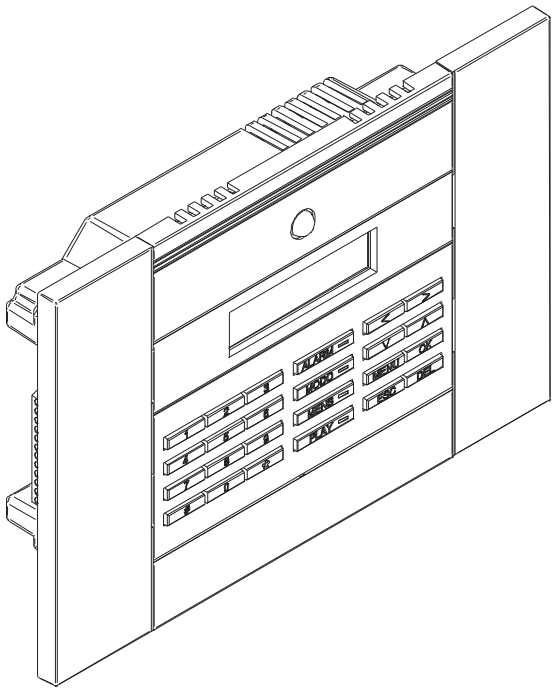


DESCRIPTION

aSmart Lite is a home management device designed to satisfy the most common home automation and control needs. According to its integration philosophy, this model practically does not require any installation.

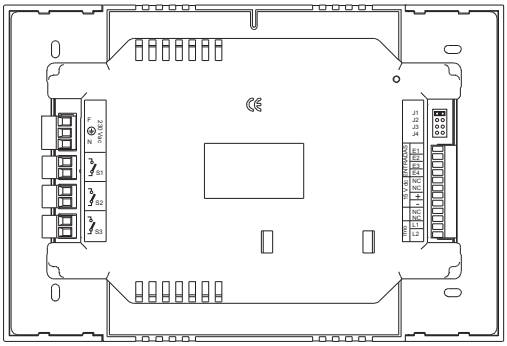
APPLICATIONS

aSmart Lite is suitable for installation in both new buildings and renovations of:

- Flats.
- High-rise buildings.
- Secondary residence.
- Lofts.
- Offices.
- Semi-detached houses.

FUNCTIONS

Heating & Heating/cooling Control and Management.
Intrusion Alarm:
Dissuasive siren incorporated.
Calls the three programmed telephone numbers as a warning.
Fire Alarm.
Power Failure Alarm
Voice Mailbox.
Answering machine.
Hands-free telephone.
Remote phone control.



DESCRIPTION OF THE FUNCTIONS

HEATING

aSmart Lite is the house thermostat. By setting this configuration the user will control a heating system with temperature management.
It has three operation modes: MANUAL, AUTOMATIC and OFF.

In Manual Mode the user selects the set point temperature. The system will operate continuously when the room temperature is lower than the set point temperature. Once the temperature rises above this set point, the device will stop operating.

In Automatic Mode the user selects up to 3 on-off daily cycles with their set point temperature and in each of these cycles device works exactly the same way as on the manual mode. On this mode an anti-freeze set point can be set. This anti-freeze set point forces the heating system to turn on when it detects an extremely cold temperature below this set point temperature being out of cycle.

INTRUSION ALARM MANAGEMENT

This efficient alarm system can be easily managed by the user himself. In the event of an alarm situation, the system will call to the 3 telephone numbers previously set up by the user, and will send an "intrusion alarm" message" to the user informing him of the situation. As the system also has a talk/listen-in feature, the user will be able to know what is going on in his home and deter the intruder. When system does not get an answer it will call the next number set up by the user. Once he has verified the incident the user will be able to cancel calls to the rest of the numbers set up. It is also possible to adjust the sensitivity of the sensor. The unit has an internal siren.

FIRE ALARM MANAGEMENT

aSmart Lite includes a temperature sensor to detect sudden temperature increases above 7ªC/minute. Temperature estimated to put into operation a thermovelocimetric sensor for fire-detection purposes.

POWER FAILURE ALARM MANAGEMENT.

In the event of power failure system will alert the the user to be aware of any loss of or damage to his frozen food. The power outage must be at least 1 minute in length to give rise to this phone alert. The user will be also informed of the reestablishment of power supply.

VOICE MAILBOX

aSmart Lite includes a Voice Mail recorder which can store up to a maximum of 9 Voice Mail messages (30 seconds/message time). These messages can be reproduced later as many times as necessary.

ANSWERING MACHINE.

This Voice Mailbox is able to record messages coming from external telephone calls. This answering machine function is provided with a factory default pre-recorded voicemail outgoing message and the user can also record his own greeting message. The user can select the outgoing message for incoming calls.

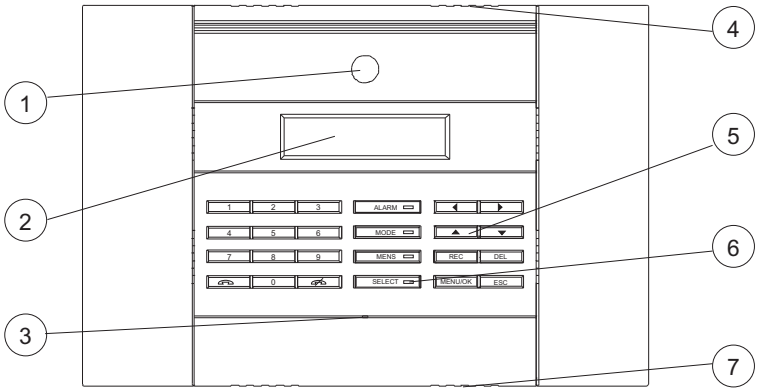
TELEPHONE.

aSmart Lite is a hands-free telephone. The user can make outgoing calls and receive incoming calls.

TELEPHONE REMOTE CONTROL

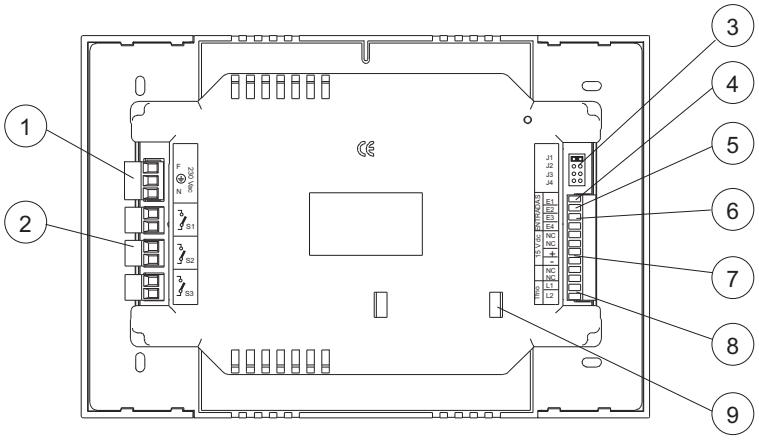
The heating/heating/cooling, intrusion alarm and messages functions included in *aSmart Lite* system can be controlled remotely from any telephone line. Key-protected access, a menu of pre-recorded voices enables *aSmart Lite* to communicate with the user and guide him up to the functions he wants to control. The user interacts with system using the telephone keypad, which is able to generate multi-frequency DTMF tones which enable the engine to fulfill its interlocutor orders.

PHYSICAL DESCRIPTION



1. Motion sensor
2. Alphanumeric LCD screen module 16x2
3. Microphone
4. Loudspeaker
5. Keyboard
6. Indicator lights
7. Temperature sensor integrated

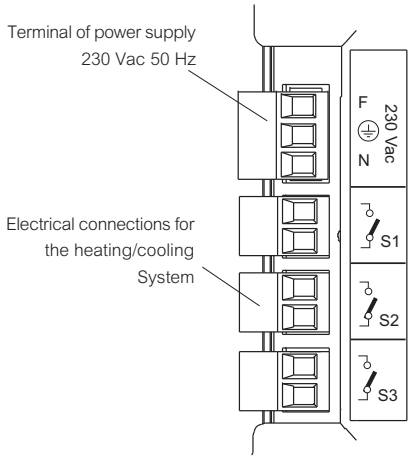
Image of frontal view. Identification of the *aSmart Lite* typical elements and their location.



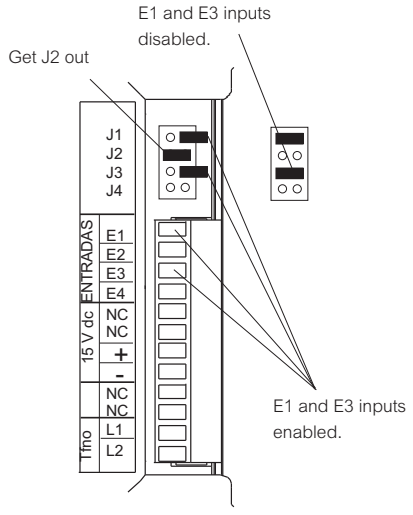
1. Power Supply 230 Vac 50 Hz
2. Outlet for Heating/cooling control
3. Input Termination Jumper
4. Input for intrusion external sensor E1
5. Input for temperature external sensor E2
6. Input for fire external sensor E3
7. Outlet for external sensors supply
8. Connection to the telephone line
9. Internal battery location

Image of back view. Identification of inputs and outlets used by *aSmart Lite* and their location.

DESCRIPTION OF TERMINALS



Detail of terminals of the relay outlets.
Free from any electrical connection to a source of potential difference.

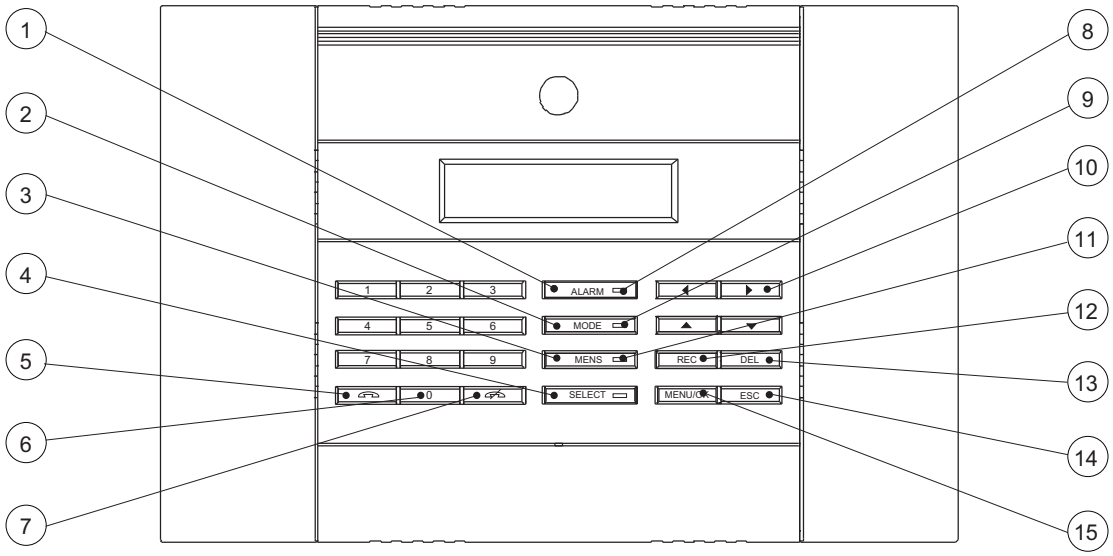


Optionally additional intrusion and/or fire sensors can be connected. In such a case it is important get the jumpers out since they make a short circuit and disable inputs E1 and E3.

It is possible to feed the external sensors in a number below 10 through the internal source of supply. In this model it is necessary to get jumper J2 out in order to enable the dispositive to read the signal sent by the external temperature sensor. The telephone line will be connected to L1 and L2.

In case that aSmart Lite might have to share the line with an asymmetric digital subscriber line ADSL, it would be necessary to put a filter just like a usual terminal phone.

DESCRIPTION OF THE USER´S INTERFACE

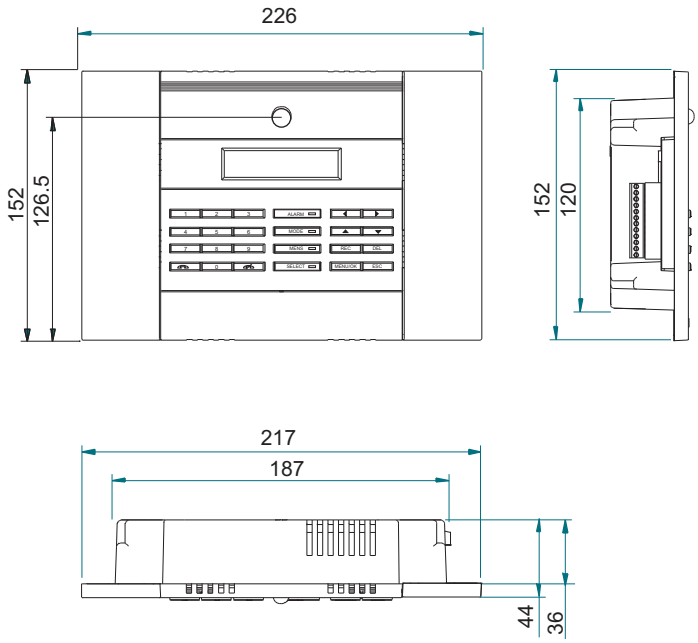


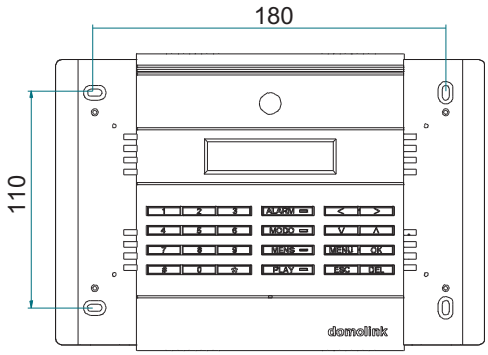
The interface of the aSmart Line consists of an Alphanumeric LCD screen module 16x2, where are displayed data and location of the device´s configuration menu, as well as a keyboard with tactile sensation used by user to enter data and navigate through the configuration menu.

Some of the keyboard´s keys are provided with status indicator lights that will report the status of various functions.

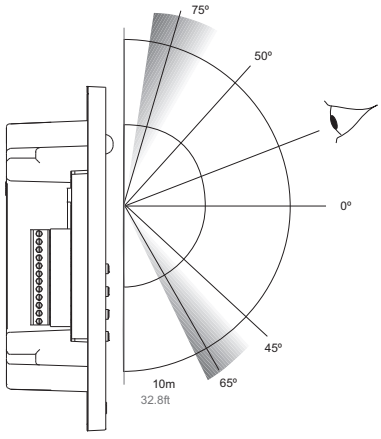
1. Direct activation of the intrusion alarm
2. Change of the heating/cooling system operation mode
3. Voicemail box
4. Model and Serial number visualization
5. Pick up the phone
6. Phone numeric keypad and pass code entry
7. Hang up the phone
8. Intrusion alarm status indicator light
9. Heating/cooling system operation indicator light
10. Cursor keys, navigation through the screen menus
11. Voicemail box content indicator light
12. Record messages key used to record messages using the microphone
13. Delete messages key
14. Escape key to leave menus during navigation
15. Key to access the configuration menu

DIMENSIONS

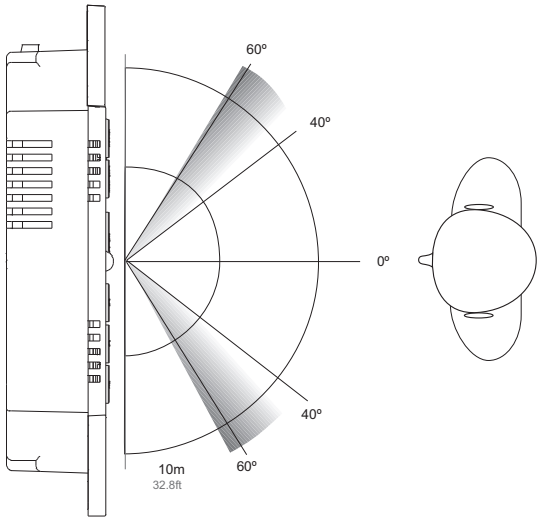




SCREEN VISUALIZATION ANGLES



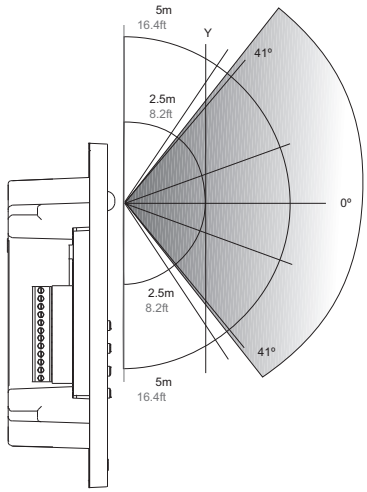
Angles and optimum vertical viewing distances.



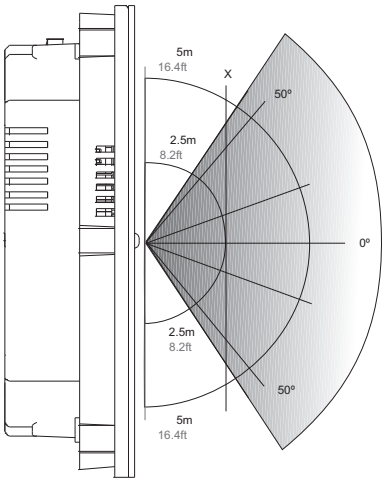
Angles and optimum horizontal viewing distances

The LCD screen of the aSmart Lite engine has been designed to be seen from virtually any angle in the room. Image shows ideal viewing angles.

MOTION SENSOR DETECTION



Vertical viewing area



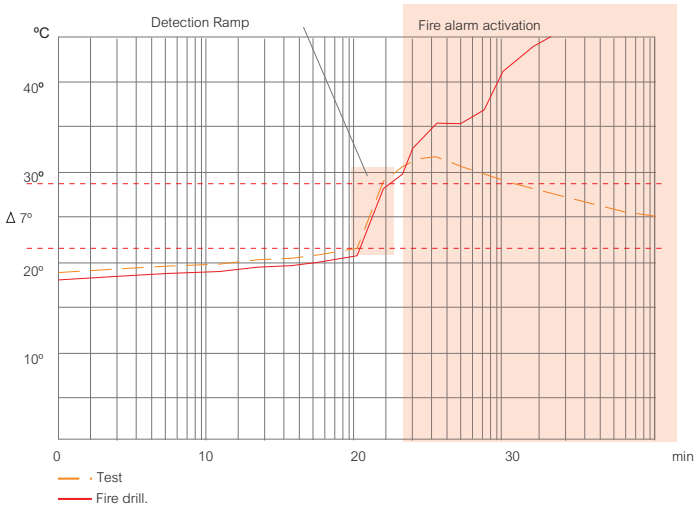
Horizontal viewing area

OPERATION MODE

One of the great advantages of the aSmart Lite engine is, without any doubt, its pyrometer sensor of motion. That sensor greatly simplifies the installation and provides the engine with an essential element for a wide range of functions and applications. Sensor works when it detects the motion of a heat source, such as the emitted from a living body.

In view of the small sensor size, the secret of this sensor lies in its lens equipped with 64 detection zones, distributed in vertical and horizontal opening angles of 82°an 110° respectively with a range of 5 meters These features are more than enough to enable the system to offer for example the provision of a simple and effective intrusion detection. The characteristics of the range of the sensor are represented in the images above.
In addition, the motion sensitivity level can also be adjusted from aSmart Lite menu.

THERMOVELOCIMETRIC SENSOR

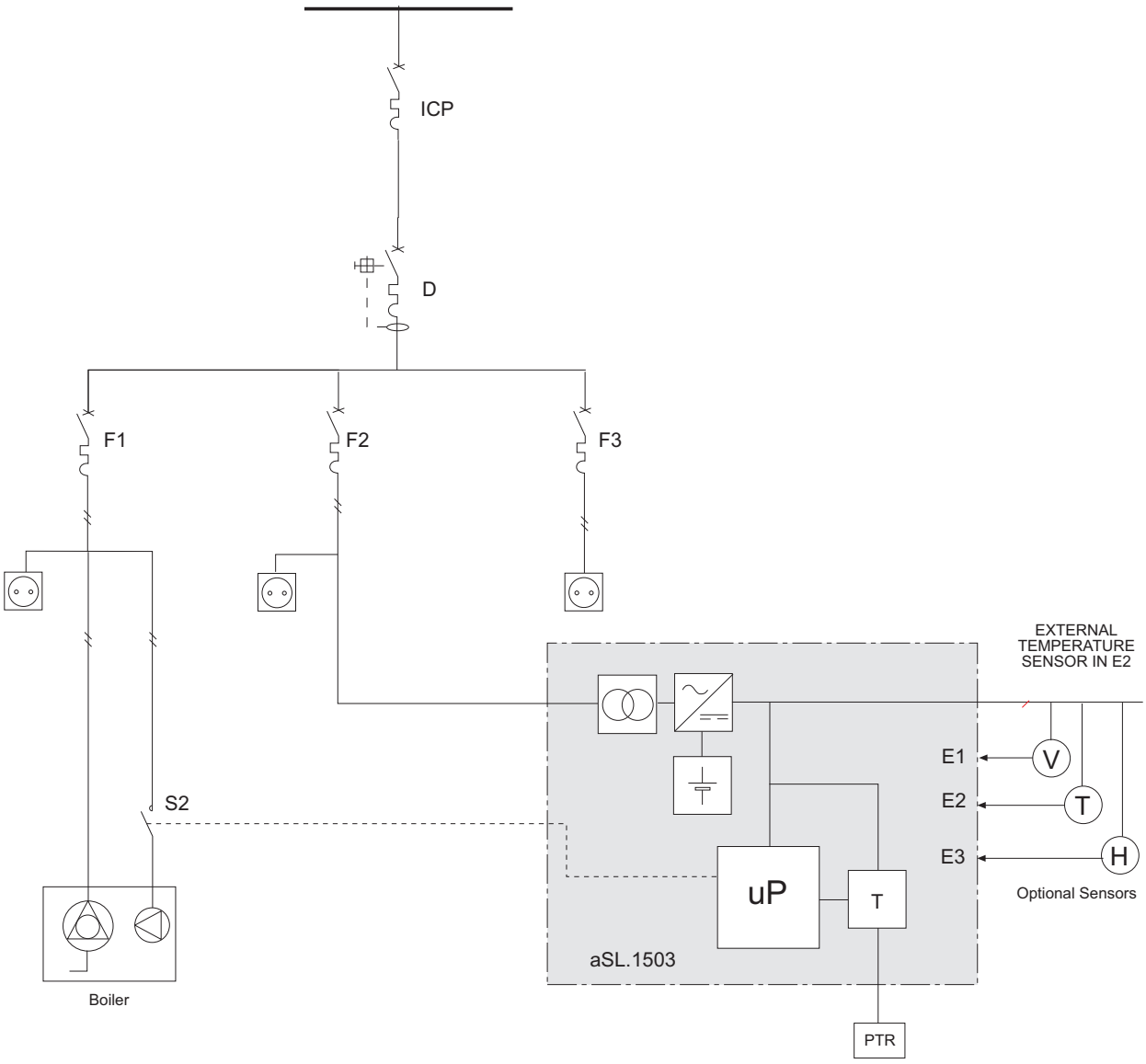


Graph showing the behavior of the thermovelocimetric sensor.

OPERATION MODE

aSmart Lite engine is fitted with a temperature sensor type NTC curve K. This model of sensor essentially enables the engine to determine and measure the room temperature, and its rate of increase. The philosophy of integration that characterizes this range of products enables the system to infer a possible fire in the proximity of the device, with this same sensor and just adding a smart algorithm to the system software. You can see in the graph the way the temperature sensor emulates the operation mode of a fire thermovelocimetric sensor. This type of sensors determines the existence of a fire on the basis of a sudden increase of temperature at a rate of 7ºC/minute.

In the graph both the test-curve and the fire drill indicate that the ramp of detection corresponds to a temperature rise that the device will be interpreted as a fire, triggering a succession of warnings to alert the user. This model employs an external temperature sensor to manage the connection of de heating

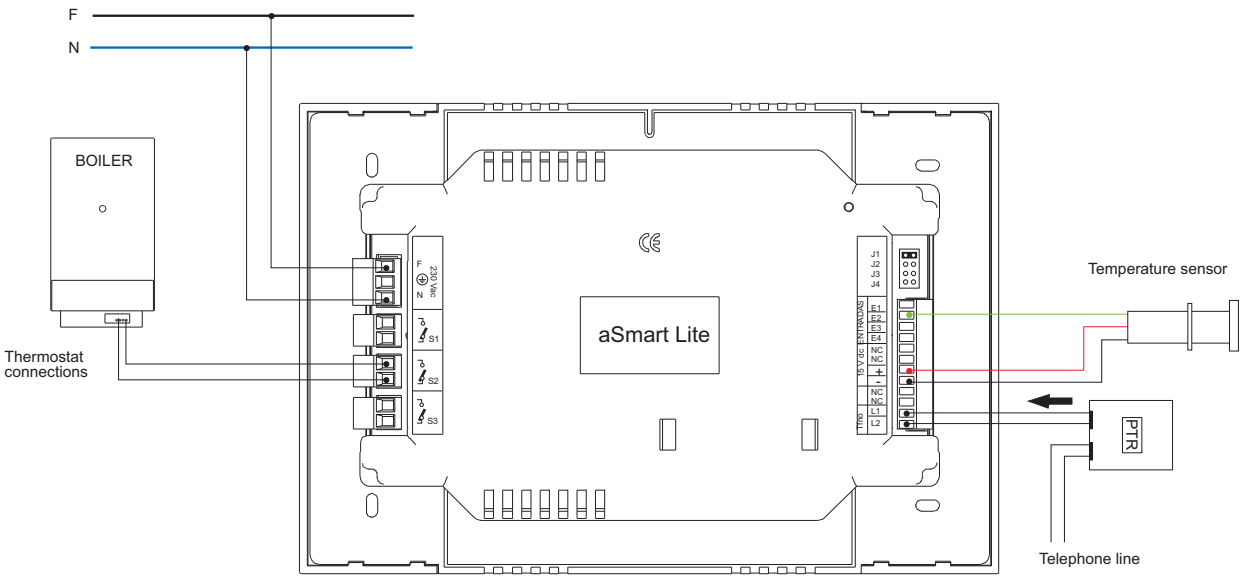


SINGLE-LINE ELECTRICAL DIAGRAM

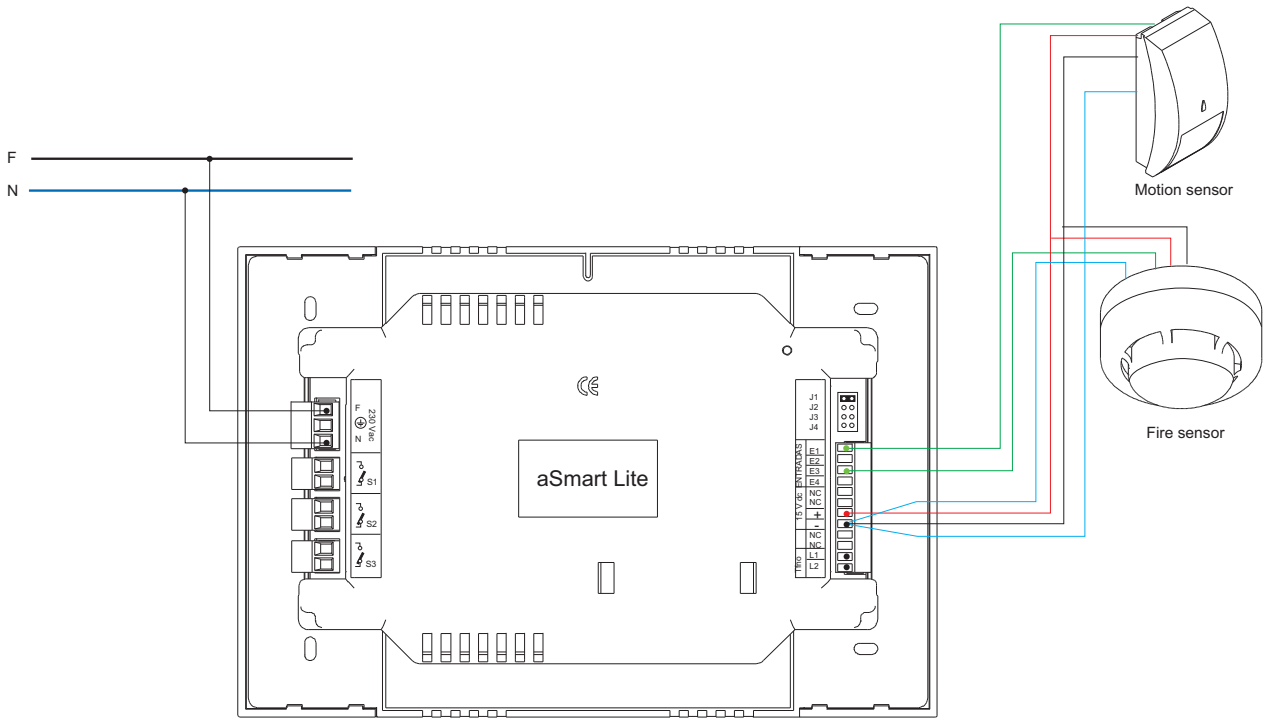
In this Diagram there is a detailed view of the system electrical installation. aSmart Lite manages directly with S2 the thermostat circuit that will put into operation the radiator water pump in a mixed boiler. This circuit will be protected by the thermal-magnetic circuit breaker rating F1 where the boiler is connected.

It could be optionally connected two additional circuits of security sensors. As it is shown, in the diagram inputs E1 and E3 are each of them capable of lodging security circuits of intrusion and technical security of fire respectively.

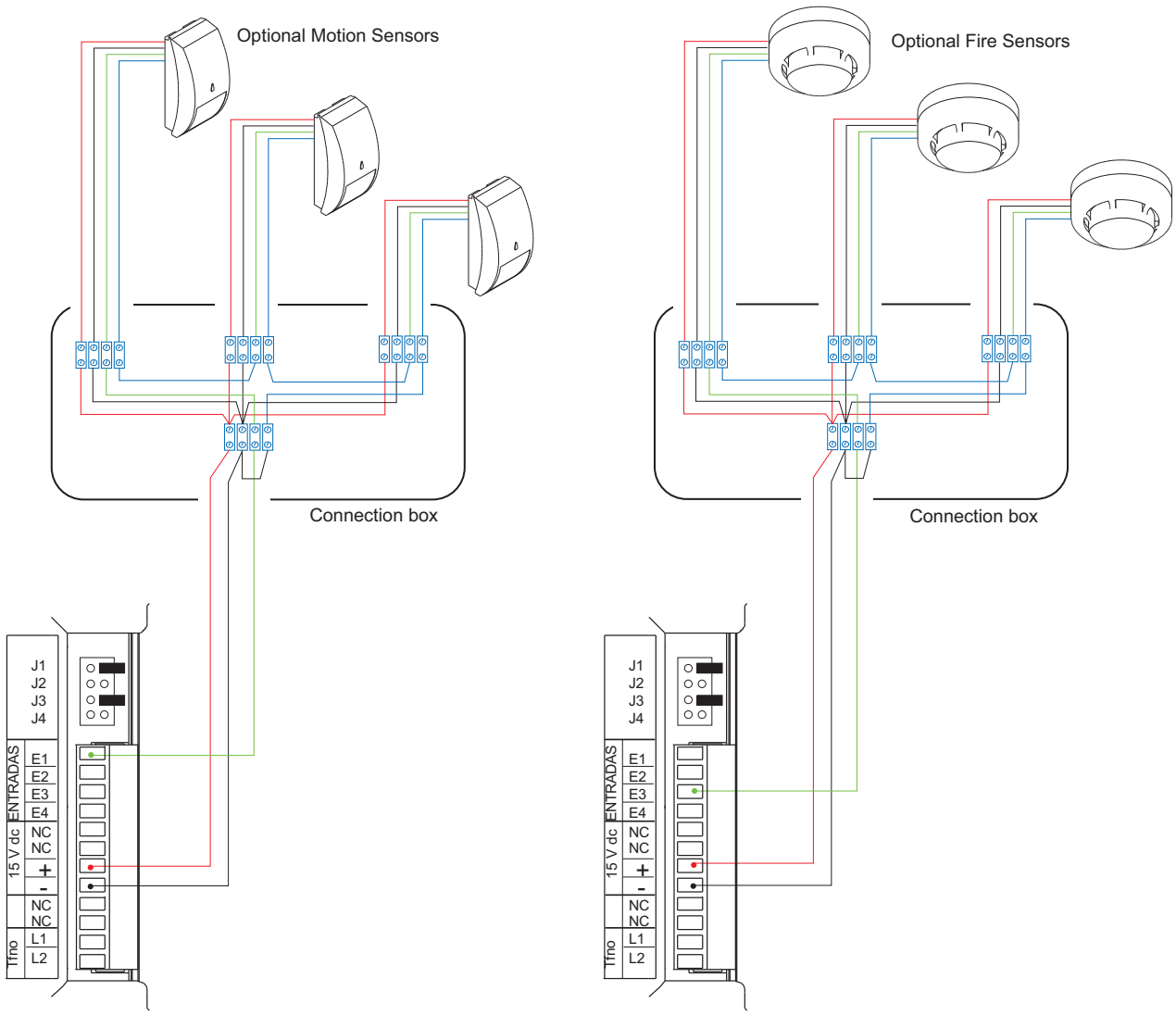
CONNECTION DIAGRAMS



Basic installation schema



Installation diagram with optional external sensors



Installation diagram with optional external sensors

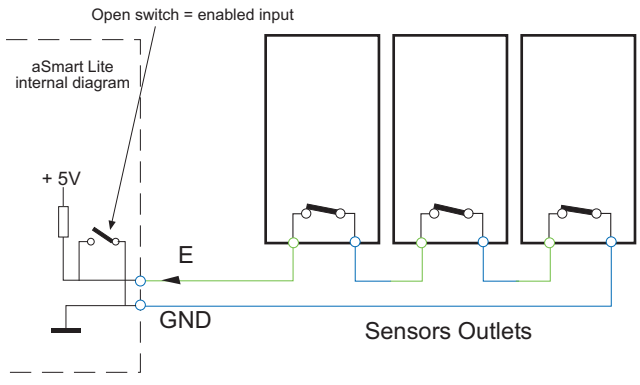
CONNECTIONS IDEAS

In the image are shown some installation ideas when there are more than one sensor (motion or fire) to be wired up. Power supply should be driven from aSmart Lite to each of the sensors. aSmart Lite is able to manage several sensor from single input.

On this purpose it will be necessary the serialization of the usually closed potential-free contacts outlets, available in sensors, so that one of the ending terminals will be connected to the GND negative and the other ending terminal will be connected to the aSmart Lite E corresponding enabled input.

Input E1 will be used for the external presence sensors and Input E3 for the external fire sensors.

In all cases, it will be necessary to check that the corresponding micro-switches are in OFF mode unpitting the input, enabling the set of optional sensors installed to operate.



Concept Schema

TECHNICAL DATA

FEATURES	TERMINALS	DESCRIPTION
POWER SUPPLY INPUT		
Voltage of power supply	F (Phase)	230 Vac 50 Hz (127 Vac 60 hz available upon request)
	N (Neutral)	
	(Ground)	
EXTERNAL SENSORS INPUTS		
analog and digital inputs	E1 (Input 1)	*Intrusion Sensors in closed loop with GND
	E2 (Input 2)	External temperature sensor
	E3 (Input 3)	*Fire Sensors in closed loop with GND
	E4 (Input 4)	Not Implemented.
VOLTAGE OF THE POWER SUPPLY OUTLET TO EXTERNAL SENSORS		
Power source outlet	(+) Positive	15 Vcc Positive with charge (Max. 150 mA)
	GND	In case of power failure the internal battery will continue supplying the 15V
OUTLETS		
NA Potential-free contacts relays	S1 (Outlet 1)	Not used
	S2 (Outlet 2)	Heating/cooling control. Maximum 16A to 230 cca
	S3 (Outlet 3)	Not used
LOCAL THE USER INTERFACE		
Screen		Alphanumeric LCD screen module 16x2
Microphone		Unidirectional condenser microphone
		Sensitivity -40dB, S/N 50dB
Loudspeaker		Impedance ratings of 8 ohms
		Maximum power 2W
		Frequency Pass-Band 400 Hz to 20Khz
		Local Pre-recorded voicemail messages
		Dissuasive Siren
Beeper		An acoustic signal sounds every time screen is pressed
Messages Recorder		Up to a maximum of 9 Voice Mail messages (30 seconds message)

*These outlets are optional. In case you do not need to use it, please be sure to take the corresponding jumpers out.

TECHNICAL DATA

FEATURES	TERMINALS	DESCRIPTION
REMOTE USER INTERFACE		
Telephone Line input	L1	Outlet: Guided Menu of pre-recorded voice
	L2	Input: DTMF Multi-Frequency Tones
Answering Machine	Factory default pre-recorded voicemail outgoing message The user´s own outgoing greeting message	
Alarms warning	Factory default pre-recorded voice alerts	
PROTECTIONS		
Outlets	Varistors,260V, between contacts	
Inputs	Polarity reversal	
Phone Line	Fast transient protection and induced surges using gas discharge tubes.	
SENSORS INCLUDED		
Pyrometric of Presence	Maximum range: 5 meters Horizontal angle: >100º Vertical angle: >82º Detection Zones: 64 Movement speed: 1m/s	
Temperature	Internal location connected to E2 input Power Supply 15V; Temperature range of 0 to 40ºC	
Fire Thermovelocimetric	Using algorithm of software	
Presence 230V of power supply	Continuous internal sensor	
DIMENSIONS		
Width - height - depth (mm)	226mm x 152 mm x 44 mm	
Installed	226mm x 152 mm x 8mm	
OPERATION TEMPERATURE LEVEL		
Home Temperature	from -7ºC to 50ºC	

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