

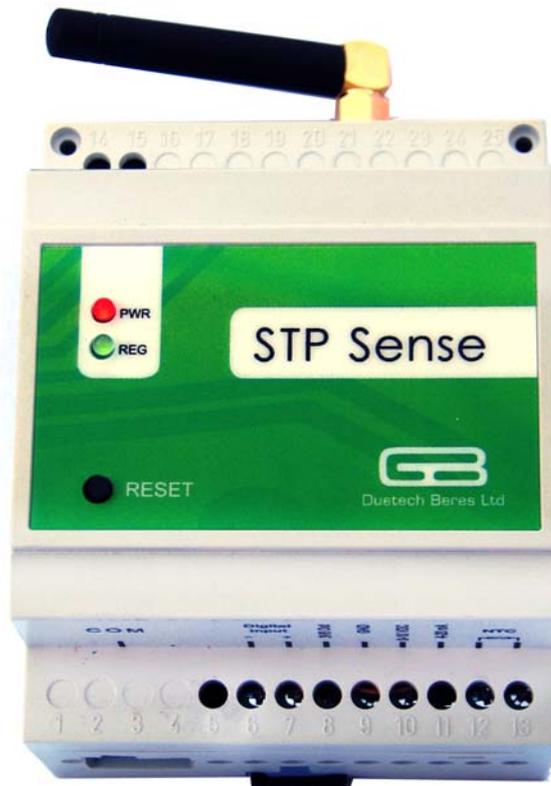
STP Sense

'Smart Terminal Plus' Sense

Stand Alone GSM/GPRS Multi-Purpose Controller
With Logic Flow Sense Configuration Software

User Manual

Revision 2.2



Notes

The reader is advised to read this manual carefully and to understand its contents before using any devices.

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Chapter 1: Introduction

The **STP (Smart Terminal Plus) Sense** is a user-friendly, general-purpose GSM/GPRS cellular programmable controller. The **STP Sense** can be used for a wide variety of purposes: agriculture, home automation, or security. The **STP Sense** accepts one digital input and three different types of analog inputs:

- Voltage
- Current
- Thermistor

Section 1.1 About This Manual

This manual will guide you through the setup and major uses of the **Smart Terminal Plus Sense (STP Sense)**, a powerful remote-control and monitoring device. This manual includes:

- A list of the uses of the **STP Sense**
- **STP Sense**'s features and benefits
- A general description of the **STP Sense**
- Instructions for installing the **STP Sense** hardware
- Instructions for installing the **Logic Flow Sense** software
- Instructions and examples of using the **Logic Flow Sense** interface

Section 1.2 Uses of the STP Sense

The **STP Sense** owes its name to the fact that it can be used as a remote-control sensor device. The **STP Sense** can give you accurate readings of a system's voltage, current, or temperature. However, this poses no limitation on the range of uses for the **STP Sense**. You can employ the **STP Sense** in:

- Security
- Home and Industrial automation
- General Warning System
- Gateway Telemetry solutions
- Agriculture
- Climate Monitoring
- Cooling Control
- Automation

Section 1.3 Safety Advice

The **STP Sense** is designed to be used only under the prescribed conditions. Ensure that all the specifications stated in this manual are observed. Tampering with the hardware or software, or failure to observe the warnings stated in this manual may lead to serious physical injury or

damage to the device. We assume no liability in such cases, and any warranty claims will become void.

The safety regulations specified for the device must be observed during the installation, maintenance and use of the device.

This manual contains special instructions that are important for the safe and proper handling of the device. The warning symbols you will encounter in the manual have the following meaning:

	DANGER: Indicates warning of possible danger to the life and health of the user if the relevant safety measures are not taken.
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	ATTENTION: Indicates warning of possible damage to the device, software, or other material damage if relevant safety measures are not taken.
---	---

Section 1.4 STP Sense's Features and Benefits

Some unique features of the **STP Sense** are:

- Quad-Band GSM SMS/GPRS—allowing you to access and control the **STP Sense** device via your cellular phone or the Internet
- An RS232 interface for direct communication with the **STP Sense** controller, as well as for user-defined purposes (PLC, PC, GPS to any RS232 device)
- An event report, which allows you to make the **STP Sense** send a report to you via Serial Communication. (RS232). This way, the user can create Word/Excel reports based on the data from the STP.
- Internal Li-Ion rechargeable backup battery, for sending a power failure alarm (via SMS or GPRS) in case the main power supply is cut off.

Accompanying the **STP Sense** is the **Logic Flow Sense** Configuration software package. Some features of the **Logic Flow Sense** program are:

- It allows you to program the **STP Sense** device to control a system and do the desired controller tasks quickly and efficiently
- It allows you to monitor your system.

Chapter 2: Overview

This chapter provides a brief Overview of the **STP Sense** and includes the following:

- General Description
- Hardware Description

Section 2.1 STP Sense General Description

The **STP Sense** is a stand-alone, multipurpose terminal with extended logic control, with cellular capabilities. The **STP Sense** accepts one digital input and three analog inputs.

STP Sense Dimensions

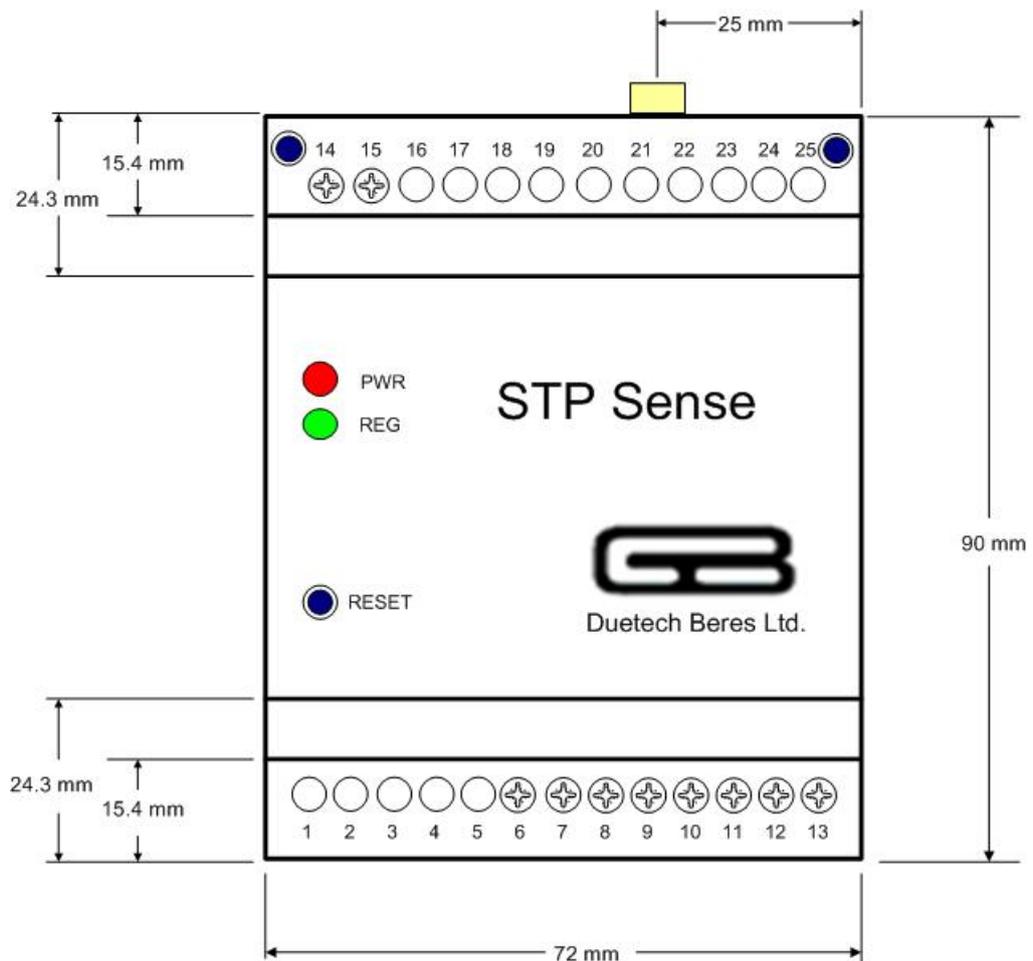


Figure 1: Front View of the STP Sense

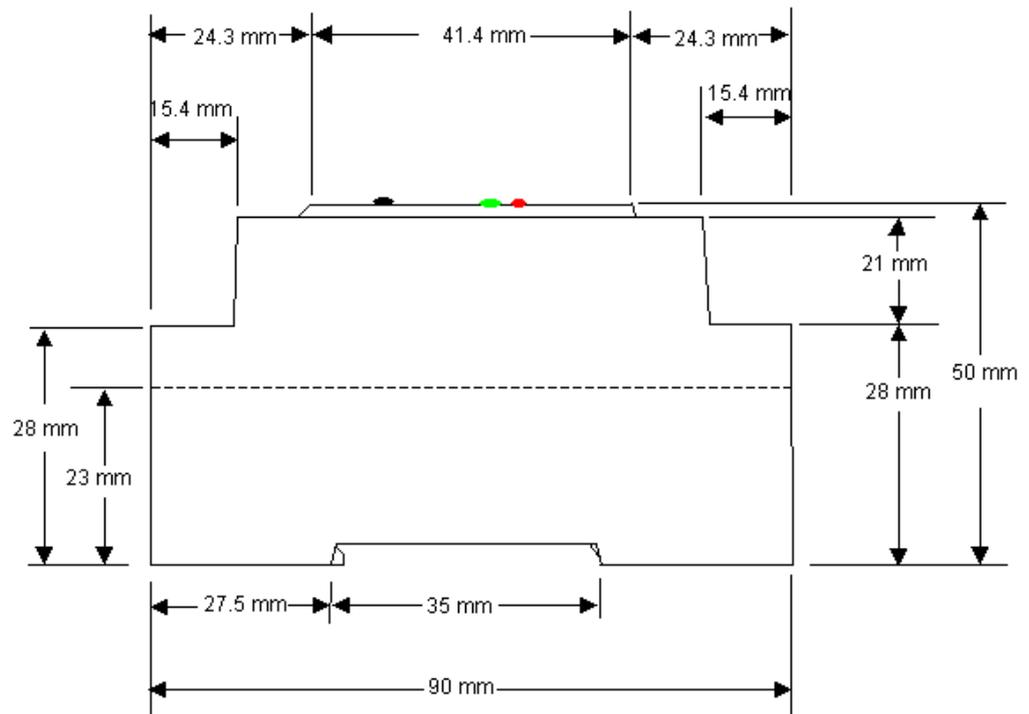


Figure 2: Side View of the STP Sense Showing Dimensions

Inputs

The **STP Sense** supports nine different types of input events, six external, and three internal:

Table 1: STP Sense Inputs

External Input	Description
	<p>DIGITAL INPUT: A digital sensor. These can include:</p> <ul style="list-style-type: none"> • Thermostat • Motion sensor
	<p>ANALOG INPUT: An analog sensor. (0-10V, 4-20mA, NTC) These can include:</p> <ul style="list-style-type: none"> • Hygrometer (humidity sensor) • Fluid level sensor • Thermistor (measures change in temperature)
	<p>MAIN POWER: The STP Sense can be programmed to alert you if the main power supply to the STP Sense has been interrupted, and the device is running on the Li-ion backup battery.</p>
	<p>SMS: An SMS message from your mobile phone.</p>
	<p>INCOMING CALL: Allows the STP Sense to respond to an incoming call (the STP will reject the incoming call and only use the Caller ID, if needed).</p>
	<p>RS232: An RS232 message from any capable device (for example, a computer or a PLC).</p>

In addition, there are three other input events that the **STP Sense** essentially can send to itself. These are shown in the following table:

Internal Input	Description
	<p>TIMER[1-4]: Triggers as timer event occurs.</p>
	<p>DISARM: triggers when disarm status has changed.</p>
	<p>STARTUP: Performs the specified output event when the device is started, or if the user presses the Reset button.</p>

Output Events

The **STP Sense** allows for nine different types of output events and messages. Four of the outputs are to external devices, while five are internal events that the **STP Sense** employs itself. The four outputs to external devices are illustrated in the following table:

Table 2: Outputs from STP Sense

Output to External Device	Description
	SMS: An SMS message to your mobile phone.
	GPRS: A GPRS message to your TCP/IP Internet server.
	OUTGOING CALL: Outgoing call to a predefined phone number. The STP Sense will make the call and hang up after one ring.
	RS232: An RS232 message to any capable device (for example, a computer PLC).

The other five outputs are shown in the following table:

Output	Description
	TIMER --used to set up a defined amount of time before timer is triggered.
	RESET --Resets the device upon receiving the specified input.
	BUZZER --Makes the STP Sense unit emit a buzz.
	DISARM: disables/enables all output events.
	ALARM --Makes the STP Sense unit emit a high pitched alarm sound.

Hardware Description

The **STP Sense**, as the name implies, is a Duetech Beres controller to be used primarily as a sensor device, giving feedback and control for changes in current, voltage or temperature. Here is a brief summary of the hardware the **STP Sense** employs:

- **Packaging:** The **STP Sense** is packaged in a small (72 x 90 x 50 mm) polystyrene case. The casing allows for a DIN rail mount, to insure ultimate safety and stability of the device.
- **Inputs:** The **STP Sense** allows for one digital input (with voltage range between 0-24 V DC) and three types of analog inputs: voltage, current, and temperature.

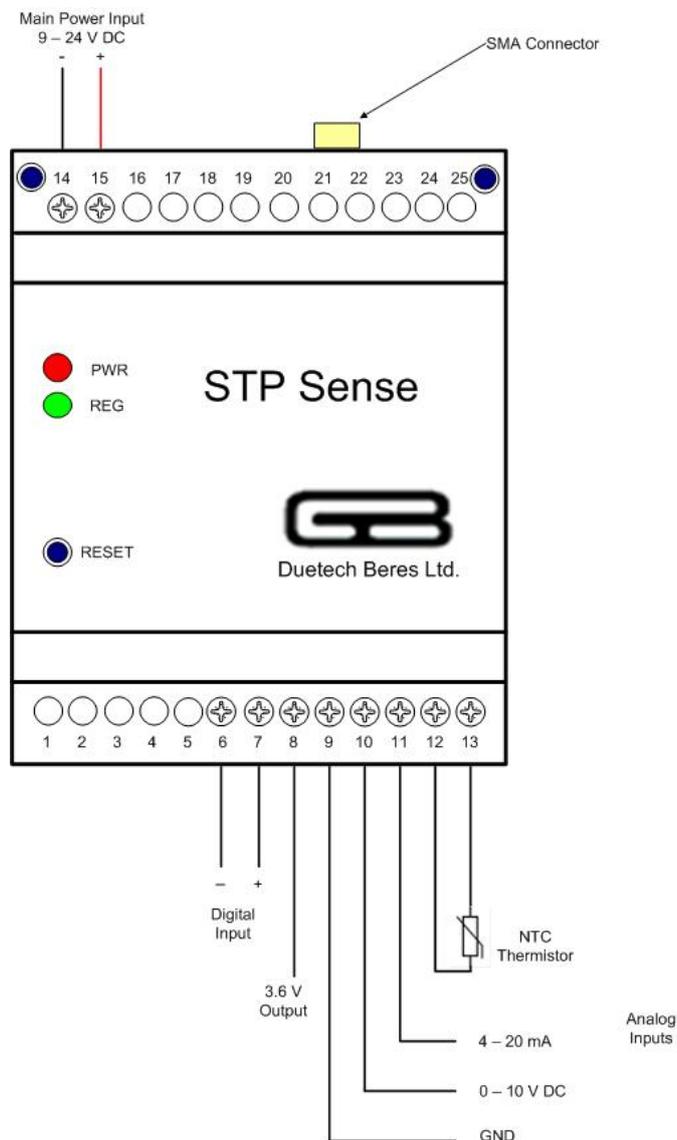


Figure 3: STP Sense's Digital and Analog Inputs

- **Durability:** The **STP Sense's** operating temperature is between -30°C to 85°C, allowing it to withstand the harshest conditions.

- **GSM technology:** The **STP Sense** device is based on GSM/GPRS network. Therefore, a SIM card (not included in the **STP Sense** kit) must be inserted before applying power.
- **Programmable:** The **STP Sense** is a **programmable controller**: you program its logic by means of the **Logic Flow Sense** software, and write the commands to the device. An RJ45 cable communicates with the **STP Sense** to write the commands from the serial port on your computer to the **STP Sense**.
- **Indication LEDs:** The **STP Sense** has two indicator LEDs: a red LED indicating power supply to the device and device's processing, and a green LED indicating whether the device is registered with the cellular network.
- **Backup Battery:** The **STP Sense** also features an internal rechargeable Li-ion backup battery, which allows it to send a power failure alarm, either via SMS or GPRS, in the event that the 9-24 V DC main power fails.
- **Reset button:** The **STP Sense** also features a reset button.

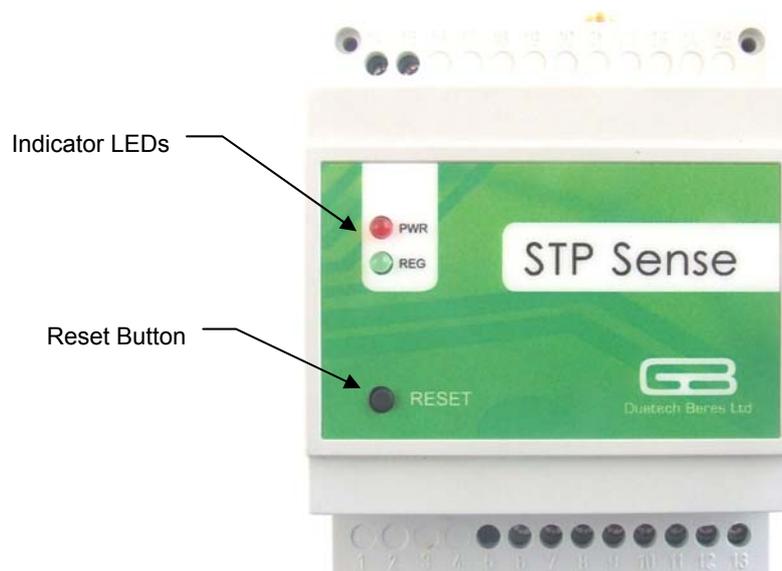


Figure 4: Front view of STP Sense, showing placement of indication LEDs and Reset Button

Chapter 3: Installing the STP Sense

Installing the **STP Sense** is a simple procedure that should take no more than a few minutes. This chapter contains instructions for installing both hardware and software.

Section 3.1 Package Contents

The **STP Sense** unit comes in a kit with the accessories listed in the table below. The table lists the contents of the kit and their part numbers.

Table 3: Package Contents

Part	Description	QTY	P/N
	STP Sense Controller Unit	1	STPS0001
	Power Supply 12 V DC Voltage Transformer	1	PS220121
	DIN Rail	1	STP00701
	RJ45 Cable—Connects the STP Sense to the serial RS232 port of the computer	1	RJ45RJ45
	RJ45 to DB9 converter—The DB9 converter allows a connection to the 9-pin serial port of the computer	1	CORJ459F
	GSM Antenna	1	AP001A00
	GSM Antenna 90 degrees	1	RUB009A
	CD of Documentation and Logic Flow Sense installation software	1	CDR0001

Section 3.2

Hardware Installation

The installation of the **STP Sense** can be completed in minutes. You will need a pocket screwdriver (not supplied in the kit) to attach the power supply and digital input. A 6-mm wide Phillips or flathead screwdriver will do.

Mounting the STP Sense Unit

Mount the **STP Sense** by pushing or snap-fitting it onto a DIN rail (top-hat rail 35 mm). Pull out the black tab on the **STP Sense** device using a screwdriver, and snap the device onto the DIN rail. Ensure that the retaining mechanism of the **STP Sense** snaps cleanly and securely onto the DIN rail.

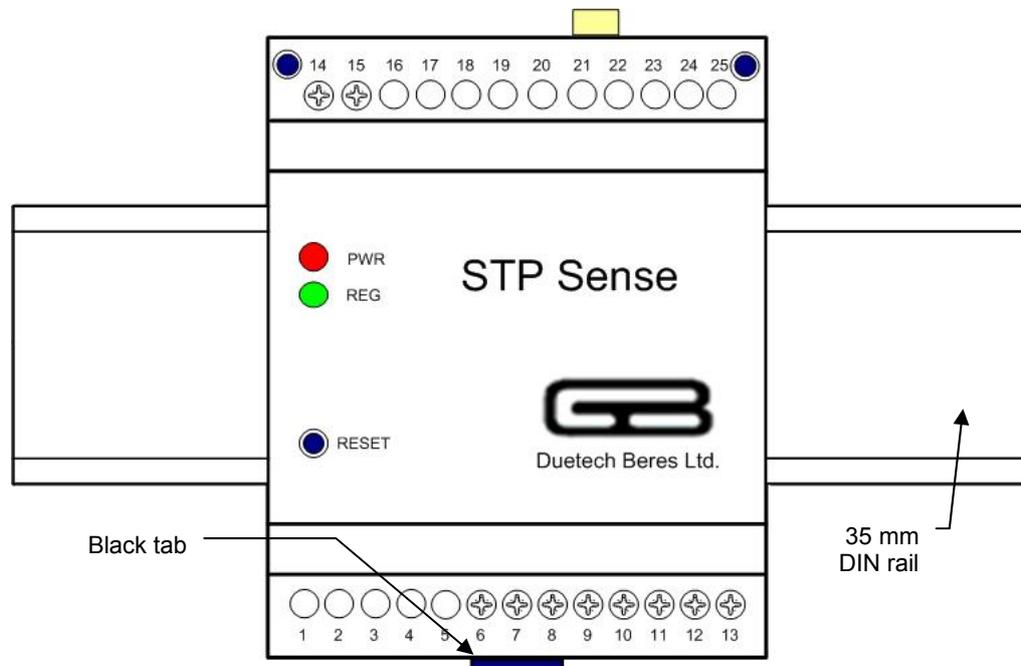


Figure 5: Top view of STP Sense attached to DIN rail

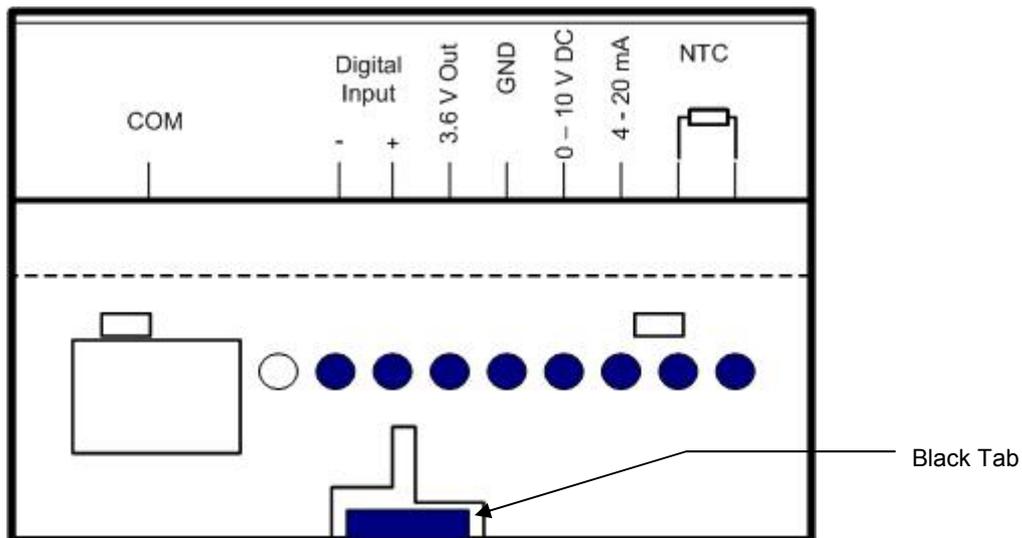


Figure 6: Side view of STP Sense

 **ATTENTION:** Do not force the **STP Sense** onto the DIN rail. Forcing the device on the rail may crack the black tab or the **STP Sense** casing, and may seriously compromise the stability of the device.

 **DANGER:**

- The device must only be used in rooms that are dry and clean. Protect the device from humidity, water or heat.
- The device must not be used in environments containing flammable gases, fumes or dust.
- Do not subject the device to shock or severe vibrations.

Connecting the GSM Antenna

Screw the GSM antenna (included with the **STP Sense** device) onto the **STP Sense's** antenna SMA connector. The antenna serves the same purpose as the antenna of any cellular phone. The antenna must be attached for optimal performance of the device.

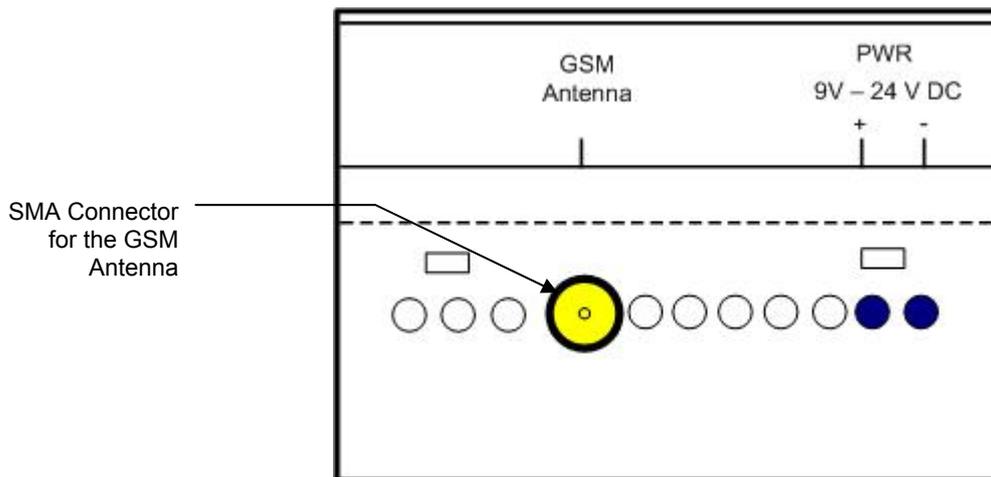


Figure 7: Side View of STP Sense Showing Antenna Connector



ATTENTION: Detaching the antenna while the **STP Sense** is powered on may damage the device.

Installing the SIM Card

Open the **STP Sense** casing by gently pushing in the two tabs at the top (where the GSM Antenna is attached) or bottom (where are the attachments for the digital output and input) of the device.

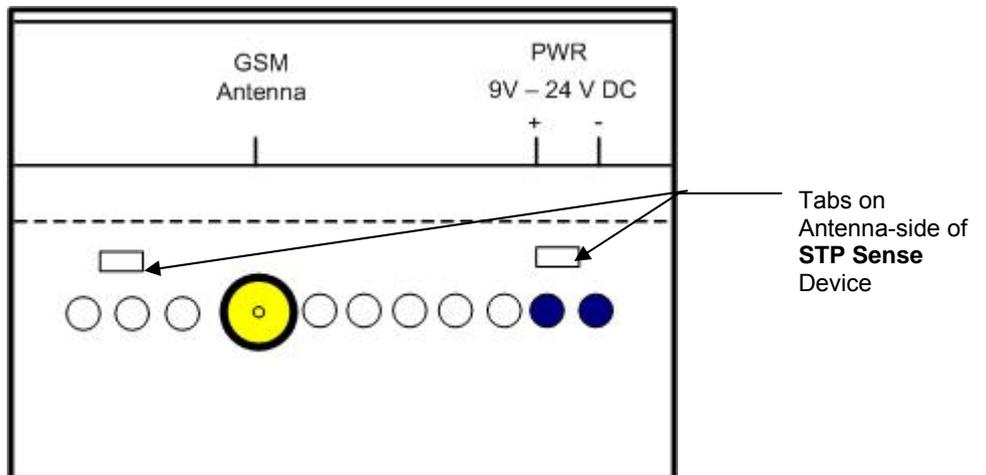


Figure 8: Antenna-side view of STP Sense unit, showing the tabs for opening the device

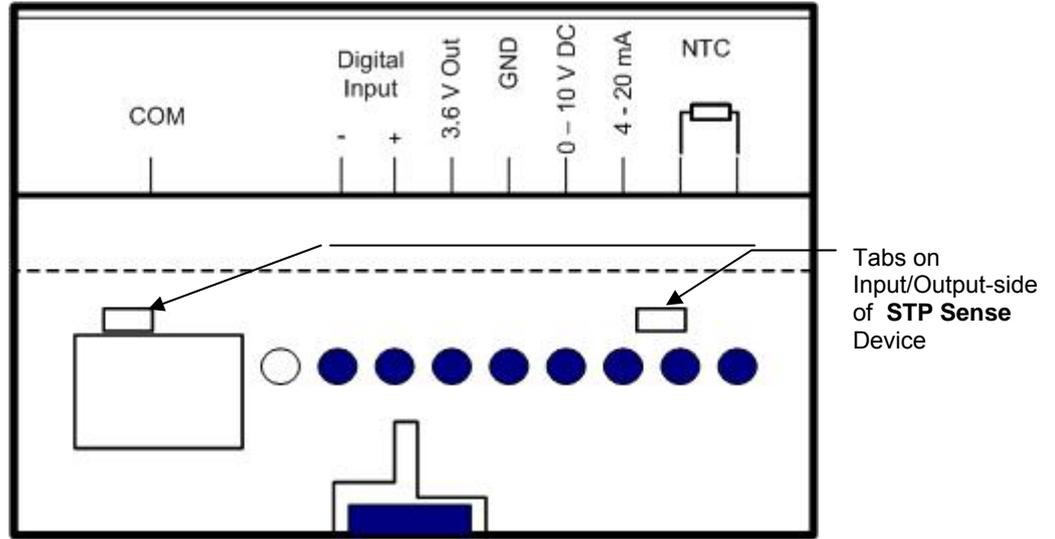


Figure 9: Input/Output side view of STP Sense unit

Place a SIM card in the SIM card holder.

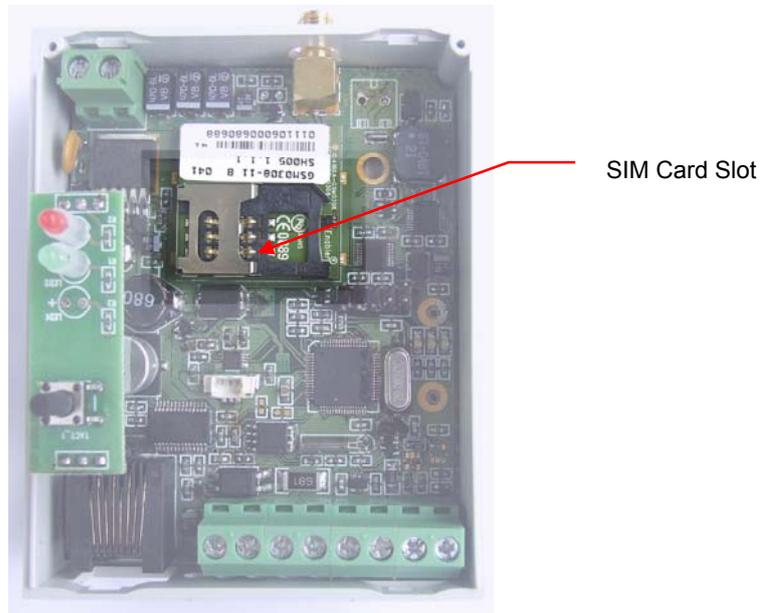


Figure 10: slot for the SIM card

**ATTENTION:**

- Do not insert or remove the SIM card when the power supply or backup battery is attached. Doing so might result in damage or loss of data on the SIM card!
- Avoid touching the contacts of the SIM card. The SIM is sensitive to electrostatic discharge.
- If you are installing a used SIM card, insert the SIM in a mobile phone first to ensure that the SIM doesn't contain any saved SMS messages. These messages may cause the **STP Sense** to malfunction.

Connecting the RJ45 cable

Connect the RJ45 cable (supplied with the **STP Sense**) to the **STP Sense** unit via the socket labeled "COM".

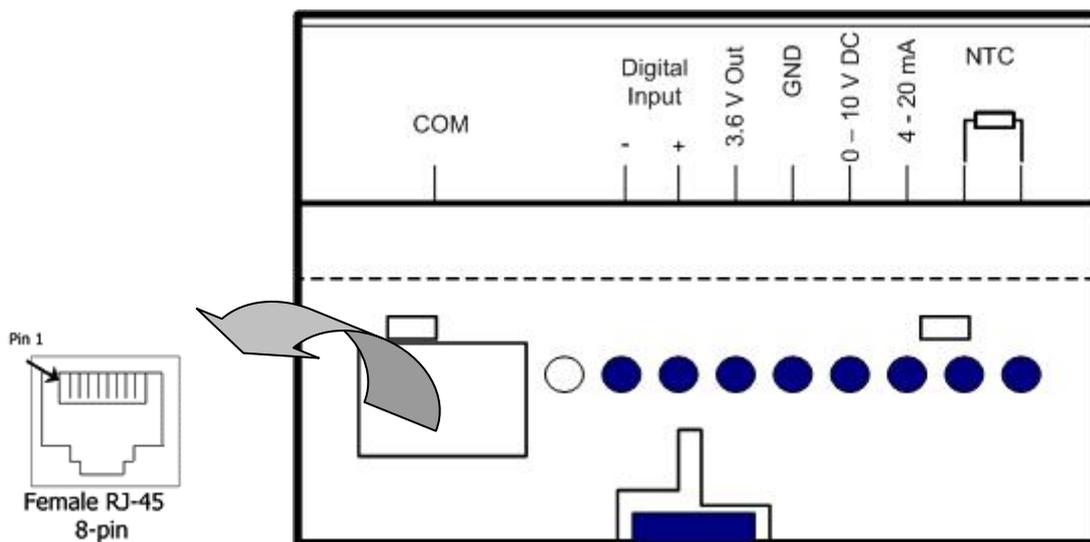


Figure 11: View of STP Sense, showing the RJ45 socket (COM)

Attaching the RJ45 to DB9 Adapter

Attach the RJ45 to DB9 adapter the 9-pin, RS232 port on your computer.

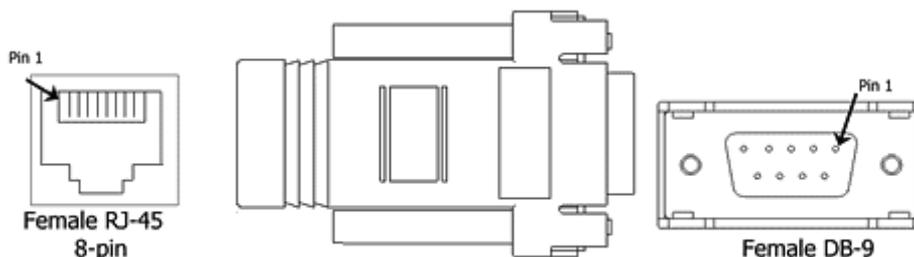


Figure 12: RJ45 to DB9 Adaptor

Hook up the **STP Sense** to your computer by inserting the other end of the RJ45 cable into the adaptor.

Attaching the Analog Input

The **STP Sense** allows for three analog inputs:

- A voltage input ranging from 0 – 10 V DC,
- A current input ranging from 4 – 20 mA,
- A Negative Temperature Coefficient (NTC) Thermistor which has a load of $10\text{k}\Omega \pm 1\%$ at 25°C and β constant of $3435 \pm 1\%$ (not included in the **STP Sense** kit).
- A PT-100 thermistor which has a load of 109.73Ω at 25° (not included in the **STP Sense** kit).



ATTENTION:

- When attaching the inputs, be sure to use wire within the range of 24-12 AWG (.205 - 3.31 mm² gauge).
- When attaching the analog voltage input, exceeding an input of 10 V DC may damage the **STP Sense** device.
- When attaching the analog current input, exceeding a current of 20 mA may damage the **STP Sense** device.

The following diagram and table illustrate the terminal blocks to be used to attach the analog inputs:

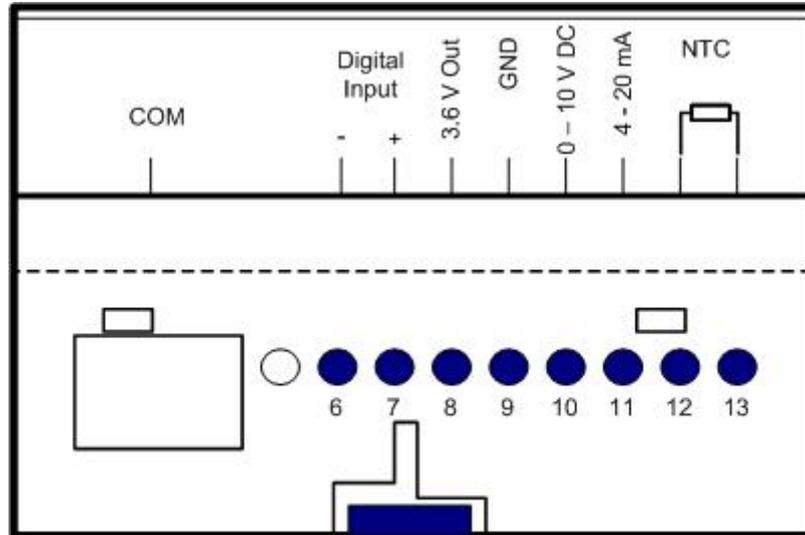


Figure 13: analog inputs interface

The terminal blocks used are in the following table:

Table 4: STP Sense interface

Terminal Block Number	Purpose
Hole 8	3.6 V Out. Auxiliary voltage output power supply.
Hole 9	Ground
Hole 10	0 – 10 V DC analog input (resolution in mV)
Hole 11	4 – 20 mA analog input
Hole 12	Lead #1 of NTC Thermistor
Hole 13	Lead #2 of NTC Thermistor

Attaching an Analog Voltage Input

The **STP Sense** can be programmed to alert you in the event the voltage exceeds or goes below a certain value.

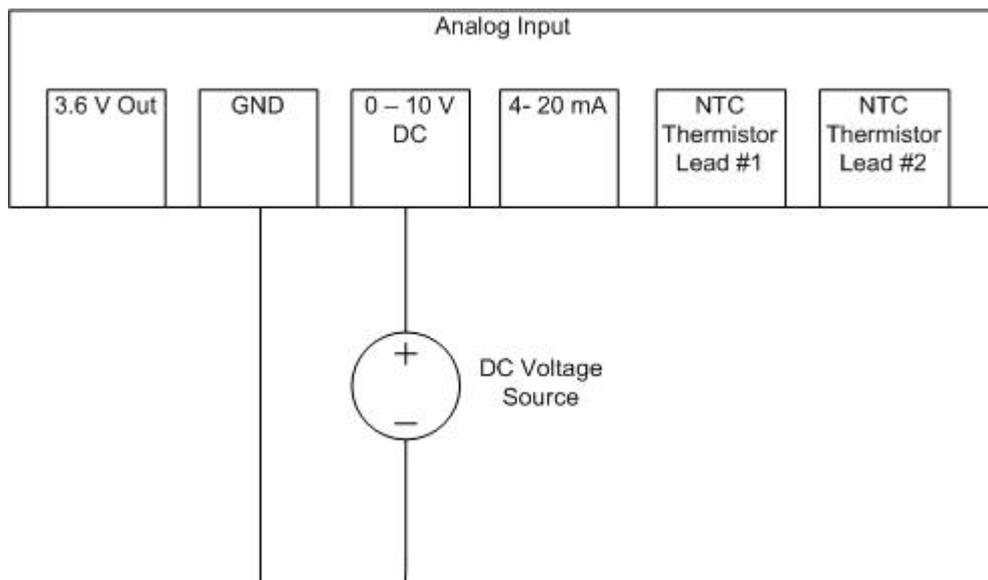


Figure 14: Voltage source attached to the the STP Sense's Analog Input

Attaching an Analog Current Input

The **STP Sense** allows you to attach a current input, and the **STP Sense** can be programmed to alert you in the event the current exceeds or goes below a certain value.

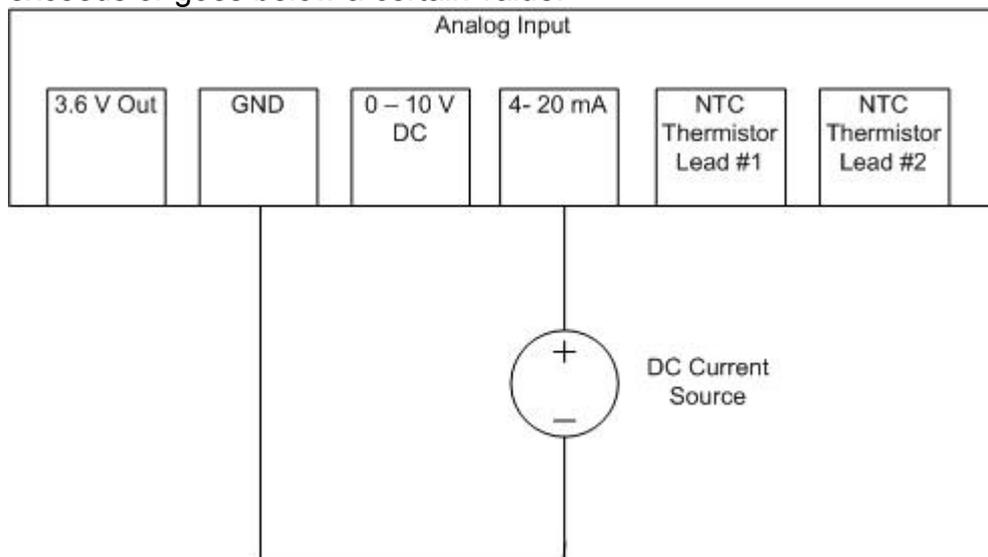


Figure 15: Current source attached to STP Sense's analog input

Attaching a Thermistor to the STP Sense

The **STP Sense** allows you to attach a NTC thermistor (whose resistance decreases as the temperature goes up) or a PT-100 thermistor (whose resistance increases as the temperature goes up). The **STP Sense** can then be programmed:

1. To alert you in the event the voltage exceeds or goes below a certain value
2. To report to you the temperature of thermistor.

(See **Section 4.8, Some Useful Examples, Using the STP Sense as a Temperature Sensor**, p.63).

The NTC thermistor from the SS series is most suited for the **STP Sense** and should have a resistance at 25° Celsius of $10\text{K}\Omega \pm 1\%$ and β constant of $3435 \pm 1\%$.

The PT-100 thermistor suited for the **STP Sense** should have a resistance at 25° Celsius of $109.73\Omega \pm 1\%$

In this wiring diagram, the thermistor doesn't require any additional power supply.

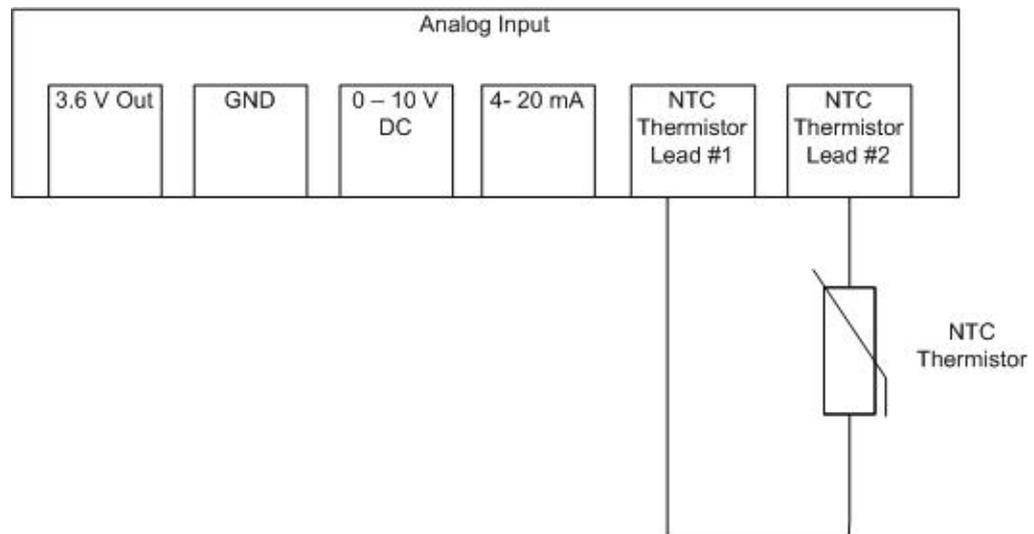


Figure 16: Attaching a NTC or PT-100 thermistor (no external voltage)

Installing the Digital Input

The **STP Sense** accepts one digital input that must be within the range of 0 -24 V DC.

	ATTENTION:
Be certain not to exceed the maximum input voltage of 24 V DC. Exceeding this value may cause irreparable damage to the STP Sense unit!	

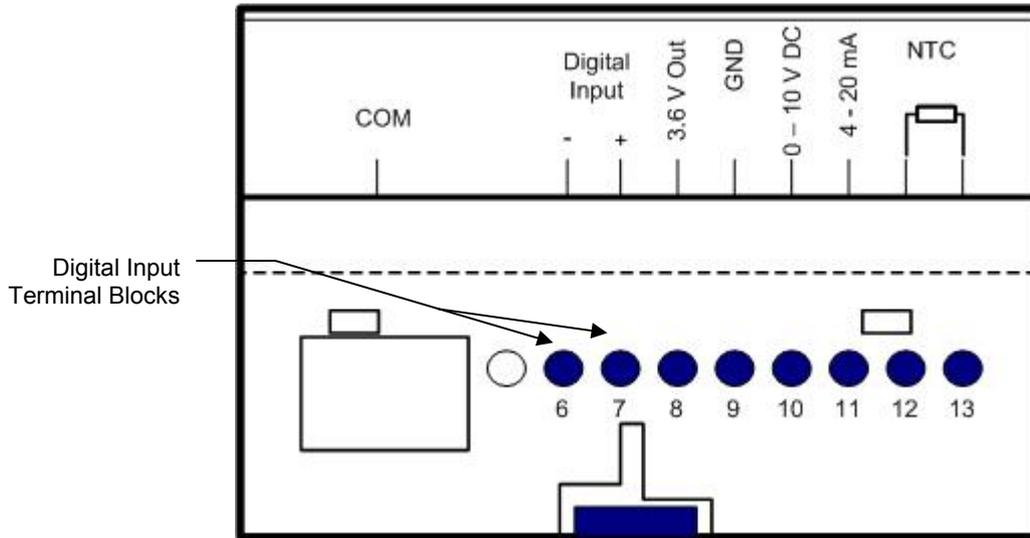


Figure 17: Input-Output side of STP Sense, illustrating where to attach the digital input to the STP Sense

The following table illustrates the placement of the Digital Input leads:

Table 5: Terminal Blocks for Attaching the Digital Input

Terminal Block Number	Purpose
Hole 6	- (negative or ground)
Hole 7	+ (positive)

Connecting the Power Supply

Once you have completed all the other installation steps, you can attach the power supply to the **STP Sense** unit.

The **STP Sense** operates on the range between 9-24 V DC. You have an option of attaching a transformer that converts the wall current to 12 V DC. The connector has two bare wires, one to be connected to the negative terminal, and one to the positive terminal of the **STP Sense** unit. The striped wire is connected to the negative (or "ground") terminal, and the solid black wire from the transformer is connected to the positive terminal.

The **STP Sense** unit has numbered rows of terminal blocks. Insert the leads into the appropriate terminal blocks on the side of the **STP Sense** unit, using a 6-mm wide flathead or Phillips screwdriver.

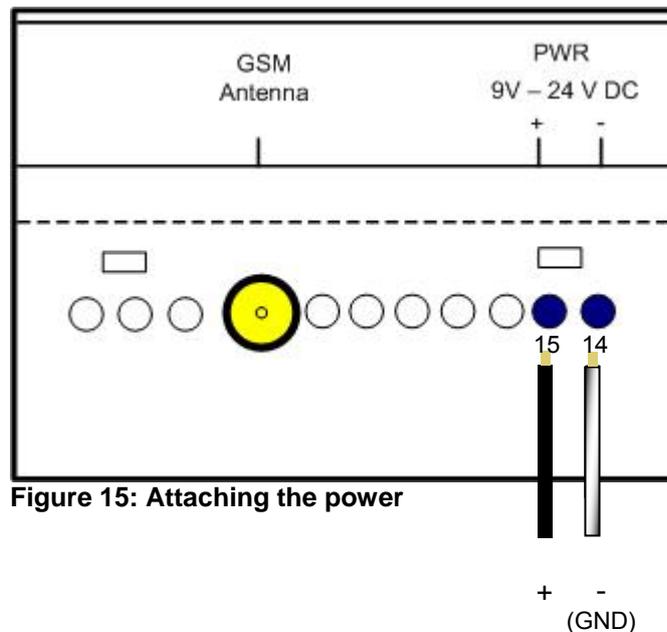


Figure 15: Attaching the power

The following table shows the correct connections of the transformer to the **STP Sense**.

Table 6: Terminal Blocks for Attaching the Power Supply to the STP Sense

Terminal Block Number	Purpose
Hole 14	GND lead from transformer
Hole 15	Positive power supply lead from transformer

	<p>ATTENTION:</p> <ul style="list-style-type: none"> • Ensure the correct polarity of the power supply terminals. • If using another DC voltage source, be certain not to exceed 24 V. This will cause irreversible damage to the STP Sense unit.
---	---

	<p>DANGER:</p> <ul style="list-style-type: none"> • The device should be wired in a de-energized state. • Regularly check the live cables to which the devices are connected for faults or breaks in the insulation. If any such fault is found, immediately turn off the device and replace the wiring.
---	---

Section 3.3 STP Operation

Status LEDs

The **STP Sense** has two status LEDs to indicate that you have installed everything properly and that the device is in proper working order. The red LED indicates that the device is receiving power. The green LED indicates that the device is registered to the cellular network.

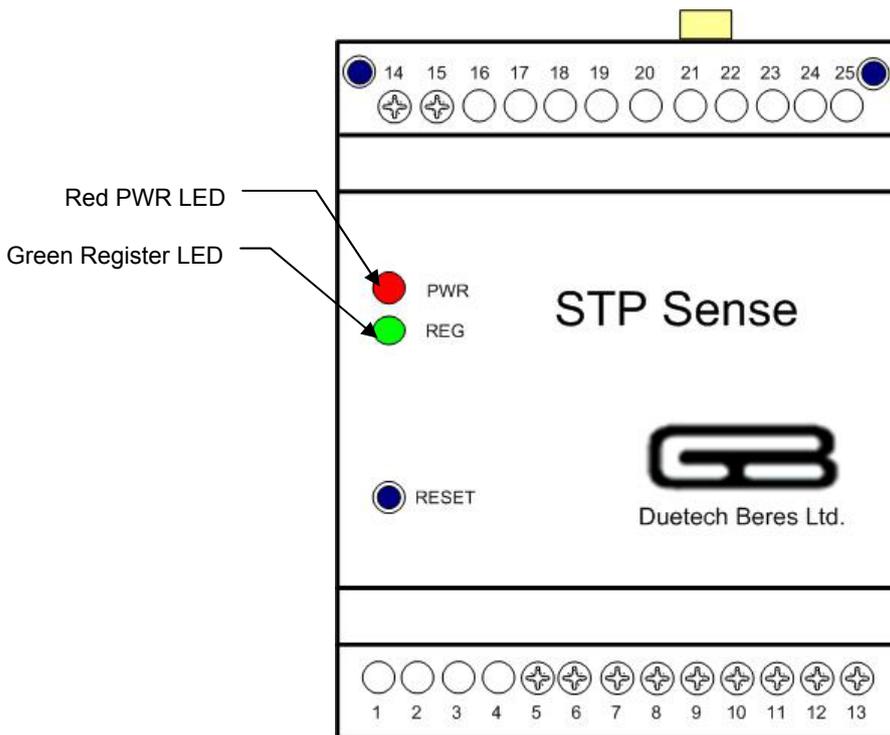


Figure 19: Status LEDs in STP Sense

Red PWR LED

After applying the 12 V DC power supply, or inserting the back-up battery, check that the red PWR LED lights up. The red PWR LED indicates that the main power is applied, or that the backup battery is properly attached.

Table 7: PWR LED Indications

LED Indication	Operation Status
No indication	No power
Red, blinking	When STP unit is sending a SMS or GPRS message
Red, steady	Power on

As we'll see later on in the section dealing with the **Logic Flow Sense** software, the red light will flash when the **STP Sense** sends an SMS or GPRS message.

Green GSM LED

The green GSM LED indicates that the unit registers to the network. When you first power up the **STP Sense**, or press Restart, the device emits 4 beeps, and in a few seconds the green LED lights up. The green LED will remain lit continuously for few seconds, while the device

is searching for the cellular network. The green LED subsequently flashes periodically while the STP is registered to the GSM network.

During normal functioning of the device, the green LED serves as the modem registration indicator. This light is on when the modem powers up, and flashes when the **STP Sense** is registered with the cellular network.

Table 8:Green REG LED Indications

LED Indication	Operation Status
No indication	GSM unit Off
Green, steady	Device is searching for the network connection
Green, blinking	Connected to a network

Reset Button

To reset the device, use the reset button. It can be useful for reconfiguring the device in case of wrong logic, after resetting the device use has 5 seconds of Safe Mode without any logic running.

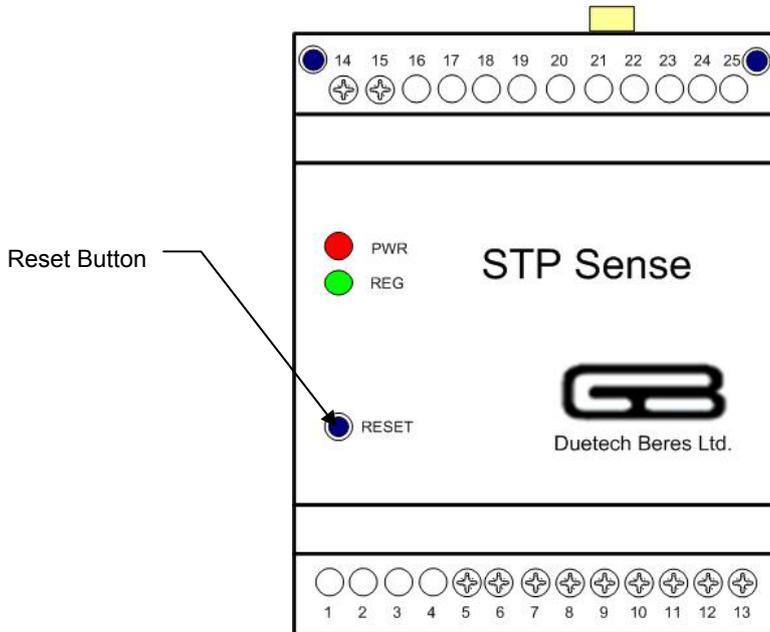


Figure 20: STP Sense Reset Button

Chapter 4: Using Logic Flow Sense

This chapter provides detailed instructions for configuring and using the **Logic Flow Sense** Software that comes with the **STP Sense** unit.

Section 4.1 Getting Started with Logic Flow Sense

When you click on the **Logic Flow Sense** Platform icon on your desktop or in the Start taskbar, the program's opening screen appears, displaying the menus.

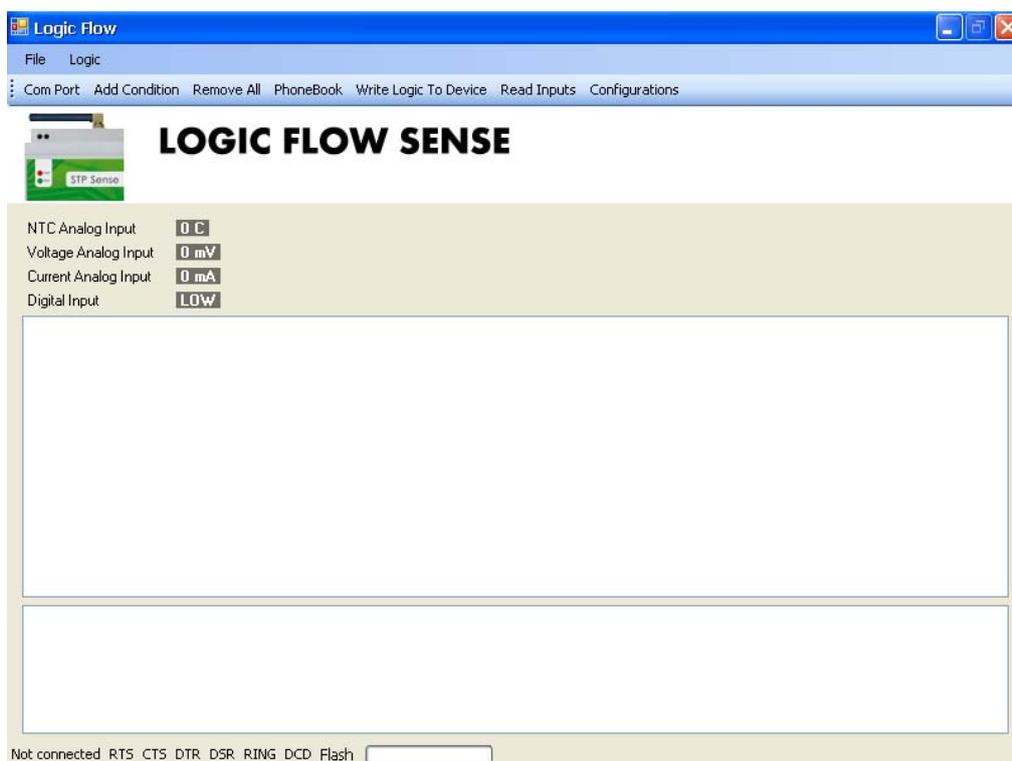


Figure 21: Logic Flow Sense Opening Screen

STP Sense Menus and Toolbar

The following table enumerates the functions on the opening screen of **Logic Flow Sense** and their uses:

File Menu

Menu Item	Function
Load File	Allows you to load a set of conditions to the STP Sense device, saved in a *.cond file
Save	Allows you to save the conditions you have supplied to the STP Sense device in a *.cond file

Logic Menu

Menu Item	Function
Write To Device	Writes the list of instructions to the device
Read From Device	Reads the present list of instructions from the device and displays it on the screen (included in future release)
Erase Device	Erases the logic that has been written to the device (included in future release)

STP Sense Toolbar Commands

Logic Flow Sense Command	Function
COM Port	Opens or closes the RS232 serial port connection between the STP Sense device and the computer
Add Condition	Allows you to add a condition to the list of commands to the STP, providing inputs and outputs
Remove All	Allows you to erase all conditions from the list. Note that it removes conditions only from LogicFlow, to erase the STP Sense, click 'Write to Device' after removing all conditions to update the hardware.
Phonebook	Allows you to store names and phone numbers of users of the STP, to receive or send messages to the device

Logic Flow Sense Command	Function
Write Logic to Device	Writes the list of commands to the STP. When you click on Flash, an indicator bar at the bottom of the opening screen shows the progress of writing to the STP. A screen will pop up telling you that the write was successful, or that it failed
Read Inputs	Updates the user to the state of the digital input (result displayed on main screen)
Configurations	<p>Allows you to set the device's:</p> <ul style="list-style-type: none"> • UNIT ID- is the identification of the controller maximum character 10 • Access Point Name (APN)(for the cellular service providers that require it) maximum 18 characters • User name that was configured in the SIM CARD. maximum 18 characters • Password that was configured in the SIM CARD. maximum 18 characters • To set the number of seconds to delay sending an outgoing call (10-30 sec) • PIN code of the SIM CARD. maximum 10 numbers • TCP timeout between 10-86400(sec) • To enable/disable output events • To enable/disable input/output change report to LogicFlow • Offset. Can change between -40 to +40 degrees Celsius

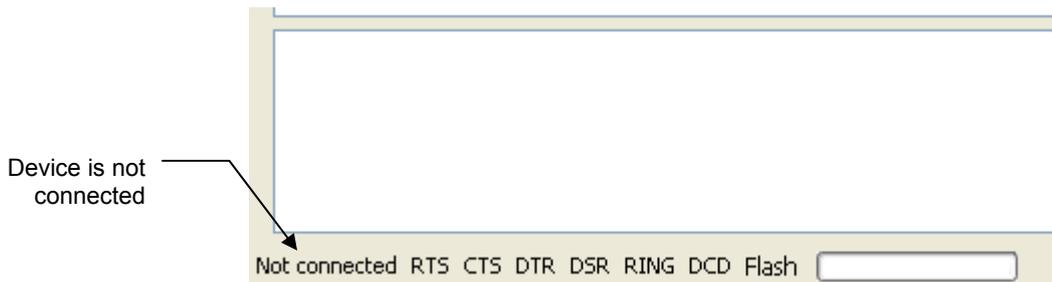
STP Sense Logic Flow Sense Indicators

At the bottom of the **Logic Flow Sense** screen, you will see the following indicators:

- **COM1/9600**: An indication of the serial port and the baud rate.

Verifying that there is communication with the STP Sense

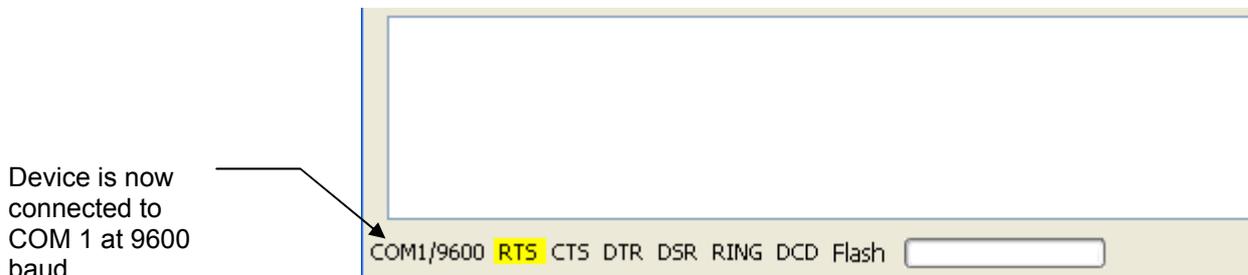
When you first execute the **Logic Flow Sense** software, you will receive notification that the serial port is not connected to the **STP Sense**.



1. Click on the command **COM Port** in the opening screen. The **Serial Connection** dialog appears, prompting you to open the COM Port. This enables communication between your computer and the **STP Sense** device.

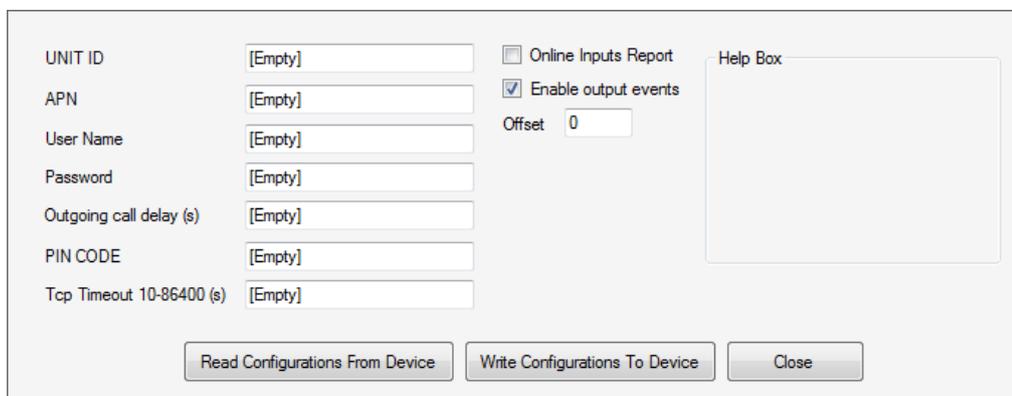


2. If there are several serial ports on your computer, select the appropriate one from the drop-down list near **Port:**, and type in the Baud Rate.
3. Click **Open Port**. The bottom left area of the opening screen will indicate the COM Port and the baud rate.



Section 4.2 Configuration Settings

Configuration Settings Screen



When you click on the **Configurations** command in the **Logic Flow Sense** opening screen, the **Configuration Settings** screen will open up.

Fields in the Configuration Settings Screen

UNIT ID

If you employ several **STP Sense** devices, you will find it useful to be able to identify which device is sending you a particular SMS or GPRS message. The UNIT ID option in the Configuration Settings Spreadsheet is what allows you to assign an identifying name to each **STP Sense** unit. In the **UNIT ID** field, type the desired name for your particular **STP Sense** unit. When the **STP Sense** unit will send an SMS or GPRS data, this Unit ID will appear in the display of your phone in case of an SMS. The maximum characters you can put is 10

APN, User Name, Password

The Access Point Name (APN) must also be supplied in case of GPRS use.

The maximum characters you can put is 18

Outgoing Call Delay (s)

This option allows you to set the amount of delay (in seconds) between the time the **STP Sense** sends an outgoing call and then disconnects the call.

The range of the delay is 10-30 seconds.

Pin Code

The access code to the SIM card.

Valid field, only if the SIM has a pin code you should enter the same code.

If your SIM card don't have a pin code than the field is irrelevant.

Note: default pin code is 1234.

The maximum total numbers are 10.

TCP Timeout 10-86400(s)

Length of time, in seconds, that a TCP session connection will remain active without the remote connection sending any data.

Online Inputs Report

Checking this box updates **Logic Flow Sense** as to any changes in the input and output.

Enable Output Events

Enables/disables output event execution. (similar in function to DISARM command see p. 46 **DISARM Input Event**).

Offset

A calibration factor that lets the user adjust the temperature reading and calibrate it duo to sensor wire length.

The value can be configured as a negative or positive number, and the final temperature output will be implemented with the offset and the measurement.

The range of the offset is -40 to +40 degrees Celsius.

Help box

A short explanation brief of every configuration setting. Once you point your mouse on a setting, you get an explanation.

Configuration Settings Commands

Read Configurations from Device

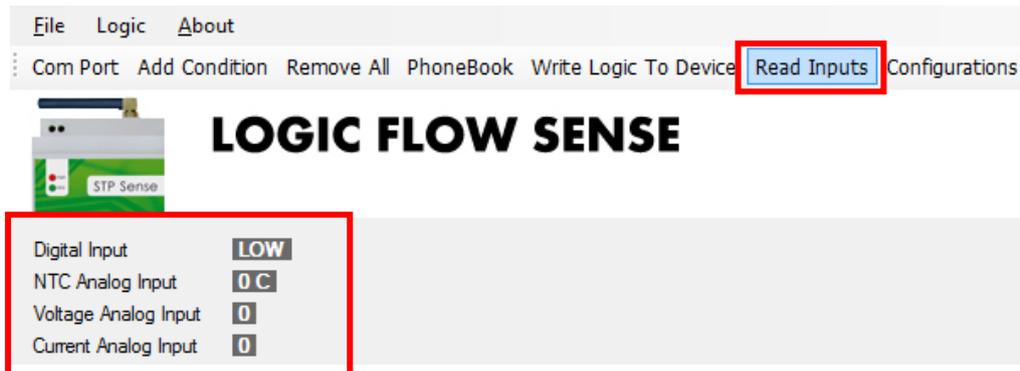
This allows you to read the device's configuration, to check if the configuration is in order, or if you need to know a specific parameter, for example, the Unit ID.

Write Configurations to Device

Clicking on this writes the selected configurations to the **STP Sense** device.

Section 4.3 Read Inputs Command

The **Read Inputs** command on the **Logic Flow Sense** main screen is an option that allows you to know the status of the digital and analog inputs of the **STP Sense**. This information about whether the digital input is HIGH or LOW, and the values of the analog inputs (0-1023 value for Voltage/Current inputs and Celsius degrees for NTC), will be displayed on the main screen above the instruction set list.



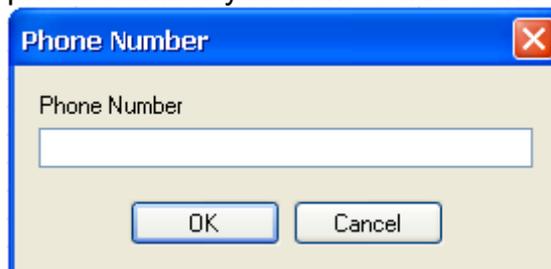
Phonebook Setup

The **Logic Flow Sense** interface allows you to provide the **STP Sense** with a **Phonebook**—a list of phone numbers of a group of users of the **STP Sense**.

Adding a Number to the Phonebook

To add a number to the Phonebook:

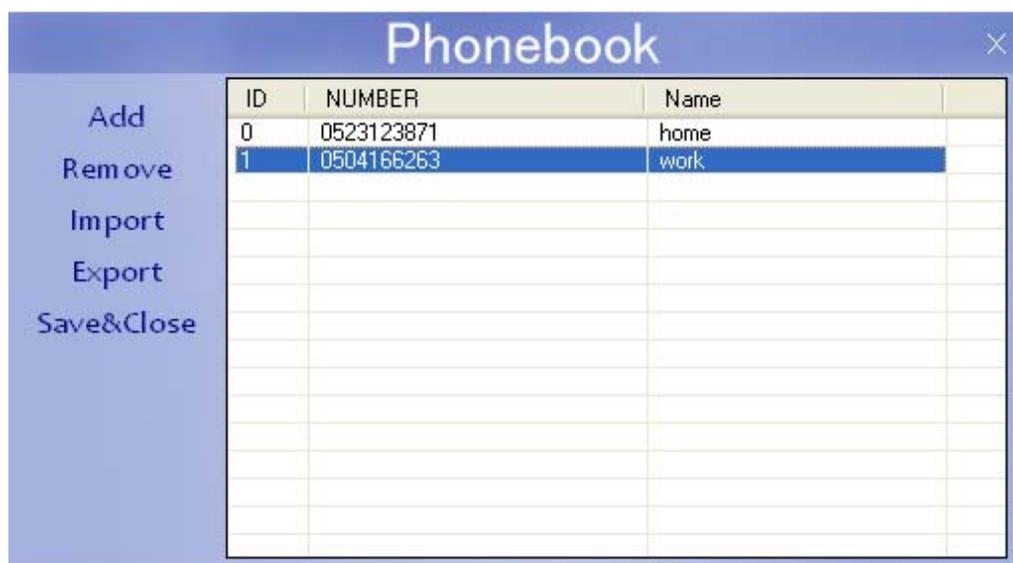
1. Click the **Phonebook** command in the **Logic Flow Sense** opening screen.
The **Phonebook** window will open.
2. Click **Add**.
The **Phone Number** window will open, prompting you for the phone number you want to add to the phonebook.



3. Enter the phone number you wish to add to the Phonebook in the **Phone Number** field, and click **OK**.

The **Phonebook** window will open, displaying the list of saved phone numbers.

6. Mark the phone number you want to remove by clicking on the number.



7. Click **Remove**.
The phone number and name will be removed from the list.
8. Click **Save&Close** to save the changes to the Phonebook.

Exporting a List of Phone Numbers from the Phonebook into a File

To be implemented in future release.

Importing a List of Phone Numbers into the Phonebook

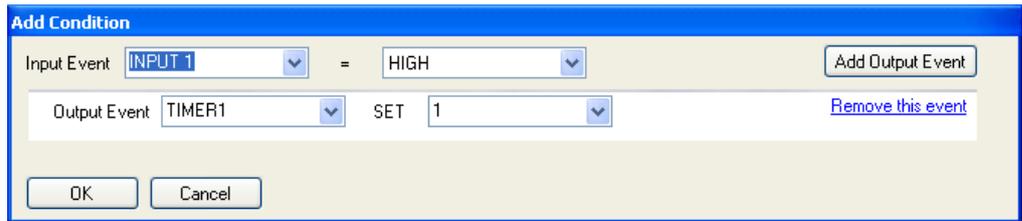
To be implemented in future release.

Section 4.4 Setting the STP's Input Event

For the **STP Sense** to implement condition sentences, you must program the input and output events of the device. The **Logic Flow Sense** software allows for a set of nine different types of inputs, and 9 different types of outputs. The software has been custom-made for the inputs and outputs the **STP Sense** accepts.

To select a new input event:

1. Click the **Add Condition** command in the **Logic Flow Sense** Main Screen to open the **Add Condition** window.



In the **Input Event** drop-down list, you see a display of all the input event options. The other fields adjust automatically according to the type of input event selected.

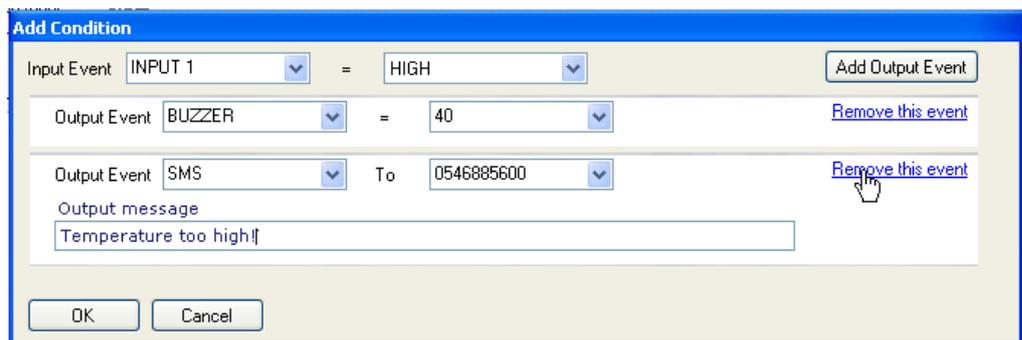
A single input event to the **STP Sense** can control up to four output events, in any one instruction sentence. For example, upon receiving the given input event, such as a device exceeding range of operating temperature, the **STP Sense** unit can turn on a cooling system, and alert you by an SMS, an incoming call, and a GPRS message over the Internet.

2. If you want more than one output event, click on **Add Output Event**.



The **Add Condition** window will expand to accommodate another Output Event.

3. If you choose to remove one of the output events, click on **Remove this event**.



Here is a brief description of all the input events that are possible.

Table 9: Logic Flow Sense Input Events

Input Type	Description
INPUT1	Digital input into the STP Sense device. Can take the value HIGH or LOW

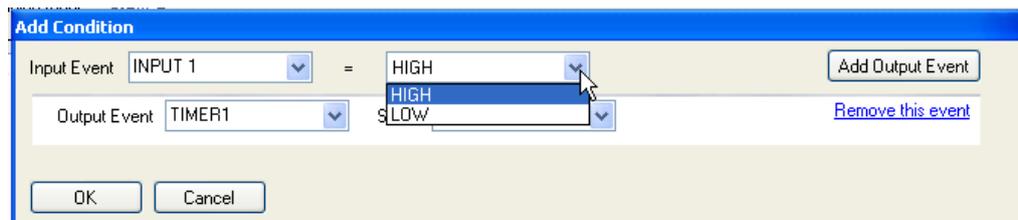
Main Power	Triggers the output event when the device is detached (LOW) from or is reattached (HIGH) to the main power
ANALOG (mA)	Monitors the current of a device to alert you if it exceeds or goes below a designated value
ANALOG (mV)	Monitors the voltage of a device to alert you if it exceeds or goes below a designated value
ANALOG (C)	Monitors the temperature to alert you if it exceeds or goes below a designated value
TIMER1-4	Allows for timed input. Timers 1 & 2 count in units of 10's of minutes, and Timers 3 & 4 count in units of seconds
SMS	Triggered as a new SMS with a predefined message is sent to the device.
INCOMING CALL	Triggered as an incoming call is dialed to the device.
RS232	Allows a text RS232 message to trigger the device
DISARM	Triggered as DISARM state is changed by a different event.
STARTUP	Performs the output event upon startup, or when you press reset or write to the STP

"Digital" Input Event

As mentioned before, the **STP Sense** takes one digital input. If the input voltage is between 5-24 V, the input is considered HIGH. A voltage lower than 0.7 V will be considered LOW.

To set a digital input:

1. Click the arrow near the **Input event** drop-down list box, and select **INPUT1**.
2. Choose the desired state from the **Status** list box. Select the input condition as either **HIGH** or **LOW**.

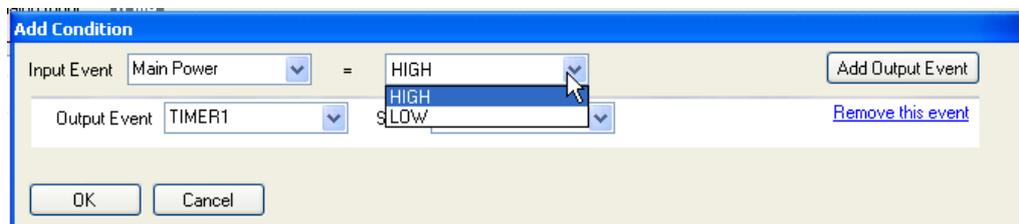


"Main Power" Input Event

You may want to be alerted if the **STP Sense** device gets disconnected from the main power, and is now running on the backup battery. You may want to be alerted if the main power is restored. The Main Power Input Event is designed for this purpose.

To set Main Power as an input event:

1. Click on the arrow near the **Input event** drop-down list box, and select the **Main Power** input event.
2. Select in the list box next to the "=" sign whether you want the **STP Sense** device to alert you when the Main Power is disconnected (LOW) or reconnected (HIGH).



"Analog" Input Event

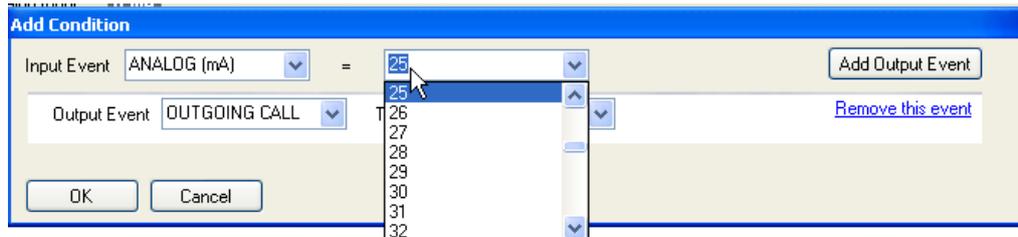
As mentioned before, the **STP Sense** takes three types of analog input: Voltage, Current, and Thermistor. We will now examine the settings of these inputs in turn.

To set the current analog input:

1. Click the arrow near the **Input event** drop-down list box, and select **ANALOG (mA)**.
2. Click on the relational symbol to open up a drop-down box that allows you to select whether you want the **STP Sense** to react upon receiving an input greater than, equal to, or less than a specified value.



3. Supply the value in the list box next to the relational symbol. You can either select the value from the drop-down list, or type in the value.



Note: The value that you provide in the list box is in bits, where the maximal current (20 mA) corresponds to 1023 bits, and the minimal current (4 mA) corresponds to 204 bits. Similarly, when you specify that an SMS, RS232 or GPRS message should report the input current, the value that the **STP Sense** will report ranges from 204 – 1023 bits, **not** from 4 – 20 mA!

To set the voltage analog input:

1. Click the arrow near the **Input event** drop-down list box, and select **ANALOG (mV)**.



2. Click on the relational symbol to open up a drop-down box that allows you to select whether you want the **STP Sense** to react upon receiving an input greater than, equal to, or less than a specified value.
3. Supply the value in the list box next to the relational symbol. You can either select the value from the drop-down list, or type in the value.

NOTE: The value that you provide in the list box is in bits, where the maximal voltage (10 V DC) corresponds to 1023 bits. (One bit therefore corresponds to 10 mV.) Similarly, when you specify that an SMS, RS232 or GPRS message should report the input voltage, the value that the **STP Sense** will report ranges from 0 – 1023 bits, **not** from 0 – 10 V!

To set the temperature analog input:

1. Click the arrow near the **Input event** drop-down list box, and select **ANALOG (C)**.

2. Click on the relational symbol to open up a drop-down box that allows you to select whether you want the **STP Sense** to react upon the thermistor's temperature being greater than, equal to, or less than the specified temperature.
3. Supply the cut-off temperature in the list box next to the relational symbol. You can either select the value from the drop-down list, or type in the value.

"Timer" Input Event

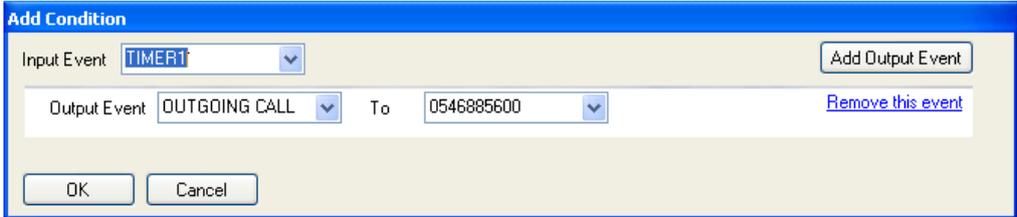
TIMER as an input event allows the **STP Sense** to respond after a specified amount of time. **TIMER1 and 2** delay the output response in **units of tens** of minutes, whereas **TIMER3 and 4** delay the output response in **units of seconds**.

NOTE: There must be a previous event that uses TIMER as the output event, in order to use TIMER as an input in the next command. (See **Section 4.8, Some Useful Examples**, p. 58).

In order to stop the timer event you need to enter the number 255 as a value for the timer.

To use TIMER as the input event:

- Click on the arrow near the **Input event** drop-down list box, and select the **TIMER** input event.



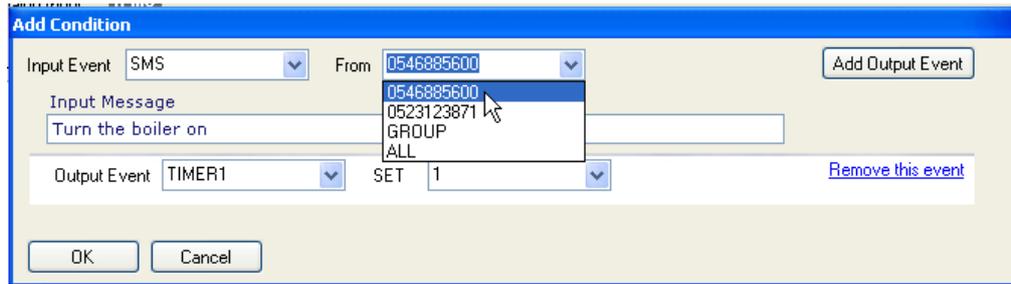
The screenshot shows a dialog box titled "Add Condition". It has a blue header bar. Below the header, there are two rows of controls. The first row has a label "Input Event" followed by a dropdown menu showing "TIMER1" and a button "Add Output Event". The second row has a label "Output Event" followed by a dropdown menu showing "OUTGOING CALL", a "To" label, a dropdown menu showing "0546885600", and a button "Remove this event". At the bottom of the dialog are two buttons: "OK" and "Cancel".

"SMS" Input Event

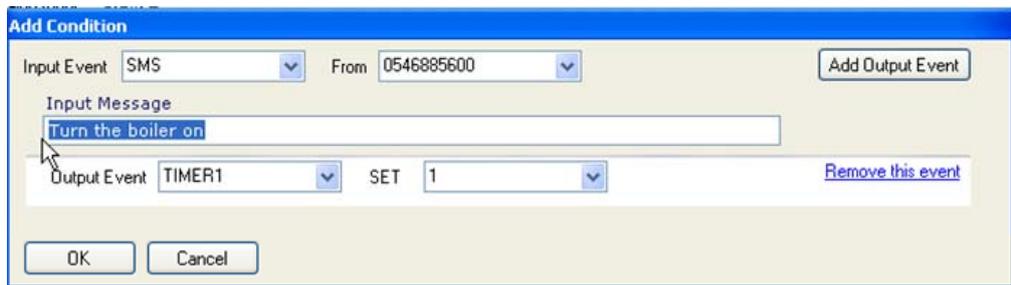
A useful feature is using an SMS as the input event. You can send an SMS to the **STP Sense** device, and that can serve to trigger the **STP Sense** to give the programmed output.

To set an SMS message as the input to the STP:

1. Click on the arrow near the **Input event** drop-down list box, and select **SMS**.
2. Click on the arrow near the **From** list box, and select from the possible senders of an incoming SMS message to the device.



- Select **ALL** to allow all SMS senders to activate the **STP Sense** by sending the specified SMS message to the device.
 - Select **GROUP** to allow only SMS senders listed in your Phonebook to activate the **STP Sense** by sending the specified SMS message to the device.
 - You can also enter in a specific phone number that will be able to send an SMS to activate the specified output event. Either select the number from the drop-down list (which are the entries in your Phonebook), or type it in manually in the **From** list box.
3. Enter the text of the SMS message that will serve to activate the device in the **Input Message** box. The message length should be no longer than 60 English characters.



"Incoming Call" Input Event

Just as you can set an SMS message to be the trigger of the **STP Sense** device, you can also use an incoming call to serve as the trigger. You will hear the phone ring as you try to make the call, and the call will be rejected (it is recommended that you cancel the voice mail via the GSM provider). The **STP Sense** has successfully triggered the STP.

To set an incoming call as the input to the STP:

1. Click on the arrow near the **Input event** drop-down list box, and select **INCOMING CALL**.
2. Click on the arrow near the **From** list box, and select from a list of possible callers to the device.



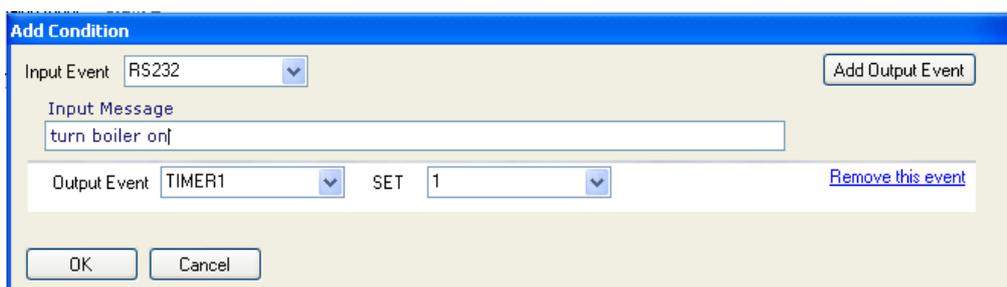
- Select **ALL** to allow all callers to activate the **STP Sense** by calling the device.
- Select **GROUP** to allow only callers whose phone numbers are listed in your Phonebook to activate the **STP Sense** by calling the device.
- You can also enter in a specific phone number that will be able to call the **STP Sense** to activate the specified output event. Either select the number from the drop-down list (which are the entries from your Phonebook), or type it in manually in the **From** list box.

"RS232" Input Event

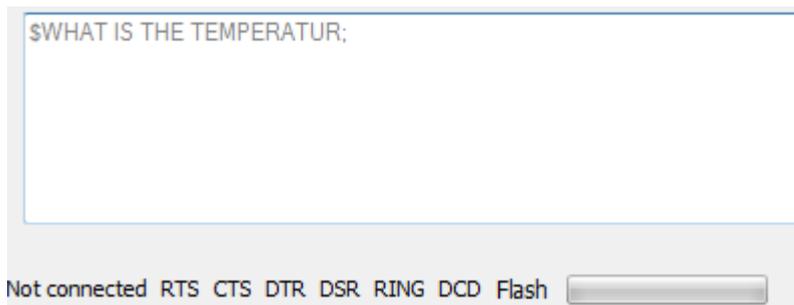
You can use a message from any RS232 device to the **STP Sense** to serve as a trigger. You specify the message string to send to the STP, and the **STP Sense** will respond with the specified output.

To use a text message from the computer to serve as the input to the device:

1. Click on the arrow near the **Input event** drop-down list box, and select the **RS232** input event.
The **Input message** text box will appear, prompting you for the message to be communicated to the RS232 parallel port on your computer.
2. Enter the text of the RS232 message that will activate the output event in the **Input Message** text box.



3. In order to send the msg through the COM port you should write the msg in this format: **\$(MESSAGE);**



"DISARM" Input Event

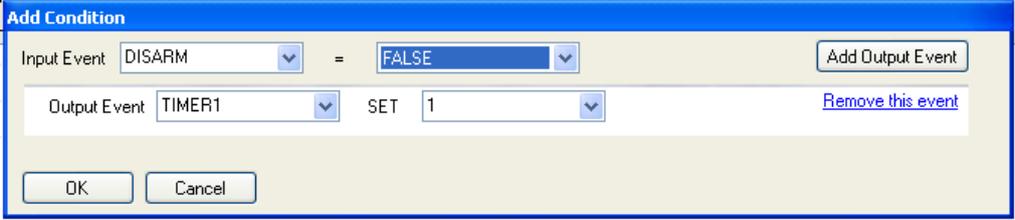
DISARM is a useful command when the **STP Sense** is used for security or alarm system. Let's say you want to set an alarm only after you leave the area you wish to secure. Setting the input of the **STP Sense** to DISARM will cancel all output events—effectively turning the alarm system off. You can then program the **STP Sense** to turn the alarm on after you leave the area, by sending it an SMS or incoming call. (see **Section 4.8, Some Useful Examples**,

Using the **STP Sense's DISARM Option**, p. 67).

To use the DISARM input event:

- Click on the arrow near the **Input event** drop-down list box, and select the **DISARM** input event.

The value of the input will be automatically set to "FALSE", canceling any output events.



"STARTUP" Input Event

The **STARTUP** option allows you to execute the desired output every time the **STP Sense** is turned on or resets. (This is a practical feature, for example, if you want to find out the number stored on the **STP Sense's** SIM card, in order to access the device—see **Section 4.8, Some Useful Examples, Finding out the STP's Phone Number**, p. 62)

To use the STARTUP option as input to the STP:

- Click on the arrow near the **Input event** drop-down list box, and select the **STARTUP** input event.

Once this is set as the input event, any startup of the **STP Sense** will execute the output event. Startup will consist of:

- Turning on the power to the **STP Sense**,
- Pressing the reset button on the unit,
- Clicking on the **Write Logic to Device** command,
- As a result of a **RESET** event.

Section 4.5 Setting the STP's Output Events

After configuring the desired input event for the **STP Sense**, and selecting the number of output events you want the **STP Sense** to control, you now have to select the type of output event. The **Logic Flow Sense** software allows for 9 different output event options from which to choose.

Table 10: Logic Flow Sense Output Events

Output Type	Description
TIMER1-4	Sets Timer to a predefined value. Timers 1 & 2 count in units of 10's minutes, and Timers 3 & 4 count in units of seconds
SMS	Sends an SMS message from the STP Sense when triggered
GPRS	Sends a GPRS message from the STP Sense when triggered
RS232	Sends a text RS232 message to the Logic Flow Sense interface when the STP Sense is triggered
OUTGOING CALL	Initiates an outgoing call when the STP Sense is triggered
BUZZER	Emits a buzz at a certain specified frequency when triggered
RESET	Performs a reset of the STP Sense upon receiving the specified input
DISARM	Useful in implementing an alarm system—allows you the choice of enabling/disabling the alarm
ALARM	Sounds an alarm when triggered

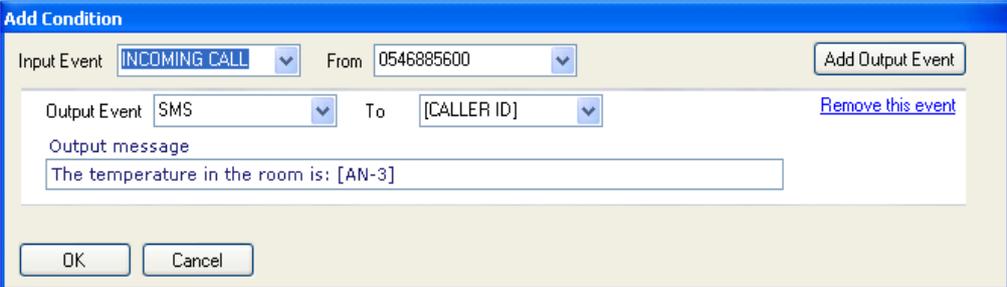
Syntax of STP Sense Text Messages

If you want the STP Sense to report the digital or analog input values, the following syntax should be used in the text message:

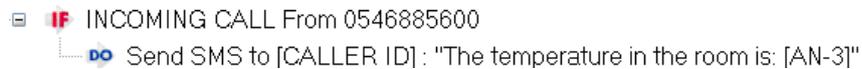
Input Type	Syntax
Digital Input 1	[I-1]
ANALOG (mA)	[AN-1]
ANALOG (mV)	[AN-2]
ANALOG (C)	[AN-3] [AL-3]

In the following example, the STP Sense is programmed to report the output temperature in an SMS message. [AN-3] is the syntax (in **square brackets, and caps lock on**) to supply the temperature of the thermistor in the SMS message.

[AL-3] acts like [AN-3] but the difference is that [AL-3] will show the last sampled value that made the trigger to react, while [AN-3] will show the sampled value during the execution of the output event



Upon clicking **OK**, the following logic statements appear in the Logic Flow Sense screen:



Again, the temperature of the thermistor will replace the [AN-3] in the SMS message.

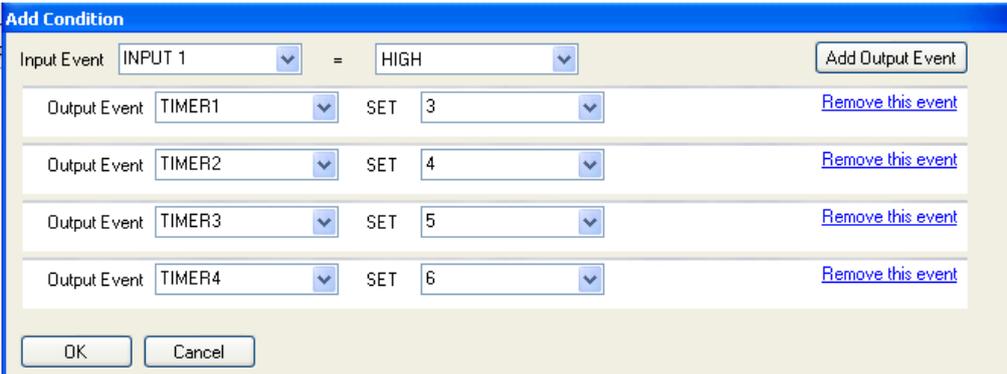
"Timer" Output Event

Sets Timer to a predefined value. Timers 1 & 2 count 10 minutes per unit, and timers 3 & 4 count 1 second per unit. (See **Section 4.8, Some Useful Examples, Using the STP Sense's Timer Option**, p.62).

To use the Timer Output Event:

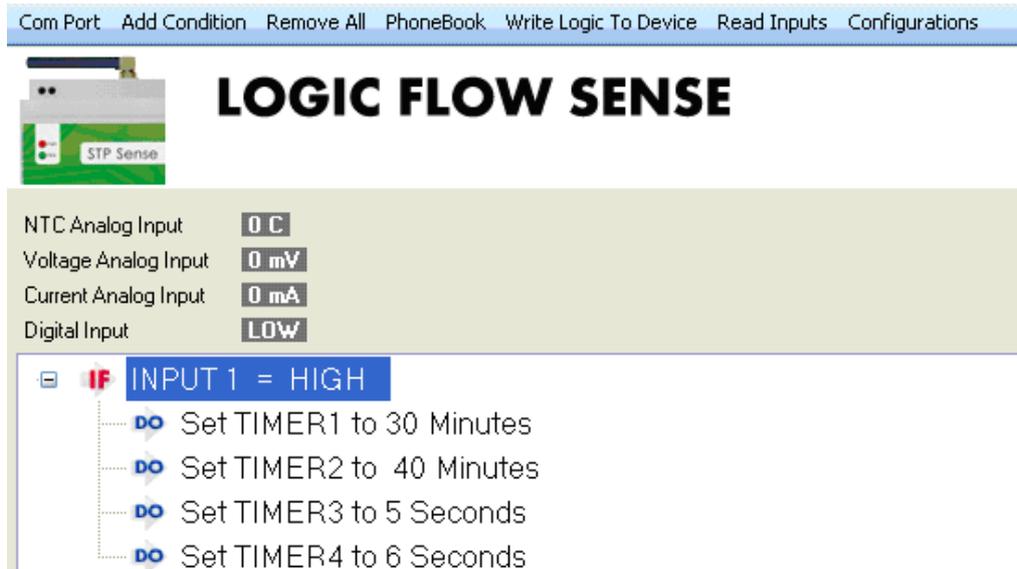
1. Click on the arrow near the **Output Event** list box, and select **TIMER1, TIMER2, TIMER3, or TIMER4.**

The following screen capture has all the timers employed as output events:



2. In the **SET** box, type in the timer duration. Again, for **TIMER1** and **2**, the number entered will be in increments of 10 minutes of delay between the input and output event. For **TIMER3** and **4**, the number entered will be seconds of delay. The value must be between 1-254.

3. Click **OK**.



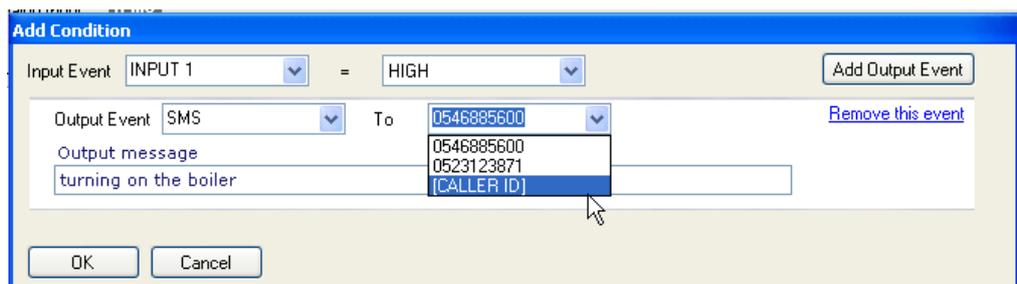
"SMS" Output Event

You can set the **STP Sense** to send you an SMS message when the device receives the specified input.

To use the SMS Output Event:

1. Click on the arrow near the **Output Event** list box, and select **SMS** as the output event.
2. Enter the destination phone number—the number that is to receive an SMS message from the **STP Sense** device-- in the **To** field. You can either:
 - Manually enter a phone number in the field, or
 - Click on the arrow near the **To** field, to select a phone number from the Phonebook.
- If you select the option [CALLER ID], the **STP Sense** will send an SMS back to the person who called the device.

NOTE: CALLER ID is only an option when the **Input Event** is **SMS** or **Incoming Call**.



3. Fill in the message text for the SMS in the **Output message** text box.
4. Click **OK**.

"GPRS" Output Event

You can have the **STP Sense** send a GPRS message to you via your Internet server, in the event of something triggering the specified input, or a power failure. The GPRS message is sent to the **IP Address** or **domain name** and **Port** that you specify.

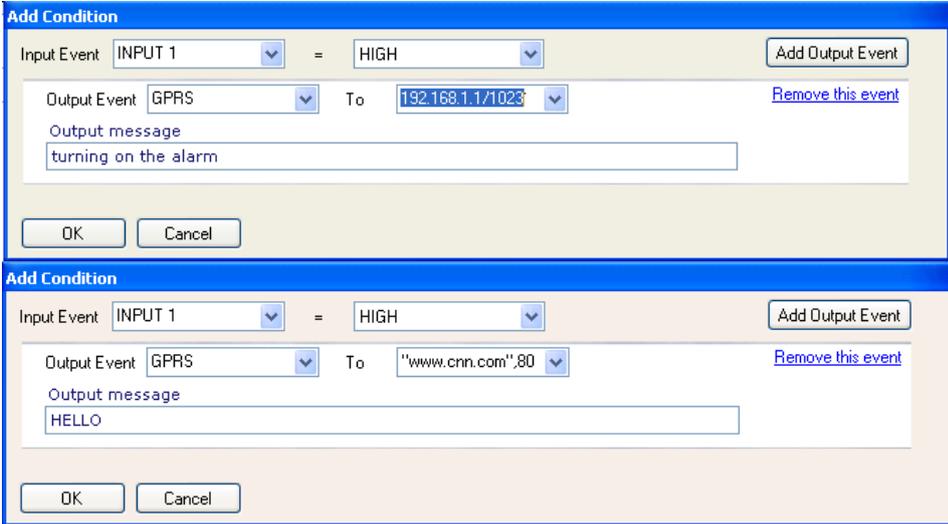
To set the STP Sense to send you a GPRS message:

1. Click on the arrow near the **Output Event** drop-down list box, and select **GPRS** as the output event.
2. Supply the IP or the domain name and Port in the **"To"** text box.

The format for the IP/PORT combination is [IP ADDRESS]/[PORT]: for example, 192.168.1.1/1023, where 192.168.1.1 is the IP Address, and 1023 is the Port. The IP Address is in the format 0.0.0.0 and the Port is any number up to 65000.

The format for the domain name and port combination is ["DOMAIN NAME",PORT]. (the quotation marks are needed)
For example: "**www.cnn.com**",**80** where "**www.cnn.com**" is the domain name and 80 is the port.

The port is any number up to 65000



The image shows two screenshots of the 'Add Condition' dialog box. The top screenshot shows the configuration for a GPRS output event triggered by 'INPUT 1' being 'HIGH'. The 'Output Event' is set to 'GPRS' and the 'To' field is set to '192.168.1.1/1023'. The 'Output message' field contains the text 'turning on the alarm'. The bottom screenshot shows the same configuration but with the 'To' field set to '"www.cnn.com",80' and the 'Output message' field set to 'HELLO'.

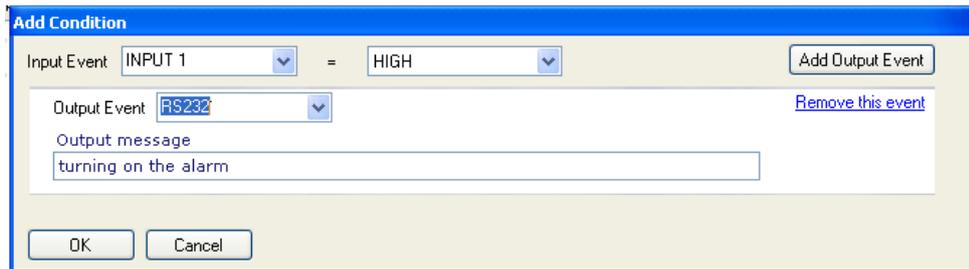
3. Fill in the message text in the **Output Message** text box. The message length should be no longer than 60 English characters.
4. Click **OK**.

"RS232" Output Event

You can have the **STP Sense** send you an Event Report screen (see Section 5.6) of the **Logic Flow Sense** interface, when the **STP Sense** device receives the input specified. This is termed the RS232 Output: output delivered via your computer's serial port. You can then select the text of the Event Report, and paste it into a Word or Excel file.

To set the RS232 Port as the Output device:

1. Click on the arrow near the **Output Event** list box, and select **RS232**.
2. Fill in the message text on the **Output Message** text box.



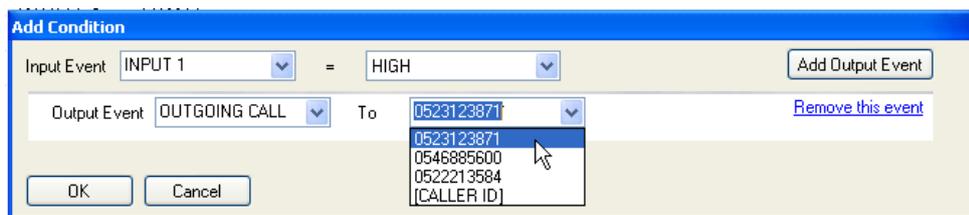
3. Click **OK**.

"Outgoing Call" Output Event

You can have the **STP Sense** send you an outgoing call as the output event. When the **STP Sense** receives the specified input, the phone number you supply the **STP Sense** will receive a single ring.

To set an outgoing call as the output event:

1. Click on the arrow near the **Output Event** list box, and select **Outgoing Call** as the output event.
2. Provide the phone number you wish the **STP Sense** device to call in the "To" field.



If you select the option [CALLER ID], the **STP Sense** will send the outgoing call back to the person who called the device.

NOTE: CALLER ID is only an option when the **Input Event** is **SMS** or **Incoming Call**.

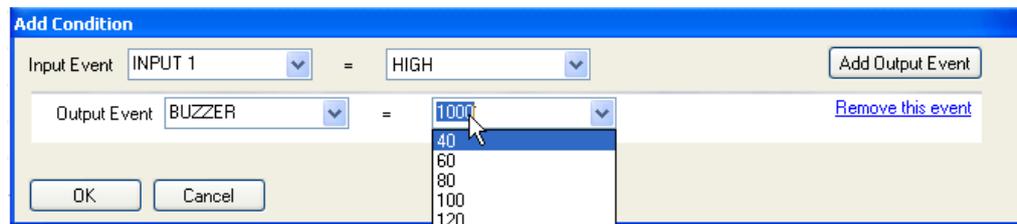
3. Click **OK**.

"Buzzer" Output Event

You can have the **STP Sense** give a buzz of a specific frequency when it receives the input event. This is the Buzzer feature of the STP.

To set the Buzzer as the output event:

1. Click on the arrow near the **Output Event** list box, and select **BUZZER**.
2. Select the buzzer tone sound in the **Output Value** box. You can type in a value between 0-1023. Alternatively, you can select the number from the drop-down list.



3. Click **OK**.

"Reset" Output Event

The RESET Output Event will reset the device upon receiving the specified input. You can use this, for example, to turn off an alarm that has been triggered by a previous input event.

To make RESET as the output event for the STP:

1. Click on the arrow near the **Output Event** list box, and select **RESET**.
2. Click **OK**.

"DISARM" Output Event

DISARM is a command that is useful in implementing an alarm system. Let's say you have a sensor set as the input to the STP: when someone triggers the sensor, an alarm will sound. If you use DISARM as the output event, you can voluntarily **arm** or **disarm** the security system, so that it sounds off the alarm only at specific times. (See **Section 4.8, Some Useful Examples**,

Using the STP Sense’s DISARM Option, p.67.)

To make DISARM as the output event of the STP:

1. Click on the arrow near the **Output Event** list box, and select **DISARM**.
2. Set the **DISARM** value you want to set in the "=" box.



- **TRUE**—Disarms the system—turns off the alarm when receiving the specified input.
- **FALSE**—Enables the alarm system to detect trespassers when receiving the specified input.
- **TOGGLE** –Alternates between the TRUE and FALSE state, upon receiving the specified input event.

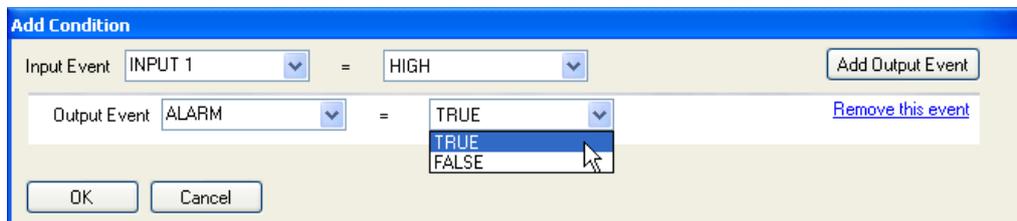
3. Click **OK**.

"Alarm" Output Event

You can use the **STP Sense** device as an alarm. When you set **ALARM** as the output event, the **STP Sense** will emit a high-pitched alarm sound, until you reset the **STP Sense** device.

To set ALARM as the output event:

1. Click on the arrow near the **Output Event** list box, and select **ALARM**.
2. Set the alarm status in the '=' list box. Select **TRUE** to turn the alarm on, and **FALSE** to turn the alarm off.



3. Click **OK**.

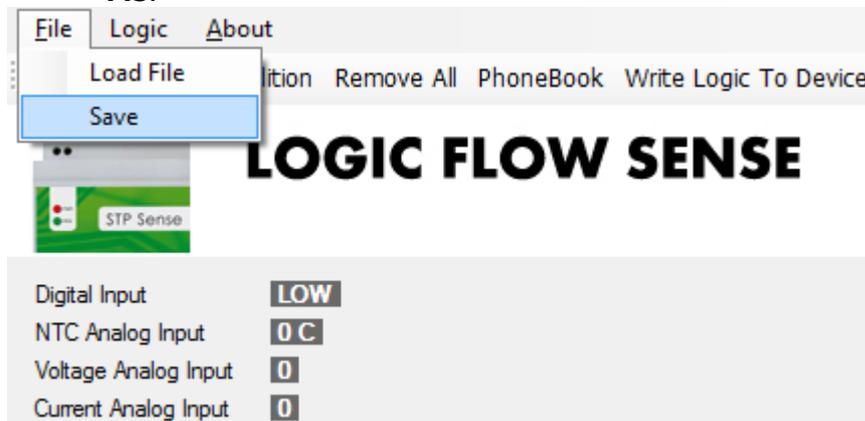
Section 4.6 Editing the STP Sense Instruction Set

Saving a set of instructions in a file

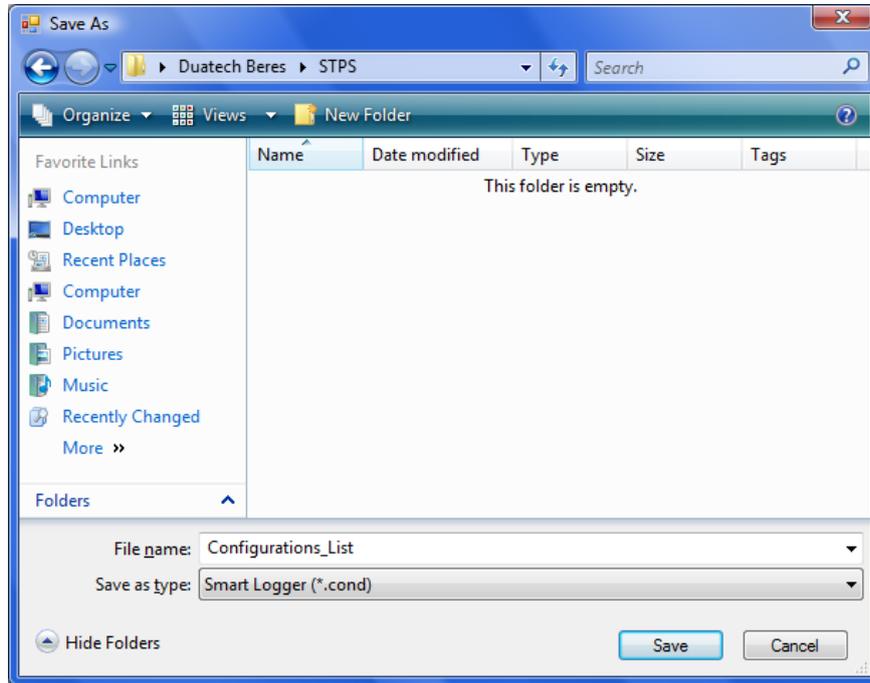
After you have supplied a series of instructions to a particular **STP Sense** device, you might want to save it for later use. For example, if you move the **STP Sense** unit temporarily to a different circuit, you will want to restore the previous set of instructions when you go back to the first device. **Logic Flow Sense** has a facility for this in the **File** menu.

To save a set of instructions:

1. Click on the **File** menu at the top of the screen, and select **Save As**.



The Save As dialog box will open, prompting you to give a name to your compilation of instructions.



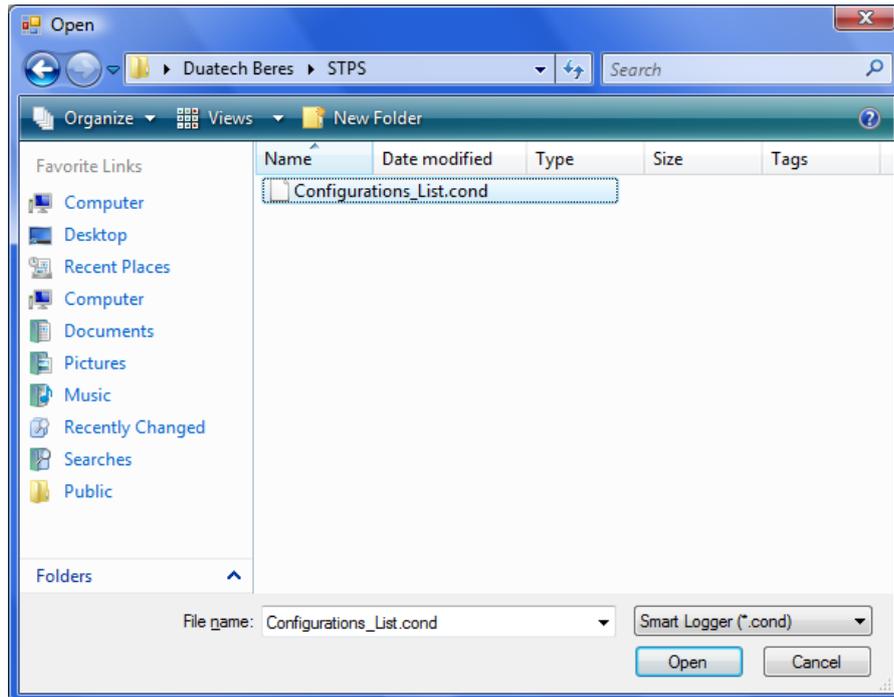
Supply a name in the File name box, and click Save. The list of instructions will be saved as a file with the extension cond.

Loading a saved set of instructions

The File menu can also be used to load a saved set of instructions.

To load a saved set of conditions to the STP:

1. Click on the **File** menu at the top of the screen, and select **Load**. The **Open** dialog box will appear, prompting you for the name of the condition file that you want to load onto the STP.



2. Select the condition file, and click on **Open**. The file name of the instruction set will appear in the upper left hand corner of the **Logic Flow Sense** opening screen. Also, the instructions from the condition file you selected will appear on the **Logic Flow Sense** Screen.

Removing instructions from the list

Logic Flow Sense has two options for removing conditions from the list on the screen:

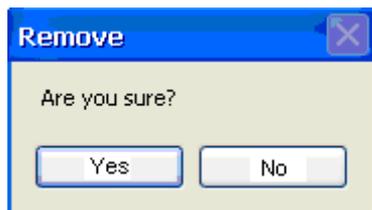
- Removing all the instructions displayed
- Removing individual instructions

Remove all the instructions displayed on the screen

After you've saved the previous set of instructions on the screen, you want to configure the **STP Sense** from scratch. You will first have to erase all the conditions presently on the screen.

To remove all the instructions on the screen:

1. From the menu at the top of the screen, click **Remove All**. You will receive a prompt asking you to verify the erasure.

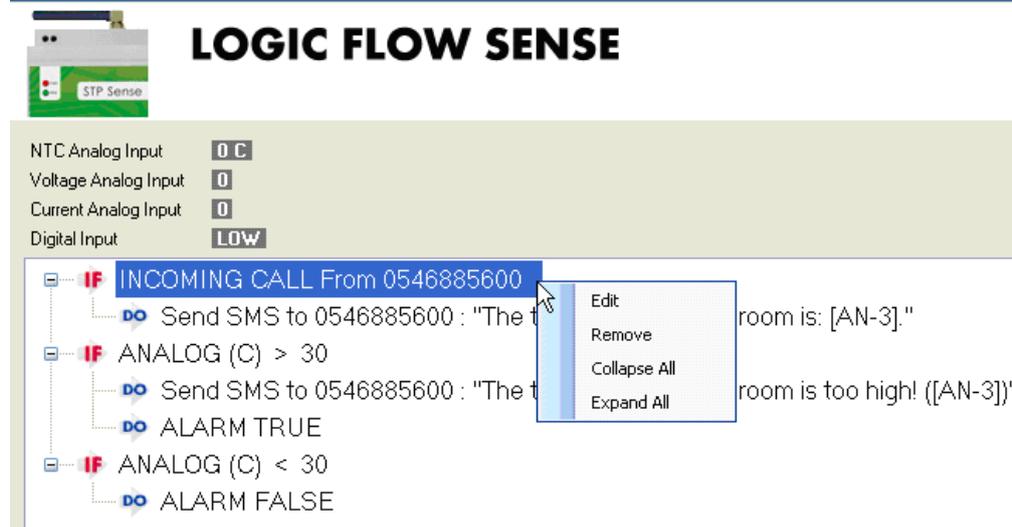


2. Click **Yes**. All the instructions on the screen will be erased.

Remove selected instructions

To remove selected instructions:

1. Right-click on the instruction you want to remove from the list. A box of editing options will appear.



2. Click **Remove**. The selected condition will be erased from the display.

Editing the Instruction List

If you want to modify one of the instructions to the **STP Sense, Logic Flow Sense** has a convenient editing feature.

To edit the instruction list:

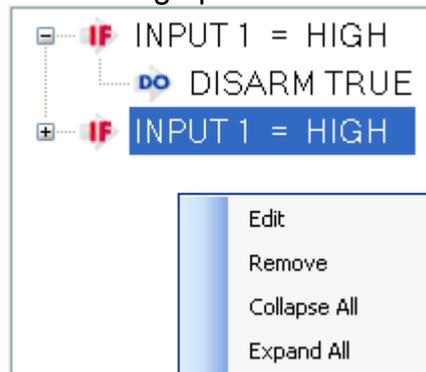
1. Right-click on the Input event in the instruction list that you want to modify.
2. In the list of commands, select **Edit**.
The **Add Condition** box will reappear, with the original input and output events associated with this instruction.
3. Make the desired modifications to the Input and Output events, and click **OK**.

Expanding/Collapsing the Instruction List

When the number of output events becomes large, the instruction set may start to appear more complicated. In order to make the logic written to the device more manageable, **Logic Flow Sense** has an option to expand or collapse all or some of the instructions in the instruction list.

To expand/collapse the instructions in the instruction list:

- Right-click anywhere on the **Logic Flow Sense** Screen. The Editing options box will appear.



- To expand all the instructions, showing the input and output events, click on **Expand All**.
- To collapse all the instructions, click on **Collapse All**.
- To expand an individual instruction, click on the ⊕ symbol next to the input event.
- To collapse an expanded item, click on the ▢ symbol next to the input event.

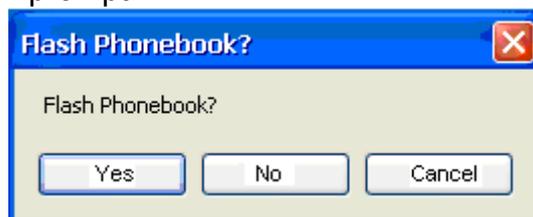
Section 4.7 Writing Logic to the device

Procedure for Writing the Instructions to the STP

Once you have specified the inputs and outputs to the **STP Sense** in the **Logic Flow Sense** software, you now have to write the commands to the device. This is performed using the **Flash** command.

To write the instructions to the STP:

1. When you have completed adding input and output conditions to the **STP Sense**, write the conditions and setups to the controller by clicking on the **Write Logic to Device** option in the main screen.
2. When you click **Ok**, you will receive the "Flash Phonebook?" prompt.



3. Click **Yes**.
The status bar at the lower part of the **Logic Flow Sense** opening screen will show the progress of the writing to the STP, and you will be informed that the program is flashing the Phonebook.

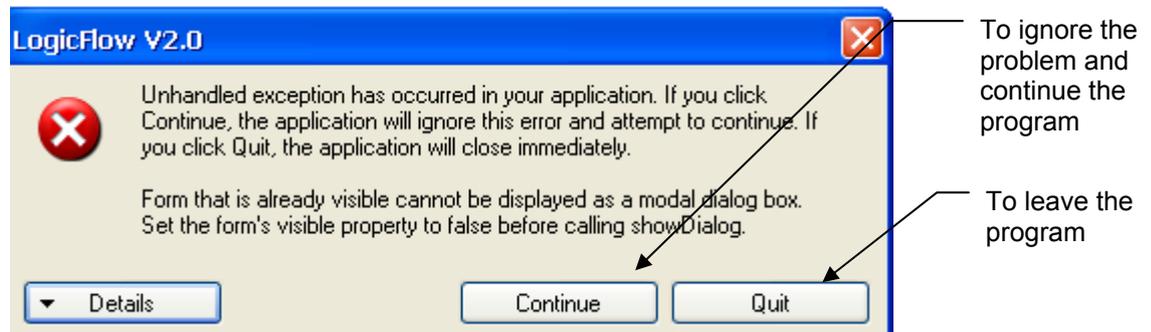


If the write to the device was successful, you will receive the prompt: "Flash Success".



Troubleshooting a Failed Write to the STP Sense

If the write to the device was not successful, you will receive a warning box, prompting you either to leave the program, or to ignore the problem and continue running the program.



Another warning screen that can appear will inform you that the write to the device failed.



These warning screens indicate that something has caused the **STP Sense** unit to become busy or "hang".

In the event that you encounter either of these warning screens:

1. Reset the device by pressing the Reset button on the **STP Sense** unit.
The **STP Sense** device will emit intermittent beeps. These beeps allow you to re-program the device if the device is "busy".
2. While the **STP Sense** is still beeping periodically, click on the "Write Logic to Device" command again.

When the device stops beeping, this indicates that the device has been restored to the Startup state. In Startup state, you will have to press Reset to attempt the above procedure again. If the problem persists, contact Technical Support.

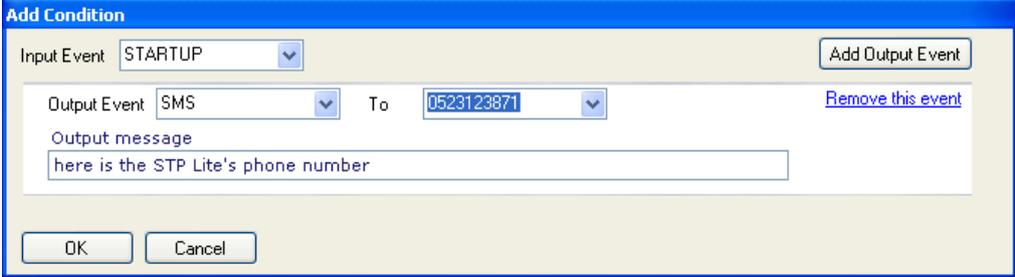
Section 4.8 Some Useful Examples

Finding out the STP's Phone Number

In the event that you received the **STP Sense** device and don't know the phone number associated with it, **Logic Flow Sense** can help you easily find out the number.

To find the Phone Number of the STP:

1. On the **Logic Flow Sense** opening screen, click on the **Add Condition** command.
2. Set the Input Event as **STARTUP**.
3. Set the output event as either **OUTGOING CALL** or **SMS**. If you choose SMS, supply an identifying output message.
4. Provide your cellular phone number in the "To" box.



The screenshot shows a dialog box titled "Add Condition". It has the following fields and controls:

- Input Event:** A dropdown menu set to "STARTUP".
- Output Event:** A dropdown menu set to "SMS".
- To:** A dropdown menu set to "0523123871".
- Output message:** A text input field containing "here is the STP Lite's phone number".
- Buttons:** "OK" and "Cancel" at the bottom.
- Additional controls:** "Add Output Event" button in the top right and "Remove this event" link in the top right.

5. Click **OK**, and save the instruction.
6. Click on **Write Logic to Device**.
The **STP Sense** will automatically execute a Startup. It will then proceed to send an outgoing call or SMS to the cellular phone number you have provided. The Caller ID on your cellular phone will tell you the source of the incoming call or SMS—that is, the number of the **STP Sense** device.

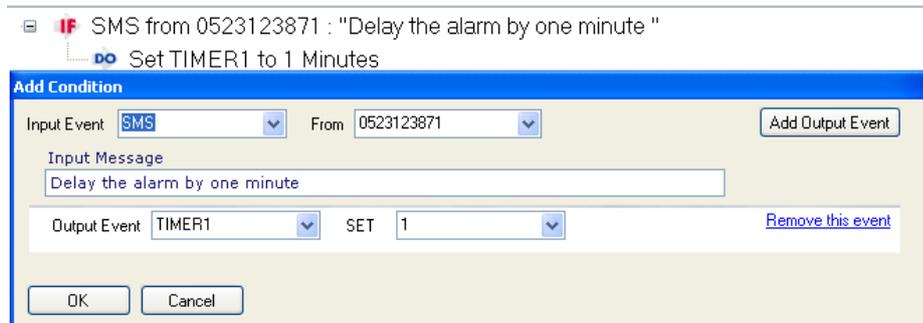
Using the STP Sense's Timer Option

When writing to the **STP Sense**, you are able to send several lines of commands. The **TIMER** option allows the response of the system to be delayed by a designated number of seconds or minutes. In this manner, it is possible to delay the response of the **STP Sense**, so that certain events will occur later, in the event of specific inputs.

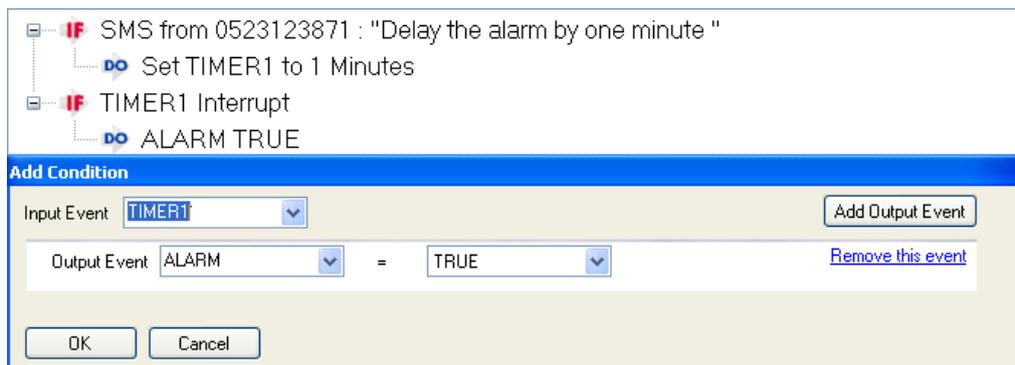
To use the **TIMER** option to delay an alarm from going off for ten minute:

1. In the **Logic Flow Sense** opening screen, click on the **Add Condition** command.
2. Set the **Logic Flow Sense** input event as **SMS**.
(For sake of this example, the alarm will be sounded by your sending the **STP Sense** an SMS.)

3. Set the output event as **TIMER1**, supply the number of minutes of delay you wish to program into the device, and click **OK**.
(As mentioned before, **TIMER1** and **2** allow for delays in units of tens of minutes, whereas **TIMER3** and **4** allow for delays in units of seconds.)



4. Click on the Add Condition command.
5. Set the **Logic Flow Sense** input event as **TIMER1**, and the Output Event as **ALARM**, and click **OK**.
The second line of the command to the **STP Sense** will appear on the screen.



6. Click on **Write Logic to Device**.
Upon your sending the specified SMS to the **STP Sense**, the STP's alarm will go off in one minute (or any amount of delay that you choose for the unit).

Using the STP Sense as a Temperature Sensor

In this example, the **STP Sense** is employed as a temperature monitor and controller, as well as an alarm. The **STP Sense** is programmed to perform three tasks:

Task 1: When a user calls **STP Sense**, the unit will reject the incoming call, and send back the temperature measurement via a formatted SMS text message.

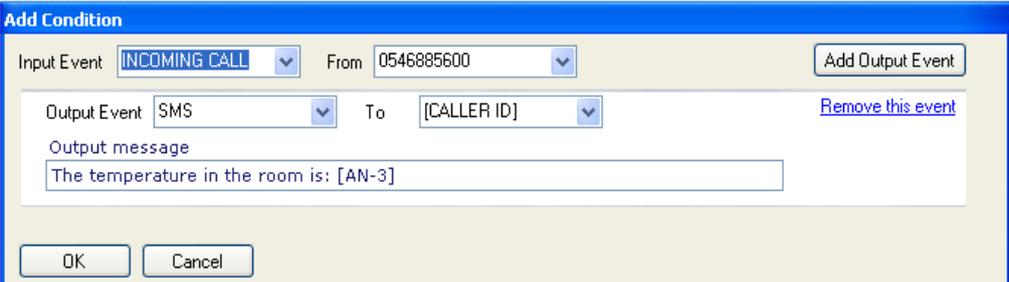
Task 2: When the temperature is higher than a pre-defined value, the **STP Sense** will send a formatted SMS alarm text message, and turn on its internal audible alarm.

Task 3: When the temperature is back to normal, the **STP Sense** will turn off the internal alarm.

To set up STP Sense as a temperature sensor:

For the first task--reporting the temperature in the room in response to an incoming call:

1. In the **Logic Flow Sense** opening screen, click on the **Add Condition** command.
2. Set the **Logic Flow Sense** input event as **Incoming Call**.
3. Supply the number/s of the person/s who can find out the temperature of the unit upon calling the **STP Sense**.
4. Set the output event as **SMS**, and have the message sent to **[CALLER ID]**, so that the caller to the STP Sense be the one to receive the SMS reporting the unit's temperature.
5. In the **Output message** box, supply the text of the SMS message the STP Sense is supposed to give, and select [AN-3] or [AL-3] as the analog value of the temperature that the STP Sense unit will report.



6. Click **OK**.

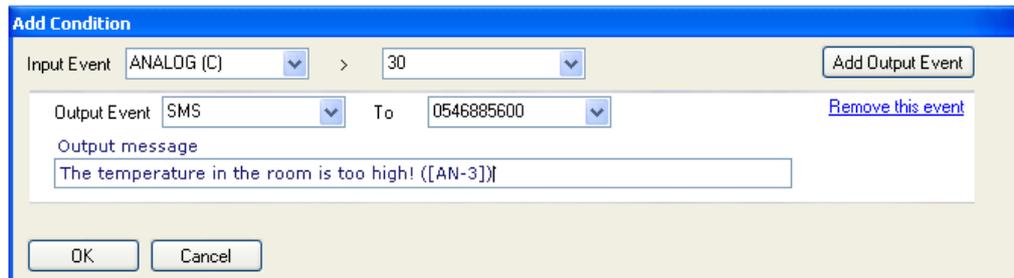
The logic sentence will appear on the **Logic Flow Sense** screen as follows:

- IF** INCOMING CALL From 0546885600
 - Send SMS to [CALLER ID]: "The temperature in the room is: [AN-3]"

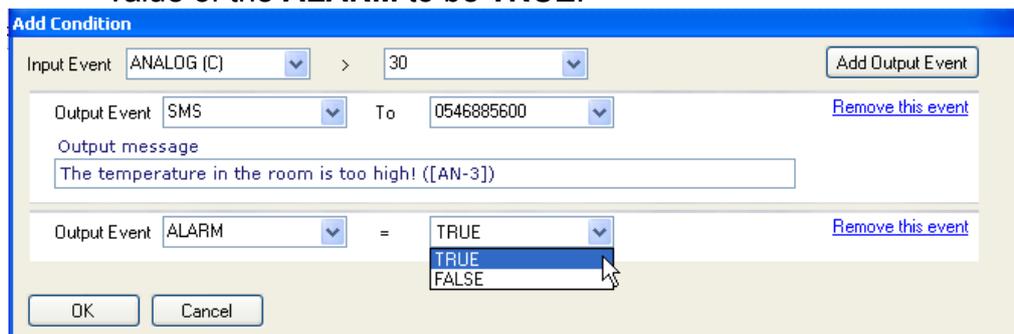
For the second task--reporting with an SMS message when the temperature exceeds a certain value, and turning on the STP Sense's internal alarm:

7. In the **Logic Flow Sense** opening screen, click on the **Add Condition** command.
8. Set the **Logic Flow Sense** input event as **ANALOG (C)**, and type in or select the maximal temperature (in Celsius) of the unit in the list box.
9. Select ">" for the relational sign, so that the SMS will be sent and the alarm sounded upon exceeding the specified temperature.
10. Set the output event as **SMS**, and have the message sent to a selected phone number (or group of numbers).

- In the **Output message** box, supply the text of the SMS message the STP Sense is supposed to give, and select [AN-3] or [AL-3] as the analog value of the temperature that the STP Sense unit will report.



- Click **Add Output Event**.
Another line will appear in the dialog box, allowing you to add another output event.
- Set the second output event as **ALARM**, and set the selected value of the **ALARM** to be **TRUE**.

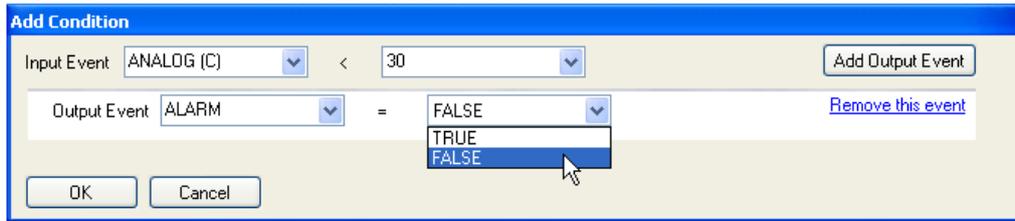


- Click **OK**.
The logic sentence will appear on the **Logic Flow Sense** screen as follows:



For the third task--when the temperature is back to normal, the **STP Sense** will turn off the built-in alarm:

- In the **Logic Flow Sense** opening screen, click on the **Add Condition** command.
- Set the **Logic Flow Sense** input event as **ANALOG (C)**.
- Type in or select the maximal temperature (in Celsius) of the unit in the list box.
- Click on the relational sign, and select "<", so that the alarm will be turned off when the temperature is below the specified temperature.
- Set the output event as **ALARM**, and set the selected value of the **ALARM** to be **FALSE**.



20. Click **OK**.

The logic sentence will appear on the **Logic Flow Sense** screen as follows:



The full set of conditions programmed to the STP Sense will appear as follows:



21. After creating all the logic conditions, click on **Write Logic to Device** in the main toolbar.

The **STP Sense** will now respond by reporting the unit's temperature upon receiving an incoming call, sounding the alarm when exceeding the maximal specified temperature, and turning off the alarm when the temperature of the unit is back to normal.

Using the STP Sense's DISARM Option

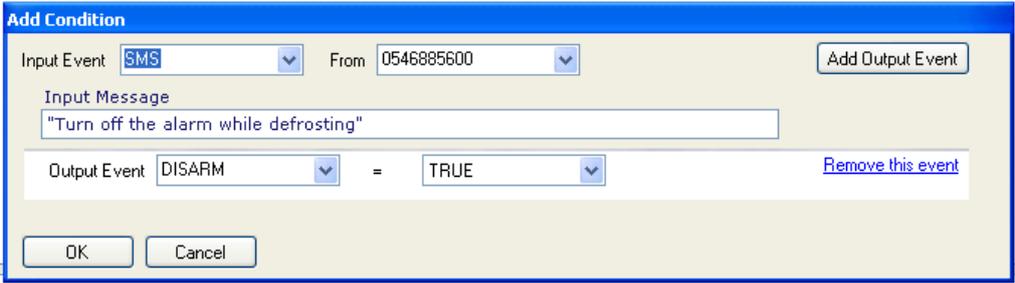
As demonstrated in the previous example, you can use the **STP Sense** to monitor a refrigerator's temperature, and to send an alarm message in the event that the temperature rises above a certain value.

Let's say that you want to defrost the refrigerator for cleaning. The user will have to disable the alarm, to allow the refrigerator to defrost and not inadvertently set off the alarm. The DISARM option allows you to disarm the **STP Sense's** outputs (in this case, to prevent it from alerting you of rising temperature).

To use the DISARM to disable an alarm system:

1. In the **Logic Flow Sense** opening screen, click on the **Add Condition** command.
2. Set the **Logic Flow Sense** input event as **SMS**, and type in the SMS message you wish to send the **STP Sense**.
3. Set the output event as **DISARM**, and select **TRUE** in the "=" box.

IF SMS from 0546885600 : ""Turn off the alarm while defrosting""
DO DISARM TRUE



The **STP Sense** will thus disable the alarm upon receiving your SMS. If you want to enable the alarm by means of an SMS message, simply set the DISARM "=" value to **FALSE**.

4. Click **OK**, and click on **Write Logic to Device**.

How to make a cyclic event using timers

When you want to make a repeated output due to a single event, you can make a cyclic program easily.

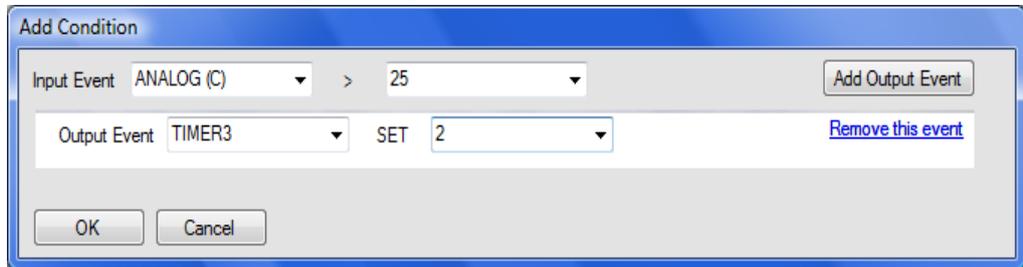
In this example the user wants to send an SMS every two minutes as a trigger to input event

To do so you need to use **TIMER 3** or **TIMER 4** because they are counting in **seconds**. (**TIMER 1 & TIMER 2** counts in 10's of **minutes**).

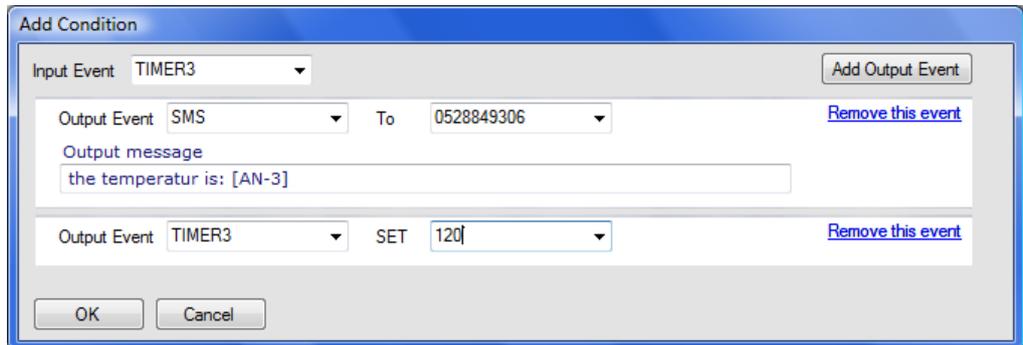
To make a cyclic event you need to make two input events.

1. The first input event will be anything you want from the input event list (except the **TIMER'S**).

2. Lets configure the "**ANALOG(C) >25**" as input event. This means that when a temperature larger than 25 degrees will trigger the procedure.
3. For the output event we'll configure the **TIMER3** to 2 seconds.

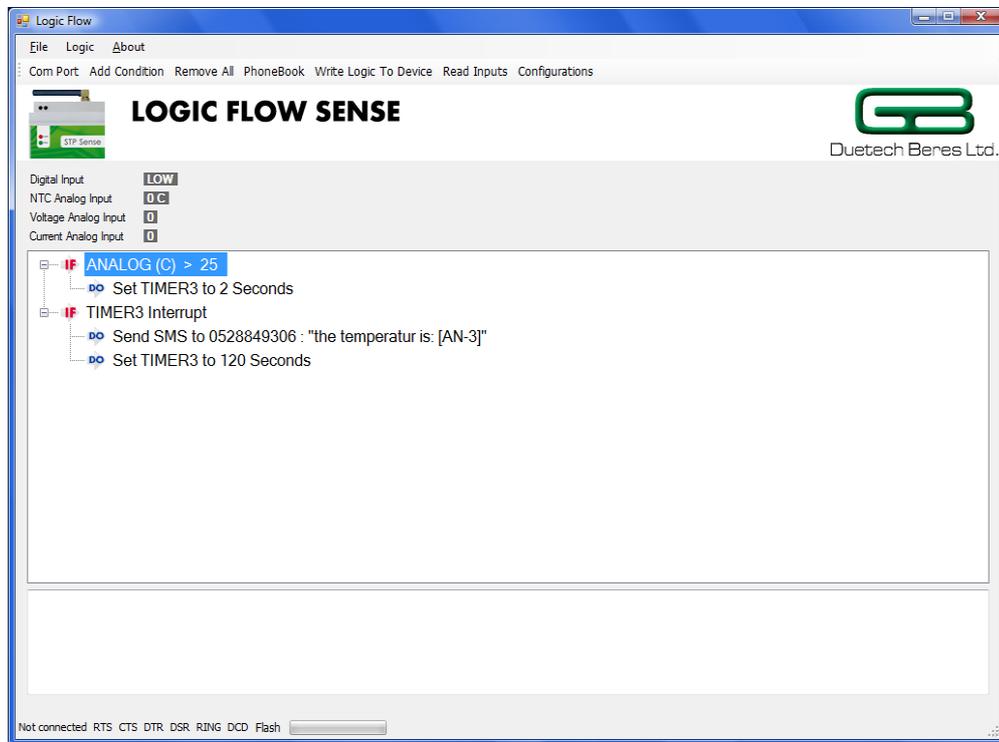


4. Next input event will be the **TIMER3** and the output events will be an SMS or GPRS message or any output event from the list. We'll choose an SMS. In order to make this SMS as a cyclic event to the **STARTUP** input event we'll have to add another output event that will be the **TIMER3**. the number **(0-254)** that you'll put in the timer will be the **time period of the cyclic event**.
5. In order to make a 2 minutes period we'll set the **TIME3** to 120 seconds.



6. After creating all the logic conditions, click on **Write Logic to Device** in the main toolbar.

The full set of conditions programmed to the STP Sense will appear as follows:



Chapter 5: Troubleshooting

Problem No' 1: Strange reading of temperature

The unit with the NTC sensor shows strange readings at room temperature
For example: at room temperature of 24 degrees Celsius, the unit shows 46 degrees Celsius.

Solution suggestions

- Check if the unit has the latest version of software.
- Check if the logic flow is updated to the right version.
- Check if the resistance of the sensor at room temp of 25 degrees Celsius is $10K K\Omega \pm 1\%$
- Check the Offset and make sure if its on 0 or other desired value.
- Check if the supplied voltage from the power supply is 3.6V dc

Problem No' 2: Displayed temp decreases while measurement temp increases or vice versa

While measuring high temperature, the displayed temperature is showing low temperature, or vice versa.

Solution suggestions

- Check if you installed the right sensor to the right unit type. The most common case is when a pt-100 sensor is connected to a STPS (NTC) unit or the opposite case.
- Check if the temperature sensor you have is as recommended (see p.23)

Problem No' 3: Unable to read or write data from the configuration menu

Solution suggestions

- In case that the unit is not new (have been used before) press the reset button and right away click on the read or write configuration to device. There is a five seconds window timer that lets you read or write to the device before it starts to configure itself. If you missed the five seconds window you could do the reading or writing after the unit finished restarting.
- Check if the reading or writing request is not preformed during SMS sending or call making.
- Check if the connection from the unit to the computer is ok and every thing is connected flawlessly.

Problem No' 4: Can't send/receive calls, SMS, GPRS

When you have a trigger response that needs to send an sms or make a call , or send a GPRS message and you aren't receiving it. There can be some problems making this situation.

Solution suggestions

General suggestions

- Check if the antenna is connected properly.
- Check if the sim card is placed in the sim card holder properly.
- Checks if the destination phone is able to receive sms's or open to incoming calls.
- Check the green led and see if the light is on constantly. If so see problem No'5.

SMS suggestions

- If you see that an SMS is sent (the red led is flashing and the program wrote that SMS has been sent) and you didn't receive it immediately, wait for a couple of minutes, maybe the mobile phone network is busy, and it takes time.
- Check in the SMS output event the phone number, see if it matches the desired number

Call suggestions

- Check if the phone number you entered is correct.

GPRS suggestions

- Check if the IP and address is correct and the target destination is open to that port.
- Check if the APN, user name and password at the configuration window is correct and suitable for the sim card.

Problem No' 5: green led is constantly on

After the startup of the unit, the green led is constantly on, instead of blinking.

Solution suggestions

- Check the connection of the antenna.
- If your SIM card is protected with a pin code, you need to enter the code in the configuration window and write it to the device.
- Check the APN in the configuration window, see if it matches your SIM card.

Problem No' 6: Led's not working

Solution suggestions

- Check the polarity power to the unit.
- After startup you hear 4 beeps and you see no lights on. Than the led's are burned out.
- In case the unit is on battery, check the volts. Maybe the battery is empty.

Chapter 6: For Further Information

For more information about our products, recommendations for accessories, components, online documentation and updates, please visit our website:

www.duetech.gberes.com

Revision History:

Date	Rev	Author
16/04/09	Initial Draft	Yehudah Posnick
10/05/09	1.0	Yossi Grimberg
13/07/09	2.0	Yehudah Posnick
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