▌▌CLIPSAL®
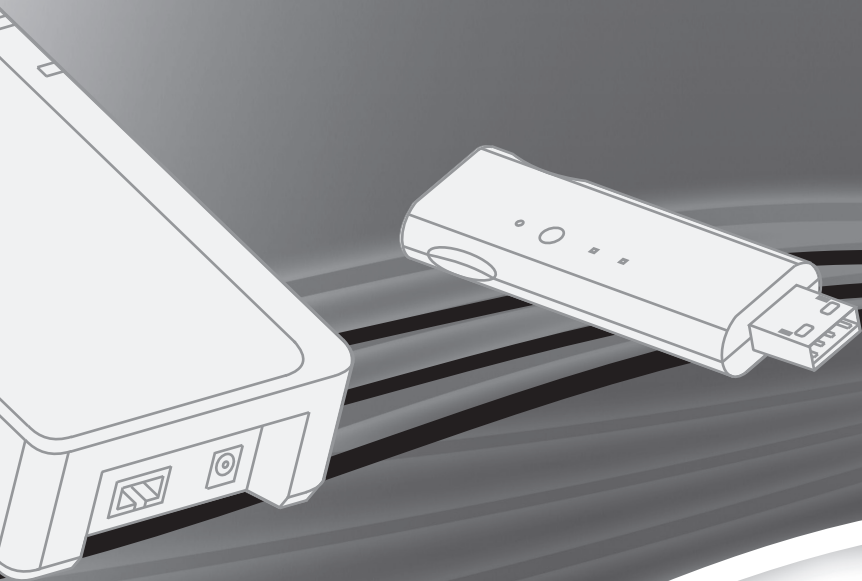
by **Schneider** Electric

**USB ZB Interface Unit
Ethernet ZB Interface Unit**

5200UZI   WHC2_5921
5200EZI   WHC2_5922

ZigBee®
Certified product

User's Manual

Contents

1.0 Package Components

The package components for the USB ZB Interface Unit and the Ethernet ZB Interface Unit are shown below.

5200UZI   WHC2_5921   USB ZB Interface Unit
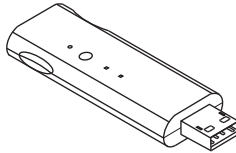
5200EZI   WHC2_5922   Ethernet ZB Interface Unit
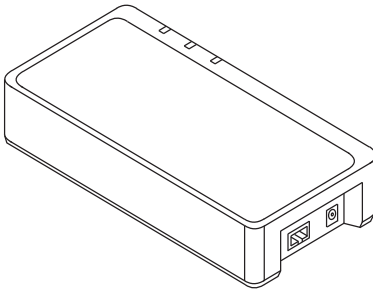
5200EZI   WHC2-5922
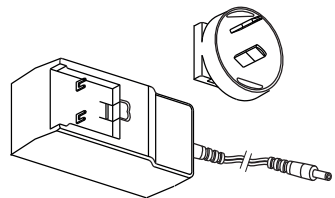
Power supply and AC Adapter for Australia and New Zealand
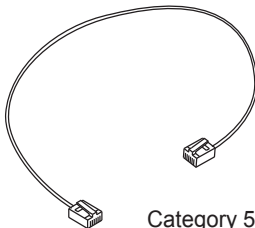
Category 5e Network Cable

Figure 1. Package Components

Note:

In this document, ZB stands for ZigBee which is a registered
trademark of the ZigBee Alliance.

2.0 Safety and Product Handling Instructions

The ZigBee Interface units are for indoor use only. The units are designed for use with a PC or with a Wiser Home Control. Please read and follow these safety Cautions and Warnings.

Warning.   Automatic Control Device
Equipment controlled by this device may start or stop at any time without warning. Do not make wiring changes or adjustments to connected appliances or lights without first disconnecting building power.

Warning.   Not Intended for Medical Applications
Do not use this equipment for any application that is critical to the health or life of any person. Do not place this equipment close to networked medical devices, such as heart monitors.

Follow these guidelines to prevent damage to the interface unit:

- Do not attempt to disassemble the interface unit. There are no user serviceable parts inside.

- Do not allow the unit to get wet.

- Do not allow metal objects to contact the pins inside the USB or Ethernet connector.

- Keep the unit away from dust, direct sunlight, heat and moisture.

- Do not force the USB interface unit into the USB slot.

- Do not allow children to play with the unit.

When operating the interface units keep the following in mind:

- Pressing and holding the USB interface's reset button or the Ethernet interface unit's SETUP button erases the current ZigBee configuration.

- Do not disconnect or remove power from the unit when the orange light is flashing rapidly(a firmware load is in progress).

3.0 Introduction

The ZB interface unit provides a wireless connection between a PC and an existing ZigBee network. The interface unit has the following capabilities:

- The ZB interface unit can connect to an existing ZigBee network using E-mode (easy mode).

- When connected to a PC with Zoolkit configuration software loaded, the ZB interface unit lets you retrieve the ZigBee configuration and create a file to be used by PICED and the Wiser Home Control Mk2.

- Using Zoolkit and the interface unit, you can view and control the devices on the ZigBee network.

The applicable software programs used with the interface unit include: Zoolkit, IP Utility, C-Bus Toolkit and PICED software programs. The software programs can be downloaded from the Clipsal CIS web site:

    http://www.clipsal.com/cis/   On the Technical page, select Downloads.

3.1 What is a ZigBee Network?

ZigBee is a wireless control system protocol that manages the operation devices on the network. Some of the advantages of a ZigBee network are as follows:

- You can set up devices such as switches or sensors to turn lights on or off, open or close curtains, and operate a range of other ZigBee devices.

- A major advantage of the ZigBee control system is that the signals can travel through solid objects and walls.

- ZigBee devices generally use very little power and are easily installed and programmed.

- You can have multiple ZigBee networks in the same area without problems.

ZigBee device compatibility is strictly maintained by the ZigBee Alliance. All devices are required to conform to strict requirements to be certified for use in ZigBee networks.

Note: The effective range of ZigBee control signals is approximately 20 metres. However, this can be affected by the type of walls and solid objects between the devices and and the proximity of devices to sources of electrical interference. In your installation, you might have to adjust the location of devices to obtain the best results.

3.2 5200UZI WHC2_5921 USB ZB Interface

The USB type interface is normally plugged directly to a USB port on a PC or to the special port provided in the Wiser Home Control Mk 2. The interface unit is powered by the active USB port. When the interface unit is powered on it can connect to (join) an existing ZigBee network using E-mode.

A freestanding PC can be used. The PC must be connected to the Internet when downloading the Zoolkit software application. Be sure to keep the PC within range of the ZigBee network when using this configuration. The PC, USB ZB interface and the ZigBee network are shown in Figure 2.
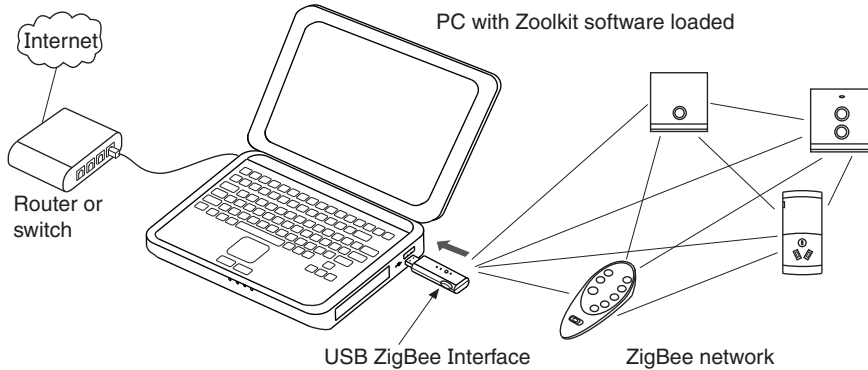

Figure 2. USB ZB Interface installed in a PC

The USB ZB interface can also be installed in the Wiser Home Control Mk 2. During the programming and setup of the Wiser unit, a PC must be attached to the local Ethernet network. Figure 3 shows a typical configuration using the Wiser unit.
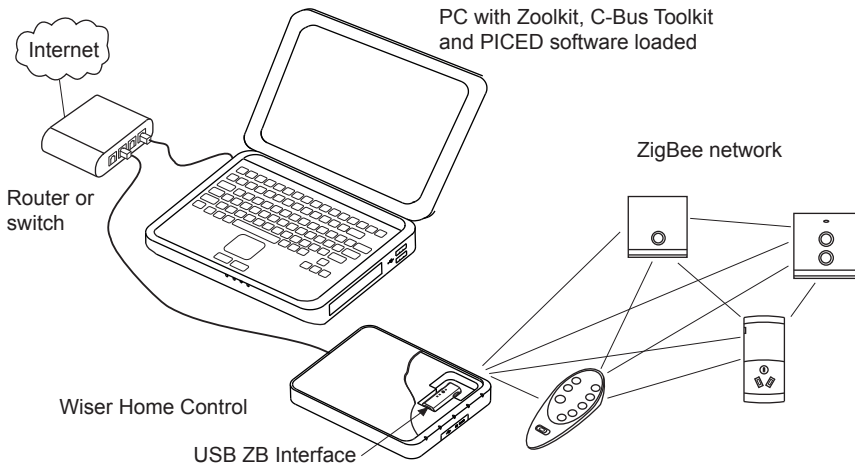
Figure 3. USB ZB Interface use with a Wiser Home Control Mk 2

3.3 5200EZI   WHC2_5922 Ethernet USB Interface

The Ethernet ZB interface is connected to a router or switch on the local Ethernet network. A network patch cable is provided with the unit. Use only the supplied AC power supply to power the unit. The PC that has Zoolkit software loaded is connected to the same network (VLAN) as the interface unit. The Control Systems IP Utility configures IP address for the Ethernet ZB unit on the local network (VLAN). The interface unit can connect to an available ZigBee network using E-mode. A typical Ethernet ZB interface installation is shown in Figure 4.
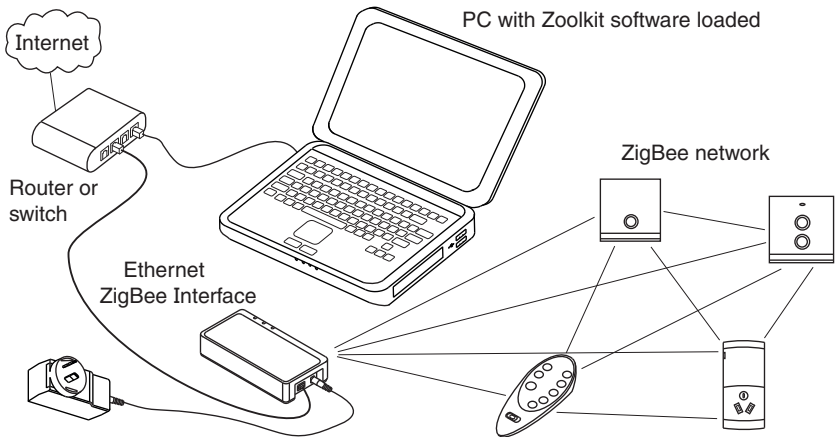
Figure 4. Ethernet ZB Interface connected to the local network

The Ethernet ZB interface unit can be installed in a horizontal or vertical position. Two keyhole slots (see Figure 5) are provided on the bottom of the housing. Choose a location for the unit where you can access the programming and reset switches.

Figure 5. Ethernet ZB Interface mounting holes

4.0 Switch Buttons and Indicators

The switch buttons and indicators (LEDs) are used during connection to the network and also provide status information. Figure 6 shows the location of the buttons and LEDs on the interface units.

USB ZB Interface
5200UZI   WHC2_5921

Ethernet ZB Interface
5200EZI   WHC2_5922

Reset button
Setup button
ZigBee LED
Power LED

Reset button
Setup button

LEDs
Power
Ethernet
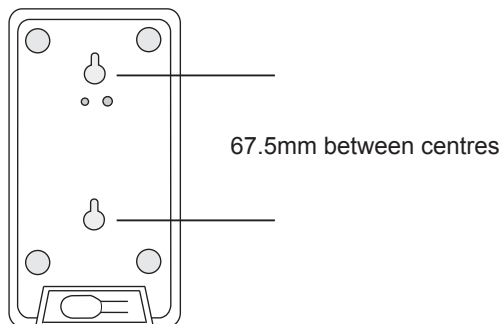ZigBee

Back side   Front side
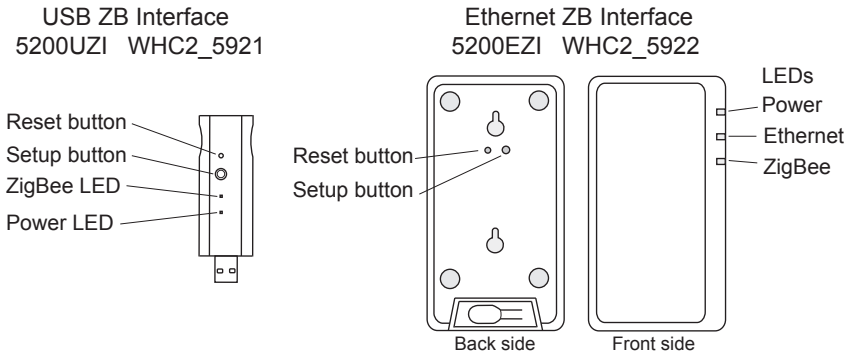
Figure 6. Location of switch buttons and LEDs on the interface units.

The **Setup Button** is used for E-mode actions, such as joining a ZigBee network or disconnecting from a ZigBee network.

The **Reset Button** restores the ZigBee settings to the default values. On the EZI ZB interface unit to reset the IP configuration, you must 'long-press' the SETUP button.

The **Power LED** indicates that the interface unit is connected to a suitable source of power.

The **ZigBee LED** shows the current state of the connection to a ZigBee network. Refer to the table.

Indicator State	**Meaning**
Orange - continuous	Not joined to a network.
Orange - flashing slowly	Attempting to join a network.
Green - continuous	Connected to a network. If no open network is found within 30 seconds, the LED goes back to the Orange-continuous mode.
Green - flashing	Responding to a ZigBee identity request
Off	Connected to an active network.
Red - flashing	Failed due to an error (such as multiple networks open). The LED will flash Red two times slowly and then go back to Orange-continuous mode.
Orange - flashing rapidly	Firmware is being updated--do not unplug

The **Ethernet LED** (Ethernet ZB Interface only) shows the state of the connection to the local Ethernet network.

5.0 Installation

The installation steps for the USB and Ethernet ZB interfaces differ slightly. The following sections tell you how to install the type of interface you are using. This User's Manual assumes that you have a working ZigBee network and that you have access to the CIS Web site on the Internet.

If you are installing multiple ZB interfaces at a site, perform the connection and commissioning steps for each network separately. Note that only one ZB interface of either type can communicate with a single ZigBee network. If you are working with multiple ZigBee networks, be sure to give them unique names using Zoolkit.

5.1 USB ZB Interface Unit

Read the requirements before installing the USB ZB Interface.

Requirements

- Load the Zoolkit software application on the PC. The USB ZB interface unit requires special hardware driver files that are included with Zoolkit. The software setup program can be freely downloaded from the CIS Web site:
    http://www.clipsal.com/cis/   On the Technical page, select Downloads.

- There must be a free USB port on the PC. At this time Zoolkit runs only on a Windows operating system. For other system requirements, refer to Zoolkit documentation.

- There must be a working ZigBee network that the interface unit can join. The typical range limit for reliable connectivity is 20 metres.

- If you are installing the USB ZB interface in a Wiser Home Control, you should configure the Wiser unit (with Toolkit and PICED software) before installing the USB ZB interface. Zoolkit software is designed to work with the Wiser unit. Refer to the Wiser Home Control installation documents.

Follow these steps when installing the USB ZB Interface.

1. Start the Zoolkit software application on the PC where you plan to install the USB ZB interface unit. If you are using a Wiser Home Control as the location for the interface unit, the Wiser unit must be operational.

2. Install the USB ZB interface unit in an active USB port on the PC or in the special location provided under the cover of the Wiser Home Control unit. Refer to Figure 2 and Figure 7 for more information.
   The power indicator should be on and the ZigBee status LED should be in the Orange - continuous state.

3. Make certain that only one local ZigBee network is available for the interface unit to join. Make sure that the network is within range and is currently operational.

4. Set the ZigBee network in its setup mode so that the interface unit can join.

Continued on the next page.

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4. Press and release the Setup button. This causes the interface unit to attempt to join the ZigBee network using E-mode.
   The ZigBee status LED should be in an orange -flashing state and then switch to the green - continuous state.

Figure 7. USB ZB Interface installation in a Wiser Home Control

5. After the interface unit is connected to the ZigBee network, you can return the network to normal operation. The ZigBee status LED should turn off to show that the interface unit is connected to an active ZigBee network.

6. Use the Zoolkit wizard to find the USB ZB interface unit and to identify devices on the ZigBee network. Refer to Zoolkit help files and tutorials for more information .

5.2 Ethernet ZB Interface

Read the requirements before installing the Ethernet ZB Interface.

Requirements

- Load the Zoolkit software application and the Control System IP Utility on the PC. The software setup programs can be freely downloaded from the CIS Web site:

    http://www.clipsal.com/cis   On the Technical page, select Downloads.

- A power outlet is required for the power supply.

- There must be a working ZigBee network that the interface unit can join. The typical range limit for reliable connectivity is 20 metres.

Follow these steps when installing the Ethernet ZB Interface.

1. Start the Zoolkit software application on a PC that is on the Ethernet network where the Ethernet ZB interface will be installed.

2. Connect a Cat.5e network cable from the Ethernet router or switch to network connector on the Ethernet ZB interface unit. A cable is provided with the unit. Refer to Figure 1 and Figure 4.

3. Connect the power supply's cable end to the jack on the Ethernet ZB interface unit, and then plug the power supply into a nearby power outlet.
   The Power indicator should be on and the ZigBee status LED should be in the orange - continuous state. There should also be activity on the Ethernet LED .

4. Make certain that only one local ZigBee network is available for the interface unit to join. Make sure that the network is within range and is currently operational.

5. Set the ZigBee network in its setup mode so that the interface unit can join.

6. Press and release the Setup button. This causes the interface unit to attempt to join the ZigBee network using E-mode.
   The ZigBee status LED should be in an orange -flashing state and then switch to the green - continuous state.
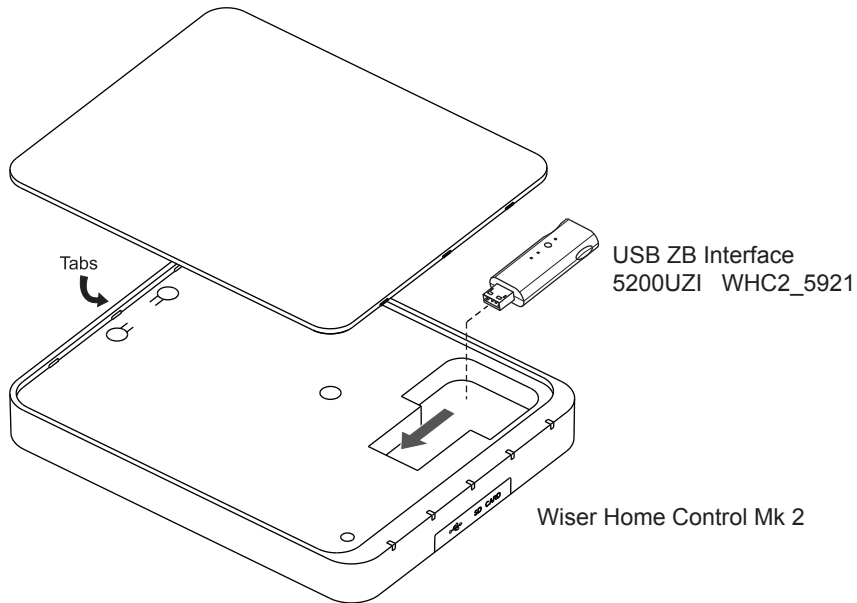
7. After the interface unit is connected to the ZigBee network, you can return the network to normal operation. The ZigBee status LED should turn off to show that the interface unit is connected to an active ZigBee network.

8. Use the Control System IP Utility to configure the IP address of the Ethernet ZB Interface unit on the local network (VLAN).

9. Use the Zoolkit wizard to find the Ethernet ZB interface unit and to identify devices on the ZigBee network. Refer to Zoolkit help files and tutorials for more information .

6.0 Commissioning and Troubleshooting

The Zoolkit Wizard follows a series of steps using dialog windows that require your input. The user interface is similar to many other applications. The Zoolkit application does the following:

- Loads device drivers on the PC as needed.

- Starts up the Zoolkit user interface (UI) and a wizard to guide you through various tasks.

- Locates and identifies the ZB interface unit or units. The user can rename the units for ease of identification and commissioning tasks.

- Finds the ZigBee network that is connected to the ZB interface unit.

- Identifies the devices on the ZigBee network and allows you to cycle them through their functions. Refer to Zoolkit help and tutorial files.

- Creates a file that the PICED software program uses to monitor and control the ZigBee devices locally, or remotely over the Internet. PICED is used with the Wiser Home Control and also with touch screen products from Schneider Electric.

6.1 Troubleshooting

If you have problems, try these remedies first. If you are unable to resolve the problem, contact your local Schneider Electric office or Technical Support.

The basic troubleshooting flow is as follows:

1. Check the physical connections between the ZB interface unit and the PC, Wiser Home Control, Ethernet router and power supply.

2. Verify that the ZB interface unit can connect to the ZigBee network using the E-mode method. The ZigBee status indicator should behave as described in Section 4. Make sure that the ZB interface unit is within 20 metres of the ZigBee network.

3. If the Zoolkit software wizard cannot locate the ZB interface device, try the following procedure:
   a. Check the IP address using the IP Utility program.
   b. Make sure that the Zoolkit program is not being blocked by a firewall or by anti-virus software.
   c. Check for error messages generated by Zoolkit.
   d. Disconnect and reconnect the ZB interface.
   e. Shut down and then restart the Zoolkit software application.

4. If Zoolkit finds the ZB interface but cannot see the ZigBee network, try rejoining the ZB interface to the ZigBee network manually using E-mode.

6.2 Reset Button

Using the reset button on the USB ZB interface will reset the ZigBee network configuration settings.

To reset the ZigBee network configuration settings on the Ethernet ZB interface unit, press and hold the SETUP button for a long-press, at least 5 seconds.

Before pressing the reset button, try powering the ZB interface off and on again. to restore connectivity. The unit undergoes a power-on reset test that sets all of the device states.

7.0 Specifications

7.1 5200UZI   WHC2_5921 USB ZB Interface

Parameter	Description
Device type	PC to ZigBee network interface
PC connection	Active USB port (power sourced from PC)
WHC connection	Dedicated port for USB ZB Interface (power sourced from WHC)
Wireless	ZigBee compliant
Radio frequency	2.4GHz, ISM band standard
Radiated power	Less than 1mW
Signal range	20m (indoor space)
Application	Indoor control of switches, relays, and motors. Not recommended for medical applications.
User controls	Setup pushbutton switch Reset switch
Indicator LEDs	Power ZigBee status, multi-colour
Software	Zoolkit configuration and management software
Ambient operating temperature	0°C to 40°C
Operating humidity	0 to 95% RH, non-condensing

7.2 5200EZI   WHC2_5922 Ethernet ZB Interface

Parameter	Description
Device type	Ethernet to ZigBee network interface
Ethernet connection	Ethernet modem or router
Power supply	AC power adapter, input voltage 100 to 240V a.c., input frequency 50/60Hz, output 24 V d.c. 1.25A, manufacutrer FranMar, model number FRA030E-S241
Wireless	ZigBee compliant
Radio frequency	2.4GHz, ISM band standard
Radiated power	Less than 1mW
Signal range	20m (indoor space)
Application	Indoor control of switches, relays, and motors. Not recommended for medical applications.
User controls	Setup pushbutton switch Reset switch
Indicator LEDs	Power ZigBee status, multi-colour Ethernet, multi-colour
Software	Zoolkit configuration and management software
Ambient operating temperature	0°C to 40°C
Operating humidity	0 to 95% RH, non-condensing

8.0 Standards Complied

Declarations of Conformity

Australian/New Zealand EMC & Electrical Safety Frameworks and Standards

Regulation	Standard	Title
EMC	AS/NZS CISPR 22	Information Technology Equipment – Radio disturbance characteristics
RF	AS/NZS 4268	Radio Equipment and Systems – Short range devices – Limits and methods of measurement

European Directives and Standards

European Council Directive	Standard	Title
EMC Directive 2004/108/EC	EN 301 489-17	Radio Equipment – Electromagnetic Compatibility and Radio Spectrum Matters
R&TTE Directive 1999/5/EC	EN 300 328	Data Transmission Equipment 2.4GHz ISM band – Electromagnetic Compatibility and Radio Spectrum Matters
Low Voltage Directive 2006/95/EC	EN 60950-1	Information Technology Equipment –Safety (EZI ZB Interface)
RoHS 2002/95/EC		Reduction of hazardous substances

International Directives and Standards

Standard	Title
CISPR 22	Information Technology Equipment – Radio disturbance characteristics – Limits and methods of measurement
CISPR 24	Information Technology Equipment – Immunity – Limits and methods of measurement
IEC 60950-1	Information Technology Equipment – Safety (EZI ZB Interface)

U.S. FCC Regulations

FCC Title 47	Part 15, Subpart B and Subpart C
	FCC ID No. : WZCS1B15258 (UZI ZB interface) WZCS1B13237 (EZI ZB interface)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Class B Product

Note: 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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.

• Increase the separation between the equipment and receiver.

• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

• Consult the dealer or an experienced radio/TV technician for help.

Subpart C Intentional, Unintentional and Incidental Radiator

Operation of an intentional, unintentional, or incidental radiator is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized [licensed] radio station, by another intentional or unintentional radiator, by industrial, scientific and medical (ISM) equipment, or by an incidental radiator.

Singapore (IDA)

Complies with IDA standards: DA104328 (UZI ZB Interface)
                              Pending (EZI ZB Interface)

China (SRRC)

CMIT ID number: Pending (UZI ZB Interface)
                 Pending (EZI ZB Interface)

ZigBee Alliance

ZigBee Certified Product – Home Automation profile

Do not dispose of this product to landfill or by incineration. This product should be disposed of by a licenced electronic waste disposal agency. In some locations it is an offense to dispose of electronic items improperly.

Warning:

Any changes or modifications not expressly approved by Clipsal Integrated Systems or Schneider Electric could void the user's authority to operate this equipment.

9.0 Installation Notes

Site Location	Installer information
Interface Unit	Product ID:
Serial Number:	MAC:
IP Address:	ZB network:
Other details:	
Interface Unit	Product ID:
Serial Number:	MAC:
IP Address:	ZB network:
Other details:	
Interface Unit	Product ID:
Serial Number:	MAC:
IP Address:	ZB network:
Other details:	

10.0 Two-Year Warranty

The USB and Ethernet ZB Interface units are covered by a two-year warranty against manufacturing defects.

Warranty Statement

The benefits conferred herein are in addition to, and in no way shall be deemed to derogate; either expressly or by implication, any or all other rights and remedies in respect to the Shneider Electric product, which the consumer has in the location where the product is sold.

The warrantor is Schneider Electric.

This Schneider Electric product is guaranteed against faulty workmanship and materials for a period of two (2) years from the date of installation.

Schneider Electric reserves the right, at its discretion, to either repair free of parts and labour charges, replace or offer refund in respect to any article found to be faulty due to materials, parts or workmanship.

This warranty is expressly subject to the Schneider Electric product being installed, wired, tested, operated and used in accordance with the manufacturer's instructions. Any alterations or modifications made to the product without permission of Clipsal Integrated Systems or Schneider Electric might void the warranty.

Schneider Electric shall meet all costs of a claim. However, should the product that is the subject of the claim be found to be in good working order, all such costs shall be met by the claimant.

When making a claim, the consumer shall forward the Schneider Electric product to the nearest Clipsal or Schneider Electric office. Provide adequate particulars of the defect within 28 days of the fault occurring. The product should be returned securely packed, complete with details of the date and place of purchase, description of load, and circumstances of malfunction.

For all warranty enquiries, contact your local Clipsal or Schneider Electric sales representative.

The address and contact number of your nearest sales office can be found at http://www.clipsal.com/locations or by telephoning Technical Support 1300 722 247 (CIS Technical Support Hotline for Australia only).

Schneider Electric (Australia) Pty Ltd

Contact us: clipsal.com/feedback

National Customer Care Enquiries:
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