

INTRUSION ALARM SYSTEM USES SMS NOTIFICATIONS

AUTONOMOUS ALARMING WITH AN INFINITE DATA LOGGER



An electrician had a client in France who owned a house in a remote location. His house had been broken into three times that year and so the electrician was asked to install a GSM alarm with no outside or internal sounder, due to the fact that the last alarm system had recently been taken off the wall during the night. Since the house is remote and left unoccupied for long periods of time, the electrician wanted a lithium-powered wireless intrusion alarm system with a telephone dialer. The other problem is that the house does not have mains electricity, but instead uses a complex generator/battery setup which sometimes fails to auto-start.

In situations where no mains power is available, classic alarm systems are not applicable. This is commonly the case in off-grid military depots, private boats, holiday homes, aircraft hangars, etc. There are also cases where mains-powered alarm systems fail to operate after a power blackout, due to a backup battery failure or a disturbance caused by the outage.

Infinite's autonomous [RTUs](#), combined with new ultra-low power PIR sensors, offer advanced solutions in security. An SMS intrusion alarm system, consisting of an Infinite [BSC-50E Remote Alarm System](#) and a low-power PIR sensor for motion detection, can operate for over 10 years, powered only by one Lithium D-size battery!

PROPOSAL

A [BSC-50E battery-powered RTU](#) with an OPTEX EX-35R sensor is an optimal solution for long-term, autonomous intrusion alarming. The EX-35R is an ultra-low power PIR sensor, drawing only 3.5 μ A in standby operation. The PIR sensor is powered from the BSC-50E internal battery. Users can select a 'Walk test' option with LED indication, by an internal jumper, for adjusting the detection range.



The sensor provides two Form C solid-state switches (NO, NC, COM)—one for motion alarm and one for tamper alarm. The sensor outputs are wired to the DI1 and DI2 BSC-50E digital inputs. The Normally Open terminals are used for this purpose in order to save power, as the BSC-50E inputs feature an internal pull-up resistor. An ON-OFF switch, wired to BSC-50E DI3, is used to enable or disable the GSM alarming (Arm/Disarm switch).

Up to 20 SMS recipients can be declared in the BSC-50E unit. The unit sends a Status SMS to the administrator on transitions between the arm and disarm state. The unit can also send periodic status messages to the administrator, for verifying the system availability and GSM signal strength. A wireless RF Remote Control Switch such as the Velleman VM130 remote control set, can be applied in the place of a hand switch for arming and disarming the alarm system remotely.

An additional digital input (DI4) is available for connecting door or window switches to the BSC-50E unit with a respective alarm annunciation.

Here the electrician uses the BSC-50E analog inputs to measure and record temperature and humidity with periodical data transfer. The unit can remain connected on the GSM network for a short period (up to 255 seconds) after sending a Status SMS, expecting a remote configuration SMS from the system administrator, such as to add/remove a user, to change timings and rates, etc.

FEATURES

- SMS Alarming
- Autonomous operation for over 10 years
- Arm/Disarm capability
- Flexible user administration
- Periodically sending status messages
- Simple setup and installation
- Remote configuration capability

BATTERY LIFE

Different low-power sensors can be used for indoor and outdoor applications. The lifetime of the BSC-50E internal battery (LSH-20) depends on the current draw of the applied sensor. In some cases extra batteries for the sensors must be provided for proper system operation. The following table shows battery lifetime calculated for different low-power OPTEx motion sensors:

Sensor	Application	Sensor batteries	BSC-50E Battery lifetime [Years]	System operation [Years]
EX-35R	Indoor	–	>10	>10
CX-0702RS	Indoor	–	>10	>10
FTN-R/RAM	Outdoor	–	>10	>10
BX-80NR	Outdoor	–	>10	>10
VX-402R	Outdoor	–	>10	>10
AX-100/200TFR	Perimeter	2+2 1)	>10	>3 2)
SL-350QFR/QNR	Perimeter	4+4 1)	>10	>8 2)

1. SAFT LSH20 batteries are recommended from the sensor manufacturer for both transmitter & receiver.
2. The transmitter's battery lifetime determines the maintenance-free operation of the system.

BSC-50E CONFIGURATION

The following ASCII commands can be used to setup the Infinite BSC-50E for a typical GSM Alarming application:

Command	Remarks
0195,0195	Clear character translation (Default character set)
0183,0183	Factory defaults
0300,My BSC-50E	Set Unit name
0630,1,Intrusion Alarm	Set Alarm message text
0630,2,Tamper Alarm	Set Tamper message text
1100,1,DI1,1,0	Set DI1 as Motion alarm input (0à1 transition)
1100,2,DI2,1,0	Set DI2 as Tamper alarm input (0à1 transition)
1101, 1,,1	Select the DI1 message for the positive transition
1101, 2,,2	Select the DI2 message for the positive transition
1300,0	Disable logging
0650,168	Set the Status SMS period to one week (168 hours)
0651,60	Set the idle period after the Status SMS to 60 seconds
0680	Include GSM Signal measurements in Status SMS
0700	Enable Halt/Resume mode on DI3 (Arm/Disarm switch)
0500,1,George,6946777690,1,1,1,0	Create user 'George' as Administrator
0500,2,Julia,6948335045,0,0,1,0	Create user 'Julia' as alarm recipient
0500,3,Paul,6974644288,0,0,1,0	Create user 'Paul' as alarm recipient
0205,0205	Update the system controller

For more info on the [BSC-50E Remote Alarm System](#), additional [Infinite products](#), an intrusion alarm system or to find the ideal solution for your application-specific needs, contact a CAS DataLogger Application Specialist at **(800) 956-4437** or www.DataLoggerInc.com.