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GSM+RF Complete Wireless Mobile Water Level Controller with Indicator for Overhead Tank

Model : GSM_RF_WLCI

User Manual

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1. INTRODUCTION

Our regular GSM mobile motor controllers had helped so many farmers and agriculturists so far. It gives us immense pleasure when they call us and thank us for such a lovely solution. We are very much motivated by their positive feedback. We realised that few customers have requirements to show the levels of tank along with tank control function. So a new variant GSM is being introduced for our customers. This new GSM based produc will work as a indicator and controller. It help to control the motor pump based on water level of tank like regular automatic water level controller. Along with the regular functions, this product helps to switch ON the motor remotely from anywhere anytime by giving a Call/SMS/Android app, and, automatic cut off of the motor occurs when the tank is full. and, gives real time level indication.

2. DESCRIPTION

2.1 CONTROLLER / RECEIVER

- **POWER ON/OFF TOGGLE SWITCH:** used to Power ON/OFF the controller. It is located on the right side of controller.
- **POWER ON LED:** it indicates power supply to controller.
- **Level indicator LEDs** - These LEDs shows the water levels of the tank. There are 4 level indications 25%,50%,75% and 100% .
- **GSM SIGNAL LED:** it indicates status of GSM signals. If this LED blinks for every 3 seconds signals are good and available. If this LED blinks for less than 1 seconds or does not blink, signals are not available.
- **RF SIGNAL LED** – shows the RF Transmit or Receive signal status. When it blinks the communication between transmitter & controller is good. When it is continuously glowing, it means there is no communication.
- **SIM READY LED:** denotes that the inserted SIM card is active.
- **MOTOR ON LED:** it glows when the motor is in ON condition.
- **DRY RUN LED:** It indicates the dry running of motor and glows when there is no water in the inlet of the tank for 90 seconds
- **OVERLOAD LED:** denotes if there is overload occurs. During overload controller unit turns OFF the motor to protect it.
- **LINE FAULT LED:** denotes when there is a line fault. If lines are mismatched or connected incorrectly it is enabled.
- **CT COIL:** It helps to sense the current consumption of the motor.
- **Fuse Holder:** It has 300mA fuse to protect the controller from power surges. If fuse fails replace them.
- **Antenna:** It is used for connecting the given 3dbi antenna provided.

2.2 TRANSMITTER

- **Power ON/OFF switch** – used to on/off the transmitter.
- **POWER ON LED** – shows the on/off status of transmitter.
- **Pairing soft key**– used to pair the transmitter with controller.
- **SIGNAL LED** – shows the RF Transmit or Receive signal status.

3. TOOLS REQUIRED

- 3 pair or 6 core communication cable.
- Drilling Machine
- Simple hammer
- Wooden gattas
- connections
- Insulation tape
- Screws for mounting units on wall
- Line tester
- Wire stripper,
- 1.5Sq.mm Wire for power connections

4. INSTALLATION PROCEDURE

Caution: Switch off the main power while doing the Power Connection steps.
Step 1: Insert your GSM SIM in the SIM slot given as shown in the GSM controller. The GSM SIM that is used must support 2G and have a SMS plan.
Step 2: Wall mount the GSM controller by using the screws in the given slots on its sides near your motor switch/starter location. The location chosen should be near the window or in open space to ensure
good signal strength.
Step 3: For Single Phase -->Connect AC 230V to Red and Blue wires of GSM controller respectively. (refer figure 1). Do not use the yellow wire and dummy it.
For Three Phase -->Connect R,Y,B to L1, L2 and L3 input of the starter. (Refer figure 2)
Step 4: For Switch or MCB, Connect blue pair wire to the switch/MCB of the motor in parallel as shown in figure 1.
Step 5: For starter, Connect blue pair wires to ON button of starter in parallel and black pair wires to OFF button in series (Refer to figure. 2 and figure. 3)

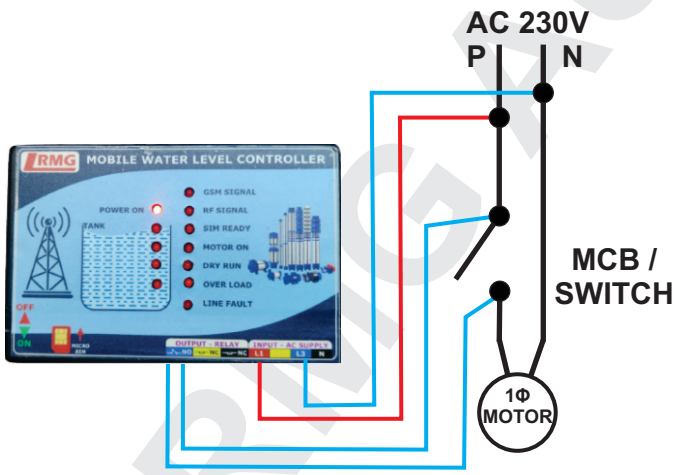


Figure1: 1Φ SWITCH/MCB

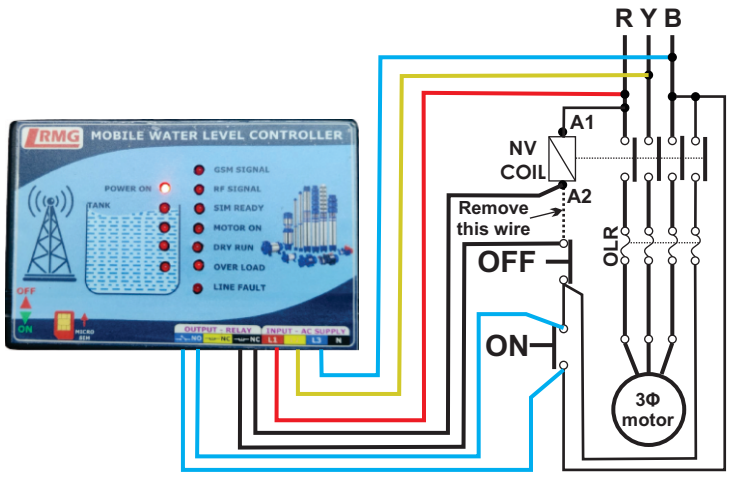


Figure2: 3Φ Starter

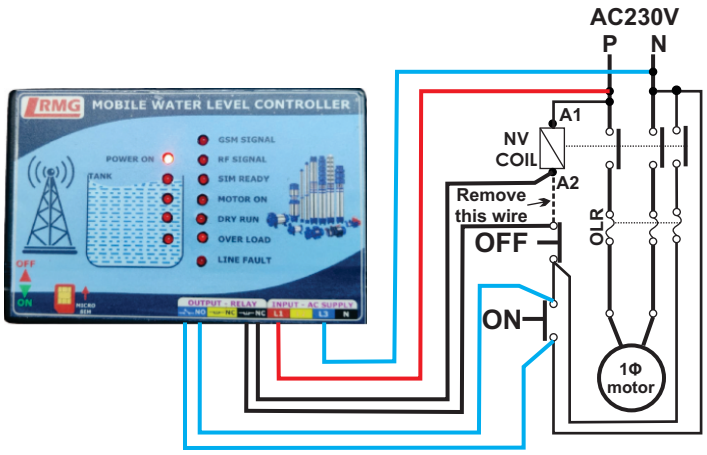


Figure3: 1Φ Starter

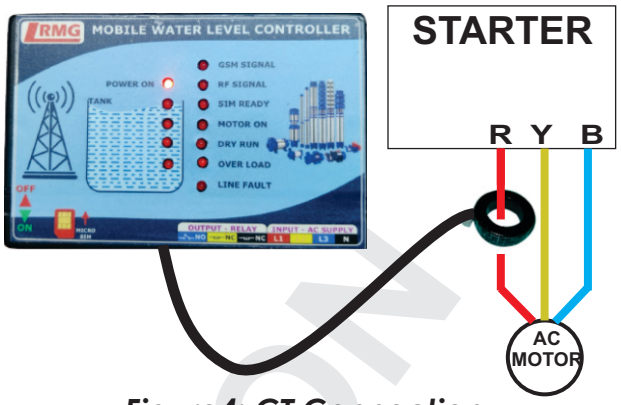


Figure4: CT Connection

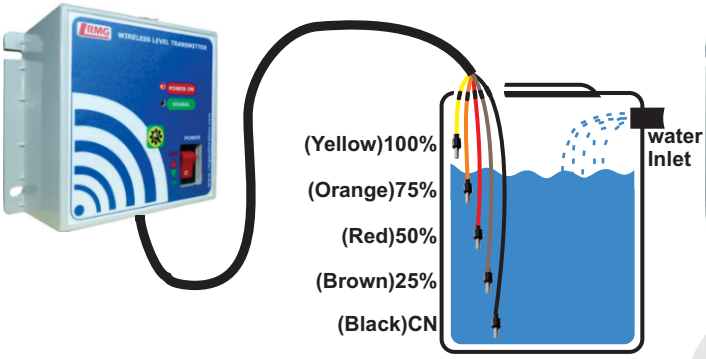


Figure4: contact type sensor connection

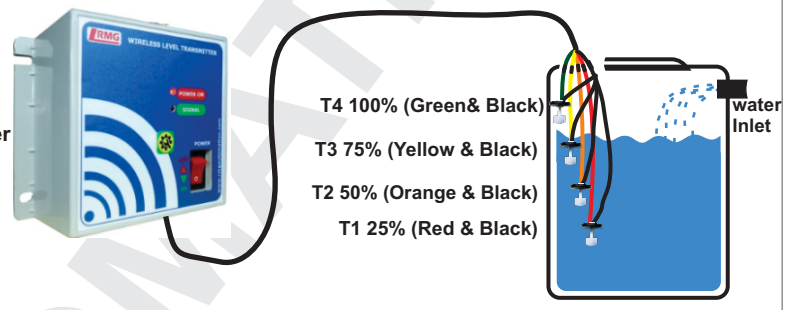


Figure5: magnetic float sensor connection

Note: In case of doubts please call 044 - 43180017 or What's App 9940594413 from Monday to Saturday 10 am to 6 pm.

Step 6: Remove the 'R' wire from starter & insert into the CT coil, and connect it back to the starter.

Step 5: Take the transmitter near the tank and place it where good signal strength is available. Connect Phase and Neutral (230V) to red and black wire of transmitter unit.

Step 6: Turn ON the controller and transmitter units. Now, Power ON LED in both transmitter and controller will glow. Wait until RF Signal LEDs in both transmitters and controller blinks every 16 seconds once. This ensures the perfect communication between them.

Step 7: Now power off the controller and transmitter unit. **Contact type sensor connection:** Take the sensors and cut them according to the levels of the tank and join them with the sensors lines of transmitter as per color coding. (Refer figure5).

Magnetic float sensor connection: These sensors has 2 wires. Use any one wire in each sensor as common. Other wire left in each can be used for levels. (Refer figure5).

Step 8: Immerse the sensors in the water tank and tape it.

Step 8: Connect the antenna to the GSM unit and place it in open space. Do not keep the antennas inside the metal casing and must not be laid along with power wires.

This completes installation.

5. OPERATING PROCEDURE

- Switch ON the controller using on/off switch of the controller.
- Power ON LED lights up.
- GSM Signal LED blinks every one second trying to get connected to the network. Further, it blinks every 3 seconds ensuring that the GSM unit has been connected to the network.

1.MASTER USER REGISTRATION

Send SMS to the GSM SIM inserted into controller as "91YYYYYYYYY" (Y is your 10 digit mobile number). Now you will receive a message on your mobile that your mobile number is registered successfully.(You can register up to 5 users, procedure for registration and other commands are given in "List of commands").

Note: PLEASE REGISTER THE 1ST USER NUMBER (MASTER USER) WITHOUT FAIL.

2.ACTIVATION FOR REGISTERED USER

Send SMS command 71 to activate for registered user. Now the GSM unit responds to the registered user only.

3.MOTOR ON

Send SMS command 11 from your registered mobile number to TURN ON the motor or call from registered number. Call gets cut off after 5 rings. You will receive a message that motor is in ON condition.

4.UNDERLOAD AND OVERLOAD CURRENT:

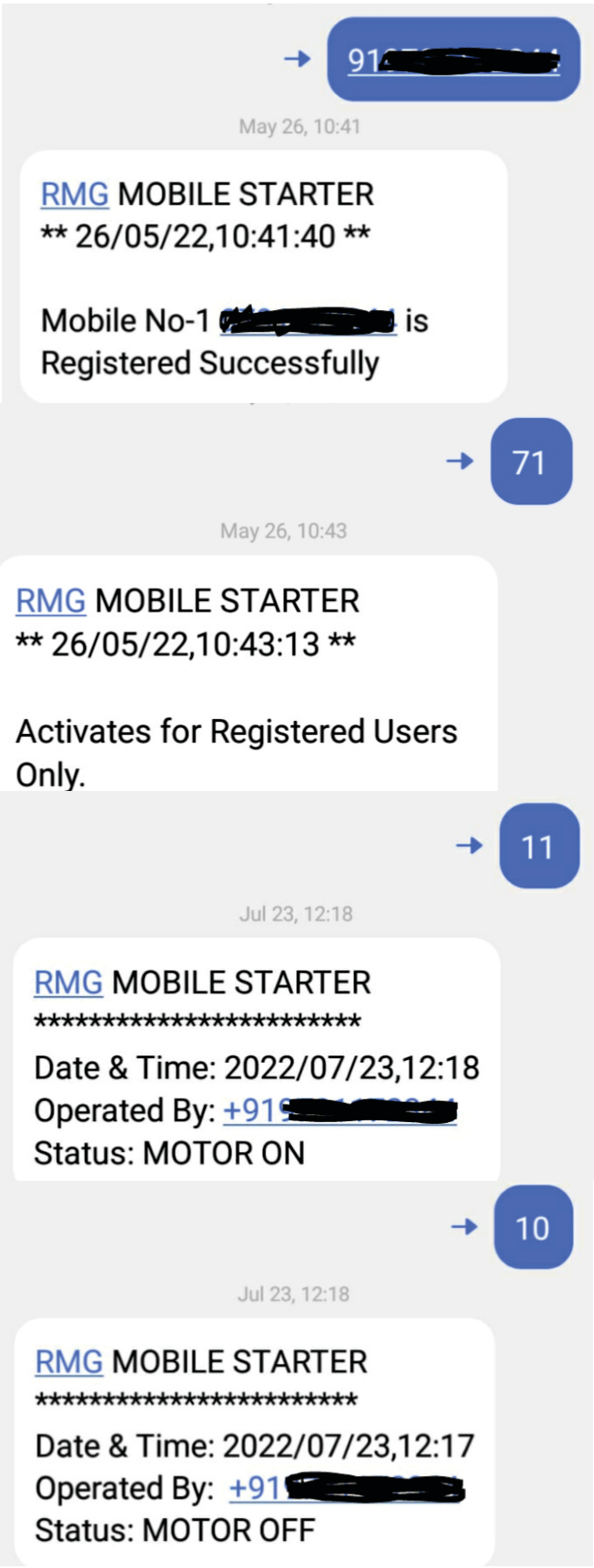
After motor pump is on, send SMS command ASET to GSM unit. This command should be given only when the motor is running.

For manual setting, use the ULXX, OLXX commands in the list.

5.MOTOR OFF

Send SMS command 10 from your registered mobile number to TURN OFF motor or call from registered number. Call gets cut off after 2 rings. You will receive a message that motor is in OFF condition.

Other SMS commands are given below in " List of Commands"



- Switch ON Power transmitter, now POWER ON LED will glow. RF SIGNAL LEDs in both GSM unit and Transmitter unit blinks in every 16 seconds confirming that proper communication is established.
- Depending upon the water levels in tank, the level indication LEDs are ON. furthermore, the levels of tank will get updated in every 16 seconds.
- If the water level goes low, GSM controller automatically TURNS ON the motor during this time MOTOR ON LED glows. When the tank becomes full, controller unit automatically TURNS OFF the motor.

- **PAIRING PROCEDURE:** The units are generally paired and dispatched. In case of any trouble at the time of installation, users can pair the units once again.
- Send SMS command PM1 to controller unit. Now,all the tank level LEDs will blink. It means the gsm controller is ready for pairing.
- In transmitter there is a yellow PAIRING soft key. Press the key and without taking out the finger from it, power ON the device. Now the SIGNAL LED of transmitter blinks one time and all the tank level LEDs goes off in the controller unit. Thus pairing is completed.
- **NOTE:** Do not cover the transmitter and controller with metal enclosure. It may disturb / loss the RF communication.

7. LIST OF COMMANDS

The GSM Mobile Starter is used to switch ON or OFF your motor pump from anywhere in the world. It will control your motor pump via SMS or giving CALL.

SL. NO	SMS COMMAND TO GSM SIM	EXAMPLE	DESCRIPTION
1	00	00	It denotes the Power ON time
2	10	10	It will switch OFF the motor pump
3	11	11	It will switch ON the motor pump
4	12	12	It gives the ON/OFF status of your motor pump
5	13	13	It Disables AUTO ON operation. It will not Switch ON the motor pump when the power resumes

6	14	14	It Enables AUTO ON operation. It will Switch ON the motor pump when the power resumes.
7	70	70	Activates for ANY USERS
8	71	71	Activates for REG. USERS
9	80	80	It disables the AUTO REPLY SMS facility
10	81	81	It enables the AUTO REPLY SMS facility
11	90	90	It gives the registered users list.
12	9XY	919940594413 92YYYYYYYYY 93YYYYYYYYY	It helps to store the user numbers (X-User 1, 2, 3, 4, 5 YYYYYYYYY-Mobile number).
13	*	*	It helps us to know the setting status.
14	T-HH:MM	T-00:10	T-HH:MM T-00:10 It helps to set the timer. By giving this command, motor gets on and stops after the set time is over. (HH – Hours ; MM – Minutes)
15	Lc0	Lc0	It disables 3-Phase Line Checking
16	LC 1	LC 1	It enables 3-Phase Line Checking
17	FD 0	FD 0	It disables Feedback Alert for Manual Motor ON / OFF
18	FD 1	FD 1	It enables Feedback Alert for Manual Motor ON / OFF
19	ASET	ASET	It enables for Automatic Current Setting for Overload and Dry Run. This command functions only when motor is running
20	OLXX	OL 15	It helps to enter the overload current setting manually. Eg. 15 Amps is set as Overload Current

21	ULXX	UL 05	It helps to enter the underload current setting manually. Eg. 5 Amps is set as Underload Current
22	STX-HH:MM,HH:MM	ST1-06:00,06:30 ST2-19:00,19:30 ST3-11:15,11:45 ST4-08:00,09:30 ST5-22:00,05:00	It helps to schedule the ON time and OFF time. Totally 5 slots can be scheduled. (Note – Use 24 hour format)
23	SCT	SCT	It lists the scheduled time slots
24	SCTR	SCTR	It helps to reset the scheduled time slots
25	PM1	PM1	Pairing mode- used to pair the controller with transmitter
26	TL1	TL1	it gives updated tank level status

MISSED CALL FOR ON/OFF CONTROL

Sl.no	COMMAND	DESCRIPTION
1	Call cuts off after Long ring (>5)	MOTOR ON
2	Call cuts off after Short ring (>2)	MOTOR OFF

6. TROUBLE SHOOTING METHODS

SL. NO	Error	Solutions
1	Power fail	**a.** Check whether input supply is correctly given. **b.** Check whether the GSM power switch position is "ON" Check fuse is in good condition. If fuse is failed or burnt replace it with 300 Milliamps. Don't use more than that.
2	Motor not switching ON	**Start Relay:** **a.** Check whether connection of start relay (Blue pair wire) is properly given. **b.** Check start relay - It must be Normally Open. Start relay will become closed for 1-3 seconds while motor ON. Verify it using continuity tester or Multi-meter.
3	Motor not switching OFF	**Stop Relay:** **a.** Check whether connection of stop relay (Black pair wire) is properly given. **b.** Check stop relay - It must be Normally Closed. Stop relay will become open for 3 seconds while motor OFF. Verify it using continuity tester or Multi-meter.
4	SMS/CALL not working	**SIM card:** **a.** Check if SIM card is properly inserted as per the image shown in the GSM unit. **b.** Make sure that SIM Card has 2G support. Don't use SIM Cards that support 4G alone like JIO SIM. **GSM antenna location:** **a.** Keep it outside and don't enclose it. Antenna wire laying: **b.** Make sure that GSM antenna wire is laid separately. Don't take it along with power wires. **GSM signal LED:** **a.**Check if it is blinking for every 3 seconds – Network connected. **b.** If blinking every 1 second – Network Issue – change another good network SIM card.

5	No communication between controller and transmitter	Check whether any obstrucles are there in between transmitter and receiver units like large trees, buildings etc (repeaters can be added if necessary)
6	Tank level indicator LEDs are off	If one or all the level indicator LEDs are not glowing, a. Check common sensor connection is correctly made. If any loose contacts correct it. b. Check all the sensor connections are having any loose contacts.