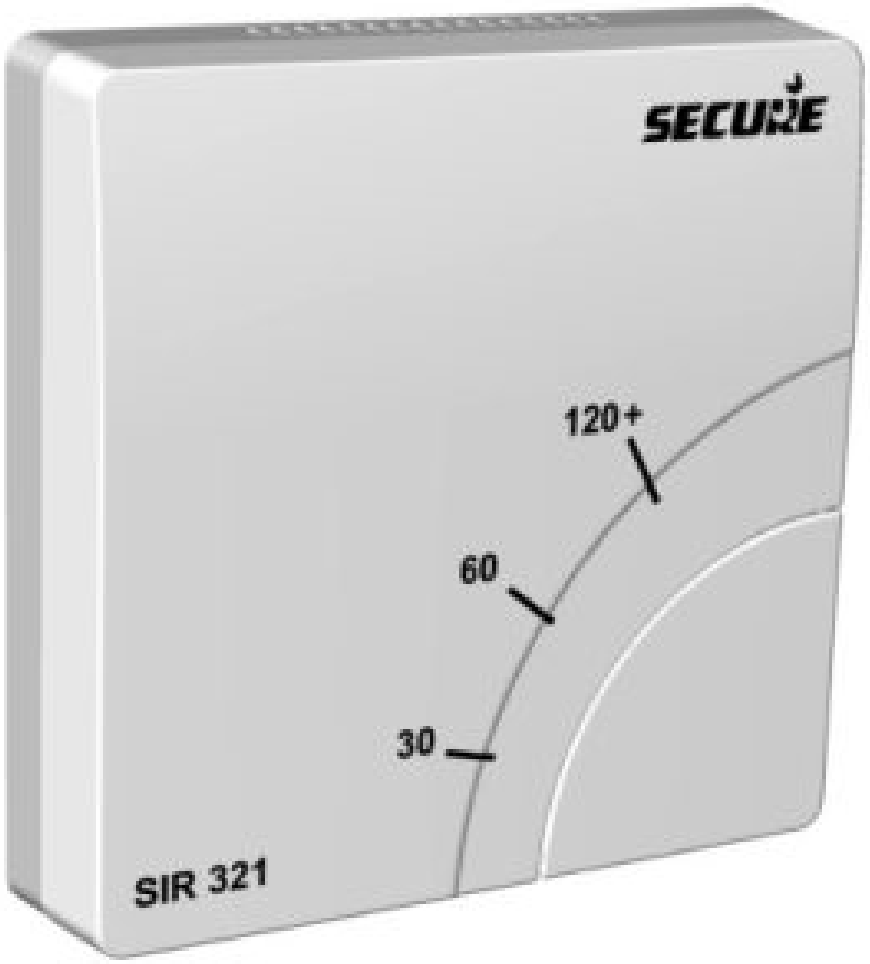
SECURE RF Countdown Timer SIR 321 User Manual

SIR 321
RF Countdown Timer

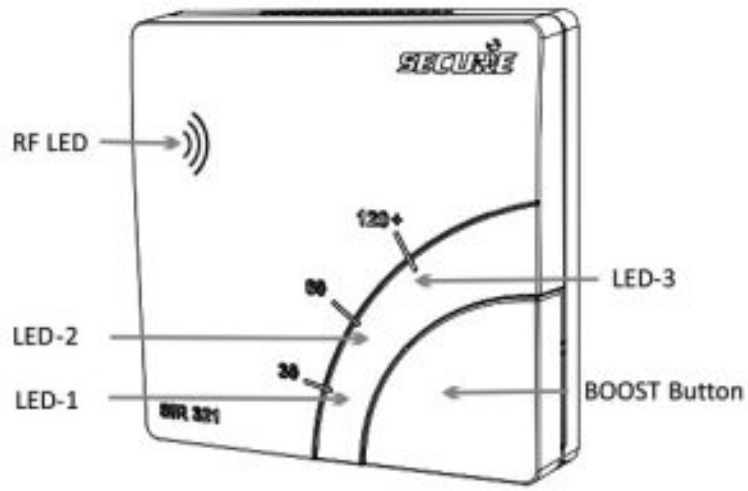


Part Number BGX501-867-R06
Installation and User Instructions

SIR 321
SIR 321 is a Z-Wave Plus(TM)certified countdown timer that can be used to control immersion heater elements or other electrical appliances rated up to 3 kW.
SIR 321 uses Z-Wave(TM) radio frequency technology to communicate with network controllers from Secure or other manufacturers. It is a mains-powered device that can also act as a network repeater.
INSTALLATION AND CONNECTION SHOULD ONLY BE CARRIED OUT BY BYA SUITABLY QUALIFIED PERSON AND IN IN ACCORDANCE WITH THE CURRENT EDITION OF THE IET WIRING REGULATIONS.

WARNING: ISOLATE MAINS SUPPLY BEFORE COMMENCING INSTALLATION AND ENSURE THE UNIT IS PROPERLY EARTHED.

Note: SIR321 can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All non-battery-operated nodes with the network will act as repeaters regardless of vendor to increase the reliability of the network.



The LEDs become operational when the unit is powered up.

User Instructions

To operate the unit press the BOOST button repeatedly until the indicator light for the required BOOST period is illuminated (see table below).

Model	1^{5t} time button pres s	2″ time button press	3rd-time button pres s	4th time button press
SIR 321	30min V2 hour)	60min (1 hour)	120min (2 hours)	off

When BOOST is active the indicator lights count down, showing the duration of the BOOST period remaining (see table below).

Model	LED -1 on	LED-1 & 2 on	LED-1, 2 & 3 on
SIR 321	Smin to3Omin left	31min to 60min left	61min to 120min left

LED -1 will flash slowly when 5 minutes of the boost period remains and will flash at a faster rate when 1 minute remains. At the end of the boost period, SIR will automatically switch to other connected appliances.
SIR 321 can also run a timer from 1 minute to 24 hours, under Z-Wave control. The RF LED shows network and joining status (see STEP-5 for details).
The appliance can be switched oz by canceling the boost period, using any of the following methods:

1. If the BOOST button has just been pressed, wait for three seconds and then press it again. The indicator lights should all turn OFF.
2. Press the BOOST button repeatedly, until ALL the indicator lights have turned OFF.
3. Press and hold in the BOOST button until ALL the indicator lights have turned OFF.

Contents

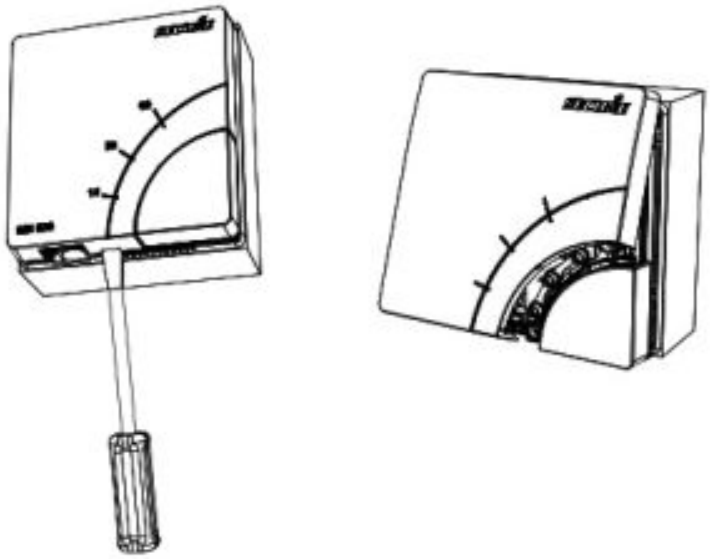
Installation

A means of disconnection from the supply, having at least 3mm contact separation in both poles, must be incorporated in the fixed wiring. We recommend a separate fused circuit from the consumer unit (24-hour supply) protected by a 15A HRC fuse or, preferably a 16A MCB. In some cases, immersion heater failure can damage the SIR. Installation of a 100mA RCD will provide additional protection for the unit. If the SIR is to be connected to a ring main then the spur feeding the controller should be protected in the same way. The SIR is NOT suitable for mounting on an unearthed metal surface.

THE SIR UNIT SHOULD BE KEPT IN ITS SEALED PACK UNTIL ALL DUST AND DEBRIS HAVE BEEN LEARNED AWAY PRIOR TO MAKING CONNECTIONS.

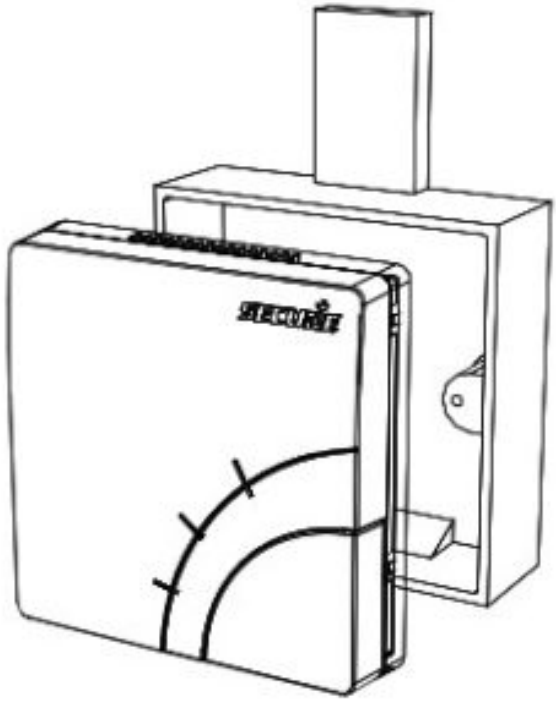
STEP-1 Unpack unit and remove the front cover

Take the SIR out of its packaging and then remove the front cover gently, using a slotted screwdriver in the notch, as shown in the picture below:



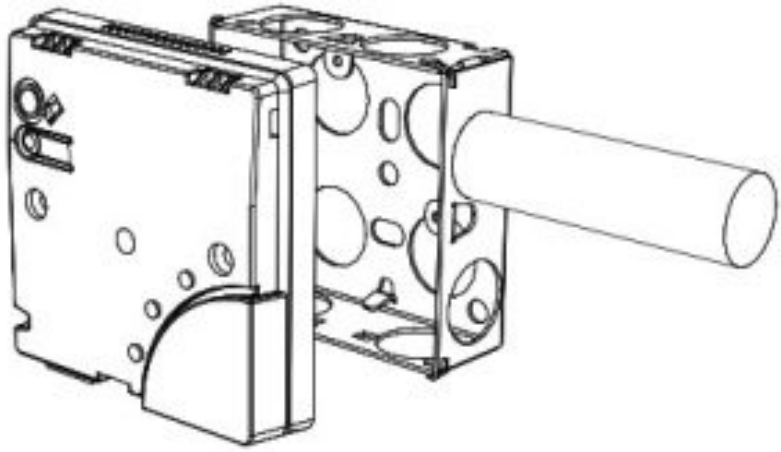
STEP-2 Preparing SIR for surface wall mounting

SIR is suitable for mounting directly onto any surface mounted single-gang molded box having a minimum depth of 25mm for the UK or 35mm for Continental Europe. Cable entry can be made through the most convenient cut-out.



Remove cut-outs before fixing the box. Where appropriate, drill the box to provide close-fitting entry for cables and heat-resistant flexible cords. Take care to remove sharp edges.
Ensure that the clamp is positioned the right way up i.e. the projections on the underside of the clamp should grip the cord in order to secure the cable firmly. The cable clamp screws must be adequately tightened up to 0.4Nm.

For flush wall mounting
SIR can be mounted directly to any standard flush mounting single-gang wiring box with a depth of 25mm for the UK(BS 4662), or 35mm for Continental Europe (DIN 49073). See pictures of gang boxes on page 23.



Clamp all surface wiring to the wall adjacent to the SIR, using trunking where appropriate. The flexible cable to the appliance should be passed through the cable entry hole in the bottom edge of the SIR and secured under the cable clamp provided.

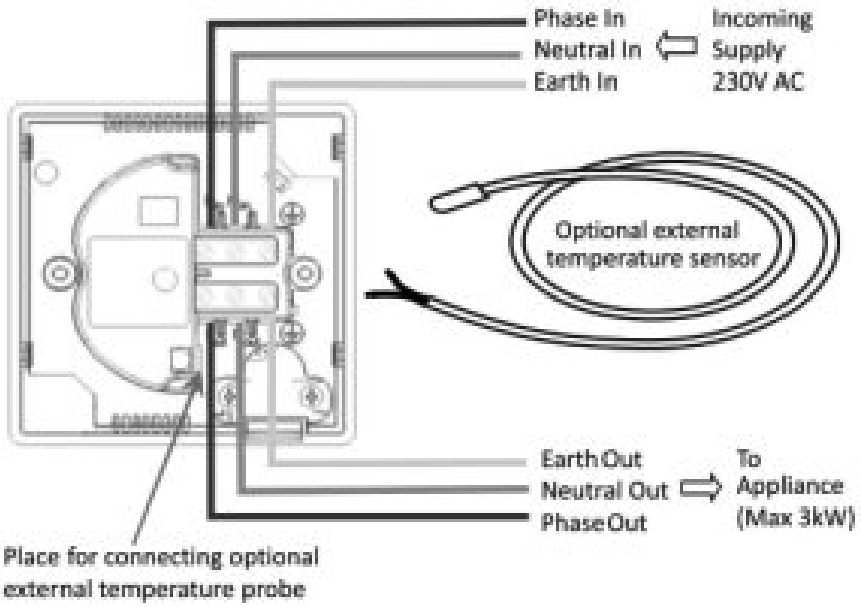
STEP-3 Making connections

Use a twin-and-earth cable with a maximum conductor size of2.5mm2 single conductor for the incoming supply to the SIR. Use a suitably rated three-core flexible cable to connect the SIR to the appliance to be switched. For appliances rated up to 2kW use a minimum of 1.0mm2 flexible conductors. For appliances rated up to 3kW use a

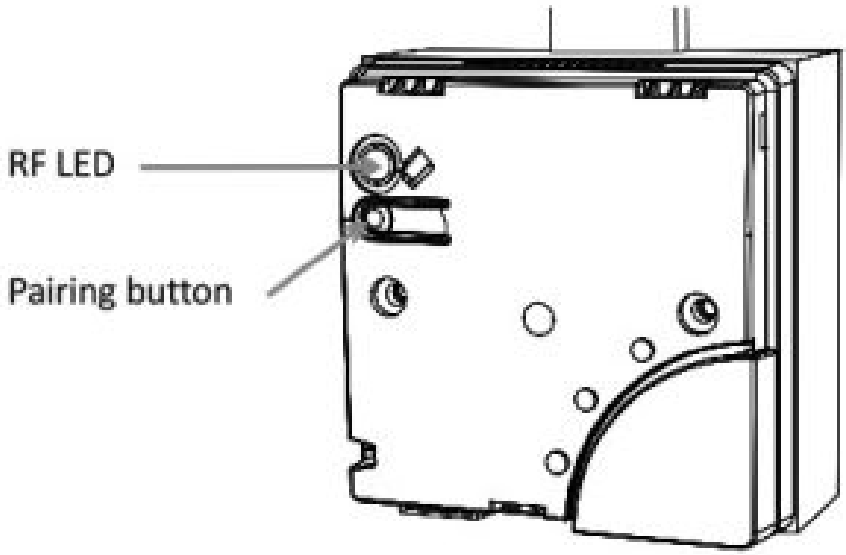
minimum of 1.5mm2 flexible conductors. The heat-resistant flexible cable must be used if connecting the SIR to an immersion heater.

Lin	Live in
N in	Neutral in
0	Supply earth terminal
L out	Live out to an appliance
N out	Neutral out to an appliance
	Appliance earth terminal

All un-insulated earth conductors must be sleeved and connected to the earth terminals on the back of the SIR. The supply earth conductor and appliance earth conductor must use the separate terminal connections provided. Switch off the mains supply and then connect the conductors for the incoming supply and the appliance on the back of the unit, as shown on the next page . Connect the two leads from the opI”ional external temperature sensor probe (if supplied). The probe wires do not have any polarity.
Note: Temperature sensor-related functionality is active only if the external temperature sensor is connected with the inclusion/exclusion process.



STEP-4 Installing SIR on wall gang/flush wall box
Carefully oXer the SIR to the molded/metal box and secure using two screws. Take care not to damage the insulation or trap the conductors when fitting to flush wall box. 13
STEP-5 Z-Wave commissioning notes
Inclusion steps:
To add the SIR onto a Z-Wave network, first put the controller in Add mod r f3 0 controller installation instructions) and then press sand to hold the pairing button on the unit until the RF LED staRs flash at a fast rate.
Then release the button.
On successful addition, the RF LED will stop flashing.

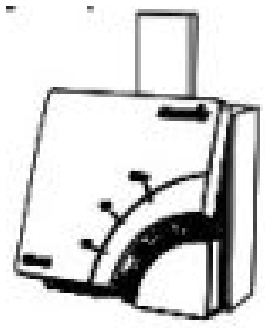


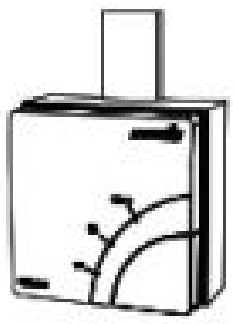
Exclusion steps:
To remove the SIR from a network put the controller in remove mode (refer to controller instructions) and then follow the sequence for inclusion, as above. After successful removal of the RF LED will flash slowly.

Device function	RF LED status
Unit not signed on to the network	RF LED slow flashing
RF removal/addition process	RF LED fast flashing
RF link lost to the controller	RF LED glow solid
RF network status is okay	RF LED off

For optimum RF communication, fit the unit above floor level, and at least 30cm away. Avoid locations alongside or behind large metal surfaces that could interfere with the low power raéo signals between the unit and the controller.

Factory reset steps:
Press the pairing button and Boost button simultaneously to put the de, vice in a factory default mode, all the configuration, and association set to factory default and removing the device from the Z-Wave network.
Note: Use this proce\lure only when the primary controller is missing or otherwise inoperable. ‘
STEP-6 Fitting front cover and final check
After fitting the mounting screws, fix the front cover back on. OPer the Print cover on fo the unit and make sure that it clicks securely in place.





Fin, ally switch on, the mains supply and check that the SIR switches the appliance on and correctly.
Z-Wave command classes support on SIR 321

Z-Wave Plus device and role	type
Role type	Always on the slave(AOS)
Device type	On/Off power switch
Generic device class	Switch binary
Specific device class	Power switch binary

Note:

1. Configuration value of out of range will not be accepted and no impact of these values on previous configurations,
2. Parameters 2 to 5 are available only when the external temperature sensor is connected. Service and Repair SIR is NOT user-serviceable. Please do not dismantle the unit. In the unlikely event of a fault occurring please contact a heating engineer or a qualified electrician.

Z-Wave Plus device and role	type
Role type	Always on the slave(AOS)
Device type	On/Off power switch
Generic device class	Switch binary
Specific device class	Power switch binary
Z-Wave supported command classes in detail	
Command class	**Security levels (When included securely)**

Association command class (V2)	**S2 unauthenticated**
SIR321 supports three association groups Group 1 – Lifeline (Maximum 1 node supported) Group 2 – Nodes to receive schedule report (Maximum 4 nodes supported) Group 3 – Nodes to receive multilevel sensor report (Maximum 4 nodes supported) **Note:** Group-3 is available only when the external temperature sensor is connected.	
Association group command class (V3)	**S2 unauthenticated**
Three association groups are supported	
Group 1: Name – “Lifeline” Profile MSB – AGI REPORT PROFILE GENERAL (0x00)= Profile LSB – AGI ¯REPORT: PROFILE ¯GENERAL LIFELINE (0x01)	
Supported Command class and command – COMMAND CLASS DEVICE RESET LOCALLY, DEVICE RESET LO-CALLY NOTIFICATION COMMAND CLASS SCHEDULE, COMMAND—SCHEDULE REPORT COMMAND CLASS SWITCH BINARY, SWITCH BINARY REPORT — COMMAND CLASS SENSOR MULTILEVEL, SENSOR MULTILEVEL REPORT (Support only with temperature sensor)	
Group 2: Name – “Schedule Report’ Profile MSB – AGI_REPORT_PROFILEGENERAL (0x00) Profile LSB – AGI REPORT PROFILE GENERAL NA (0x00) Supported Command class and command – COMMAND CLASS SCHEDULE, COMMAND1SCHEDULE_REPORT	
Group 3: Name – “Air Temperature” Profile MSB – AGI REPORT PROFILE SENSOR (0x31) Profile LSB – AGI REPORT PROFILE MULTILEVEL SENSOR TYPE TEMPERATURE (0x01)	

Supported Command class and command – COMMAND CLASS SENSOR MULTILEVEL, SENSOR MULTILEVEL REPORT **Note:** Group-3 is available only when the external temperature sensor is connected.

Basic command class (VI)	**S2 unauthenticated**
Mapped to Binary Switch Command Class: Basic Set (0x01 – 0x63) maps to Binary Switch Set (0x01 -0x63) Basic Set/Report OxFF maps to Binary Switch Set/Report OxFF. Basic Set/Report Ox00 maps to Binary Switch Set/Report Ox00 **Note:** Fail-safe timer functionality defined below in Binary Switch Command Class is also applicable for this co mmand class.	
Binary switch command class (V1)	**S2 unauthenticated**
Sets the relay ON – OxFF and (0x01 to 0x63) Sets the relay OFF – Ox00	

Note: Fail-safe timer of 60 minutes starts after the valid SET command, the timer is reloaded with 60 minutes on every successful communication with the controller. In case of communication failure with the controller for 60 minutes. Fail-safe timer will switch off the relay and communication failure indicated on RF **LED.**

Configuration command class (V1)	**S2 unauthenticated**
The unit supports five configurations, see configurations table for details of available configurations.	
Device locally reset (VI)	**S2 unauthenticated**
Used to inform lifeline node that the device has been factory reset, and is leaving the network.	
Manufacturer-specific (V2)	**S2 unauthenticated**

Manufacturer ID – 0x0059 (Secure Meters (UK) Limited) Product Type ID – Ox0010 Product ID – 0x0003 (Z-Wave Basic, Without temperature sensor) 0x0004 (Z-Wave Heating, With temperature sensor) Device ID – Type 0 and 1 for Module Serial Number (Data format UTF-S (hex))	
Multi-level sensor command class (V11)	**S2 unauthenticated**
The SIR321 will respond to the Multilevel Sensor GET command with a Multilevel Sensor REPORT. This report can be sent unsolicited to the nodes in Group 3 as per configuration (See Configuration Command Class). **Note:** This Command Class is available only when an external temperature sensor is connected.	
Power level command class (VI)	**S2 unauthenticated**
It defines RF transmit power controlling commands as useful when installing or testing a network.	
Schedule command class (V1)	**S2 unauthenticated**
All the commands are supported in this command class except Schedule State Set Command. Schedule ID – Ox01 Supported CC – Binary Switch SET command (value OxFF) Type of Schedule – Start now Duration type – Minutes Maximum schedule duration – 1440 minutes **Note:** No override and fallback mode is supported. The Binary Switch Set Command, Basic Set Command, and pressing the BOOST button will override the schedule & vice – versa. Schedules with Binary Switch Set Comm and value Ox00 are ignored.	
Version command class (V2)	**S2 unauthenticated**
Provides the version number of the Z-Wave stack, Command Class, Firmware, and Hardware.	
Z-Wave Plus info command class (V2)	**Nonsecure**

Role type- ZWAVEPLUS INFO REPORT ROLE TYPE SLAVE ALWA YS_ON (0x051 — Node Type – ZWAVEPLUS INFO REPORT NODE TYPE ZWAVEPLUS _NODE (0x007 installer Icon- ICON TYPE GENERIC ON OFF POWER SWITCH (0x0700) — User Icon- ICON TYPE GENERIC ON OFF POWER SWITCH (0x0700) —	
Security 2 (S2) command class (VI)	**Nonsecure**
For S2 security	
Supervision command class (VI)	**Nonsecure**
For application-level delivery confirmation	
Transport service command class (	**Nonsecure**
For transporting fragmented Z-Wave datagrams	

Configuration

Parameter number	Parameter name	Size in Bytes	Unit	Resolution	Min value	Max Value	Default value
1	Enable Fail-safe timer	1			0	255	0
0 = Diable fail safe timer, 1 to 255 = Enable fail safe timer							
2	Temperature Scale	2	°C °F		0	255	0
˚C = 0 to 127: ˚F = 128 to 255′ **Note:** On every scale change config parameters 3 to 5 will be set to their default values.							
3	Temperature reporting intervals	2	Sec	1	30	65534	30
Configuration of time for time base temperature reporting **Note:** Value 30 means time base tempe mature reporting is disabled.							
4	Delta configuration temperature reporting	2	‘C •F	0.1’C 0.1 °F	**0 0**	100 $00	0
Configuration of delta temperature for temperature e reporting Note: Value 0 means delta temperature reporting is disabled							
5	Temperature Cutoff	2	°C *F	0.1 •C 0.1 °F	1 320	1000 2120	0
Note: Value 0 means Cut off Temperature feature is disabled							

Note: 1. Configuration value of out of range will not be accepted and no impact of these values on previous

configurations, 2. Parameters 2 to 5 are available only when the external temperature sensor is connected

Service and Repair

SIR is NOT user-serviceable. Please do not dismantle the unit. In the unlikely event of a fault occurring please contact a heating engineer or a qualified electrician.

Technical specifications

Electrical

Purpose of control	Electronic timer (independently mounted)
Contact rating	13A resistive*
Control type	230VAC, suitable for loads up to 3kW
Supply	Micro-disconnection
Control action	230V AC, 50Hz only
Operation time	Type 2B
limitation	Intermittent
Software class	Class A
Timing accuracy	(+5Oo)
Timer boost period	Model SIR 321 – 30/60/120 minute, 1 minute to 24 hours via Z-Wave
Sensor temp. accuracy	10.5°C from 0°C to 65°C and 11°C from 66°C to 100°C (optional external probe
Sensor temp. range	0°C to 100°C (optional external probe for SIR 321)
Operating frequency	868 MHz

* optionally 3A inductive

Mechanical

Dimensions	85 x 85 x 19 mm (flush mount),85 x 85 x 44 mm (surface mount)
Case material	Thermoplastic, flame retardant
Ball pressure test temperature	75°C
Mounting	Single-gang surface mount / flush box, minimum depth 25 mm (UK) / 35 mm (

Environmental

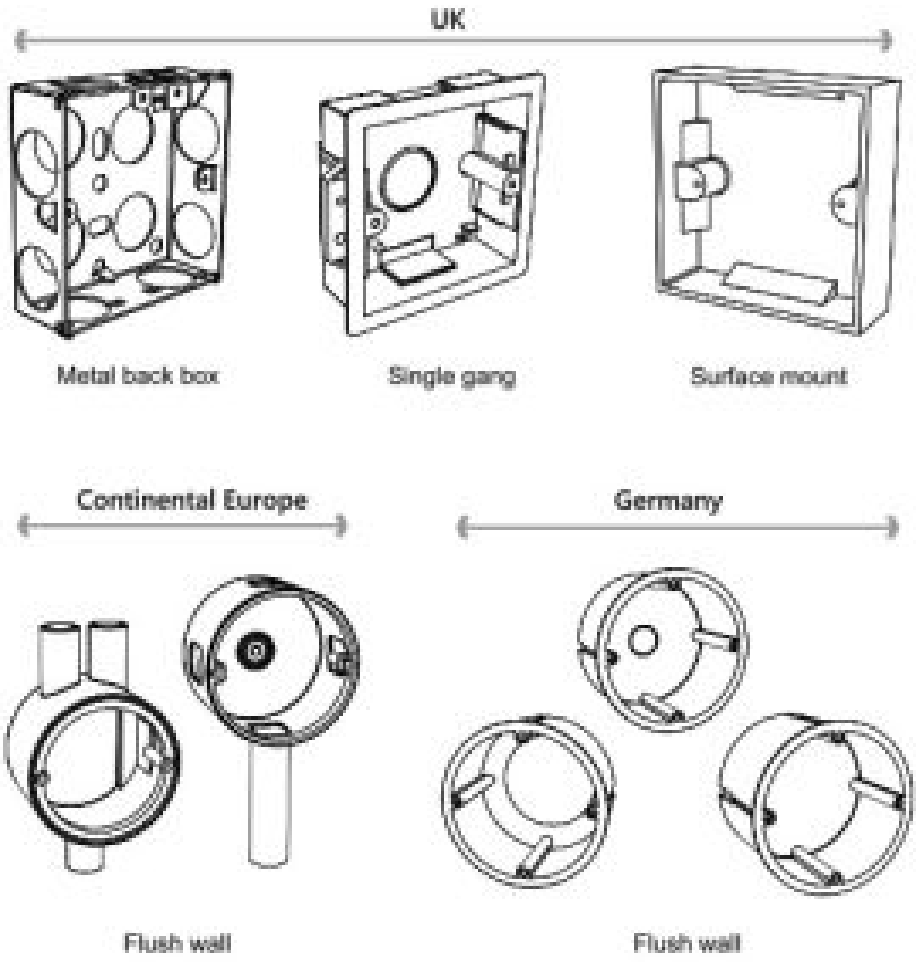
Impulse voltage rating	Cat II 2500V
Enclosure protection	IP 30
Pollution degree	Degree 2
Operating temperature range	0°C to 35°C

Compliance

Design standards	EN 60730-2-7, RoHS2,€ € RED ETSI EN 300 220-2 ETSI EN 301 489-3

Ordering information

SIR 321 RF Z-Wave variant, 30 to 120-minute countdown timer with single push-button operation and 1-minute to 24-hour timer over RF. LED indicator lights. Suitable for loads up to 3kW at 230V AC.
SIR 321 is suitable to install on illustrated types or any other similar type of wall gang/back boxes.
Optional accessory: SES 001 external temperature probe.



Notes:

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BGX501-867

Documents / Resources

	SECURE RF Countdown Timer SIR 321 [pdf] User Manual SECURE, RF, Countdown, Timer, SIR 321