

**BU150U – Universal Input Range, 150J Buffer Module**

■ **Main Features:**






- Wide voltage range 12...85Vdc
- Compact size
- DC BUS voltage self tracking
- Boost Max peak power of DC supply
- Multiple protections
- Digital regulation
- Reliable topology, based on standard electrolytic capacitors
- > 150Joules energy storage
- Integrates low power step-up (boost) converter to charge the capacitor bank
- Integrates 20A step-down (buck) converter to discharge the capacitor bank at an adjustable output voltage in case of mains failure
- Relays dry contact and an opto-isolated input for inhibit.
- Integrated safety circuit that disconnects the capacitor bank in case of internal failure.
- Parallelable for power and backup time increase.



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READ THIS CAREFULLY BEFORE INSTALLATION!	LEGGERE ATTENTAMENTE PRIMA DELL'INSTALLAZIONE!	A LIRE ATTENTIVEMENT AVANT L'INSTALLATION!
<p>Before operating, read this document thoroughly and retain it for future reference.</p> <p>Non-respect of these instructions may reduce performances and safety of the devices and cause danger for people and property.</p> <p>The products must be installed, operated, serviced and maintained by qualified personnel in compliance with applicable standards and regulations.</p> <p>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.</p> <p>Don't repair or modify the device, if malfunction or failure should occur during operation, send unit to the factory for inspection. No responsibility is assumed by Nextys SA for any consequences deriving from the use of this material.</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.</p> <p>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.</p> <p>Nextys 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.</p> <p>Défaut 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.</p> <p>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. Nextys SA n'assume aucune responsabilité des conséquences éventuelles découlant de l'utilisation des produits.</p>
CAUTION	ATTENZIONE	AVVERTISSEMENT
<p><b>RISK OF BURNS, EXPLOSION, FIRE, ELECTRICAL SHOCK, PERSONAL INJURY.</b></p> <p>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.</p> <p>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><b>Radio interference!</b> This is an electrical appliance according to EN55032, class A. It may cause radio interference in residential areas.</p>	<p><b>RISCHIO USTIONI, ESPLOSIONE, INCENDIO, SCOSSA, LESIONI GRAVI.</b></p> <p>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.</p> <p>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><b>Interferenza radio!</b> Questo apparecchio è un dispositivo di classe A secondo lo standard EN55032. Può causare interferenze radio nelle aree residenziali.</p>	<p><b>RISQUE DE BRULURES, EXPLOSION, INCENDIE, ELECTROCUTION, DOMMAGE AUX PERSONNES.</b></p> <p>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> <p><b>Perturbations radioélectriques!</b> Cet appareil est un dispositif de catégorie A selon le standard EN55032. Il peut causer des perturbations radioélectriques dans les zones résidentielles.</p>

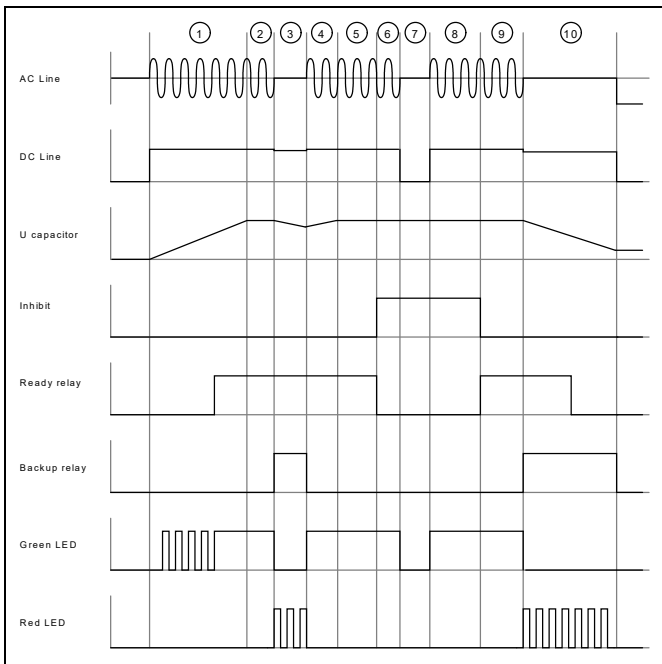
## DECLARATION OF CONFORMITY

		<p><b>NEXTYS SA.</b> 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: info@nextys.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><b>ROHS compliance:</b> the product respects the EC requirements related to ROHS substances, according to "Restriction of Hazardous Substances" as per document 2011/65/UE <b>REACH compliance:</b> the product respects the EC requirements related to REACH SVHC directive (2015) <b>Note:</b> all the reported information comes from our suppliers, NEXTYS 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>					
<b>Code</b>	<b>Description</b>				
BU150U	Universal Input Range, 150J Buffer Module				
<b>Certifications and approvals</b>					
<b>Reference standards</b>	2014/35/EU (2014) 2014/30/EU (2014) EN61010-1 EN61010-2-201 UL508 EN61000-6-2 - EN61000-4-2 - EN61000-4-3 - EN61000-4-4 - EN61000-4-5 - EN61000-4-11 EN61000-6-4 - EN55022 - EN55011	(Low Voltage Directive) (EMC directive) (Safety Standard) (Safety Standard) (Certified - IND. CONT. EQ. 4WX9 file no. E356563) (Generic immunity standard for industrial environments) (Electrostatic discharge immunity test) (Radiated, radio-frequency, electromagnetic field immunity test) (Electrical fast transient/burst immunity test) (Surge immunity test) (Voltage dips, short interruptions and voltage immunity test) (Generic emission standard for industrial environments) (CISPR22 - EMC) (CISPR11 - EMC)			

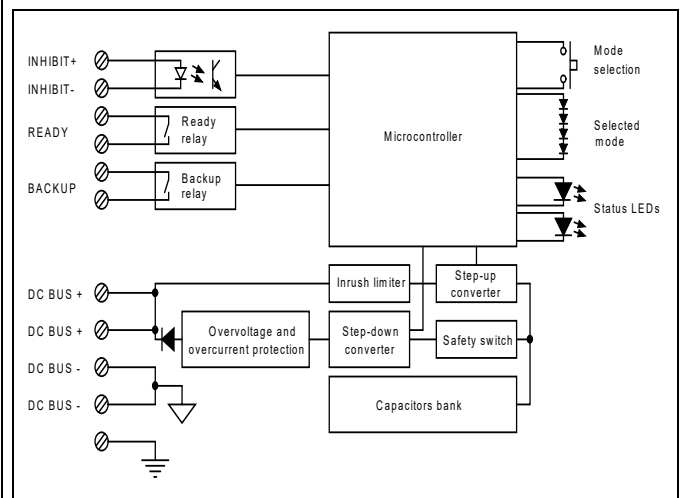
**USER INSTRUCTIONS**

- The operating waveforms show the normal operation of the BU150U. On the waveform the start-up and old-up time of the power supply is ignored.
- At start-up the units charges the internal capacitor bank up to the maximum voltage. During charging the green LED blinks at 2Hz. Once the capacitors are charged at ½ of their maximal capacity, the green LED goes green and the ready relay activates.
  - The capacitors are fully charged and the unit is ready for buffering.
  - On the first AC power failure the system uses the energy stored on the capacitors to keep the DC line regulated. A small voltage drop is visible on the DC line during buffering; this drop is the forward voltage of the diode placed after the step-down converter. During buffering the backup relay activates and the red LED blinks at 2Hz.
  - When the AC line returns the unit recharges the capacitor up to the maximum voltage.
  - The capacitors are fully charged and the unit is ready for buffering.
  - The inhibit input is activated; the ready relay is deactivated to notify.
  - On the AC power loss the unit doesn't buffer the DC line because the inhibit input is activated. The unit powers off.
  - When the AC line returns the BU150U turns on. The green LED turns on because the capacitors are already charged.
  - The inhibit input is deactivated. The relay ready signal becomes active and the unit is ready for buffering.
  - On AC power loss the unit uses the energy stored on the capacitors to keep the DC line regulated eventually until full discharge.

**Operating Wave forms**



**Block Diagram**



**INSTALLATION**

The BU150U is placed in parallel with the DC line to protect see Fig.7 to increase the power and backup time it is allowed to place more than one unit in parallel. Depending on the application the unit can be configured on 5 different operation modes. The current setting is shown on the 4 mode LEDs present on the front side. The mode selects the voltage range of buffering with the voltages shown on the table below.

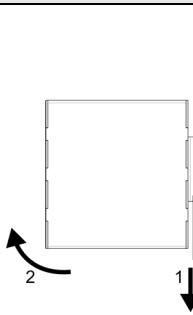
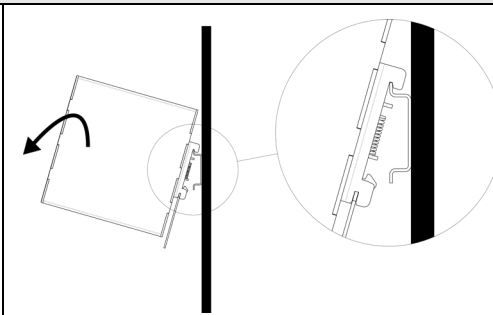
The following procedure is used to change mode:

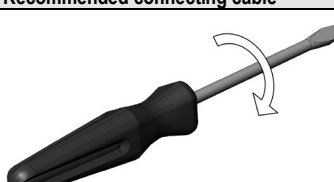
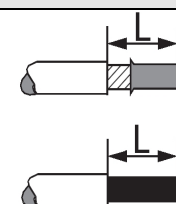
- Hold the button pressed for more than 3s until the current mode LED start blinking at 2Hz and then release the button.
- Click the button until the LED start blinking on the desired mode.
- Hold the button pressed for more than 3s until the mode LED stop blinking and then release the button.

	12V	24V	48V	72V	Umin	Umax
	●	○	○	○	11V	16V
	○	●	○	○	21V	29V
	○	○	●	○	39V	57V
	○	○	○	●	65V	85V
	●	●	●	●	11V	85V

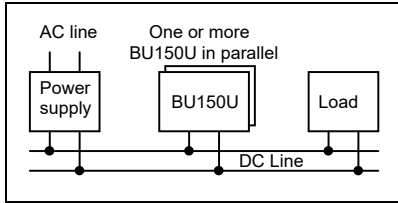
Fig.1 Connections	Fig.2 Dimensions	Fig.3 Distances															
<p>(1) DC BUS Connection                  (2) Mode switch button                  (3) Mode LEDs                  (4) Status LEDs                  (5) Inhibit                  (6) Backup Dry contact                  (7) Ready Dry contact</p> <p>Input/Output DC BUS:</p> <ul style="list-style-type: none"> <li>DC BUS + = connect to positive DC BUS</li> <li>DC BUS - = connect to negative DC BUS</li> </ul>	<table border="1" data-bbox="762 667 922 902"> <thead> <tr> <th>Dimension</th> <th>mm</th> </tr> </thead> <tbody> <tr> <td>W</td> <td>63.0</td> </tr> <tr> <td>D</td> <td>117.0</td> </tr> <tr> <td>H</td> <td>140.0</td> </tr> </tbody> </table>	Dimension	mm	W	63.0	D	117.0	H	140.0	<table border="1" data-bbox="1082 667 1289 902"> <thead> <tr> <th>Distance</th> <th>mm</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>20</td> </tr> <tr> <td>B</td> <td>20</td> </tr> </tbody> </table>		Distance	mm	A	20	B	20
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Fig.4 Mounting / Dismounting Instructions	
For DIN rail fastening according to IEC 60715 TH35-7.5(-15) Mounting as shown in figure, with input terminals on lower side, with suitable cooling and maintaining a proper distance between adjacent devices as specified in the I.S. manual of each family.	
<b>Mounting:</b>	
<ol style="list-style-type: none"> <li>1. Tilt the unit slightly backwards.</li> <li>2. Fit the unit over the top edge of the rail.</li> <li>3. Slide it downward until it hits the stop.</li> <li>4. Press against the bottom for locking.</li> </ol>	

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

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

<b>Fig.6</b>	
<b>Connections and user interface</b>	
<ul style="list-style-type: none"> <li>• <b>DC bus:</b> wired in parallel with the DC line to protect</li> <li>• <b>Mode switch button:</b> used to select the operating voltage range /mode of the BU150U. Selects between 12V, 24V, 48V, 72V or automatic detect 12V to 72V, by sequential press of the key.</li> <li>• <b>Mode LEDs:</b> shows the current operating voltage range of the BU150U. All LEDs lit mean the unit is in automatic voltage detect mode.</li> <li>• <b>Status LED:</b> bicolour LED (green-red) showing the current status of the unit.</li> <li>• <b>Blinking green:</b> capacitors are charging.</li> <li>• <b>Static green:</b> capacitors are charged and the system is ready for buffering.</li> <li>• <b>Blinking red:</b> unit is buffering.</li> <li>• <b>Inhibit:</b> opto-coupled input used to disable the buffering function.</li> <li>• <b>Backup relay:</b> dry contact closed while the device is buffering.</li> <li>• <b>Ready relay:</b> dry contact closed when the internal capacitors are charged at ½ of their maximal energy and the inhibit input is inactive.</li> </ul>	

<b>Fig.7</b>	
<b>Input / Output connections</b>	
<b>Wiring</b>	
	

<b>Fig.8</b>	
<b>Environment</b>	
<b>Operating temperature</b> - 40°C...70°C 5...95% r.H. non condensing UL Certified up to 70°C	<b>Derating</b>  No derating

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

<b>See also the products below that can be used in conjunction with BU150U units:</b> <ul style="list-style-type: none"> <li>▪ This device can be used in conjunction with every each our power supply that is able to provide an regulated Uout included between 12...85Vdc</li> </ul>
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