



# Introduction



This manual describes how to understand, install and wire the NRG Lex Systems Control Module. NRG Lex is pre-configured to automatically fire the boiler(s) only when one or more time/temperature zone controls call for heat, eliminating the need for a separate boiler clock and so prevents boiler dry-cycling.

## WARNING & INFORMATION SYMBOLS

The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed. Obey all safety messages that follow this symbol to avoid possible injury or death.

The Information symbol is used to address practices not related to physical injury and to indicate where useful facts will assist in installing or using the device correctly.



CAUTION

**CAUTION** indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



DANGER

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.



IMPORTANT INFORMATION



**IMPORTANT!** Disregard will lead to permanent equipment damage!

**INFORMATION!** indicates an explanation containing information that is useful to know, a supplementary operating procedure, or other data.



### **IMPORTANT:**

ONLY use 0.5 mm<sup>2</sup> to 1.5 mm<sup>2</sup> wiring cable when connecting to the NRG LEX Unit.



CAUTION

Wiring external to the NRG Lex printed circuit board MUST be in accordance with current statutory wiring regulations and any local regulations that apply.



DANGER

The power supply must be 230 V~, 50/60 Hz, Single Phase. Attaching the NRG Lex board to more than one phase will cause irreparable damage.



DANGER

To ensure single phase, we recommend that power be introduced only at the mains input terminals (7, 8) and that all other mains inputs be derived from suitable outputs on the board itself.



DANGER

Devices attached to NRG Lex MUST be properly earthed in accordance with manufacturer's specifications. The method of connection to the mains electricity supply MUST facilitate complete electrical isolation of the entire installation.



DANGER

A fused double pole switch, with at least 3 mm (1/8”) contact separation in both poles, serving only the NRG Lex panel should be used. The point of connection to the mains should be readily accessible and, if possible, adjacent to the NRG Lex unit.



The zone LED indicator might have a dim light when the zone is not calling due to induction but it will glow brightly what the zone is calling.



This product must be fitted by a competent person, and installation must comply with the guidance, standards and regulations applicable to the country or state where the product is installed. Failure to comply with the requirements of the relevant guidance, standards and regulations could lead to injury, death or prosecution.

Always isolate the AC mains supply before installing or working on any components that require 230 V~, 50 Hz supply.

## TECHNICAL INFORMATION

<b>POWER SUPPLY RATING</b>	230 V~, 15 mA, 50 Hz / 60 Hz, 1 Phase
<b>POWER SWITCHING CAPACITY - (COMBINED LOAD)</b>	Must Not Exceed 5 A for All Loads
<b>MAIN RELAY RATING</b>	DPNO 5 A
<b>BOILERS - BOILER VOLT FREE CONTROL SWITCHES</b>	2
<b>BOILER SUPPLY</b>	2
<b>CLOCK SUPPLY</b>	1
<b>BOILER FROST PROTECTION</b>	1
<b>AUXILIARY INPUTS</b>	4
<b>AUXILIARY OUTPUTS</b>	2 SETS OF DPCO 5 A
<b>OPERATING TEMPERATURES</b>	0 - 50°C
<b>ENCLOSURE RATING</b>	IP20
<b>MAIN FUSE</b>	6.3 A, 230 V ~ T Anti-surge
<b>BOILER/CLOCK FUSING</b>	3.0 A, 230 V ~ T Anti-surge
<b>ZONE FUSES</b>	4 of 1.0 A, 230 V ~ T Anti-surge
<b>ZONE CALL INDICATORS</b>	4
<b>MAINS SUPPLY INDICATORS</b>	1
<b>BOILER CALL INDICATORS</b>	1
<b>AUXILIARY CALL INDICATORS</b>	1
<b>TRANSIENT SUPPRESSION (VDR X 2)</b>	Yes
<b>TERMINALS</b>	0.5 mm <sup>2</sup> to 1.5 mm <sup>2</sup>
<b>DIMENSIONS</b>	92 x 350 x 57 mm
<b>MOUNTABLE</b>	DIN rail or screws
<b>WEIGHT</b>	700 g

# Terminal Identification & Description



## POWER SUPPLIES

**POWER SUPPLY:** 1 set of terminals for connection of electrical mains supply fused at 6.3 A, (7 [L] - 8[N]); All neutral terminals are cross connected on the board with pre-installed tracks. **GENERAL CONTROL OR CLOCK POWER SUPPLY** to facilitate use of a single or multi-zone programmer/clock, fused at 3 A (1 [L] - 2 [N]);

**BOILER 1 PERMANENT POWER SUPPLY** fused at 3 A. (3 [L] - 4 [N] - Clock. This supply may be used through one of the 2 volt free control switches in the boiler control relay.

**BOILER 2 PERMANENT POWER SUPPLY** fused at 3 A. (5 [L] - 6 [N] - Clock. This supply may be used through one of the 2 volt free control switches in the boiler control relay.

**VOLT FREE RELAY CONTROL:** 2 sets terminals to provide either Switched or Voltage Free control to boilers or other system devices - 11 [C], 12 [N.O.] and (13 [C], 14 [N.O.].



## USING INCORRECT FUSE SIZES WILL INVALIDATE THE WARRANTY

### ZONE CONTROL

The NRG Lex Printed Circuit Board will then provide for:

**ZONES A, B, C & D:** 4 sets of terminals, to which external time and temperature controls connect, fused at 1 A with an output supply to a zone circulator or motorised valve. The LED's on the board show which zone elements are operating and help make fault diagnosis easy.

### AUXILIARY RELAY

**AUXILIARY INPUT:** 4 auxiliary input terminals (21, 22, 23 & 24). to receive 230 V supplies, any one of which will cause the auxiliary double pole relay to switch contacts, without back feeding to any other auxiliary input.

**AUXILIARY OUTPUTS:** 2 sets of auxiliary Output Relay terminals to facilitate auxiliary functions (15 {NC}, 16 {C} & 17 {NO}) & (18 {NC}, 19 {C} & 20 {NO}).

### FROST CONTROL (OR ADDITIONAL BOILER CALL INPUT)

When Power is connected to terminals 9 or 10 in will close the Boiler Volt Free Relay. This input may be used to protect the boiler using a remote frost stat.

### NOTE:

Under no circumstances, should high and low voltage circuits be conducted through contacts on the same relay, as this would not comply with minimum clearance requirements specified by international wiring regulations. If a control is required on a circuit of different voltage than the primary circuit, the auxiliary control relay should be used for the other voltage.



**FAILURE TO INSTALL AND COMMISSION THE APPLIANCE TO THE MANUFACTURERS INSTRUCTIONS MAY INVALIDATE THE WARRANTY.**





FIG. 4

**SINGLE CHANNEL CLOCK THERMOSTAT**

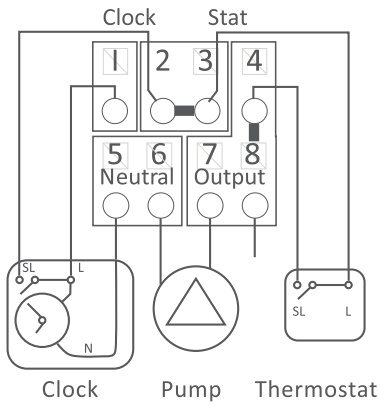


FIG. 5

**WIRED OR BATTERY OPERATED PROGRAMMABLE THERMOSTAT**

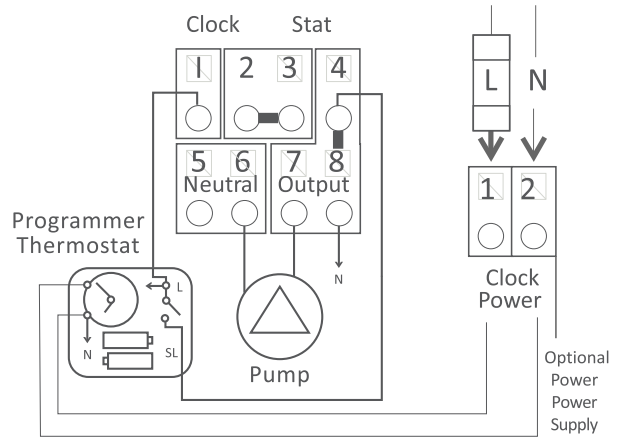


FIG. 6

**MULTI-CHANNEL CLOCK THERMOSTAT**

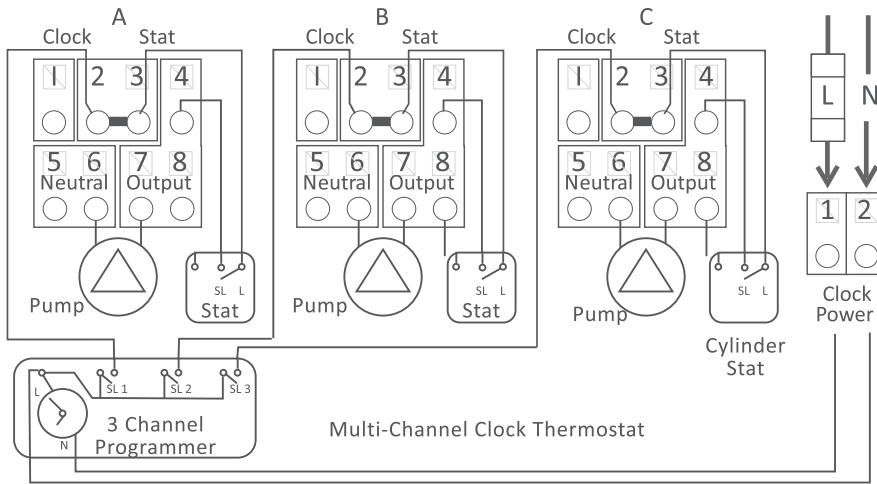


FIG. 7

**SWITCH LIVE BOILER(S)**

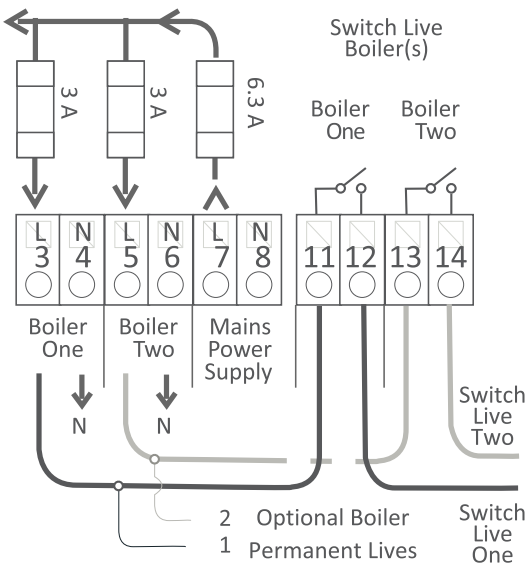


FIG. 8

**VOLT FREE SWITCH BOILER(S)**

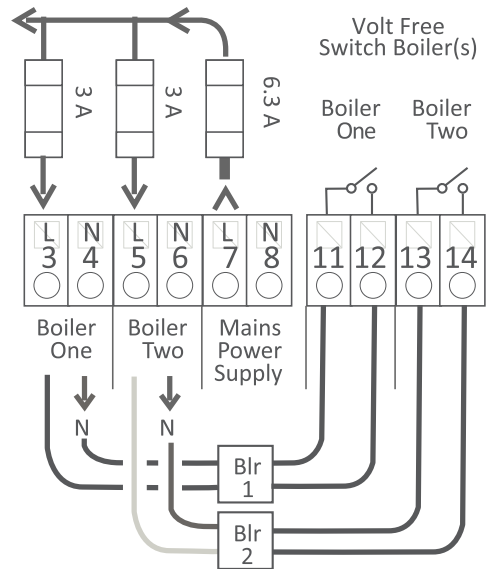
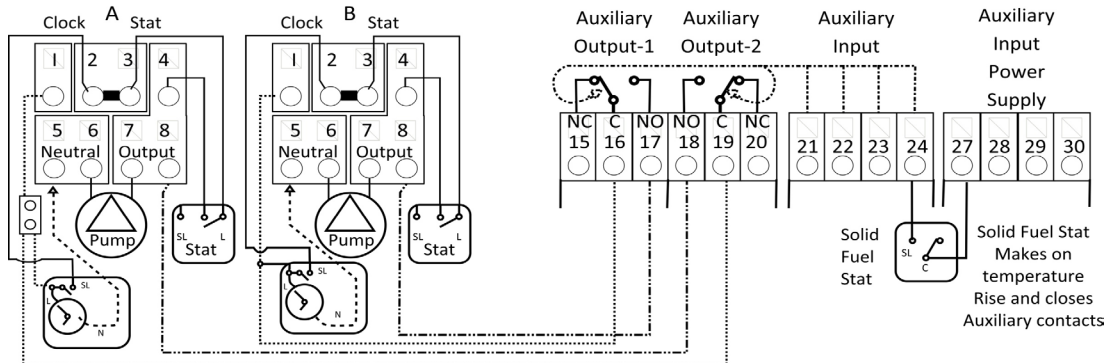




FIG. 9

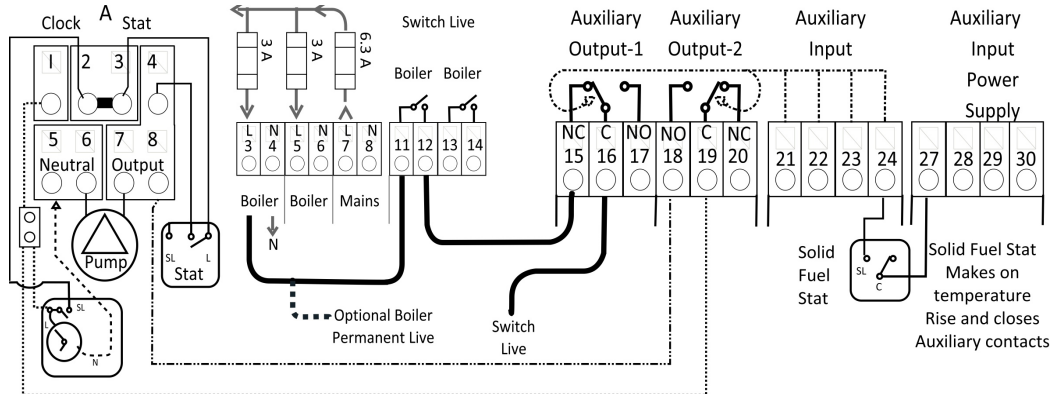
### EXAMPLE NRG LEX 1:



When the 230 V- supply at 25 is switched through the Solid Fuel Stat to Auxiliary input 24 it will switch the Auxiliary Common (C) - Normally Closed (NC) contact to the Normally Open (NO) that switches the supply from the Zone A & B Clock live back to the zones calls input at the respective terminal '8'. This will allow the parallel control circuits in Zones A & B to bypass their time and temperature controls to call the zone pumps 'on'. This arrangement will provide the safety feature required to dissipate heat from the solid fuel appliance to the zones until the Solid Fuel Stat falls below its set temperature.

FIG. 10

### EXAMPLE NRG LEX 2:



This example is similar to Example 1 above but the first set of auxiliary contacts are used to break the supply to a switch live boiler while auxiliary 2 switch bypasses zone A controls to also dissipate the heat from the solid fuel appliance until the Solid Fuel Stat falls below its set temperature. Similarly, a voltage free controlled second boiler could be controlled 'off' by breaking the voltage free circuit through one of the auxiliary closed contact switched when any of the auxiliary inputs (21,22,23 or 24) is energised.

### WIRING GUIDELINES

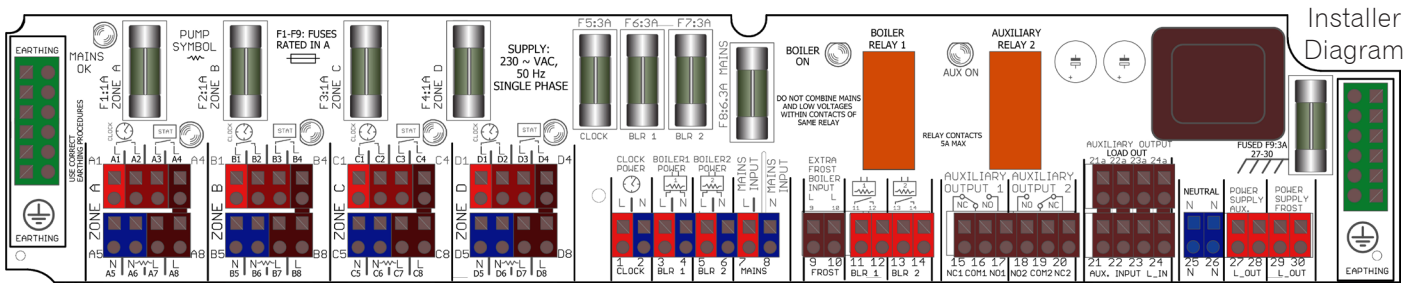
The NRG Lex is designed to be electrically connected using 0.5 mm<sup>2</sup> to 1.5 mm<sup>2</sup> cable and it is highly recommended that the wiring terminations should be crimped using a crimping pliers before connecting them to the NRG Lex SCM connectors.

The terminations must be of reputable manufacturer and be suitable for the type of on-board terminal connectors. No more than two cables should be bunched together in one crimped terminal which should be of appropriate size to accommodate them. Cables should be coloured in accordance with IEE regulations BS 7671.

### CRIMPING PLIERS

Do not crimp or work nearby live wires. This may result in electric shock. Crimping Pliers should be used according to manufacturers instructions and be with compatible cable connectors (terminals and sleeves) and cables. To prevent crimping failure, and to ensure crimping performance, the tool should be periodically tested.





Installer Diagram

## WARRANTY & SERVICE



You receive a 12 months warranty for this appliance as of the purchase date. This appliance has been manufactured with care and meticulously examined before delivery. Please retain your receipt as proof of purchase. In the case of a warranty claim, please contact with the dealer or our service department. Only in this way can a post-free dispatch for your goods be assured. The warranty covers only claims for material and manufacturing defects, but not for transport damage, wearing parts or for damage to fragile components, e.g. buttons or batteries. The warranty is void in the case of abusive and improper handling, use of force and internal modifications not carried out by our authorized Service Centre. Your statutory rights are not restricted in any way by this warranty. The warranty period is not extended through repairs made under warranty. This applies also for replaced or repaired parts. Any damages or deficiencies found on purchase must be reported as soon as possible after unpacking, at the latest two days after purchase. On expiry of the warranty, all repairs or replacements carried out are subject to payment.

Please retain your receipt as proof of purchase. In the case of a warranty claim, please contact our service department by email or telephone.

The warranty covers only manufacturing defect in material and workmanship that may arise despite normal operation and usage of the NRG Lex SCM as prescribed in the operating manual.

The customer shall provide a reasonable, sufficient and safe working space to access the appliances for service.

The company's obligation under this warranty shall be limited to repair and providing replacement of defective parts only. It is hereby clarified that after the Standard Warranty Period, call-out charges will be applicable for all call-outs and the cost will be borne by the customer.

## DISPOSAL OF OLD DEVICES



Devices marked with this symbol are subject to European Directive 2002/96/EC. All electric and electronic devices must be disposed of separately from household waste at official disposal centres. Avoid hazards to the environment and dangers to your personal health by disposing of the device properly. For further information about proper disposal, contact your local council, waste disposal office or the shop where you bought the device.

## NRG Awareness

Unit 8, Little Island Industrial Estate, Little Island, Co. Cork, Ireland, T45E289

Phone: +353 (0)21 4355728

info@NRGawareness.com | www.NRGawareness.com

NRG Awareness Limited reserve the right to change the specifications without prior notice. Consumers' statutory rights are not affected.