

The RLite User Manual



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Introduction

Thank you for purchasing Remmon RLite GSM/GPRS RTU system. Please read this guide carefully to ensure proper installation.

Remmon is committed for providing the best cellular interactive monitoring solutions for your business. If you need further assistance, please contact Remmon Remote Monitoring at remmon@remmon.com or visit our web site at www.remmon.com. For all contact information, see page 26.

R-LITE Technical Specifications

Table 1: Specifications for R-LITE

Specifications	
Cellular Networks	GSM.
Cellular Modem	TELIT
Dimensions	9.0 cm (L) x 6.5 cm (w) x 2.6 cm (h)
Power Requirements	12 VDC
IO Cards	2 digital inputs 1 1.0A/30VDC relay output
Serial Connector	RS232
Environmental Requirements	
Temperature	-25° - 55°C
Humidity	5% - 95%

RLite LED

RLite contains two LEDs on the front panel. Table describes the PWR LED indications.

Table 2: PWR LED Indications

Description	State
Fast blinking, then 20 second Off	Initialization after reset
Periodical Blinking: 2 seconds On, ½ second Off	Empty database – No project in RLite unit
Periodical Blinking: ½ second On, 2 seconds Off	Operational state
Periodical Blinking: 1 second On, 1 second Off and 5 fast blinks	Connection state with PC
Fast blinking	Sending SMS
Periodical Blinking: 1 second On and 10 fast blinks.	Pipe/Gateway state – Transferring data from PLC device to PC with cellular modem and vice versa.

Hardware Installation

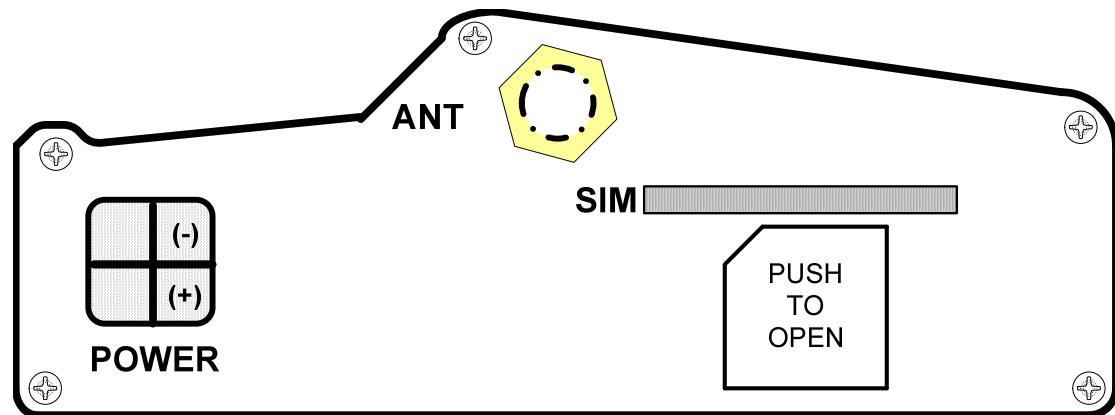


Figure 1: Back Panel Interface

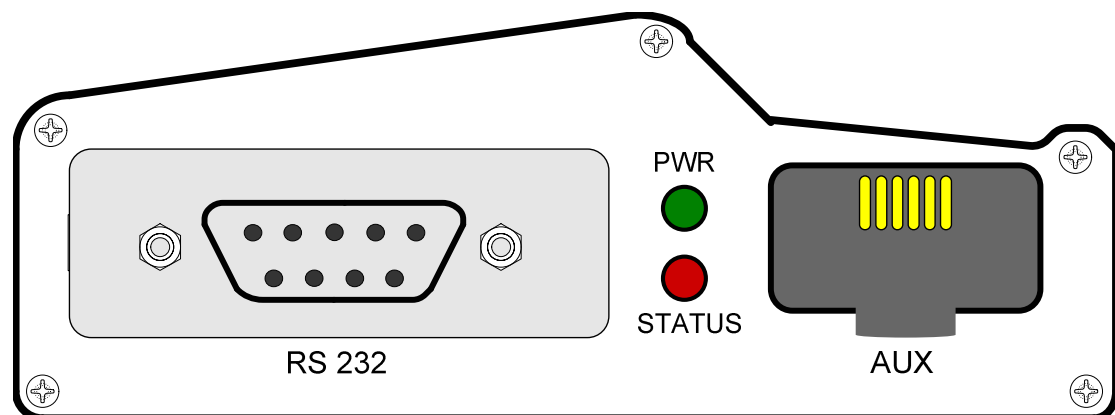


Figure 2: Front Panel Interface

SIM Card

To send and receive an SMS, you need a valid SIM card.

Insert the SIM card into the SIM slot on the back panel, as shown in Figure 1.

Antenna

Plug in the GSM antenna by connecting the MMCX plug into the ANT socket.

Power Supply Cable

Plug in the power plug into the power socket, as shown in Figure 1.

RS232 Serial Cable

The RS232 cable can either be used for connecting the RLite to a PC or to a PLC. Using this cable you can program the RLite via your PC or you can read data from your PLC.

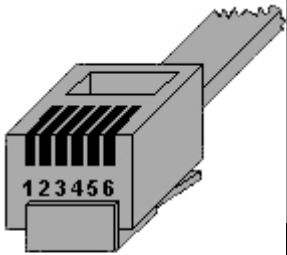
To program the RLite via a PC, plug the RS232 cable into the RLite RS232 socket and connect the other side of the cable (DB9 female connector) to your PC serial RS232 port.

To connect the RLite to a PLC, plug the RS232 cable into the RS232 socket, connect the other side of the cable to the RS232 female to male DB9 adapter, connect the other side of the adapter to the PLC.

RJ12 Modular Cable


Plug the RJ12 modular cable into the RLite RJ12 socket. Connect your application according to the following table.

Table 3: RJ12 Pinout Information

Socket	Pin	Function	Description
 <p>RJ12 (6P6C)</p>	1	GND	Ground(-)
	2	Din 2	Digital input 2
	3	OUT a	Relay's connector pole A
	4	OUT b	Relay's connector pole B
	5	Din 1	Digital input 1
	6	NA	Not Available

Inputs Application

The RLite comes with two Digital Inputs (Din1 and Din2) providing Dry Contact Interface DCI. Both inputs (Din1 and Din2) share the same common GND(-) contact. Each of these Dins (Digital Inputs) can be found in two states, Active ('1') or Inactive ('0'). Digital input is to be found in Active state if there is a contact between the GND(-) wire (pin number 6 in the RJ12 connector) and the digital input wire.

 Note: In the conditions statements, **High** and **Low** correspond to Active and Inactive states.

Relay output

The RLite comes with one relay output. Relay output can be activated or deactivated either by setting a predefined condition or by sending an SMS message from a recognized mobile phone. Relay output is to be found in active state if OUT a (pin 3) and b (pin 4) are connected.

The Application Software


Project

An RLite project (or simply a project) is a computer file with an “rlt” extension. The RLite application software can either create a new project or open an existing one. A project is the RLite basic working environment. It is a platform, where you can edit your settings and download them to the RLite. When the project is set it can be downloaded to the RLite, thus configuring the RLite behavior.

Creating a New Project:

To create a new project:

1. Click on **File>New**

or click on the New project button 

The **New project** dialog box appears.

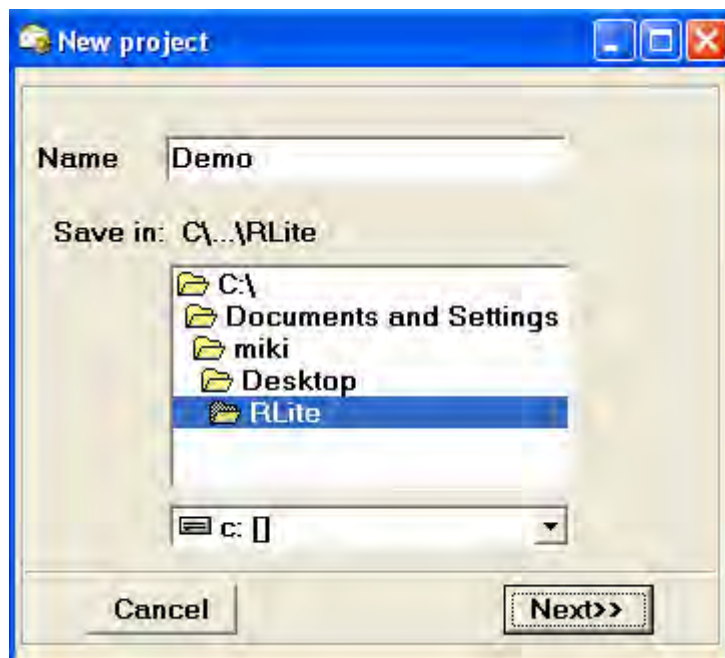


Figure 3: New Project

2. In the name textbox, type in a name for your project, choose a directory path and click on **Next**.

The **Unit Definition** dialog box appears.

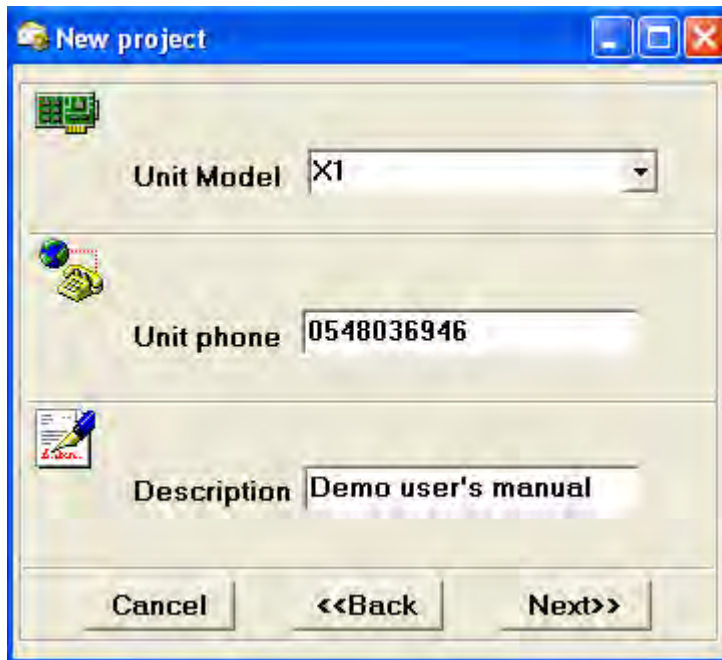


Figure 4: Unit Definition dialog-box

3. Fill in the fields as described in the following table.

Table 4: Unit Definition Descriptions

Field	Description
Unit Model	Click on the down-drop-list to select your RLite model.
Unit phone	Insert the unit phone number as ascribed to the SIM card in use. <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Note: To configure the RLite unit via cellular modem, you must provide a valid phone number.</p> </div>
Description	Free text, describing your project.

4. Click on **Next**

The **PLC and Communication Protocols** dialog box appears.

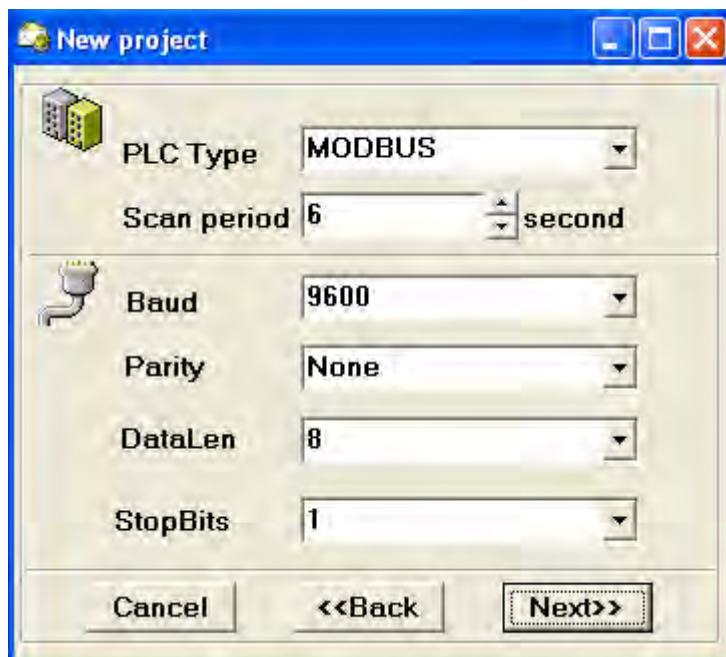


Figure 5: PLC and Communication Protocol dialog box

5. Fill in the fields, as described in the following table.

Table 5: PLC and Protocol Field Descriptions


Field	Description
PLC Type	Select PLC protocol
Scan period	Select the period of time between the PLC's data scans by the RLite unit
Baud	Select baud rate for communication protocol with the PLC
Parity	Select Parity bit for communication protocol with the PLC
DataLen	Select Data length(Bits) for communication protocol with the PLC
StopBits	Select Stop Bit for communication protocol with the PLC

6. Click on **Next**.

A confirmation window, summing all the project configuration settings, appears.

7. Review your settings
8. Click on **Finish**.

Opening a Project:

1. Click on **File>Open**
or click on the Open project button 

The **Open project** dialog-box appears.

2. Browse to the project directory, select your project and click on **Open**.



Note: To reopen a project, go to the menu bar and click on **File>"project name"**.

Viewing a Project's Properties:

To view your project properties:

1. On the menu bar, click on **Project>Properties**.
2. Click on **Next >Finish**.

New User(s)

Users are the cellular phone subscribers who can control and receive messages from the RLite unit. To open the **Users** sheet page, click on the **Users** tab, on the vertical toolbar on the right of the screen.

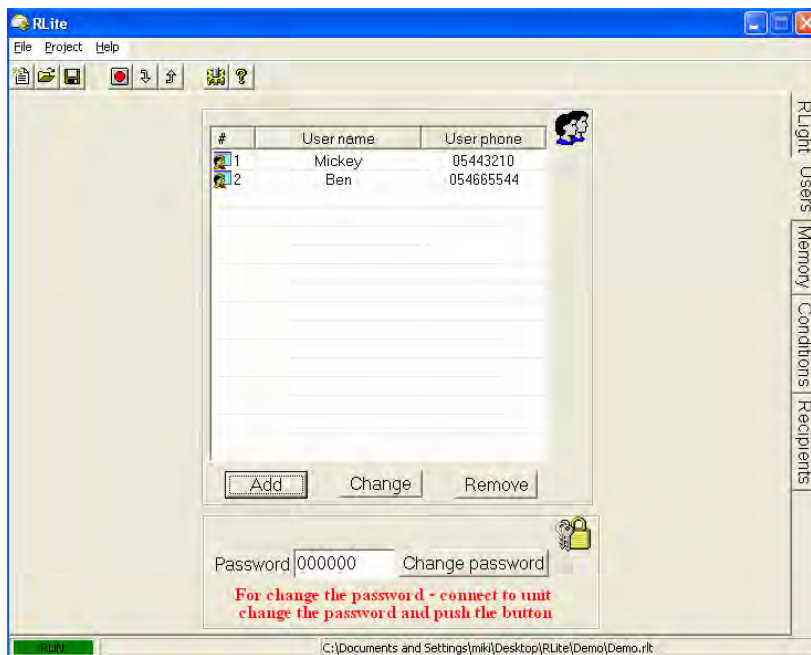


Figure 6: Users sheet page


Adding a New User:

1. To add new user click on the **Add** button.
The **Add user** dialog-box appears
2. Use the table below to set definitions for the new user.

Table 6: User Descriptions

Field	Description
User name	The name of the user
User Phone	The phone number of the cellular phone to which messages are sent

3. Click **OK**.

 **Note:** You can add up to 16 users

Changing/Deleting a User:

You can either delete a user or change its properties.

- ◆ **Deleting:** Go to the **Users sheet** page, select the relevant user and click on **Remove**.

- ◆ **Changing:** Go to the **Users sheet** page, click on **Change**. In the **Modify user** dialog box, change the user name or phone.

Working with Memory Fields (Tags)

On the **Memory** page you can define I/Os, tags and other general purpose Bits which can be used as conditions within the RLite or with other controllers.

To open the **Memory** page, click on the **Memory** tab, on the vertical toolbar at the right of the screen.

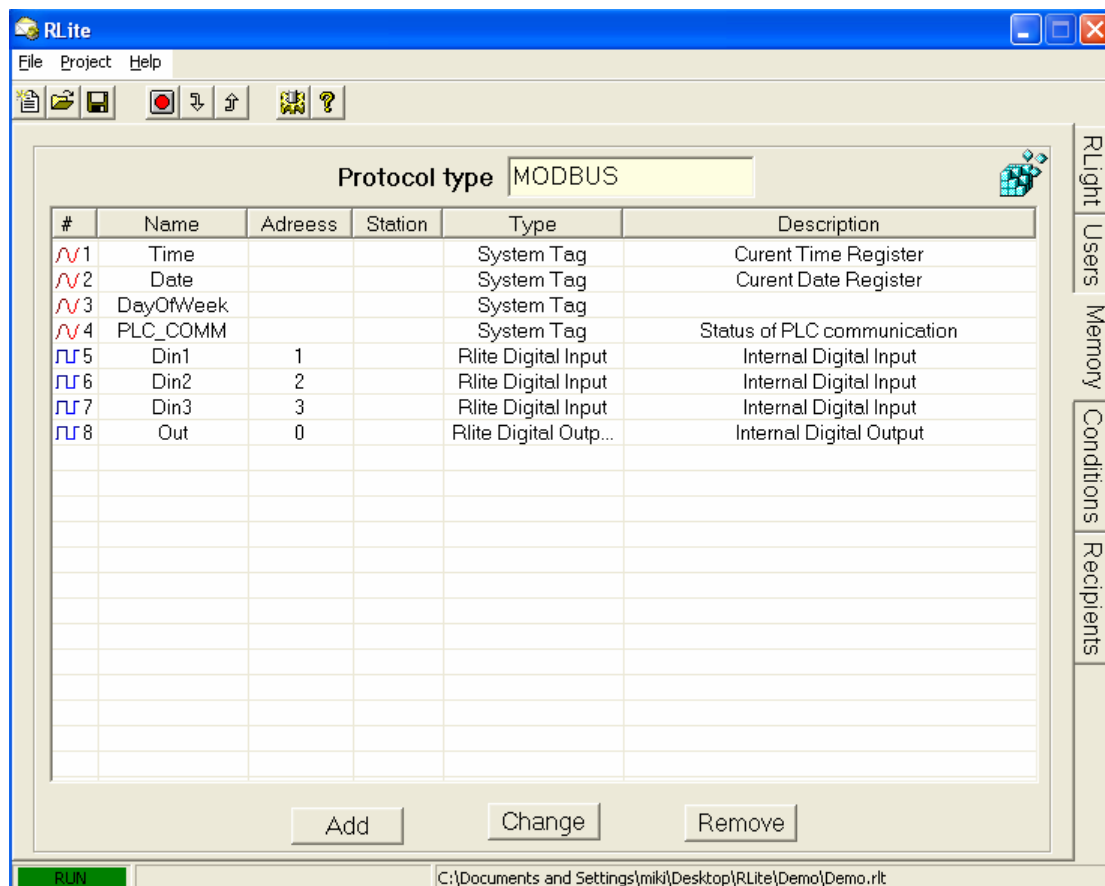


Figure 7: Tags List


Default Tags:

The Memory tab contains default tag names, assigning tags to the RLite specifications, as described in the table below for model X1.

Table 7: Default Tags

Tag	Description
Din1	RLite's digital input
Din2	RLite's digital input

Din3	NA
Out	RLite's Relay output
Time	RLite's time register
Date	RLite's date register
DayOfWeek	RLite's day of the week register
PLC_COMM	Communication regularity status: '0' for communication in order. '1' for communication abnormal

 **Note:** Make sure that your PC time and date clock is correct. When downloading, the RLite clock automatically synchronized with your computer time and date clock.


Adding a New Tag:

1. Click on the **Add** button.
The **Add tag** dialog-box appears.
2. Use the table below to complete the dialog-box.

Table 8: Tag Descriptions

Field	Description
Name	Tag's name which will be used for SMS feedback and reports
Address	Tag's address in the PLC
Station	PLC's Number
Type	Tag's type derived from protocol's properties
Description	General tag's description

3. Click **OK** for adding this tag to the memory map. The new tag appears in the memory map list.

 **Note:** You can add up to 100 tags.

Changing/Removing a Tag:

1. Select the relevant Tag from the memory list.
2. Click **Change** or **Remove** button.



Note: You cannot change or remove a system's default tags.



After you define, add or remove new tag, download the updated project information to the RLite unit (refer to Downloading or uploading a project)

Working with Conditions

Setting conditions allows you to configure the behavior of your RLite on a given event. It is a logical mechanism through which you can specify events that will trigger sending an SMS. You also specify the recipient of the SMS, if output relay is going to be opened/closed, and more.

To set a new condition, as well as modify an existing one click on the **Conditions** tab, on the vertical toolbar on the right of the screen. The **Condition** sheet page will appear.

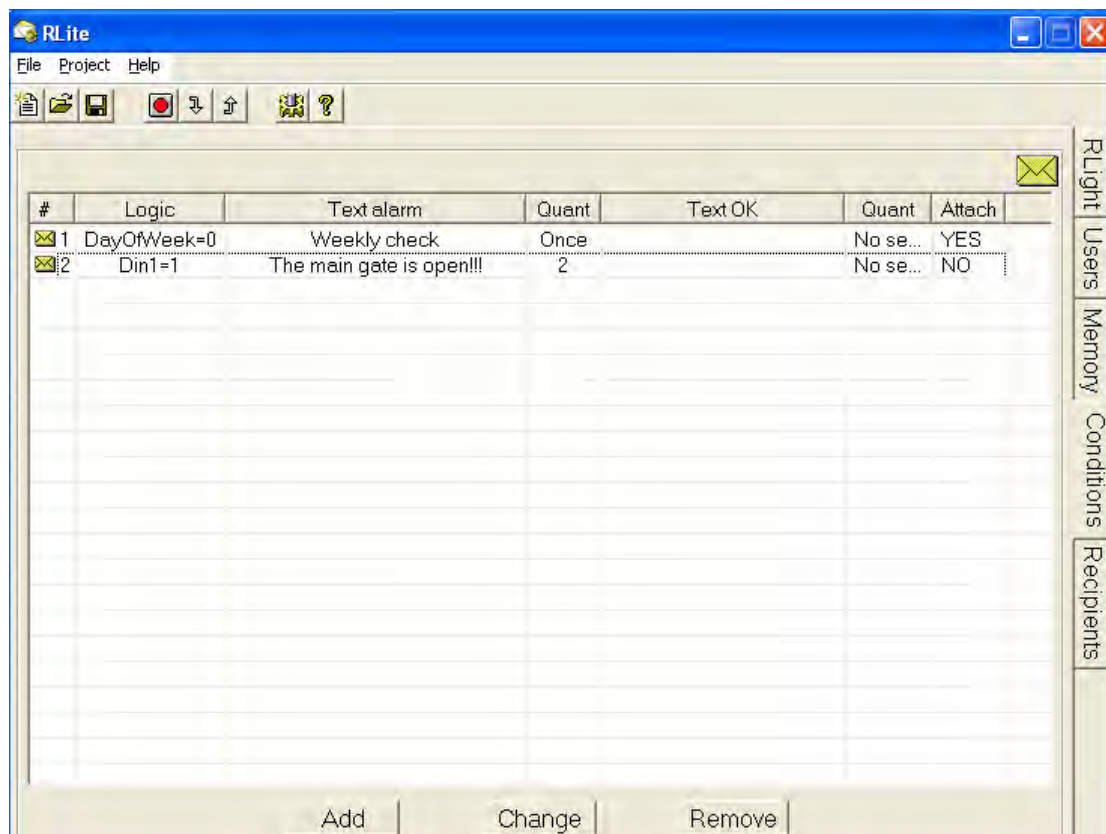


Figure 8: The Condition sheet page

Adding a New Condition:

1. Click on the **Add** button

the **Add condition** dialog box appears.

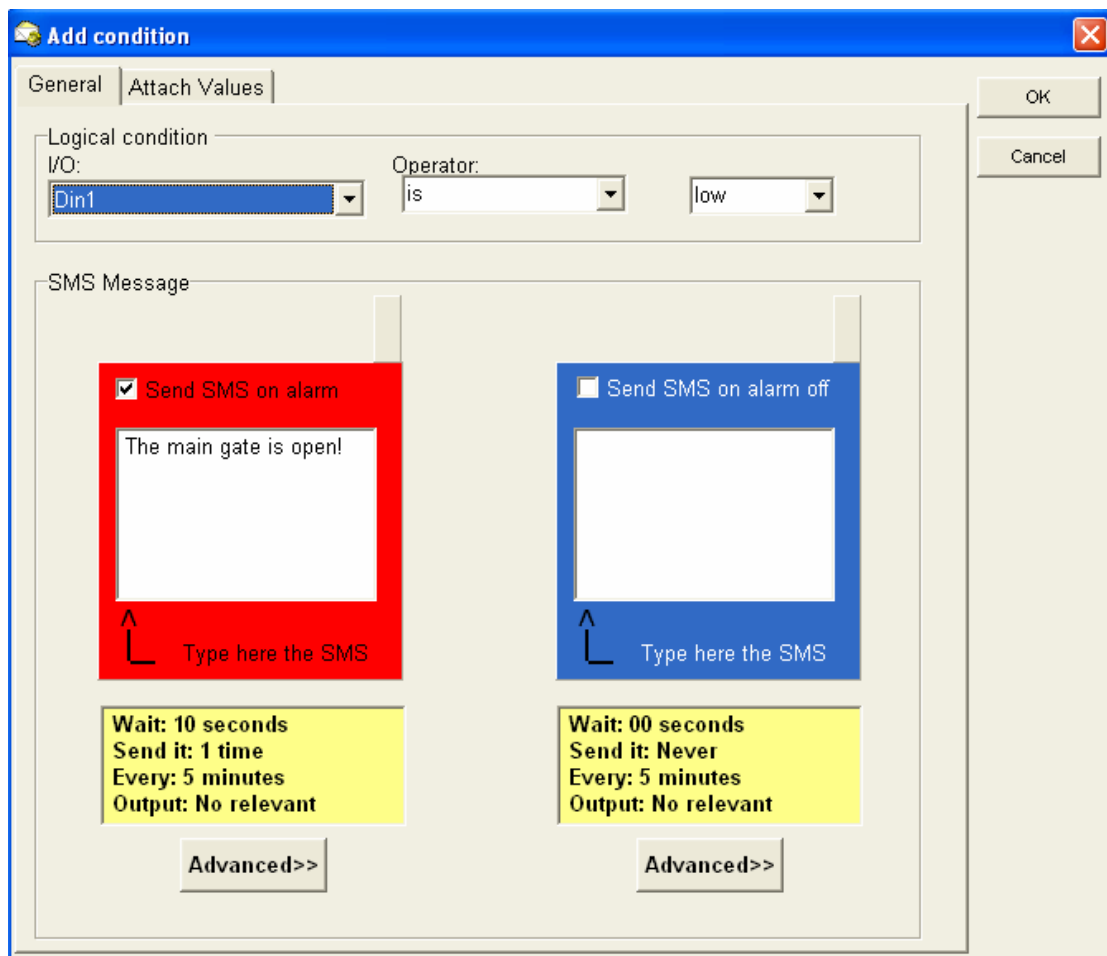


Figure 9: Condition Definition

2. Use the table below to set your condition.

Table 9: Conditions

Field	Description
Logical condition	The logical expression, which determines when a warning is sent to the specified users. The expression consists of a Tag, operator, and a specific value (its type depends on the selected I/O type).
I/O	The I/O on which the condition is based. Note: The I/O drop down list contains some other items you may use as condition's base (i.e.-time).
Operator	The operator of the logical expression. Possible values: = Equal to

	<p>the specific value.</p> <p>> Greater than the specific value.</p> <p>< Less than the specific value.</p> <p><> Not equal to the specific value.</p>
Value	Select the value in the logical expression, its type and selection form depends on the selected I/O type
Send SMS on alarm On	Select <i>SMS on alarm on</i> for sending SMS in case of event/condition occurrence
Send SMS on alarm Off	Select <i>SMS on alarm off</i> for sending SMS in case of event's status inversion.
SMS text	Type text that is sent to the specified users cellular phones.

3. For advanced properties click on the **Advanced** button.

The **Advanced** properties dialog-box appears.

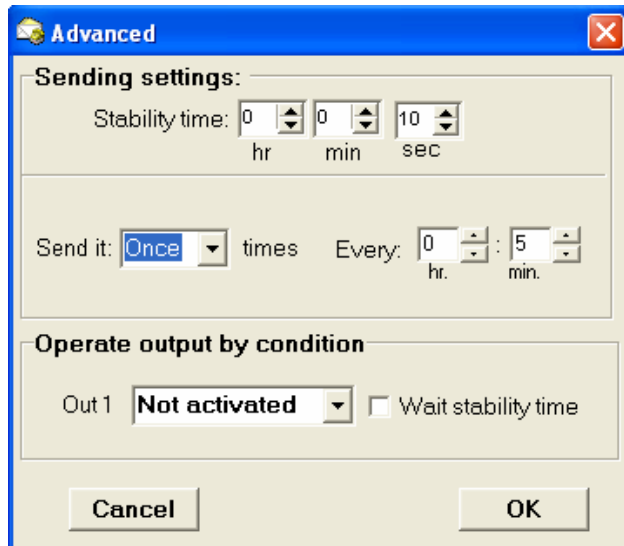


Figure 3: The Advanced dialog-box

4. Use the table below to complete the **Advanced** dialog-box.

Table 10: Advanced Properties

Field	Description
Stability time	The amount of time during which the condition's logical expression must be 'true' before an SMS is sent.
Send it: xx times	The number of times the message will be sent to each recipient.
Every :xx:xx	The time passed between sending the messages.
Out 1	Relay output activation by condition: Open for open relay contact. Close for relay contact.
Wait stability time	Mark this option in order to wait stability time.

Attaching Values:

To select any additional value(s) to be sent to your cellular phone with the text for this condition:

1. Click on the **Attach Values** tab

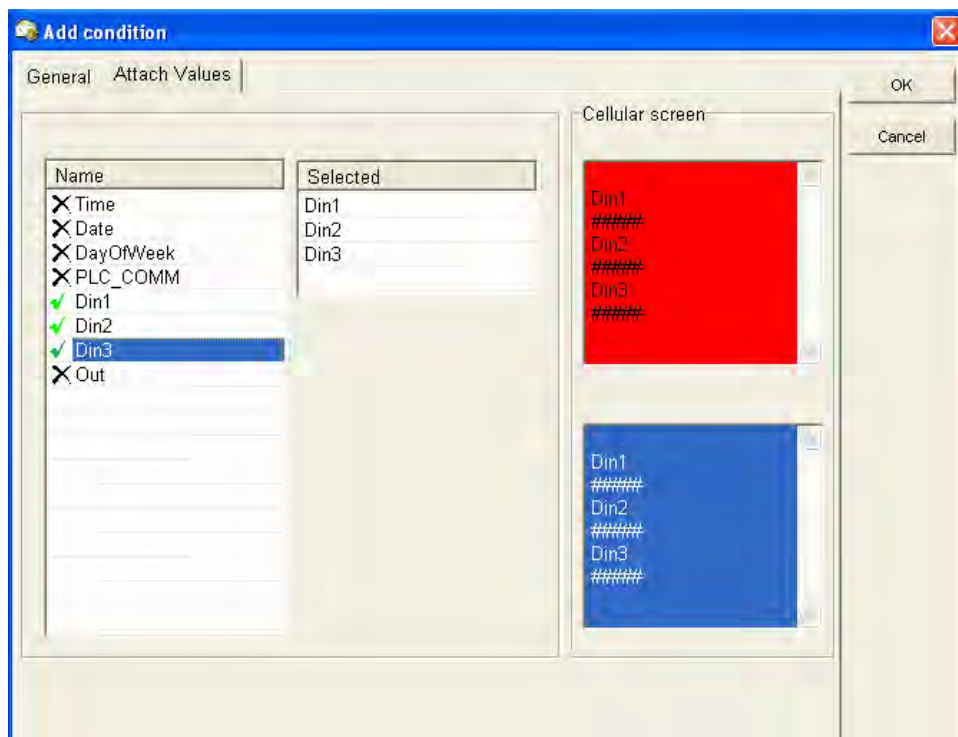


Figure 11: SMS Report

2. Click the value **Name**. A mark will appear next to the value, and the value will also appear in the **Selected** list.

The **Cellular screen** window simulates how the condition message with its values will be displayed on your cellular phone. (The ### marks the parameters value digits).

3. Click on **OK**.

The new condition appears in the Conditions List.



Note: After defining a condition, you must associate users as recipients for the condition (refer to *Associate users as conditions*).



Note: After you defining conditions, download the updated project information to the RLITE.

Changing/Removing a Condition:

If you no longer want RLite to send warnings for a particular condition, you can delete the condition from the project.

1. Select the relevant condition from the Conditions list.
2. Click on **Change** or **Delete** button.



Note: After you changing or deleting any condition, you must download the updated project information to the RLite (refer to **Downloading Data to an RLite**).

Associating Users as Condition's Recipients

Recipients are the selected users that receive the conditions' SMS. Each condition may have its own selected recipients.

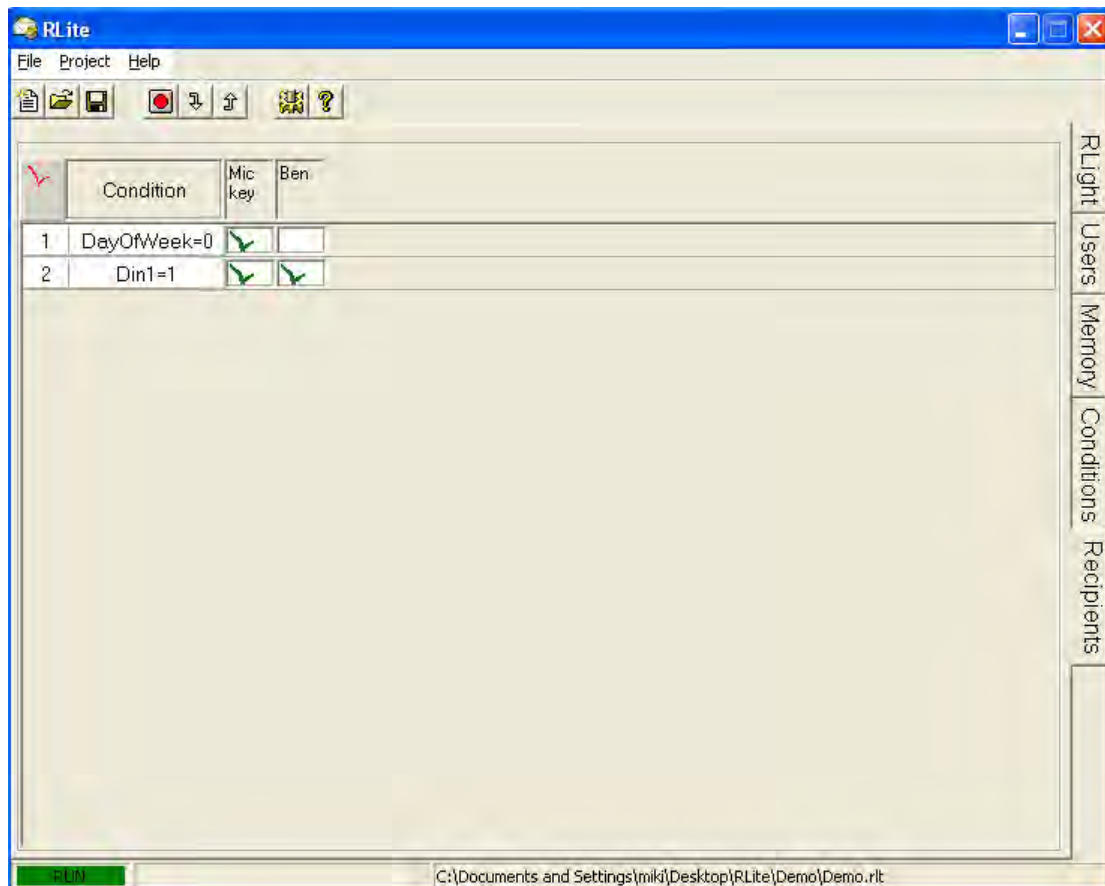



Figure 12: Recipients Screen

Selecting Condition's Recipients:

To reach the Recipient's screen,

1. Click on the Recipient's tab on the vertical toolbar.
2. Click the check box under the recipient's name which corresponds to the specific condition (Click again to uncheck it)

 **Note:** After you select a condition's recipients, download the updated project information to the relevant RLite (refer to **Downloading Data to an RLite**).

Downloading/Uploading

Connecting with the RLite

To upload or download a project, you must define your connection with the unit via the serial port of your PC or via a cellular modem.

 Note: Ensure that the RLite's hardware is properly connected

Defining a Connection:

1. Click on **Project > Connection**
or click on the Setting button 

A Communication settings window will pop up



Figure 13: PC Communication settings

2. Select a communication method.

If the communication is via serial port:

- Select **Via serial** option
- Select the correct serial port from the drop-down box
- Select your port settings
- Click on **OK**


If the communication is via modem:


- Select **Via Modem** option
- Select Modem from the drop-down box

- Click on **OK**

Remote Download:

To support communication between RLite software and the RLite unit, a cellular modem needs to be connected to the PC that is running RLite software.

 **Note:** Ensure that both the RLITE's SIM and the PC's modem's SIM cards support CSD communication.

 **Note:** If the RLITE's SIM and the PC's modem's SIM are from different cellular service providers, use the DATA-IN number (the phone number for using the CSD) as the RLITE number in the RLITEs list on the **Project Main** screen.

Your cellular service provider should enable the SIM cards for CSD, and inform you of their DATA-IN number.

Setting up the Cellular Modem:


Before installing the cellular modem in your PC, insert the SIM card into the modem so that the modem can transmit and receive data via the cellular network. For instructions regarding installation of the SIM card, refer to the modem's documentation. The modem is connected to the PC with a 9 pin D-shell cable.


To connect the modem to the PC:

1. Connect the female end of the 9 pin D-shell cable to the PC that is running RLITE SOFTWARE
2. Connect the male end of the cable to the cellular modem.

Establishing a Connection with RLite Unit:

1. Click on the **Users** tab on the vertical toolbar to open the Users List screen.
2. Enter your password.

 **Note:** For the initial connection to the RLite unit, enter the **default password: 000000 (six zeros)**

3. Click on the **Connect** button 
4. Wait a few seconds. A green RUN indicator on the bottom left- of the screen will confirm your connection.




Note: After establishing connection, you can change the password by typing a new six letter password and clicking on the **Change password** button

Downloading a Project:

After designing a project you must download the project to the RLite unit.



Note: Before downloading a project, make sure you have established a connection with the RLite unit.

1. Click on the **Download** button 
2. Wait a few seconds till the download process is completed.




Note: After making changes to the project, it must be downloaded to the RLite unit to become valid.

Uploading a Project:



Warning: Uploading data from the RLite unit to an open project will erase all previous data on that project!!!

In order to upload a project from the RLite unit you must open a project.

1. Click on **New project** or open an existing one.
2. Click on **Upload** button 
3. Wait a few seconds till the upload process is completed.

Using the RLite

After a successful download you can put the RLite into work. Only users, which had been defined in the RLite configuration settings, can communicate with the RLite. A typical RLite user can either get warning SMS messages from the RLite or send inquiry/directive SMS messages to the RLite.

Inquiries

With the RLite in the field, you can check for the current value of each of its Tags. Each user, defined in the RLite configuration, can send an inquiry SMS message with the following format:

?<Tag's name>,



Note: You may concatenate in one SMS, more than one request in the following format.
? <tag name-1>,<tag name-2>,

Examples:

To get the current time of the RLite, send an SMS message to the RLite SIM card number with the following text:

?time,

To get the time and date of the RLite, send an SMS message with the following text:

?time,date,

To get the current value of digital input 1, send an SMS message with the following format:

?<the name of digital input 1>,



The default name for digital input 1 Tag is Din1; during RLite configuration one may rename some or all of the Tags. If the default name of digital input 1 hasn't been renamed, then a user may get its current value by sending an SMS message with the following text:

?Din1,

Directives

With the RLite in the field, you can change or reset each of its Tags. Each user, defined in the RLite configuration settings, can send a directive SMS message with the following format:

!<tag's name>=<value>,

-  **Note:** After RLite sets the new value, a notification message is sent to your cellular phone.
-  **Note:** You may concatenate in one SMS, more than one set command in the following format.
!<Text-1>=<value-1>,<Text-2>=<value-2>,

Examples:

To set the RLite time to a specific hour, a user can send an SMS message to the RLite SIM card number with the following format:

!time=HH:MM,

To set the time to 16:30 the user should send SMS message to the RLite Sim card number containing the following text:

!time=16:30

To set the RLite date to a specific date, a user can send an SMS message to the RLite SIM card number with the following format:

!date=dd.mm.yy,

To set the date to August 11 2007 one should write

!date=11.08.07,

If it is now August 11 2007 and the time is 16:30, then one can set the time and date by sending the following SMS text:

!Time=16:30,date=11.08.07,

To turn on the output relay, send an SMS message with the following format:

!<the name of the relay output>=1,

The default name for the output relay Tag is Out; during RLite configuration one may want to rename some or all of the Tags. If the default name of the relay output hasn't been changed, then one may turn it on by sending the following SMS text:

!Out=1,

Alternatively, to turn off the relay output send the following SMS text:

!Out=0,