

### IQL11+ LONMARK Terminal Unit Controller



#### Description

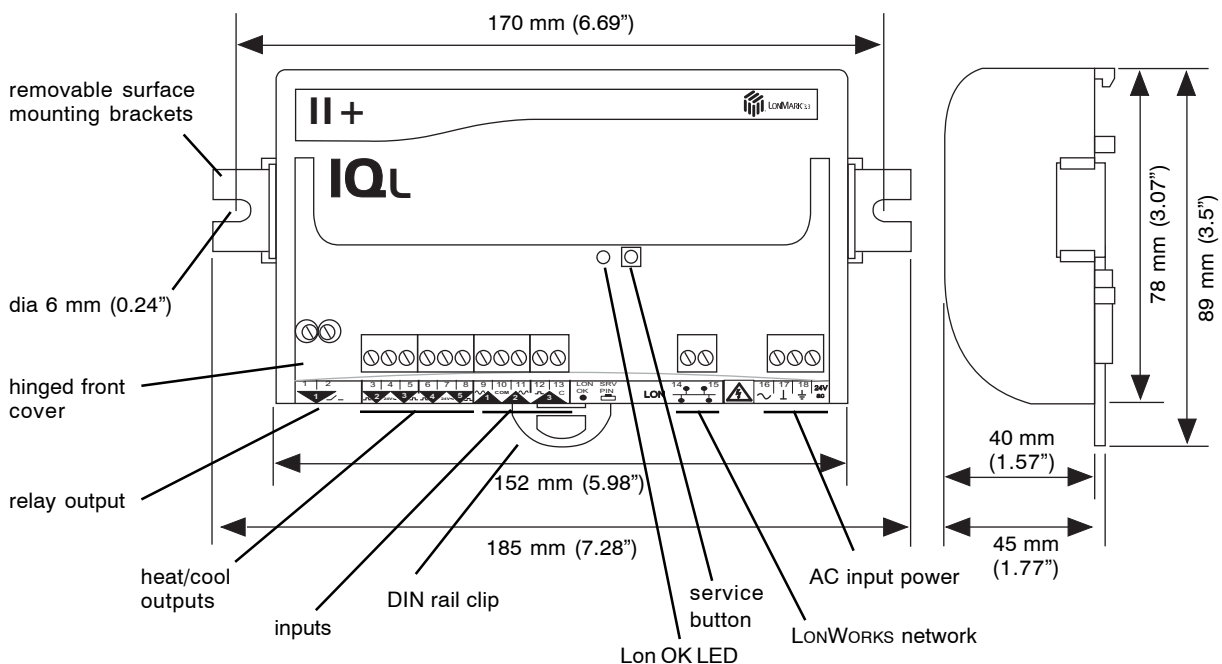
The IQL11+ is a terminal unit controller which can be networked using a LONWORKS® network. It can communicate with other IQLs and LONMARK devices using a LONWORKS network, and with IQ system networked devices using 3xtend/EINC L or LINC. It has 1 relay output (normally fan on/off), and 4 triac outputs (normally to control valves or dampers). It has 2 variable resistance inputs of which one is normally a thermistor temperature sensor. There is also a digital input for monitoring a manual button or alarm contact; it can also be used to connect a room display.

#### Features

- Low cost terminal unit controller.
- Fully compatible with the IQ system.
- \* LONMARK certified.
- No binding for network of only IQ system devices.
- Non-volatile memory, no battery required.
- 230 Vac or 24 Vac input power versions
- Compatible with Room Display (RD-IQL)
- \* Conforms to LONMARK profile 8501 or 8502
- \* Note that LONMARK certification does not apply to custom strategies

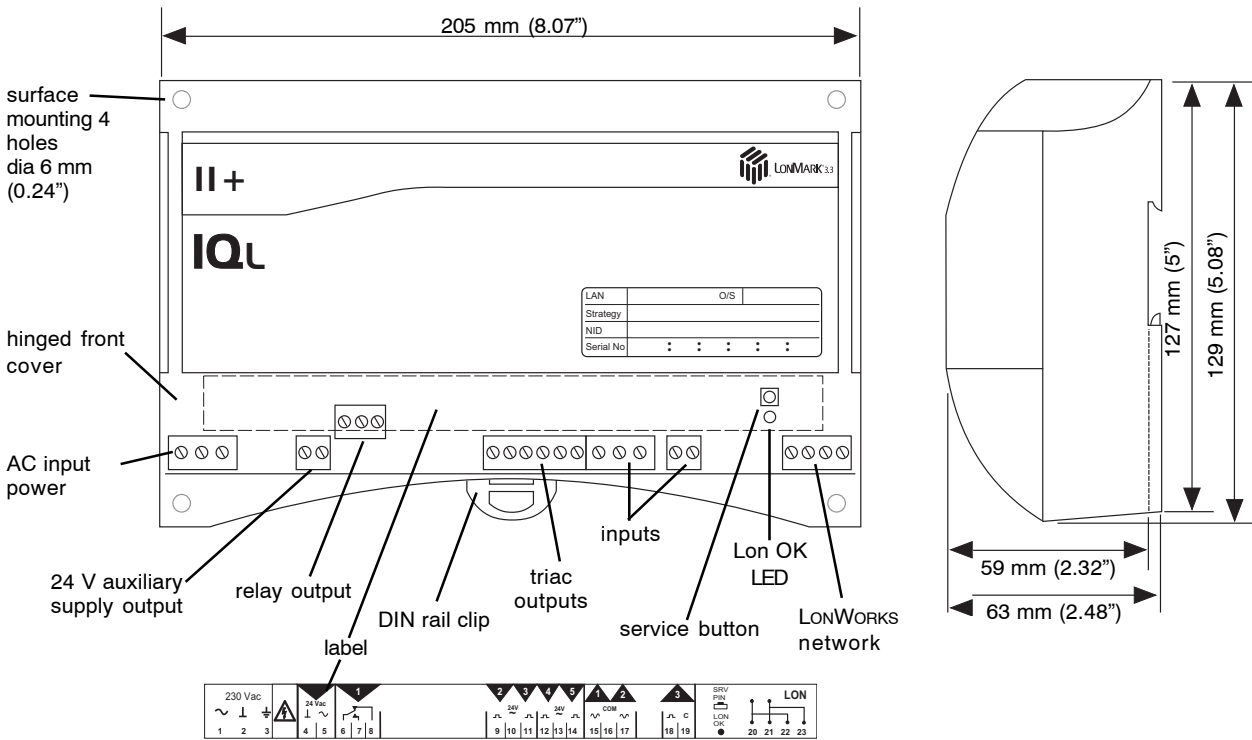
#### Physical

/24VAC version



**Physical** (continued)

/230 version



**FUNCTIONALITY**

The IQL11+ consists of a generic IQL series shell (core hardware and firmware) with specific additional hardware. It is supplied complete with a pre-programmed strategy which defines its HVAC equipment interaction. If the unit is ordered with a standard strategy (e.g. IQL11+/WR4), the standard generic strategy is installed and configured for the required standard strategy; this can be changed to one of the other standard strategies using text communications. The generic strategy is defined in the IQL11+/xxx Standard Strategies Data Sheet, TA200245.

**FIRMWARE**

The following modules are available for configuration by terse text comms. They are described in the IQ System LONWORKS Products Engineering Manual TE200292.

**Core modules**

Address module (R); Analogue array (A); Digital array (B)  
Time (T)

**Strategy modules**

Sensor (S), (analogue - thermistor, potentiometer, or fan speed switch); Sensor (S), (internal); Loop (L); User (U) Logic (G), (combination, timer, hours run) Function (F), (hysteresis, gate, multiplier, adder, A to D, square root, filter, rescale to, comparator) Switch (W); Knob (K); Driver (D), (digital, raise/lower, time prop., multi state relay and cascade relay), Digital Input (I); IC Comms (N); Plot channel (P); Display (~); Directory (@)

**Compatibility**

The IQL will identify itself as an IQL to w comms. A 945 should be set up to detect it as an IQ151 V7.

**Alarms**

The IQ System LONWORKS Products Engineering Manual fully describes alarms. The IQL generates network alarms as follows (if appropriate alarm target address and Lan number are set up in address module):

**“IQL -Rem LAN From yyy on Lan xxx- LON LAN Broken NKBK”** - a break in Lan communications  
**LON LAN Changed NKCH** - a node has gone from or been added to the Lan  
**LON LAN OK NKOK** - Lan communications are restored

**“IQL - Int’wrk From yyy on Lan xxx- LON lwrk Broken NKBK”** - a break in internetwork communications  
**LON lwrk Changed NKCH** - a node has gone from or been added to the internetwork  
**LON lwrk OK NKOK** - internetwork communications are restored

The IQL generates the following input alarms. They will be sent to Own Lan alarm reporting address and Lan number if these are set up in the address module:

Sensor alarms:  
**SENSOR FAIL occurred (OULT),**  
**SENSOR FAIL cleared (COUT),**  
**INPUT ERROR occurred (READ),**  
**INPUT ERROR cleared (O/K).**

Digital input alarms:  
**DIGIN OFF occurred (DI=0)**  
**DIGIN OFF cleared (CDI0)**  
**DIGIN ON occurred (DI=1)**  
**DIGIN ON cleared (CDI1)**

They are same format as IQ alarms except that time and date fields are filled with spaces.

**HARDWARE**

**Unit**

The IQL11+ is a small terminal controller designed for surface or DIN rail mounting either inside or on the side of terminal units. It has a plastic housing with a hinged clear polycarbonate terminal cover. The /230 version has 4 point surface mounting and the /24 VAC version has two removable surface mount brackets.

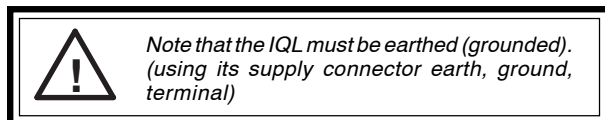
**Supply**

The IQL11+ has both 230 Vac and 24 Vac input power options.

**/230:** This option requires 230 Vac +15% -10%, 50/60 Hz at up to 13 VA, which consists of up to 3VA internal power, plus the power required by the triac (valve or damper) 24 Vac outputs and the 24 Vac auxiliary output supply which together require a maximum of 400 mA.

**/24VAC:** This option requires 24 Vac ±15%, 50/60 Hz, at up to 12.1 VA, which consists of up to 2.5VA internal power, plus the power required by the triac (valve or damper) outputs which is up to 400 mA maximum current. The 24 Vac input power neutral must be earthed (grounded) at the transformer secondary. The ac input power neutral is internally connected to the IQL electronics earth (ground). Several IQLs may be supplied in parallel.

The IQL input power earth (ground) terminal is isolated from the input power neutral, and must be separately earthed (grounded) locally.



The internal supply is protected by an internal solid state self-resetting thermal device rated at 500 mA.

**Service Button**

This is used during the installation of the IQL into a LONWORKS network management tool. This is only necessary under conditions described in the LONWORKS Integration section below. During the installation process, the tool will request to be informed of the presence of the IQL; this is done by pressing the 'service' button. Pressing the button also generates an alarm message forwarded by the 3xtend/EINC L or LINC to its target alarm address (if set up) which identifies IQL by means of its Neuron® chip ID; this can be used as an attribute to find the IQL's device address and Lan number.

**LONWORKS**

The integral LONWORKS transceiver uses FTT (or LPT) which has the following features:-

- (1) Use of free bus topology enabling star, bus, or loop wiring simplifies installation and facilitates network expansion.
- (2) The bus uses two wires (twisted pair) which are polarity independent with no need for screen.
- (3) The FTT runs at 78 k baud.
- (4) The FTT LONWORKS network may already be present in a building, so the IQ system is able to make use of an existing building bus and hence reduce installation cost.

**Lon OK Indicator**

It flashes approximately every 24 s while the local Lan of IQLs is being built, after which it stays on indicating that the IQL has successfully communicated with at least one other IQ System device on the LONWORKS network. If the IQL does not receive any messages (i.e. a deaf IQL), it will flash every second.

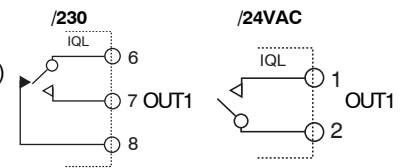
**Backup**

The data (shell firmware, strategy, parameters, logged data) is stored in flash memory which is non-volatile in the case of power failure. The flash memory is only written to at midnight or after a write to the address module in order to prolong the life of the flash memory. Any changes to sensor or driver types should be terminated by a text comms reset command R(z=1) to immediately write the changes to flash and reset the unit; note that this command clears logged data and sets the time to zero. Any other parameter changes (other than address module changes and changes to current time) should be terminated by the text comms command R(z=0) to immediately write the changes to flash.

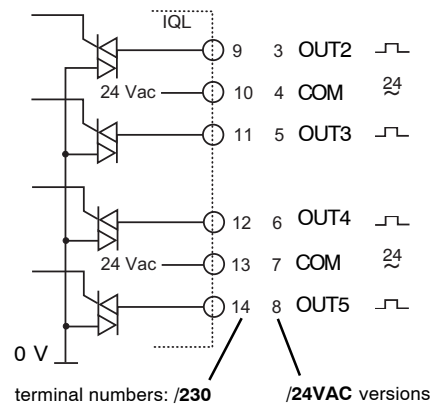
**Outputs**

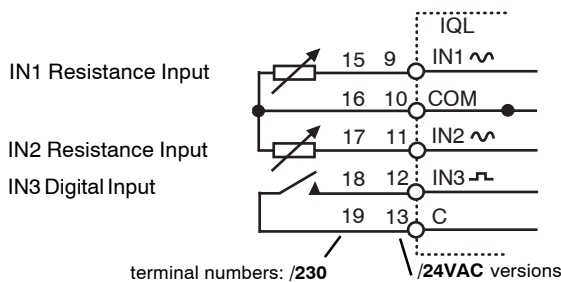
**Relay Output**

(OUT1 - e.g. fan on/off switch)



**Triac Outputs (OUT2, 3, and OUT4, 5 - e.g. raise/lower valves)**



**HARDWARE** (continued)**Inputs****Inputs 1 and 2**

Variable resistance (analogue) input, 0 to 29 k $\Omega$ . The use of the inputs is defined by the strategy, the following are examples:

**Thermistor temperature sensor input** (/230, normally input 1, /24VAC, normally input 2). Thermistor inputs are scaled for a standard IQ System thermistor (10k $\Omega$  at 25 °C, 77 °F). Scaling range 2.5 °C to 60 °C (36.5 °F to 116 °F). Conversion accuracy  $\pm 0.25$  °C,  $\pm 0.45$  °F over range (10 to 30 °C, 50 °F to 86 °F).

**Potentiometer input** (/230, normally input 2, /24VAC, normally input 1). Scaled for standard IQ System potentiometer (1 k $\Omega$  to 11 k $\Omega$ ). A potentiometer input is automatically self calibrating to give 0% to 100% of adjustment over full range of potentiometer. If required calibration may be set by turning potentiometer to both ends of range, and waiting 6 secs at each endpoint.

**Input 3**

Volt free contact (digital) input. 5 Vdc supply via 10 k $\Omega$ . Wetting current 0.5 mA. Alternatively input 3 provides a TBus connection for use by the RD-IQL (room display).

**Displays**

The RD-IQL/K (Room Display) is a wall mounting temperature sensor and 3 digit display with control and indication of setpoint. The RD-IQL/KOS also provides an occupation override switch and indicator. The RD is connected to IN3. Some IQL configuration parameters must be changed for an RD-IQL to operate with the IQL (see strategy data sheet).

Connecting an RD renders some of the normal features inoperative:

RD-IQL/K: The RD's potentiometer must be used if a potentiometer is required, (not IN1 for /24 Vac or IN2 for /230). A separate sensor connected to IN1 or IN2 (as appropriate) may be used instead of the RD's; this is achieved by maintaining the normal sensor type for IN1 or IN2 (as appropriate). There will be no PIR or pushbutton input. A fan speed switch connected to IN3 may be used.

RD-IQL/KOS: The same as for RD-IQL/K but the /KOS gives use of its pushbutton.

The SDU-LON (Smart Display Unit) is a wall mounting electroluminescent display that can be connected to the LONWORKS bus and attached to its IQL. It enables the user to view and adjust selected parameters within the controller. The SDU-LON has a real time clock that can set the controller's time, it also provides it with a time zone and calendar features (see SDU data sheet TA200559).

**Sensors**

The TB/TS provides a wall mounting thermistor space sensor that can be connected to the IQL11+/230 input 1, IQL11+/24VAC input 2 (see TB/TS data sheet TA200603). The TB/TS/K also provides setpoint adjustment, (IQL11+/230 input 2, IQL11+/24VAC input 1). The TB/TS/KE has the TB/TS/K features plus an occupation override push button to connect to input 3.

**SYSTEM**

Full system details are covered by IQ System LONWORKS Products Engineering Manual.

**LONWORKS bus**

The IQL is an IQ controller which uses the LONWORKS bus as its communications network. It is LONMARK compliant and will communicate with other LONMARK devices.

**LONWORKS Integration**

In a LONWORKS system consisting only of IQ System devices no LONWORKS installation is required as IQ System LONWORKS products self-install. Installation onto a LONWORKS network management tool is only necessary if it is required to bind LONMARK devices to the IQL strategy variables, if LINC's, pre-version 3.23, straddle a router, if other devices on the LONWORKS network have address conflicts with IQ System LONWORKS devices, or if LONWORKS routers (e.g. IQLROUTERS) are used on an installed system. If one IQ System LONWORKS device is installed, all IQ System LONWORKS devices must be installed.

From a LONWORKS network perspective the IQL is supplied in a configured state i.e. it will install on the network with its address set up and communicate using IQ system communication. It can be set to an unconfigured state using a LONWORKS Management Tool.

**IQL address**

The IQL device and Lan number are set up in the factory on a rolling basis, so in a batch of IQLs, each will have a different factory address (printed on the unit's label along with its Neuron ID). IQ System LONWORKS devices on the same Lan must be on same LONWORKS subnet (and hence same side of LONWORKS router). An IQL may be re-addressed by terse text comms (IqlTool 2 recommended). New addresses should be written on the unit's label; a tear-off adhesive label strip with unit ID and address information can be used for a paper record e.g. log book.

**SYSTEM** (continued)

**Communication**

The 3xtend/EINC L or LINC acts as an interface between the IQ System current loop Lan and the LONWORKS bus. It enables IQLs to communicate with IQ System Supervisors by terse text comms and with IQ System IQs using IC Comms. The 3xtend/EINC L is the preferable interface, but if the system is installed on a LONWORKS Management tool the LINC must be used. If the IQL is bound to other LONMARK devices it communicates with them using the Network Variables (NVs), listed in the accompanying tables. The first table shows the LONMARK Node network variables and there are two tables showing the network variables for the LONMARK profiles 8501 (used by WR2, WR4, WT2, WT4, AR2 strategies) and 8502 (used by VVT strategy). (Note that custom strategies may not have these variables.) The binding to a variable is done by using both SNVT (standardised network variable type) and NV name for each variable. All the network variables are described in the manual TE200292.

Table of Network Variables for IQL11+ LONMARK Node

nv name	SNVT	Strategy Var.	Label
<b>LONMARK Node</b>			
<b>Mandatory Network Variables</b>			
nviRequest	SNVT_obj_request		
nvoStatus	SNVT_obj_status		
<b>Optional Configuration Properties</b>			
nciNetConfig	SNVT_config_src		LONWORKS Managed
nciMajDevVer	SNVT_count		
nciMinDevVer	SNVT_count		
<b>Manufacturer Defined Section</b>			
nciDomainIndex	SNVT_count		LONWORKS domain index
nciDomainWide	SNVT_lev_disc		LONWORKS domain wide
nciMsgCode	SNVT_count		LONWORKS message code
nciBufferSize	SNVT_count		Router buffer size
nviCurrDateTime	SNVT_time_stamp		
nviSecurity Code	SNVT_count		
nvoGenerator	SNVT_count		

Table of Network Variables for IQL11+ LONMARK profile 8501

nv name	SNVT	Strategy Var.	Label
<b>LONMARK Profile 8501</b>			
<b>Mandatory Network Variables</b>			
nviSpaceTemp	SNVT_temp_p	K2	RemoteSpaceTemp
nvoSpaceTemp	SNVT_temp_p	S1	SpaceTemp
nvoUnitStatus	SNVT_hvac_status		
<b>Optional Network Variables</b>			
nviSetpoint	SNVT_temp_p	K1	Remote Setpoint
nviSetptOffset	SNVT_temp_p	K8	Remote SP Offset
nviOccManCmd	SNVT_occupancy	K6	Remote Occ
nvoEffectSetPt	SNVT_temp_p	S2	Setpoint
nvoEffectOccup	SNVT_occupancy	S3	Occupancy
nvoFanSpeed	SNVT_switch	I1	Fan Enabled
nvoHeatPrimary	SNVT_lev_percent	S4	Heating Demand
nvoCoolPrimary	SNVT_lev_percent	S5	Cooling Demand
<b>Mandatory Configuration Properties</b>			
nciSndHrtBt	SNVT_time_sec		
nciSetpoints	SNVT_temp_setpt		
<b>Optional Configuration Properties</b>			
<b>Manufacturer Defined Section</b>			
nvoA6	SNVT_switch	S6	
nvoA7	SNVT_temp_p	S7	
nvoA8	SNVT_temp_p	S8	
nviA19	SNVT_temp_p	K3	OCC Deadbnd
nviA20	SNVT_temp_p	K4	Standby Deadbnd
nviA21	SNVT_temp_p	K5	NOCC Deadbnd
nviA22	SNVT_temp_p	K7	
nviB18_0	SNVT_switch	W1	O=4Pipe I=2Pipe
nviB18_1	SNVT_switch	W2	Summer Mode
nviB18_2	SNVT_switch	W3	
nviB18_3	SNVT_switch	W4	O=Water I=Air
nviB18_4	SNVT_switch	W5	Window Mode
nviB18_5	SNVT_switch	W6	O=Pb I= PIR
nviB18_6	SNVT_switch	W7	Frost Condition
nviB18_7	SNVT_switch	W8	Remote Shutdown
nvoB1_1	SNVT_switch	I2	Unit Occupied
nvoB1_2	SNVT_switch	I3	Unit Unoccupied
nvoB1_3	SNVT_switch	I4	Unit in Bypass
nvoB1_4	SNVT_switch	I5	Unit in Standby
nvoB1_5	SNVT_switch	I6	
nvoB1_6	SNVT_switch	I7	
nvoB1_7	SNVT_switch	I8	

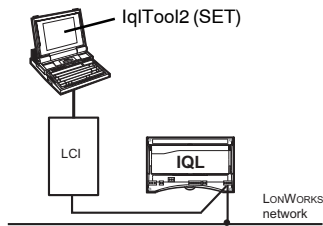
Table of Network Variables for IQL11+ LONMARK profile 8502

nv name	SNVT	Strategy Var.	Label
<b>LONMARK Profile 8501</b>			
<b>Mandatory Network Variables</b>			
nviSpaceTemp	SNVT_temp_p	K2	RemoteSpaceTemp
nvoSpaceTemp	SNVT_temp_p	S1	SpaceTemp
nvoUnitStatus	SNVT_hvac_status		
<b>Optional Network Variables</b>			
nviSetpoint	SNVT_temp_p	K1	Remote Setpoint
nviSetptOffset	SNVT_temp_p	K8	Remote SP Offset
nviOccManCmd	SNVT_occupancy	K6	Remote Occ
nvoEffectSetPt	SNVT_temp_p	S2	Setpoint
nvoEffectOccup	SNVT_occupancy	S3	Occupancy
nvoHeatPrimary	SNVT_lev_percent	S4	Heating Demand
nvoCoolPrimary	SNVT_lev_percent	S5	Cooling Demand
<b>Mandatory Configuration Properties</b>			
nciSndHrtBt	SNVT_time_sec		
nciSetpoints	SNVT_temp_setpt		
<b>Optional Configuration Properties</b>			
<b>Manufacturer Defined Section</b>			
nvoA6	SNVT_switch	S6	
nvoA7	SNVT_temp_p	S7	
nvoA8	SNVT_temp_p	S8	
nviA19	SNVT_temp_p	K3	OCC Deadbnd
nviA20	SNVT_temp_p	K4	Standby Deadbnd
nviA21	SNVT_temp_p	K5	NOCC Deadbnd
nviA22	SNVT_temp_p	K7	
nviB18_0	SNVT_switch	W1	O=Heat I=Cool
nviB18_1	SNVT_switch	W2	Drive Open
nviB18_2	SNVT_switch	W3	Drive Close
nviB18_3	SNVT_switch	W4	VVT Vent Mode
nviB18_4	SNVT_switch	W5	
nviB18_5	SNVT_switch	W6	Disable TOV Pb
nviB18_6	SNVT_switch	W7	
nviB18_7	SNVT_switch	W8	Remote Shutdown
nvoB1_0	SNVT_switch	I1	
nvoB1_1	SNVT_switch	I2	Unit Occupied
nvoB1_2	SNVT_switch	I3	Unit Unoccupied
nvoB1_3	SNVT_switch	I4	Unit in Bypass
nvoB1_4	SNVT_switch	I5	Unit in Standby
nvoB1_5	SNVT_switch	I6	
nvoB1_6	SNVT_switch	I7	
nvoB1_7	SNVT_switch	I8	

**SYSTEM** (continued)**IqITool2**

IqITool2 software tool connects directly to the LONWORKS segment by way of the LCI (LONWORKS Comms Interface) using adaptor cables supplied with the interface. It runs on a PC on which SET v5.1 or greater has been installed.

IqITool2 facilitates mapping the LONWORKS segment, resolving duplicate addresses on LONWORKS, water balancing (/WR2, /WR4, /WT2, /WT4 only), identifying using service button, associating with SDU-LON, monitoring inputs and exercising outputs, setting as a timekeeper, and configuring for RD. It provides access to text communications for changing module parameters (e.g. knobs, switches, changing a generic strategy).

**INSTALLATION**

Both /24VAC and /230 versions must be installed inside a protective case (if not well outside normal reach e.g. behind a false ceiling). The /USA/UL/24VAC unit is rated as 'UL916 listed open energy management equipment'. It should be mounted either on DIN rail or flat surface (/230 has 4 hole mounting, /24 has 2 hole mounting). The IQL installation involves the following procedure:

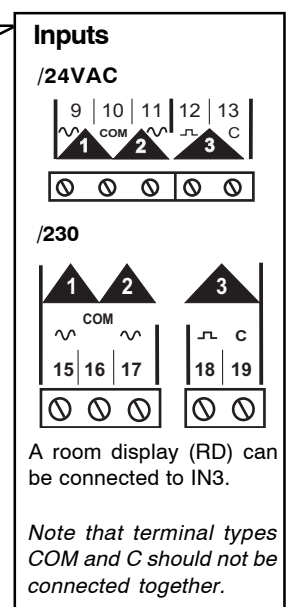
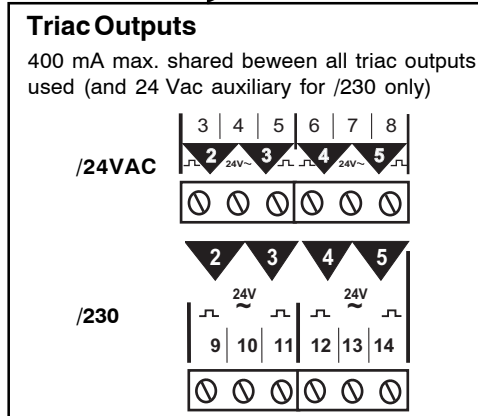
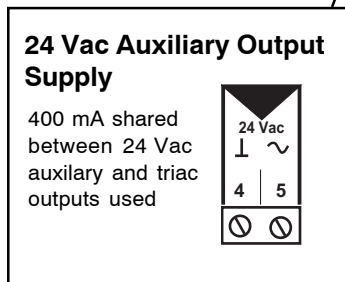
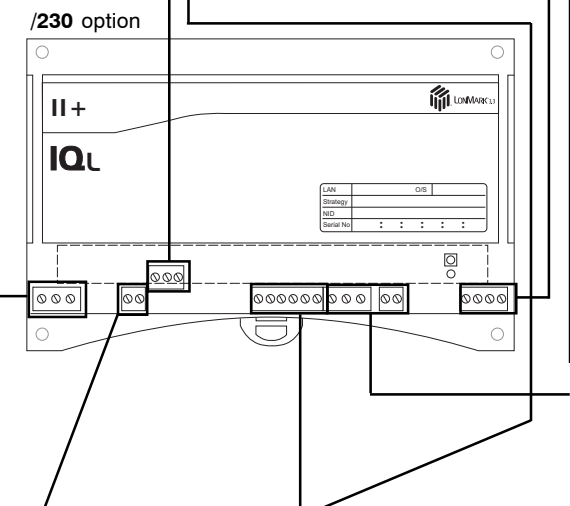
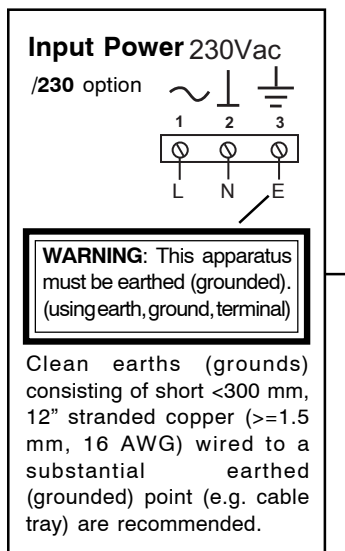
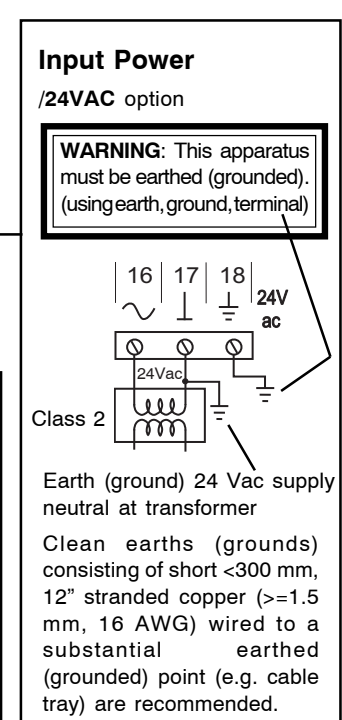
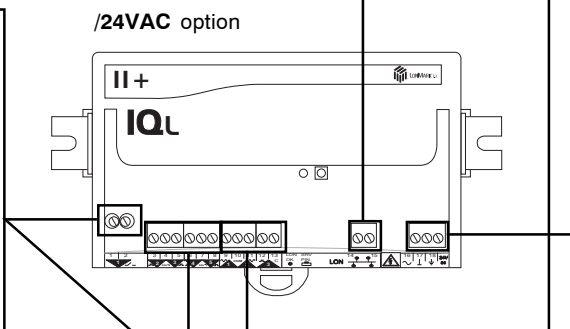
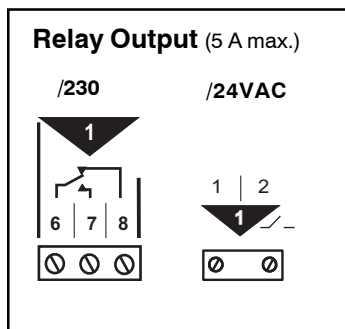
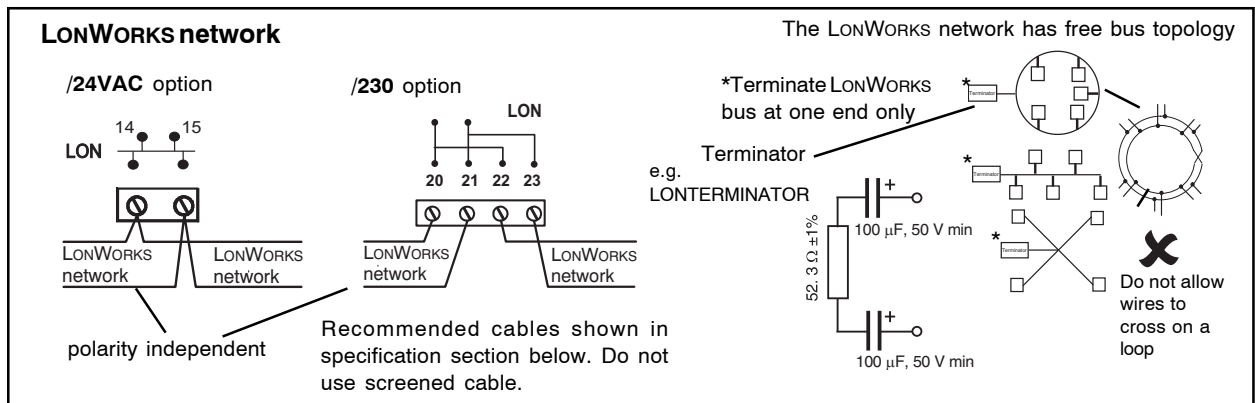
- Mount the unit in position
- Connect power supply (do not switch on)
- Earth (ground) unit
- Connect LONWORKS network
- Connect I/O
- Switch on power to unit
- Check IQ system communications
- Configure core module parameters if required
- Set up with LONWORKS Management Tool if required (see LONWORKS integration above) and bind any network variables
- Configure strategy parameters if required
- Configure rest of system
- Test system

*Note: If installation on a LONWORKS Management Tool is required, the installer must have LONWORKS engineering expertise*

The installation procedure is covered by IQL11+/xxx/24VAC Installation Instructions, TG200233 or IQL11+/xxx/230 Installation Instructions, TG200392. If supplied with a custom strategy, also see appropriate strategy installation instructions.

INSTALLATION

CONNECTIONS



See strategy data sheet for input/output connection details

**ORDER CODES**

**UK Order Codes**

IQL11+/[strategy]/[power]  
e.g. IQL11+/WR4/24VAC

**USA Order Codes**

not available in USA IQL11+ controller with 24 Vac supply and generic strategy set for Water Side, 4 Pipe, Raise/Lower (floating).  
IQL11+ cable with 24 Vac supply and generic strategy set for Airside, Raise/Lower (floating) for USA. UL rated.

IQL11+/AR2/USA/UL/24VAC 882001285

[strategy]	[power]	
For standard strategies and options, see IQL11+/xxx Standard Strategies Data Sheet TA200245	/24VAC	24 Vac Supply
	/230	230 Vac Supply

<b>LONTERMINATOR</b>	<b>882000350</b>	Universal LONWORKS terminator (see LONTERMINATOR data sheet TA200229)
<b>SDU-LON</b>	not available in USA	Wall mounting SmartDisplay unit enables display and adjustment of control parameters. Connects to a LONWORKS network.
<b>SDU-LON/WSA/USA</b>	<b>882001470</b>	Wall mounting SmartDisplay unit enables display and adjustment of control parameters, with wall sensor adaptor plate. Connects to a LONWORKS network.
<b>IQLROUTER/24VAC</b>	not available in USA	IQL Router with 24Vac power option.
<b>IQLROUTER/230</b>	not available in USA	IQL Router with 230 Vac power option.
<b>IQLROUTER/USA/UL/24V</b>	<b>882001300</b>	IQL Router with 24Vac power option.
<b>TB/TS</b>	<b>882000540</b>	Wall mounting thermistor space temperature sensor
<b>TB/TS/K</b>	<b>882000560</b>	As TB/TS plus setpoint adjustment
<b>TB/TS/KE</b>	<b>882000580</b>	As TB/TS/K plus occupation override push button
<b>RD-IQL/K</b>	<b>882001530</b>	Wall mounting Room Display comprising temperature sensor, 3 digit display with control and indication of setpoint
<b>RD-IQL/KOS</b>	<b>882001540</b>	As RD-IQL/K plus occupation override switch and indicator
<b>NETB/LONC/[version]/FTT/230</b>	not available in USA	LONMARK Object Node Controller enables communication with other LONMARK devices, 230 Vac supply
<b>NETB/LONC/[version]/FTT/24</b>	not available in USA	LONMARK Object Node Controller enables communication with other LONMARK devices, 24 Vac supply

Version	inputs/outputs
/EN48A/FTT	48 enumerated inputs
/IN48A/FTT	48 integer inputs
/FL48A/FTT	48 floating inputs
/EN48S/FTT	48 enumerated outputs
/IN48S/FTT	48 integer outputs
/FL48S/FTT	48 floating outputs
/GEN/FTT	8 integer, + 8 floating, + 8 enumerated inputs, + 8 integer, +8 floating + 8 enumerated outputs

<b>NETB/LONC/GEN/FTT/USA/UL/24</b>	<b>882000290</b>	UL rated boxed version of LONC requiring 24 Vac input power.
<b>*3XTEND/EINCL/230</b>	not available in USA	:Node controller which enables LONWORKS bus to be used as part of IQ System. Connects IQLs to IQ System current loop network and Ethernet. 230Vac power.
<b>*3XTEND/EINCL/24</b>	not available in USA	:Node controller which enables LONWORKS bus to be used as part of IQ System. Connects IQLs to IQ System current loop network and Ethernet. 24 Vac power.
<b>*3XTEND/EINCL/USA/UL/24</b>	<b>882001600</b>	:UL rated node controller which enables LONWORKS bus to be used as part of IQ System. Connects IQLs to IQ System current loop network and Ethernet. 24 Vac power.
<b>*NETB/LINC/FTT/USA/UL/24</b>	<b>882000280</b>	UL rated node controller which enables LONWORKS bus to be used as part of IQ System. Connects IQLs to IQ System current loop network. 24 Vac power.
<b>*NETB/LINC/FTT/230</b>	not available in USA	Node controller which enables LONWORKS bus to be used as part of IQ System. Connects IQLs to IQ System current loop network, 230 Vac power.
<b>*NETB/LINC/FTT/24</b>	not available in USA	Node controller which enables LONWORKS bus to be used as part of IQ System. Connects IQLs to IQ System current loop network, 24 Vac power.

*\*Note that the 3xtend/EINCL should be used as preference; LINC must be used if system installed on a LONWORKS Management Tool*

<b>PACK/LNC2/LONFTT/230</b>	<b>882000310</b>	LanCard node controller providing an RS232 to IQ system current loop Lan node and then to a LONWORKS network using the Lan (LNC/Lan/LINC function) on a PCI bus card. Includes wallbox and 2 adapter cables
<b>LCI/USB</b>	<b>882001300</b>	LONWORKS Commissioning Interface. Portable LONWORKS node which connects to PC to a LONWORKS network using a USB connection.
<b>TP/1/0/16/HF/200</b>	not available in USA	200 metres (218 yds) unshielded single twisted pair cable suitable for wiring LONWORKS bus.

## DISPOSAL

COSHH (Control of Substances Hazardous to Health - UK Government 2002) ASSESSMENT FOR DISPOSAL OF IQL CONTROLLER. No parts affected.

### RECYCLING.

All plastic and metal parts are recyclable. The printed circuit board may be sent to any PCB recovery contractor to recover some of the components for any metals such as gold and silver.



### WEEE Directive :

At the end of their useful life the packaging and product should be disposed of by a suitable recycling centre.

Do not dispose of with normal household waste.  
Do not burn.

## SPECIFICATIONS

### Electrical

Input Power Supply Voltage	
/230	:230 Vac -10% +15%, 50/60 Hz
/24VAC	:24 Vac ±15%, 50/60 Hz
Input Power Supply Consumption	
/230	:Up to 13 VA which consists of 3 VA internal power plus power to 24 Vac auxiliary and triac outputs
/24VAC	:Up to 12.1 VA which consists of 2.5 VA internal power plus power to triac outputs.
	In both cases the maximum current shared between the triac outputs (and 24 Vac auxiliary for /230 version) is 400 mA.
CPU	:3 processor Neuron chip
Memory	:64 kbytes flash memory, 8 kbytes RAM
Battery	:no battery required (data stored in flash memory)
Clock	:software clock (1 minute resolution)
LONWORKS network	:FTT - Free topology, 78 k baud, transformer isolated. Single termination (RC network). Can also use loop powered free topology, LPT.
LONWORKS FTT distance	:Maximum bus length, node to node distance depends on cable type:

Recommended Cables	Max bus length	Max node to node
Belden 85102	500 m (545 yds)	500 m (545 yds)
<b>IQ system</b> TP/1/0/16/HF/200 (Belden 8471)	500 m (545 yds)	400 m (430 yds)
UL Level IV, 22 AWG	500 m (545 yds)	400 m (430 yds)
JY(St) Y2 x 2 x 0.8	500 m (545 yds)	320 m (350 yds)
TIA568A Cat. 5, 24 AWG	450 m (490 yds)	250 m (270 yds)

Note that this does not include cable recommended for the IQ System current loop Lan.

Fuse :Solid stateself-resetting, protects at 500 mA.

### Inputs

IN1, IN2	:Variable resistance inputs, 0 to 29 k $\Omega$ , Bridge supply 5 Vdc.
IN3	:Volt free contact input, 5Vdc supply through 10 k $\Omega$ . Wetting current 0.5 mA IN3 provides TBus for connection of RD.

### Outputs

24 Vac Auxiliary Output Supply :24 Vac (/230 only). Uses part of 400 mA shared with triac outputs.

OUT1	:Digital output: Normally open, (/24VAC, normally open make only; /230, changeover) relay contacts. Output rated at 5 A maximum at 240 Vac ( $\cos\phi \geq 0.4$ ) and 24 Vdc (resistive load). Reduce to 2 A for 24 Vdc (inductive load $T \leq 30$ mS). For /USA/UL/24VAC UL rating applies up to 30V. Arc suppression circuit (RC) should be fitted for inductive loads, see TG200208.
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OUT2/OUT3 OUT4/OUT5	:Triac outputs equivalent to 24 Vac solid state relays. Use part of 400 mA supply shared between all four triac outputs (and with 24 Vac auxiliary output for /230 version).
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Please send any comments about this or any other Trend technical publication to [techpubs@trendcontrols.com](mailto:techpubs@trendcontrols.com)

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### Trend Control Systems Limited

P.O. Box 34, Horsham, West Sussex, RH12 2YF, UK. Tel:+44 (0)1403 211888 Fax:+44 (0)1403 241608 [www.trend-controls.com](http://www.trend-controls.com)

### Trend Control Systems USA

6670 185th Avenue NE, Redmond, Washington 98052, USA. Tel: (425)897-3900, Fax: (425)869-8445 [www.trend-controls.com](http://www.trend-controls.com)

### Mechanical

Dimensions	
/230	:205 mm (8.07") x 129 mm (5.08") x 63 mm (2.48")
/24VAC	:170 mm (6.69") x 89 mm (3.5") x 45 mm (1.77")
Material	
Box	:Flame retardant ABS
Terminal Cover	:Clear polycarbonate flap
Weight	
/230	:896 g (1lb 15.5 oz)
/24VAC	:206 g (7.25 oz)
Connectors	
/230	:all two part for 0.14 to 2.55 mm <sup>2</sup> cross section area (25 to 14 AWG) cable
/24VAC	:all single part; except the LONWORKS network connector which is two part, all for 0.14 to 2.55 mm <sup>2</sup> cross section area (25 to 14 AWG) cable (for USA/UL/24VAC use 22 to 14 AWG)

### Environmental

EMCEmission	:EN50081-1
EMCImmunity	:EN50082-1
Safety	
EU	:EN61010
USA/Canada	:(/USA/UL/24VAC only) UL rated as 'UL916 listed open energy management equipment'.
Ambient limits	
storage	:-10 °C (+14 °F) to 50 °C (122 °F)
operating	:0 °C (32 °F) to +45 °C (113 °F)
humidity	:0 to 95 %RH non-condensing
Protection	:IP20, NEMA 1
Versions	
Firmware	:Version 5.1 or later
Board	:AM104252 v6

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