ABOUT THIS DOCUMENT AND THE DOCUMENT STRUCTURE WE USE

iSocket Smart Relay is a complex Smart House system which is installed in the fuse cabinet (electric cabinet) in the house. We therefore assume that the product will be installed and configured by qualified personnel and then delivered to the end user for use. The product can also be used (subject to the regulations in your country) outside of the fuse cabinet if it is powered by 12VDC in houses where only 12VDC is available or when used for other purposes where only low-voltages are applied. That is to say, this product is not the same as our Smart Socket products (www.isocket.eu), which are intended directly for the end consumer. For this reason we issue the following structure of documentation for this Smart House product.

Document №1 is the Installation Guide for Integrators (or Installation Guide), which covers some advanced technical aspects of installation and wiring. First of all the document is intended for the person who will carry out the installation of the unit for the customer. The document does not describe all the features of products in detail, neither does it explain safety aspects. The direct link to get the latest version of this document is www.isocket-smarthouse.com/D1-EN.

Document №2 (Configuration Guide) explains how to install and use iSocket Manager USB software, which is used for configuring an iSocket device. The latest version of the Configuration Guide can be downloaded by the direct link www.isocket-smarthouse.com/D2-EN.

Document №3 is the User Manual for the customer (direct link www.isocket-smarthouse.com/D3-EN). The User Manual is the document where most of the features of the product are described, together with the technical parameters of the product and safety instructions. You can refer to the User Manual to check technical parameters and features of the product, which are not described in this document (Document №1). The User Manual for the consumer also describes how to manage and configure the device with SMS commands, which is why the specific working of some of the functions is described there in detail for experienced users. We have also included some installation instructions which are not related to high voltage wiring to the User Manual. Please use this information when you install the unit.

NOTE! This document does not describe all the technical parameters and features of the device. Neither does it contain any safety instructions. Refer to the User Manual (Document №3) for this and other valuable information.

When referring to the product in this and other documents, we use the following terms: unit, device, product. All these terms refer to the iSocket Smart Relay.

Content

Installation Guide (Document №1). Version 1.0.3-EN   **- 2**   **English**

You, as integrator, and your customer get the following benefits from iSocket Smart Relay

- You can use any relay as a pushbutton to send an impulse - for example to open a gate or start a magnetic starter

- You can use any relay for restart - for example servers, routers

- You can connect a load to relays without using contactors (breakers must be used anyway)

- You can connect heavy loads via contactors

- You can have reliable wired connection of sensors in NO/NC mode (the customer does not need to change batteries)

- You can set up control of the whole house – iSocket Smart Relay has enough alarm inputs and output relays

- You can control even more with extended wireless units - wireless sensors and wireless slave power sockets for connecting of consumer electronics in the house (optional)

- You can connect any input with any relay and any relay with any temperature sensor. So you can create almost whatever control system you want.

- You can install this even in the houses where only 12VDC is available (for example houses powered from sun panels). You have the freedom of choice as to how to power iSocket – either from 12VDC directly or from an AC-DC adapter.

- You can activate functions free of charge (pulse, restart, turning on/off) and get confirmation of the execution of the function (device calls back and hangs up)

- You can configure secure access for management of the device at several security levels

- You can monitor power failure

- You can monitor temperatures of different environments (air, fluid) with up to 5 sensors

- You can continue monitoring temperature even after power failure, thanks to the built-in Li-ion battery

- You can receive temperature drop/rise alerts when a temperature reaches pre-configured limits

- You can monitor sounds in a room remotely (with optional microphone)

- You can perform different actions related to alarm inputs and/or relays at pre-determined times according to a schedule.

- You can manage connected loads using names (aliases - set up by yourself) without having to remember numbers of relays or inputs

- You can make some important configuration changes remotely via SMS without the need to visit the location to re-configure via USB.

- And much more – see User Manual (Document №3)

Wiring diagram for iSocket Smart Relay

~120VAC or ~240VAC – read the instructions in this Installation Guide first!

Relay2   Relay3   Relay4   Relay5   Relay6   Relay7   AC ~

12V

RELAY2 COM NO   RELAY3 COM NO   RELAY4 COM NO   RELAY5 COM NO   RELAY6 COM NO   RELAY7 NO COM NC   Voltage sensor ~ ~

+12VDC   GND   Alarm Inputs   GND VDD Data   Relay1

+12VDC

Power Input
Read more information in this Installation Guide (Chapter 2) before connecting!

GND

Alarm Inputs
Read more information in this Installation Guide (Chapter 5) before use!

GND VDD Data

Temperature sensors – see Chapter 7 in the User Manual and Chapter 3 of this guide

Relay1

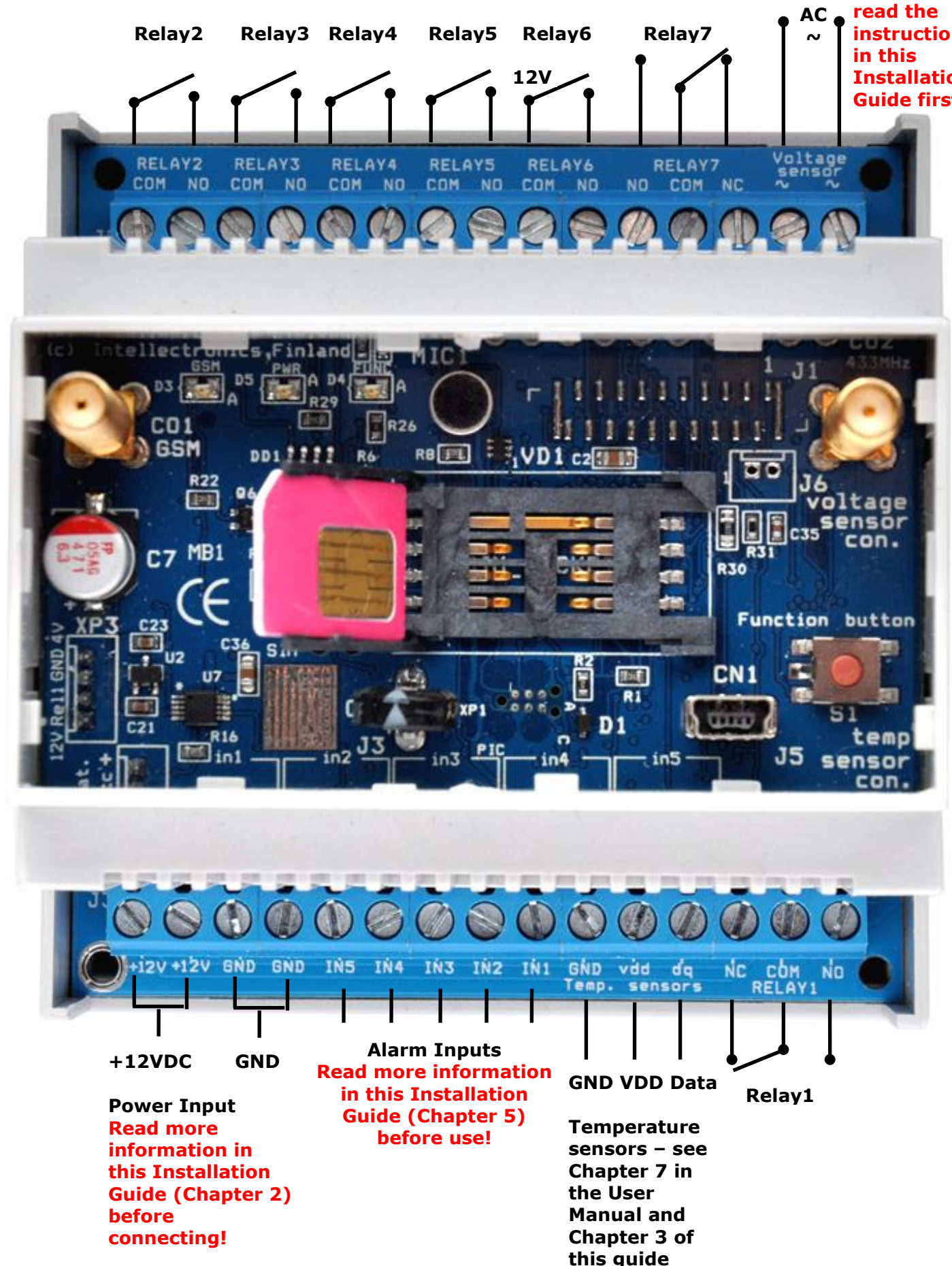+12V +12V GND GND IN5 IN4 IN3 IN2 IN1 GND vdd dq NC COM NO
Temp. sensors   RELAY1

Figure 1. Wiring diagram for iSocket Smart Relay

1. Installation of the Unit

1.1 Mounting the device

The device is mounted on a 35mm DIN rail (EN50022) inside a suitable enclosure (fuse cabinet/electric cabinet) or screwed directly to the wall (check the regulations in your country). The unit is 5 modules wide.

> **NOTE!** This product must only be installed by a qualified person in accordance with the appropriate regulations for the place of installation. The warranty is only valid if proof of installation by qualified person is provided. Read more in Limits of Warranty and Liability (Annnex C of the User Manual).

1.2 Installation of the SIM-card

Disconnect the power supply to the unit and switch off the battery, if unit was powered before - see Chapter 17.3 of the User Manual (Document №3) for detailed information how to switch off the battery. A holder for a SIM-card is available under the plastic top cover of the device. You can open the top cover by inserting a small flat screwdriver into the slot and lifting the cover. Open the SIM-card holder and insert the SIM-card as shown in Figure 1. Close the holder. Directions for opening and closing of the SIM holder are shown on it. **Do not apply excessive force or you will damage the SIM holder. Mechanical damage is not covered by warranty.** Replace the top cover.

> **NOTE!** Read the important information about how to prepare the SIM card to work with the device in the User Manual (Document №3) Chapter 3, Step 1. Important information is also available on the web page www.isocket.eu/prepaid/

1.3 Connecting antennas

After the SIM-card is installed and the top cover replaced you can screw in the antennas. Make sure you don't mix GSM and RF antennas, otherwise you may experience problems with reception! If the unit is installed in a closed electric cabinet and you need to connect external antennas, make sure that all elements (cables, connectors) of the external antennas have a resistance of 50 Ohms.

2. Power Supply to the Unit & Voltage Sensor Connecting

The iSocket Smart Relay was designed to give you the freedom to choose what power source to use. You can provide 12V DC power from an AC-DC adapter in houses where AC network is available or you can power it from uninterruptible power source of 12V DC (for example, accumulator or DIN-rail UPS). Powering from 12VDC is suitable for houses where only 12V DC available.

2.1 What Power Source to Use to Power the Device – AC-DC adapter or UPS?

To find the answer to this question we first recommend that you read Chapter 17 of the User Manual (Document №3), which describes the features related to power supply, battery and power failure notifications. Then we recommend that you read this Installation Guide, especially Chapter 5, which describes specifically the function of the inputs and Chapter 7, which gives examples of different configurations. And finally we recommend that you read Chapter 3.4 of the Configuration Guide where you will find the full list of possible settings supported by iSocket Smart Software.

> **NOTE!** Be careful if you use an automotive accumulator, because these are rated up to 18V or even more, and this voltage is not acceptable to power the unit - see technical parameters in Annex A of the User Manual (Document №3). **You must use a special stabilizer if you want to apply a power supply more than 12V DC**. Houses which have a main network of 12V DC are usually equipped with stabilizers of 12V – please contact specialist to get more information about your house. Please also note that unit doesn't provide charging for external accumulator.

2.2 Connecting the power supply

> **NOTE!**   Make sure of correct polarity when you connect the power supply. The unit does not have protection from reverse polarity!

Use a 12 volt DC, minimum 1.5 Amp regulated power supply. Make sure of correct polarity when you connect the power supply. The unit has a pair of 12V DC and a pair of GND terminals. This is for your convenience if you want to power external sensors which are going to be sensed by alarm inputs from the same power source (see more information in the Chapter 5). If you want to provide power for external sensors from the same source you must use a power supply with higher current. Please note that we only guarantee work of the unit with power sources purchased from us or recommended by us.

2.3 Connecting Voltage Sensor

Only in very rare cases you might need to connect a Voltage Sensor – see the arguments in Chapter 3.4 of the Configuration Guide (Document №2) together with examples of installations in Chapter 7 below.

> **NOTE!** All wiring must only be done by qualified personnel which have proper licenses for such electric work! The warranty is only valid if proof of installation by qualified person is provided. Read more in Limits of Warranty and Liability (Annex C of the User Manual).

If you power the unit from an AC-DC adapter and you have received a power failure notification (see Chapter 17 of the User Manual), then you know that this in particular means that there is no AC power in your network. However, if you power the unit from an accumulator (or UPS) you will not be able to recognize if there is AC power in the network or not. That is why an AC Voltage Sensor for 120V AC or 220V AC must be used. If your model of iSocket Smart Relay is equipped with such a sensor you should connect the AC line to the proper terminals (see Figure 1). **NOTE! This must only be done by qualified personnel which have proper licenses for such electric work!**

The coil of the Voltage Sensor's relay is suitable for either 120V AC or 240V AC. Read the label on the device and see the model identification in the User Manual (Annex A). If you connect 220V AC to the coil which only supports 120V AC then the relay of the Voltage Sensor will be damaged! You have to make the connection to the Voltage Sensor via a breaker, because Voltage Sensor does not have protection from a short-circuit. The breaker must safely disconnect the line in the event of a short-circuit. Use a breaker with minimum possible current.

> **NOTE!** Do **NOT** connect a Voltage Sensor if you are powering the unit from an AC-DC adapter or if your installation will not be using AC at all. Additional information on this subject is available in the Chapter 3.4 of the Configuration Guide (Document №2).

3. Connecting Temperature Sensors

For installing the new temperature sensor you must connect it according to the Figure 2 and use iSocket Manager USB for configuration - see Configuration Guide (Document №2). For more information about temperature sensors and Thermostat Function please refer to the Chapter 7 of the User Manual (Document №3) which desribes all the aspects of using of temperature sensors.

Figure 2. Temperature sensor connection

Black to **GND**
Red to **vdd**
Yellow to **dq (data)**

> **NOTE!** You must connect only one new sensors at a time. If you try to connect several sensors, the device will report an error during configuration. Please install sensors one by one.

4. Connecting the Load to Relays

Please refer to the User Manual (Document №3) Annex A (Technical Data) for information about the rating of each relay. The wiring diagram for the iSocket Smart Relay (Figure 1 in this Installation Guide) shows a diagram of the relays. The relays are not protected by any fuses. You must install circuit breakers or contactors!

You will find examples of different installations in Chapter 7 below.

NOTE! DO NOT connect load directly to relays! For a load which is within the rating of the relay you must install a breaker. For a load which exceeds the rating of the relay or for a non-resistive load you must install contactors.

4.1 How to Use the iSocket Smart Relay to Function as a Pushbutton

You might need to have a pulse to start and stop, for example, a magnetic starter or open a gate (see Example 2, Chapter 7). It is possible to use any relay output of iSocket Smart Relay as a pushbutton. For this the customer may use the SMS command PULSE with the number of the relay or its alias name - see Chapter 4.4 of the User Manual (Document №3). This command will turn the relay on and off for the configured time (e.g. 4 seconds). This is the same as pressing a pushbutton. However, please refer to the specification of the magnetic starter which you are going to use to check what connection it requires and whether the rating of the particular relay matches with the requirements of the starter's coil. You can also configure it to produce a pulse by phone call and free of charge confirmation (device calls back and hangs up) – see Chapter 4.2 of the User Manual (Document №3).

Typically magnetic starters are operated by two pushbuttons: a "start" button which is normally open (i.e. push-to-make) and a "stop" button which is normally closed (i.e. push-to-break). The device has both N/O and N/C relays. So you can use a relay with N/O contacts for a "start" button and a relay with "N/C" contacts for a "stop" button. But you can also apply the following logic:

First of all please note the following. In the User Manual (Document №3) and other documents when we say that a relay is turned on (or is activated) it means that power is applied to relay's coil. So it means that N/O contacts are closed and N/C contacts are open at that moment. Thus we mean turning on or turning off with regard to the relay's coil. When we say "pulse on/off" was sent to the unit, it means that power was applied and then removed from the coil after a certain period of time (e.g. 2 seconds), so it means that N/O contacts were closed for 2 seconds and then opened again, and vice versa for an N/C contact – it was opened for 2 seconds and then closed again. When we say "pulse off/on" was sent to the unit it means that power to the coil was removed and then returned again (so the power was on the coil before we started the action). Accordingly contacts of relays will be switched. Command PULSE changes the status of contacts for a few seconds and then returns them back. Therefore, if you don't have enough N/C contacts for a "stop" button (all taken for other purposes) you can use any N/O contacts preliminarily by switching on the relay with command "ON" (see Chapter 4.2 of the User Manual), which will close N/O contacts.

4.2 Free-of-charge Operations (Turning On/Off, Restart, Pushbutton)

You can configure the unit to perform some actions by phone call, e.g.: reboot, switching or sending a pulse – see tab "Ring". Customer may wish to perform these actions without paying for the call. This is possible! See Chapter 3.3 of the Configuration Guide (Document №2).

5. Alarm Inputs

iSocket Smart Relay has several digital inputs for logical N/C and N/O sensors. Chapter 9 of the User Manual (Document №3) describes all the features for the use of the sensors. Before configuring inputs for your customer we recommend that you study all the information from Chapter 9 of the User Manual carefully.

5.1 Powering Sensors

The specification of alarm inputs is available in Annex A of the User Manual (Document №3). As you can see the recommended voltage range that inputs can sense is 11-24V DC and nominal is 12V DC. The Absolute Maximum Rating (AMR) is 9-28V DC, but AMR is the value beyond which damage to the device can be caused or unstable operation may occur. **Using the device at AMR is not covered by warranty.** While using minimum voltage (9V) will not damage the input, it can lead to unstable operation because the low voltage might not always be sensed by the input. Keep in mind that if you use long wires a voltage drop is possible. When the sensor is located a long way away from the unit it is usually better to use higher voltage than for short distances. Applying a voltage exceeding maximum recommended value of 24V DC to the input may damage the buffer IC or even the MCU on the unit. Higher voltage on the input will also generate additional heat.

You can power sensors from the same source from which you power the unit and this would be the best way to maintain requirements for the acceptable voltage for the alarm inputs. This will also allow you to use the same GND. Thus, we recommend that you use sensors which are powered from 12V DC. Suitable sensors are available from iSocket Systems. Please understand that if you power sensors from the same source from which you power the unit, you will not be able to sense the inputs in the event of a main power supply failure, because this failure will cut off the power to the sensors. It should also be said that this configuration assumes that you will use an uninterruptible power supply both for the unit and the sensors (see Example 1, Chapter 7).

You may want to power the unit from an AC-DC adapter and continue to sense the inputs when the power fails. For this configuration you must use sensors with their own power supplies and configure the device accordingly (see Configuration Guide, Chapter 3.4). If you power sensors from separate power source, you need to connect the earth connections of both power supplies together (see Example 2, Chapter 7).

Please refer to Chapter 7 to see more examples of different connections.

> **RECOMMENDATION:** We recommend that you power all N/C type sensors from their own power sources, even though this is not mandatory for all configurations. The reasons for this are the following: When you power an N/C sensor from the same source as the unit and this source fails there is a theoretical probability that the unit may detect a change on the input (opening of the normally closed input) first, and then detect a power failure, and this will trigger an alarm. Another reason: when the unit is working in backup mode and the battery is discharging, at a certain low level of battery the buffer IC may stop operating and this will trigger the N/C inputs – meaning that the unit will consider them opened and will treat this as an alarm. Use this recommendation if you experience such a problem. Also please note that the correct sensing of the inputs in backup mode is currently considered to be an experimental feature, which might be affected by the capability of the built-in battery

to supply sufficient power for the buffer IC. You should test this configuration with your unit and see whether it works for you.

5.2 How the Alarm Function works with relays

When an alarm is detected a certain relay will be activated for the configured period of time. After that time has expired, that relay will be deactivated. If the relay was already active (turned on) before the alarm was detected (for example because you have executed the command OnRelayX or because of thermostat settings), the Alarm Function will switch this relay off anyway after the configured time has expired. So the Alarm Function will work with relays regardless of the previous status of the relay. However if the same relay is controlled by other functions (e.g. Thermostat Functions) it might be switched on again by that function. Very rarely do you need to configure the same relay to be controlled by different events, so we do not recommend that you use this configuration due to its complicated nature.

6. Configuring the Device for Your Customer

Please refer to the Configuration Guide (Document №2) for information as to how to configure iSocket with our simple utility iSocket Manager USB. Pay attention to all the hints and notes given in the Configuration Guide when configuring unit for the customer. Remember that the customer might not have access to the unit and may not be able to open the top cover of the device to access to USB slot for re-configuring. Some settings can be configured remotely via SMS, but if you have not set up a password for renewing the configuration window, the customer will also need physical access to the unit to reset configuration interval or he will need to wait until the full discharge of the internal battery automatically resets the configuration interval.

Test what you have configured before supplying it to the customer! If the device is integrated inside a fuse cabinet the customer might not be able to gain access for reconfiguring.

Fill in the Product Information Card for the customer!

You will find a Product Information Card for the unit in Chapter 4 of the Configuration Guide. Fill this in for your customer when you configure the unit.

Corrections or improvements to our documentation?
We welcome your feedback!
http://www.isocketworld.com/feedback/

7. Examples of Connection

Example 1 shows how to connect some light loads (e.g. a lamp) without contactors and heavy loads (e.g. a powerful heater) using contactors. It also shows how to connect a few alarm sensors, powering them from the same uninterruptible source that is used to power the unit. Also how to connect alarm siren which is powered from its own 24V DC power supply and will be activated when, for example, a motion sensor detects an alarm. This configuration will allow you to sense alarm inputs even when the AC power fails, because sensors are powering from an uninterruptible source and we do not consider the failure of this.

Example 2 shows how to use the iSocket Smart Relay to start a motor or activate a gate opener (see useful information in the Chapter 4.1 above). It also shows how to connect a few alarm sensors powered from their own different power sources when the unit is powered by an individual AC-DC adapter. This configuration will allow you to sense alarm inputs even when the AC power fails, because sensors have their own batteries or uninterruptible sources and inputs work in backup mode because of the built-in li-ion battery.

These examples only show basic applications of the unit in a house powered by AC. You can do much more!

> **NOTE:** The correct sensing of the inputs in backup mode is currently considered to be an experimental feature, which might be affected by the capability of the built-in battery to supply sufficient power for the buffer IC. You should test this configuration with your unit and see whether it works for you.

Example 3 shows the connection of a few sensors powered from the same AC-DC adaptor that is used to power the unit and connection of 12V alarm siren to Relay6. It also shows the option for backup limitation that must be chosen for these conditions (BACKUPLIMIT=DC). As per the recommendation given above in Chapter 5.1 we recommend that you use N/O sensors for this configuration.

Example 4 is similar to Example3 with the only difference that the whole house is powered from the 12V DC UPS. This configuration will allow you to always sense alarm inputs, because sensors are powered from the uninterruptible source and we do not consider the failure of this. However the option of backup limitation that must be chosen for these conditions is also Option 1 (BACKUPLIMIT=DC), because if the UPS does fail this setting will protect you from false alarms. And again as per the recommendation given above in Chapter 5.1 we recommend that you use N/O sensors for this configuration as well.

Example 5 is an example of a connection of a few sensors with their own power supplies or batteries in a house which is wholly powered by a central UPS. For this configuration you can safety use Option 2 (BACKUPLIMIT=OFF), because all sensors have their own power source, so that even if the central UPS of the house fails, this won't affect alarm detection.

Example 6. Mixed installations, where some sensors are powered from their own power sources and some from the same as the unit, are also possible. To choose the correct BACKUPLIMIT setting for such mixed installations please refer to Chapter 3.4 of the Configuration Guide (Document №2). Example 6 shows one of the possible mixed installations. In this example all N/C sensors are powered from their own sources, which is why the setting BACKUPLIMIT=OFF is also possible.

Example 7 shows how the iSocket Smart Relay can be used to detect the failure of a power supply of any device, if the voltage of the power supply for this device is in the same range as voltage of inputs (11-24V DC as per recommended conditions - see Annex A of the User Manual).

> **Want see more examples?**
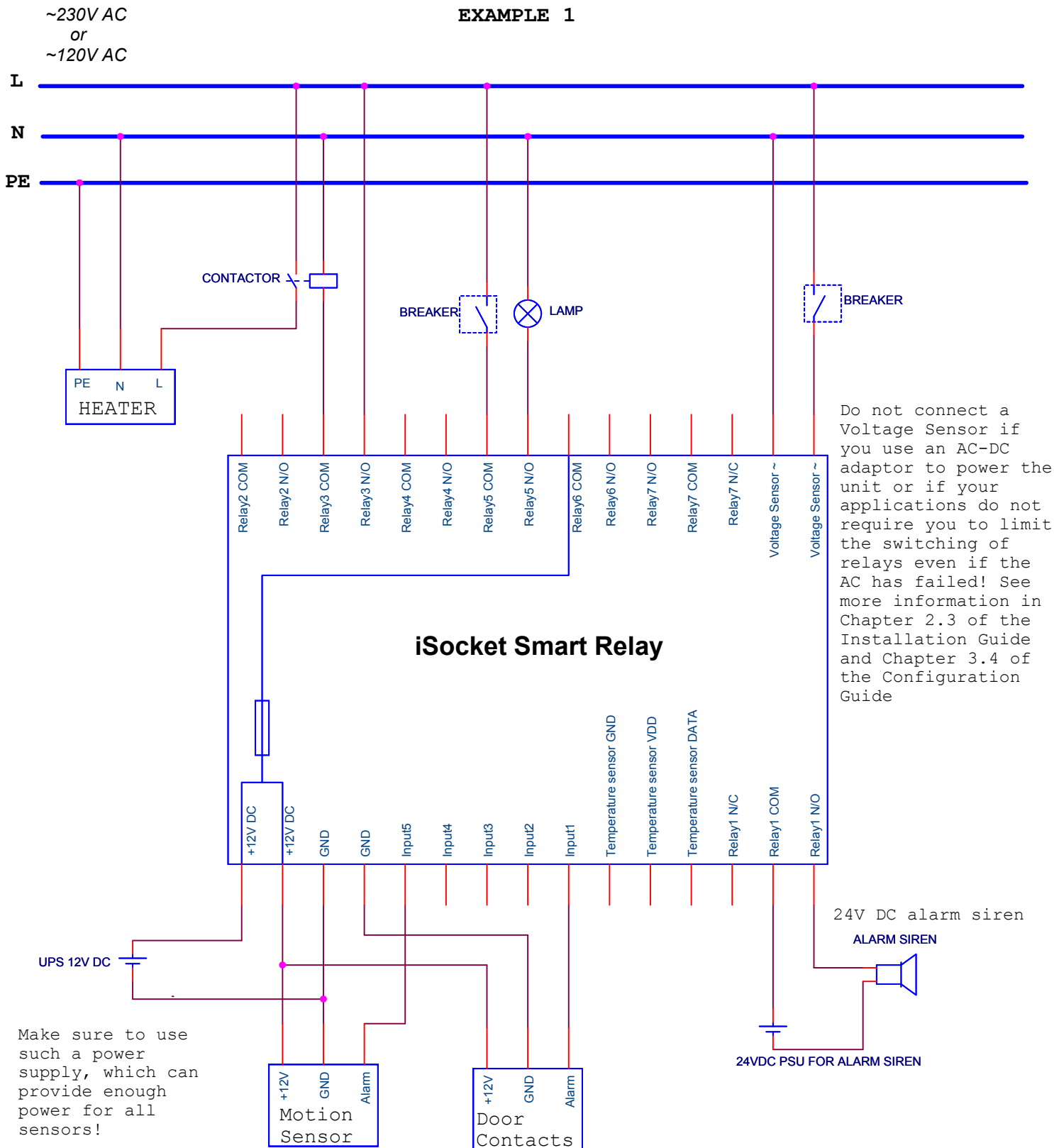> Send us your suggestions of what you would like to see in this Chapter:
> http://www.isocketworld.com/feedback/

> **Corrections or improvements to our documentation?**
> We welcome your feedback!
> http://www.isocketworld.com/feedback/

EXAMPLE 1

~230V AC
or
~120V AC

L

N

PE

CONTACTOR

BREAKER

LAMP

BREAKER

PE   N   L

HEATER

Relay2 COM
Relay2 N/O
Relay3 COM
Relay3 N/O
Relay4 COM
Relay4 N/O
Relay5 COM
Relay5 N/O
Relay6 COM
Relay6 N/O
Relay7 N/O
Relay7 COM
Relay7 N/C
Voltage Sensor ~
Voltage Sensor ~

iSocket Smart Relay

Do not connect a
Voltage Sensor if
you use an AC-DC
adaptor to power the
unit or if your
applications do not
require you to limit
the switching of
relays even if the
AC has failed! See
more information in
Chapter 2.3 of the
Installation Guide
and Chapter 3.4 of
the Configuration
Guide

+12V DC
+12V DC
GND
GND
Input5
Input4
Input3
Input2
Input1
Temperature sensor GND
Temperature sensor VDD
Temperature sensor DATA
Relay1 N/C
Relay1 COM
Relay1 N/O

24V DC alarm siren

ALARM SIREN

UPS 12V DC

Make sure to use
such a power
supply, which can
provide enough
power for all
sensors!

+12V   GND   Alarm

Motion
Sensor

+12V   GND   Alarm

Door
Contacts

24VDC PSU FOR ALARM SIREN

Option 3 (BACKUPLIMIT=AC) - if for some reason you don't want to switch relays
when AC was interrupted. This is a very specific case. Make sure that you really
do need this configuration. Assuming that you have Voltage Sensor and it is
connected to AC network to sense AC interruption.

Option 4 (BACKUPLIMIT=OFF) - if you want to continue switching relays when AC was
interrupted or just because it doesn't matter for you what happens with relays
when AC was cut-off. This configuration does not require a Voltage Sensor. This
configuration limits nothing. However, if this configuration applies to you, we
recommend that you use the setting BACKUPLIMIT=DC.

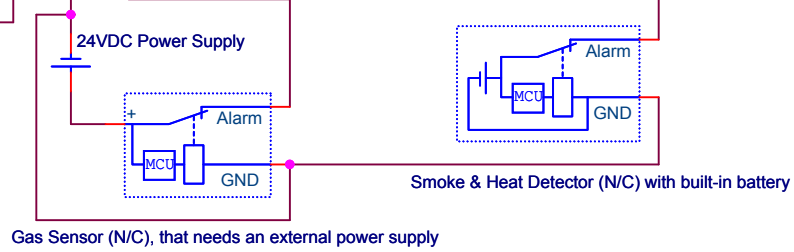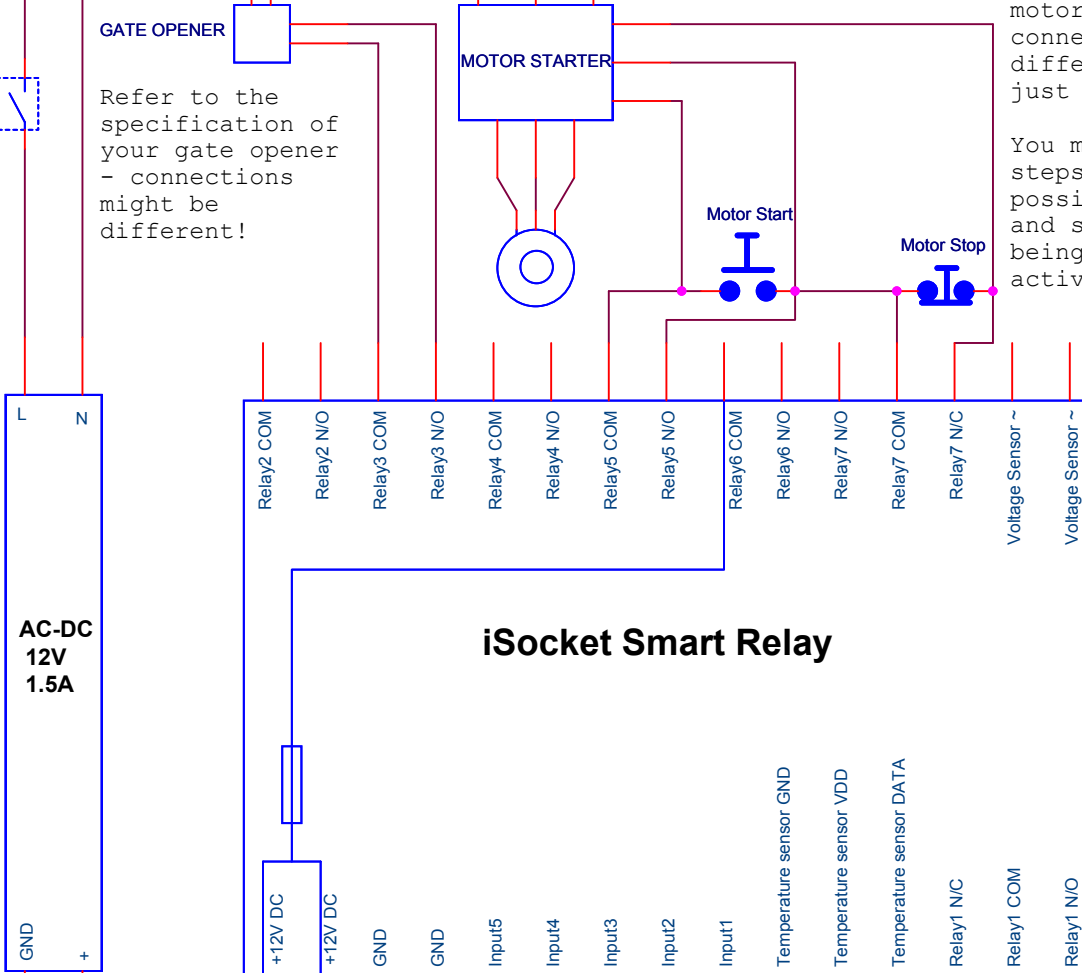See Chapter 3.4 of the Configuration Guide for detailed information.

EXAMPLE 2

~230V AC
or
~120V AC

L

N

PE

BREAKER

GATE OPENER
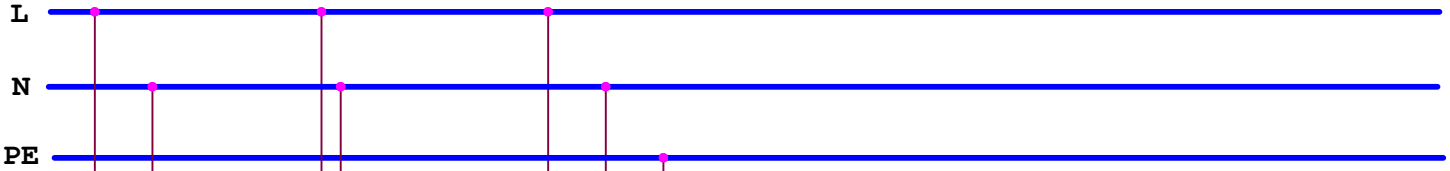
MOTOR STARTER

Refer to the
specification of
your gate opener
- connections
might be
different!

Refer to the
specification of your
motor starter -
connection might be
different! This is
just a general example.

You must take suitable
steps to remove any
possibility of the start
and stop buttons
being inadvertently
activated simultaneously

Motor Start

Motor Stop

L   N

AC-DC
12V
1.5A

GND   +

Relay2 COM

Relay2 N/O

Relay3 COM

Relay3 N/O

Relay4 COM

Relay4 N/O

Relay5 COM

Relay5 N/O

Relay6 COM

Relay6 N/O

Relay7 N/O

Relay7 COM

Relay7 N/C

Voltage Sensor ~

Voltage Sensor ~

iSocket Smart Relay

+12V DC

+12V DC

GND

GND

Input5

Input4

Input3

Input2

Input1

Temperature sensor GND

Temperature sensor VDD

Temperature sensor DATA

Relay1 N/C

Relay1 COM

Relay1 N/O

24VDC Power Supply

+   Alarm

MCU   GND

Gas Sensor (N/C), that needs an external power supply

Alarm

MCU   GND

Smoke & Heat Detector (N/C) with built-in battery

Option 2 (BACKUPLIMIT=OFF) - see Chapter 3.4 of the Configuration Guide

EXAMPLE 3

~230V AC
or
~120V AC

L

N

PE
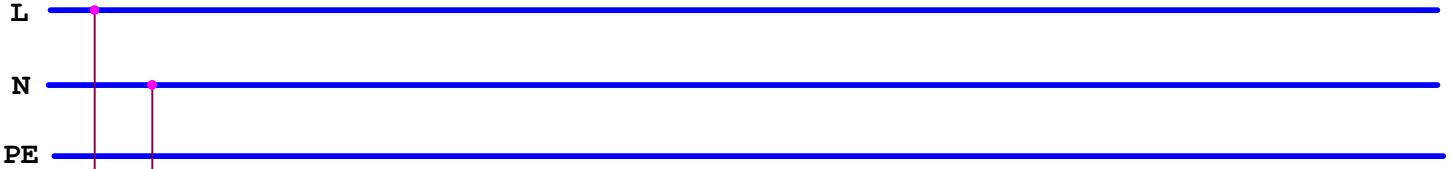
Alarm siren will be activated by switching
of Relay6, because 12V will be provided
from COM terminal of Relay6 to NO terminal
of Relay6 when relay is activated.
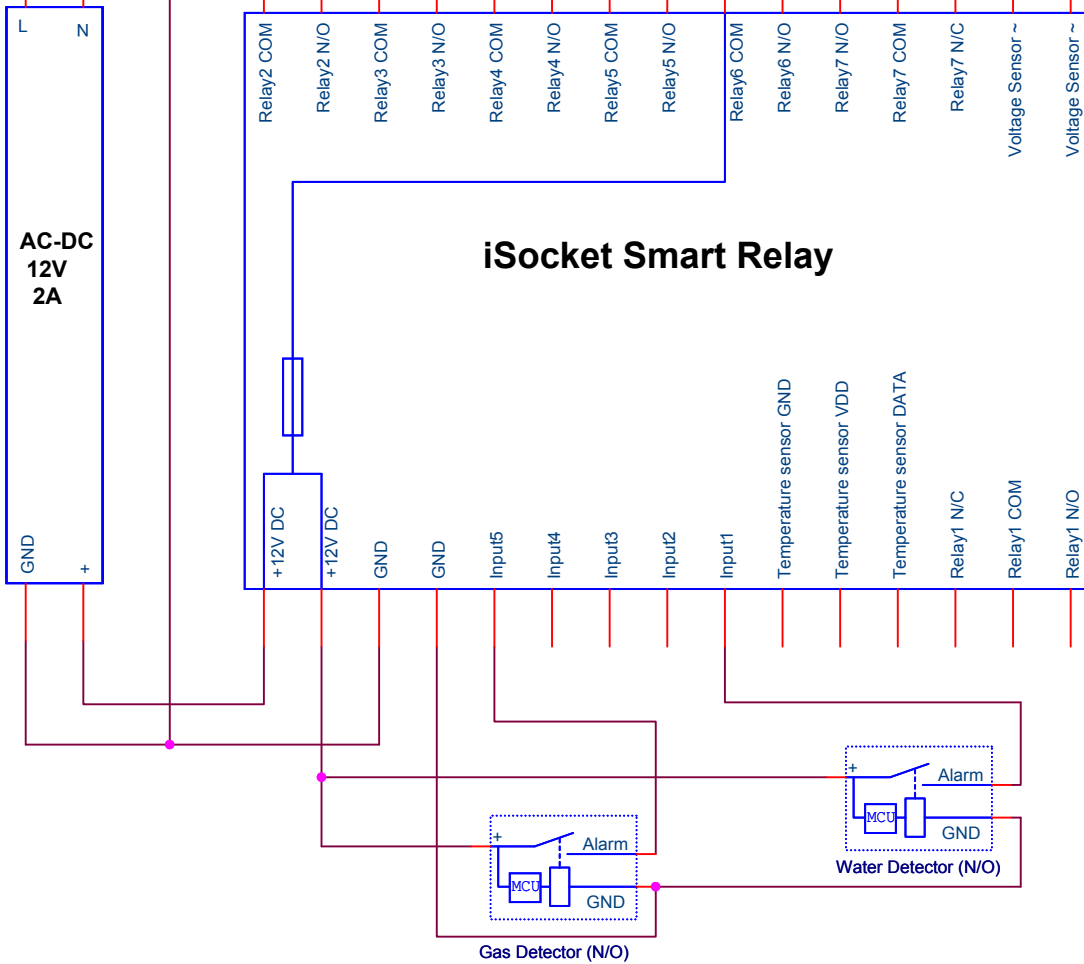Additionaly, COM terminal of Relay6 can be
used as a fused output of 12V.

BREAKER

ALARM SIREN

12V DC -->

12V alarm siren (max. 0.5A)

AC-DC
12V
2A

L   N

GND   +

Relay2 COM
Relay2 N/O
Relay3 COM
Relay3 N/O
Relay4 COM
Relay4 N/O
Relay5 COM
Relay5 N/O
Relay6 COM
Relay6 N/O
Relay7 N/O
Relay7 COM
Relay7 N/C
Voltage Sensor ~
Voltage Sensor ~

iSocket Smart Relay

+12V DC
+12V DC
GND
GND
Input5
Input4
Input3
Input2
Input1
Temperature sensor GND
Temperature sensor VDD
Temperature sensor DATA
Relay1 N/C
Relay1 COM
Relay1 N/O

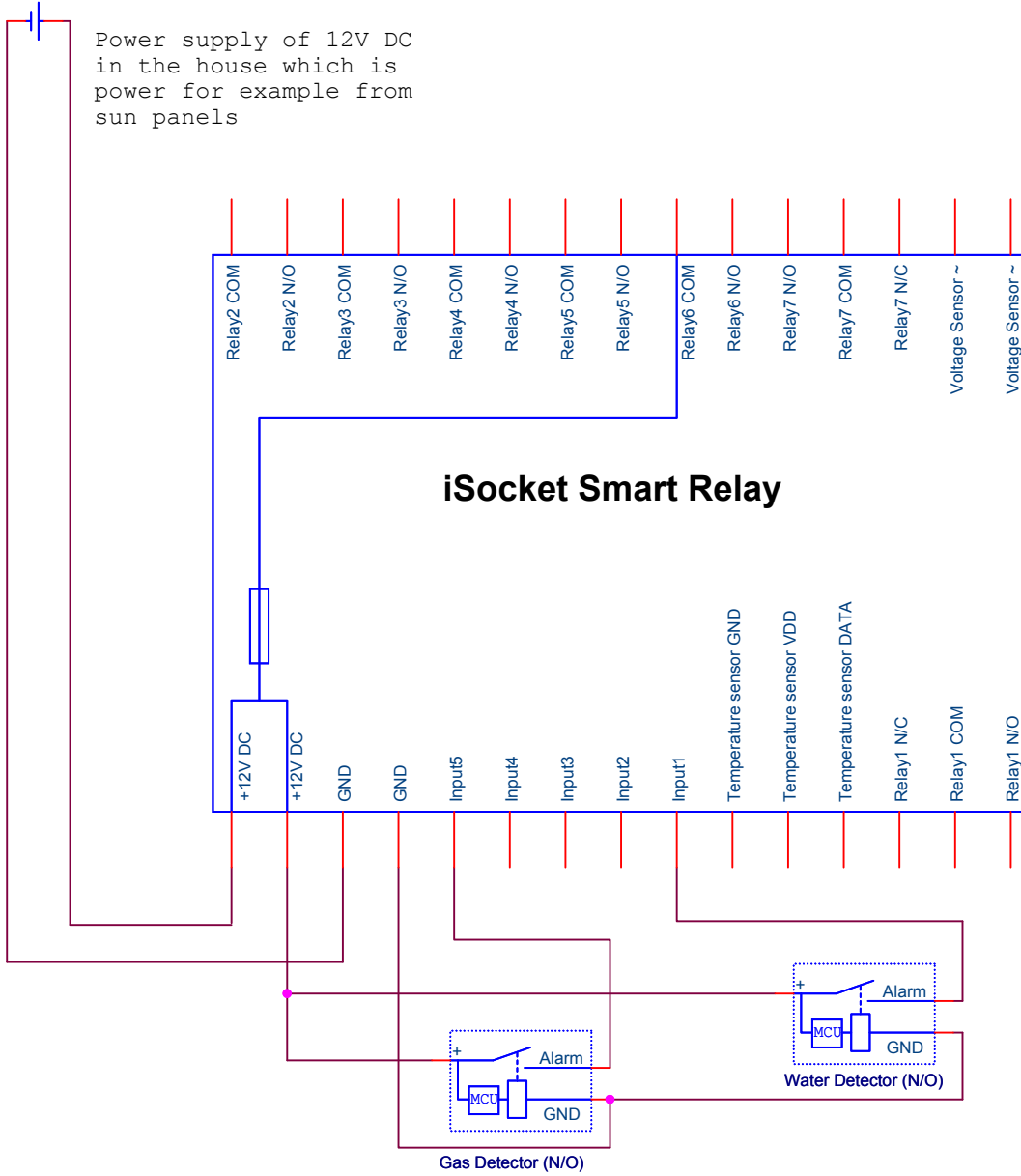+   Alarm
MCU   GND

Water Detector (N/O)

+   Alarm
MCU   GND

Gas Detector (N/O)

Option 1 (BACKUPLIMIT=DC) - see Chapter 3.4 of the Configuration Guide

EXAMPLE 4

Central power supply of the house

Power supply of 12V DC
in the house which is
power for example from
sun panels

iSocket Smart Relay

Relay2 COM · Relay2 N/O · Relay3 COM · Relay3 N/O · Relay4 COM · Relay4 N/O · Relay5 COM · Relay5 N/O · Relay6 COM · Relay6 N/O · Relay7 N/O · Relay7 COM · Relay7 N/C · Voltage Sensor ~ · Voltage Sensor ~

+12V DC · +12V DC · GND · GND · Input5 · Input4 · Input3 · Input2 · Input1 · Temperature sensor GND · Temperature sensor VDD · Temperature sensor DATA · Relay1 N/C · Relay1 COM · Relay1 N/O

Alarm
MCU
GND
Water Detector (N/O)

Alarm
MCU
GND
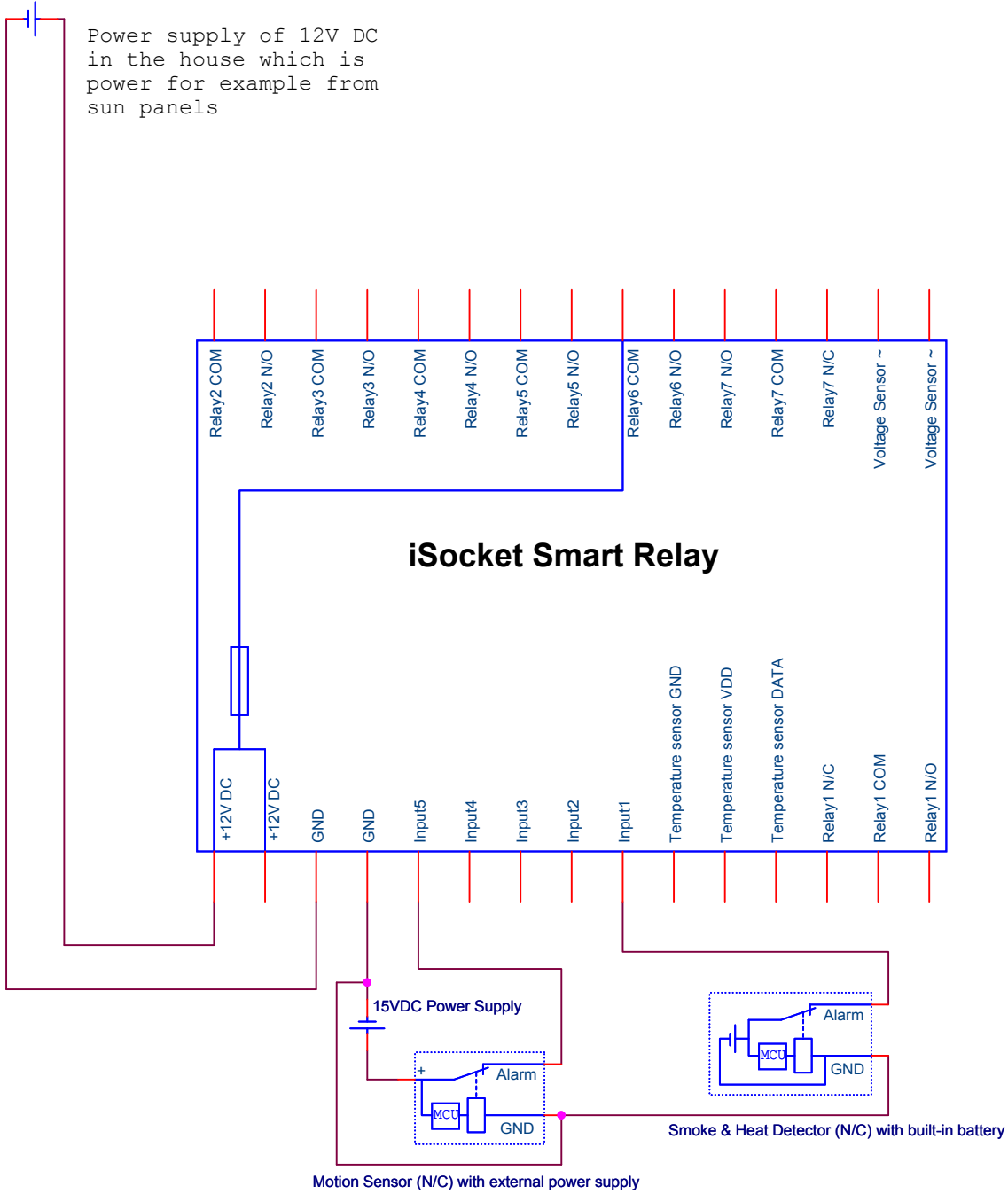**Gas Detector (N/O)**

Option 1 (BACKUPLIMIT=DC) - see Chapter 3.4 of the Configuration Guide

EXAMPLE 5

Central power supply of the house

Power supply of 12V DC
in the house which is
power for example from
sun panels

iSocket Smart Relay

Relay2 COM
Relay2 N/O
Relay3 COM
Relay3 N/O
Relay4 COM
Relay4 N/O
Relay5 COM
Relay5 N/O
Relay6 COM
Relay6 N/O
Relay7 N/O
Relay7 COM
Relay7 N/C
Voltage Sensor ~
Voltage Sensor ~

+12V DC
+12V DC
GND
GND
Input5
Input4
Input3
Input2
Input1
Temperature sensor GND
Temperature sensor VDD
Temperature sensor DATA
Relay1 N/C
Relay1 COM
Relay1 N/O

15VDC Power Supply

+   Alarm
MCU
GND

Alarm
MCU
GND

Smoke & Heat Detector (N/C) with built-in battery

Motion Sensor (N/C) with external power supply
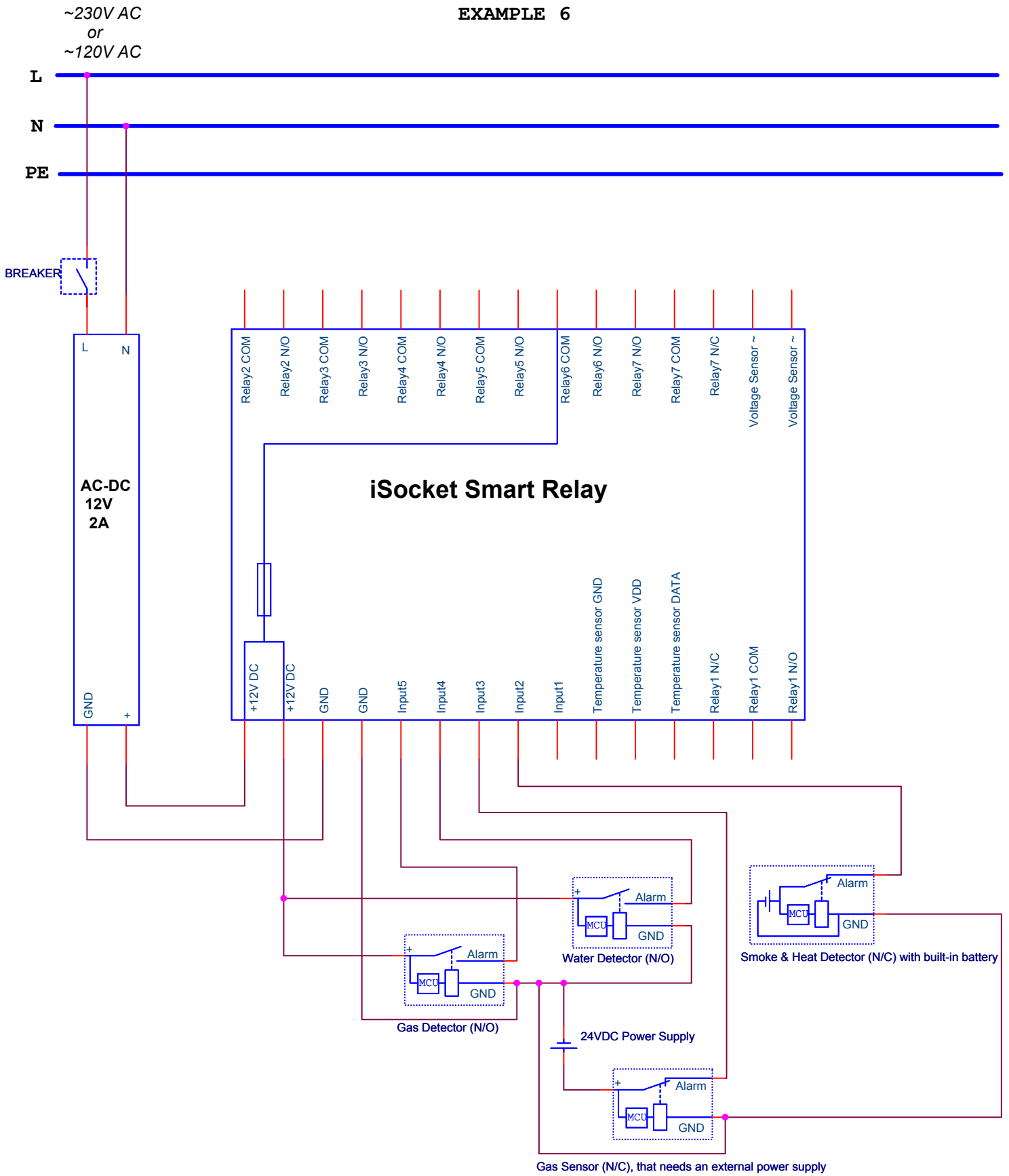
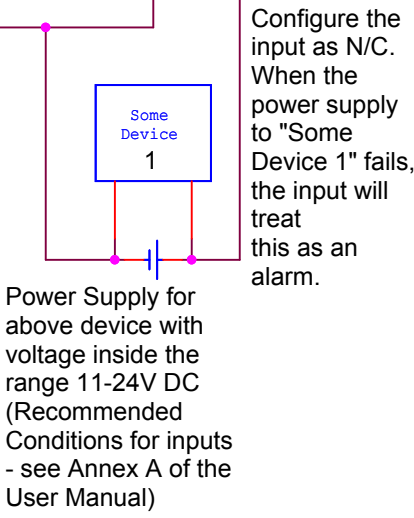Option 2 (BACKUPLIMIT=OFF) - see Chapter 3.4 of the Configuration Guide

EXAMPLE 6

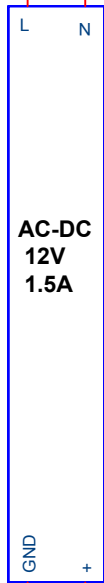~230V AC
or
~120V AC

L

N

PE

BREAKER

AC-DC
12V
2A

L   N

GND   +

iSocket Smart Relay

Relay2 COM
Relay2 N/O
Relay3 COM
Relay3 N/O
Relay4 COM
Relay4 N/O
Relay5 COM
Relay5 N/O
Relay6 COM
Relay6 N/O
Relay7 N/O
Relay7 COM
Relay7 N/C
Voltage Sensor ~
Voltage Sensor ~

+12V DC
+12V DC
GND
GND
Input5
Input4
Input3
Input2
Input1
Temperature sensor GND
Temperature sensor VDD
Temperature sensor DATA
Relay1 N/C
Relay1 COM
Relay1 N/O

+   Alarm
MCU   GND
Water Detector (N/O)

+   Alarm
MCU   GND
Smoke & Heat Detector (N/C) with built-in battery

+   Alarm
MCU   GND
Gas Detector (N/O)

24VDC Power Supply
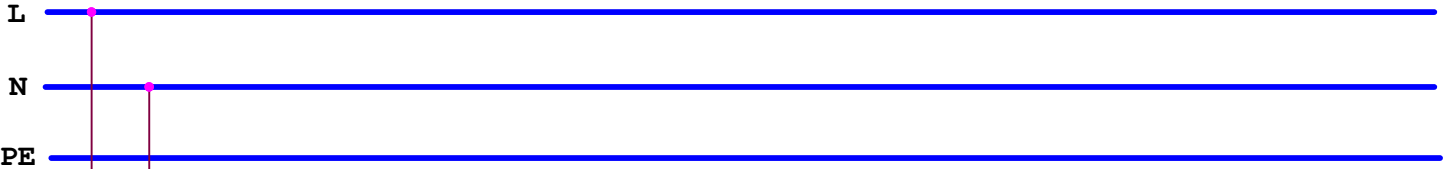
+   Alarm
MCU   GND
Gas Sensor (N/C), that needs an external power supply

BACKUPLIMIT=DC or BACKUPLIMIT=OFF - see Chapter 3.4 of the Configuration Guide

EXAMPLE 7

~230V AC
or
~120V AC

L

N

PE

BREAKER

AC-DC
12V
1.5A

GND

+

L

N

Relay2 COM
Relay2 N/O
Relay3 COM
Relay3 N/O
Relay4 COM
Relay4 N/O
Relay5 COM
Relay5 N/O
Relay6 COM
Relay6 N/O
Relay7 N/O
Relay7 COM
Relay7 N/C
Voltage Sensor ~
Voltage Sensor ~

iSocket Smart Relay

+12V DC
+12V DC
GND
GND
Input5
Input4
Input3
Input2
Input1
Temperature sensor GND
Temperature sensor VDD
Temperature sensor DATA
Relay1 N/C
Relay1 COM
Relay1 N/O

Some
Device
1

Configure the
input as N/C.
When the
power supply
to "Some
Device 1" fails,
the input will
treat
this as an
alarm.

Power Supply for
above device with
voltage inside the
range 11-24V DC
(Recommended
Conditions for inputs
- see Annex A of the
User Manual)

Some
Device
2

Power Supply for
above device. It
can be both AC or
DC power supply
with different
voltage.

If the power supply of the above device exceeds
the voltage range allowed for inputs, you can
connect the relay's coil in parallel with this power
supply. The rate of coil of this relay must match
the rated voltage of the power supply. You
should connect the contacts of the relay as
shown in the diagram.

When the power supply is OK, the coil of the
relay is active and the contact of the relay are
switched. Now, if the power supply should fail the
coil will be released and the contacts of the relay
will change their status. As a result the input will
detect an alarm.

Since iSocket Smart Software supports alias
names (see Chapter 5.4) it will be easy for
you to distinguish exactly which device has
failed, because the SMS will inform you with
the name of the device.