Luminite *Genesis* **product range**

Wireless PIR detectors

G1 Wireless PIR's	30m x 20m	LGWP3020
G1 Wireless PIR's	15m x 20m	LGWP1520
G1 Wireless PIR's	40m x 4.5m	LGWP4004
G1 Wireless PIR's	12m Horizontal curtain	LGWP12HC
G1 Wireless PIR's	12m Vertical curtain	LGWP12VC
G2 Wireless PIR's	30m x 20m	LG2WP3020
G2 Wireless PIR's	60m x 4m	LG2WP6004

Wireless Accessories

IP Masthead/Repeater	LGIP MT434
IP Masthead Relay Unit	LGIP MRU4x4
Masthead/Repeater	LGMT434
Masthead Relay Unit	LGMRU4x4v2
Relay Expansion Module	LGREM4x4v2
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
Key Point	LGKSQ

Hard wired PIR detectors

G1 Wired PIR's	30m x 20m	LGHW3020
G1 Wired PIR	15m x 20m	LGHW1520
G1 Wired PIR	40m x 4.5m	LGHW4004
G1 Wired PIR	12m horizontal curtain	LGHW12HC
G1 Wired PIR	12m vertical curtain	LGHW12VC
G2 Wired PIR's	30m x 20m	LG2HW3020
G2 Wired PIR's	60m x 4m	LG2HW6004

Masthead Relay Unit 4X4 Handbook

Type: LGMRU4x4 v2

Revision2

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.
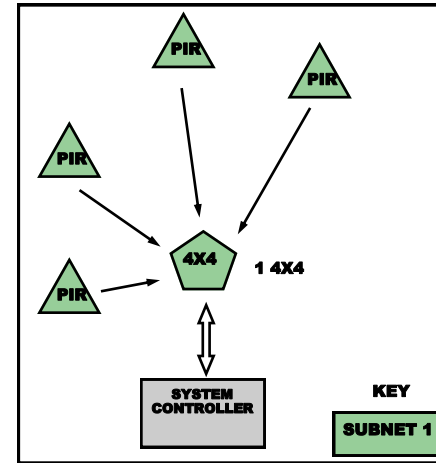
Box Contents.
1 x *GENESIS* Masthead Relay Unit LGMRU4x4.v2
1 x 1/4 wave antenna

PIR's communicating directly with the LGMRU4x4v2
 All Sub Nets are 1.
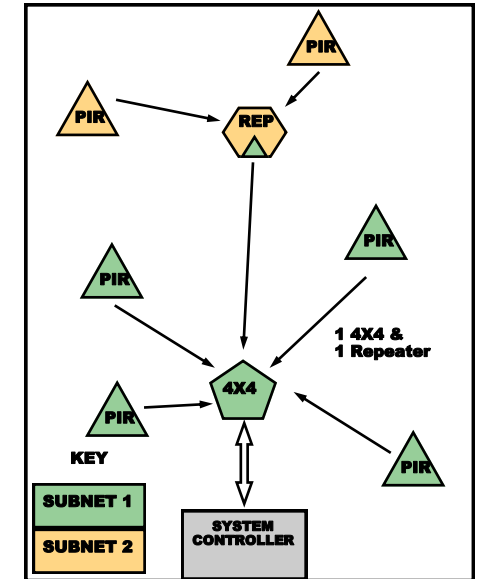
The other two examples show examples where one or more repeaters are used and how the Sub Net Codes separate the system.
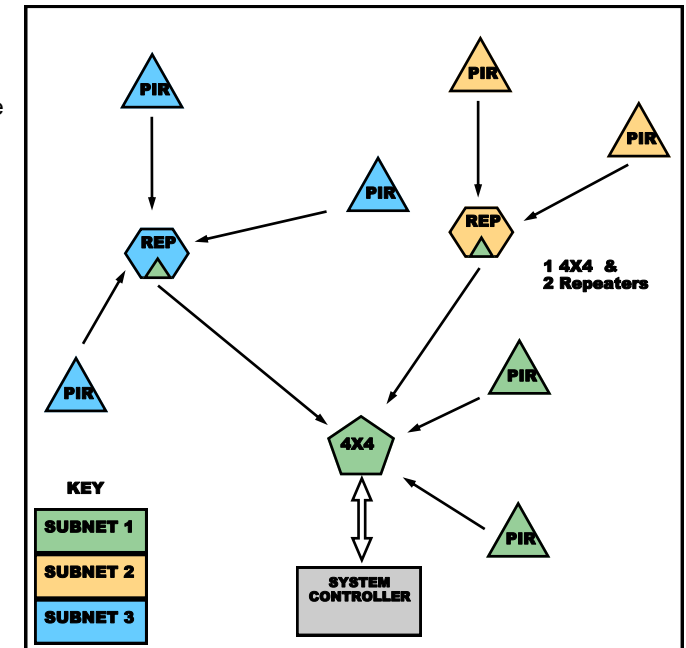
The Walk Test Instrument does not take any notice of Sub Net codes and will receive from anywhere on the site either directly from the Masthead or via Repeaters.
All these products will be set to the same Site Code.

Walk Tester

To alarm pre-sets.

WALK TEST.   See Test Mode on page 9. With the LGMRU4x4v2 in test mode, when an alarm event is received it will be re-transmitted back out so that it can be received on a WALK TEST Instrument.
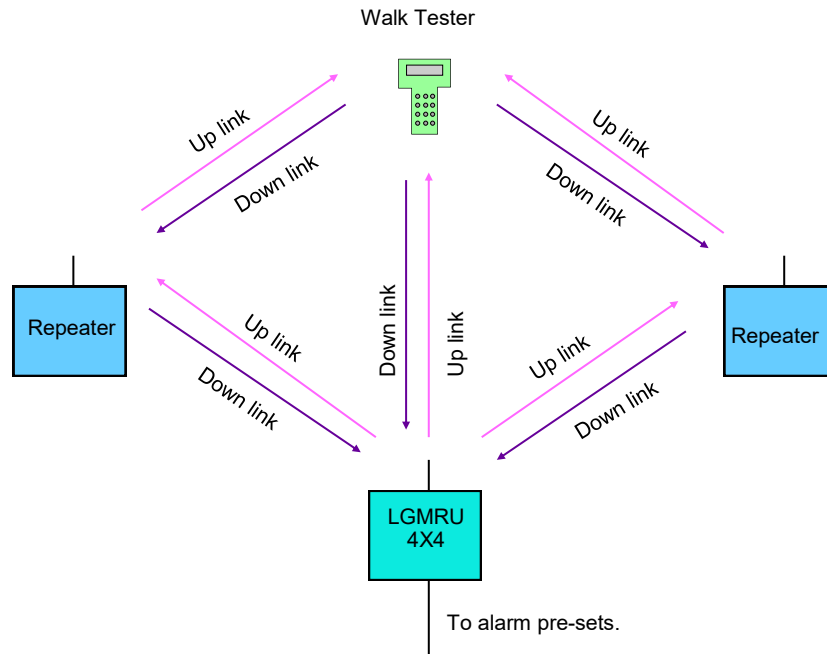This is useful for testing the wireless range from the PIR detector.
Do not leave the LGMRU4x4v2 in walk test mode as this uses a lot more air time and could cause Missing Call error messages on systems with large numbers of detectors.

Sub Net use.
Page 15 shows PIR detectors communicating directly with an LGMRU4x4v2 and also via repeaters (LGMT4x4)
Where repeaters are used it is necessary to use more sub nets as shown.

Introduction.

The Genesis LGMRU4x4.v2 Masthead Relay Unit is a receiver for Genesis wireless PIR detectors and provides a simple interface for virtually any kind of alarm input.

Powered from 12 volts DC and weather proof to IP66 it is ideal to be fitted externally with a dome camera and connected directly into the alarm pre-sets.

This product may also be connected to any other kind of alarm system and is very versatile due to its new improved features such as key fob control and remote arm/disarm.

Two auxiliary outputs can be used to provide keyfob control of devices such as electric door release and lighting. Grouped tampers or alarms may also be applied to these outputs.

Choose between either 4 alarm outputs with corresponding tampers or eight alarm outputs without tampers. An expansion card is available to increase the number of alarm outputs to a maximum of 16. (LGREM4x4.v2)
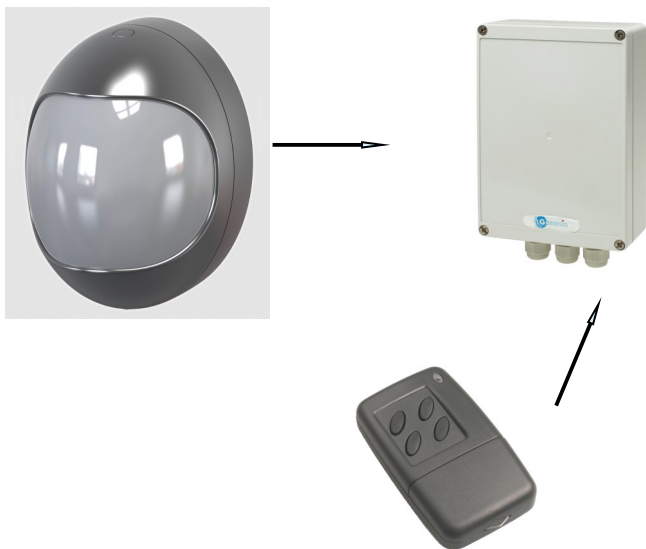
Only PIRs that are between the "lowest PIR index" and "highest PIR index" are processed, i.e. mapped to one of relays.
All others (that are out of this range) are ignored, filtered-out on reception !

Example 1: Unit = 1, Configuration = 1, expansion module is NOT fitted which means we have 8 relays.
All 8 relays are ALARMs => 8 PIRs are processed then the processed PIRs are units 1..8

Example 2: Unit = 1, Configuration = 1, expansion module is fitted which means we have 16 relays, all 16 relays are ALARMs => 16 PIRs are processed; then the processed PIRs are units 1..16

Example 3: Unit = 1, Configuration = 2, expansion module is NOT fitted which means we have 8 relays, 4 pairs of ALARM+TAMPER => 4 PIRs are processed; then the processed PIRs are units 1..4

Example 4: Unit = 1, Configuration = 2, expansion module is fitted which means we have 16 relays, 8 pairs of ALARM+TAMPER => 8 PIRs are processed; then the processed PIRs are units 1..8

Example 5: Unit = 20, Configuration = 1, expansion module is NOT fitted which means we have 8 relays, all 8 relays are ALARMs => 8 PIRs are processed; then the processed PIRs are units 20..27

Example 6: Unit = 62, Configuration = 2, expansion module is fitted which means we have 16 relays, 8 pairs of ALARM+TAMPER => 8 PIRs are processed;
then the processed PIRs are units 62..64 (maximum index)
=> processed PIRs are units 62..64
(only 3 pairs A+T will operate, all other relays remain Idle)

Note 2: If Function_1 is Global_Alarm or Global_Tamper, then parameters S1,E1 specify the Start and End PIR index that are included.
If Function_2 is Global_Alarm or Global_Tamper, then parameters S2,E2 specify the Start and End PIR index that are included.

Start and End indexes must be set correctly.
If not, then Receiver makes some automatic corrections:
If Start is lower then the index of the lowest mapped PIR then the lowest mapped PIR index is used as Start instead.
If End is higher then the index of the highest mapped PIR then the highest mapped PIR index is used as End instead.
If End is lower than Start, then group consists of only 1 PIR, the one with index start.

How to Learn a Keyfob

- hold SEL until it shows "n1" on display
- press UP repeatedly until it increments to "n4" (i.e. Menu Level 4 selected)
- press SEL to see "LE" on display (Learn Keyfob),
  after 2 seconds starts flashing " 0"
- press UP to increment it to value " 1"   (i.e. "this operation is chosen")
- press & hold MEM button until down-scores change to up-scores,
  release MEM button, Learning has been started
- press any button on Keyfob,
  quick flashing of the LED on Keyfob indicates "Learned successfully".

Learning ends when (what happens first):
- a transmission from Genesis-Keyfob is received;
  if it is a known Keyfob (one of already Learned ones), then Learning just stops;
  if it is a new Keyfob, then this new Keyfob is Learned and Learning stops;
  if it is a new Keyfob but memory is full, then Learning just stops;
  a timeout 30s passed (and no Keyfob received), then Learning just stops.

How to Erase ALL Learned Keyfobs

- hold SEL until it shows "n1" on display
- press UP repeatedly until it increments to "n4" (i.e. Menu Level 4 selected)
- press SEL to see "Er" on display (Erase ALL Learned Keyfobs),
  after 2 seconds starts flashing " 0"
- press UP to increment it to value " 1"   (i.e. "this operation is chosen")
- press & hold MEM button until down-scores change to up-scores,
  release MEM button, ALL Learned Keyfobs have been deleted.

How to restore Default Settings

- hold SEL until it shows "n1" on display
- press UP repeatedly until it increments to "n4" (i.e. Menu Level 4 selected)
- press SEL to see "dS" on display (Default Settings),
  after 2 seconds starts flashing " 0"
- press UP to increment it to value " 1"   (i.e. "this operation is chosen")
- press & hold MEM button until down-scores change to up-scores,
  release MEM button, ALL Menu Parameters have been deleted,
  restarts with default settings (as brand new device from factory).

Notes

Note 1: Parameter "Unit" specifies PIR that is supposed to be mapped to relay A1.
It is the lowest PIR index processed by this Receiver.

The highest PIR index processed depends on number of relays available
(i.e. whether expansion module is fitted or not) and also on Configuration
of relay outputs, i.e. parameter "Configuration".

Features.

8 channels (1..8) = 8 relays + 8 LED indicators
Can be configured as 4 alarm and 4 tamper relays (mode 2)
or 8 alarm relays only (mode 1)

Expansion module LGREM4x4.v2
Provides an extra 8 channels (9..16)
8 relays + 8 LED indicators
Can be configured as 4 alarm and 4 tamper relays (mode 2)
or 8 alarm relays only (mode 1)

2 global outputs AUX_X,Y = 2 relays + 2 LED indicators
These two outputs can be programmed as follows
Either or both as grouped tampers
Either or both as grouped alarms
Either or both a keyfob Controlled outputs
Either can output missing call in (detector failed to call in)

ARM/DISARM state can be controlled via external input INHIBIT or via LGKF4 Keyfobs
Possible control options are:
0 .. no ARM/DISARM control (ALARM relays always work on Detections)
1 .. ARM/DISARM control enabled, via Keyfobs
2 .. ARM/DISARM control enabled, via input INHIBIT
3 .. ARM/DISARM control enabled, via Keyfobs + also INHIBIT (INHIBIT has priority)

Keyfob control. All Learned Keyfobs have the same function and are mutually interchangeable
Functions of individual buttons:
top-left .... ARM   ALARM relays work on Detections
top-right ....DISARM   ALARM relays do NOT work on Detections
bottom-left ......KC_ON (Keyfob Controlled)
bottom-right ....KC_OFF

Any of the 2 global AUX relays can be configured to respond to this command.
Possible uses are gate opening and lighting control as well as many more.

Relay contact time. Adjustable from 250ms to 39 minutes

Relay Configuration.
The user can configure the organization of the relays in the following ways
1 .. all channels are ALARMS only   (MODE_1)
2 .. pairs of ALARM+TAMPER   (MODE_2)
3 .. main-board gives 8 ALARM outputs + plug-on module gives 8 TAMPER outputs

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The LGMRU4x4.v2 layout

All MOS relay outputs have an LED below the to indicate the relay status.

1. LGMRU4x4.v2 main board
2. Program display
3. Programming Up/Down buttons
4. Programming Enter
5. Programming Memory (Store)
6. BNC antenna socket
7. Alarm indicating LED's
8. Alarm connections
9. Inhibit input
10. Power input
11. Auxiliary outputs
12. LGREM4x4.v2 expansions module
13. Lid tamper components
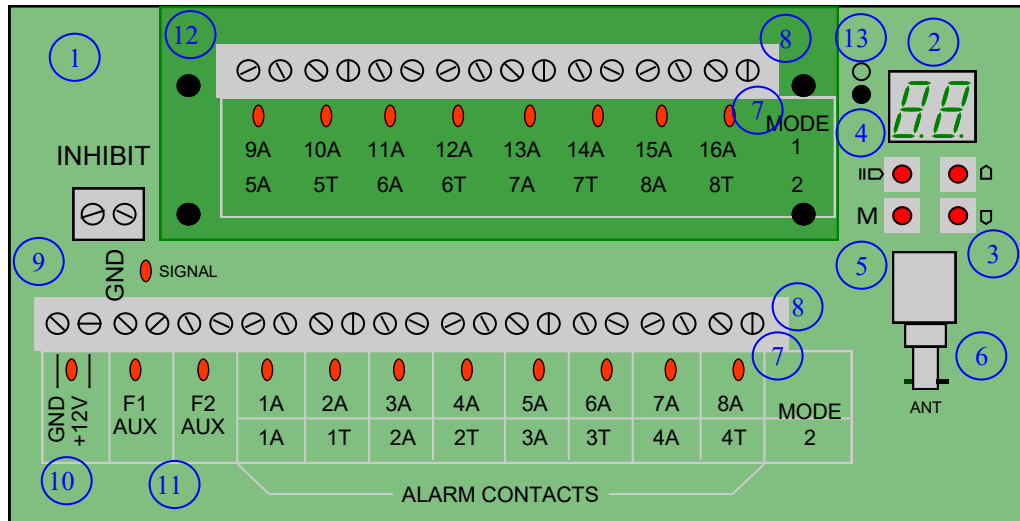
Fitting an LGREM4x4.v2 expansion module

It is not necessary to turn the power off.
Correctly orientate the module as shown in the diagram and plug it onto the main board making sure that the posts line up with the holes.
Snap it into position.

---

rS   Restore mode
   0 > restart with all relays Idle and Keyfob_state = SET (and KC_state Off)
   1> restart with last known states (reload from EEPROM on power-up)

EM   Extra mode
   0 .. normal mode
   1 .. extra mode (prints content of Learned_Keyfobs & entire EEPROM, for debug)

Value   Function
----
 00 ... no_function, relay permanently Off (=> stays Off on power-failure)
 01 ... no_function, relay permanently On (=> goes Off on power-failure)
----
 02 ... Global_Alarm, N/O, group is selected via S1..E1 or S2..E2
 03 ... Global_Alarm, N/C, group is selected via S1..E1 or S2..E2
----
 04 ... Global_Tamper, N/O, group is selected via S1..E1 or S2..E2
 05 ... Global_Tamper, N/C, group is selected via S1..E1 or S2..E2
----
 06 ... Global_Tamper, N/O, group is selected via S1..E1 or S2..E2; + IR_tamper (isLid)
 07 ... Global_Tamper, N/C, group is selected via S1..E1 or S2..E2; + IR_tamper (isLid)
----
 08 ... Light_Control, N/O, source is selected via S1 or S2 (independent on esLightCt)
 09 ... Light_Control, N/C, source is selected via S1 or S2 (independent on esLightCt)
----
 10 ... SET_output,   N/O (isSET)   // source of SET/UNSET state depends on
         esARMCTRL
 11 ... SET_output,   N/C (isSET)
----
 12 ... KFSET_output, N/O (isKFSET) // controlled via KF buttons on the top
 13 ... KFSET_output, N/C (isKFSET)
----
 14 ... KCON_output,   N/O (isKCON) // controlled via KF buttons on the bottom
 15 ... KCON_output,   N/C (isKCON)
----
 16 ... IR_tamper,   N/O (isLid)   // active = Lid Opened
 17 ... IR_tamper,   N/C (isLid)

MENU OPTIONS level 4   **Commands for learning Keyfobs & Reset**

LE   Learn Keyfobs   default 0
Er   Erase all learned Keyfobs   default 0
dS   Default settings   default 0

HOW TO ENTER LEVEL OTHER LEVELS.

Press and hold the enter key until n1 Shows. Now press the up key until the desired level is displayed and then press enter again to access the menu.

EG: �II▷ [_ _] [n1] ⇕ [n2] II▷ [CL] [0] M

3 seconds

In this example we have disabled Cloak which will no longer activate the tamper relays.

MENU OPTIONS level 2   Configuration of Tamper relays

tP	Tamper	0=Disabled 1-Enabled	default 1
CL	Cloak	0=Disabled 1-Enabled	default 1
SH	Shock	0=Disabled 1-Enabled	default 1
MO	Move	0=Disabled 1-Enabled	default 1
MI	Missing call in	0=Disabled 1-Enabled	default 1
bL	Battery low	0=Disabled 1-Enabled	default 1
cu	Code violation	0=Disabled 1-Enabled	default 0
Ld	Lid tamper	0=Disabled 1-Enabled	default 0

Level 2 options
Any of these types of tamper or alert messages can be applied to the individual tamper relays.
The lid tamper default setting will operate AUX2 relay.
NB: The AUX2 LED will be lit and the relay changes state while the lid is removed.

MENU OPTIONS level 3   Configuration of Global relays

F 1	Function1 AUX F1	0>17	default 2
S 1	Start index for F 1	1>64	default 1
E 1	End index for F 1	1>64	default 64
F 2	Function1 AUX F2	0>17	default 6
S 2	Start index for F 2	1>64	default 1
E 2	End index for F 2	1>64	default 64
AC	Arm/Disarm control mode	0>3	default 3

    0 .. no ARM/DISARM control (ALARM relays always work on Detections)

    1 .. ARM/DISARM control enabled, via Keyfobs

    2 .. ARM/DISARM control enabled, via input INHIBIT

    3 .. ARM/DISARM control enabled, via Keyfobs + also INHIBIT
       (INHIBIT has priority)

SC   Start Index for ARM/DISARM Control, 1>64   default 1

EC   End Index   for ARM/DISARM Control, 1>64   default 64

Wiring

Alarm/Tamper Relays
All outputs are volt free MOS relays and may be configured to be either N/C (normally closed) or N/O (normally open).

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

External inhibit
The inhibit input requires a volt free closing or opening contact.

Power supply
Power the product from a 12 volt DC regulated supply with a minimum of 500m/a rating.
Connect to GND and +12V.

NB: When the 12 volts is applied the AUX 2 relay will light as well as the power led. This is because the lid is not in place. To prove this, cover the anti tamper components with your hand and the AUX 2 relay will turn off.

Default settings

LGMRU4x4v2
Unit group	1-4	
Site code	1	
Sub Net	1	
Mode 2	4 alarms. 4 tampers	
Contacts	Normally open	
Inhibit	Close circuit to inhibit all alarms	

LGREM4x4v2
Unit group	1-4
Mode 1	4 alarms. 4 tampers
Contacts	Normally open

Antenna connection
Connect the supplied 1/4 wave antenna onto the BNC socket and pass through the right hand cable gland.
For longer range reception use an external antenna (AE434).
Follow the same procedure but instead pass the coaxial cable through the cable gland and crimp on the 50ohm BNC plug supplied with the AE434.

PROGRAMMING:

The new version LGMRU4x4v2 now has an LED display and push buttons to set the mode of operation.

This makes changing settings much easier and facilitates more options and features.

Button functions.

IID SELECT   ⌂ UP

M MEMORISE   DOWN
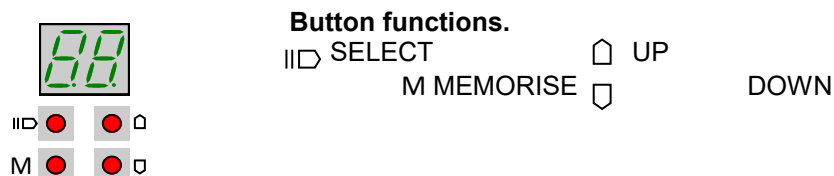
Power On,

When the power is turned on, the display shows [HI] momentarily.

How to set standard functions.

Step 1. Enter the settings mode. Press M until the display shows

Step 2. Scroll through the mode options with this button   EG:
IID

When the desired mode is reached, wait a moment and then the   display will flash the setting.   EG: = site code 1.

To change a setting, se-   lect the mode and wait for the setting to flash. Scroll up or down to the desired number.

Step 3. Press and hold the M button to store the new number.

The display shows   followed by

Now let go of the   button and   the new setting is now stored.

EXAMPLE: M   M
     IID   ⌂/⌄

To change   than one setting at a time, follow steps 1   and 2 and after changing the setting press to select the next   mode. Press the M button when all changes have been made.
   IID

NB: The display will automatically turn off after 10 minutes if M is not pressed.

MENU OPTIONS level 1   Basic Settings

SI	Site code	1-32	default 1
SU	Sub Net code	1-8	default 1
Un	Unit number	1 to 64	default 1
CF	Configuration	1 to 3	default 2
tA	Alarm time	0 to 99	default 2 seconds
tt	Tamper time	0 to 99	default 2 seconds
IA	Alarm state idle	0=N/O 1=N/C	default 0
It	Tamper state idle	0=N/O 1=N/C	default 0
LC	Light control	0 to 64	default 0
tM	Test mode	0, 1	default 0

Site codes separates one site from another. There are 32 site codes to choose from and it is recommended that each new installation should be set to a different site code to minimise the possibility of interfering with other Genesis systems.

Sub Net codes divide the site up into sections and are only needed if one or more repeaters are used (LGMT434). If there are no repeaters, leave the sub net codes at 1.

Unit Numbers. There are 64 unit numbers available and each PIR detector must be given a unique number.

You can set a unit number to be mapped to relay 1A. The default is 1 but it can be any from 1-64. The following on relays will of course operate from the following on numbers.
EG: Unit 1 = 1A Unit 2 = 2A Unit 3 = 3A. EG: Unit 10 = 1A Unit 11 = 2A Unit 12 = 3A etc.

Configuration
1 .. all channels are ALARMs   (i.e. MODE_1 label on PCB)
2 .. pairs of ALARM+TAMPER   (i.e. MODE_2 label on PCB)
3 .. main-board gives 8 ALARM outputs + plug-on LGREM4x4v2 module
     gives 8 TAMPER outputs

Alarm & Tamper time   lengths of relay activity
         value 0 ...... 250ms
         values 1-60 ... 1-60s
         values 61-99 .. (X-60) minutes
         (examples: 63 = 3 min, 99 = 39 min)

Alarm & Tamper state idle   0-N/O (normally open) 1=N/C (normally closed)

Light control
0   Light Control Disabled. Detections work no matter if Day or Night
1-64 Light Control Enabled. The number is PIR Unit that gives the Day/Night information.
         Detections work only on Night (only if SET)

Test mode   0=Disabled, 1=Walktest_Mode_Enabled. See LGWT434 instructions.

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