

TOSHIBA

RBC-LG1-PE

16Way LonWorks® Gateway

Installation Instructions and Functional Profile

INSTALLATION

CAUTION

MAINS VOLTAGE MAY BE PRESENT IN OTHER PARTS OF THE SYSTEM SERVED BY THIS DEVICE.

ISOLATE THESE SUPPLIES ELSEWHERE BEFORE OPENING FOR SERVICE.

It is the responsibility of the user to ensure compliance with the Health and Safety at Work act and with all relevant codes of practice.

THIS DEVICE CONTAINS STATIC SENSITIVE COMPONENTS

Handle with care; avoid damage from metal swarf, do not drill the enclosure with the PCB in place.

DO NOT REMOVE ANY ELECTRONIC COMPONENTS FROM THE PCB:

IF IN DOUBT ON ANY ASPECT OF THE OPERATION OF THE LONWORKS NETWORK AND THE RBC-LG1-PE GATEWAY, CONSULT THE NETWORK ADMINISTRATOR.

PLEASE KEEP THESE INSTRUCTIONS WITH THE UNIT FOR REFERENCE

Further copies of these instructions, the xif file and a set of user resource files are available on the Toshiba web site:

www.toshiba-aircon.co.uk

The xif file can also be uploaded from the device itself using LonMaker® for windows.

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INSTALLATION

INTRODUCTION

The **TOSHIBA RBC-LG1-PE LonWorks® GATE WAY** allows a single system, or any suitable combination of up to 16 systems to be directly coupled to a LonWorks® network.

Air Conditioning system settings can then be altered and monitored individually for each unit or in groups of units using outputs from the LonWorks® network. For setting up and operation of the main air conditioning systems, please refer to the relevant Toshiba service data and installation books.

Table 1 details the Gateway specifications, **Table 2** lists the indoor units suitable for connection to this device; any matched outdoor unit can be used, including Super Multi systems.

Table 1: RBC-LG1-PE LonWorks® GATE WAY	
Packed Dimensions H x W x D (mm)	89 x 197 x 297
Maximum outside dimensions (mm) H x W x D – Including flange and cable entry glands.	227 x 157 x 65
Fixing Centres (mm) 4 No: – H x W	140 x 143
Electrical Glands.	3 No: 20mm
Net Weight (kg)	1.6
Packed weight (kg)	1.8
Operating Temperature Range (°C)	0 - 45
Storage Temperature Range (°C)	-40 - +85
Fuse	1A - HRC 20mm
Power Consumption	230V/50 Hz 5W
Toshiba Comms cable type	2 core screened
Uses FTT – 10A Free Topology Transceiver	

Table 2: COMPATIBLE HEAT PUMP – INDOOR UNITS		
<p>CARCASE TYPE: RAV-104NH-PE RAV-134NH-PE RAV-164NH-PE RAV-264NH-PE</p> <p>LOW WALL/PAINTED FLOOR: RAV-164SH-PE RAV-264SH-PE</p> <p>WALL TYPE: RAV-134KH-PE RAV-164KH-PE RAV-264KH-PE</p>	<p>CEILING TYPE; RAV-134CH-PE RAV-164CH-PE RAV-264CH-PE RAV-364CH-PE RAV-464CH-PE</p> <p>2 WAY CASSETTE TYPE: RAV-104TUH-PE RAV-134TUH-PE RAV-164TUH-PE</p>	<p>4 WAY CASSETTE TYPE: RAV-164UH-PE RAV-264UH-PE RAV-364UH-PE RAV-464UH-PE</p> <p>BUILT IN DUCT TYPE: RAV-164BH-PE RAV-264BH-PE RAV-364BH-PE RAV-464BH-PE</p>

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FIXING THE GATEWAY ASSEMBLY:

The Gateway device may be sited in any convenient indoor position though it is recommended that it be situated as close as possible to the indoor unit.

It may be wall mounted, fixed in ceiling voids or incorporated into a control panel or similar enclosure; details of dimensions and fixing centres together with cable entry points are outlined in **figure 4**.

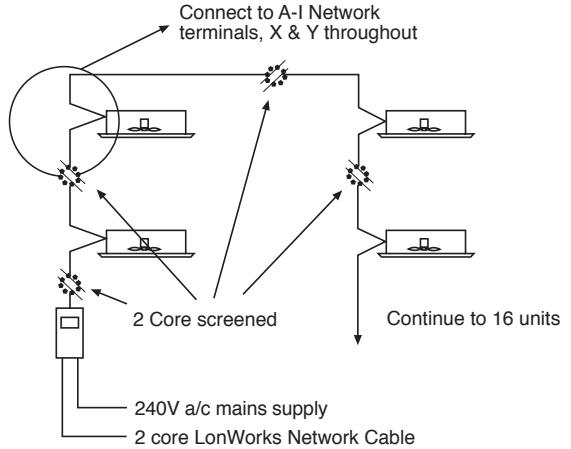


Figure 1. Wiring

WIRING THE INTERFACE TO THE INDOOR UNITS:

Wiring the LonWorks is straightforward.

Provide a 230 volt supply to the marked terminals on the Interface, L & N. Provide an earth to the earth terminal on the casing. Interconnect the terminals marked X Y on the interface with the same terminals at each indoor unit, using 2 core screened cable. Ensure continuity of the screen throughout and connect one end of the screen only to earth at the terminal provided on the LonWorks interface. Do not connect any other part of the screen to earth to avoid possible signal degradation.

SETTING THE INDOOR UNIT ADDRESSES

Before the systems can work on the LonWorks / Interface combination, it is essential to set the indoor unit addresses. Allocate an address number from 1 to a maximum of 16 to each of the indoor units. This series of numbers must be sequential and can be in any order.

No two units should be set to the same number. We recommend that the layout is recorded.

Setting the addresses

Visit each indoor unit and access the PCB
Locate and set the address switches as follows:

- Switch 01 (16 position rotary switch) – position 1 on all units
- Switch 02 (7 bit DIP switch) – As outlined in **Table 3. and figure 2**.

DIP switches 1 - 4 sets the indoor unit address in binary combination from 1 to 16 as shown in **Table 3**.

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Table 3: Unit Address Schedule

PCB Switch 2							
Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	FUNCTION
SIGNIFICANT PLACE				NOT USED ALWAYS SET SWITCHES 6 & 7 AT OFF POSITION		ON	LAN ADDRESS SET AT THE PCB
4th	3rd	2nd	1st			OFF	LAN ADDRESS SET AT THE CONTROLLER
OFF	OFF	OFF	OFF			ON	0000 - UNIT No: 1
ON	OFF	OFF	OFF			ON	0001 - UNIT No: 2
OFF	ON	OFF	OFF			ON	0010 - UNIT No: 3
ON	ON	OFF	OFF			ON	0011 - UNIT No: 4
OFF	OFF	ON	OFF			ON	0100 - UNIT No: 5
ON	OFF	ON	OFF			ON	0101 - UNIT No: 6
OFF	ON	ON	OFF			ON	0110 - UNIT No: 7
ON	ON	ON	OFF			ON	0111 - UNIT No: 8
OFF	OFF	OFF	ON			ON	1000 - UNIT No: 9
ON	OFF	OFF	ON			ON	1001 - UNIT No: 10
OFF	ON	OFF	ON			ON	1010 - UNIT No: 11
ON	ON	OFF	ON			ON	1011 - UNIT No: 12
OFF	OFF	ON	ON			ON	1100 - UNIT No: 13
ON	OFF	ON	ON			ON	1101 - UNIT No: 14
OFF	ON	ON	ON			ON	1110 - UNIT No: 15
ON	ON	ON	ON			ON	1111 - UNIT No: 16

Figure 2. Switch Positions

DIP switches 5 & 6 are factory set at OFF.

They are not used and **must be set in the OFF position at all times.**

If these switches are altered the systems will cease to function.

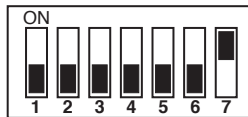
Switch 7 configures the address setting location. It can be set at either the Central Controller or at the indoor unit.

When a LonWorks interface is used, it must **always** be set at the indoor unit position, as shown.

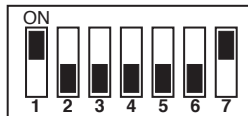
Example:

To set units 1, 2 & 3:

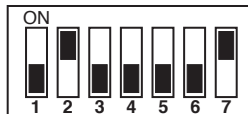
Switch setting for unit No: 1



Switch setting for unit No: 2



Switch setting for unit No: 3



Continue switch settings up to system 16.

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NETWORK TERMINATION

The device contains a network terminator.

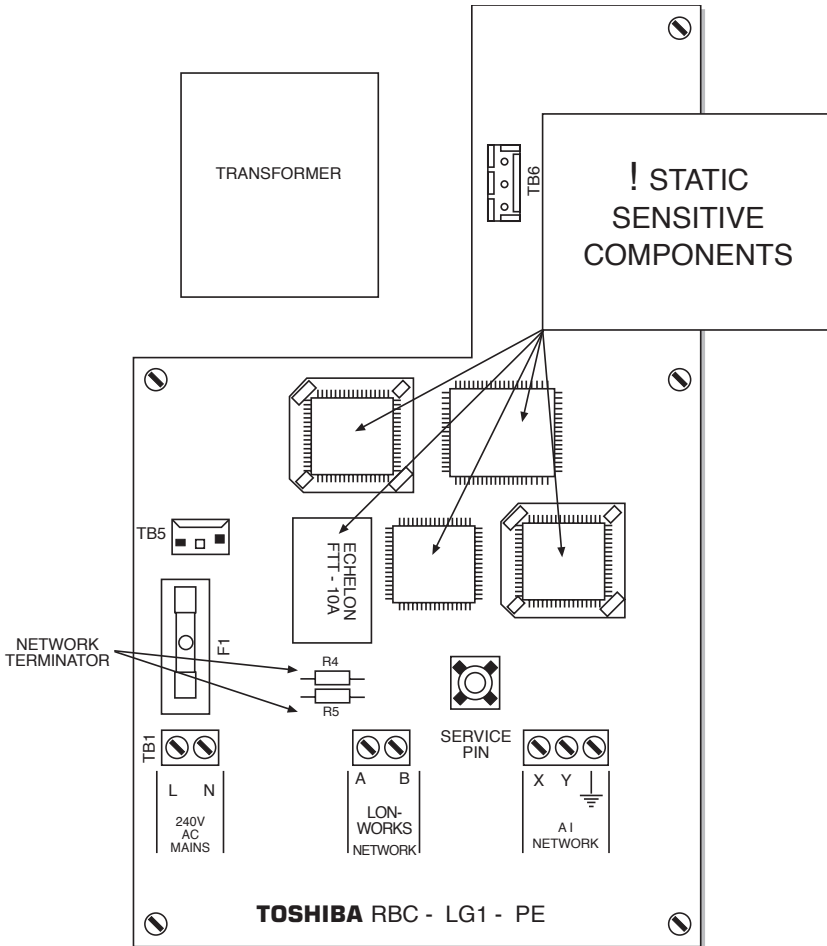
If it is not required please remove R4 and R5 with a pair of side cutters.

DEVICE RESOURCE FILES

Ensure that the Lg1V2 resource files are used with this Gateway.

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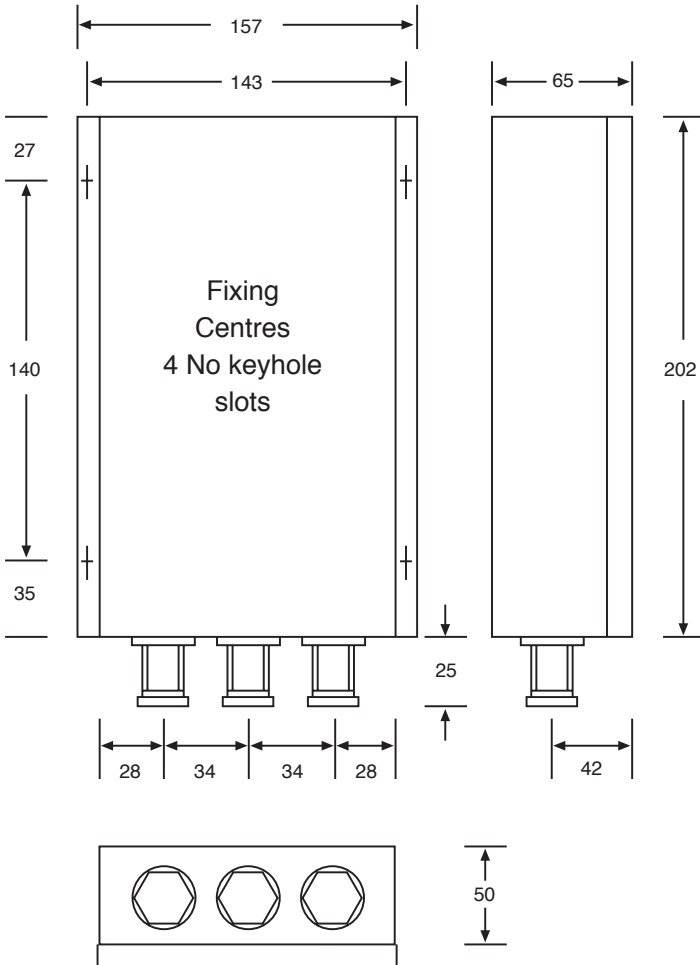
Figure 3. PCB Layout



EARTH TERMINAL IS LOCATED ON THE CASING

INSTALLATION

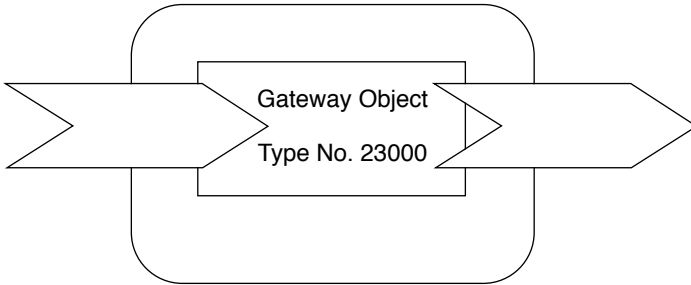
Figure 4. Dimensions



TOSHIBA Indoor Unit Gateway

Overview

This gateway provides a link between a LonWorks network and up to 16 Toshiba indoor units. It enables settings to be downloaded to the indoor unit and requests made to gather data from the indoor unit. It is based on a Gateway Object type No. 23000.



Example Usage

The Indoor Unit Gateway is designed to interface with a network management system to enable the Indoor Units to be controlled and data and settings obtained from them.

FUNCTIONAL PROFILE

Object Details



FUNCTIONAL PROFILE

Network Variable Details					
NV #	Name	In/Out	Type	Class	Description
1 ~ 16	nviHvacMode_1 ~ nviHvacMode_16	In	SNVT_hvac_mode	ram	Operation mode setting
17 ~ 32	nviSetPoint_1 ~ nviSetPoint_16	In	SNVT_temp_p	ram	Setpoint Input
33 ~ 48	nviOnOff_1 ~ nviOnOff_16	In	User Defined	ram	Switches units On or Off
49	nviClearance	In	User Defined	ram	Fault clearance input
50	nviUnitSettings1	In	User Defined	ram	Settings for specified unit
51	nviUnitSettings2	In	User Defined	ram	Settings for specified unit
52	nvi_Query	In	User Defined	ram	Requests data from specified unit
53	nvoIndoorData	Out	User Defined	ram	Data from specified unit
54	nvoFaultCode	Out	User Defined	ram	Fault code for each unit
55	nviNumUnits	In	User Defined	config	Default No. of units
56	nciDefMode	In	SNVT_hvac_mode	config	Default operation mode
57	nciDefSetpoint	In	SNVT_temp_p	config	Default setpoint
58	nciDefOnOff	In	User Defined	config	Default operation on/off
59	nciDefFanspeed	In	User Defined	config	Default fanspeed
60	nciDefLouver	In	User Defined	config	Default louver
61	nciFaultHrtbeat	In	User Defined	config	Default fault code tx. rate
62	nciFaultDelay	In	User Defined	config	Default fault code propagation delay

Note: Ram variables retain their data during power loss.

Config variables retain their data during power loss, cannot be bound and can only be modified by a network management tool.

FUNCTIONAL PROFILE

INPUT NETWORK VARIABLES

Operation Mode Setting Input

network input SNVT_hvac_mode nviHvacMode_1 .mode
to
nviHvacMode_16 .mode;

These input network variables set the operation mode of the indoor units.

Valid range	
Mode Definition	Operation
HVAC_AUTO	AUTO
HVAC_HEAT	HEAT
HVAC_COOL	COOL
HVAC_FAN_ONLY	FAN

Default Value

All set to a default via configuration network variable – nciDefMode.

Setpoint Input

network input SNVT_temp_p nviSetPoint_1
to
nviSetPoint_16;

This input network variable sets the temperature setpoint.

Valid range

The valid range is from 18° to 29° Celsius.

Default Value

All set to a default via configuration network variable – nciDefSetPoint.

FUNCTIONAL PROFILE

Default Value

None

After a filter RESET has been sent to all units this network variable is automatically reset to NORMAL.

Unit Query

network input nviQuery;

This input network variable requests data from the specified indoor unit.

Valid range

The valid range is from 1 to nviNumUnits.

Default Value

None

TOSHIBA
AIR CONDITIONING

www.toshiba-aircon.co.uk

MADE IN UK

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