G5000

4G Input / Output Controller

DESIGNED IN AUSTRALIA
ASSEMBLED IN FIJI

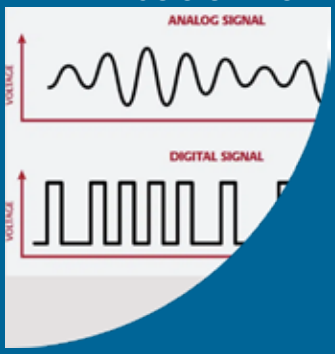
The Possibilities Are Endless!

SPORTS FIELD LIGHTING

TANK MANAGMENT

IRRIGATION CONTROL

DIGITAL AND ANALOG SIGNALS



ELSEMA

Warning and safety instructions

Safe startup

Do not use in places where phone equipment is prohibited.

Interference

Wireless equipment might interfere with the 4G network signals of the G5000 and influence its performance.

Avoid using at Petrol / Gas Stations

Do not use G5000 at a petrol / gas station. Power off the 4G receiver when near fuels or chemicals.

Avoid using near blasting areas!

Please follow relevant restrictive regulations. Avoid using the device in blasting places.

Reasonable Use

Please install the product at a suitable place as described in this manual. Avoid signal shielding by covering the mainframe.

Maintenance

Setup and wiring should be performed exclusively by skilled technical professionals.

Technical Data

Power Source	12 Volts DC
Network	Telstra, Vodafone. Optus (Nano SIM)
Output	4 x relay outputs rated at 10A, 240VAC
Input	2 x Digital, 2 x Analog (4-20mA)
Shipping Weight	650 grams
Dimensions	190 x 120 x 60 mm

Important instructions!

- Before attempting to set up the G5000, ensure that you have thoroughly read and understood the provided instructions.
- The G5000 receiver should be setup with Elsema's desktop App.
- Ensure that Caller ID is enabled on the phones of all **authorised users**, allowing the 4G receiver to identify the caller.
- Following the initial setup, only administrators will be able to make any changes.
- There can be up to 10 administrators. **Password recovery will be exclusively sent to the 1st administrator.** It is crucial to ensure that the correct phone number has been designated as the 1st administrator.
- In the absence of an administrator, the unit must be returned to Elsema for password recovery (Charges will apply).
- Performing a factory reset will erase all data, including the list of authorised users.
- When utilizing Bluetooth setup, the user must be in close proximity to the 4G receiver, ensuring that Bluetooth functionality is activated.

Before Setup

1. Download and install the desktop App from the following link on Elsema's website: https://elsema.com/g5000/
2. Ensure that the SIM is activated. Connect the SIM card into a phone and it should be able to make and receive calls as well as send and receive SMS messages.
3. Get in touch with your service provider and get them to turn OFF the voicemail service.
4. Carefully insert the SIM card into the designated SIM holder. The G5000 will only accept Nano SIM. (Refrain from inserting or changing the SIM card while power is connected or if any LED indicators are On).
5. Connect the power supply to the unit.
6. Once the LED turns green from white flashing, it has successfully registered to the network.
7. The device is now ready for setup.

Features

- 4 Relay outputs
- 2 Digital inputs
- 2 Analog inputs
- Universal compatibility
- Secure password protected
- Easy setup with desktop App
- 12 Volts DC power pack included
- G5000+ has more advance features
- Only authorised numbers can operate the unit
- Operates from anywhere if 4G Network is available

Applications

- Sports field lighting with SMS
- Irrigation Control
- Water quality management
- Industrial automation and process control for analog signals, e.g. temperature, pressure, flow, and level etc.

Description

This versatile, feature-rich 4G receiver can be used in endless applications, limited only by your imagination. Refer to this user guide to fully understand its capabilities and applications.

The G5000 is a multi-input, multi-output 4G controller designed for comprehensive monitoring and control applications. This controller is equipped with two digital inputs, two analog inputs, and four relay outputs, making it suitable for a wide range of automation tasks.

The relay outputs can be easily controlled by Authorized Users through SMS commands, allowing for remote management of connected devices and systems. When a digital input is activated, such as when a sensor detects a specific condition, it instantly sends an SMS notification to Administrators, ensuring that they are always informed about critical status changes in real time.

Any relay can be setup to turn ON with a phone call as well.

The G5000+ makes it easy to automatically control and monitor different parts of a process using its advanced features. It can work with both analog and digital inputs. In the ANALOG CONTROLS section, users can choose which relay to control and set the ON and OFF points for it. The system can also send a text message to the admin when the relay turns ON or OFF. The Remote Relay feature adds even more flexibility by allowing two units to communicate via SMS, enabling them to operate in master / slave configurations.

Definitions

Administrator
Only administrators are able to make changes to the G5000 using the desktop App or by SMS.
Only administrators will receive SMS or phone call when inputs are activated.
There can be up to 10 administrators. Password recovery will ONLY be sent to the 1st administrator.

Admin Passcode
Admin passcode is for administrators only and is used operate or to make changes to the G5000 using the App or by SMS.

Authorised User
Authorised users can operate the G5000 with SMS or phone call but are not able to make any changes to the unit. There can be up to 250 users in G5000 and up to 2000 for G5000+.

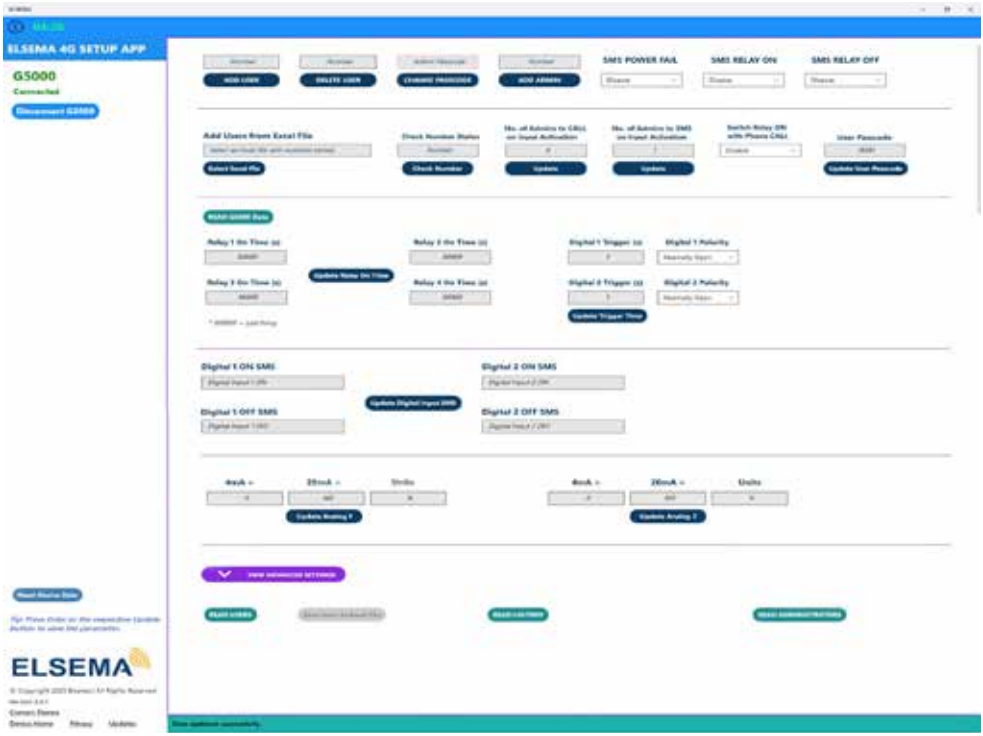
User Passcode
User passcode is used to operate the G5000. The passcode is linked to the users for operating the G5000 only. No changes can be made with the user passcode.

Comparison

Function	G5000	G5000+
Switch relay with SMS	✓	✓
Switch a relay with phone call	✓	✓
Adjust relay ON time	✓	✓
Adjust digital input trigger time	✓	✓
Digital input sends SMS on trigger	✓	✓
Digital input calls on trigger	✓	✓
SMS analog input value on request	✓	✓
ON / OFF setpoint for analog input		✓
Analog input sends SMS on setpoint		✓
Digital input turns relay ON / OFF on trigger		✓
Send SMS when digital input turns relay ON / OFF		✓
Control slave unit when Digital input is triggered		✓
Control slave unit when Analog input setpoint is reached		✓

G5000 Setup

After a successful installation, open the Elsema Desktop App and follow the on screen instructions. Make sure to add an Administrator number.



Menu	Description
Add User	Enter the phone number of a user. *(Users cannot make any changes)*
Delete User	Deletes the users phone number
Change Passcode	Default Admin passcode is 1234. Change it to your own 4 digit code.
Add Admin	Enter the phone number of the Administrator. Only the Administrator, with the correct passcode is able to make changes and receive input status
SMS Power Fail	Sends SMS when power fails
SMS Relay ON	Sends SMS when relay is turned ON

Menu	Description
SMS Relay OFF	Sends SMS when relay is turned OFF
Add Users from Excel File	Allows bulk addition of users from an Excel file
Check Number Status	Checks if a number is stored as a user
Number of Administrators to Call on Input Activation	Calls the number of Administrators selected upon an input activation
Number of Administrators to SMS on Input Activation	Sends SMS to the number of Administrators selected upon an input activation
Switch Relay by Call	Choose which relay will turn ON when users or Admins call the unit
User Passcode	Users will need this passcode to operate the G5000 using SMS
Relay On Time	Sets the relay ON time. 0 = 0.5sec : 99999 = Latching
Digital Trigger	Sets the time to activate the input 0 - 99sec (0 = 0.5sec)
Digital Polarity	Digital inputs can be set to Normally Open or Normally Closed
Analog 1 / Analog 2	Analog inputs are 4-20mA signal. 4mA = 0%, 20mA = 100%. Choose your 4 digit unit
Digital ON SMS	Enter the text message which the admin will receive when input is activated
Digital OFF SMS	Enter the text message which the admin will receive when input is deactivated
Read Users	Displays a list of authorised users stored on the unit
Save users to Excel File	Saves a list of all the users in an Excel file
Read History	Reads the device usage history
Read Administrators	Displays a list of Administrators users stored on the unit

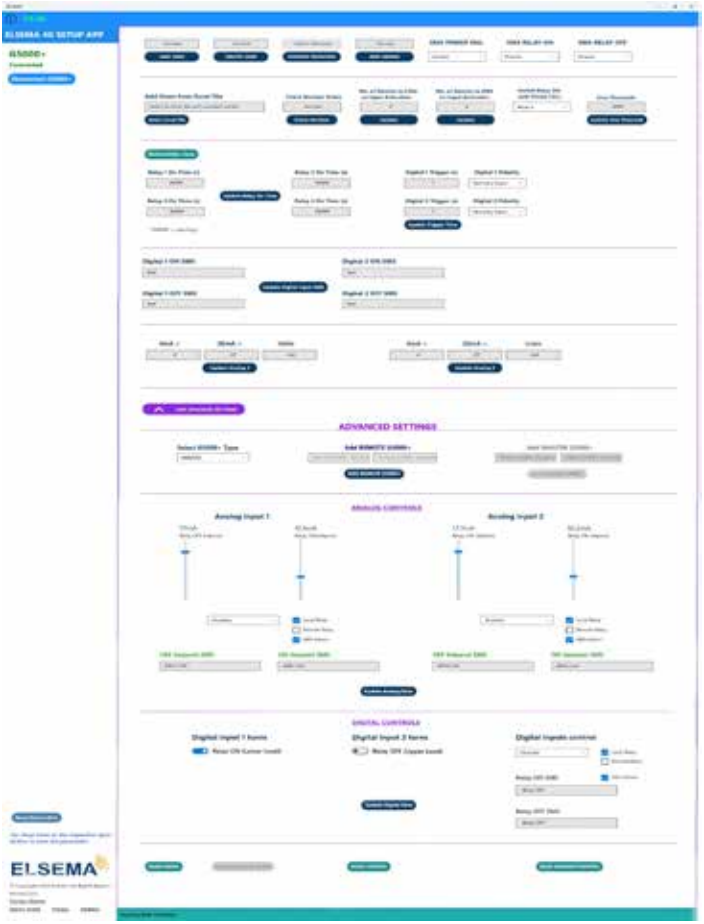
**SMS charges will apply for all SMS functionality.*

G5000+ Setup

The G5000+ is equipped with advanced configuration options, allowing for greater flexibility and control. Input channels can be assigned specific setpoints, and once these thresholds are met, the unit will send SMS notifications to administrators or activate / deactivate local or remote relays.

The G5000+ is highly suited for applications such as tank level control, temperature and humidity monitoring, pressure monitoring, flow rate detection, liquid level measurement, and environmental monitoring, where accurate and reliable sensor readings are essential. It is also effective for monitoring industrial systems, HVAC systems, water quality management, and agricultural systems that rely on 4–20mA sensors for real-time data collection and control.

Furthermore, the G5000+ supports a master / slave configuration, enabling one unit to trigger remote relays on connected devices when setpoints are reached.



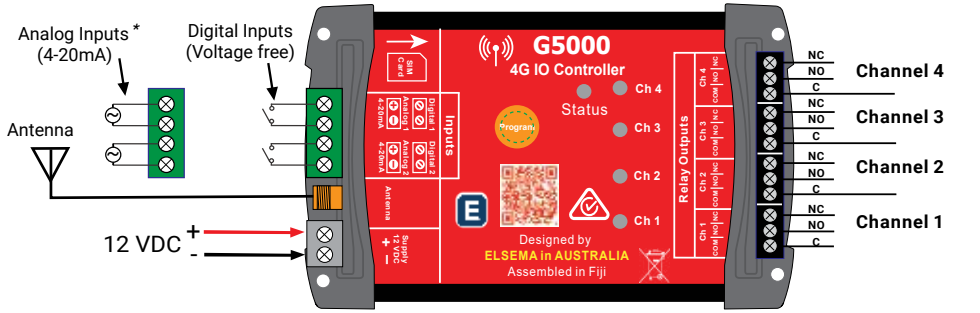
Menu	Description
Select G5000+ Type	Select if G5000+ is master or slave if used in a network If used as a single unit select master
Add Remote G5000+	Add the remote G5000+ phone number and passcode
Add Master G5000+	Add the master G5000+ phone number and passcode
Relay OFF Setpoint	Sets the analog level at which the relay switches OFF
Relay ON Setpoint	Sets the analog level at which the relay switches ON
SMS Relay On	Sends SMS when relay is turned On
SMS Relay Off	Sends SMS when relay is turned Off
Local Relay	Select which relay will be controlled by the analog input
Add remote relay	Enables control of a remote G5000+ relay
SMS Admin	Sends SMS to the 1st Administrator when the ON or OFF setpoint is reached
Digital Input turns	Determines if the relay is turned ON or OFF with an active digital input

*SMS charges will apply for all SMS functionality

Contact Elsema for advance G5000+ options

Block Diagram

Application Diagram



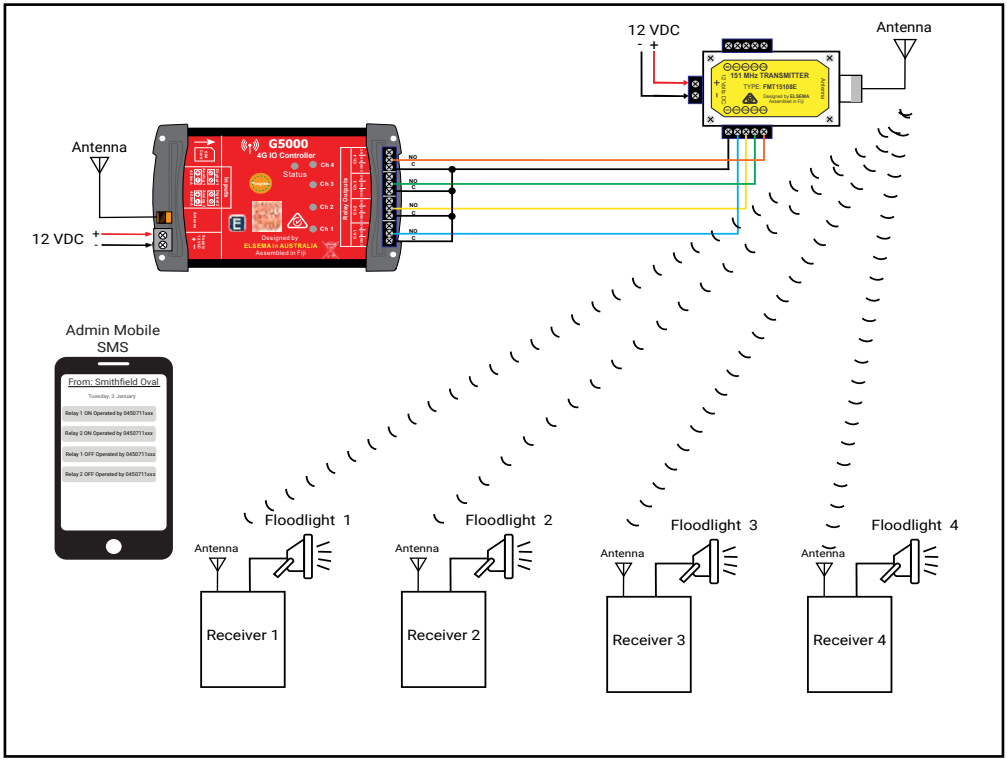
NC - Normally Close
NO - Normally Open
C - Common

** The G5000's supply negative should be connected to the analog sensors supply negative.*

Application Example

Engineered for performance and flexibility, this advanced 4G receiver empowers a limitless range of applications. What you see below are just a glimpse of what's possible.

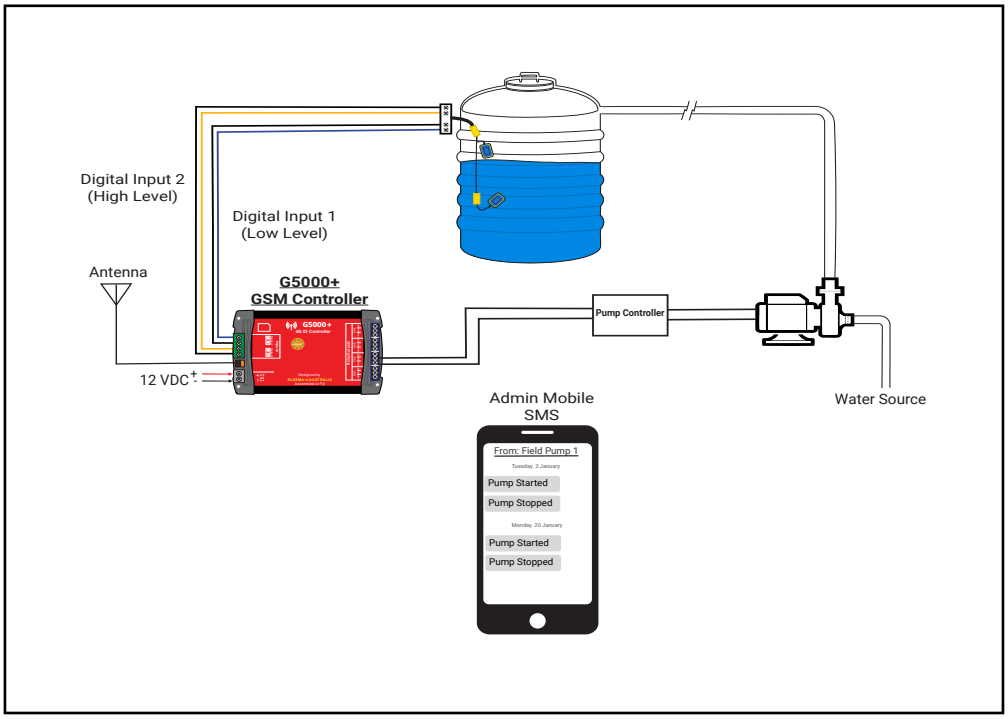
Sports Field Lighting



In this example, the G5000 is paired with Elsema's FMT151MHz series transmitters and receivers, which has an operating range of up to 5 km, allowing the floodlights to be located at that distance from the central control point. Each floodlight can be switched ON or OFF independently via SMS commands.

The G5000 also supports automatic notifications, alerting the administrator when any of the lights are switched ON or OFF by authorized users. This configuration is ideal for applications where lighting is only needed in specific areas, such as different sections of a field.

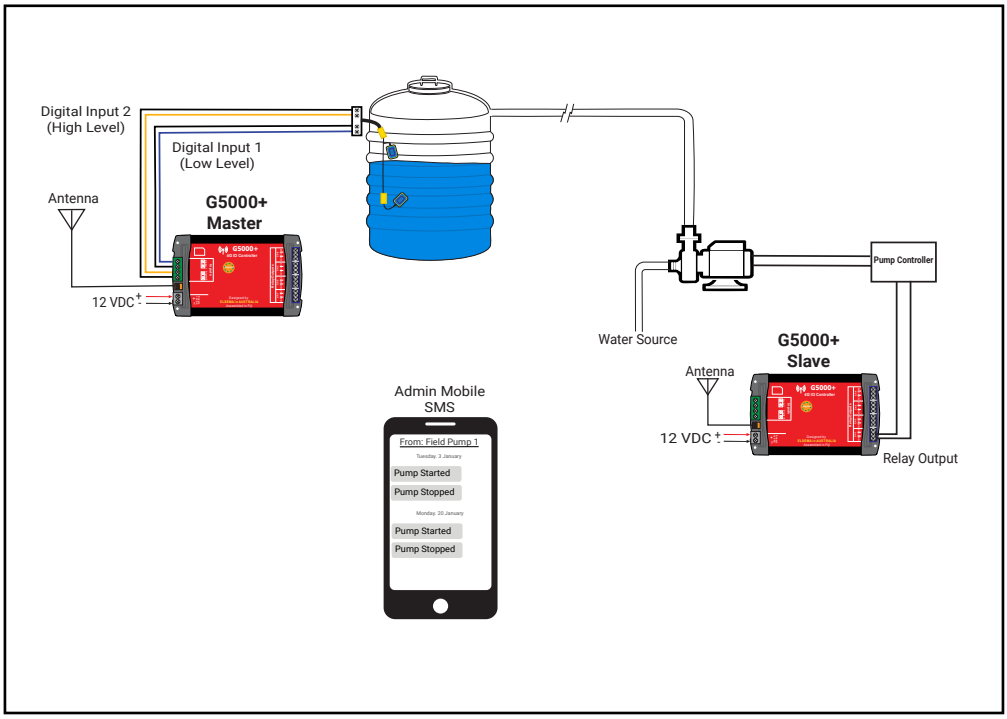
Water Tank Control Application 1



In this setup, the G5000+ is configured to automatically activate a pump when the water level in the tank drops below a predefined threshold. Once the pump is started, the system will continue filling the tank until the desired level is reached.

Each time the pump starts or stops, the G5000+ sends an SMS notification to the administrators, ensuring real-time monitoring and control of the system. This setup is ideal when the pump is located next to the tank.

Water Tank Control Application 2 (Master / Slave)



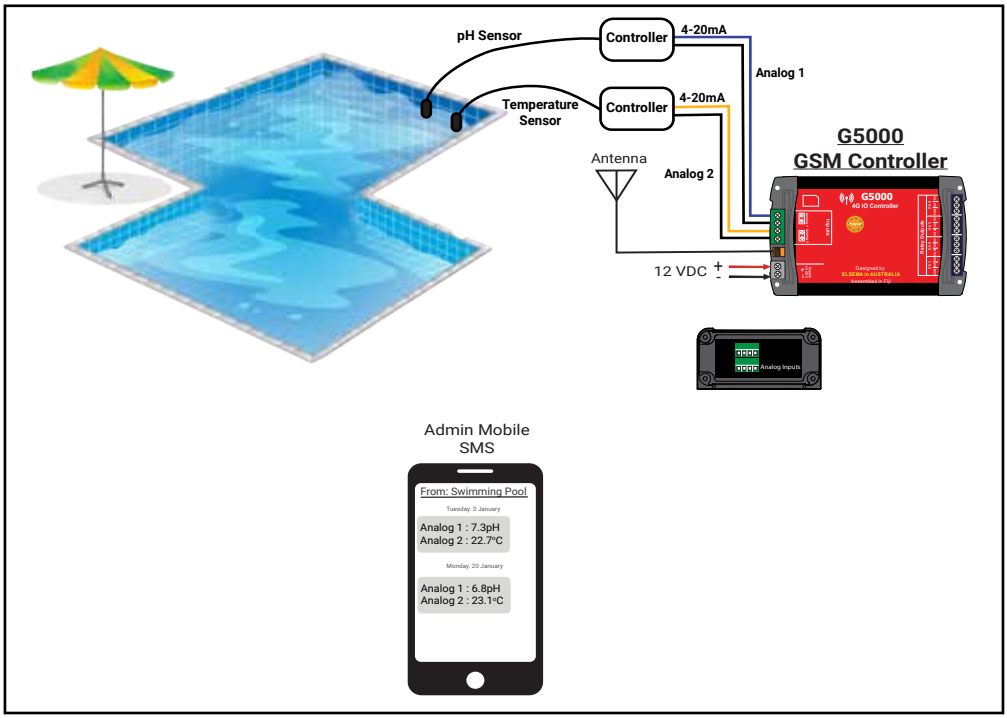
In this setup, two G5000+ units are used to manage the automatic refilling of a water tank one positioned at the tank location (master) and the other at the pump location (slave).

When the water level in the tank drops below a set threshold, the master G5000+ sends an SMS notification to the slave G5000+, which then activates the pump to begin refilling the tank. Once the tank reaches the full level, the master unit sends another SMS to the slave unit to stop the pump.

Additionally, the master G5000+ sends SMS alerts to the administrators each time the pump starts and stops, ensuring real-time monitoring and control.

This configuration is ideal for scenarios where the pump is located at a significant distance from the tank, offering reliable remote control and communication between the two units, while keeping the administrator informed.

Swimming pool pH & temperature monitoring



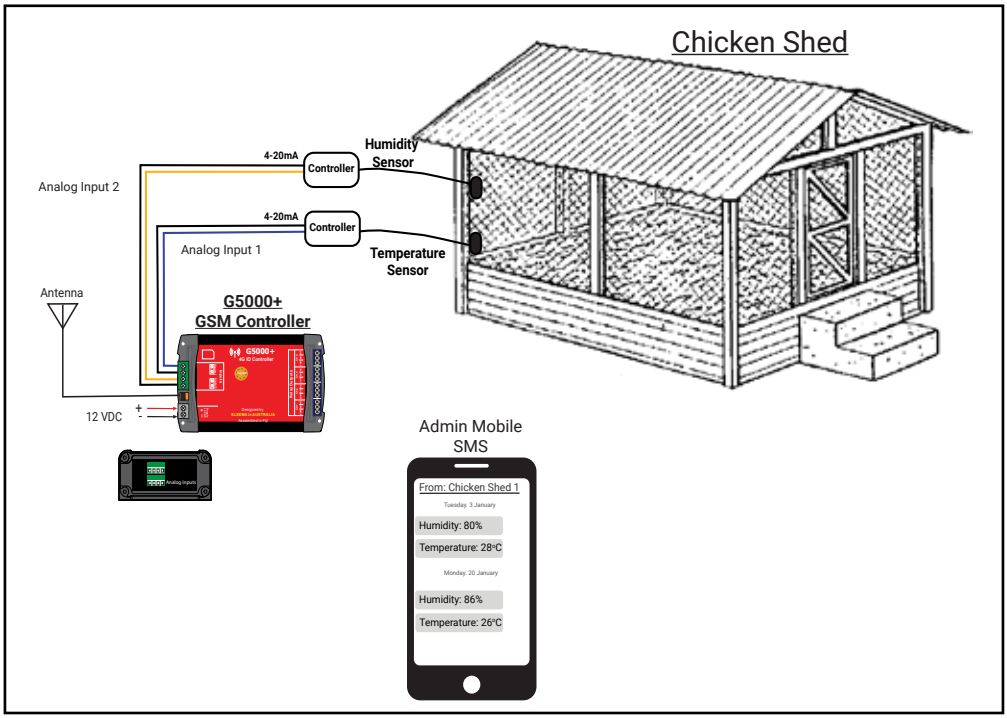
In this configuration, two 4–20mA analog inputs on the G5000 are used to monitor the pH and temperature of a swimming pool.

The G5000 is connected to sensors that measure the pH and temperature of the water. These readings are stored within the unit and can be accessed by the user by sending an SMS enquiry. Upon request, the G5000 replies with the current sensor values, allowing the user to check water conditions remotely.

In addition to monitoring, the G5000 includes SMS-activated relays that can be connected to external devices, such as systems that adjust pH and temperature levels. This enables users to not only monitor but also remotely control and maintain water quality as needed.

This solution is particularly suited for pool operators who require periodic updates without the complexity of continuous data transmission, offering a streamlined and effective approach to remote, on-demand water management.

Chicken shed monitoring



In this application, the G5000+ uses its two 4–20mA analog inputs to monitor temperature and humidity levels inside a chicken shed.

The G5000+ takes poultry environment management to the next level. Advanced sensors continuously track temperature and humidity, providing real-time insights to ensure peak health and productivity. For seamless operation, the G5000+ can automatically switch local relay outputs ON or OFF when setpoints are reached delivering hands-free control of ventilation, heating, or cooling systems. Plus, if conditions move beyond your set thresholds, instant SMS alerts are sent to the administrator, ensuring fast action and peace of mind.

This setup is ideal for maintaining a stable and healthy environment within the shed, helping to reduce stress in poultry, prevent disease, and support efficient farming operations with the convenience of remote monitoring and alerts.

SMS Operation Commands

The following SMS commands are used to operate and control the unit.

Assuming the Administrator passcode is 1234

SMS Command	Example	Function
PIN R1ON	1234 R1ON	Turns relay 1 ON
PIN R2ON	1234 R2ON	Turns relay 2 ON
PIN R3ON	1234 R3ON	Turns relay 3 ON
PIN R4ON	1234 R4ON	Turns relay 4 ON
PIN R1OFF	1234 R1OFF	Turns relay 1 OFF
PIN R2OFF	1234 R2OFF	Turns relay 2 OFF
PIN R3OFF	1234 R3OFF	Turns relay 3 OFF
PIN R4OFF	1234 R4OFF	Turns relay 4 OFF
PIN ALLON	1234 ALLON	Turns all relays ON
PIN ALLOFF	1234 ALLOFF	Turns all relays OFF
PIN DSTATUS	1234 DSTATUS	Get device status SMS
PIN GET ANALOG	1234 GET ANALOG	Get Analog input data SMS

SMS Setup Commands

The following SMS commands are used to setup the unit. *Only Administrators are able to do changes.*

Assuming the Administrator passcode is 1234

SMS Command	Example	Function
Change Admin Pin	1234 CHG PIN 5678	Change the Administrator PIN
Add Administrator	1234 ADD ADMN 04xxxxxxxx	Adds administrator to the list. Replace 04xxxxxxxx with the user's phone number.
Add a User	1234 ADD USER 04xxxxxxxx	Adds user to authorised number list. Replace 04xxxxxxxx with the user's phone number.
Delete a User	1234 DEL USER 04xxxxxxxx	Deletes user from authorised number list. Replace 04xxxxxxxx with the user's phone number.
Change User Pin	1234 USERPIN 5678	Change the User PIN
Relay 1 On Time	1234 OFF DEL1 XXXXX	0.5s to 99998 sec XXXXX = 00000 => 0.5sec XXXXX = 99999 => Latching
Relay 2 On Time	1234 OFF DEL2 XXXXX	
Relay 3 On Time	1234 OFF DEL3 XXXXX	
Relay 4 On Time	1234 OFF DEL4 XXXXX	
Input 1 Trigger Time	1234 IP TRIG1 XX	XX => 00 – 99 sec 00 = 0.5s
Input 2 Trigger Time	1234 IP TRIG2 XX	
Set the recipient of relay ON confirmation	1234 RONCONF XXXX	XXXX = OFF => Disabled XXXX = USERONLY => User XXXX = ADMIN => Administrator XXXX = USER+ADMIN => User & Administrator
Set the recipient of relay OFF confirmation	1234 ROFFCONF XXXX	XXXX = OFF => Disabled XXXX = USERONLY => User XXXX = ADMIN => Administrator XXXX = USER+ADMIN => User & Administrator
Change input 1 polarity	1234 INPUT1 XX	XX = NC => Normally Closed XX = NO => Normally Open
Change input 2 polarity	1234 INPUT2 XX	
Soft Reboot	1234 REBOOT	Reboots the G5000

Accessories

The ANT4GMAG features a 22 cm whip antenna with a 3-meter cable, an SMA connector, and a convenient magnetic base for secure mounting. It supports a wide frequency range from 700MHz to 2700MHz, making it ideal for a variety of wireless communication applications.

ANT4GMAG with 3-meter cable and magnetic base

Recover Passcode

Turn off the power supply to the G4000, making sure that the LED light goes off. Then, restore power to the device. As soon as the LED light becomes a steady white, press the program button five times within a 10-second timeframe. The LED will change to a cyan (light blue) color. The passcode will be sent via SMS to the 1st administrator with-in 60sec.

Reset to Factory Default (This will erase all settings including the number list)

Disconnect power to the G4000 and wait until the LED is off. Press and hold the program button and apply power to the unit. Release the program button when the LED turns Red. Reset is complete when the LED turns White.

LED Indication

LED Color	Mode
White	Boot-up
Magenta Flashing	SIM not detected
Magenta	SIM detected, connecting to network
Green	Connected to 4G Network
Blue Flashing	Bluetooth ON but not connected
Blue	Bluetooth connected
Yellow	SMS received
Red	Power failed
Cyan	Passcode sent via SMS to the 1st Administrator

Troubleshooting Guide

Fault	Solution
No light on the unit	Check the power supply. There should be 12VDC connected to the supply terminal. Check for correct polarity.
Unit does not respond to the phone call	1. Ensure that the caller is in the user list. 2. Ensure that caller ID is enabled on the users phone. 3. Insert the SIM into a phone and it should be able to make and receive calls. 4. Ensure that the SIM is active and registered with the service provider.
Led is Magenta	SIM is not connected to the network. 1. Insert the SIM into a phone and it should be able to make and receive calls. 2. Ensure that the SIM is active and registered with the service provider.
No return SMS when SMS command is sent	1. Ensure that the correct passcode is used. 2. Ensure there is credit in the SIM account and the device is connected to the network.
Unit stops responding to phones calls randomly	1. Check network signal strength by sending SMS command. 2. Move the unit to a location with better signal strength. 3. Upgrade the antenna to ANT4GMAG.
Unit stopped responding to phone calls completely and LED is Magenta flashing.	SIM is not connected to the network. 1. Insert the SIM into a phone and it should be able to make and receive calls. 2. Ensure that the SIM is active and registered with the service provider.

Administrator List

Admin No.	Administrator Phone Number
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

NOTES

Keyring remote controls

Sliding gate motor kits

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