Introduction

The GSM Module V4 for Simon XT and XTi enables wireless reporting of all alarms and other system events from the GE Simon XT and XTi control panels using an all-digital, GSM/GPRS wireless (cellular) network. The module can be used as the primary communication path for all alarm signaling, or as a backup to a telephone line connection to the central monitoring station. The wireless alarm signaling and routing service is operated by Alarm.com. The V4 module also features integrated support for Alarm.com's emPower™ solution with built-in Z-Wave capabilities.

The module interfaces with the Simon XT and XTi panel boards, fits into a special compartment inside the panel, and is powered by the control panel and panel battery.

Contact Information

For additional information and support on Alarm.com products and services, please visit www.alarm.com/dealer or contact Alarm.com technical support at 1-866-834-0470.

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Intended Use

Use this product only for the purpose it was designed for; refer to the data sheet and user documentation.

Power Up

Connect panel battery and AC power. When a GSM module is connected to a powered control panel, the LEDs at the bottom of the module will become active (see Table 1). It may take a few moments after power up for the LEDs to become active. If the LEDs do not light up at all, ensure that the module has been fully inserted into the connector beneath it then perform a full power cycle by following these steps:

1. Disconnect the battery leads and unplug the panel power transformer from AC power.

2. Verify that the module is inserted securely and that the antenna is snapped-in completely.

3. Connect battery leads to the battery. On the XT, make sure to observe polarity (red to + and black to –) and to keep the wires outside of the tab holding them in place.

4. Plug the panel power transformer into the AC outlet.

It is important to plug the battery in before plugging in the transformer, otherwise the panel will issue a "System Low Battery" message regardless of the battery voltage level.

Troubleshooting: LEDs

Status LEDs indicate network and module status. Figure 1 *below* shows the location of the status LEDs on the GSM module.
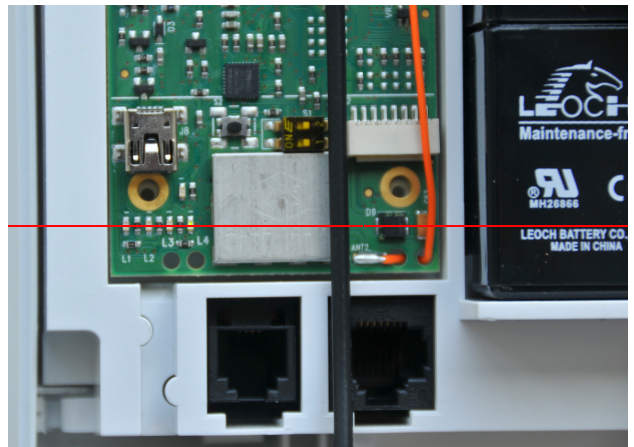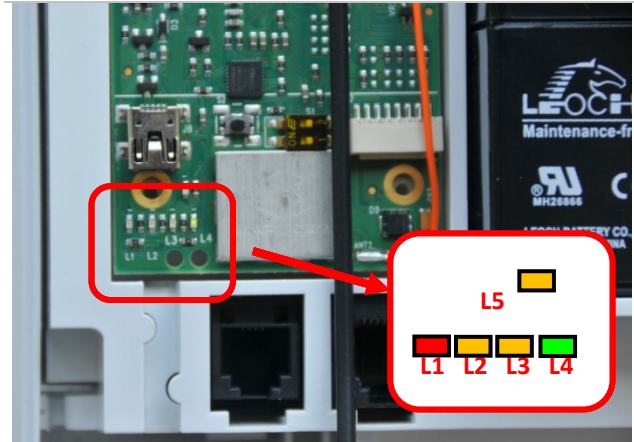
Figure 1: Status LEDs

Table 1: LED functions

LED	Function
L1	Error LED. Flashes 1 to 8 times in an 8-second interval to indicate specific error. See Table 2 on page 2 for errors and common fixes.
L2	Panel Communication and Z-Wave status messages. Flashes every time the module communicates with the panel and flashes in patterns to indicate Z-Wave status.
L3	GSM Communication. Flashes every time the GSM signal level is checked and when packets are exchanged with Alarm.com.
L4	GSM Signal Level. Flashes 0 to 5 times to indicate signal strength, or toggles on/off slowly when communicating with Alarm.com servers.
L5	Z-Wave Error LED. See Table Table 3 on page 2 for error descriptions.

LED Details

LED L1 (red)

L1 flashes when there is an error. The number of flashes indicates the error number. If there are two or more errors at the same time, the errors will flash one after the other. The LED will stay off for at least four seconds between errors.

Table 2: Errors flashed on L1 (red)

Number of flashes	Error and solution
1	Module cannot communicate with the panel. Perform a power cycle on the panel. If the error persists, lift the module out of the panel and re-insert it. If the error is still observed try a different module. Finally, if that does not fix the problem try a different panel.
2	The SIM card is missing. The SIM card holder can be found on the module. Verify that the SIM card holder is closed securely and that there is a SIM card in the holder.
3	The module is trying to register on the GSM network. If it persists for more than a few minutes, the module is having problems registering with the GSM network. Check L4 for signal level. If signal level is lower than 2 "bars", change the panel's location or use a remote antenna option. If the signal is good, the module may be roaming on a GSM network that does not partner with our GSM providers, or the SIM card was not activated yet because the Alarm.com account was not created correctly.
4	The module is registered on the GSM network but cannot connect with Alarm.com. Contact Alarm.com Technical Support.
5	Radio portion of the module is not working correctly. If this persists for more than a few minutes the module may need to be replaced. This error is extremely rare so verify that the module is flashing 5 times.
6	This is an error only if it persists for more than a minute. Otherwise, it's just an indication that the module is fixing an unusual condition regarding communication with the GSM network.
7	The module is not compatible with this panel type. Please insert a compatible module.
8	If it persists, the account may have been set up incorrectly. Contact Alarm.com Technical Support. You will be asked to check the serial number of the module.

LED L2 (yellow)

L2 flashes with every communication between the module and the panel. Normal pattern calls for a series of quick flashes every two seconds in Idle Mode or four seconds in PowerSave Mode.

It also occasionally flashes in patterns to indicate Z-Wave status. See the table below for a description of various possibilities.

Table 3: Z-wave LED status indicators

LED 2	LED 5	Device status or error	Description
4-blink		Add mode (lasts 120 seconds or until a device is added)	In this mode you can add a device to the local Z-Wave network. Devices cannot be added to a network if they are already a part of a network.
2-blink		Delete mode (lasts 120 seconds or until a device is deleted)	In this mode you can delete a device from a Z-Wave network. A device can only be in one network at a time, and must receive a "delete" command before it can be learned into a new network.
Solid		Successful add node/remove node/replication (lasts 60 seconds)	After receiving this signal, leave all devices by the GSM module for 1 minute. Locks must be left next to the module for 4 minutes.
Solid with one blink		Add node attempt failed because node already in network (lasts 60 seconds)	Device you attempted to add to a network is already in a network, and must be "deleted" before it can join a new network.
	2-blink	No other nodes are in the network (lasts until a device is added to the network)	No devices have been added that can be controlled by the GSM module yet. See above for instructions on how to add devices.
	5-blink	Learn mode error (lasts 60 seconds)	The device was not successfully added to the Z-Wave network.
	6-blink	No Home ID present (lasts until the module connects to Alarm.com and is configured)	When the GSM module first connects to Alarm.com it is configured with a necessary unique network ID.

LED L3 (yellow)

L3 flashes with every communication between the module and its radio unit in Idle mode, and with every communication with Alarm.com in Connected Mode. In PowerSave mode, this LED flashes in unison with LED 2.

LED L4 (green)

L4 indicates the GSM signal level as a number of flashes (0 to 5 bars). The number of bars may not correspond to the bars shown on your cell phone. A level of 5 bars is obtained only in the strongest signal conditions.

Signal level is updated every ten seconds if it fluctuates, or every 30 seconds if it is fairly stable.

If L4 is not flashing it indicates one of the following states:

- The module is in power save mode;
- The module just powered up;
- There is no GSM coverage in the area. Alarm.com recommends a steady signal level of 2 or higher for proper operation of the module.

In connected mode, the LED toggles on and off.

LED L5 (yellow)

L5 indicates Z-Wave errors. See Table 3 above for more details.

Improving wireless signal strength

Guidelines for optimal wireless signal strength:

- Install the module above ground level, as high up as possible within the structure.
- Install the module near or adjacent to an outside-facing wall of the structure.
- Do not install the module inside a metal structure or close to large metal objects or ducts.

- Make sure to follow the antenna positioning guidelines that are included with the antenna. Certain antennas must be oriented a specific way in order to receive signals.
- Upgrade the antenna. If using the 1/4 wave antenna included with the GSM module, upgrade to a remote cable antenna. Contact Alarm.com technical support for antenna options.

As you make changes to the module location or antenna to improve signal strength, request updated signal readings to verify changes. To request an updated reading, press and hold the "5" key for 10 seconds on the XT or press the 'Refresh' button in the "Module Status" menu on the XTi.

Specifications

Compatible	Simon XT panels with software versions 0.0.H and later and Simon XTi.
Power requirements	6V nominal
Standby current	30mA (10mA in power save mode)
Peak current	1.7 A
Operating temperature	32 to 120°F (0 to 49°C)
Storage temperature	-30 to 140°F (-34 to 60°C)
Max. relative humidity	90% non-condensing
Cellular network	Quad-band GSM/GPRS
Dimensions	(H x W) 4 1/16 x 1 7/8 in.

Regulatory information

FCC ID: YL6-143200T5V4IS, IC: 9111A-143200T5V4IS
This device contains FCC ID: RI7GE865, IC: 5131A-GE865

Changes or modifications not expressly approved by Alarm.com can void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different form that which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

(1) This device may not cause interference

(2) This device must accept any interference, including interference that may cause undesired operation of the device

This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.