

Specifications

Supply	9 - 18 volts DC
Power consumption at: 12 V DC	117ma max 8ma min. (All relays and LED's off)
Frequency	433.92Mhz
Antenna	¼ wave (supplied)
Optional compatible antenna	AE434 or AE434MAGNETIC
Wireless reception range	1Km line of sight from an ESD PIR if used with AE434
Zone outputs	8
Zone outputs with ESEM8	16
Zones inhibit	Hard wired or wirelessly using an ESF1 Key Fob Grouped or global
Two auxiliary outputs	May be configured as Global or group alarm outputs. Day/Night output and global or grouped inhibit
Temperature range	-10 to +60 °C
Weather rating	IP66
Enclosure	UV stable ABS
Dimensions	W170 x H120 x D55mm

Luminite *Easyswitch wireless* product range

Transmitters:

PIR detector	Wide angle	15m x 90 deg	ESD.1
PIR detector	Long range	40m x 1 deg	ESD.2
PIR detector	Pet ally	12 m x 90 deg	ESD.3
Key fob	1 button		ESF.1
Key fob	2 button		ESF.2
Key fob	4 button		ESF.4
Wall switch transmitter.	Connects to up to 4 switches.		EST.1
HVAC transmitter for heating systems.	4 inputs.		EST4HVAC

Receivers:

Single zone ON/OFF receiver.	ESR.1
Four zone ON/OFF receiver.	ESR.4
Four zone ON/OFF receiver with ESF4 key fob.	ESR4x4
8-16 zone receiver	ESR8+8
8 zone expander module	ESEM8
Plug adaptor.	ESA.1
Plug in bleeper.	ESB.1
Optional long range aerial	AE434

Technical help: Tel: 0208 361 5255

EasySwitch

ESR8+8 & ESEM8

8—16 zone wireless receiver

Installation

Handbook

Type: *ESR8+8 & ESEM8*

Issue 1

PRE-INSTALLATION NOTES

Unpacking

On receipt, inspect the package and contents for signs of damage. If damage has occurred, advise the carrier and/or suppliers immediately. Inspect the contents to confirm that all items are present and undamaged. If any items are missing or damaged, contact the supplier immediately. It is advisable that the original carton is retained as this forms the safest transport container in the event that a unit has to be returned for any reason.

Servicing

This unit should not require general servicing. Any repair work should only be undertaken by Luminite Electronics Ltd.

Moisture

Do not expose the internal electronics of this unit to moisture i.e. take care during installation not to allow rain or damp into the product. When the product is sealed it is water resistant to IP66.

Box Contents

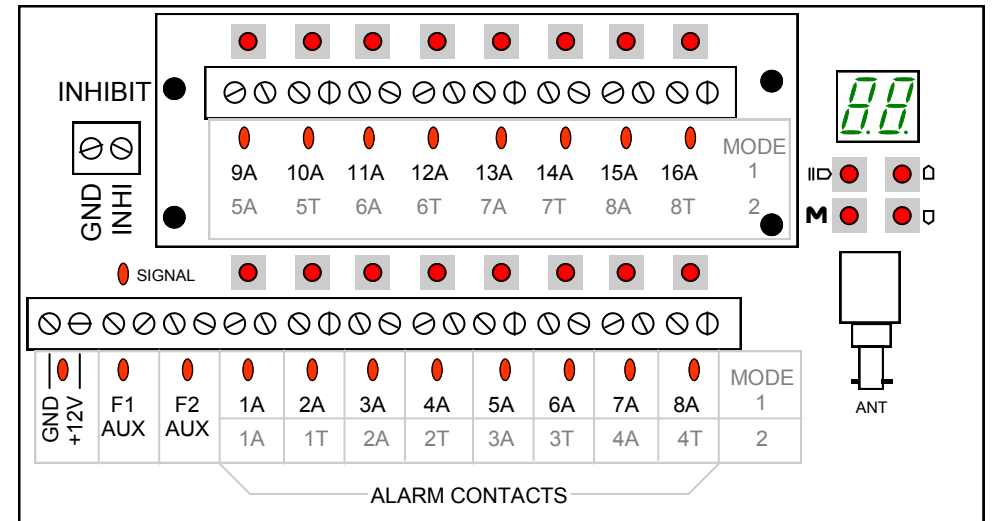
1 x Easyswitch ESR8+8 receiver
 1 x aerial with BNC plug
 4 x M16 cable glands

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Positioning and wiring

The ESR8+8 receiver is housed in a weather resistant enclosure IP66 and may be mounted on the external wall of a building. Fit the four cable glands supplied and fully tighten up any unused ones to close the cable entrance.

Aerial

The ESR8+8 is supplied with an aerial with a BNC plug which will provide adequate reception range for most situation. Always try to achieve line of sight between the transmitters and the receiver to obtain the maximum range. Any obstacles in the radio path will reduce range. Further range may be achieved by using an alternative long range aerial (AE434).

Power input. Connect the supply voltage to the GND +12V input. 12 volts DC is typical however the product will operate with a supply between 9 and 18 volts DC.

Alarm outputs. All Alarm outputs are shown as 1A through to 16A. (Mode 1) (1A/1T through to 8A/8T markings are not relevant for this product) (Mode 2)

The ESR8+8 has 8 alarm outputs and can be increased to 16 with the addition of an ESEM8 expansion module. The diagram above shows the expansion module fitted to the ESR8+8.

AUXILIARY outputs. Both Auxiliary outputs are shown as AUX F1 & AUX F2.

INHIBIT input. Short GND/INH terminals together to inhibit selected zones.

Fitting the ESEM8 expansion module

Turn off the power supply. Remove the four M3 screws from the support posts and then plug the module into the CON12 socket. Refit the four screws and reapply the power. The diagram above shows how the module will look when fitted to the ESR8+8.

Cont: If AC=3 then any Keyfobs learned on zone 16 are able to change the SET/UNSET state.
 If the Inhibit is active (switched to GND), then the group is UNSET (PIRs do not operate, but Keyfob commands are always processed).
 On releasing of Inhibit input it automatically forces SET state, no matter what was the last command sent by Keyfob.
 If Inhibit is inactive (idle, not switched to GND), then Keyfob takes control over SET/UNSET.

PIR detectors

ESD PIR detectors have approximate adjustable time and light controls which are required when used with other Easyswitch receivers.
 The ESR8+8 can override these settings to provide very accurate timing and 24Hr operation.

"TM": "TS" specifies the time [min:sec], of how long the PIR relay activation is to be.

To use the PIR's own time control set "TM" and "TS" to 0.

To override the PIR's time control set "TM" and/or "TS" to anything other than 0.

To use the PIR's Day/Night control set "Do" to 0 (0=Disabled).
 (The detector will operate at night only).

To override the PIR's Day/Night control set "Do" to 1.
 (The detector will operate 24 Hrs a day).

PIRs vs Keyfobs:

If a zone receives an ON-command from a Keyfob, then this zone is activated and no further Alarm from a PIR can change it.
 The zone would stay activated until it receives an OFF command from a Keyfob.

If a zone is activated by a PIR and then receives an OFF command from a keyfob, the zone is deactivated immediately and the PIR-timing is cancelled.

Activation by a PIR will always work after a previous OFF command from a Keyfob.

PIRs vs other PIRs:

A mechanism is implemented that secures that a previous activation by a PIR alarm will never be shortened by an alarm from another PIR on the same zone.

Example: PIR_1 Alarm with time=30s
 5 passed
 PIR_2 Alarm with time=10s
 The second will be ignored as the first activation finishes 15s later

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Introduction

The **ESR8+8** is a wireless receiver designed to work with Easyswitch transmitters and PIR detectors.

Supplied with 8 zones as standard, a further 8 zones can be added using an ESEM8 module to provide the maximum of 16 zone outputs.

The ESR8+8 is capable of learning up to 170 devices (Keyfobs and PIR's) and can all be assigned to just one zone if required.

ESD Easyswitch Wireless PIR Detectors will operate up to 1km from the receiver and are ideal for integration with CCTV systems that are to be event driven. NB: Longer ranges up to 1km require an alternative external antenna (AE434).

Relays

There are eight relays which can be individually set as N/C or N/O.

You can opt for eight alarm relays or four alarm relays with corresponding tampers. 1A to 8A are the alarm pairs. If Tamper is required then refer to the lower markings 1A /1T to 4A/4T.

Expander module ESEM8

The ESEM8 expander module fits onto the ESR8+8 board and adds a further eight relays increasing the capacity to sixteen outputs.

LED indicators are positioned between each pair of terminals and indicate the zone status ACTIVE (On) or IDLE (Off).

MOS-relays and LED indicators are driven separately,
The meaning of all LED indicators are always ACTIVE (On) / IDLE (Off), no matter whether the MOS-relay is configured as NO or NC.
Only the MOS-relay is affected by NO/NC setting.

Modes

MIMIC mode, single and two way switching may be assigned individually to each zone.

AUX F1 and AUX F2

These outputs are configurable and include Global Alarm, Light level and SET/UNSET. The polarity, NO/NC is also configurable.

Inhibit

A hard wired external Inhibit can be connected and programmed to inhibit a group of outputs. The group can consist of any number of zones, from 1 up to 16 (= all). Remaining outputs function normally, not controlled by Inhibit. Inhibit is also possible from one or more **ESF4** wireless key fobs learned on zone 16.

Paired Keyfobs have specific usage of buttons:

Top-left = SET
Top-right = UNSET

SAVING the changes

After setting all Parameters to desired values:

Press and hold the MEMORY button down for 2 seconds until display turns from the bottom segments to upper segments, then release the button.

Changes are saved to memory and are applied immediately, no power-cycle necessary.

To CANCEL the operation.

Press the MEMORY button momentarily. The display shows the bottom segments only and then goes off.

Examples

Note: If AUX F1 and/or AUX F2 are to be Global Alarms, then parameters S1,E1 and/or S2,E2 specify the **Start** and **End** zones that are included.

Example: F1=04, S1=01, E1=16
This means that AUX F1 is Global Alarm with N/O contacts and included zones 01..16 (i.e. all).

Example: F2=05, S1=05, E1=8
This means that AUX F2 is Global Alarm with N/C contacts and includes zones 05..8 only.

Light control

If AUX F1 is a Light_Control, then parameters S1 specifies the Source zone. (similarly AUX F2: source S2).

Example: F2=08, S1=01, E2=00
This means Function_2 is Light_Control, N/O and the Source is zone 1
If any PIR is Learned to zone 1 and sends an alarm message with a flag "Night", then the output AUX F1 will be activated.
It then stays activated until Alarm_message without flag "Night" is received.

SET/UN-SET (NB: Only PIR detectors can be inhibited.)

If AUX F1 or F2 is to be an alarm SET/UN-SET output, then the parameter "AC" must be 1, 2 or 3 otherwise it would be meaningless.
(AC=1 SET/UN-SET control by Keyfobs of zone 16 is enabled)
(AC=2 SET/UN-SET control by inhibit input)
(AC=3 SET/UN-SET control by Keyfobs of zone 16 or inhibit input)

Then all Keyfobs Learned to zone 16 have special function:
Press the top-left button on any such Keyfob to make SET (ARM)
This activates the global output & turns the state to SET
Press the top-right button on any such Keyfob to make UNSET (DISARM)

This deactivates the global output & turns state to UNSET. Only the group of zones specified via parameters "SC".. "EC" (start & end) are under SET/UNSET control. Others (outside the group) are always SET.

Parameters in the Menu are organized this way:

F1,S1,E1, F2,S2,E2, tM,tS,do,AC,EM

"F1" ... AUX Function_1

"S1" ... Start zone for Function_1 (Select a consecutive group of zones to associate

"E1" ... End zone for Function_1 with AUX F1)

"F2" ... AUX Function_2

"S2" ... Start zone for Function_2 (Select a consecutive group of zones to associate

"E2" ... End zone for Function_2 with AUX F2)

"tM" ... time [minutes] 00..99 (For ESD PIR detectors)

"tS" ... time [seconds] 00..59

"do" ... Day Operation of PIRs: 1=enabled, 0=disabled

"AC" ... SET/UN-SET control:

0 .. Disabled

1 .. Enabled, by Keyfobs learned on zone 16

2 .. Enabled, by Inhibit input

3 .. Enabled, by Keyfobs learned on zone 16 and also by Inhibit input (has priority)

"SC" ... group under SET/UN-SET control - Start zone

"EC" ... group under SET/UN-SET control - End zone

"rS" ... Restore mode:

0=restart with all relays idle

1=restore last state before power-off

"EN" ... Extra Mode (reserved. Always keep value 0)

F1 and F2 tables

Value Function

00 ... no_function, relay N/O

01 ... no_function, relay N/C

02 ... IR_tamper, N/O (Not currently used)

03 ... IR_tamper, N/C (Not currently used)

04 ... Global_Alarm, N/O, group is selected via S1..E1 or S2..E2

05 ... Global_Alarm, N/C, group is selected via S1..E1 or S2..E2

06 ... Global_Alarm + IR_tamper, N/O (Not currently used)

07 ... Global_Alarm + IR_tamper, N/C (Not currently used)

08 ... Light_Control, N/O, source is selected via S1 or S2

09 ... Light_Control, N/C, source is selected via S1 or S2

10 ... SET/UN-SET_output, N/O (applicable to PIR detectors only)

11 ... SET/UN-SET_output, N/C " " "

Zone 16 is used for wireless inhibit but it can still be used with PIR detectors but not other types of switches.

Output of SET/UNSET state can be brought to one of the AUX_F1/F2 relays if needed.

Easy programming is facilitated by way of an LED display and programming buttons. EPROM memory stores all learned devices which will not be lost in the event of a power interruption.

The LED-SIGNAL indicator is On during reception of valid Easyswitch transmissions regardless of whether the signal comes from Learned device or unknown.

Positioning the receiver

The ESR8+8 is housed in a weather resistant IP66 enclosure and can be fitted in outdoor locations as well as within buildings. It is important to ensure that there are minimal obstructions to the wireless path such as solid walls and metal clad buildings to benefit from the maximum range.

Antenna

The ESR8+8 is supplied with a 1/4 wave antenna but this may be replaced with an alternative antenna such as the AE434 which will assist with range issues.

The AE434 is supplied with 5 metres of cable which enables it to be placed away from the receiver and in the best position for reception.

All antenna's are connected to the BNC socket marked ANT as shown.

Power requirements

Although the ESR8+8 will operate from a range of voltages between 9 and 18 volts DC it is generally powered from 12 volts DC and with all relays and LED's off will draw 8ma in standby.

Connect the power to the terminals marked GND and +12V.

On power up the display reads **HI**

Fitting the ESEM8+8 module

Make sure that the power is OFF and then plug the zone expansion module ESEM8 on to the ESR8+8 using the "snap in" spacers provided.

TYPES OF TRANSMITTERS:

The following transmitters will work with the ESR8+8.

EST.1 Wireless wall switch. One to four gang.

ESF.1, 2 & 4 Wireless key fob. One, two or four button versions.

ESD.1, 2 & 3 Wireless PIR detector. Choice of three detection patterns.

Programming

The ESR8+8 is programmed one zone at a time.

To EDIT settings, select any zone by momentarily pressing it's button which is located directly behind the associated zone terminals.

The LED will flash quickly indicating that it is in editing mode.

The display now shows a number from 01 to 16 of the selected zone.

To de-select a zone, momentarily press it's button and the LED will stop flashing.

To LEARN a new device

Choose the zone and enter the EDIT mode. Now press the MEMORY button momentarily to start the LEARNING (pairing) process:

"LE" shows on the display.

Operate the switch or button of the transmitter. In the case of learning a PIR, either connect it's battery or activate it by waving your hand in front of it.

The display shows "-|-" flashing quickly for 4seconds indicating that the new device has been learned. After this it reverts to showing the selected zone number.

The display will time out after 10 seconds if nothing is learned.

If a signal is received from a device that is already learned then it is ignored and learning continues normally.

To LIST learned devices

Choose the zone and enter the EDIT mode. Press and hold the UP button to see total number of devices learned (paired) to the selected zone. (All device types: Wall switch transmitters, Keyfobs and PIR detectors).

Press and hold the DOWN button to see total number of PIRs only learned to the selected zone.

To CLEAR the memory of a chosen zone, enter the EDIT mode and then hold the MEMORY button down until the display shows "CL" This takes around 4 seconds.

Relay contact polarity and Modes

To view the settings of a chosen zone, enter the EDIT mode and then press the SELECT button to see the current relay polarity and Mode.

The first character is the Polarity, "o" means NO, "c" means NC;

The second character is the Mode, 0=Mimic, 1=Single, 2= 2-way switching.

Example:

o0 .. N/O, Mimic
o1 .. N/O, Single
o2 .. N/O, 2-way
c0 .. N/C, Mimic
c1 .. N/C, Single
c2 .. N/C, 2-way

Programming buttons and display



SELECT   UP
MEMORY   DOWN

To CHANGE the relay contact polarity

While holding the SELECT button down, press MEM momentarily to toggle between "o"/"c" (change NO/NC).

When the SELECT button is released, the zone memory is stored.

To CHANGE the mode

While holding the SELECT button down, press the UP or DOWN buttons momentarily to increment or decrement the Mode counter.

When the SELECT button is released, the zone memory is stored.

NB: PIR detectors are not affected by the MODE setting and will operate the relay for a determined period of time. This time period can be adjusted as described on page 10.

AUX outputs for Global Alarm, Light level and SET/UN-SET

These are settings that are not zone related and are accessible in a different way.

In order to enter this Menu, de-select any FLASHING zone by pressing it's button. LED's that are illuminated but not flashing can be ignored.

With none of the LED's flashing and the display is OFF, press any of the 4 buttons under the Display to wake it up.

Two bars show



Press the SELECT button repeatedly to scroll through the Parameters.

Stop on the Parameter that is to be changed. The flashing number is its current value.

Use the UP/DOWN buttons to increment/decrement to the desired value.

(tip: hold the UP or DOWN button and after short time the count will start automatically.)

Press the SELECT button again to scroll to other Parameters that need to be changed.