

SBP200 – Single or 2 Phases / DC input Programmable switching power supply
■ Main Features:







- High efficiency and compact size
- Active PFC
- Wide input voltage range 170...528Vac
- Wide output voltage range 36...205Vdc
- 2 user programmable voltage steps with settable duration
- Digital control
- Remote ON/OFF input
- Multiple protections
- Up to 50°C operating temperature with no derating



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READ THIS CAREFULLY BEFORE INSTALLATION!	VOR DER INSTALLATION BITTE FOLGENDE SICHERHEITSHINWEISE BEACHTEN	LEGGERE ATTENTAMENTE PRIMA DELL'INSTALLAZIONE!	A LIRE ATTENTIVEMENT AVANT L'INSTALLATION!
<p>Before operating, read this document thoroughly and retain it for future reference. Non-respect of these instructions may reduce performances and safety of the devices and cause danger for people and property. The products must be installed, operated, serviced and maintained by qualified personnel in compliance with applicable standards and regulations. Don't open the device, it does not contain replaceable components, the tripping of the internal fuse (if included) is caused by an internal failure. Don't repair or modify the device, if malfunction or failure should occur during operation, send unit to the factory for inspection. TDK-Lambda Switzerland SA assumes no responsibility for any consequences deriving from the use of this material.</p>	<p>Lesen Sie dieses Dokument vor der Inbetriebnahme sorgfältig durch und bewahren Sie es zum späteren Nachschlagen auf. Die Nichtbeachtung dieser Anweisungen kann die Funktion und Sicherheit der Geräte beeinträchtigen und birgt Gefahren für Personen und Eigentum. Die Geräte müssen von qualifiziertem Personal unter Einhaltung der geltenden Normen und Vorschriften installiert, betrieben, gewartet und instand gehalten werden. Öffnen Sie das Gerät nicht, es enthält keine austauschbaren Komponenten, das Auslösen der internen Sicherung (falls vorhanden) ist stets auf tiefergehende Fehler im Schaltkreis zurück zu führen. Reparieren oder modifizieren Sie das Gerät nicht. Sollte während des Betriebs eine Fehlfunktion oder ein Defekt auftreten, schicken Sie das Gerät zur Überprüfung ins Werk. TDK-Lambda Switzerland SA übernimmt keine Haftung für die Folgen, die sich aus dem Einsatz dieses Gerätes ergeben.</p>	<p>Prima dell'installazione, leggere attentamente questo documento istruzioni e conservarle per future consultazioni. L'inosservanza delle presenti istruzioni può compromettere le caratteristiche e la sicurezza dell'apparecchio e causare pericolo per le persone e le cose. Il prodotto deve essere installato, utilizzato e riparato da personale qualificato e nel rispetto delle normative vigenti. Non aprire il prodotto, esso non contiene componenti sostituibili, il guasto del fusibile interno (se previsto) è causato da un guasto interno. Non tentare di riparare o modificare il prodotto, se durante il funzionamento si verificano guasti o anomalie, inviarlo al produttore per il controllo. TDK-Lambda Switzerland SA non si assume nessuna responsabilità per qualunque conseguenza derivante dall'uso di questo materiale.</p>	<p>Lisez ces instructions avant l'installation, conservez ce manuel pour référence future. Défaute de se conformer à ces instructions peut affecter les caractéristiques et la sécurité du dispositif de danger et de causer aux personnes ou aux biens. Les produits doivent être installés, exploités et entretenus par personnel qualifié et en conformité avec les règlements. N'ouvrez pas le produit, il ne contient aucune pièce réparable, le déclenchement du fusible interne (le cas échéant) est causé par un défaut interne. Ne pas essayer de réparer ou modifier le produit ; si des défaillances se produisent pendant le fonctionnement ou les dysfonctionnements, le retourner au fabricant pour inspection. TDK-Lambda Switzerland SA n'assume aucune responsabilité des conséquences éventuelles découlant de l'utilisation des produits.</p>
CAUTION	ACHTUNG	ATTENZIONE	AVVERTISSEMENT
<p>RISK OF BURNS, EXPLOSION, FIRE, ELECTRICAL SHOCK, PERSONAL INJURY. Never carry out work on live parts! Danger of fatal injury! The product's enclosure may be hot, allow time for cooling product before touching it. Do not allow liquids or foreign objects to enter into the products. To avoid sparks, do not connect or disconnect the device before having previously turned-off input power and wait for internal capacitors discharge (minimum 1 minute).</p>	<p>GEFAHR VON VERBRENNUNGEN, EXPLOSIONEN, FEUER, STROMSCHLAG, PERSONENSCHÄDEN. Führen Sie niemals Arbeiten an spannungsführenden Teilen durch! Gefahr von tödlichen Verletzungen! Das Gehäuse des Gerätes kann heiß sein, lassen Sie Zeit zum Abkühlen des Gerätes, bevor Sie es berühren. Lassen Sie keine Flüssigkeiten oder Fremdkörper in die Geräte eindringen. Um Überschläge zu vermeiden, schließen Sie das Gerät nicht an oder trennen Sie es nicht ohne vorher die Eingangsspannung abgeschaltet zu haben, und warten Sie die Entladung der internen Kondensatoren ab (mindestens 1 Minute).</p>	<p>RISCHIO USTIONI, ESPLOSIONE, INCENDIO, SCOSSA, LESIONI GRAVI. Non effettuare mai operazioni sulle parti sotto tensione! Pericolo di lesioni letali! Il contenitore può scottare, lasciar quindi raffreddare il dispositivo prima di toccarlo. Non far entrare liquidi o oggetti estranei nel dispositivo. Per evitare scintille, non collegare o scollegare l'apparecchiatura prima di avere tolto tensione di ingresso e prima che sia avvenuta la scarica dei condensatori interni (min. 1 minuto).</p>	<p>RISQUE DE BRULURES, EXPLOSION, INCENDIE, ELECTROCUTION, DOMMAGE AUX PERSONNES. Ne jamais effectuer des opérations sur les parties sous tension! Danger de mort! Le récipient peut produire des brulures, le laisser refroidir avant de toucher l'appareil. Ne faites pas pénétrer des liquides ou des corps étrangers dans l'appareil. Pour éviter des étincelles, ne pas connecter ou déconnecter l'équipement jusqu'à ce que vous avez supprimé la tension d'entrée et avant qu'elle n'ait lieu de décharge des condensateurs internes (minimum 1 minute).</p>

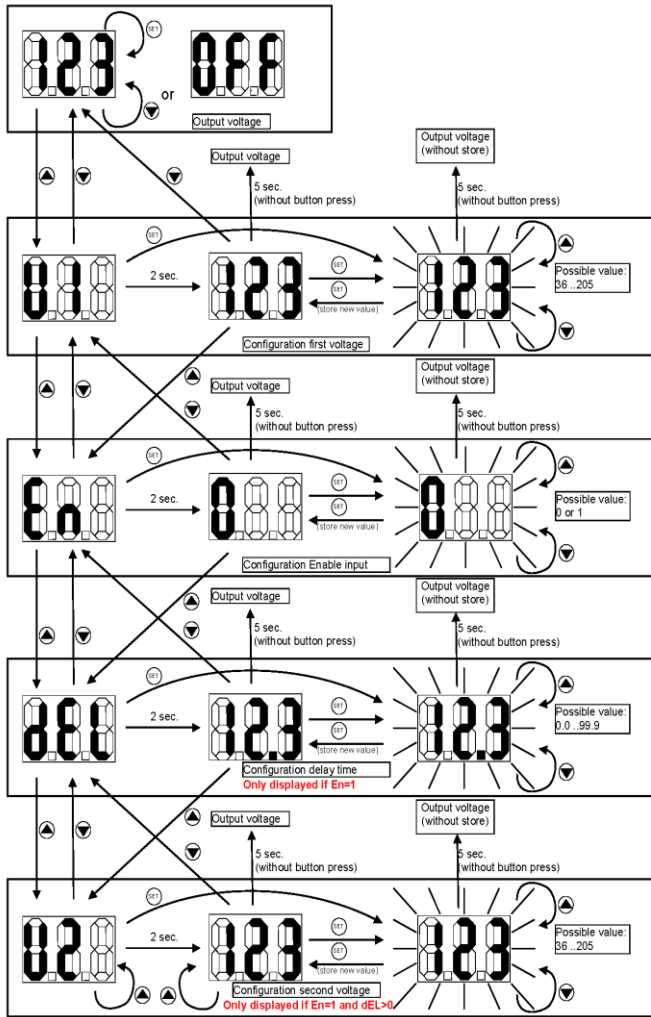
DECLARATION OF CONFORMITY

		<p>TDK-LAMBDA SWITZERLAND SA Via Luserte Sud 6, 6572 Quartino - Switzerland Phone: +41-(0)91 840 14 46 / 840 14 48; Fax: +41-(0)91 840 14 47 E-mail: TLN.info@tdk.com</p>			
<p>This Declaration of Conformity is suitable to the European Standard EN45014 "General criteria for supplier's declaration of conformity". We declare under our sole responsibility that the device included in this box, has passed all processing inspections and the final test and it is in conformity with the product requirements, including all reference codes and supply specifications.</p>					
<p>ROHS compliance: the product respects the EC requirements related to ROHS substances, according to "Restriction of Hazardous Substances" as per document 2011/65/UE REACH compliance: the product respects the EC requirements related to REACH SVHC directive (EC) 1907/2006 Note: all the reported information comes from our suppliers, TDK-LAMBDA SWITZERLAND SA has not run any test to evaluate if the specific elements are present.</p>					
<p>All indicated devices are designed according to the latest Reference standards, if not expressly indicated through the official documents or files, they have been tested through our internal pre-compliance testing. Consult directly on www.nextys.com the reference standards applied to each model.</p>					
Code	Description				
SBP200	Single or 2 Phases Programmable switching power supply IN 200 - 500Vac (250 - 725Vdc) / OUT 36...205Vdc - 2.3A Max (187W Max)				
Certifications and approvals					
Reference standards	<p>2014/35/EU (Low Voltage Directive) 2014/30/EU (EMC directive) EN60950-1 (Safety Standards – Certified - File No. 83534 – (Nemko file number 265099)) EN61010-1 (Safety Standard) EN61010-2-201 (Safety Standard) UL508 (Safety Standard) EN61000-6-2 (Generic immunity standard for industrial environments) - EN61000-4-2 (Electrostatic discharge immunity test) - EN61000-4-3 (Radiated, radio-frequency, electromagnetic field immunity test) - EN61000-4-4 (Electrical fast transient/burst immunity test) - EN61000-4-5 (Surge immunity test) - EN61000-4-11 (Voltage dips, short interruptions and voltage immunity test) EN61000-6-3 (Generic emission standard for residential environments) - EN55011 (CISPR11 - EMC) - EN61000-3-2 (Limits for harmonics current emissions)</p>				

USER INSTRUCTIONS

<p>1) Description: DIN rail mountable primary switched-mode power supply with 170...528Vac input, suitable for Single or 2 Phases main line.</p> <p>2) Installation: use DIN-rails according to EN60715. Installation should be made vertically (see Fig.4). For better device stability fix the rail to the wall close to the point where the device is to be mounted. In order to guarantee sufficient convection, we recommend observing a minimum distance to other modules (see Fig.3). Be sure to check that the mounting DIN rail is properly connected to earth (PE) before mounting the device WARNING: Do not insert/ remove any wire if the device is not fixed to the DIN rail. The device is provided with a thermal protection; a limited air flow can cause the thermal protection tripping. The SMPS automatically restarts after cooling. To get normal operation reduce the temperature of the air surrounding the power supply, increase the ventilation or reduce the load (see Fig.8)</p> <p>3) Connections: the device is equipped with pluggable screw terminals. To avoid sparks, do not connect or disconnect the connectors before having previously turned-off input power and waited for internal capacitors discharge (minimum 1 minute) In order to comply with UL certification, use appropriate copper cables of indicated cross section, designed for an operating temperatures of: 60°C for ambient up to 45°C 75°C for ambient up to 60°C 90°C for ambient up to 70°C Strip the connecting ends of the wires according to the indication and ensure that all strands of a stranded wire enter the terminal connection (see Fig.5)</p> <p>4) Input protection: the device input is provided with varistors against overvoltage. Input isn't provided with internal fuses, thus an external short circuit/overcurrent protection must be provided by the end user (see Fig.6). For operation on a single-phase or 2 phases system, a protection fuse on each phases must be provided. Surge protection: it is strongly recommended to provide external surge arresters (SPD) according to local regulations.</p> <p>5) AC input connection: the device can be connected to single-phase AC lines with U_{in} 230Vac and 2 Phases line with U_{in} 200...500Vac (see Fig.7). Please connect first the PE.</p> <p>6) DC input connection: connect L1 terminal to (+) positive pole, N terminal to (-) negative pole and \ominus terminal to GND. Rated voltage 250...725Vdc. The device is also suitable for photovoltaic or wind turbine applications (see Fig.7).</p> <p>7) Enable input connection: the device can be connected to AC lines or DC lines to provide an enable signal. With DC lines please be sure to respect the polarity. Rated voltage 12...230Vac/Vdc. The ENABLE line should be provided with a fuse type T, rated 250V/100mA. The ENABLE signal allows the output voltage to be switched ON or OFF. The ENABLE signal operating modes can be configured in the configuration menu. When the ENABLE function is not active the output is continuously ON. The ENABLE signal can also be used to change (normally a reduction) the output voltage after a defined time (used for an "over excitation" of a brake solenoid). In the configuration menu a delay time and a second voltage must be configured to use this function..</p> <p>8) Output connection: The device is suitable for SELV and PELV circuitry (having U_{out} higher than 60Vdc is not a SELV source). U_{out} can be adjusted through a dedicated menu through the push buttons "SET", "↑", "↓" (see Fig.8). The voltage present at the unit output is shown on the display. Check U_{out} before connecting the power supply to the load! With output voltage $> 80V_{dc}$, the continuous current must not exceed the nominal power (187W).</p> <p>9) Output protection the device is protected against overload (OL) / short circuit / Input Undervoltage (- - -) / overtemperature (OT). Protection codes are shown on the display when the protection condition is triggered.</p> <ul style="list-style-type: none"> • (OL) Overload protection: if the output power ($U_{out} \cdot I_{out}$) is greater that the nominal output power (187W) for more than 3sec the output is switched off and "OL" is shown on the display. • (OT) Overtemperature protection: turns off the device if the internal temperature exceeds a safe limit. (see Fig.8). • (- - -) Undervoltage protection: turns off the device if the input voltage is $< 160V_{ac}$. It automatically reset when the input voltage comes back to nominal values. This code (" - - ") on the display can also indicate an internal failure. • (OL & OT) protections: No auto-recovery, recovery by primary shutdown or retrigger of enable input. <p>Behaviour in overload conditions: the output current is limited to 2.4A and the output power is limited to 187W.. (constant current / power limitation). If the OL persists for $> 3s$, the unit is turned OFF and the OL alarm is displayed. Enable: remote ON/OFF input. Enable = 0: every time that is displayed an error the device turns OFF the output. To reset the error you should turn OFF the device and after 10s turn it ON. Enable = 1: every time that is displayed an error the device turns OFF the output. To reset the error you should apply a voltage (12...230Vac/Vdc) between the Enable connector. If after both procedures the same error is displayed check the unit and/or the external conditions.</p>

Configuration Menu and Display Mode



Set-up push button

To move inside the Set-up menus use the:
UP, Down and SET button.



UP: Scroll up menus and values
DOWN: Scroll down menus and values
SET: Confirms selection Stored new value

Settable Parameters

U1: Configuration first output voltage Settable 36...205Vdc

En: Configuration Enable input

En = 0: Input Enable is disable, the output voltage it is the one set in Step U1

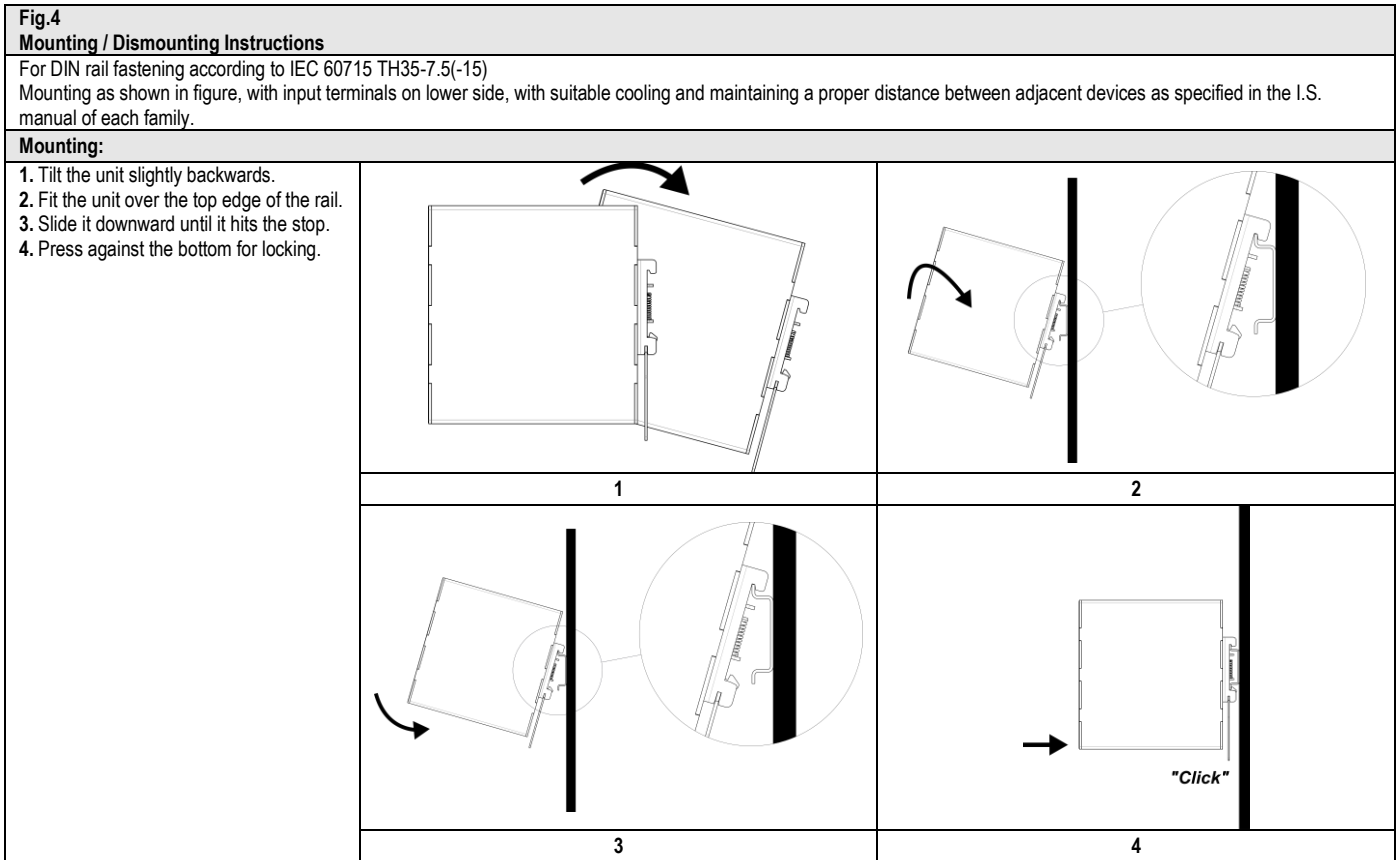
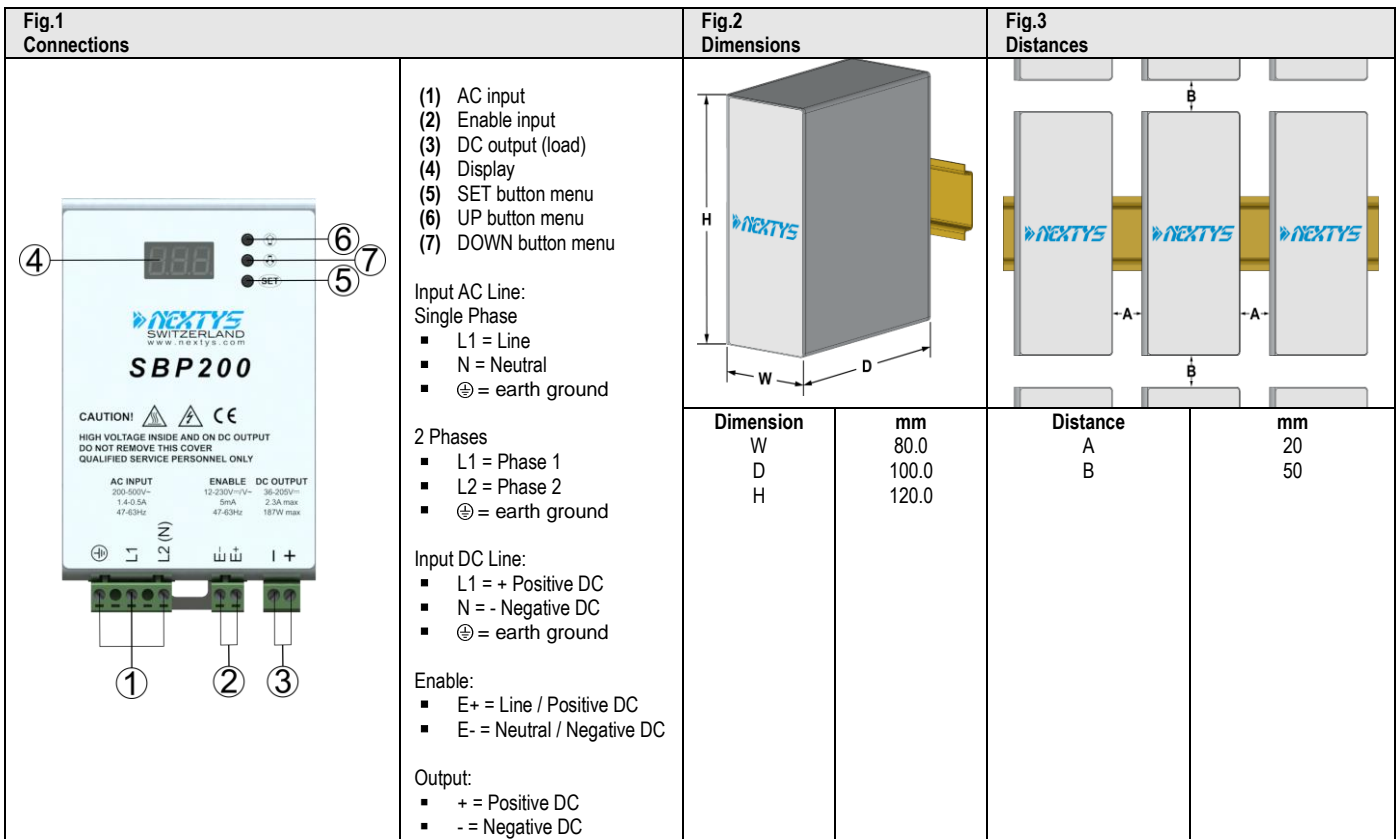
En = 1: Input Enable is enabled, in order to active the unit must provide an AC/DC voltage on the Enable connector see Point 6 on Instructions. In this case you can set the Delay (DEL) and Second output voltage (U2).
As default setting are DEL=0.0sec and U2=U1

dEL: Configuration Delay Time Settable 0.0...99.9s

U2: Configuration second output voltage Settable 36...205Vdc

Errors Displayed

	"OFF": Output inactive "En" Enable is active (En=1) and the enable input is not active
	"OL": Output switched off because the Output voltage below 30Vdc \geq 3sec. No auto-recovery, recovery by primary shutdown or retrigger of enable input.
	"OP": Output switched off because of over temperature No auto-recovery, recovery by primary shutdown or retrigger of enable input.
	"... '": Output (power supply) switched off because of a general failure or input voltage is < 160Vac.



Dismounting:		
<ol style="list-style-type: none"> 1. Pull down the slide clamp lever 2. Tilt the unit upward 3. Unhook the unit from the rail 	<p>1 & 2</p>	<p>3</p>

Fig.5 Recommended connecting cable			
	Recommended Tightening torque 0.5-0.6Nm 4.42-5.30 lbf in		Solid: 2.5mm ² / 12AWG Stranded: 1.5mm ² / 12AWG L: 6.0-7.5mm / 0.24-0.30in

Fig.6 Input protection	
Fuses MCB 6A C curve or 4A D curve For USA and Canada, use the fuse type closest to the European equivalent type.	
Surge protection: it is strongly recommended to provide external surge arresters (SPD) according to local regulations.	

Fig.7 Input connections			
AC Line (mono phase)		AC Line (2 phases)	
DC Line			

Fig.8 Environment	
Operating temperature	Derating
- 40°C...70°C 5...95% r.H. non condensing Overtemperature protection	- 4.2W/°C over 50°C Do not exceed Uout x Iout= 100W Max at 70°C

Note:
<ul style="list-style-type: none"> ▪ Data may change without prior notice in order to improve the product. ▪ Please refer to the latest version of the "Instruction Manual" for each product by visiting www.nextys.com

See also the products below that can be used in conjunction with SBP200 units:		<i>(accessory device)</i>
▪ OR20	20A Active ORing controller	
▪ OR50	50A Active ORing controller	
▪ BU150U	150J Buffer Module	
▪ MBC2K	2000W Motor brake controller	