on the display		
Para Other Slave Alarm (Parallel operation slave error occurred)	Protection operation	Output off, indicate “SLV OTHR” on the display		
Incorrect Slave Alarm (Not applicable device connected)	Protection operation	Output off, indicate “SLV INC” on the display		
Too many connections (Too many parallel connections)	Protection operation	Output off, indicate “TOO MANY” on the display		
Hardware ERR *1 (Hardware error)	Protection operation	Output off, indicate “ERRH” on the display. SLV ERRH is displayed on the slave unit.		
Software ERR *2 (Software error)	Protection operation	Output off, indicate “ERRS” on the display. SLV ERRS is displayed on the slave unit.		

*1. It occurs when an abnormality related to the hardware is detected and the internal unit comes to an emergency stop.
*2. It occurs when an abnormality related to the software is detected and the internal unit comes to an emergency stop.

● External analog I/O

Item			PXT20K-500	PXT20K-1000	PXT20K-1500
Input	Input points		2 points		
	Voltage (CV) external voltage control	Setting range	0 % to 100 % of the rated output voltage		
		Input voltage range	0 V to +5 V or 0 V to +10 V (Selectable)		
		Accuracy	±(1 % of rating)		
	Current (CC) external voltage control, power (CP) external voltage control *1	Setting range	0 % to 100 % of the rated current and rated power		
		Input voltage range	0 V to +5 V or 0 V to +10 V (Selectable)		
		Accuracy	±(1 % of rating)		
Output	Output points		2 points		
	Voltage monitor (VMON) Current monitor (IMON)	Output range	0 % to 100 % of the rated output voltage		
		Output voltage	0 V to 5 V or 0 V to 10 V (Selectable)		
		Accuracy	±(1 % of rating)		

*1. Select either current control or power control.

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Specifications

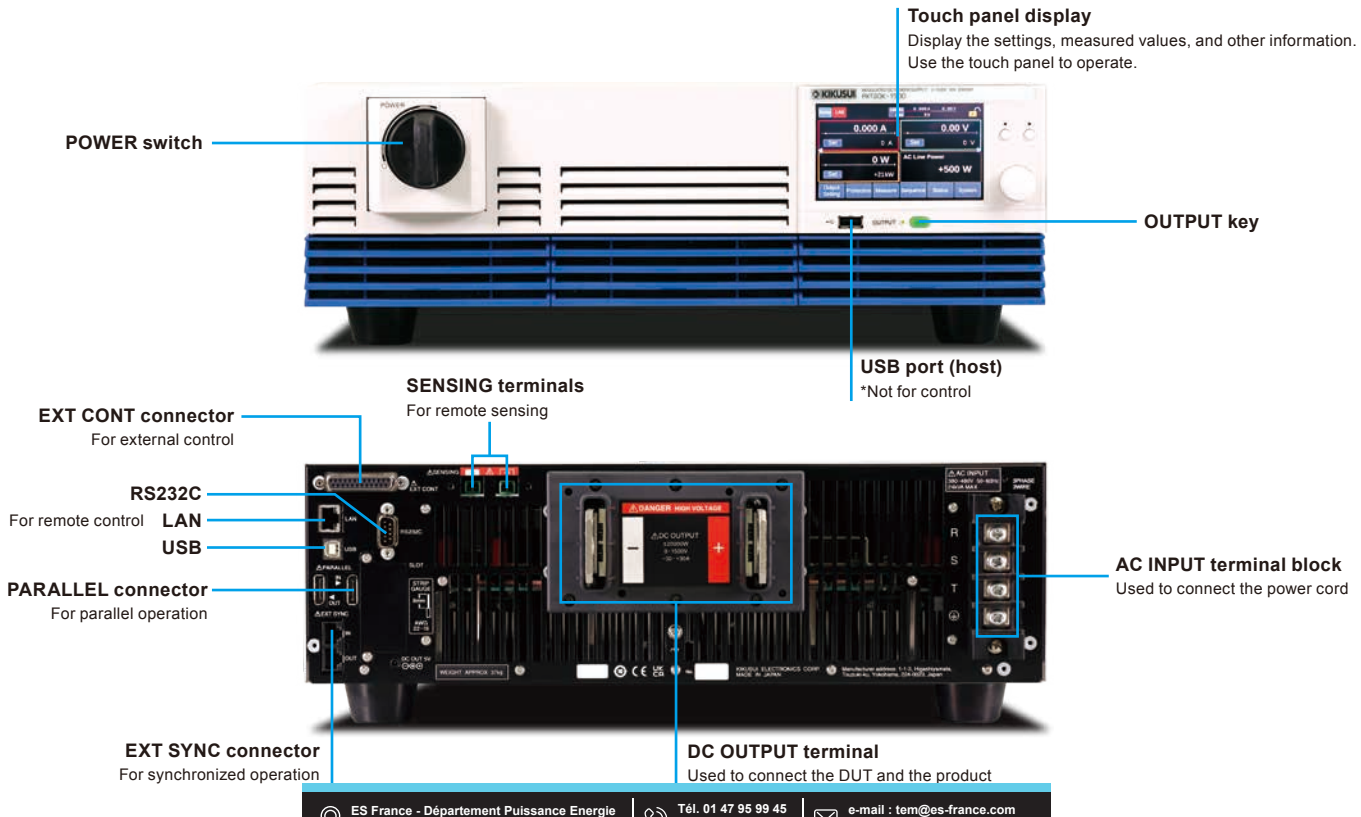
● External digital input

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
Fixed input points		1 point (Polarity switchable)		
Selected input points		5 points (Polarity switchable)		
Input form		Photocoupler isolated input (Applicable to both current sink / source output)		
Fixed function	ALARM IN	HIGH alarm occurrence		
Selecting function	OFF	Do not use terminals		
	OUTPUT ON	Turn on the output		
	OUTPUT OFF	Turn off the output		
	OUTPUT CTRL	Turn on of off the output		
	L ALARM IN	LOW alarm occurrence		
	ALARM CLR	LOW alarm clearance		
	SEQ RUN	Sequence start/end		
	SEQ PAUSE	Sequence pause/resume		
	SEQ TRIG IN	Input the trigger for sequence		
	ACQUIRE TRIG	Input the measurement trigger		
	MEM1 RECALL	Recall preset memory 1		
	MEM2 RECALL	Recall preset memory 2		
	INTEG CTRL	Starting/stopping integration measurement		
	INTEG RESET	Resetting integration measurement data		
External circuit power supply range		12 V to 24 Vdc (±10 %)		

● External digital output

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
Output points		6 points (Polarity switchable)		
Output form		Semiconductor relay output		
Selecting function	OFF	Do not use terminals		
	OUTPUT ON	Outputting the signal while the output is ON		
	POWER ON	Signal is output when power supply is on and output is possible		
	H ALARM OUT	Output a signal when a HIGH alarm occurs		
	L ALARM OUT	Output a signal when a LOW alarm occurs		
	CC STATUS	Output a signal when operating in the CC mode		
	CV STATUS	Output a signal when operating in the CV mode		
	SEQ STATUS	Output the trigger for sequence		
	SEQ TRIG OUT	Signal is output while the sequence is running		
	EXT DIN BUSY	Output a signal when the digital input is in BUSY status		
	MEM1 ACT TIME	Signal is output when the setting is completed for preset memory 1		
	MEM2 ACT TIME	Signal is output when the setting is completed for preset memory 2		
	RELAY DRIVE	Output a signal after approx. 100 ms in step with on/off of the DC OUTPUT terminal output. You can set this parameter to only Ch.6.		

Panel Explanation



Specifications

● Communication specifications

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
Common specifications	Software protocol	IEEE std. 488.2-1992		
	Command language	Complies with SCPI Specification 1999.0		
RS232C	Hardware	D-SUB 9-pin connector Baud rate: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps Data length: 8 bits, Stop bits: 1 bit, Parity bit: None Flow control: No, CTS-RTS		
	Program message terminator	LF during reception, LF during transmission		
USB (device)	Hardware	Standard type B socket, Complies with the USB 2.0 specifications; data rate: 480 Mbps (high speed)		
	Program message terminator	LF or EOM during reception, LF + EOM during transmission		
	Device class	Complies with the USBTMC-USB488 device class specifications		
USB (host)	Hardware	Standard type A socket, Complies with the USB 2.0 specifications; data rate: 480 Mbps (high speed)		
LAN	Hardware	IEEE 802.3 100BASE-TX or 10BASE-T Ethernet		
	Communication protocol	SCPI-RAW, SCPI-Telnet, HiSLIP, VXI-11		
	Program message terminator	SCPI-RAW: LF during reception, LF during transmission HiSLIP: LF or END during reception, LF + END during transmission		
	Compliant standards	LXI Version 1.5 Specifications 2016		

● Others

Item			PXT20K-500	PXT20K-1000	PXT20K-1500
Synchronization function (clock synchronization)	Overview		SYNC icon is displayed on the display when synchronization is established with the internal clock after connecting with other PXT series using the EXT SYNC connector.		
	Sequence synchronization		Synchronization of the program start and step start		
	Measurement synchronization		Synchronization of the measurement start		
	Output synchronization		Synchronization of output ON/OFF		
Sequence function	Operation mode		CV, CC, and CP modes		
	Maximum number of programs		30		
	Maximum number of steps		10000		
	Step execution time		1 ms to 3600000 s		
	Loop count		1 to 100000, or infinite		
Output-on/off delay function	Setting range		0.0 s to 99.9 s		
	Setting resolution		0.1 s		
Over current protection (OCP) delay function	Setting range		1 ms to 2000 ms		
	Setting resolution		1 ms		
Multichannel (VMCB) function	Connection between the master unit and a PC		LAN, USB, RS232C		
	Connection with slave units		LAN		
Measurement trigger	Measurement start condition (trigger source)		Conditions for starting measurement can be selected (when inputting from display, when inputting commands by remote control, when inputting signals by external control, and when operating in synchronization)		
	Number of measurements		1 to 65536		
	Measurement delay time	Setting range	0 s to 100 s		
		Setting resolution	0.1 ms		
	Measurement interval	Setting range	0.1 ms to 3600 s		
		Setting resolution	0.1 ms		
	Measurement time	Setting range	0.1 ms to 1 s		
		Setting resolution	0.1 ms		
I-V characteristic function	Operation mode		CV/CC mode		
	Number of setup items		3 to 100 items (interpolated between points with straight lines)		
Preset value Memory	Number of memory entries		20		
	Saved setting		Values in CV, CC, and CP modes, protection function values, IR values, bleeder, and output delay setting.		
Setup Memory	Number of memory entries		21		
	Saved setting		On/off of the output from the DC OUTPUT terminal Output voltage value/Output current value/Output power value Output mode Response Slew Rate Priority operation mode (Priority when output is ON) Bleeder Output delay Number of I-V characteristics (Count) Internal resistance value (IR) Over voltage protection (OVP) Under voltage protection (UVP, UVP Enable) Over current protection (OCP, Delay) Over power protection (OPP) Line overvoltage protection (Line OVP) Measurement trigger settings (Source, Count, Delay, Enable, Timer) Integration settings (Gate, Reset)		
Key Lock	Level 1		Output on/off and preset memory recall are available		
	Level 2		Output on/off are available		
	Level 3		Output off is available		
Number of units in parallel operation			Up to 25 units		

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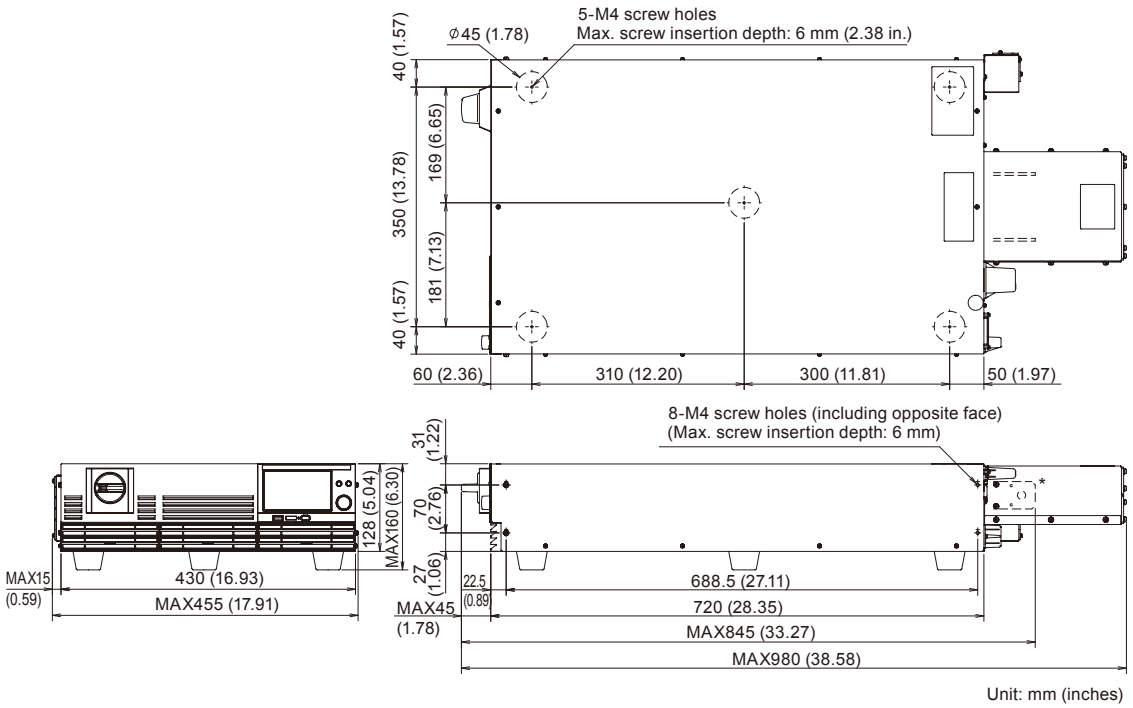
Specifications

● General specifications

Item		PXT20K-500	PXT20K-1000	PXT20K-1500
Weight		Approx. 38 kg (83.78 lbs)	Approx. 38 kg (83.78 lbs)	Approx. 37 kg (81.57 lbs)
Dimensions		430 (16.93)(MAX455 (17.91))W×128 (5.04)(MAX160 (6.30))H×720 (28.35)(MAX980 (38.58))Dmm(mm (inches)) Refer to Outline Drawing		
Environmental conditions	Operating environment	Indoor use, Overvoltage category II		
	Operating temperature	0 °C to +50 °C (32 °F to +122 °F)		
	Operating humidity	20 % rh to 85 % rh (no condensation)		
	Storage temperature	-25 °C to +60 °C (-13 °F to +140 °F)		
	Storage humidity	90 % rh or less (no condensation)		
	Altitude	Up to 2000 m		
Cooling system		Forced air cooling using fan		
Accessories		AC INPUT terminal cover, External control connector kit (1 set), Chassis connection wire, DC OUTPUT terminal cover, DC OUTPUT terminal screws (1 pair), EXT SYNC connector cover, SENSING connector cover, SENSING connector (2 pieces), Synchronized operation signal cable kit, Safety Information (1 copy), China RoHS sheet (1 copy), Getting Started Guide (1 copy), Heavy object warning label (1 piece)		
Withstand voltage	Between input and GND	2200 Vac for 1 minute		
	Between input and output			
	Between output and GND	1800 Vdc for 1 minute	1800 Vdc for 1 minute	3000 Vdc for 1 minute
Insulation resistance	Between input and GND	30 MΩ, 500 Vdc		
	Between input and output	30 MΩ, 1000 Vdc		
Isolation voltage		±1000 V	±1000 V	+2000 V/-1000 V
Electromagnetic compatibility (EMC) *1 *2		Complies with the requirements of the following directive and standards. EMC Directive 2014/30/EU EN 61326-1 (Class A *3)		
Safety *1		Complies with the requirements of the following directive and standards. Low Voltage Directive 2014/35/EU *2 EN 61010-1 (Class I *4, Overvoltage category II, Pollution Degree 2 *5)		

*1. Does not apply to specially ordered or modified products.
*2. Only for models with CE marking / UKCA marking on their body.
*3. This is a Class A instrument. This product is intended for use in an industrial environment. This product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.
*4. This is a Class I instrument. Be sure to ground this product's protective conductor terminal. The safety of this product is guaranteed only when the product is properly grounded.
*5. Pollution is addition of foreign matter (solid, liquid or gaseous) that may produce a reduction of dielectric strength or surface resistivity. Pollution Degree 2 assumes that only non-conductive pollution will occur except for an occasional temporary conductivity caused by condensation.

● Outline drawing *Maximum dimensions include protrusions and accessory covers.



Unit: mm (inches)

* The number of bus bars varies depending on the model.

Ordering Information

● Example of 100 kW system configuration (1500 V)

Product name	Model name	Volume
High-capacity wide-range DC power supply	PXT20K-1500	5
Parallel operation cable	PC01-PXB	4
Rack mount bracket	KRB3-TOS	5

● Example of 200 kW system configuration (1500 V)

Product name	Model name	Volume
High-capacity wide-range DC power supply	PXT20K-1500	10
Parallel operation cable	PC01-PXB	9
Rack mount bracket	KRB3-TOS	10

* Rack for mounting PXT main unit, power cables for 3-phase input, and load cables available separately.
* We can rack up the system and provide as a customer-specific solution. (Sold separately)

Options

● Parallel operation signal cable kit
PC01-PXB (Cable length: 1.5 m)

● Rack mount bracket
KRB3-TOS (EIA inch rack standard)
KRB150-TOS (JIS millimeter rack standard)

● Load cable

Model name	Length	Maximum allowable current	Terminal size	Applicable models
DC80-2P3M-M10M10	3 m	200 A	M10/M10	PXT20K-500
HV22-2P3M-M12M8		80 A	M12/M8	PXT20K-1000, PXT20K-1500

● Three-phase input power cord *The switchboard ends of the power cords have not been prepared for connection.

Model name	Length	Nominal cross-sectional area	Terminal size	Applicable models
AC22-4P3M-M6C-4S	3 m	22 mm^2	M6	All models

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