

NDD120 Series and NDD240-11024 – DIN Rail DC/DC converter

■ Main Features:

- High efficiency and compact size
- Isolated topology
- Wide Input voltage range
- Overload 125%
- Up to 50°C operating temperature with no derating



■ Main Features:





- High efficiency and compact size
- Wide Input voltage range
- Isolated topology
- Overload 150%
- Up to 45°C operating temperature with no derating



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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. 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. 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. 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. 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. 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. 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	AVERTISSEMENT
<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>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>NEXTYS 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: 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>ROHS compliance: the product respects the EC requirements related to ROHS substances, according to "Restriction of Hazardous Substances" as per document 2011/65/EU REACH compliance: the product respects the EC requirements related to REACH SVHC directive (2015) Note: 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>			
Code	Description		
NDD120-1212	DC/DC converter IN 10.5...18Vdc / OUT 12...15Vdc – 7.0A		
NDD120-1224	DC/DC converter IN 10.5...18Vdc / OUT 24Vdc – 5.0A		
NDD120-1248	DC/DC converter IN 10.5...18Vdc / OUT 48Vdc – 2.5A		
NDD120-2412	DC/DC converter IN 18...36Vdc / OUT 12...15Vdc – 7.0A		
NDD120-2424	DC/DC converter IN 18...36Vdc / OUT 24Vdc – 5.0A		
NDD120-4812	DC/DC converter IN 36...72Vdc / OUT 12...15Vdc – 8.0A		
NDD120-4824	DC/DC converter IN 36...72Vdc / OUT 24Vdc – 5.0A		
NDD240-11024	DC/DC converter IN 90...148Vdc / OUT 24Vdc – 10.0A		
Certifications and approvals			
Reference standards	<p>2014/35/EU (2014) 2014/30/EU (2014) EN60950-1:2006 /A2:2013 UL508 EN61000-6-2:2005 - EN61000-4-2:2008 - EN61000-4-3:2006 /A2:2010 - EN61000-4-4:2012 - EN61000-4-5:2014 - EN61000-4-11:2004 /A1:2010 EN61000-6-3:2007 /A1:2011 - EN55022:2010 - EN55011:2009 /A1:2010</p>	<p>(Low Voltage Directive) (EMC directive) (Safety Standards) (Safety Standards) (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 residential environments) (CISPR22 - EMC) (CISPR11 - EMC)</p>	

Date: 25.02.2016

Place: Quartino, Switzerland

The product manager



Marius Ciorica

USER INSTRUCTIONS											
<p>1) Description: the DC/DC converters can be supplied with 12Vdc, 24Vdc, 48Vdc or 110Vdc depending on the model (see data sheets to see for each model the rated input voltage and range). In order to get the highest efficiency and the lowest power loss these converter have no input polarity protection. To prevent damage in case of reverse polarity, the device is protected by an internal replaceable fuse. The internal fuse is can not user replaceable. These DC/DC converter can be used in SELV and PELV circuits.</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). 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: all the devices are equipped with internal fuse, ratings of DC line protection devices must be coordinated with input current indicated on the data sheet for each model (see Fig.6). If input voltage is provided by batteries, when the voltage is at minimum level, with constant load, the input current reaches max value.</p>											
<p>5) DC input connection: connect L terminal to (+) positive pole, N terminal to (-) negative pole and I terminal to GND. Rated voltage 110...345Vdc. The device is also suitable for photovoltaic or wind turbine applications (see Fig.7).</p>											
<p>6) Overload (OL) / short circuit (SC) / overtemperature (OTP) protections: Hiccup auto-reset and over temperature protection. OL exceeding the limits indicated on the data sheet for each model, if applied to the device makes the output operate an on/off duty-cycle variable depending on OL value, air temperature and device temperature. Overload behaviour: Up to the overload limit (Ilim) there is no reduction of the output voltage. For currents &gt;In but &lt;Ilim the device operates continuously up to the intervention of the thermal protection. Short circuit behaviour: if Iout&gt;Ilim the device enters into hiccup mode protecting the output and the connected load. Output overvoltage protection: the output is protected against external overvoltage applied to the DC line and exceeding Unom x 1.4. In case of an internal failure, a double protection circuit switch off the output and avoid output voltage higher than 30% potentially dangerous for the supplied devices.</p>											
<p>7) Status Signals:</p> <table border="1"> <tbody> <tr> <td>a)</td> <td>"DC OK" green LED:</td> <td>on = all function and IN/OUT parameter are OK, Uout of the threshold voltage (see data sheet). off = direct short circuit on a low resistance line, Input voltage not present, OVT shut down or device internal failure.</td> </tr> <tr> <td>b)</td> <td>"OVERLOAD" red LED: NDD120-4812 NDD240-112024</td> <td>on = on with Iout &gt; In +10%. In case of OL (Iout &gt; 1.5In) the device enters on to hiccup mode.</td> </tr> <tr> <td>c)</td> <td>"DC OK" alarm contact: NDD120-4812 NDD240-112024</td> <td>Contact closes when the SMPS is turned-on and remains closed with Uout minimum voltage threshold (see table). The behaviour of the contact operation, follows the LED "DC OK"</td> </tr> </tbody> </table>			a)	"DC OK" green LED:	on = all function and IN/OUT parameter are OK, Uout of the threshold voltage (see data sheet). off = direct short circuit on a low resistance line, Input voltage not present, OVT shut down or device internal failure.	b)	"OVERLOAD" red LED: NDD120-4812 NDD240-112024	on = on with Iout > In +10%. In case of OL (Iout > 1.5In) the device enters on to hiccup mode.	c)	"DC OK" alarm contact: NDD120-4812 NDD240-112024	Contact closes when the SMPS is turned-on and remains closed with Uout minimum voltage threshold (see table). The behaviour of the contact operation, follows the LED "DC OK"
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<p>8) Output voltage adjustment: adjustable with trimmer on front panel. If output voltage is set &gt; Unom the maximum output current should not exceed Uout x Iout = Pnom.</p>											
<p>9) Redundant and parallel connection: For redundant connection, an external isolating diode must be used. Use only devices of the same model. Uout must be set uniformly (±100mV) on each power supply and the wiring must be symmetrical to ensure an equal current distribution. NDD240-11024 model is equipped with ORing output decoupling diode for direct redundant connection. For redundant connection, use an external isolating device must be used (see accessory device).</p>											
<p>10) Feeding DC motors: it is possible to feed DC motors considering that when a motor starts-up under effort its consumption is much higher than the nominal current and it can trigger overcurrent protection (see accessory device). NOTE: motors can generate high conducted noise on the DC line. Therefore it is not recommended to feed on the same line motors and equipment sensitive to noise.</p>											
<p>11) Operation with Battery: when a battery is connected in parallel to the Output for backup purposes (see accessory device).</p>											

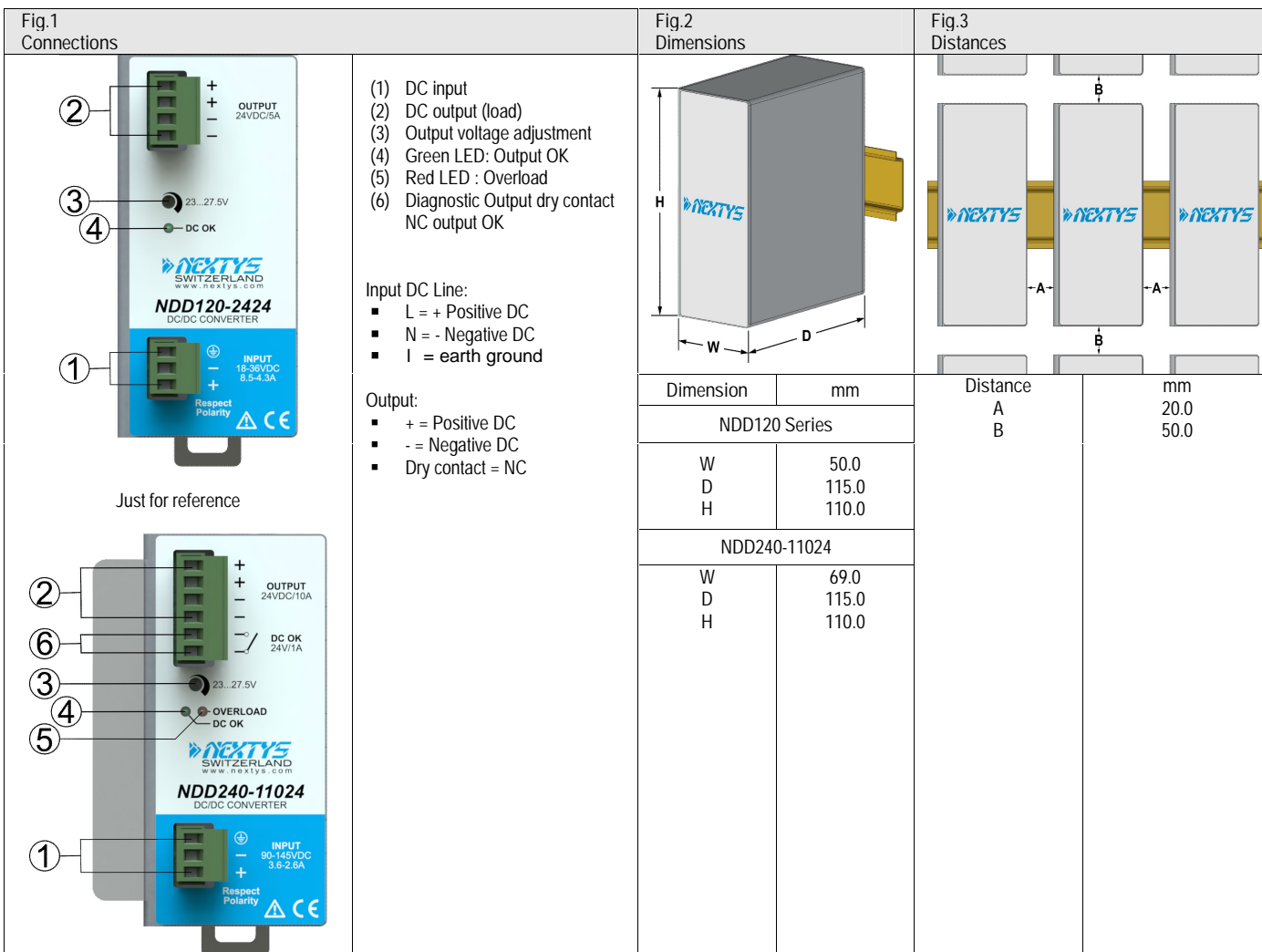
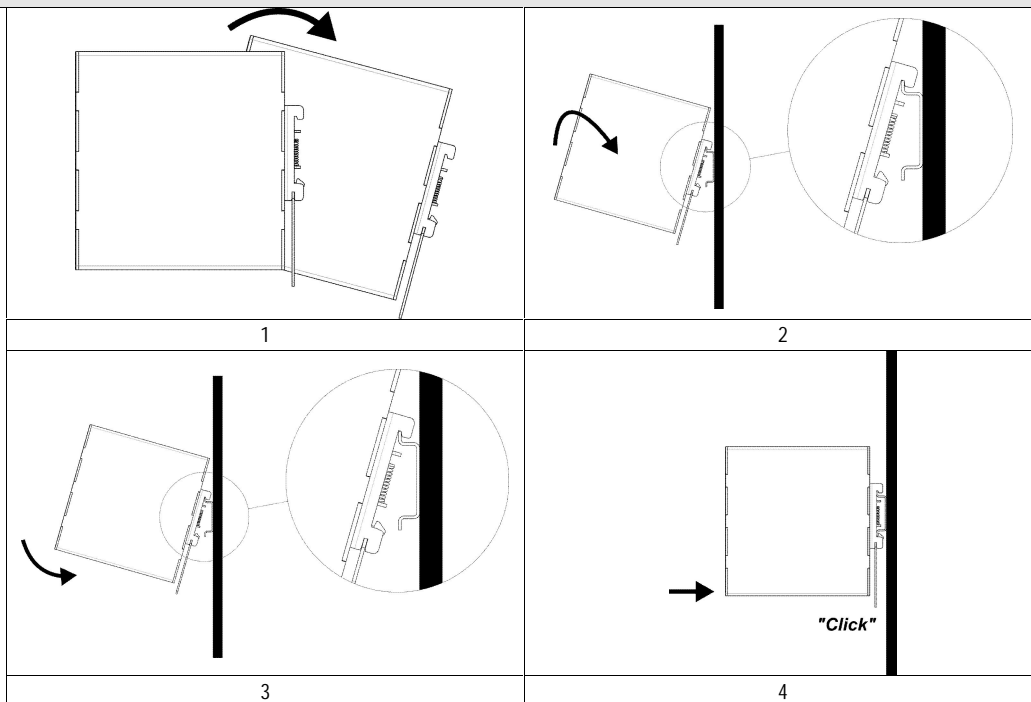


Fig.4  
Mounting / Dismounting Instructions

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.

Mounting:

1. Tilt the unit slightly backwards.
2. Fit the unit over the top edge of the rail.
3. Slide it downward until it hits the stop.
4. Press against the bottom for locking.



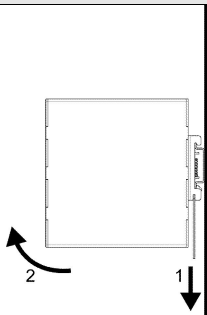
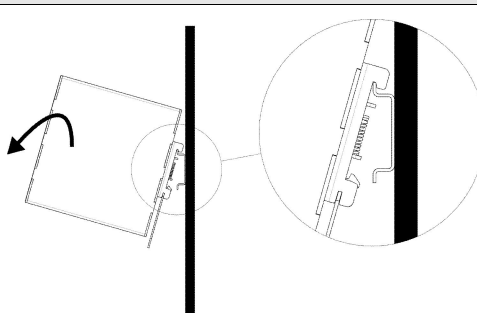
Dismounting:		
1. Pull down the slide clamp lever 2. Tilt the unit upward 3. Unhook the unit from the rail	 <p>1 &amp; 2</p>	 <p>3</p>

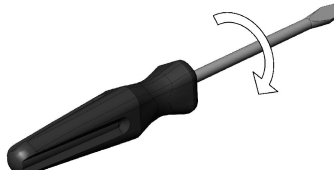
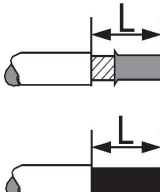
Fig.5 Recommended connecting cable			
	Recommended Tightening torque 0.5-0.6 Nm 4.42-5.30 lbf in		Solid: 2.5mm <sup>2</sup> / 12AWG Stranded: 1.5mm <sup>2</sup> / 12AWG L: 6.0-7.5mm / 0.24-0.30 in

Fig.6 Input protection		
Model	Internal Fuse (not user replaceable)	External recommended Fuse
NDD120-1212	20AT/250Vac 5x20mm	25A C curve
NDD120-1224	20AT/250Vac 5x20mm	25A C curve
NDD120-1248	20AT/250Vac 5x20mm	25A C curve
NDD120-2412	20AT/250Vac 5x20mm	13A C curve
NDD120-2424	20AT/250Vac 5x20mm	13A C curve
NDD120-4812	5AT/250Vac 5x20mm	6A C curve
NDD120-4824	5AT/250Vac 5x20mm	6A C curve
NDD240-11024	5AT/250Vac 5x20mm	6A C curve

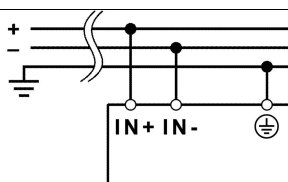
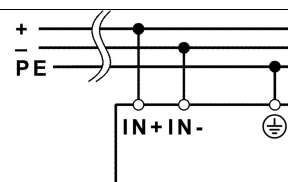
Fig.7 Input connections	
DC Line	
	

Fig.8 Environment	
Operating temperature	Derating
- 40°C...70°C	- 3.0W/°C over 50°C for NDD120 Series
5...95% r.H. non condensing	- 4.0W/°C over 45°C for NDD240-11024
Overtemperature protection	

Note:
<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>

See also the products below that can be used in conjunction with NDD120 series and NDD240-11024 units:	(accessory device)
▪ OR20	20A Active ORing controller
▪ OR50	50A Active ORing controller
▪ DCU20	20A High performance DC UPS
▪ BU150U	150J Buffer Module
▪ NUPS12/24	Battery charger and DC UPS Module
▪ MBC2K	2000W Motor brake controller
▪ NBP30	Sealed Lead acid Battery pack