NXG-320-CPU Smart Power Supply Installation Sheet

EN

EN: Installation Sheet

Product Summary

The NXG-320-CPU is the remote smart power supply module for the xGen control panel range. It has two auxiliary power outputs (2x 500mA) and an RS-485 bus power output (500mA). The NXG-320-CPU also offers two programmable inputs and two programmable SPDT relay outputs. The module has a tamper connector that can be used to supervise the enclosure in which it is mounted. Both the mains power supply and the battery(ies) are monitored.

The NX-320-CPU module allows to extend the RS-485 bus length (up to 800m). The extended RS-485 bus is optically isolated.

Up to 8x NXG-320-CPU smart power supplies can be used per xGen system.
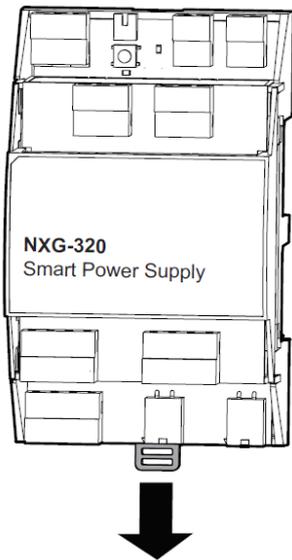
Included Accessories

- 1x Wire jumper to short the tamper input
- 4x 3K3 EOL resistors for zone inputs
- 2x Battery cables
- 4x Jumper headers for termination and relays
- This installation manual
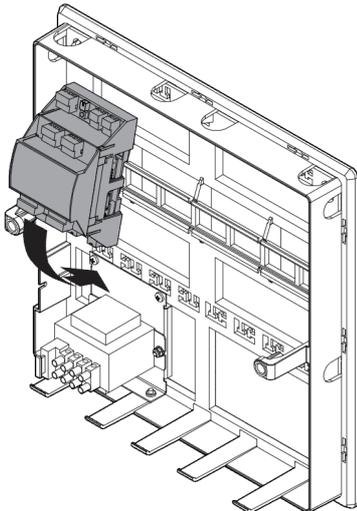
Install the Module
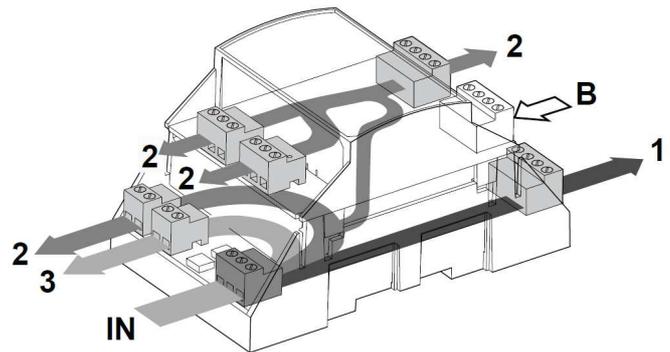
1.
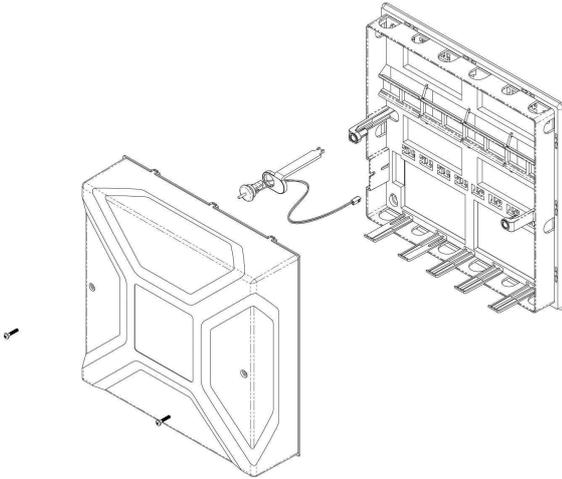
2.

3.

4.

5.   Install box tamper

6.   Connect box tamper to tamper input on smart power supply

Power Outputs

The smart power supply has two auxiliary power outputs (2x 500mA) and an RS-485 bus power output (500mA):

1.   POS1/NEG RS-485 LAN power output.

2.   POS2/COM2 auxiliary power output terminal - also provides power to zones 1 & 2 and relay outputs 1 & 2 (if not set for dry contact).

3.   POS3/COM3 auxiliary power output terminal.

Refer to Auxiliary Current Tables on page 8 to determine maximum current available.

Battery Connection

1.   Refer to Auxiliary Current Tables on page 8 to determine maximum current and battery capacity available.

2.   Connect the battery to the NXG-320-CPU Battery 1 input using the supplied battery cable.

NXG-320
Smart Power Supply
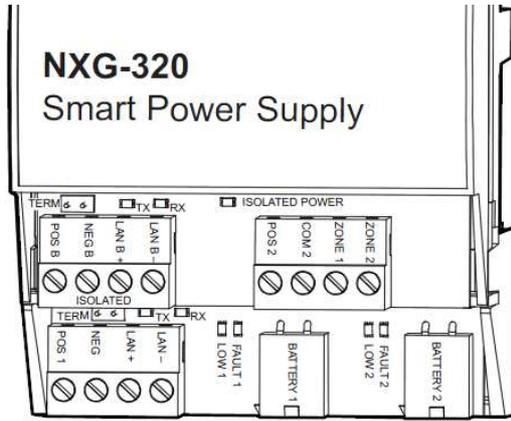
3. If a second battery is required, connect it to the Battery 2 input before turning on the power of the NXG-320. Ideally the second battery is fully charged, otherwise it will take current from Battery 1 until both have the same voltage.

4. If there is no 2nd battery connected to Battery 2 input at power up, the smart power supply will not raise battery missing events for the second battery.

5. Battery 2 becomes enabled once the battery test passes. A battery test will occur when power is connected to the smart power supply, daily battery test, or when a user manually activates a battery test. See keypad manual for instructions on performing a manual battery test.

Connect Transformer and Tamper
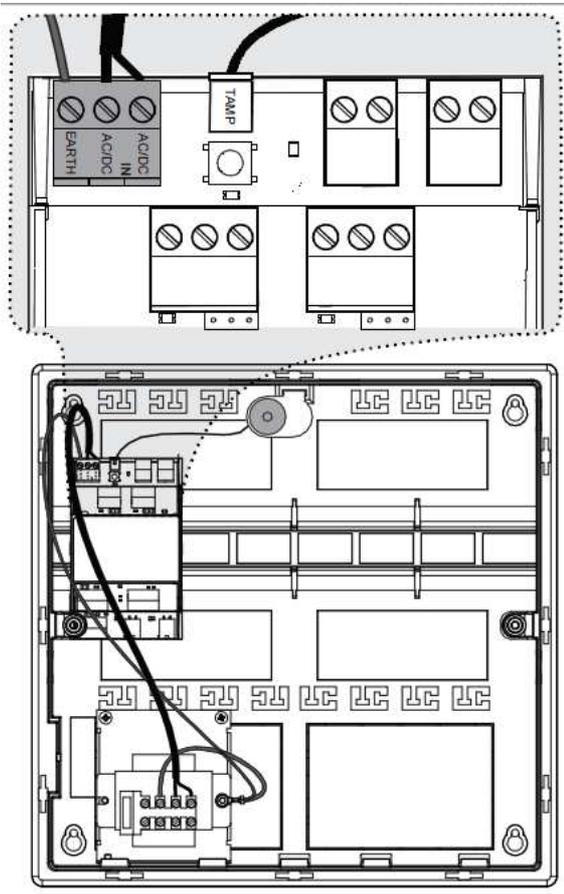
1. Connect the transformer secondary voltage (16.5 – 18.0 VAC) to the smart power supply AC/DC IN and EARTH terminals located on the top left of the bottom board, next to the Enrollment Switch.

2. Connect the tamper switch of the housing to the TAMPER input. If the input is not used, put the wire jumper that is supplied on the product.

Over Current Protection

The smart power supply provides over current monitoring and protection. When more current is drawn from the power supply than the selected transformer can provide, the device will send an "Over Current" message to the xGen panel. The transformer is disconnected within 10 seconds of the condition being applied.

Operation continues on battery supply until the condition is removed, or batteries are exhausted.

Charging current plus all output currents are combined and compared to the following thresholds:

- 40VA transformer: 1.5A rated DC/DC converter output, current warning at 1.6A

- 55VA transformer: 2.2A rated DC/DC converter output, current warning at 2.3A

LAN Wiring and Topology
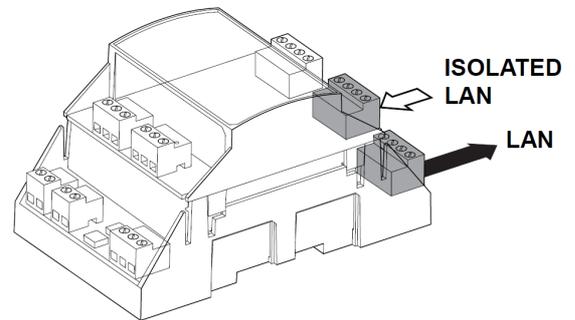
The NXG-320-CPU smart power supply can be used as power supply unit or as a bus extension/isolator. Depending in which mode the unit is applied in the field, a different RS-485 LAN wiring is required.

In power supply mode (option 1), only the LAN connection terminal on the bottom board of the NXG-320-CPU is used. Wire this terminal to the xGen panel. See Option 1 diagram.

In bus extension/isolator mode (option 2), the xGen panel LAN needs to be wired to the ISOLATED LAN terminal on the top board of the NXG-320-CPU. Any bus device wired to the LAN connection terminal on the bottom board is now optically isolated. See option 2 diagram.

Option 1 – Power supply mode, no bus isolation
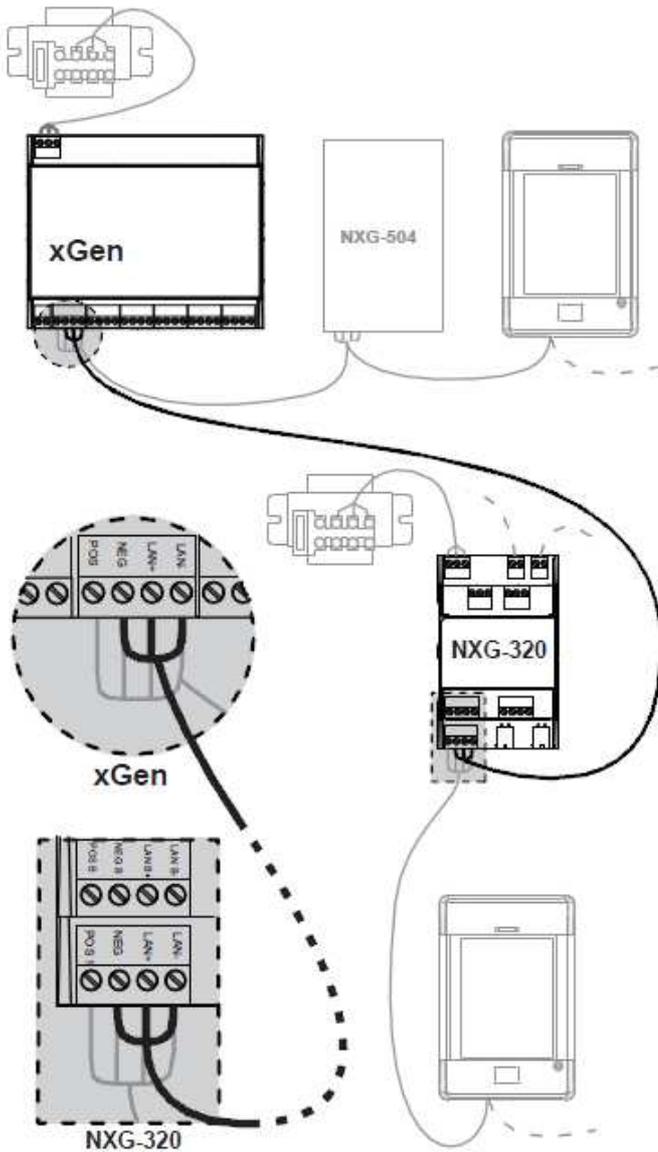
Provides additional power to connect more devices.

1. Connect suitable transformer to the smart power supply.

2. Connect the xGen bus NEG, LAN+ and LAN- to the NXG-320-CPU smart power supply's NEG, LAN+ and LAN- terminal, located on the bottom board. This provides data communication and a common ground.

    WARNING: DO NOT connect xGen bus POS to LAN power output POS 1 on the smart power supply.

3. Use POS1/NEG, COM2/POS2 and COM3/POS3 to power additional devices.

4. DO NOT use the ISOLATED LAN terminal located on the top board (POS B, NEG B, LAN B+, and LAN B-).

Option 2 – Extension/isolator mode
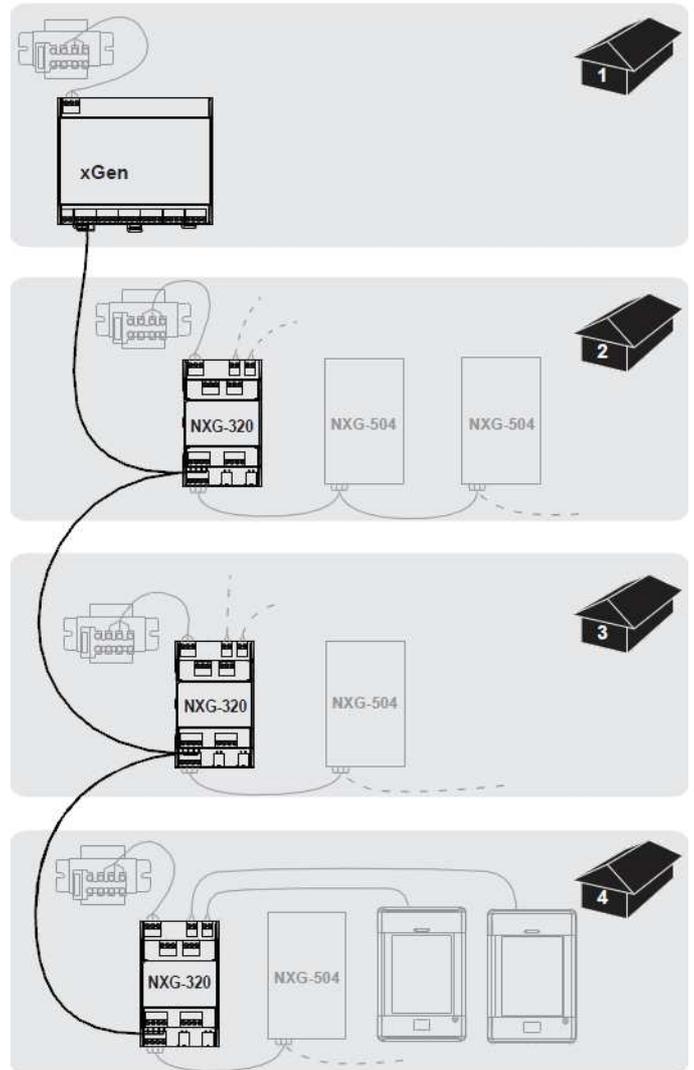
For larger sites requiring longer cable runs and/or more power, up to eight NXG-320-CPU smart power supplies can be added.

In the example above, there are four buildings, three with a NXG-320-CPU smart power supply. The main xGen bus is looped into each NXG-320-CPU smart power supply in a daisy chain.

This topology provides additional power and an optically isolated LAN bus between the xGen panel and each NXG-320-CPU smart power supply. This is useful for connecting the xGen bus between buildings which may require optical isolation to avoid ground loops.

1. Connect the xGen bus POS, NEG, LAN+ and LAN- to the NXG-320-CPU ISOLATED LAN terminal POS B, NEG B, LAN B+, and LAN B-, located on the top board. The xGen will power the smart power supply's isolated xGen LAN B+ and LAN B- terminals.

2. The transformer/NXG-320-CPU smart power supply provides power to the LAN power output POS1/NEG, and the two auxiliary power outputs POS2/COM2 and POS3/COM3.

3. xGen is optically isolated from each smart power supply.

4. Use correct RS-485 termination.

In this example, there are four network segments.
The first is the xGen and the three NXG-320-CPU smart power supplies - install a jumper on the TERM header on the xGen CPU, and on the top board of the NXG-320-CPU in building 4.
Building 2, 3, and 4 each have a new network segment. Install a jumper on the bottom board of each NXG-320-CPU and on the furthest device from the NXG-320.

Connect Relay Outputs

Two relay outputs are available on the smart power supply which can be programmed to switch when certain actions occur on the system.

Relay Modes

NXG-320
Smart Power Supply
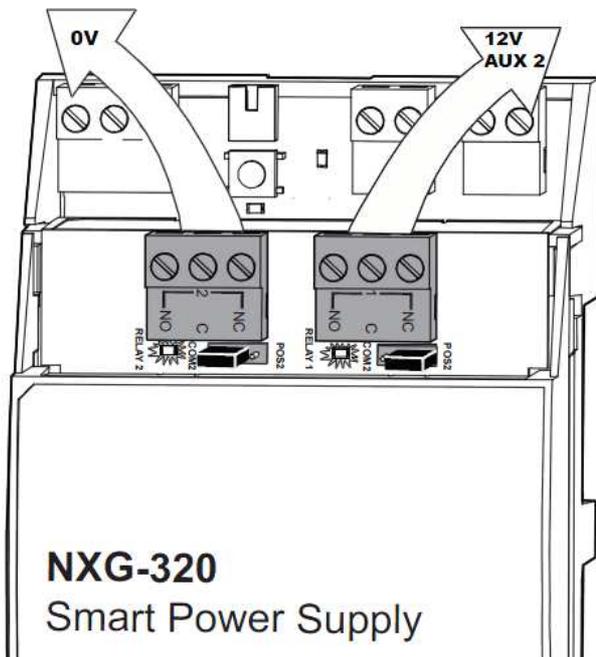
The two Single Pole Double Throw (SPDT) Form C relays can be configured in 3 different modes to support different applications.

The relays are connected to the output terminals with Normally Open and Normally Closed connections for your convenience.

Use the jumper next to the relay to select the mode suitable to your requirements.
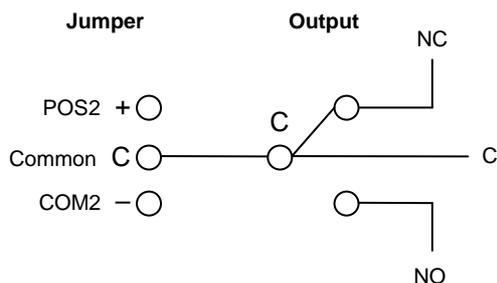
Default is no jumper with relay in NC position.

Red LEDs light up when the respective relay is energized.

No Jumper

Dry contact closure provided to output terminal. Maximum Load 30 VAC @ 1 A or 24 VDC @ 1 A.

Jumper between C and COM2

Smart power supply ground provided to output terminal @ typical 0 V. Do not exceed relay rating which is maximum load 30 VAC @ 1 A or 24 VDC @ 1 A.

Jumper between POS2 and C

Smart power supply voltage provided to output terminal @ typical 12-13 VDC. Maximum Load @ 12 V is total panel current of 500mA, this includes any loads connected to POS2. Do not exceed relay rating.

Current Limit Warning:

Check the current requirements of your load before connecting!

There is no overcurrent protection on the relays when providing buss ground or bus voltage (jumper between COM2 and C, or C and POS2). You must ensure your load does not exceed the recommended limits above. Exceeding limits can damage the module and pose an electrical hazard. Your panel will report "Overcurrent Fault" or "Expander Overcurrent".

Connect Zone Inputs
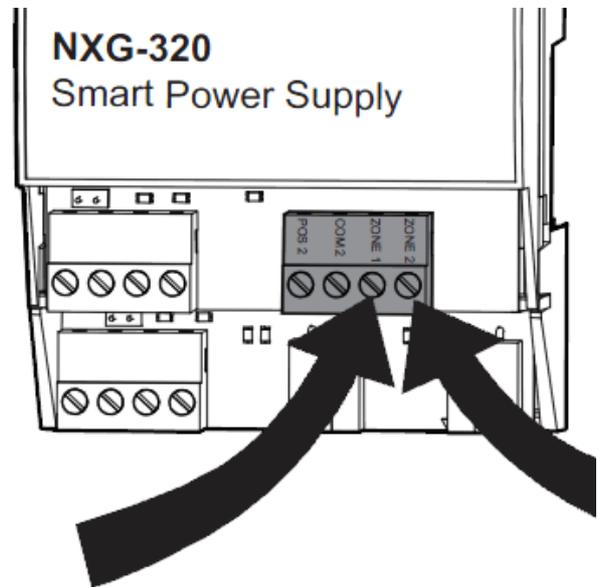
Two zone inputs are available on the smart power supply.

These use the standard EOL or DEOL resistors. By default, the zone inputs are disabled. Refer to the xGen Installation & Programming Manual for more details.

Termination

The xGen bus must have correct RS-485 termination to avoid communication issues with signal reflection, etc. The guideline is to install a jumper across the TERM header on the first and last device of the longest RS-485 cable run.

Depending on the wiring topology, the smart power supply can create a new RS-485 bus cable.

If the power supply is the first or last device on the original RS-485 LAN, then place a jumper on the TERM header on the top board.

If the power supply is the first or last device on the new isolated RS-485 LAN, then additionally place a jumper on the TERM header on the bottom board.

Mains Power Connection

1. Ensure the backup battery(ies) are connected. See chapter "Battery Connection".

2. Turn mains power on.

3. When ISOLATED POS B and NEG B are connected and powered, the power LED near the ISOLATED terminal will be lit.

4. When AC/DC IN are connected and powered by a transformer, the power LED on the right of the Enrollment switch will be lit.

xGen System Enrollment

Automatic Enrollment

1. Push and hold Enrollment switch on the xGen panel for 3 seconds until it blinks.
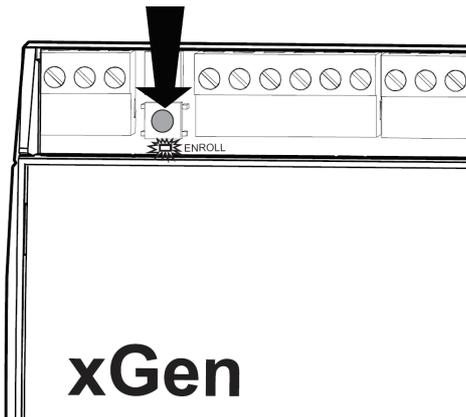
2. When the enrollment is successful the LED under the Enrollment switch on the smart power supply will blink once every 2 seconds. If there are 3 rapid blinks, then the unit is not enrolled.

TIP – Perform initial enrollment of smart power supply next to the xGen panel so you can see the enroll LED on the smart power supply. This will provide quick feedback when the module enrols successfully. Disconnect the module then install it in the desired location.

Manual Enrollment

1. Login to xGen as installer.

2. Click Advanced – Devices – System Devices – Control – Device Count.

3. Note the number under Power Supply.

4. Click Back.

5. Click Enroll Function.

6. Select Manual Enroll.

7. Click Save.

8. Push the Enrollment switch on the smart power supply.

NXG-320
Smart Power Supply
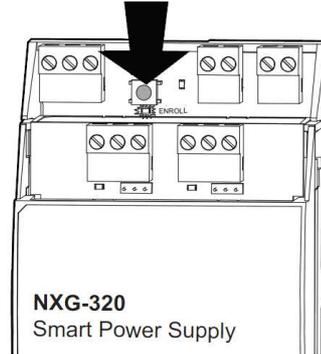
9. Click Back.

10. Click Device Count.

11. Check the number under Power Supply has increased by one.

12. Repeat for additional modules if required.

13. Click Advanced – Devices – System Devices – Control – Enroll Function.

14. Select Inactive.

15. Click Save.

Troubleshooting battery or over-current faults

NXG-320
Smart Power Supply

1. Check LEDs near BATTERY terminals.

Battery 1 LED(s) ON	Battery 2 LED(s) ON	Event	Cause
D202 LOW1	D203 LOW2	Battery Low	Battery Voltage < 11.7 V
D206 FAULT1 & D202 LOW1	D207 FAULT2 & D203 LOW2	Battery Missing	Battery Voltage < 10.25 V
D206 FAULT1 & D202 LOW1	D207 FAULT2 & D203 LOW2	Battery Fault	Battery Test Fails

2. If either of the LOW LEDs appear, wait 24 hours to allow the battery to recharge. If the LOW LED remains lit after 24 hours, the battery(ies) should be replaced.

3. If either of the FAULT LEDs appear, check the battery cable is securely connected. If the cable is secure, the battery(ies) should be replaced.

4. If there is an overcurrent fault, check:

   a. Each power output is drawing less than 500mA.

   b. The AUX2 auxiliary output is drawing max 500mA combined with zone inputs and relay outputs.

   c. Maximum total current table, this depends on the transformer and battery connected.

   d. Overcurrent fault will reset automatically within 1 min of load being disconnected.

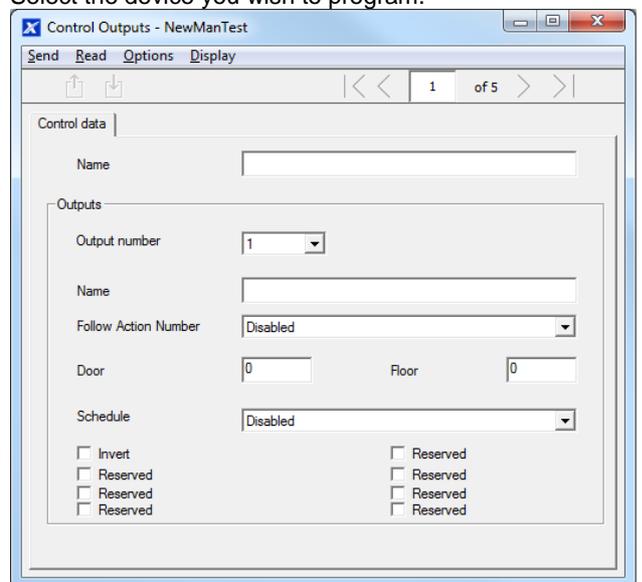# Program with DLX900

You will need DLX900 version 6 or above.

After connecting to your xGen system you may customize the programming for inputs, outputs, tamper, and over-current warning.

Factory defaults are:

- Output 1 – Follow Siren Event
- Output 2 – Follow Strobe Event
- Input 1 and 2 – disabled, starting zone 0, ending zone 0
- Tamper is enabled
- Transformer - 40VA

To change settings:

1. Open DLX900.

2. Program your xGen site according to the xGen Installation instructions.

3. Click Devices – Power Supply.

4. Select the device you wish to program.

5. Enter a Name for the device (optional).

6. Enter a starting and ending zone number if required.

7. Enter the settings for each output if required.

8. Select the transformer connected to this power supply. This affects the Over-Current monitoring feature. An incorrect value can lead to transformer failure.

9. Connect to the xGen system (e.g. click Download – Connect – Connect TCP/IP).
10. Click Send – Menu.
11. Disconnect from xGen system.

Firmware

Remotely upgradeable using DLX900 or locally with a USBUP via the USBUP port on the NXG-320-CPU.

Specifications

Compatibility	xGen Security System
Power Input	16.5-18.0 VAC
-	2.0A max current
- 40VA transformer	2.8A max current
-	
- 55VA transformer	
Voltage Output	10.0-14.0 VDC
Current Output	Max 500mA per output
	See Auxiliary Current Tables for limits depending on transformer used
Relays	Rated load 0.50 A at 125 VAC or 1 A 24 VDC, max 125 VAC or 60 VDC, max current 1 A, min load 1 mA 5 VDC
Supported Batteries	7 Ah, 12 Ah, 18 Ah Sealed Lead Acid
Dimensions (W × H × D)	135 mm x 80 mm x 55 mm
Operating temperature	0° to 49°C (32° to 120°F)
Storage temperature	–34° to 60°C (–30° to 120°F)
Relative humidity	up to 85% noncondensing

Auxiliary Current Tables

Refer to table below to determine maximum available auxiliary current and battery capacity:

40VA Transformer

For ungraded installations, discharge time depends on battery connected and is calculated at a nominal 800mA.

Battery		7Ahr	2x 7Ah	1x 18Ah	Approval Grade
Discharge Time (hours)	Charge Time (hours)	Current (mA)			
7.9 / 15.7 / 20.2	48	800	800	800	None
12	72	480	800	800	EN 2
12	48	480	800	800	INCERT 2
30	24	140	370	500	EN 3/ INCERT 3

55VA Transformer

For ungraded installations, discharge time depends on battery connected and is calculated at a nominal 800mA.

Battery		7Ahr	2x 7Ah	1x 18Ah	Approval Grade
Discharge Time (hours)	Charge Time (hours)	Current (mA)			
4.4/ 8.8/ 11.3	48	1500	1500	1500	None
12	72	480	1070	1409	EN 2
12	48	480	1070	1409	INCERT 2
30	24	140	370	500	EN 3/ INCERT 3

Regulatory Information

Manufacturer	Placed on the market by: UTC Fire & Security Americas Corporation, Inc. 3211 Progress Drive, Lincolnton, NC, 28092, USA
	Authorized EU manufacturing representative: UTC Fire & Security B.V. Kelvinstraat 7, 6003 DH Weert, Netherlands
FCC compliance	This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
	You are cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
Certification	CE INCERT EN 50131-1 System requirements EN 50131-3 Control and indicating equipment Security Grade 2, Environmental class II Security Grade 3, Environmental class II Tested and certified by ANPI vzw/asbl Compliance labelling should be removed or adjusted if non-compliant configurations are selected.

European Union directives	UTC Fire & Security hereby declares that this device is in compliance with the applicable requirements and provisions of one or more of the Directives 1999/5/EC, 2014/30/EU and 2014/35/EU. For more information see: www.utcfireandsecurity.com or www.interlogix.com
	2002/96/EC (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see: www.recyclethis.info.

Contact information

www.utcfireandsecurity.com or www.interlogix.com

Customer support

For customer support, see www.interlogix.com/customer-support or www.utcfssecurityproducts.eu