

WT-9001 IP65

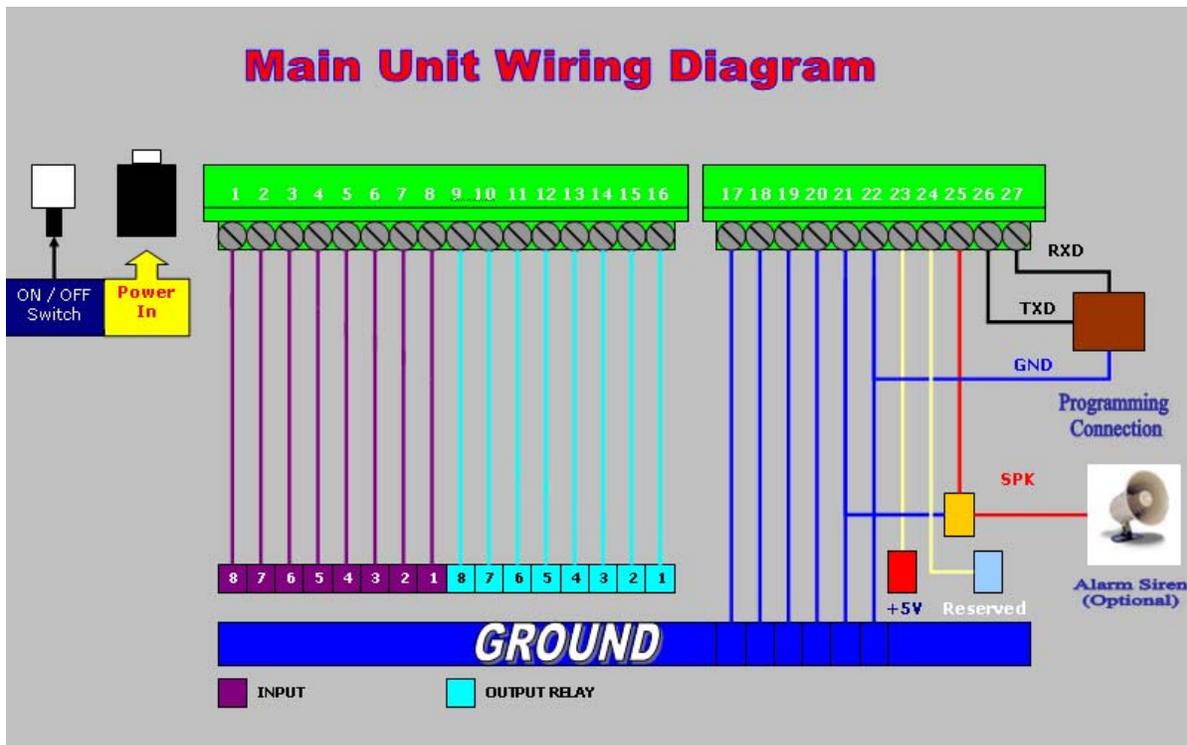
GSM Remote Control And Alarm System

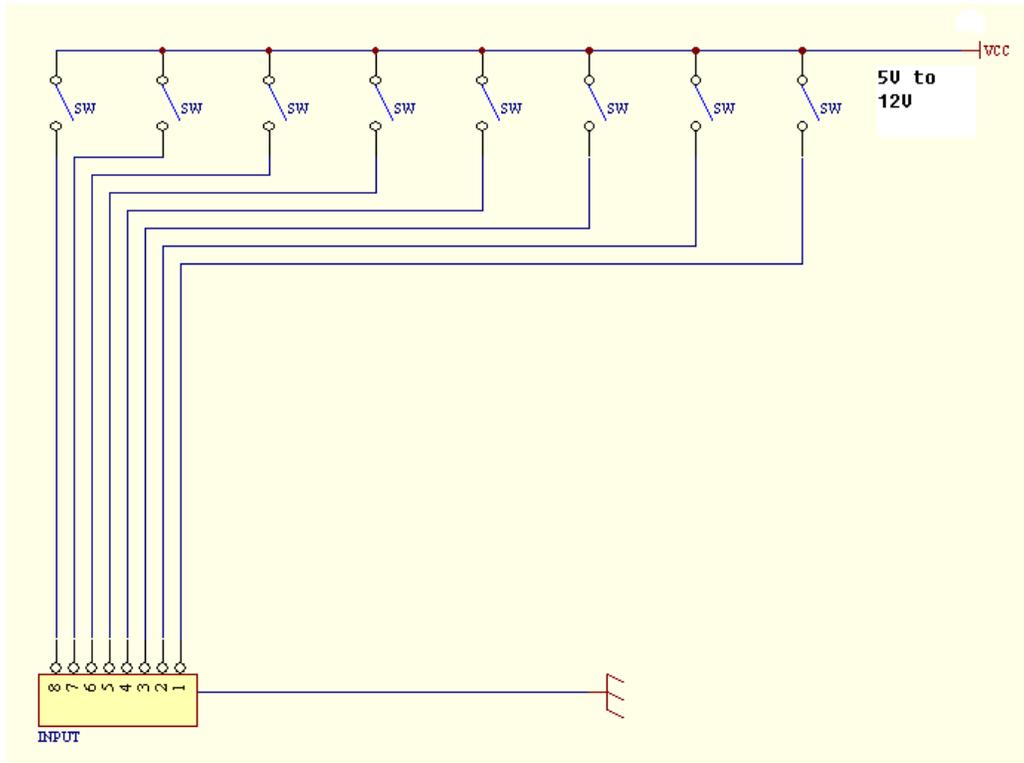
User Manual & Setting Instructions



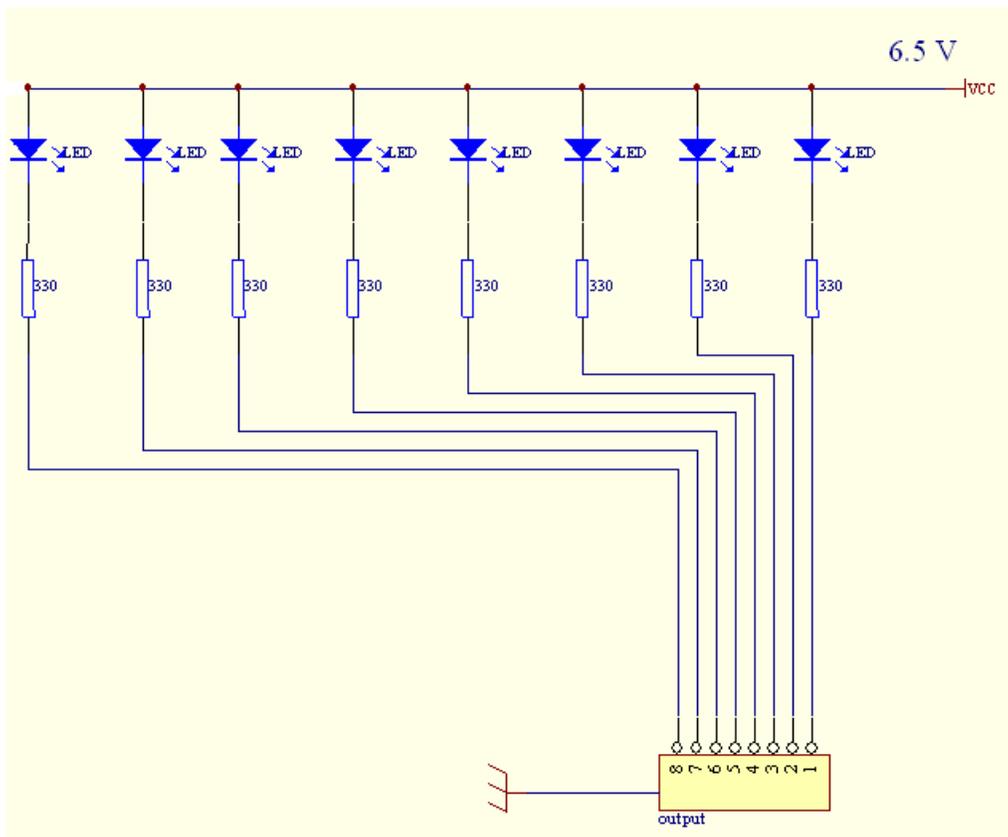


WIRING DIAGRAM DESCRIPTION





Example of Trigger Input Connections



Example of Controlling Output Connections

1. INTRODUCTION

WITURA **WT-9001 IP65** GSM Remote Control and Alarm System allow you to use your mobile phone to monitor and control your business from any location. Its alarm facilities provide a flexible way to distribute critical alarm information to any number of mobile phone users.

More versatile than a pager system. **WT-9001 IP65** provides detailed alarm messages, secure alarm acceptance, full alarm reporting and even remote process control. This allows user to rectify problems directly via their mobile phone within minutes of the alarm occurring.

The **WT-9001 IP65** can monitor 8 digital inputs. A SMS alarm message can be sent when inputs exceed preset limits. The user can also interrogate the inputs through SMS messaging. The **WT-9001 IP65** also has 8 relay outputs which can be activated via SMS and used to switch lamps, pumps, heaters etc. The **WT-9001 IP65** is complete with an LCD display, back up battery and built-in Quad-Band Modem.

2. FEATURES

- More flexible than pager based systems
- Low set up and running costs
- Faster response to alarms and process disturbances
- Allows reduced manning levels
- Increased freedom of movements for users
- Reduces wasted traveling time responding to alarm events
- Provides more detailed information
- Easier monitoring of remote process
- Allows full remote control

3. CHARACTERISTIC

WT-9001 is a versatile SMS alert device suited for most monitoring needs. It is simple to use yet is packed with powerful functionalities to meet a wide ranging industrial and commercial and residential applications

3.1 Standalone Operation

Housed in the weather and desk proof IP 65 enclosure complete with internal industrial modem, monitoring controller and flexible operating firmware. It is very easy to setup, install and use.

3.2 8 Digital Inputs

Most equipment today does provide some form of alerting signal to interface to monitoring devices from reporting of various malfunction or abnormalities. There are various kinds of signal that the equipment can send out, most common of which are opening or closure of one or more switch relay contact. UPS usually provide signals such as incoming power fail, battery mode, battery level low, and switchover failure. An air conditioner system may provide signals such as system on/ off, compressor over temperature, low gas pressure, etc.

Equipments to be monitored are connected to WT-9001 using these alarm signaling contacts. WT-9001 keeps a constant watch over all the contacts. Whenever any contact input changes status (either from a close to open or from an open state to close state) it is captured by WT-9001. It will then process the input according to the configuration provided by the user. The correct SMS messages will be sent to 8 mobile phone users.

WT-9001 is so fast in capturing the change of status of any signaling contacts that no event will be missed out up to 8 inputs can be monitored directly. The flexibility of WT-9001 is in allowing remote query of input status using SMS.

To change contacting mobile phone number is also very easy. Authorize personal remotely using SMS command to add, change or delete mobile phone number in WT-9001.

3.3 8 Digital Outputs

WT-9001 is a 2 way device. Besides monitoring inputs and act upon such inputs it also allow mobile phone users to compose SMS messages to it. When WT-9001 receives any SMS, it will look its memory bank to see what it is supposed to do and action according. No action SMS are ignored.

Up to 8 relays can turned on and off by messages received from mobile phone. Users can define individual messages from each relay output. For examples, one can specify a

message "On Cooling Tower" for turning on relay number 2, "off Cooling Tower" to turn it off. Any meaningful text or hard to understand combination of alphanumeric characters can be specified for each of the "ON" or "OFF" action.

A user defined message is sent back to the same mobile phone after a relay action has taken place. Creating action and acknowledgement messages are done with the same ease as that of input monitoring

3.4 Querying Inputs And Outputs Status

Authorized groups can also query the status of an input or output. This is very useful feature to determine the present status of an input or output. The enquirer need not wait for an alarm to happen in order to receive the given I/O status.

3.5 Turning On/ Off Device Remotely

Authorized users can send a SMS command to trigger on or off the digital output. Upon receiving the command, WT-9001 will perform the instructed action. After the on or off action is done, it will send a reply to the querying mobile phone as an acknowledgement, There are 8 digital output that can be independently controlled.

3.6 Remote Editing Of Mobile Phone Numbers

WT-9001 has a feature to allow user to remotely add, change or delete any mobile phone numbers in WT-9001 memory.

Re-assigning of operation personnel, a change of mobiles phone number is also common. Rather than having to physically go to the installation site with a notebook computer, the authorized personnel can perform the change from anywhere using mobile phone. Where there are many installed sites, this feature saves time and afford.

3.7 System Check

Authorized mobile phone group can perform system check by sending a command to WT-9001. If WT-9001 is switched on or working normally, it will reply to the querying number.

3.8 GSM Modem

Integral to the design of WT-9001 is a **GSM 850/900/1800/1900mhz** Industrial grade modem. Its capabilities and performance are highly optimized by the operating firmware. Any change in the GSM signal and receiving conditions are detected quickly and the software automatically takes care of signal errors

3.9 Reliable Performance

Besides running the necessary program to perform all the required functions, WT-9001 has diagnostic routines running alongside. Being a monitoring device, WT-9001 must have a very high operating reliability and stability. Every section of WT-9001 is monitoring each other. Should the modem fail to perform its required role, the controller will interrogate and restart the modem.

3.10 Application

For monitoring and remote control of equipments and machines that are able to provide dry contact signals. 8 digital outputs with pulse functions extend control functions. Suitable for door access control, On/Off equipment remotely, resetting of Routers, Network switches etc. Some application examples are: -

Machines, Standby Power Generator, Electrical Panels, Pumps, Uninterruptable Power Supplies, DC rectifier systems, Vending Machines, Fire Alarm Panels, Gas Monitoring Systems, ATM Machines, Security Systems, Fishery, Cold rooms, HVAC systems, Door Security, Network equipment and more.

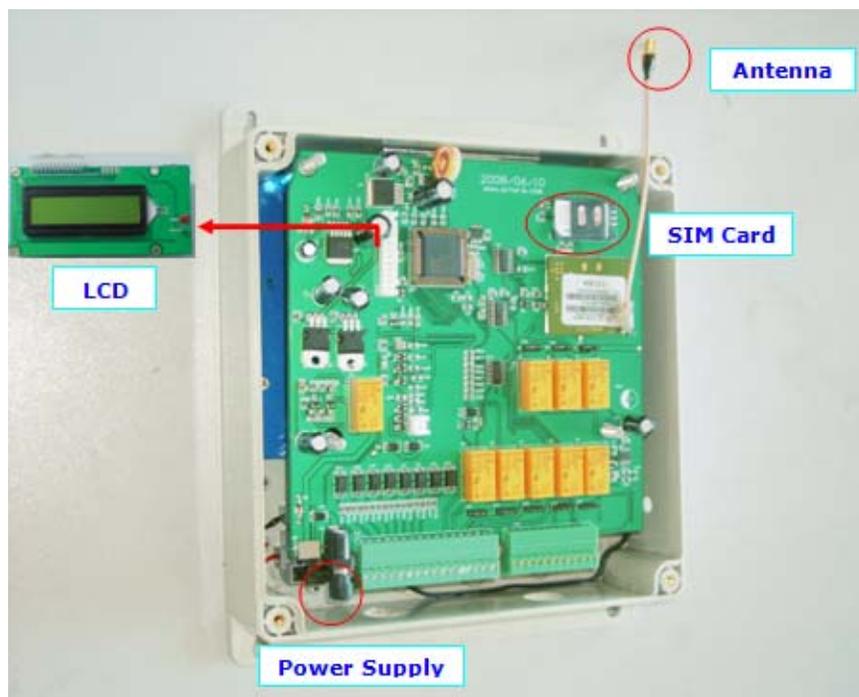
4. INSTALLATION INSTRUCTION

Note: It is essential that you read the step by step instructions fully prior to installing and programming the unit

4.1 Screw off the Front Case of WT-9001 IP65 Main Unit

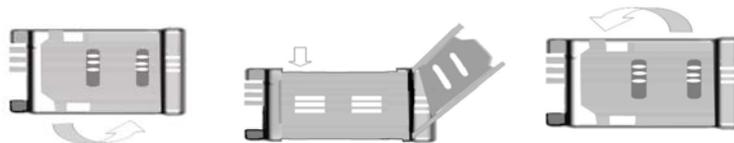


4.2 Installing Components: Antenna, LCD, Power Supply & SIM Card



Installing the SIM Card

Note: Installing the SIM Card. Please be sure the initial 4 digit PIN code of SIM card is disabled. This can be done by placing it in an unlocked Mobile phone and first checking if the SIM requested any PIN code. If this is the case the PIN code can be disabled using the security settings on the phone.



Proceed as follows

1. Slide back the SIM door and lift it up
2. Slide the SIM card into the SIM door making sure that the clipped corner of the SIM card lines up with the clipped corner of the SIM holder
3. Close the SIM door
4. Slide the SIM door to lock the SIM card in place

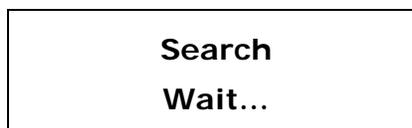
You should install the WT-9001 in a place where there is GSM signal coming from the operator you want to use. Check it with a phone before proceeding with the installation. If you need to install the device in a place with little signal, you may consider using an external antenna that we may supply as an option to be purchased separately with 5m cable.

4.3 System Start Up

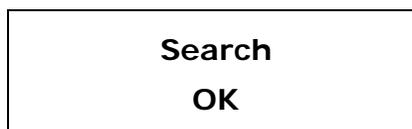
Once the WT-9001 GSM Intercom is turned on, you shall be able to see the system start up on the LCD screen as shown below...



The system is searching for network...

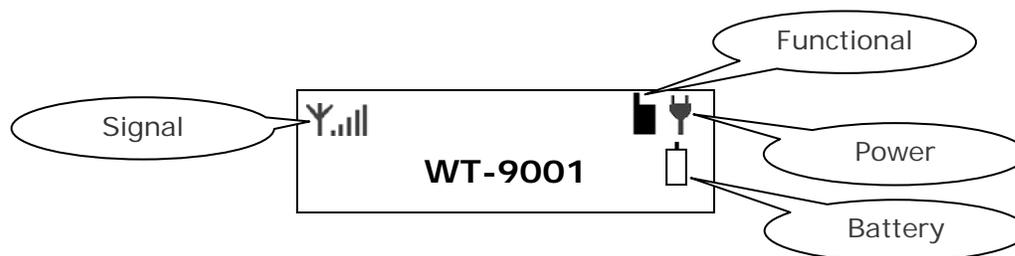


Once the network is found, it will display **OK**



Attention: If the system doesn't show **OK** when searching the network, it could be the SIM card not properly installed. Turn off the unit and check the SIM card, when it is properly seated in place then reboot the system.

When the system is ready to use it will show



5. WT-9001 IP65 PROGRAMMING INSTRUCTIONS (via SMS Only)

You can program the WT-9001 via SMS commands using your phone. Any programming command sent by SMS must be in **CAPITAL** letters. **The fields between square brackets are parameters; do NOT enter the square brackets.** When you send a command, you will receive the answer for the first time even if your GSM number is not in the administrator list. This happens because the WT-9001 recognizes any GSM number as administrator and answers to it.

5.1 Programming the Administrator Number

The 8 administrator numbers can be programmed with a text command via SMS.

Text Command:

***TEL[N]#XXXXXXXXXX**

N stands for administrator number **1 - 8**

XXXXXXXXXX stands for the phone number you want to program as administrator.

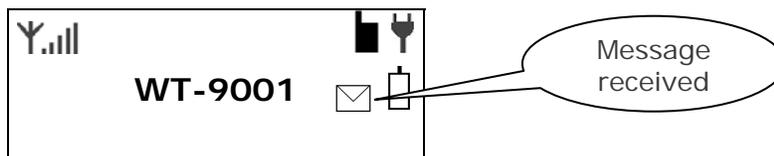
Please note that it is possible to program up to a maximum of 16 digits for a phone number.

Example:

To program phone number **1111222233** as administrator into list number **1**, you would send the following SMS command to the unit.

***TEL1#1111222233**

When the WT-9001 received the message, the LCD will display...



After the SMS command has been processed, the message icon will disappear and the system will show "OK" to indicate the setting has changed.



And then the WT-9001 will reply a message back to you that the administrator number has been added.

Example of Returned Message:

TEL1=1111222233

5.2 Access Control For Administrator

Note: It is advised that the owner should set the system to allow programming access for administrators only after programmed the Administrator numbers.

Sending SMS Command: ***ANY?#1**

Only the administrators in the list will have the access control to the system, any person outside the list in this case will not have the authority to access the system and text command sent to the system will be rejected.

To allow any person gain access to the system just send SMS Command: ***ANY?#0**

5.3 OUTPUT Settings

The WT-9001 has 8 outputs that are connected to an on-board relay which can be activated by sending an SMS command.

5.3.1 Switch On the Output Relay For a Specific Time

To activate any output relay, you can send a text command via SMS specifying the output number and the number of seconds the output should stay on to the unit. It is possible to set up to maximum of 65,535 seconds

Text Command:

***RLY[N]#XXXXX**

N stands for Output number **1 - 8**

XXXXX stands for **5** digits value: The number of seconds

Example:

To turn on the output relay number 5 for 1 hour, you can send the following text message to the unit.

***RLY5#03600**

Example of Returned Message:

RELAY5=03600

Note: Sending the following SMS Message to unit will switch off the relay

***RLY5#00000**

5.3.2 Switch Multiple Outputs Relays to Stay On

To activate multiple output relays to stay on, you can send a text command via SMS specifying the output number that should stay on to the unit.

Text Command:

***RLNU#XXXXXXXX**

XXXXXXXX stands for **8** digits value: ON (**1**) or OFF (**0**) for the **8** Outputs

Example:

To switch on the output relay number **5, 6, 7, 8**, you can send the following text message to the unit.

***RLNU#00001111**

Sending the following SMS Message to unit would mean all the relays will be switched off.

***RLNU#00000000**

The 1 indicates the ON command and the 0 (zero) indicates the OFF command

5.4 INPUT SETTINGS

One of the most important functions of WT-9001 is to receive alarms. In order to use this function, you must turn on the function of the inputs and tell the WT-9001 which are the recipient numbers and who should receive the alert message for the particular input.

5.4.1 Turn On the Function of Inputs

To turn on the function of input, you can send the following commands by SMS message to the unit.

Text Command:

***CTR[N]#X**

N stands for number **1 - 8** of Input

X stands for ON (**1**) or OFF (**0**) value

Example:

To turn on input number **1**, you can send the following text message to the unit.

***CTR1#1**

Sending the following SMS Message to unit would mean input 1 will be turned off

***CTR1#0**

The 1 indicates the ON command and the 0 (zero) indicates the OFF command

5.4.2 Setting the Recipient that will Received Alert Messages

The unit can send text alerts to 1 or all 8 of the administrator's Mobile phone numbers and this function can be changed at any time by sending the following commands by SMS message to the unit.

Text Command:

***RERN#XXXXXXXX**

XXXXXXXX stands for **8** digits value: ON (**1**) or OFF (**0**) for the 8 administrators

Example:

If we assume only administrators 1, 2, 3, and 4 are to receive text alerts you would send the following S.M.S message to the unit.

***RERN#11110000**

And only administrator **1, 2, 3** and **4** will receive text alerts.

Example of Returned Message:

RERN:

11110000

Sending the following SMS Message to unit would mean no administrators receive any text alerts.

***RERN#00000000**

The 1 indicates the ON command and the 0 (zero) indicates the OFF command

5.4.3 Editing the Input Alert Message For (When Input gets High Pulse)

The Input Alert Message can be edited and programmed up to 100 characters long. You can change the displayed text by sending the following commands by SMS message to the unit.

Text Command:

***STR[N]#XXXXX...**

N stands for number **1 - 8** of Input

XXXXX... stands for the display text that you want to program

Example:

If you want the alert message to display **"Garage Opened!"** when input **1** triggered; you would send the following SMS message to the unit.

***STR1#Garage Opened!**

5.4.4 Editing the Input Alert Message For (When Input returned to Normal)

The Input Alert Message can be edited and programmed up to 100 characters long. You can change the displayed text by sending the following commands by SMS message to the unit.

Text Command:

***STO[N]#XXXXX...**

N stands for number **1 - 8** of Input

XXXXX... stands for the display text that you want to program

Example:

If you want the alert message to display "**Garage Closed!**" when input **1** triggered; you would send the following SMS message to the unit.

***STO1#Garage Closed!**

5.4.5 Setting the Counter Alert Value For Inputs

An alert message will be sent when the increment of alarm counter reaches the alert value (**Default: 500**). It is possible to set the alert value up to maximum value of 65535 times. To set the counter alert value of input, you can send the following commands by SMS message to the unit.

Text Command:

***COA[N]#XXXXX**

N stands for number **1 - 8** of Input

XXXXX stands for **5** digits value: The number of times

Example:

Assume that you want it to send a counter alert message each time the input 1 has triggered for 5 times, you would send the following SMS message to the unit.

***COA1#00005**

5.4.6 Setting the Feature Of Input

All inputs can be programmed to behave differently, it can count the input active high pulses, generate an alarm message or activate relay. To program the input, you can send the following commands by SMS message to the unit.

Text Command:

*CTC[N]#F

N stands for number **1 - 8** of Input

F stands for input function **1 - 8**

Function Descriptions

Function **1**:

- Function as pulse counter
- Sends a counter alert message once alarm counter reaches the alert value
- Audible alarm will sound if the alarm function is turned on (*ALM[N]#1)

** For more details on function *ALM[N]# please refer to Alarm Settings on page*

Function **2**:

- Function as pulse counter
- Activate the output relay number (*according to which input number applied*) to stay on
- Sends a counter alert message once alarm counter reaches the alert value
- Audible alarm will sound if the alarm function is turned on (*ALM[N]#1)

Function **3**:

- Function as pulse counter
- Activate the output relay number (*according to which input number applied*) to stay on
- Sends a programmable input alert message (*STR[N]#) once input triggered
- Sends a counter alert message once alarm counter reaches the alert value
- Audible alarm will sound if the alarm function is turned on (*ALM[N]#1)

Function **4**:

- Function as pulse counter
- Activate the output relay number (*according to which input number applied*) for 2 second and off

- Sends a counter alert message once alarm counter reaches the alert value
- Audible alarm will sound if the alarm function is turned on (***ALM[N]#1**)

Function 5:

- Activates the output relay number (*according to which input number applied*) with functions of ***PWT[N]#** and ***PWK[N]#**
 - Sends a programmable input alert message (***STR[N]#**) once input triggered
- * For more details on functions of *PWT[N]# and *PWK[N]# please refer to Miscellaneous Settings on page*

Function 6:

- Function as pulse counter
 - Activates the output relay number (*according to which input number applied*) with functions of ***PWT[N]#** and ***PWK[N]#**
 - Sends a counter alert message once alarm counter reaches the alert value
 - Audible alarm will sound if the alarm function is turned on (***ALM[N]#1**)
- * For more details on functions of *PWT[N]# and *PWK[N]# please refer to Miscellaneous Settings on page*

Function 7:

- Sends a programmable input alert message (***STR[N]#**) once input triggered

Function 8:

- Function as pulse counter
- Sends a programmable input alert message (***STR[N]#**) once input triggered
- Sends a programmable input alert message (***STO[N]#**) once input returned to normal
- Audible alarm will sound when input return to normal

5.5 ALARM SETTINGS

5.5.1 Turning the Audible Siren Functions On/Off When Inputs Triggered

The system has the function to sound the connected audible siren when input triggered. This output is available on the connection PIN25 and ground on the main board. To turn On/Off this function, you can send the following SMS command to the unit.

Text Command:

***ALM[N]#X**

N stands for Input number **1 – 8**

X stands for ON (**1**) or OFF (**0**) value

When ***ALM1#1** is applied, means audible alarm will sound when Input 1 triggered.

When ***ALM1#0 (Default)** is applied, means audible alarm will not sound when Input 1 triggered.

5.5.2 Setting the Alarm Time For Audible Alarm (Default: 600 seconds)

The alarm siren can be set to determine how long the siren will remain active and this can be done by sending the following SMS command to the unit.

Text Command:

***ALTM#XXXXX**

XXXXX stands for **5** digits value: The number of seconds (00000-65535)

Example:

When ***ALTM#03600** is applied, means the audible alarm will sound for 1 hour when triggered

5.5.3 Power Down Alarm

The system has the function to send a text alert and also sound the audible siren in the event the main power is lost and the system is relying on battery back up.

It is also possible to activate and also deactivate this function by sending the unit an SMS Message.

Text Command:

***ALAC#X**

X stands for ON (**1**) or OFF (**0**) value

When ever the ***ALAC#1** command is activated and the power down alarm is on any of the Administrators programmed to receive text alerts, will receive the following messages from the unit in the event of power down and also when power is restored.

Power down and text alert received: **ACP-OFF**

Power restored and text alert received: **ACP-ON**

5.5.4 Anti-Theft Feature

The system has an anti-theft function that can be used to detect the person who hijacks the WT-9001 device. It allows the owner to identify the hijacker's SIM Card number by sending a warning message to the programmed owner's number when the SIM card has been switched. To activate and also deactivate this function, you can send the following SMS command to the unit.

Text Command:

***ANTH#X**

X stands for ON (**1**) or OFF (**0**) value

When ***ANTH#1** is applied, means it will alert the owner by sending a warning message when the SIM Card has been changed.

When ***ANTH#0 (Default)** is applied, means this function is turned off.

Alert message received: **WARNING! SIM Card Has Been Changed On WT-9001**

5.6 MISCELLANEOUS SETTINGS

5.6.1 Inquire All Programmed Administrator Numbers

To check all the administrator number in the list, simply send the following SMS command.

Text Command:

***ADM?#**

5.6.2 Inquire the Setting of which Recipient that will receive Alert Message

To check the setting of which recipient will receive alert messages, simply send the following SMS command.

Text Command:

***RER?#**

5.6.3 Inquire the Status of Inputs

To check input status, you can send the following SMS command.

Text Command:

***CTR?#**

5.6.4 Reading Counter Alert Value Of Inputs

It is possible read all the counter alert value of inputs by sending the following SMS command to the unit.

Send the following SMS Command:

***COA?#**

5.6.5 Reading the Alarm Time Value

It is possible to read the alarm time value by sending the following SMS command to the unit.

Send the following SMS Command:

***ALT?#**

5.6.6 Reading the Total Increment Counter Value

To read the total increment counter value, you can send the following SMS message to the unit.

Text Command:

***COU?#**

5.6.7 Reading the Sub Increment Counter Value

To read the sub increment counter value, you can send the following SMS message to the unit.

Text Command:

***COT?#**

Note: The sub increment counter value will be reset automatically each time the alarm counter reached the alert value.

5.6.8 Reset the Total Increment Counter Value

To reset the total counter value, you can send the following SMS message to the unit.

Text Command:

***CLA[N]#**

N stands for Input number **1 – 8**

Example:

When ***CLA1#** is applied, means the total increment counter value will be reset

5.6.9 Sound the Audible Alarm Manually

It is possible to sound the alarm manually by sending the following SMS command to the unit, which remain active for the period of time set.

Text Command:

***ALNF#X**

X stands for ON (**1**) or OFF (**0**) value

When ***ALNF#1** is applied, means audible alarm will sound.

When ***ALNF#0 (Default)** is applied, means audible alarm will turn off.

5.6.10 Checking Signal Strength

To check the signal strength (0-31), you would send the following SMS command to the unit.

Text Command:

***CSQ?#**

5.6.11 Checking the System is Operating Correctly

It is possible to check the system is operating correctly by sending the following SMS command to the unit.

Text Command:

***TEST#**

When the unit replies **TEST-OK** indicate the unit is operating correctly.

Note: If you receive no reply then unit is not working

5.6.12 Setting the Function of Opening & Closing time for Output Relay

The system has the function to activate the relay for a specific time and then be deactivated for a specific time in a repeating process. To set the opening & closing time of the relays, you can send the following SMS command to the unit. **Note: This function only applied in input function 5 and 6.**

Text Command for Opening time:

***PWT[N]#XXXXX**

N stands for Output number **1 – 8**

XXXXX stands for **5** digits value: The number of seconds

Text Command for Closing time:

***PWK[N]#XXXXX**

N stands for Output number **1 – 8**

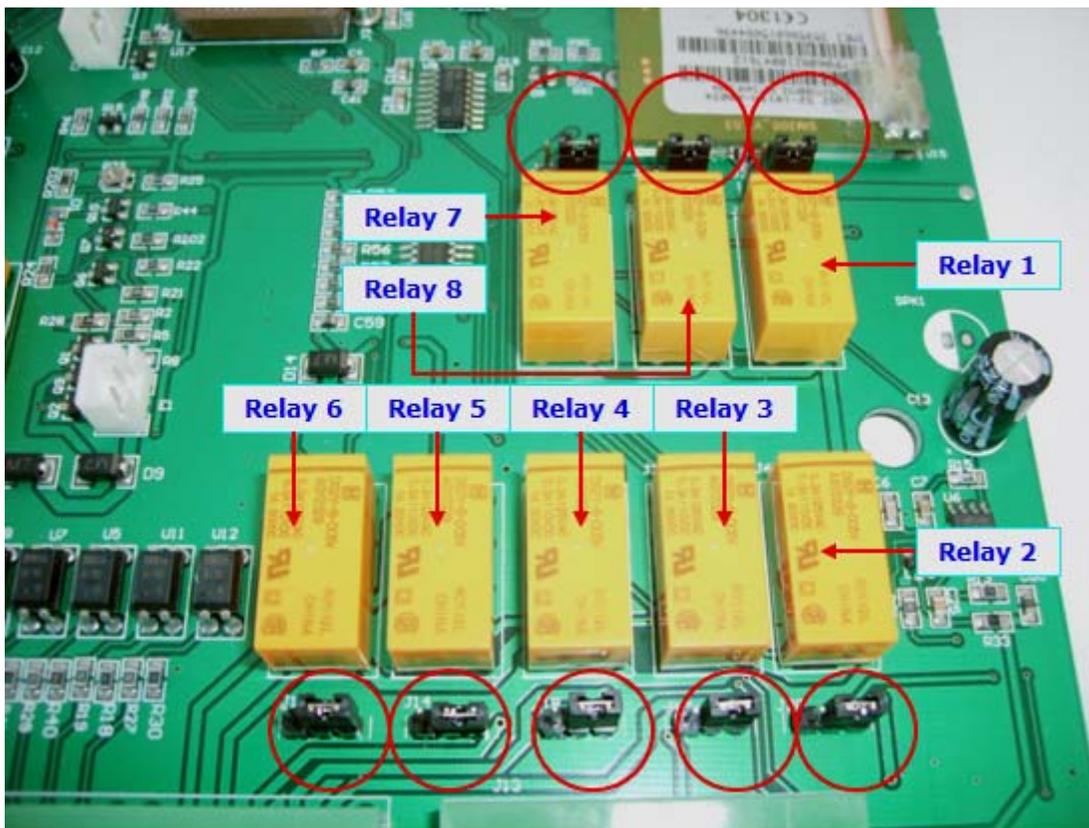
XXXXX stands for **5** digits value: The number of seconds

Example:

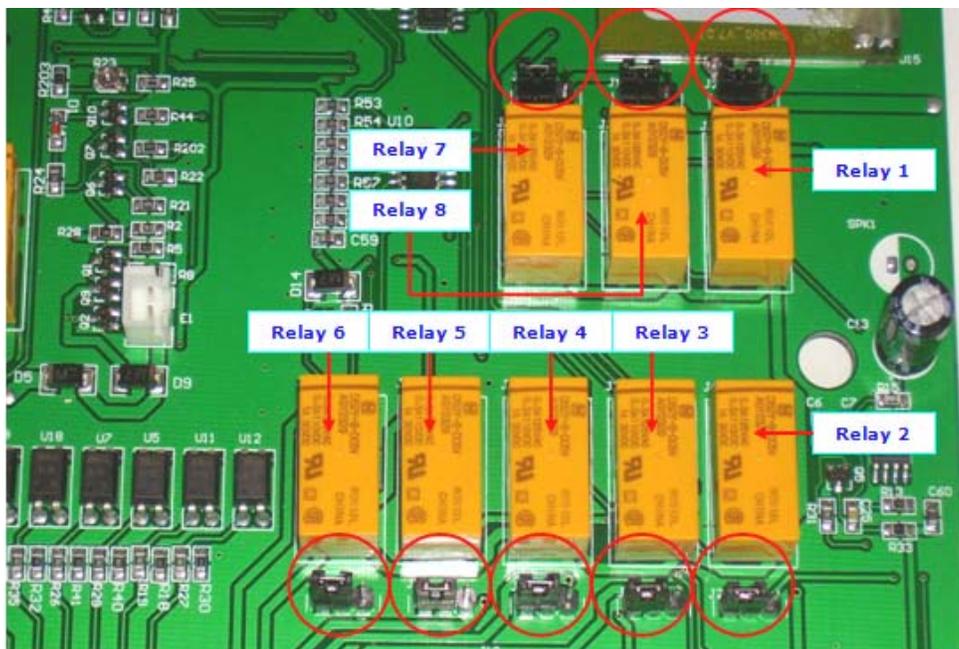
Opening time of output 1 is set as 1 minute (***PWT1#00060**) and the Closing time as 5 seconds (***PWK1#00005**) and function **5** is applied on Input 1. When input 1 triggered, output relay 1 will be activated for 1 minute and close for 5 seconds and then back on for 1 minute and close again for 5 seconds and will keep on repeating until the relay is turned off (***RLY1#00000**)

5.6.13 Setting the Output Relays to Supply Voltage or use Dry Contact when Activated

To set the output relays to supply 15V when activated, please adjust the jumper according to the below diagram



To set the output relays to dry contact when activated, please adjust the jumper according to the below diagram



6. TECHNICAL SPECIFICATIONS

Item	Description
Model	WT-9001
Operating Voltage	12V-24VDC, 2W
No of Inputs	8 Digital protected Inputs, Volt-free / dry contact
No of Outputs	8 Relay Outputs - 0.3A/125 ACV, 0.3A/110 DCV
Communication Port	
GSM Modem	Quad Band 850/900/ 1800/ 1900mhz
Humidity	Less Than 80% RH
Operating Temperature	0°C to 55°C
Physical size	225 x 186 x 70 mm
Weight	1.5KG
Security Features	Password protected access and phone number checks
Real Time Clock	Date time with battery backup
System Health Check	Remote health check feature via SMS
Indicators	Power, Telco Network, Signal Low, Other error
Repeat SMS of alarms	User configurable
I/O Interface	3.8mm pitch pluggable screw terminal block
Remote event log	Yes
Output pulse capability	Yes
Display	Dot-Matrix LCD with back light, 16 characters x 2 line

WARRANTY

Witura Corporation Sdn Bhd guarantees all WT-9001 IP65 GSM Remote Control And Alarm System against defective parts and workmanship for 1 year warranty. Witura Corporation Sdn Bhd shall, at its option, repair or replace the defective equipment upon the return of such equipment to any Witura branch. This warranty applies ONLY to defects in components and workman-ship and NOT to damage due to causes beyond the control of Witura, such as incorrect voltage, lightning damage, mechanical shock, water damage, fire damage, or damage arising out of abuse and improper application of the equipment.

Note: Wherever possible, return only the PCB to Witura Service Centres. **DO NOT return the enclosure.**

The WT-9001 IP65 is a product of Witura Corporation Sdn Bhd and is manufactured by Shenzhen Witura Telecommunications Co., Ltd.