



User Manual

What is Kisan Raja?

Kisan Raja is a GSM based controller, which enables the farmer to operate the agricultural motor pump set from anywhere anytime using his mobile or landline of any operator. It is specifically designed to change the way the farmer operates the motors. Kisan Raja is an easy to use and economical communication device, What's more – it can be fitted to all the existing motor starters.

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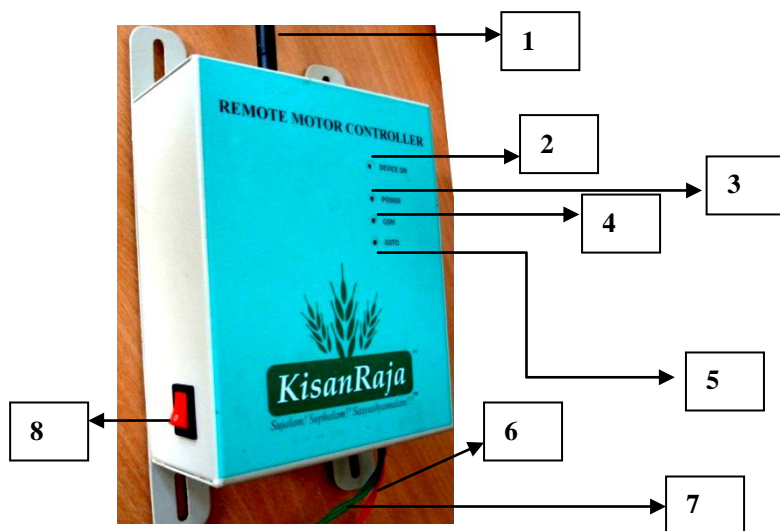
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1. Features of KisanRaja:

1. Adaptive to any motor configuration up to 20HP.
2. Remote Access: Enables the farmer to remotely control the motor pump
 - a. Through mobile or landline of any operator
 - b. From anywhere, any time
3. Greatest ease of use: Local language IVRS options for controlling the motor
 - a. Easy to operate
 - b. Remote power ON/OFF
 - c. Multiple modes: 1. Manual 2. Auto 3. Timer
4. Safety of Motor/Starter: Automatically detects and Protects the damages to the motor/starter from
 - a. Voltage Fluctuations
 - b. 3 Phase connectivity faults
 - c. Dry Run/ Over load
5. Acknowledgement: Farmer gets voice alerts for
 - a. Power availability
 - b. Motor running Status.
6. Warning Alerts: Farmer gets Real-time Voice Alerts/SMS for unfavorable conditions at Motor
 - a. Faulty power supply
 - b. Motor not starting
 - c. Non-availability of water in the well/bore
 - d. Attempt of device/motor theft and system Lock
7. Warning Alerts: Farmer gets Real-time Voice Alerts/SMS for unfavorable conditions at Motor
 - e. Faulty power supply
 - f. Motor not starting
 - g. Non-availability of water in the well/bore
 - h. Attempt of device/motor theft and system Lock
8. High Availability: Rechargeable Li-ion battery back-up
 - a. Automatic intelligent battery charger.
 - b. 30+ hrs of battery back-up
9. Secure Access
 - a. Password protection for accessing IVRS.
 - b. Password protection for 'Admin' mode settings.
 - c. Theft detection and acknowledgment via Call and SMS.
 - d. Auto system lock in case of device theft.
10. Inbuilt Real Time Clock for accurate timing control.
11. LED Indicators to indicate the status of Device on, Power availability, GSM and Auto mode.
12. Normal & Bypass mode.
13. Communication Level Setting
14. Can be retrofitted to all the existing motor starters

2. Device overview:

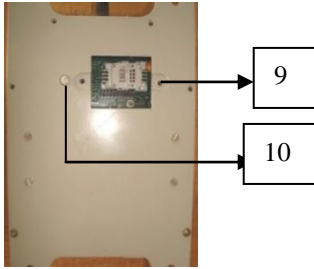
2.1 Front view:



1. **ANTENNA:** Helps in establishing the strong communication network with the cell phone tower.
2. **DEVICE ON LED:** Indicates device is ON or OFF.
3. **POWER LED:** Indicates the availability of 3-phase power.
4. **GSM LED:** Indicates the network communication status.
5. **AUTO LED:** This LED glows when device is in auto mode; else it indicates device is in manual mode.
6. **START WIRE (Green color):** Connected across the start switch of starter and is used to start the Motor.
7. **STOP WIRE (Red wire):** Connected in series with stop switch and is used to stop the Motor

8. **BY-PASS SWITCH:** In case of any damage to operate his Motor pump manually from starter without any problem

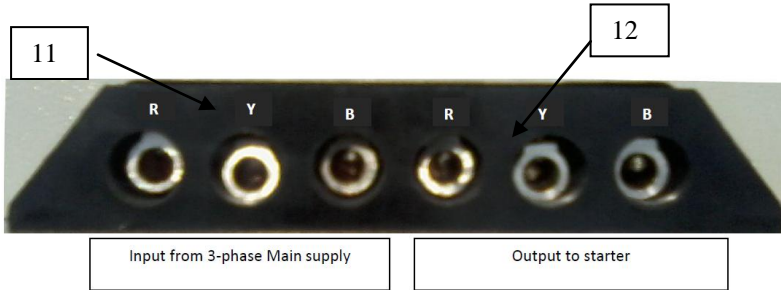
2.2 Back view:



9. SIM INSERTION PANEL: This is the place where the SIM will be inserted into KisanRaja.

10. THEFT DETECTION BUTTON: This button senses the theft of KisanRaja

2.3 Bottom view:



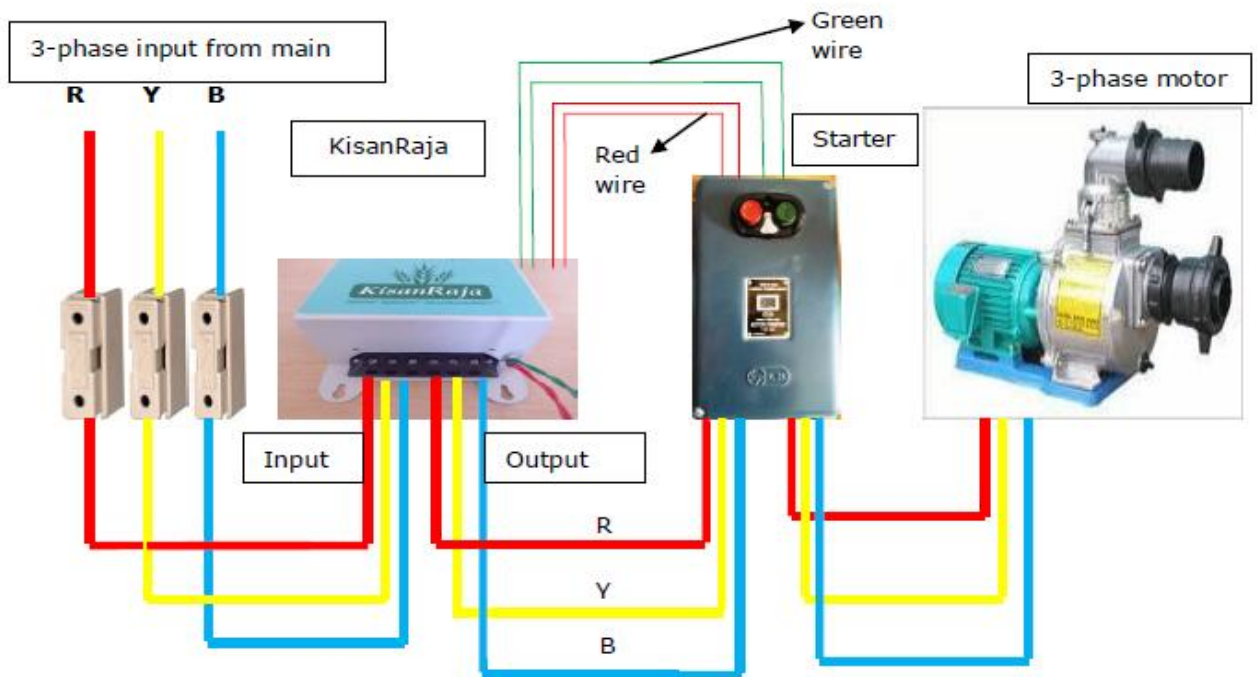
11. CONNECTION TO 3-PHASE MAIN SUPPLY: 3-phase wires from main supply are connected here

12. CONNECTION TO STARTER 3-PHASE INPUT: 3-phase wires from these terminals are connected to 3-phase input of starter

3. Connecting KisanRaja with Starter:

KisanRaja can be connected to any of the 3-phase starter. KisanRaja operates with following types of Starters. KisanRaja can be used with both Double cable and single cable motors.

- DOL (Direct On Line).
- Star Delta.
- Oil immersed starter.
- Hand held Starter.



4. Inserting Your SIM Card into KisanRaja:

Unscrew the lid



Sim Card Holder



Slide to Open



Insert the Sim Card



Slide it in



5. Connecting Start and Stop wire to Starter:

5.1 Connecting Start wire (Green wire):

Open the Starter Front Panel and locate the starter START and STOP buttons. The GREEN color wire (start wire) from Kisanraja is to be connected across the START button as shown below (in Parallel). This connection is similar to connecting an auto starter's start wire.

Internal View of Starter Start Button Meeco starter

BEFORE CONNECTING KISAN RAJA



AFTER CONNECTING KISAN RAJA



Green wire from KisanRaja

L&T starter

Before connecting KisanRaja



After Connecting KisanRaja



Green wires from KisanRaja

5.2 Connecting Stop wire (Red wire):

The Red Color wires from the KisanRaja are to be connected to the Stop Button as shown below (In Series):

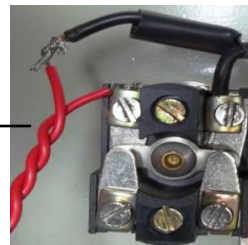
Internal View of Starter Stop Button Meeco starter

Before connecting KisanRaja



After Connecting KisanRaja

Red wire from KisanRaja



L&T starter

Before connecting KisanRaja



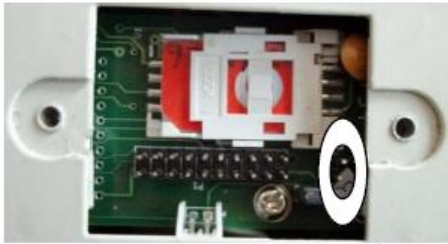
After Connecting KisanRaja

Red wire from KisanRaja



6. Powering up the Device:

Before connecting the jumper



After Connected into KisanRaja



Connect the Jumper here – to power up the device with Internal Battery.

For powering up the device open the back plate screws, connect the jumper as shown in above figure. Once the jumper is connected “Device ON” LED will glow. Leave the system for 2minutes. “Power LED” and “AUTO LED” will blink continuously indicating that device need to be activated .For activation please call our customer care number which is provided with this manual. If “power LED” is not blinking then activation is done already.

Now you can call the SIM number which is inserted in KisanRaja. For the first time device will ask for 4 digits password. After entering the password as ‘1234’ you will be diverted to the IVRS main menu.

7. Operating modes:

Note: A favorable condition indicates – Voltage range is between 340v to 420v, Water is available, and wires are connected properly.

1. **Manual Mode (Auto LED Off):** When device is in manual mode ‘Auto LED’ is switched OFF. In this mode motor, can be started by making a call to KisanRaja or directly by pressing Start button of Starter.

To switch on or off the motor a call is made to KisanRaja and if the calling number is same as the stored number, then call is received without asking for password. Kisan Raja provides the status of the motor and accordingly the farmer can start or stop the motor. After starting the motor, if all the conditions are favorable motor continues to run. Otherwise, Kisan raja informs the farmer of the unfavorable conditions and stops the motor.

When the device is in manual mode and 3-phase power is available then KisanRaja calls the Farmer (stored number) and informs about the availability of power and asks whether to switch ON the motor.

2. **Auto Mode (Auto LED On):** When device is in Auto mode, ‘Auto LED’ is switched ON .In this mode of operation, Kisan Raja performs the same work done by an Auto starter. In this mode KisanRaja takes control over the pump and automatically starts the motor when 3-phase input power is available and motor runs as long as the conditions are favorable. If farmer wants to run the device in auto mode, he needs to call the device and select ‘Auto mode’ from IVRS menu.

3. **Timer Mode:** In this mode the time to start the motor and time duration for running the motor is set by the user. There are two types of timer modes
 1. Start motor now.
 2. Start motor later.

In 1st timer mode, the farmer can start the motor immediately and run for particular duration. If the farmer wants to run the motor in this mode then, he needs to call the device and select the option “Set the start time as current time”. As soon as this option is selected, the mode changes to timer and the farmer is asked to enter the duration for which the motor needs to be run (durations are entered in 24 hour format, first enter hour and then enter minutes). Once the duration is set and if conditions are favorable then motor is started immediately and motor runs continuously until conditions are favorable and till the

duration is reached after which the motor is stopped and farmer is intimated about the same.

In 2nd timer mode, the farmer can start the motor later and run for particular duration. If the farmer wants to run the motor in this mode then, he needs to call the device and select the option “Start the motor at later time”. Read above procedure for entering time .As the time reaches the entered time, the motor is started and farmer is intimated about the same. Motor continues to run for the set duration and once the duration elapses, the motor is stopped and farmer is informed about the same. Once motor is switched OFF, device changes to Manual mode (Auto LED OFF).

NOTE: Time should be entered in **24 hour** format.

Example: Enter 14 hour and 25 minutes for 02:45 PM

BY-PASS mode: This mode is activated by switching Bypass switch ON. In case of any damage to KisanRaja, by switching this **Bypass switch** ON, farmer can operate his Motor pump manually from starter.

7.1 Communication Levels:

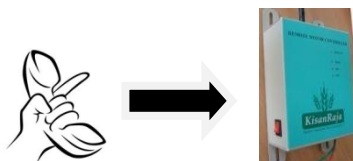
Kisan raja operates in one of the three communication levels.

1. **Normal level of communication:** This is the default communication level and in this level Kisan raja will make call to farmer for all the events
2. **Important:** In this communication level only important events will be informed to the farmer
3. **SMS:**In this communication level, farmer is informed via SMS . Farmer receives only SMS from KisanRaja.

The following table explains above in detail

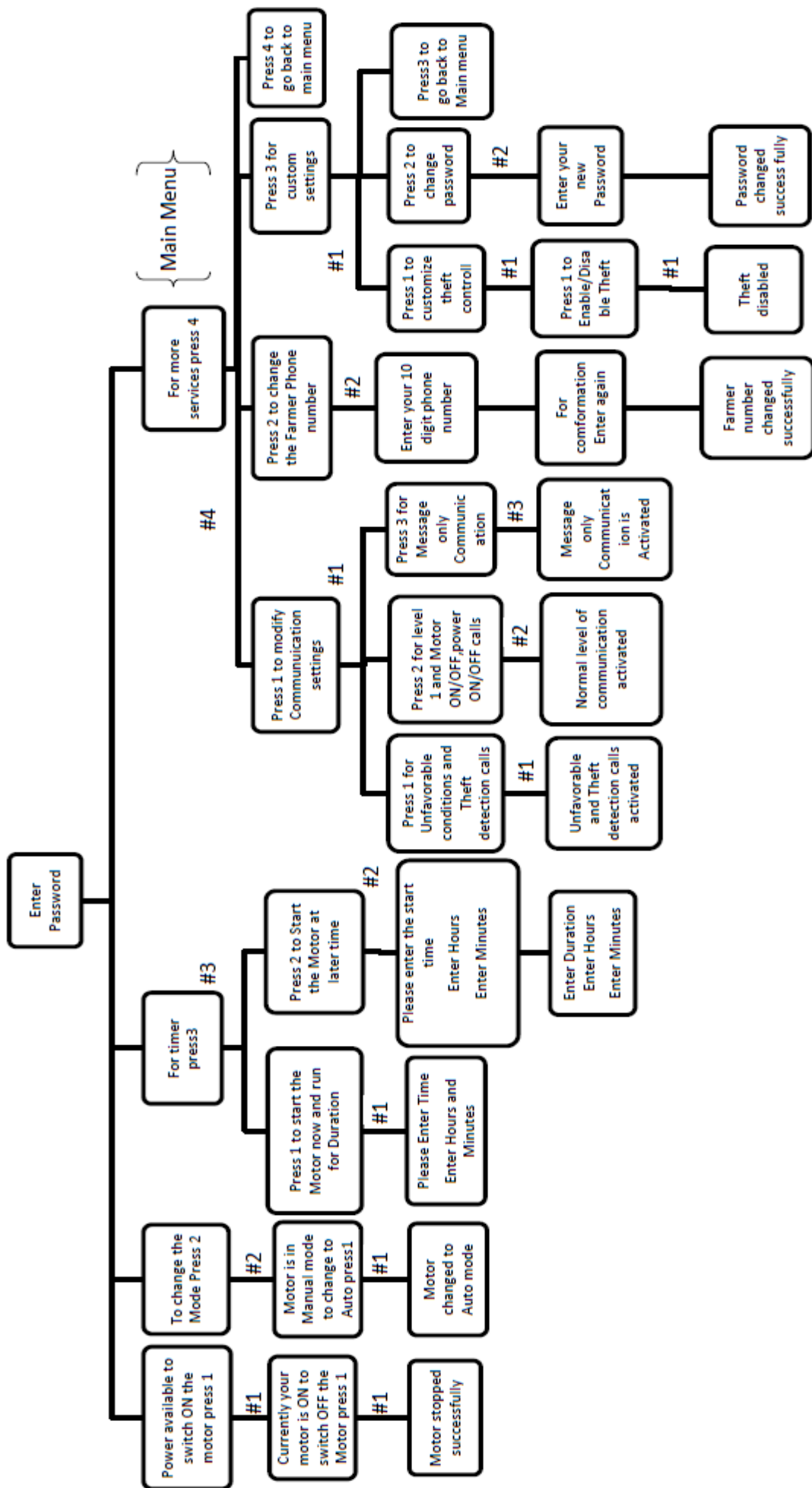
Communication level	Normal	Important	SMS(Kisan raja will send SMS)
Events	<ul style="list-style-type: none"> ➤ Power availability ➤ No power ➤ No water ➤ Manual start ➤ Manual stop ➤ Wire cut, ➤ Theft detection 	<ul style="list-style-type: none"> ➤ Theft Detection. ➤ Wire Cut. 	<ul style="list-style-type: none"> ➤ Power availability ➤ No power ➤ No water ➤ Manual start ➤ Manual stop ➤ Wire cut ➤ Theft detection

8. Operational Instructions:



Once the start up settings is done, your system is ready to use. Now the user can make a call to the KisanRaja and follow the IVRS provided.

- As soon as the call is received by Kisan raja, user gets a welcome message. If farmer’s number is already entered, and call is made from the same number then call will be diverted to main menu without asking for password, else user needs to enter password.
- IVRS flow is shown below



NOTE:

1. For Main Menu PRESS, # at anytime.
2. To END the call PRESS,* at anytime.
3. Time should be entered in **24 hour** format.

Hour: Minutes

 - a. Example: enter 14 hour 45 minutes for 02.45 PM
4. PASSWORD is of 4 digits.

Changing the IVRS Password: To change the password, select the corresponding menu in IVRS and enter the password and accordingly the password will be updated. This password is used only when calling from a number other than the farmer number.

Changing the Farmer Number: Select the corresponding option in the IVRS. User will be asked to enter the number twice. If both the number matches, then farmer number will be updated.

Customize THEFT control: Theft Detection is enabled or disabled by selecting the appropriate menu option from IVRS. If theft detection is enabled, the farmer will be intimated about the same via Call.

Activating only 2Unfavorable conditions and Theft detection calls: If this setting is activated then Farmer receives call from KisanRaja only when there is unfavorable condition. Farmer also receives call from KisanRaja when theft is detected.

Activating level 1 and motor ON/OFF, power ON/OFF calls: This is the default communication level setting. If this setting is activated farmer is informed for every event like No power, No water, and Wire cut, Theft Detection so on.

Message only communications: If this setting is selected then farmer gets only text SMS from KisanRaja. To deactivate this service make a call to KisanRaja and enter into ‘Modify communication level settings’ from IVRS menu and activate either ‘Unfavorable conditions and Theft detection calls’ or ‘level 1 and motor ON/OFF, power ON/OFF calls’ by pressing 1 or 2.

9. Trouble shooting guide:

Issue	Action
Motor cannot be started Manually from starter.	<ul style="list-style-type: none">• Check whether all the 3-phase output from starter is correctly connected to motor• Check whether all the 3-phase supply from main is correctly connected to input of KisanRaja.• Check whether all the 3-phases are available
KisanRaja Power LED is not glowing	Check whether 3-phase from main is correctly connected to the input of KisanRaja.
Device ON Led is not glowing in the absence of 3-phase input.	Check JUMPER at the back side of KisanRaja is connected properly.
Motor cannot be started when KisanRaja start (green) and stop (red) wires are connected to starter.	<ul style="list-style-type: none">• Check whether Green wire from KisanRaja is properly connected (in parallel) to the Start button of starter.• Check whether Red wire from KisanRaja is properly connected (in Series) with the STOP button of starter.
Motor cannot be Stopped when KisanRaja is connected to starter	<ul style="list-style-type: none">• Check whether Green wire from KisanRaja is properly connected (in parallel) to the Start button of starter.• Check whether Red wire from KisanRaja is properly connected (in Series) with the STOP button of starter.
Motor runs in reverse direction.	Interchange the Yellow (Y) and Blue(B) wires at the input of STARTER or at input of KisanRaja

Motor is overheating.	<ul style="list-style-type: none"> • Check all the Fuses.
'Motor cannot be started due to wire cut' message is heard when Motor is switched ON	<ul style="list-style-type: none"> • Check whether Green wire from KisanRaja is properly connected (in parallel) to the Start button of starter. • Check whether Red wire from KisanRaja is properly connected (in Series) with the STOP button of starter. • Check whether the 3-phase output to motor from starter is correctly connected.
Device is not making call to farmer.	<ul style="list-style-type: none"> • Check whether ANTENNA is properly connected. • Check the BALANCE of SIM card inserted in KisanRaja has sufficient balance to make call. • Check Communication Level settings. Call will not be made if MESSAGE ONLY service is selected. • Change the communication to normal mode of communication
Device is not receiving call, Keeps ringing.	<ul style="list-style-type: none"> • It may be busy in another call. • Check whether it is in bypass mode or not.. • Reboot the device by removing the main supply and disconnect the JUMPER for few seconds and reconnect the jumper.
Not reachable	<ul style="list-style-type: none"> • Check whether ANTENNA is properly connected. • Keep the Antenna where signal quality is good.
Switched OFF	<ul style="list-style-type: none"> • Check whether SIM card is properly inserted. • Check whether JUMPER is properly connected.

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