![EZY SWITCH logo]

EZY SWITCH

SMS-T8
System Monitor
Installation Manual

Table of Contents

Features - *Model SMS-T8*

- Receive text messages on your cell phone alerting you to potential problems anywhere in the world
- Send commands to control lights, pumps, appliances, air conditioning, etc. via text message from your cell phone
- Module= Model A = 2G,   B = 3G, C=3G/4G
- Up to 12 cell phones may be designated as "users" to send commands and receive alert text messages
- All set-up and changes made via text (no need for a computer)
- Control up to four (4) devices using text message commands
    Monitor up to eight (8) devices that use switched contacts (switching Inputs which use contacts that open or close upon activation such as a float switch), Monitor one pressure sensor input.
    - o Programmable Input delays (max 99 minutes)
    - o Programmable for Latching or Non-Latching Inputs
    - o Programmable for Normally Open or Normally Closed Inputs
    - o Programmable for Normally Open or Normally Closed Outputs
- Inputs and Outputs names are user programmable via text command – up to 20 characters
- Link any Input to any Output (Example: Link intruder sensor or smoke detector [input] to light or alarm horn [output])
- Monitors battery supply voltage and sends alarm message if low battery is detected at below the programmed alarm setting
- On-demand updates via text message to interrogate status of:
    - o Current battery voltage
    - o Status of all Inputs
    - o Status of all Outputs
    - o List of all designated "users"
- Compact Size for wall or horizontal surface mounting:
    - o 117mm x 78mm x 30mm

Monitor:
- Shore power disconnect
- Pumps running
- High water alarms
- Security & alarms
- Entry alerts
- Smoke alarms
- And much, much more

Control:
- Battery charger
- Fridge/Freezer
- Air Conditioning/Heating
- Lighting
- Hot water systems
- Irrigation systems
- Or any other device

Connections

Upper Tier
Terminals

Lower Tier
Terminals

SMS-T8 Terminal Electrical Specifications

Batt +   = Battery positive 10 to 30vdc
Batt –   = Battery negative
Outputs = sink max 400 Ma each
Positive Inputs (Inputs 1, 2, 3 & 4) max Input voltage = 36vdc

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Lower Tier Terminals

+ 5VDC   = Pressure sensor + (Red)
S / In   = Sensor Input (Green)

Input 5 = Negative switching Input
Input 6 = Negative switching Input
Input 7 = Negative switching Input
Input 8 = Negative switching Input

+ VE Positive out (for switch)
+ VE Positive out (for switch)

Upper Tier Terminals
Output 1
Output 2
Output 3
Output 4

Input 1 = Positive switching Input
Input 2 = Positive switching Input
Input 3 = Positive switching Input
Input 4 = Positive switching Input

System

SIM Card

Aerial

SIM Card

Terminal 11   Terminal 18

Terminal 1   Terminal 3   Terminal 10   Signal LED
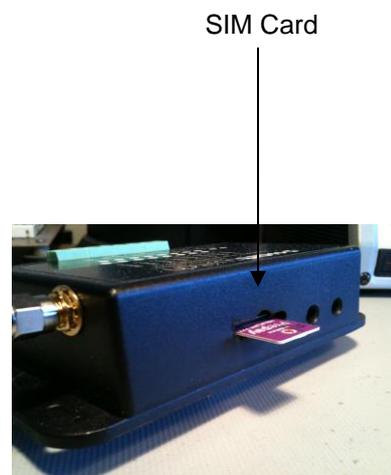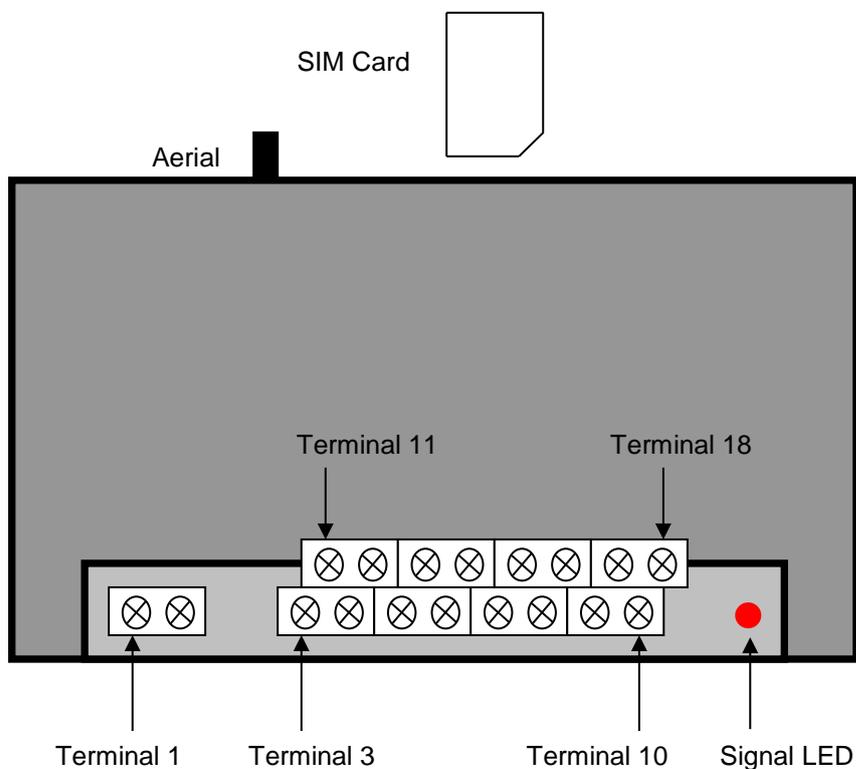
Signal LED:

If the LED flashes once every 1 second, this indicates the cellular network cannot be found (out of GSM coverage range). Remedy = Re-locate the device or use a longer aerial or signal booster.

If the LED flashes once every 3 seconds, this indicates the cellular network has been found (all ok).

Electrical Specifications:

Supply Voltage	12 to 30 Volts DC @ **800mA**
Quiescent Current	20 Milli-amps
Data Retention	10 years (without power)
Outputs	Sink max 400 mA each
Max Input voltage	30vdc

Outputs

The SMST-8 has four (4) Outputs. The Outputs are open collector rated at 400ma (max) and will short to GND when turned on. Therefore a Relay may need to be used for some applications.

Note: Diode supplied

Relay Connection for **DC**

To either Output 1, 2, 3 or 4 terminal on the SMS Unit

Relay

+ 12 or 24 VDC

To whatever you want to connect to

Relay Connection for **AC**

+ VE terminal on the SMS Unit

230 VAC relay with a 12 VDC Coil

AC

AC Appliance or other 120/240v AC Device

To either Output 1, 2, 3 or 4 terminal on the SMS Unit

Note:
The diode MUST be fitted the correct way around.

=
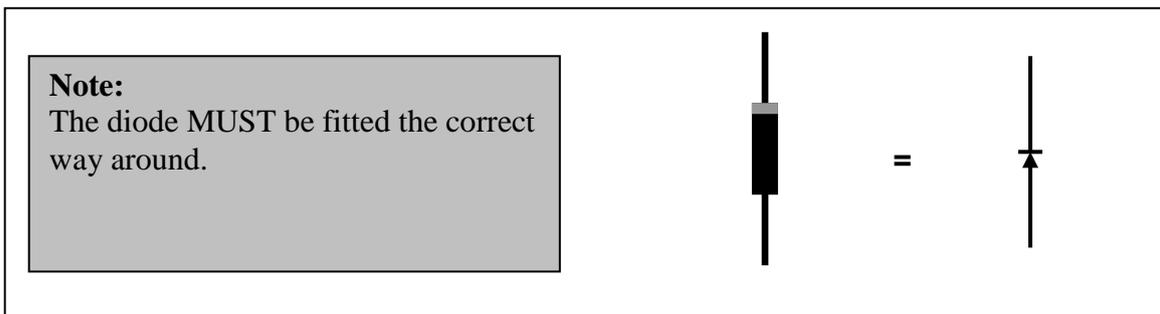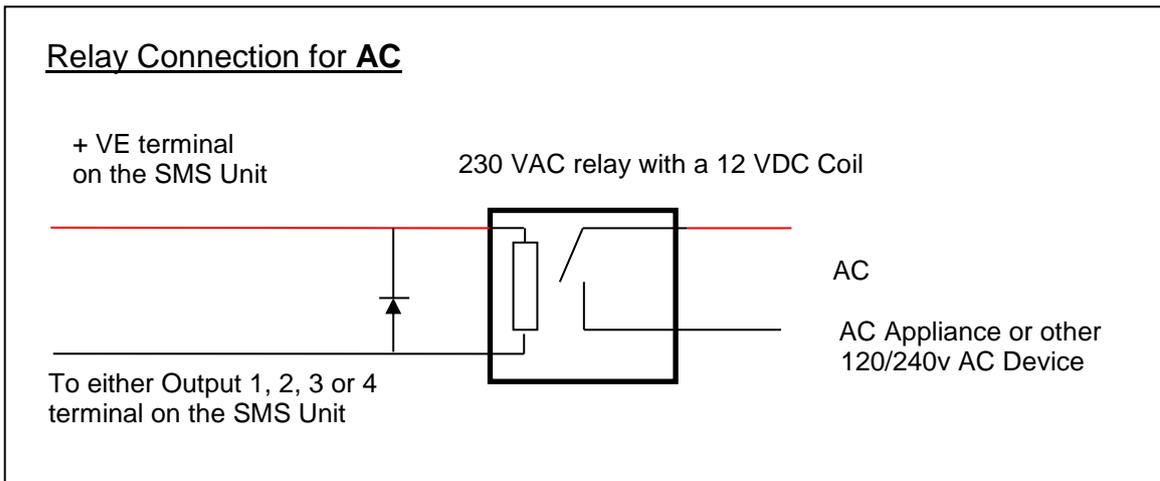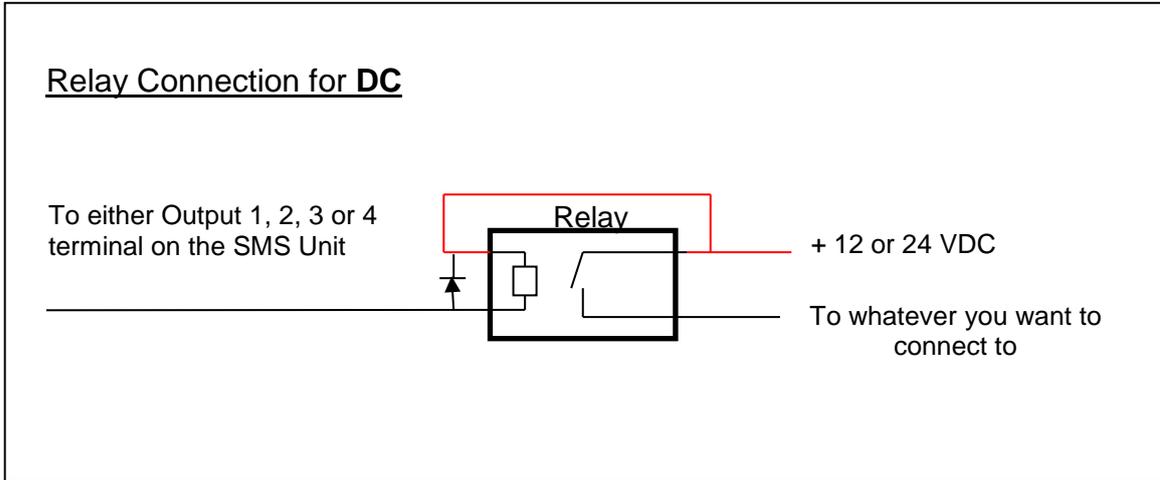
!! Important Note !!

A registered electrician must be used when connecting to the 120/240v main supply voltage.

Inputs

The SMS-T8 one pressure input and eight (8) digital Inputs. Four are Positive switching (to Battery+ or VE+) and four are Negative switching (to Ground -). **Note:** Two Battery+ (or VE+) and two Ground- (Gnd) terminals are provided on the SMS-T8 for convenience. However, any battery or ground on the vessel common to the SMS battery power supply can be used for connection.

Positive switching: Inputs 1 - 4
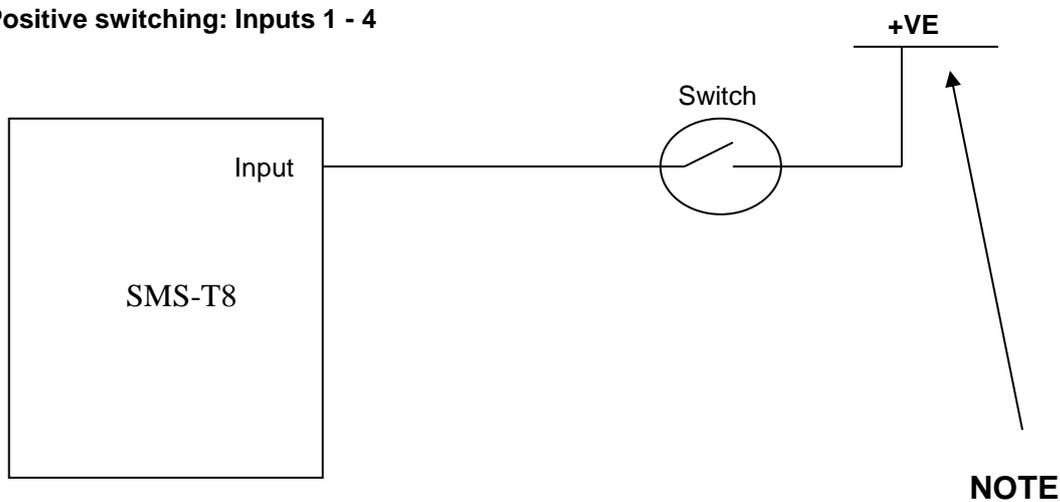
Negative switching: Inputs 5 - 8
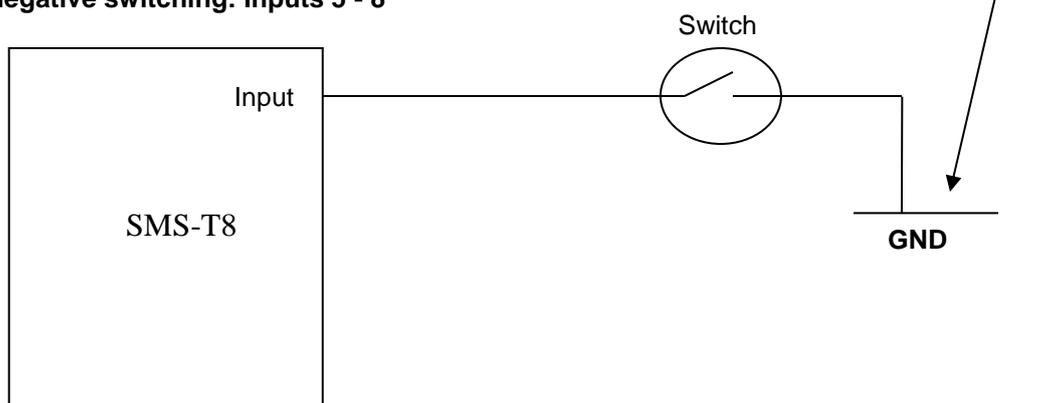
!! IMPORTANT !!

Setting up system for the first time:

Please ensure the SIM card does NOT have a PIN number or is locked has been ACTIVATED with the network provider, insert into SIM slot on the back (see page 5) and power the unit up.

You must wait for the LED to be slowing flashing (EVERY 3 seconds) before sending any commands. Please wait a few minutes, as the unit will set auto-band and other details for the country.

IMPORTANT:
For all text commands, <u>spelling</u> and <u>spaces</u> must be strictly followed.

<u>Setting up the first user (Once only command)</u>

Command: Set user

Note: the unit will pick up the users number from the incoming text.

When the Initial user setup has been successful the system responds with:

" Your number has just been added to the user list"

Note: The initial user could be the installer who would set the system up, add other users (Add user page 8) and then remove his number (Remove user page 8).

Country Code:
?? Is the country code and XXXXXXXX is the mobile number without the preceding 0.

Examples:

New Zealand = 64 (+64 and the number without the preceding 0)
If the users number is 0411893070 then Command = add user +64411893070
Australia = 61 (+61 and the number without the preceding 0)
If the users number is 0414884900 then Command = add user +61414884900
Singapore =0065 (+65 and the number without the preceding 0)
If the users number is 0414884900 then Command = add user +65414884900
USA & Canada = 001 (+1 and the Area Code & Number)
If the users number is 414-555-1434 then Command = add user +14145551434

!! NOTE !!

If a user sends a text message to the system, which is not an exact match with the commands, the system responds with:

Sorry either that device does not exist or the message format is not understood, please check the spelling and try again

If anyone other than a programmed user sends a text message to the system, the system responds with:

Sorry you are not permitted to access this device

Commands

<u>**Adding a User**</u>   (**Note:** <u>Setting up the first user</u> page 8 must be done first)

Command: Add user +??XXXXXXXX (see Country Code page 8)

If the user is already in the list, the system responds with:

> **Sorry +??XXXXXXXX is already active and cannot be added twice, please check the number and try again**

If the number does not fit the checks, to confirm it is a valid number (all digits must be numbers excluding the leading +), the system responds with:

> **+??XXXXXXXX does not appear to be a valid number, please check that there are no letters or symbols in the number and try again**

If the number does not lead with a +, the system responds with:

> **??XXXXXXXX does not appear to have the country code in international format (e.g. +??...) please check this and try again**

However if everything is fine, the system responds with:

> **The user number +??XXXXXXXX has been added to the user list**

<u>**Removing a User**</u>

Command: Remove user +??XXXXXXXX (see Country Code page 8)

If you try to remove the only user, the system responds with:

> **Cannot delete the only user.**

If the number sent is not currently on the list, the system responds with:

> **+??XXXXXXXX is not currently in the user list so cannot be removed, please check the number and try again**

If everything is ok, the system responds with:

> **The user number +??XXXXXXXX has been removed from the user list**

<u>**Adding a Administrator**</u>

Command: Add admin +??XXXXXXXX (see Country Code page 8)

The system responds with:

> **The number +??XXXXXXXXXXX has been set as the system administrator**

If the admin has already been set, the system responds with:

> **The administrator number +??XXXXXXXXXXX has already been set**

If an administrator number is set then this is the only number the system will accept commands from. Other user will be sent texts but CAN NOT send any commands.

Removing a Administrator

Command: Remove admin

The system responds with:

> **The administrator number and feature has been removed**

Note: this completely removes the administrator from the user list, it does NOT move the user down a security level to normal "user" unless the administrator is the only number in the system in which case it will move the user from administrator to user.

The system responds with: **This number has been changed from administrator to a user**

Get a list of all the Users

Command: User list

The system responds with:

> **User list is: +??XXXXXXXX +??XXXXXXXX … (up to 6 numbers)**

If there are too many numbers to display in one txt, a second txt will be sent showing the last two numbers

First text followed by:

> **+??XXXXXXXX +??XXXXXXXX +??XXXXXXXX …**

Turn programmed numbers lookup on or off

Command: User lookup on (or) off   (System default = On)

If User lookup is **On** the SMS-T8 will only respond to numbers that have been programmed into the unit using the Add User command as per above.

If User lookup is **Off** the SMS-T8 will respond to any number that sends the correct command.

The system responds with:

> **The user lookup list feature has been turned on and the unit will only accept commands from programmed users**

OR

> **The user lookup list feature has been turned off and the unit will only accept commands from any numbers**

PLEASE NOTE: Input changes will only be sent to users that have been programmed into the unit.

Text all programmed numbers on or off

Command: Text all on (or) off   (System default = On)

If Text all is **On** the SMS-T8 will text all user that have been programmed into the unit with the reply to the command.

If Text all is **Off** the SMS-T8 will only text the number that initiated the command with the reply.

The system responds with:

> **All users in the list will now receive notification texts (On)**

OR

> **Only the number sending the text command will receive notification text (Off)**

PLEASE NOTE: This command does not affect the inputs all Input changes will only be sent to users that have been programmed into the unit.

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Turn all Input Text's OFF

With alerts turned off the device will NOT text every time any Input changes but the Inputs are still active so you can send a "Input status" query at any time. Linked outputs will not work.

Command: Alerts off

The system responds with: **Alerts have been disabled** (this is saved to memory and will still be disabled even after the unit is reset or rebooted)

 OR

Command: Alerts off exc links (**note** only available in ver 1.2 or higher)

The system responds with: **Alerts have been disabled but linked outputs will still work**
If an input is triggered no alert text will be sent but if the input has a link to an output that output will activate.

Turn all Input Text's ON

Command: Alerts on

The system responds with: **Alerts have been enabled**

Testing

Command: test   (only run this if you are present and can trigger the inputs)

The system responds with: Battery is currently ??.? volts, signal strength is ?? % , run test now. The unit will now test the inputs and outputs and waits for the inputs to be triggered.

When input1 is turned on output1 will turn on, when input1 is turned off output1 will turn off
When input2 is turned on output2 will turn on, when input2 is turned off output2 will turn off
When input3 is turned on output3 will turn on, when input3 is turned off output3 will turn off
When input4 is turned on output4 will turn on, when input4 is turned off output4 will turn off
When input5 is turned on output1 will turn on, when input5 is turned off output1 will turn off
When input6 is turned on output2 will turn on, when input6 is turned off output2 will turn off
When input7 is turned on output3 will turn on, when input7 is turned off output3 will turn off
When input8 is turned on output4 will turn on, when input8 is turned off output4 will turn off
Test finished

If the input or inputs are not triggered this command will time out after 1 minute.

Get a list of the Inputs   (four text's will be sent, each text has information for two inputs)

Command: Input status

> **Currently, _INPUT NAME_ is ??, _INPUT NAME_ is ??**

Where ?? is either On or Off

If an Input is a latching input and on:

> **Currently the latching Input _INPUT NAME_ is on and latched**

If an Input is a latching input and off:

> **Currently the latching Input _INPUT NAME_ is of**

Get a list of the Outputs

Command: Output status

The system responds with:

> **Currently, _Output Name_ is ??, _Output Name_ is ??**

Where ?? is either On of Off

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Naming Inputs and Outputs and Changing Names:

Command for initial Naming or changing name of Input or Output:

Note: The system default names are:
Inputs: Input1, Input2, Input3, Input4
Outputs: Output1, Output2, Output3, Output4
The name can contain a dash (–) but NOT a space or underscore. eg. "Pond-pump" is OK
The product does not support special characters.

Command:
Change _Current Input or Output Name_ to _New Input or Output Name_

(Example: Change input1 to Alarm)
(Example: Change output1 to Pump)

This command is used to change Inputs and Outputs to a new name. Names can be words up to a total length of 20 characters, please **note** the name can contain a dash (–) but NOT spaces. Once the name has been changed, the particular Input or Output is always referred to by the **new name** (e.g. Alarm). For commands or status interrogation and the SMS-T8 will respond using the new name. **Use table on page 22 to record your new Input and Output names.**

If the device you are trying to rename is not currently in the list, the system responds with:

Sorry either that device does not exist or the message format is not understood, please check the spelling and try again

If the new name chosen does not fulfill the requirements of a name, the system responds with:

Sorry that name is not allowed, please check that it is between 1 and 20 characters long

If everything is ok, the system responds with:

> **The input name has been changed to YYYYYYYYYY**

Or

> **The output name has been changed to YYYYYYYYYY**

Change the Input Delay (see page 22 for detailed explanation)
(You can have a delay when an Input turns either On or Off)

Command: Change _INPUT NAME_ on delay to XX YY

 (Example: Change input1 on delay to 10 min)

Command: Change _INPUT NAME_ off delay to XX YY

(Example: Change input1 off delay to 10 min)

(XX can be between 1 and 99, YY can be seconds or minutes)

The system responds with:

The _INPUT NAME_ (On or OFF) delay has been set to XX (sec or min)

If XX is not between 1 and 99 or no value is entered, the system responds with:

Because no value was set the _INPUT NAME_ (On or OFF) delay has been set to 30 secs

Change Input to Normally Open or Normally Closed

Command: Make *INPUT NAME* active open (or) closed

This command is used to define if the switch wired to the Input is normally open or normally closed. The Input defaults are set for a normally open switch (which is active closed). That is, the Input becomes active when the switch is closed.

Active closed means: the Input switch is normally open and goes closed to activate Input.

Active open means: the Input switch is normally closed and goes open to activate Input.

The system responds with:

> *INPUT NAME* **will now activate when the input (either opens or closes)**

OR if you try to set it for its current setting, the system responds with:

> *INPUT NAME* **is all ready set for (either open or closed) and does not need changing**

Set an Input as a latched Input

Command: Make *INPUT NAME* latching (Example: Make alarm latching)

 The system responds with: **The Input *INPUT NAME* is now a latching input**

Set an Input as a Non-latched Input

Command: Make *INPUT NAME* nonlatching
(Example: Make alarm non-latching)

 The system responds with: **The Input *INPUT NAME* is now a nonlatching input**

Reset a latched Input   (used to return Input to "non-activated" state)

Command: Reset *INPUT NAME*   (Example: Reset alarm)

The system responds with:

> *INPUT NAME* **is no longer in a latched state and will begin to be monitored again**

If the Input is not latched, the system responds with:

> *INPUT NAME* **latch is not currently set so does not need clearing**

Note: If the input is set as a tick-off input then by resetting the input (as above) it will also tick-off the input. If the input has been linked to an output then resetting the input will also reset the output.

Masking Input's

This feature allows for the individual inputs to be masked per programmed user, so only the set inputs will be sent to the programmed number.
(System default is for all users to received texts from all inputs)

Command: Set +??XXXXXXXX inputs 1,2,4,8

This will set the system so that ONLY inputs 1,2,4,8 will be texted to the number ??XXXXXXX

The system responds with:

  The inputs for user number +??XXXXXXXX have been set

To set back to factory default: **Set +??XXXXXXXX inputs 1,2,3,4,5,6,7,8**

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Link an Input to an Output

Command: Link _INPUT NAME_ to _OUTPUT NAME_
(Example: Link alarm to siren)

 The system responds with:

The _INPUT NAME_ has been linked to _OUTPUT NAME_

 To clear a link

 Command: Clear _INPUT NAME_ link (Example: Clear alarm link)

 The system responds with:

The link between _INPUT NAME_ and _OUTPUT NAME_ has been cleared

Function: If a link is setup between an Input and an Output and the Input is turned ON, the Output will also turn on. Full control of the Output is still available.

Get Linked infomation

Command: Link status

 The system responds with:

Which inputs are linked to which outputs

Input Tick Off Feature.

The inputs can have a Tick-Off feature, if this feature is turned on and an input is on the unit will send a reminder text every 5 minutes until the text command "Tick INPUT NAME off is sent. (max number of texts=20)

To turn the feature on:

Command: Make _INPUT NAME_ tickoff on

 If everything is fine, the system responds with:

The input tickoff feature has been turned on

To turn the feature off:

Command: Make _INPUT NAME_ tickoff off

 If everything is fine, the system responds with:

The input tickoff feature has been turned off

To Tickoff an input

Command: Tick _INPUT NAME_ off

 If everything is fine, the system responds with: **The input has been ticked off**

NOTE: If the input is a latched input sending the tickoff will NOT reset the latch, the command Reset input name will need to be sent.

Turn an Output ON or OFF

Command: Turn _**OUTPUT NAME**_ **on (or) off**   **(Example: Turn Generator on)**

    If everything is fine, the system responds with:

      **OUTPUT NAME** **has been turned off (or) on**

This command is used to turn on/off Outputs. If the item named is not an Output or the command is not spelt correctly the system responds with:

    Sorry either that output does not exist or the options ON or OFF has not been used

Turn an Output ON for XX mins or hrs or days

Command: Turn _**OUTPUT NAME**_ **on for XX (either** <u>mins</u> **or** <u>hrs</u> **or** <u>days</u>**)**

    If everything is fine, the system responds with:

      **OUTPUT NAME** **has been turned on for XX (mins or hrs or days)**

XX can be between 1 to 99 either minutes or hours or days (max time 99 days)
Ver 3.9 or higher XX can be between 1 to 999 either minutes or hours or days (max time 999 days)

If no time is specified then the output will be turned on until the "Turn output Off " command is sent

The Output on time XX can also be programmed so when ever the "Turn output On command is sent the output will turn on for the programmed time

Command: Set _**OUTPUT NAME**_ **on time to XX (mins or hrs or days)**

    If everything is fine, the system responds with:

The _**OUTPUT NAME**_ **on time has been set to XX (mins or hrs or days)**

    If no value is set the system will respond with:

The _**OUTPUT NAME**_ **has been turned on and will stay on because no time-out value was set**

    If the text mins or hrs or days does not follow the XX (time) the system will respond with:

Sorry you can only set mins, hrs or days please check the spelling and try again

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Change Output to Normally On or Normally Off

Command: Make _**OUTPUT NAME**_ **inverted**

This command is used to define if the output relay is normally open or normally closed. System default is normally open.

The system responds with:

    The **OUTPUT NAME** **is now inverted**

To non-invert the output:

Command: Make _**OUTPUT NAME**_ **noninverted**

The system responds with:

The _OUTPUT NAME_ is now noninverted

Make an Output pulse On and Off

Command: Make _OUTPUT NAME_ pulse XX secs

This sets the output pulse time, XX can be between 1 and 99 seconds

When the Output ON command is sent as follows:

Turn _OUTPUT NAME_ On

The Output will turn On for the programmed pulse time and then turn Off, the system responds with:

OUTPUT NAME **has been pulsed on and off**

If you try and set an Input as a pulse Output, the system responds with:

Sorry pulses only apply to outputs, please check the name and try again

If the Output is already a pulsed Output the system responds with:

OUTPUT NAME **is already a pulsed output so does not need changing**

If the Output is initially off and everything goes correct, the system responds with:

OUTPUT NAME **is now a pulsing output**

If the pulse time has not been set as per above the defalt time is 3 seconds and the system responds with:

OUTPUT NAME **is now a pulsing output with a defalt pulse time of 3 seconds**

If the Output was initially On when the Output was set, the system responds with:

OUTPUT NAME **is now a pulsing output and has been turned off in preparation for use**

If the Output is linked to an Input, when the Input is triggered the system sends:

INPUT NAME **linked output** _OUTPUT NAME_ **has been pulsed on then off**

Clear Output pulse (make output non pulsing)

Command: Clear _OUTPUT NAME_ pulse

If you try to clear a pulsed Output when it is not set, the system responds with:

OUTPUT NAME **is not currently a pulsed output so does not need changing**

If you try and clear a pulse on an Input, the system responds with:

Sorry pulse only apply to outputs, please check the name and try again

Otherwise if its all ok, the system responds with:

OUTPUT NAME **is no longer a pulsing output**

Turn Output response On / Off

This command is used to turn the output response text On or Off.
If the output response is turned off then a response text is not sent when outputs are turned on or off System default is ON (send response).

To turn the feature on:

Command: Turn respond on
  The system responds with: **This feature has been enabled, response text will be sent**

To turn the feature off:

Command: Turn respond off
  The system responds with: **This feature has been disabled, response text will not be sent**

Save Output Status

This command is used to define if the output state is saved to memory and restored to it state after a power recycle. E.g. if an output was On when the power was turned off then when the power is restored the output will turn back on. Note this does not apply if an output was turned on for a specified time. System default is not saved.

Command: Make _OUTPUT NAME_ save

The system responds with:
    The output condition will be saved and restored if the power is reset

To turn the feature off:

Command: Make _OUTPUT NAME_ nonsave

The system responds with: **The output condition will not saved**

Note: If you want this for both outputs then the command needs to be sent for both outputs

Link Outputs   (only available in ver 2.5 or later)

This command is used to link outputs together.

To link outputs:
Command: Link outputs ? ? ?   e.g. Link outputs 1 & 4 **: Command:** Link outputs 1 4

The system responds with: **The outputs have been linked**

To clear links:
Command: Clear linked outputs

  The system responds with: **All linked outputs have been cleared**

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Set Battery Alarm Trigger Voltage

Command: Change battery alarm to XX.X

Where XX.X can be between 8 and 30 volts

The system responds with:

The low voltage alarm has been set to XX.X volts and the alarm has been reset

This system monitors the battery by calculating the average value of the supplied voltage over the previous 1 minute period. Once this average has been detected to be below the set value for the programmed time it sends a text message to inform all users. The inclusion of the running average helps protect the system from detecting inaccurate readings during periods of increased load.

If no value (XX.X) is set the system responds with:

Because no value was specified the voltage alarm has been set to 11.5 volts and the alarm has been reset

If the value (XX.X) is outside the settings the system responds with:

Because the value is out of range the voltage alarm has been set to 11.5 volts and the alarm has been reset

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Link the Battery Alarm to an Output

Command: Link battery alarm to *OUTPUT NAME*

The system responds with:

The battery alarm has successfully been linked to *OUTPUT NAME* and the alarm has been reset

To clear or remove the link

Command: Clear battery link

The system responds with:

The battery alarm Output link has been removed

Function: If a link is setup between the Battery Alarm and an Output then when the Battery Alarm turns ON, the linked Output will also turn on. Full control of the Output is still available (see page 15-16).

Check the Battery Supply Voltage

Command: Voltage status

The system responds with: (where battery is the name for the supply voltage)

Battery is currently XX.X volts

Set the battery alarm as a latched or non-latched alarm

If the battery alarm is set to latching then once the battery alarm has been triggered the **Reset Battery Alarm** command needs to be set to reset the latched alarm. If it is set to non-latching the battery alarm will reset once the battery voltage has increased by .5 volts. The system default is non-latching:

Command: Make battery alarm latching

System responds with: **The battery alarm is now latching**

Command: Make battery alarm nonlatching

System responds with: **The battery alarm is now non-latching**

Reset a latched Battery Alarm   (if set to latching alarm)

Command: Reset battery alarm

This command is used to clear the Low Battery Voltage alarm, after it has alerted the user that the voltage has dropped below the set level.

The system responds with:

   The battery alarm has been cleared and will begin to be monitored again

If the alarm is linked to an output the system responds with:

   The battery alarm has been cleared and will begin to be monitored again, the linked output has also been turned off

If the alarm is not currently set, the system responds with:

   The battery alarm is not currently active and does not need to be cleared

---

Alive text feature.   (only available in ver 1.2 or later)

This unit has an alive text feature which will send out a alive text as often as it has been programmed for.

To turn the feature on:

   Command: Turn alive text on every xx yy   (where xx=1 to 99, yy = hrs or days)

This sets how often the alive text is sent out, XX can be between 1 and 99
Example: Turn alive text on every 2 days
Every 2 days the Alive text will be sent out

 If everything is fine, the system responds with:

   This feature has been set, the following text will be sent every xx yy   (yy = hrs or days)

   Alive text, battery is currently xx.x volts, signal strength xx %

The default setting will send the Alive text to **All** users, to mask users see page 19

_____

To turn the feature off:

   Command: Turn alive text off

If everything is fine, the system responds with:

   This feature has been disable

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Masking Alive texts.   (only available in ver 1.6 or later)

This feature allows you to mask the Alive text so only the programmed users will receive the Alive text and not all users. The default setting is all users will receive the alive text but once this command has been sent only the programmed numbers will receive the text.

To set mask:

   Command: Add +??XXXXXXXXX to alive text   (example +6442934211)

This will set the mask and only the number as per above will receive the alive text, repeat this for all users that require the alive text.

If everything is fine, the system responds with:

   The number has been added to the alive text list

Setting priority inputs.   (only available in ver 3.3 or later)

When the priority feature is turned on the inputs will have a priority associated to them, input 1 has the highest and input 8 the lowest. For example in input 3 is turned on only inputs 1 or 2 can activate, inputs 4,5,6,7 or 8 will not activate and be ignored, so only a higher input than the one that is currently activated will activate.

To set feature:

   Command: Priority XX   (where XX is either on or off)

If everything is fine, the system responds with:

   The input priority feature has been turned XX (where XX is either on or off)

Calibrating the tank sensor

The tank sensor must be calibrated so the unit knows the voltage swing from empty to full.

There is two methods of calibration:
Method-1 is 2 point = empty and full
Method-2 is 5 point = empty, ¼, ½, ¾ and full (use this if the tank is an odd shape)

Method-1 Two Point

Fill the tank to the required low level then send:

Command: Set low level

The system responds with:

Tank low level has been set

Fill the tank to the required high level then send:

Command: Set high level

The system responds with:

Tank high level has been set

This will set the tank sensor voltage levels and work out the scale for percentages:

Method-2 Five Point

Fill the tank to the required low level then send:
Command: Set low level

The system responds with
Tank low level has been set

Fill the tank to the required 1/4 level then send:
Command: Set 1/4 level

The system responds with:
Tank 1/4 level has been set

Fill the tank to the required 1/2 level then send:
Command: Set 1/2 level

The system responds with:
Tank 1/2 level has been set

Fill the tank to the required 3/4 level then send:
Command: Set 3/4 level

The system responds with:
Tank 3/4 level has been set

Fill the tank to the required high level then send:

Command: Set high level

The system responds with:
Tank high level has been set

This will set the tank sensor voltage levels and work out the scale for percentages:

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Set the tank volume

**Command: Set xxxxx YYY (where xxxxx = the total litreage of the tank)
(where YYY can be litres or gallons)**

The system responds with:

The tank volume has been set to xxxxx YYY (where YYY is either litres or gallons)

Set alarm levels

Both low and high alarm levels can be set, the unit will text you when the level has been reached.

**Command: Set xxxx litres yyy alarm (where xxxx is the litres, yyy is either low or high)
  OR
Command: Set xxxx gallons yyy alarm (where xxxx is the litres, yyy is either low or high)**

The system responds with:

**The tank yyy alarm level has been set to xxxx, and the alarm has been turned On
 (where yyy will be either low or high depending on the above)**

Set alarm reset levels

Both low and high alarm levels can be reset automatically when the tank level reaches the programmed reset levels.
Note: If the reset level is not set the default alarm reset level will be 10% great than the low alarm set level and 10% less than the high alarm level.

**Command: Set xxxx litres yyy alarm reset
  OR
Command: Set xxxx gallons yyy alarm reset**

(where xxxx is the litres/gallons, yyy is either low or high)

The system responds with:

The automatic alarm reset level has been set to xxxx litres or gallons

Turning tank alarms On / Off

The tank alarms can be turned On or Off.

Command: Tank xxxx alarm yy   (xxxx can be the word low or high : yy can be on or off)
e.g Tank high alarm off

The system responds with:

 The alarm has been turned yy,   (where yy can be on or off)

Linking alarms to outputs

Both low and high alarm can be linked to an output.

Command: Link xxxx alarm to OUTPUT NAME   (xxxx can be the word low or high)

OUTPUT NAME = the name of the output

The system responds with:

**The tank xxxx alarm has been linked to OUTPUT NAME
 (where xxx will be either low or high depending on the above)**

Clearing linked alarms

This command will remove any programmed link to an output.

Command: Clear xxxx alarm link   (xxxx can be the word low or high)

The system responds with:

The xxxx alarm output link has been removed
(where xxx will be either low or high depending on the above)

Getting the tank level

This command will return the litres or gallons and tank percentage

Command: Tank volume
**   OR**
Command: Fuel level

The system responds with:

Tank volume is xxxx (lts or gals) : yyy %
**   OR**
Fuel level is xxxx (lts or gals) : yyy %

(where xxx will be the litres or gallons and yyy will be the percentage)

e.g. Tank volume is 1200 lts : 68% OR Tank volume is 1200 gals: 68%

Get Firmware Version

Command: Ver

The system responds with: **SMS-T8 Ver X.X**

Get Signal Strenth

Command: Sig

The system responds with: **Currently the signal strength is XX   %"**

Resetting the Unit

Command: Reboot

The system responds with: **Module is now resetting**

Reset Unit to Factory Defaults

---WARNING--

This command restores the unit to factory defaults therefore all settings will be lost

Command: Factory Reset
The unit responds with:

The unit has been restored to factory settings and all memory has been clear

CONDITIONS OF WARRANTY

Penguin Electronics Ltd (the manufacturer) warrants that all of its products are free of defects. Any apparent fault will be rectified free of charge by Penguin Electronics Ltd for a period of 12 months from purchase date, provided that:

❑ All costs of installation, cartage, freight, travelling expenses and insurance are paid by the customer

❑ The liability of Penguin Electronics Ltd under these Conditions Of Warranty is limited to any defective components or workmanship directly attributed to the manufacture of this product

❑ The manufacturer's liability under this warranty is limited to the replacement of defective parts (or at our option, replace) without charge where determined by the manufacturer

❑ Where a replacement unit is provided the manufacturer is entitled to and will retain the replaced product as its property

❑ The equipment has been installed correctly and is used in accordance with the instructions issued with the product

In no event will Penguin Electronics Ltd or its agents accept any liability for any direct, indirect or consequential losses or damages whatsoever or howsoever arising from the use of the product.

Where conditions or warranties are implied or other rights are given in respect of these Conditions of Warranty under the Trade Practices Act or any other laws they are, to the extent permitted by such laws, excluded. Where such conditions, warranties or rights are not able to be excluded, Penguin Electronics Ltd liability for any breach of any such condition or warranty shall, to the extent permitted by such laws, be limited to the repair or replacement of the equipment. These conditions may only be varied with the written approval of the directors of Penguin Electronics Ltd.

Appendix One: Record Your Names for all Inputs and Outputs

Input	Default Name	[Name] (Up to 20 characters)	Latched Yes No	Linked to	Active Open or Closed
1	input1				
2	Input2				
3	Input3				
4	Input4				
5	Input5				
6	Input6				
7	Input7				
8	Input8				
Output					
1	output1				
2	Output2				
3	Output3				
4	output4				

Detailed explanation of Input delays:

On Delay:

This delay is used when the input turns ON:

Example : If input1 has an ON delay of 10mins, when Input1 turns ON the unit will wait 10 minutes then send the following text message "*Input Name* has been turned on"

If the input turns back off before the programmed time delay expires the input is reset and the time starts back at zero.

If the input is linked to an output it will also state the linked output has also been turned on

Off Delay:

This delay is used when the input turns OFF:

Example : If input1 has an OFF delay of 10mins, when Input1 turns OFF the unit will wait 10 minutes then send the following text message "*Input Name* has been turned off"

If the input turns back on before the programmed time delay expires the input is reset and the time starts back at zero.

If the input is linked to an output it will also state the linked output has also been turned off

Trouble Shooting Guide

PROBLEM	CAUSE	POSSIBLE SOLUTION
LED not flashing	No power	Check power supply
LED fast flashes (every 1 second) and never slow flashes (every 3 seconds)	Cannot find the GSM network	1. Replace aerial with high gain aerial 2. Move unit to different location 3. SIM card not installed 4. SIM has a pin number (remove) 5. SIM is locked (remove lock)
LED slow flashes (every 3 seconds) But no texts are sent or received	The unit can find the GSM network (hence the slow flashes) but the signal strength is to low	1. Replace aerial with high gain aerial 2. Move unit to different location 3. SIM card NOT registered with the network provider 4. No credit on the SIM card

SMS-T8 Connected To The Tank

The SMS-T8 can be used with either a pressure sender monitoring the complete tank or just with a low and high level switch.

To set-up send the following commands (bold):

If using a pressure sensor to monitor complete tank:

 Send: **Set user**
        See Calibrating the tank sender page 21
 Send: **Set low level**
        See Calibrating the tank sender page 21
 Send: **Set high level**

Send: **Set xxxxx YYY**   (where xxxxx is the tank total litres/gallons)
 Where YYY is either litres or gallons   e.g set 30000 litres

 Send: **Set xxx YYY low alarm** (this is the tank level that you want the pump to turn on at)   **Where YYY is either litres or gallons.** e.g set 1000 litres low alarm

 Send: **Set xxx YYY low alarm reset** (this is the tank level that you want the pump to turn off at) **Where YYY is either litres or gallons**   e.g set 29000 litres low alarm

 Send: **Add user xxxxxxxxxxxx** (this is the number of the sim card in the pump controller SMS-2)   See page 8 of the manual (Adding a user)

 Send: **Set xxxxxxxxxxxx as pump controller** (where xxxxxxx is the same number as above)

If using a low and high float switch:

Connect low float switch to input1 and high float switch to input2
Float switch must be normally open closing when water is present.

Send: **Set user**

Send: **Add user xxxxxxxxxxxx** (this is the number of the sim card in the pump controller SMS-2   See page 8 of the manual (Adding a user)

Send: **Set xxxxxxxxxxxx as pump controller** (where xxxxxxx is the same number as above)

 Send: **Set float mode**

To set-up the SMS-2 Connected To The Pump

<mark>SMS-2 (Pump controller)</mark>

Send the following commands:

Send: **Set user**
Send: **Set pump mode**
Send: **Add user +xxxxxxxxxxxx** (this is the number of the sim card in the tank controller either SMS-T4 or SMS-T8)   See page 8 of the manual (Adding a user)

Finish
Once you are happy with the system you can stop the tank low and reset texts from being sent to the original user (the number that sent set user (**your number**)).
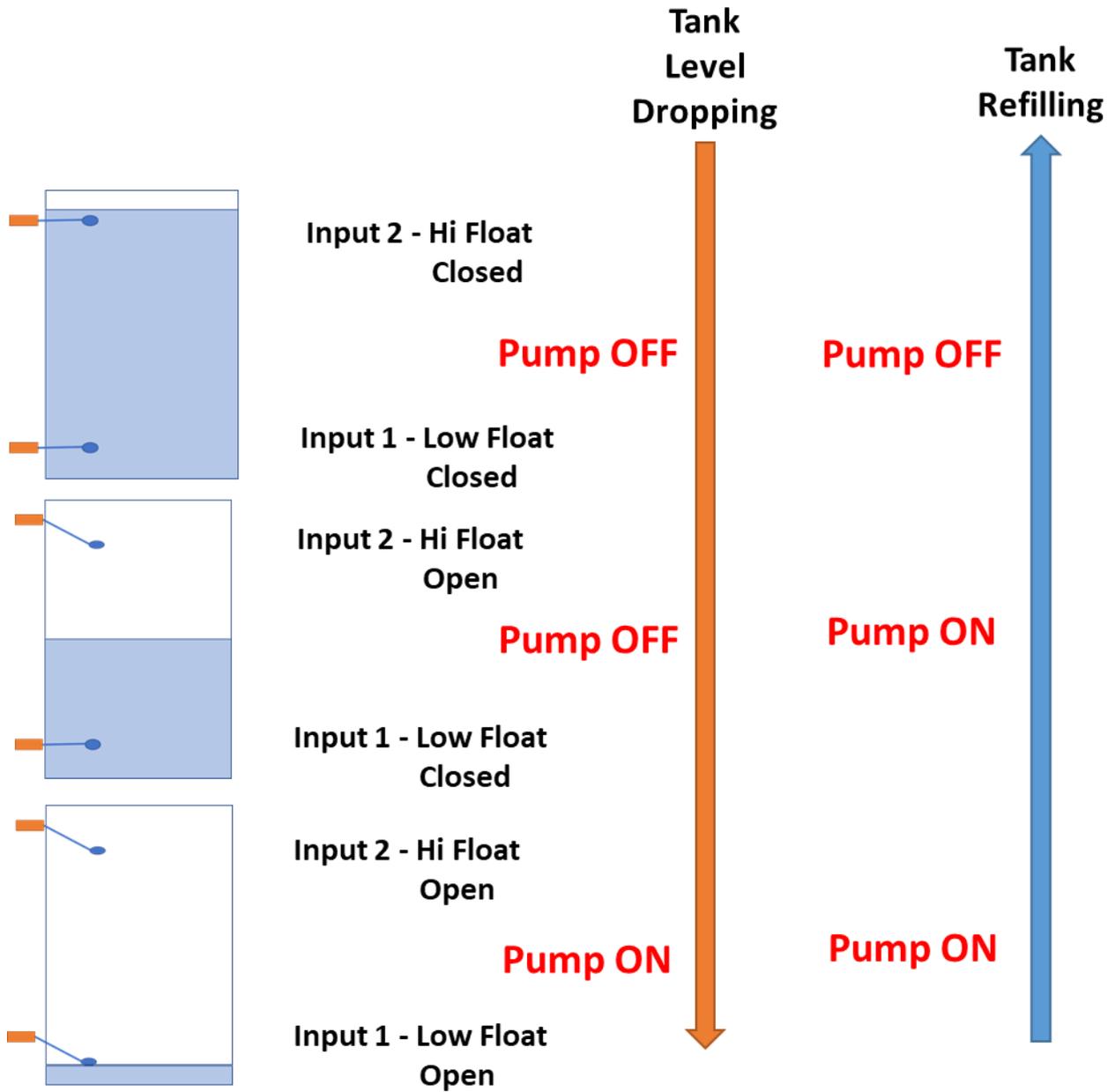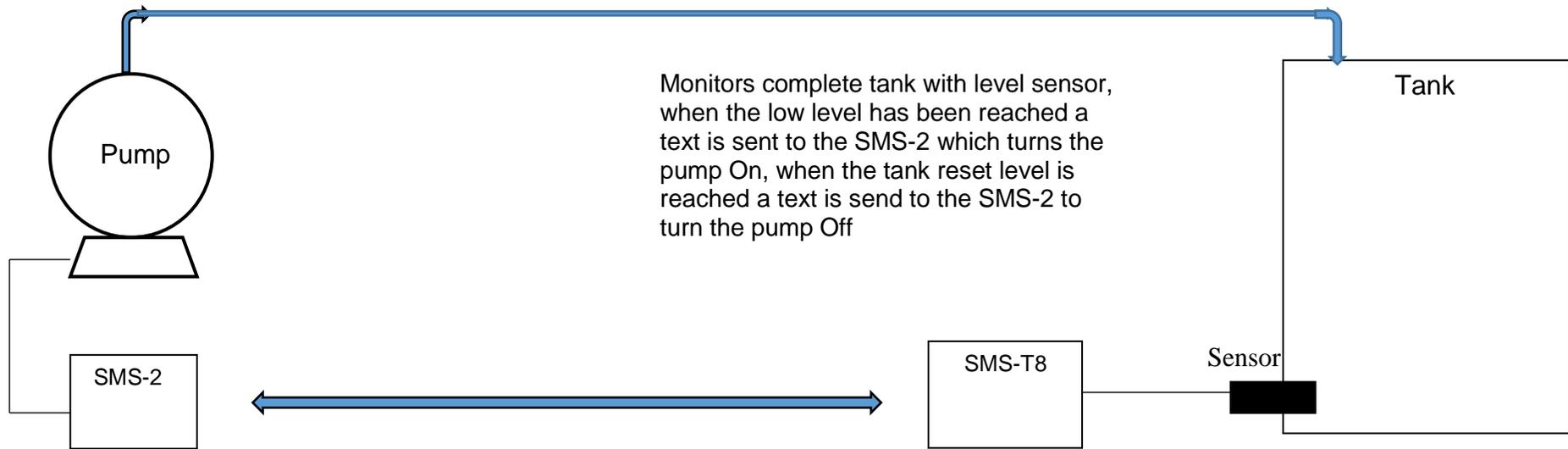
Send: **Set pump text off**

To re-instate

Send: **Set pump text on**

Note: Connect the pump to output1

Float Mode Pump Operation

Input 2 - Hi Float
Closed

Input 1 - Low Float
Closed

Input 2 - Hi Float
Open

Input 1 - Low Float
Closed

Input 2 - Hi Float
Open

Input 1 - Low Float
Open

Tank Level Dropping

Pump OFF

Pump OFF

Pump ON

Tank Refilling

Pump OFF

Pump ON

Pump ON

Pump

Monitors complete tank with level sensor, when the low level has been reached a text is sent to the SMS-2 which turns the pump On, when the tank reset level is reached a text is send to the SMS-2 to turn the pump Off

Tank

SMS-2

SMS-T8

Sensor

OR

Pump

Monitors low and high points with float switches, when the low float switch turns On a text is sent to the SMS-2 which turns the pump On, when the high float switch turns On a text is send to the SMS-2 to turn the pump Off

Tank

High Float Switch

SMS-2

SMS-T8

Low Float Switch