

# GSM Telemetry for Agriculture

*Free your time and focus on farming...*

GSM Telemetry solutions to start pumps, pivots, prevent cable theft, provide security, access control, reporting, electric fencing, etc.

Some of the Agricultural applications listed in this document:

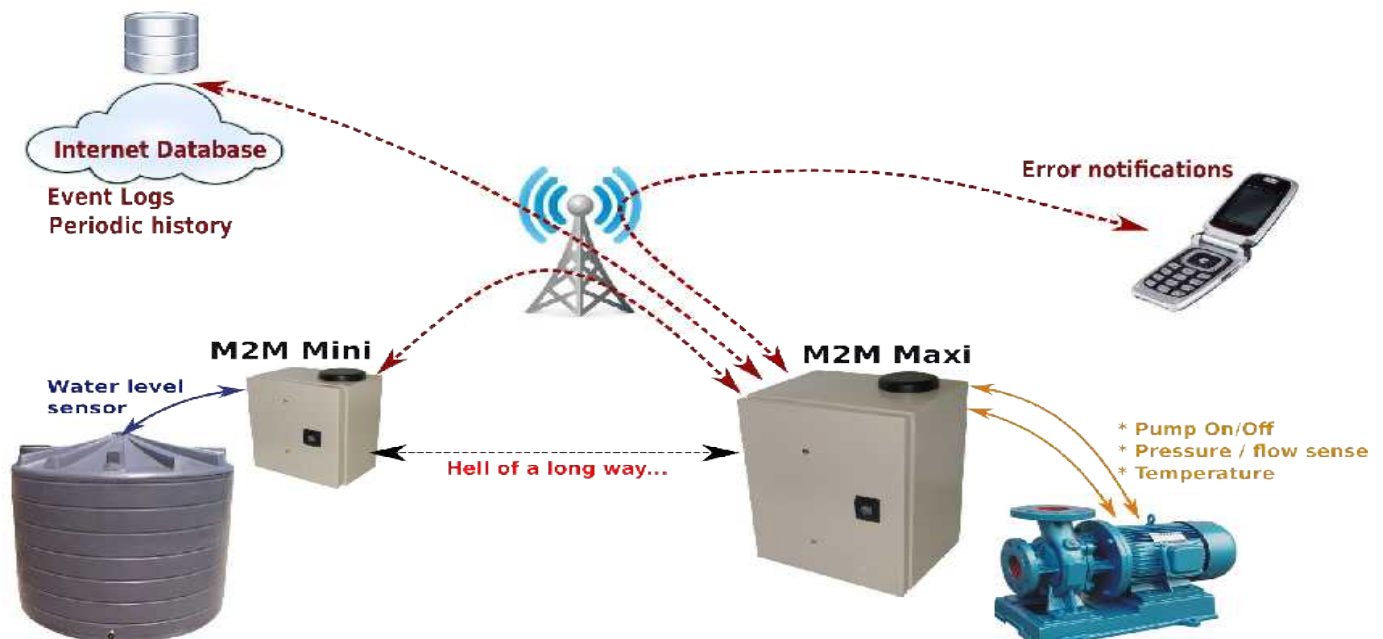
## **Pump / Pivot control and monitoring**

The a GSM Commander is installed at the pump house and another at the pivot.



## **Pump & Tank Control**

The tank is 6km away from the borehole and needs to be filled automatically when almost empty. Use 2x GSM Commanders to dropped call each other for Machine to Machine communication.



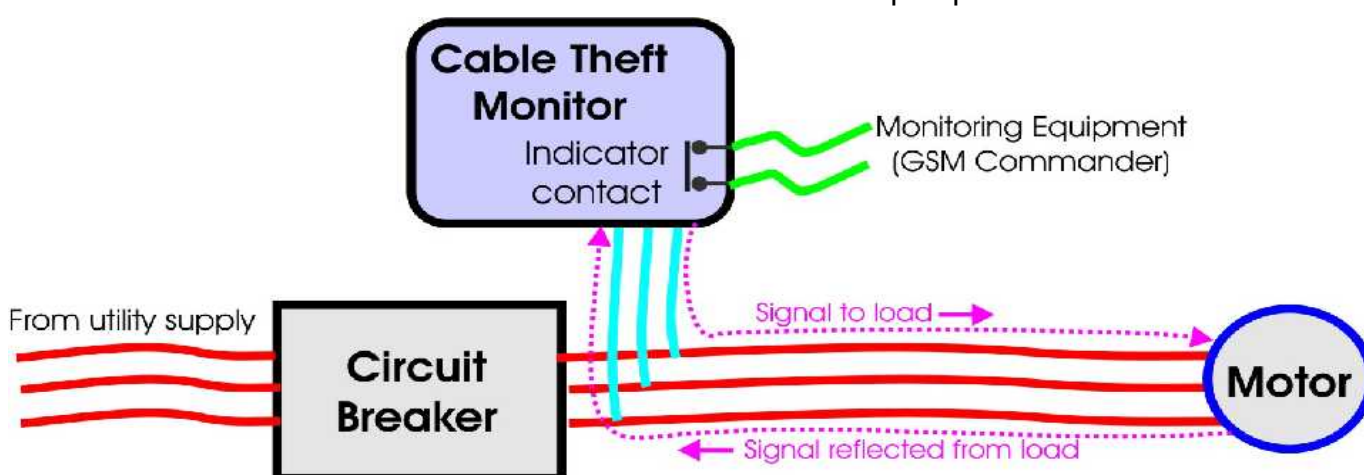
## Coldroom monitoring & Generator control

The GSM Commander is installed to send SMS alarm when the coldroom temperature is too high. A backup generator is also controlled and monitored from the GSM Commander.



## Cable Theft Prevention

Monitor powered and unpowered power cables. Install a Cable Theft Monitor at your pumphouse or distribution box to check cable to transformer and cables to pumps. Catch them red-handed.



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## 1. Borehole pump filling reservoir / tank far away

Use the GSM Commander to stop and start your borehole pump in order to fill a reservoir or tank that is far away from the borehole pump.

### Summary

Farmer wants to monitor borehole pump that is filling a drinking water tank.

The GSM Commander-1 is installed at the borehole control box, and GSM Commander-2 at the tank. When the tank water level is low, then the GSM Commander-2 will place a dropped call to GSM Commander-1 in order to start the borehole pump for 45 minutes. Commander-1 will be powered from the 220V supply that is available at the pump, while GSM Commander-2 will be powered from a battery and solar power.

### Case Study

Download detailed case study "[Borehole pump filling reservoir](#)".

### Customer testimony

The borehole supplies all the water for our house, 2 guest cottages and worker houses. The only backup is Teewaterskloof water and that is definitely not drinkable, and once too many did the borehole-to-tank system fail without any warning. We installed the GSM Commander to check any problems and this has saved me much trouble. It's really handy to send a SMS to the GSM Commander to check the water level in the tank. This is a must have if you want to focus on farming, and not worrying. Gawie Bredenkamp, Somerset West



## 2. Pump / Pivot control and monitoring & Cable Theft Prevention

Use the GSM Commander to control & monitor 5 Pivots, 2 pumphouses and 3 dams.

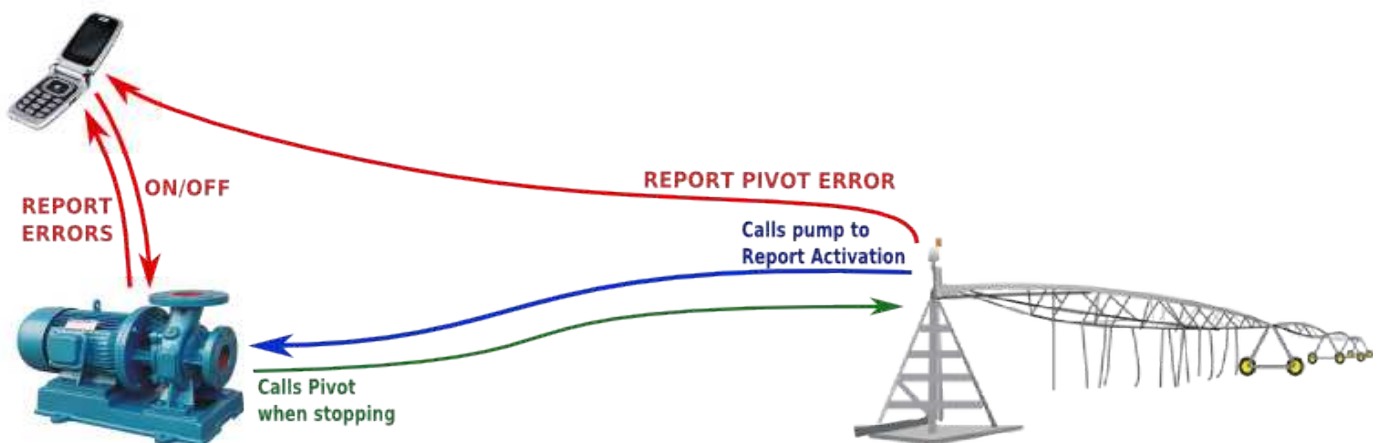
### Summary

A potato farmer has 5 pivots, and use 2 pumps from 3 dams to irrigate his potato fields. The 2 pumps must be able to irrigate any field from any dam, depending on the dam levels.

The GSM Commander is installed to monitor and SMS in case of power failure, pump failure, monitor dam levels, switching actuator valves from various dams, switching actuator valves to pivots and calculate pump running hours for pump maintenance, water meter readings and manage pump house access. All the information is **logged via GPRS** to a web interface for history reporting. Cable theft on Pivots must also be prevented.

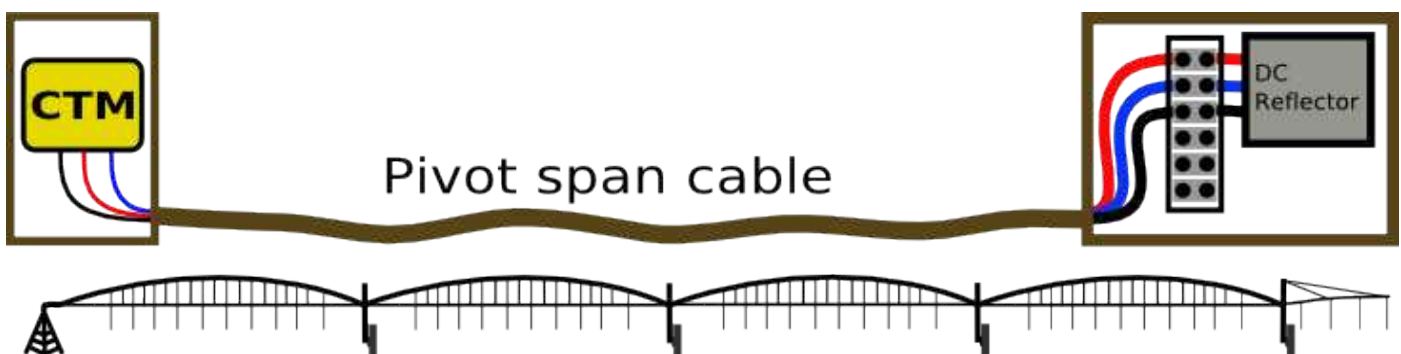
5x Pivots and 2 pumphouses are fitted with a GSM Commander and will be powered from the 220V supply that is available on the Pivots and in the pump house.

Control and monitor the pivot or pump house, and protect the system from cable thieves. Pivot and pump systems vary widely in terms of layout and detail. Some installations are one-pump-per-pivot, in others there may be more than a single pivot per pump or even multiple pumps feeding the same pivot. For this reason, the GSM Commander is an ideal solution because it can be configured to do almost anything, and it can be customized to solve even the trickiest problems.



Protect your pivot cables from thieves by using a Cable Theft Monitor. The CTM allows you to monitor the power cable (without needing the spare wire), even when the power is off!

You can also use this technology for any powered or unpowered 3 phase cables up to 600V.



### 3. Solarpump control and Theft Protection

Use the GSM Commander to stop and start your borehole pump, check battery status, check solar panel charging and prevent cable and equipment theft.

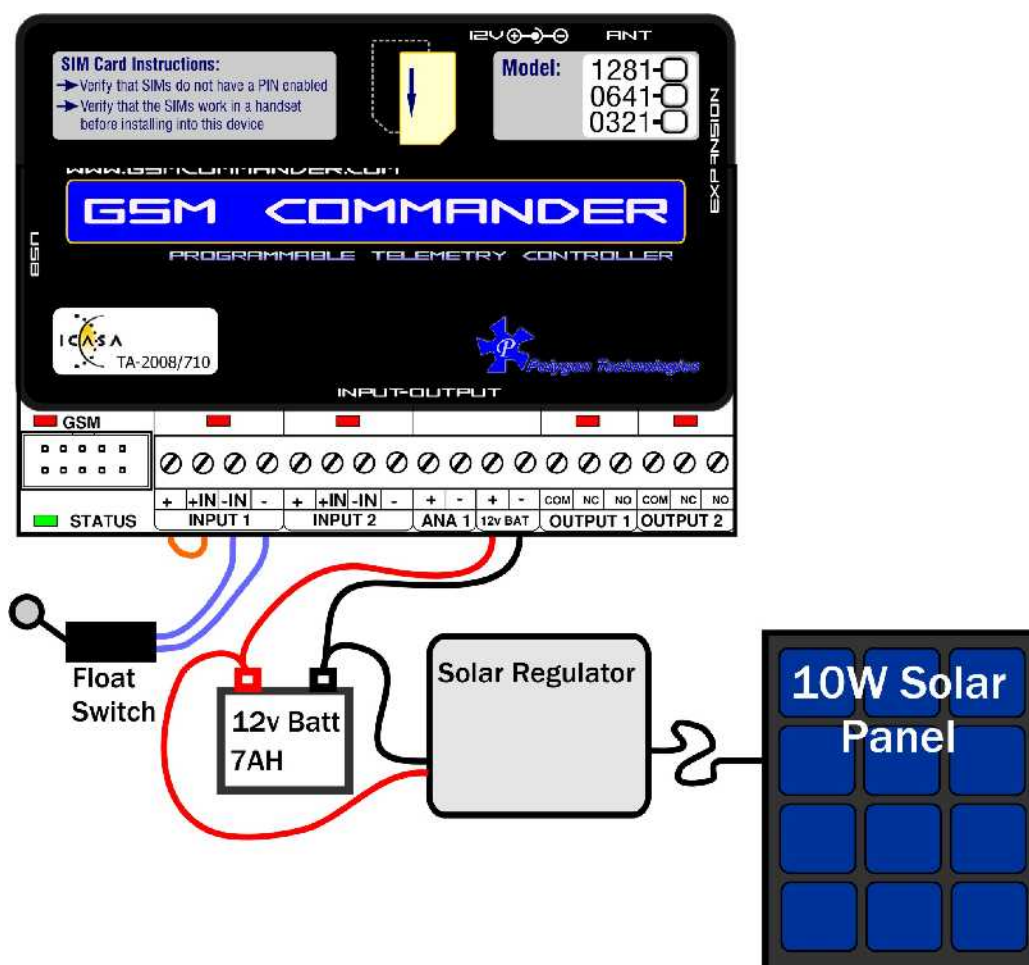
#### Summary

Livestock farmer need to know if the solarpumps are working and if someone is tampering with it. The GSM Commander is installed at the Solarpump controlbox. It checks to see if the solarpump is working, check battery status and notify the farmer when a cable is cut or equipment is tampered with.

#### Customer testimony

We have 3 solarpumps to provide water to some livestock at a neighbouring farm and had endless problems with cable theft. We installed GSM Commanders at all 3 sites to monitor the sites. The first time a got a SMS from the site indicating someone is tampering with the solarpanels, I immediately jumped into my bakkie and rushed there. We caught the person red-handed. After we caught the second person trying to steal cables, the news spread and we haven't had any more problems. I also monitor the water level in the troughs for my livestock.

Fritz Viljoen, Wolmeranstad



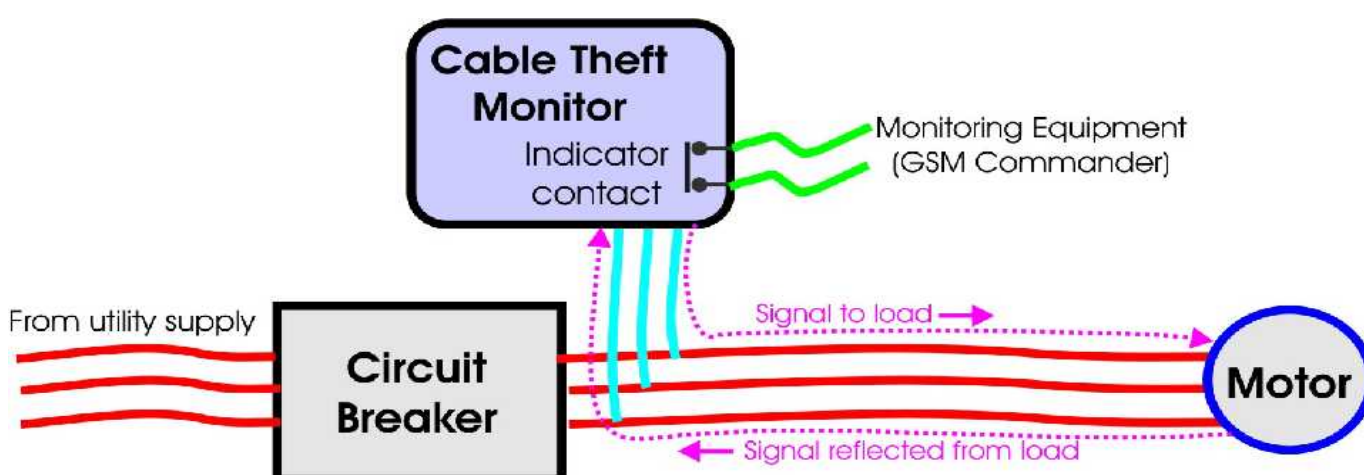


## 4. Cable Theft Prevention

Use the GSM Commander to monitor any cable theft. Monitor and protect from a 3 phase pump cable, transformer cable, irrigation control cable, pivot cable, borehole pump cable or even a Telkom cable. It is really easy to make sure your copper stays where it belongs.

### Summary

A wine farmer irrigates his grapes and is pumping the water over far distances to his various vineyards. The 3 phase cables to the irrigation pumps are often stolen and cause massive disruption and losses. The Cable Theft Monitor is installed with a GSM Commander to detect any cable theft events of unpowered cable.



## 5. Coldroom monitor and Generator control

Use the GSM Commander to monitor Eskom power and to control a back-up generator.

### Summary

A citrus farmer, has a coldroom which needs to be functional 24/7 to keep the citrus fresh. The farmer has experienced huge financial losses in the past due to power failures and the generator not starting.

The GSM Commander is installed inside the generator housing to monitor and send SMS about mains power failure, monitor battery voltage of generator starter, and to automatically start the generator when a mains power failure occurs.

A pressure sensor (submerged in the diesel tank of generator) is connected to the GSM Commander to monitor the diesel level of the generator. A temperature probe is also connected to monitor the temperature of the generator.

### Case Study

Download detailed case study [“Refrigeration & Generator control”](#).

## **6. Borehole Water Treatment**

Use the GSM Commander to control and monitor a borehole, tanks and water treatment system.

### **Summary**

A guest farm with restaurant, deli and family fun area uses borehole for water supply. This borehole water has high iron content and must be treated for use in restaurant, garden irrigation and general use. Iron water from the borehole stains everything red and taste awful. It is critical to always have good clean water and the water treatment system must be monitored for any mishaps or breakdowns.

The GSM Commander is installed to monitor and send sms power failure, pump failure, pump water between tanks through filters, backflush the system frequently, monitor low levels on chemical tanks, monitor clean water tank level.

## **7. Irrigation Pump with sand filters**

Use the GSM Commander to control & monitor irrigation pumps and also do timing of backflush cycle on sand filters.

### **Summary**

A vineyard farmer is using Bergriver water to irrigate his vineyards. The Bergriver water is very polluted and need to be filtered through sand filters with different filter media.

The GSM Commander is installed to monitor and send sms power failures, pump failure, control irrigation schedule and control the backflush of sand filters.

## **8. Eskom Power Management**

Use the GSM Commander to monitor Eskom power and to control a back-up generator.

### **Summary**

A milk farmer, has a fridge which needs to be functional 24/7 to keep his milk fresh. The farmer has experienced huge financial losses in the past due to power failures occurring in the middle of the night when no one is around to switch on the generator.

The GSM Commander is installed inside the generator housing to monitor and send sms mains power failure, and to automatically start the generator when a mains power failure occurs.

## **9. Greenhouse Management**

Use the GSM Commander to control the temperature and humidity inside your greenhouse.

### **Summary**

A herbalist farmer wants to automatically control and regulate the temperature and humidity in his greenhouse as it is critical to the successful growth of his herbs.

The GSM Commander is installed inside the greenhouse to monitor and send sms power failure, humidity and temperature levels and to control a sprinkler system, fans, heater and air vent.

A humidity sensor, temperature probe, sprinkler system, fans, heater, air vent and 12V battery back-up will be connected to the GSM Commander to be monitored and controlled accordingly.

## **10. Electric Fencing**

Use the GSM Commander together with your electric fence to notify you when your property has been infiltrated.

### **Summary**

The GSM Commander is installed to monitor and send sms power failure, control a siren and the fence's energiser, which will activate the input of the GSM Commander when an alarm condition (intrusion attempt) has occurred.

The energiser, siren and 12V batter back-up will be connected to the GSM Commander which will be powered from a 220V mains supply.

## **11. Farm Security**

Use the GSM Commander to safeguard your family and protect your farm when you away.

### **Summary**

Koos wants only his wife and kids to have access to the farm, and also wants perimeter flood lights around his house to automatically switch on in the evening to deter criminals.

The GSM Commander is installed inside the gate motor housing to control the gate, to determine when the gate has been forcefully opened by means of a read switch, to automatically switch on flood lights, to monitor beams placed around the house, to activate a siren and to monitor battery voltage of gate motor.

## **12. Gate Access Control**

Use the GSM Commander to control access to your property.

### **Summary**

A home owner wants to be able to control and allow access to his property by opening the main gate from his cell phone. He also wants to allow his family to have access.

The GSM Commander is installed inside the gate motor housing to control the gate, to determine when the gate has been forcefully opened by means of a sensor and to monitor battery voltage of gate motor.

### **Case Study**

Download detailed case study ["Gate & Access Control"](#).

## **13. Alarm Monitoring or Your own Security system**

Use the GSM Commander to monitor and control your existing alarm system, or just create your own alarm system by integrating PIR sensors and remotes to the GSM Commander.

### **Summary**

Your house is fitted with an existing alarm system, but you want to monitor the response team and also be notified when the alarm is triggered or a panic button pressed. You can also activate or deactivate the alarm system from anywhere from your cellphone.

Alternatively, use the GSM Commander to create your own security system. Connect PIR sensors, panic buttons, beams, electric fence, gate motor, gate sensor and siren to the GSM Commander and configure your own "starwars enterprise".