SelfMon Security

LCE-01 Ethernet Module

Installation & Configuration Guide

Version 1.08 22/03/2014

1. LCE-01 Module Specifications

The Low Cost Ethernet module includes an embedded CPU which emulates a Galaxy system keypad. The emulated keypad then offers VirtualKeypad connectivity for Galaxy Classic, G2, G3, Dimension and Flex control panels. Virtual Keypad connectivity allows users to remotely connect to their security system and perform the tasks[1] that they would as if using the physical keypad.

The G2 firmware version of the LCE-01 places the emulated keypad on address 3 of the control panel RS485 bus, meaning that only three remaining physical keypads (0, 1 and 2) may be connected to the G2 control panel. The G3/Dimension/Flex version uses internal address 15 and does not impact any physical keypad addresses.

Operating Voltage	10-15Vdc
Quiescent Current	70mA
Ethernet Interface	10/100 Base-T via RJ45 Jack
RSS Port	10001
Admin/Heartbeat Port	5001
SelfMon Protocol	UDP
SelfMon Outgoing Ports	5000+
Control Panel Connection	Primary RS485 Bus
Bus devices (Ethernet)	15
Bus devices (keypad)	52 (Flex), 03 (G2), 15 (Dimension/G3/Classic)

(1) The VirtualKeypad cannot perform any prox tag scanning tasks or currently any speaker or LED functions.

2. LCE-01 Module Installation

Like any electronic device, the LCE-01 module contains electrically static sensitive devices and appropriate static handling precautions should be taken.

The LCE-01 module features on-board fast-fit headers which allow the installer to connect and disconnect the module from the RS485 bus quickly. There are optional cables available (part numbers at the end of this manual) which allow connection between either of the two RS485 headers of the LCE-01 and the control panel. Alternatively, the LCE-01 includes screw terminals which allow permanent connection.

Included in the LCE-01 box, is a set of four PCB adhesive stand-off mounts. The stand off's can be applied to the LCE-01, the adhesive covers removed from the stand-off's, then the module mounted within the control panel. Before removing the adhesive covers, it is advisable to locate a position for the module within the control panel. Please keep in mind that RJ45 leads may extend from the module, that the panel battery also needs to be located within the control panel and that the G2 series lid slots to the inside of the casing (requiring about 5mm of gap to the edge of the PCB). It is also advisable that the control panel be powered off and battery disconnected when fitting the module.

- ➔ Unpack the module

- ➔ Select appropriate location within the Galaxy control panel

- ➔ Apply adhesive mounts

- ➔ Switch off control panel power and disconnect battery

- ➔ Fit flying leads or standard alarm cable between A & B LCE screw terminals and panel A & B connections (not telecoms, but RS485 bus on left hand terminals). Note that for panels with a header fitted, the flying lead is connected to the LCE module screw terminals. On G2 panels the flying lead is connected to the control panel screw terminals. Ethernet is only supported on the **A1/B1 bus on G3 and Dimension** panels with multiple busses.

- ➔ Power on alarm panel and connect battery

At this point, the LCE-01 power LED should be illuminated and the panel will detect a Keypad and Communications module upon rebooting. If you have not powered the system off to fit the module, then **you must enter and exit engineering mode**, or perform a 51.17.1 restart in order to enumerate the module on the RS485 bus.

When fitting to a non G2 panel, the engineering escape sequence **112233 esc needs to be performed twice in succession**. The first time the panel will find the Ethernet device and the second time the keypad will be indexed. Note that on Flex V1, the second index removes a duplicated keypad address, leaving keypad 52.

3. LCE-01 Module Panel Configuration VirtualKeypad & RSS

To configure the LCE-01 module, the installer should enter engineering mode on their control panel. The following instruction assumes default engineering code. Please replace this with your own code if applicable.

➜ Enter engineering code 112233

➜ Enter option 56 – Communications

➜ Enter option 4 – Ethernet

➜ Enter option 1 – Module Config

➜ Enter option 1 – IP Address

 At this point enter the static IP address that you are using for your control panel within your local network. This should comprise of four octets between 0 and 255. The first and last octets should not equal 0 or 255.

Remember to press ent to accept the values that you add on each entry operation.

➜ Press Esc and enter option 3 – Default Gateway.

You need to enter the internal IP address of your routing device here. This is generally your ADSL MODEM or WiFi router. An example would be 10.0.0.1

➜ Enter option 4 – Network Mask

Normally for a home or small business network, the network mask will be 255.255.255.0 If your network has more than one subnet, then this may be different. If part of a large network, contact the network administrator to obtain the correct mask value.

To enable VirtualKeypad or RSS to connect, change your panel remote access setting

➜Escape back to 56.4 menu and select option 3 – Remote Access

➜Select option 2 Mode.

➜Set mode to Direct Access.

You should now escape from all menu options by repeatedly selecting the esc key. You should now be able to connect to the LCE-01 with your VirtualKeypad and RSS software.

PLEASE REMOVE YOUR SELFMON ACCOUNT SMS/VOICE NUMBERS

WHILE PERFORMING CONFIGURATION. PANELS CAN ACCUMULATE MANY

EVENTS IF SETTINGS ARE INCORRECT AND SMS/VOICE ARE CHARGEABLE

The LCE-01 Ethernet module should be configured as the primary module by setting the hardware priority to 1 for Ethernet and 0 for the onboard telecoms.

➜ Set option 56.6.1 (Telecom priority) to 0.

➜ Set 56.6.4 (Ethernet h/w priority) to 1

The remote monitor should be configured to connect with the SelfMon platform. When you sign up for access and your Paypal payment has been processed, your SelfMon account will be updated with a menu option for 'Panel Settings' this provides unique account number, platform IP number and platform Port Number. These should be entered by programming the following menu options:

➜ Set option 56.4.2.6.2 with the SelfMon platform ACCOUNT number

➜ Set option 56.4.2.6.3 with the SelfMon platform IP number

➜ Set option 56.4.2.6.4 with the SelfMon platform PORT number

You can now program the appropriate triggers by enabling them in menu option 56.4.2.6.1

After ensuring that your LCE-01 has an Ethernet connection to your router, you can test the connection to the SelfMon platform by sending an Engineer Test using menu option 56.4.5

5. LCE-01 Module Panel Config SelfMon Galaxy **Dimension/Flex/Classic** Panels

PLEASE REMOVE YOUR SELFMON ACCOUNT SMS/VOICE NUMBERS

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When using the LCE-01-4 module with non G2 Galaxy panels, the monitoring platform must be configured as the PRIMARY ARC. When you sign up for access and your Paypal payment has been processed, your SelfMon account will be updated with a menu option for 'Panel Settings' this provides unique account number, platform IP number and platform Port Number. These should be entered by programming the following menu options:

➔ Set option 56.4.2.4 with the platform ACCOUNT number from SelfMon

➔ Set option 56.4.2.2.1 with the platform ARC IP number from SelfMon

➔ Set option 56.4.2.2.2 with the platform PORT number from SelfMon

You can now program the appropriate triggers by enabling them in menu option 56.4.2.1.1

After ensuring that your LCE-01 has an Ethernet connection to your router, you can test the connection to the SelfMon platform by sending an Engineer Test using menu option 56.4.5

6. LCE-01 Additional Information

RSS Password Setting G2 Panels

The Galaxy G2 series panels have an 8 digit default downloader ID. If you leave the Android app RSS password blank, then it will attempt to connect with the 99999999 passcode. To increase security, you should change the default panel number and add your new 8 digit downloader code to the Android app RSS code. The code is programmed in panel menu option 56.1.12.4

RSS Password Settings Non G2 Panels

The G3/Dimension/Classic/Flex panels hold an alphanumeric password as the RSS code. This can currently only be set using RSS menu option 'Communications'->'New Password'. Once set, this password must also be programmed into the Android application menu for RSS code.

Non G2 Panels Remote Access Code

On non G2 panels there is a remote code which is defaulted to 543210. You should change this code by entering the code, selecting menu 42.1then 'A>' to select user 100 and 'ent' to modify the pin. The new pin number / remote user can be used as a pin when using the remote keypad to inspect the system status/logs without impacting the set/unset state of the sytsem.

Non G2 Panels Authority Code

The Authority code is defaulted to 54321. This code should be changed from default.

Flying Lead Connection

G2 Panels are wired with the lead connected to the control panel terminals and the connector fitted to the module. Other panels have headers fitted, allowing the flying lead to be connected to the LCE module terminals. Connections are detailed at the end of this manual. The flying lead offers fast connection or disconnection from the control panel. No additional terminating resistor is required on the LCE module when panel termination is applied.

7. LCE-01 Module Troubleshooting

Test Messages Not Sending

If you have accumulated many 'ARC failed' events for resons such as disconnected devices or failed telecom's SMS Etc. You may need to perform a panel restart to flush these out of memory. Enter engineering mode, then perform a 51.17.1 restart . All panel programming will remain as previous, but the time and date will need to be reprogrammed upon restart.

Unreliable Ethernet Network

If your network is unreliable and you are continually getting 'ARC Failed' messages due to your LAN connection with the internet, then you can program the comm's fail setting in the panel to the setting of '9', and the LCE module will not send the ARC fail message. Note that this feature is intended for future SelfMon ARC based heartbeat test signalling where you can configure ARC based path down notifications at set intervals.

Resetting ARC Failed Events

To reset 'ARC Failed' conditions you must flush through two events. The 'ARC failed' event will clear upon the second unset of the system. You will receive an 'Alarm Reset' message via SelfMon, notifying that the ARC failed event has been cleared. This process is defined by Honeywell and controlled by panel firmware.

RSS Compatibility (RSS Connection Progress Bar Halts)

When using Honeywell's RSS software, you must connect to the panel with encryption switched off (note that this must be done in the communications server in the system tray by selecting the hammer icon, then other tab and de-selecting the encryption tick box). If routing/port forwarding from the internet, then we advise that you employ a secure VPN tunnel to do this. On G2 panels, if at any time the panel has to deal with an event while connected, the CPU will disconnect the RSS software. This can cause the current transaction in RSS to fail or appear to hang. If the progress bars hang or fail, you must hang-up the connection and reconnect in order to re-authenticate with the panel CPU.

VirtualKeypad Compatibility

The SM-Alarms VirtualKeypad software connects to the module and performs a remote session login. Once authenticated, the VirtualKeypad software opens a keypad session. It does not hold the login part of the connection open. The reason for this is to allow SMS messages to be transmitted while the VirtualKeypad is operational. You will need to have a minimum of version 1.11 of the VirtualKeypad software. In the settings, you must select 'LCE Module ' in order to run the Android application in free mode.

8. LCE-01 Module Internet Access

To access your module from the internet, we advise that you should use a secure VPN tunnel into your internal network. We realise that this is a complex process, so for those who want to port forward directly to their panel, the process is outlined below.

The following diagram shows internal and external connection methods. The IP address 192.168.XX.XX below is an example address only. Your panel must be addressed according to your routers IP and subnet.

Once your panel has an internal IP address, you should be able to 'ping' the programmed address from a PC on your local private network. You cannot open the address up with an internet browser directly.
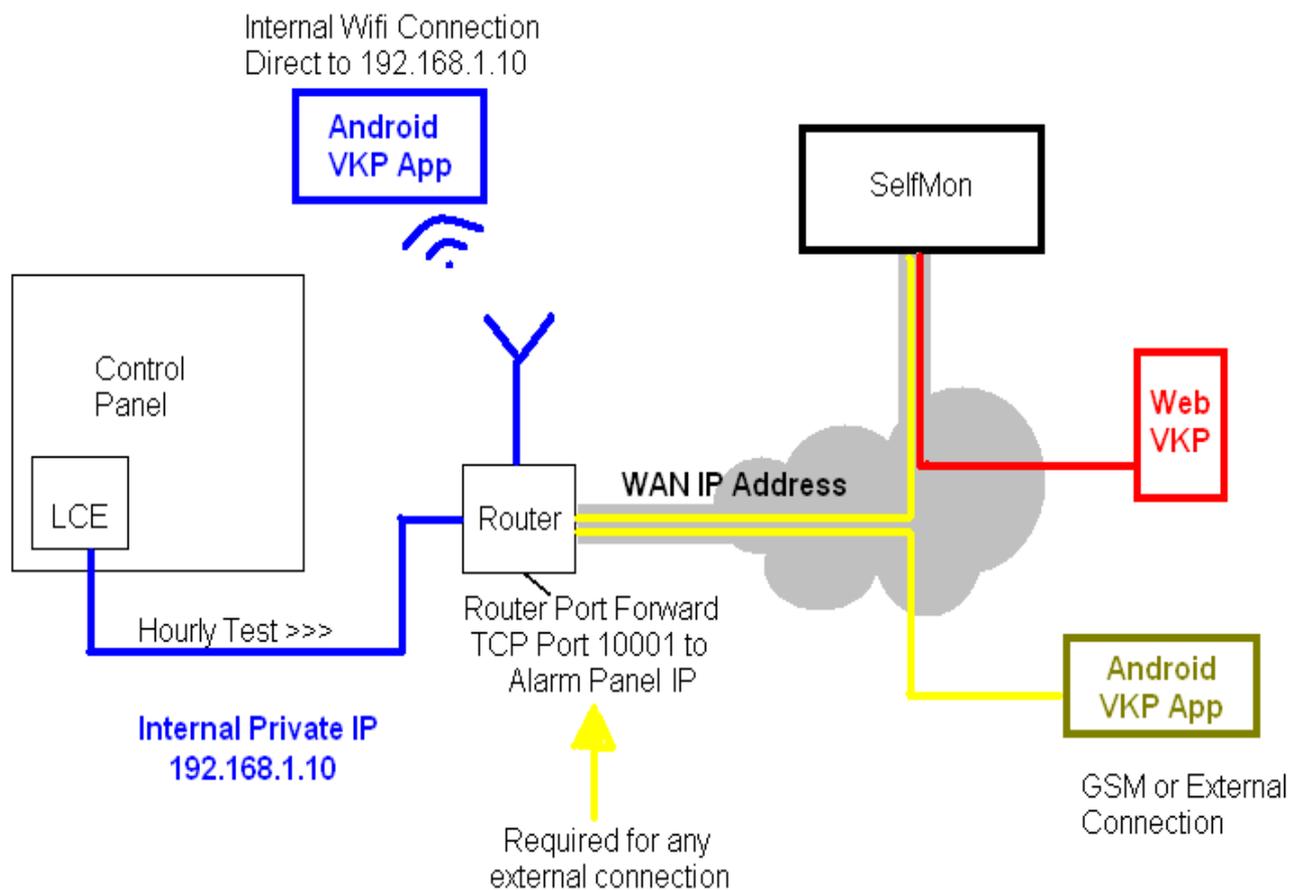
If the panel is reachable on the network, then you should be able to load up the Android app and connect to your panels IP address on your local WiFi network.

If you want to reach your panel from a public network (The internet), then you need to open up a port on your router for this. The port the panel uses is 10001, so this same port must be forwarded from the internet connection to your panels internal address.

9. LCE-01 Module Internet Access Continued

The process for port forwarding can be different for different routers, so you will need to consult your router manual or any Youtube help videos in order to complete the process.

Some routers allow external ports to be mapped from different external numbers. The Android app and SelfMon platform supports this with different port numbers. However, the internal port of the Honeywell modules and the LCE module is fixed to port 10001.

The setting on the router should be set to port forward **TCP port 10001** to your panel IP address. If your router defines a port forward range, set the first and last port to the same Ie. 10001.

SelfMon Keypad On Demand

The SelfMon platform supports an on demand keypad which may be launched from the selfmon account. There are two supported launch mechanisms with the first being from the account menu after login and the second from your account name subdomain. Note that for the subdomain method to work, your account name cannot contain illegal internet DNS characters like the '@' symbol. An example of the second launch method is:

http://myaccount.selfmon.co.uk

When configuring the on-demand keypad, it is best to use the menu launch method, as it incorporates extra debug not available from the subdomain launch.

When configuring the on demand keypad, this is achieved in the 'configure monitoring' menu. The option for RSS password must be set, and the control panel programmed with the same password. Note that RSS is required to set a password on Dimension, Flex and Classic panels. The G2 series panels uses the 8 digit downloader ID.

On G2 panels, the selfmon platform converts your text based password to an 8 digit numeric code, which you then program into the panel. Simply enter your >8 character password in the RSS password field, then submit and review the 8 digit code returned. Program this into your panel and then you can connect to the panel using the text string. The Android app will also connect using the text string or 8 digit number.

When you launch the on-demand keypad, you will be asked for a username and password. The username is the SelfMon username and the password is the RSS password (not your selfmon account password unless you have set it as the same).

10. LCE-01 Module Parts & Ancillaries

Module Standoff Mounts x 4   (included)

LCE-01-2 Module for G2 Series Panels   (included)

ESD Bag   (included)

RS485 Flying Lead 4-WAY SM-FL485   (£5.00 Additional)

Note that the flying lead is wired as follows:

Red   +12V

Black   0V

Yellow   A

White   B