



**LGRU16**  
**Relay Unit**  
**16 way**  
**Handbook**

**Type: LGRU16**

*Issue 2.*

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## 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.

### **Box Contents.**

1 x GENESIS Relay unit LGRU16  
1 x IDE cable

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## **INTRODUCTION.**

The RU16 relay unit provides physical alarm and tamper outputs from the LGMT434 masthead receiver.

Between one and four LGRU16 relay units can be connected to a single masthead receiver to provide up to 64 alarm and tamper contacts that can be interfaced to virtually any alarm system.

The LGRU16 is provided with one LGRM8 relay module which provides 8 alarm and 8 tamper relay outputs. A further LGRM8 module must be added to provide the maximum of 16 alarms and 16 tamper outputs.

There are four UNIT groups from 1-16, 17-32, 33-48 & 49-64 which means that up to four LGRU16's may be connected together to provide all 64 outputs if required.

The front panel display shows information on alarms, faults and tampers which are held in the log.

A LEARN feature allows the LGRU16 to learn up to 16 transmitters. The transmitters call in periodically and are monitored. If they fail to call in, a tamper will occur.

## **FEATURES:**

8 - 16 alarm relay change over volt free contacts.

8 - 16 N/C volt free tamper relay contacts.

Global tamper N/C relay

Low battery indication and N/C relay

Missing call in indication and N/C relay

Event log for tampers, low battery & missing call-ins

Audible bleeper

RS232 text information

System test

## **POSITIONING.**

For convenience, place this product close to the alarm system. The relay contacts are provided via a 40 way IDE cable which is 1 metre long.

The Masthead receiver is usually high up on the roof and can be up to 25 metres away from the LGRU16 relay unit.

## **WIRING TO THE MASTHEAD**

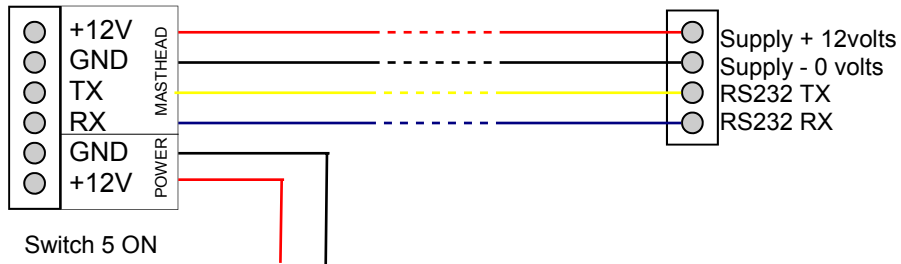
Provide a regulated 12 volts DC @ 500mA and connected it to the POWER terminals as shown. This will power both the masthead and the relay unit.

Now run a four core alarm or CAT5 cable from the relay unit to the masthead as shown. This cable takes power to the masthead and also carries data in both directions.



**1 X LGRU16 relay unit:**

**1 X LGMT434 Masthead:**



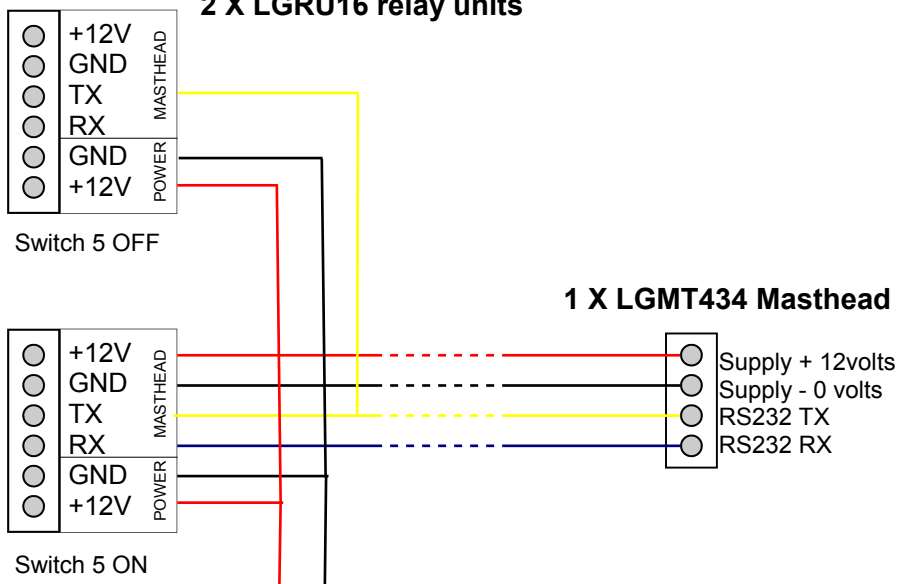
**12 volt supply @ 500m/a**

**CONNECTING TWO OR MORE UNITS TOGETHER**

Connect +12V, GND and TX from the first unit to the same terminals on the second unit. DO NOT CONNECT RX to the second unit. Up to four units can be connected together in this way.

For the first unit where RX is connected to the Masthead, set switch 5 to ON. For all the other units that do not have RX connected, set switch 5 to OFF.

**2 X LGRU16 relay units**



### ALARM OUTPUTS.

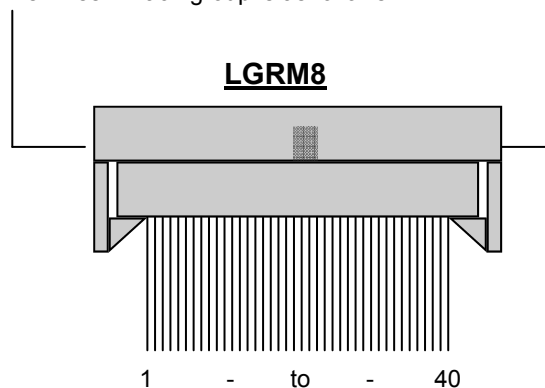
Each PIR or transmitter has two relays allocated to it. One is the alarm contact and the other is the tamper contact. The alarm contacts are Volt Free Change-Over and the tamper relay is volt free N/C.

Plug the IDE 40 way cable in to the LGRM8 relay module making sure that the polarizing tab locates into the socket groove.

Split the cable into eight groups of five wires. Each group is as follows.

Starting from the left.

- |      |        |   |        |
|------|--------|---|--------|
| 1    | Common | } | ALARM  |
| 2    | N/C    |   |        |
| 3    | N/O    |   |        |
| 4    | N/C    | } | TAMPER |
| 5    | N/C    |   |        |
| Etc. |        |   |        |



### FITTING AN EXTRA LGRM8.

The LGRU16 is supplied with one LGRM8 relay module which provides up to eight alarms and eight tampers. A further LGRM8 module may be fitted to provide the maximum of sixteen alarms and sixteen tampers from the one unit. It is possible to connect up to four LGRU16's together to provide the maximum of sixty four alarm outputs from the system.

Disconnect the power supply to the LGRU16 and remove the cover. Remove the four M3\_6mm screws from the mounting posts. Locate the LGRM8 module and screw in position with the four M3\_6mm screws. Plug the IDE ribbon cable into the JP2 socket. Finally Plug the IDE 40 way cable in to the LGRM8 relay module making sure that the polarizing tab locates into the socket groove.

### TESTING.

Once all the relays are connected to the alarm inputs it is advisable to test each circuit.

To put the LGRU16 into test mode, proceed as follows.

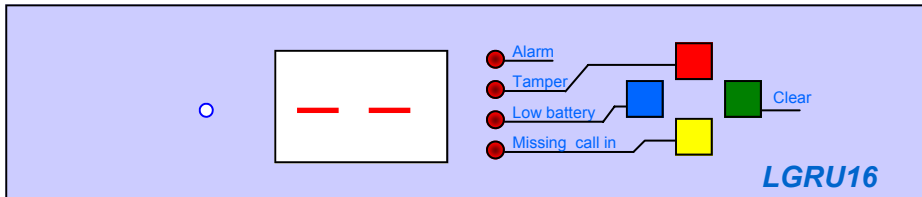
Disconnect the power supply. Press and hold either the LIST or LEARN button while re-connecting the power supply. ut (user test) will be displayed on the front panel.

Now press either the BLUE or GREEN button on the front panel to operate the individual relays. Blue moves forward and the green backwards. The relay number will show on the front display.



The tamper relay will open circuit and the alarm relay will change state. The relays will stay like this until another pair are selected. To revert back to normal operation mode simply disconnect and re-connect the power supply.

### DISPLAY AND INFORMATION BUTTONS.



**ALARM.** Each ALARM that is received will show the unit number on the display and also light the alarm led. The appropriate alarm contact will also change state.

**TAMPER.** Each TAMPER that is received will also show the unit number on the display. Press the RED button to list all the unit numbers that have reported tamperers. The appropriate tamper contact will open circuit. Once the tamper is cleared, the PIR or transmitter will send a CLEAR ALL command which will cancel the displayed message and close the contact. If the lid is removed from the relay unit it will light the tamper led and open the global tamper relay contacts.

**LOW BATTERY.** When any of the PIR's or transmitters call in with a battery level of 75% or less, the low battery relay will open circuit and the low battery indicator will also light on the front panel. Press the BLUE button to list all the unit numbers that are 75% or under. These messages will clear and the contact close when the PIR's or transmitters send a higher than 75% battery level. Low battery faults can also operate the appropriate individual tamper relay by selecting switch 11. (see function switches).

**MISSING CALL-IN.** A call-in timer will run for each unit number logged on the system. If a PIR or transmitter fails to call in within this time, the global MISSED CALL IN relay will go open circuit and the missing call in led will light. Press the YELLOW button to list all the unit numbers that have not called in. These messages will clear and the contact close when the PIR's or transmitters call in again.

### CLEAR BUTTON.

To clear any of the three tamper or faults, press the display button and the clear button simultaneously.

### LEARNING THE PIR'S & TRANSMITTERS:

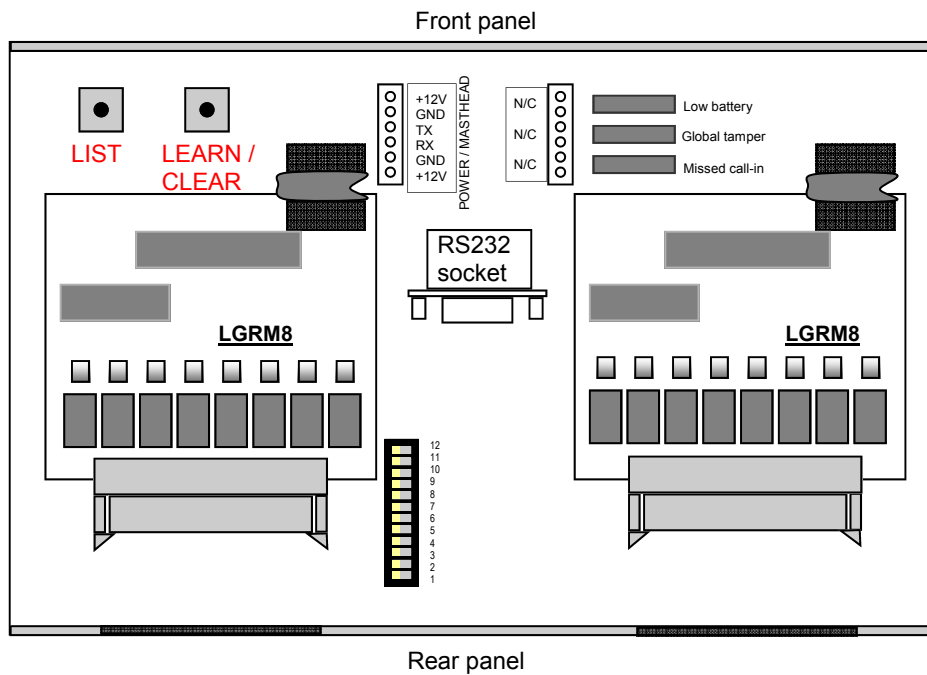
Press and hold the **LEARN** button for at least ten seconds until the message CL is displayed on the front display. This has flushed the memory. Now press the **LEARN** button once and the letter L will show on the display. The LGRU16 is now in learn mode and will stay in this mode for **10** minutes.

The Genesis PIR's will call in every five to ten minutes to inform the system that they are still operational. Each one that calls in will be logged on the system. This is indicated by a long beep and the display will show how many devices have been learned. Short beep indicate that either the unit number has already been learned or that the unit number is out of the selected range.

Learn mode will stop automatically after 10 minutes or may be manually stopped by pressing the **LEARN** button again.

To list the learned unit numbers, momentarily press the **LIST** button. The learned unit numbers will show in turn on the display. When all the numbers have displayed the unit reverts to normal operation.

If it is necessary to **CLEAR** the memory for any reason, simply press and hold the **LEARN** button for ten seconds until a long beep is heard. The unit can now be put into learn mode again.





**# FUNCTION SWITCHES:**

12	Add Missed call to Tamper,	OFF..No,	ON..Yes
11	Add Low Battery to Tamper,	OFF..No,	ON..Yes
10	Add Shock to Tamper,	OFF..No,	ON..Yes
09	Add Cloak to Tamper	OFF..No,	ON..Yes
08	Alarm Length	OFF..2sec	ON..10seconds
07	Alarm Beep,	OFF..No,	ON..Yes
06	Text Output, OFF..Direct-out from Masthead, ON..Short Messages		
05	Enable Masthead detection,	OFF..No,	ON..Yes
04	Group Selection - Low		
03	Group Selection - High		
02	Reserved (leave as OFF)		
01	DebugMode ( Leave as OFF)		



**GROUP SELECTION TABLE:**

#03 | #04 | Group

OFF	OFF	01..16
OFF	ON	17..32
ON	OFF	33..48
ON	ON	49..64

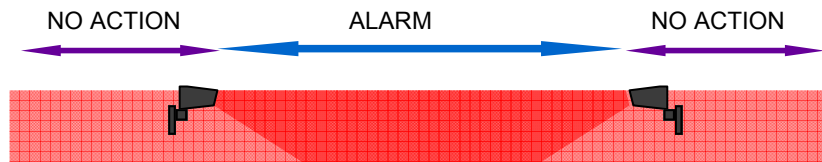
**TYPICAL SETTINGS:**

- 1 & 2 OFF. These switches NOT used and must be left OFF.
- 3 & 4 OFF unit codes 1-16 etc. See Group Selection Table.
- 5 ON Detects that masthead is connected and functioning.
- 6 ON Use short messages for video insertion but use the Direct Out from Masthead if connecting to a compatible third party product that uses the Luminite protocol.
- 7 ON As required
- 8 OFF The alarm contacts change state for 2 seconds normally but can be made to change for 10 seconds for special purposes as described on the following page.
- 9 ON Cloak is considered as a tamper and should be added.
- 10 ON Shock is considered as a tamper and should be added.
- 11 OFF There is a general relay output for low battery and it is possible although not advisable to activate the associated tamper.
- 12 OFF There is a general relay output for missed call but it is possible but not advisable to activate the associated tamper.

### COMBINING TWO PIR's

This feature is for when two or more PIR detectors have to be activated within a ten second window before an alarm is given. By overlapping the beams, a much more accurate detection area can be created as shown.

To achieve this, either wire the two N/C alarm contacts in parallel or N/O contacts in series before connecting them to the input of the alarm panel or matrix. Set the alarm length to 10 seconds (Switch 12).



### RS232 TEXT OUTPUT.

This 9 pin serial socket can be used to output text messages of all alarm events including low battery information, tampers and missed call ins which may be viewed on a terminal or fed into the text on video overlay input on a DVR or transmission product.

A special free terminal is available for download from the Luminite web site [www.luminite.co.uk](http://www.luminite.co.uk) which simplifies this operation and allows the user to communicate directly with the masthead in order to change settings and upload names for each unit number. The masthead will transmit these names to the walk test instrument or pager.

NB: You can use standard terminals to view information but you will not be able to write to the masthead using them.

To view this text on a standard terminal, set 8 bits parity, 1 stop bit and a baud rate of 19200.

If the text is to be inserted on video it is recommended to use short messaged (switch 6 ON). If however the text is to be used to interface with a compatible third party product that uses the Luminite protocol, set the switch to OFF.

### ERROR MESSAGES:

- E1 Left hand LGRM8 module missing
- E2 No communication with masthead
- E3 Unit group different to learned unit codes



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**ENGINEERS NOTES:**

## Luminite Genesis product range

Wireless PIR's	15m x 90 deg	LGWP1520
Wireless PIR's	40m x 1 deg	LGWP4004
Wireless PIR's	12m Horizontal curtain	LGWP12HC
Masthead/Repeater		LGMT434
Masthead Relay Unit		LGMRU4x4
Relay Expansion Module		LGREM4x4
Walk Test Instrument		LGWT434
16 way relay unit		LGRU16
Relay module		LGRM8
16 way DM interface unit		LGDM16
16 way relay unit with end of line resistor		LGRU16ELR 3 versions
Relay module with end of line resistor		LGRM8ELR 3 versions
Optional antenna		AE434
Transmitter module		LGTX434
Wired PIR detectors (RS485)	15m x 90 deg	LGRS1520
Wired PIR detectors (RS485)	40m x 1 deg	LGRS4004
Wired PIR detectors (RS485)	12m horizontal	LGRS12HC
RS485-RS232 Adapter		LGA485

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