GSM MODEM FOR PUMP STARTER

Features :

1. Pump can be made on / off using mobile phone from anywhere either by making call or sending SMS to device.
2. Device is suitable for both 1 phase & 3 phase installations.
3. Flexible antenna positioning to get proper signal strength.
4. Auto Response Mode : If the auto response mode is enabled, master & monitor mobile number receives the SMS of starter on/off , power fail duration at power on ,error information, etc. Only Master number will receive balance information between every 16 to 20th SMS if SIM is prepaid & Balance code is set by sending query "14".
5. Auto Mode : In auto mode enabled if Starter is On & power fails or supply error occurs , then starter On state will be resumed automatically after power or supply error recovery. If the auto mode is disabled then starter remains in off condition even after power or supply error is recovered.
6. Daily timer mode : This mode is used to turn on the starter for particular time every day.
7. Timer mode :This mode is used to turn on the starter for specific duration. Duration ranges from min. 30 minutes to max 23.5 Hrs in the multiple of 30 minutes.
8. In 3 phase applications, GSM will work even with the loss of any two phases but not disconnected from GSM if voltage between third phase (which is present / live) & any one of lost phase is above 100VAC.
9. Safe . secure & simple for use.

Operation :

GSM modem is connected to the existing pump starter. A farmer has to simply insert the SIM card of his choice in the device & configure master number as per procedure given to start / stop the pump & also to get the updates of the pump like starter ON/OFF,error message, error recovery message. power fail duration.balance info. etc.

Important :

1. Do not remove SIM card in power on condition.
2. Keep SDZ5 and Sz5 6 wire SPPR in Manual or Bypass mode only.(GSM modem works only if SPPR is in Manual / Bypass mode.
3. Keep Z5 SPPR in any mode.
⚠ 4. IMEI number is of vital importance & mentioned on product label for security & device traceability. Hence IMEI number has to be safely stored by user.
5. The SIM card selected by User must have good network range at the location of installation for proper communication with device.
6. Check the signal strength by sending query "12" & keep the direction of antenna in such a way that device will get the proper network.
7. In the event of Starter fault, all the settings related to Timer and Daily Timer are disabled. After Recovery, user have to call the device to turn the starter On & enable the intended mode again.

⚠ How to insert SIM :

1. Place the SIM in SIM tray such that cross side of SIM matches with cross notch in SIM tray as shown in photo.

2. Insert SIM tray in the slot provided in Device such that cross side of SIM face opposite to antenna socket as shown in photo.

How to configure Master & Monitor Numbers :

Step 1 :Insert SIM in SIM tray & then insert the SIM tray in slot provided in device.
Step 2 :Power on device & wait for 35sec. ON(Green) LED will start blinking indicating that device is in factory default. For every power on device will take 35 sec for initialization during which User should wait.
Step 3 :Ensure that NW (Network) LED is flashing after every 3 sec. It means device is registered with inserted SIM N/W. If NW LED blinking fast, it means device is not registered with SIM NW & hence not ready for operation.
Step 4 : Press the CFG (Configuration) key on the device till CFG (RED) LED starts blinking. The device goes in the configuration mode to configure the master number in the device.
Step 5 : CFG LED will blink for 3 min. User should configure the master number within 3 min time.
Step 6 : Make a call to device number. Device will cut the call after 1 to 2 ring.
Step 7 : After call gets cut, ON LED stops blinking & becomes steady ON.CFG LED turns OF. This will indicates that, master number has been configured in the device.
Step 8 : To configure the monitor numbers, send query .55<Space>no.1<Space>no.2<Space>no.3 from the master number.
Step 9 : After installing device for the first time ,set the device clock by sending query "16". User will receive SMS ," 16,"TIME ALLREADY SET" or "16,"TIME SET TO ,DT: DATE ,TM: TIME".
Step 10: In order to receive balance info between every 16th to 20th SMS, set the balance code by sending query 14<space>*121# (*121# is balance code for TATA DOCOMO. Balance code is changed as per Service Provider) . User will receive SMS," 14,"BALANCE CODE UPDATED".
Step 11: If device is used in DOL (without SPPR) panel, then configure the device in NON SPPR system by sending query 77<space>0.User will receive SMS, 77,"SYSTEM CONFIGURED FOR NONSPPR".
Step 12 : After completion of above procedure, user should refer the "**General SMS Queries"** structure for further operation.

Product Specifications :

| PARAMETER	DESCRIPTION
SUPPLY CHARACTERISTICS :	
Supply Voltage	1Ph 100V AC to 280V AC (Ph-N) (Connect Live to R or Y & Neutral to B & COM terminal of GSM) 3 Ph,3 Wire 180V AC to 540V AC(Ph-Ph)
Supply Frequency	47 to 53 Hz
Power Consumption	8 VA (max) at product On but in idle condition 50VA when call is being made
Contact Ratings	Terminal 15 & 16 – NC ,Terminal 25 & 28 – NO,5A @ 250V AC / 30V DC (Res)

FUNCTIONAL CHARACTERISTICS :

LED		INDICATION	DEVICE STATUS
LED Indications	ON (Green)	ON	Master number configured with Device.
		Blinking @ 500 m Sec	GSM modem in factory default mode
	CFG (Red)	Blinking @ 500 m Sec	GSM modem in configuration mode
	N/W (Green)	Flash every 800 msec	Not registered with N/W
		Flash every 3 sec	Registered with N/W
	I1 & I2 (Yellow)	Both ON	Starter ON
		Either or both OFF	Starter OFF
	Tx/Rx (Green)	Communication between CPU & Modem	

GSM CHARACTERISTICS :

GSM Modem	Dual band 900 MHz / 1800 MHz

Key Diagram : (For three phase system)
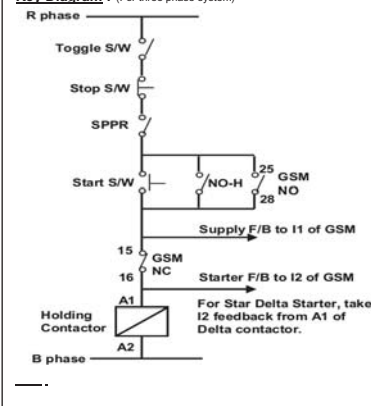
Key Diagram : (Applicable for Customised Panel)
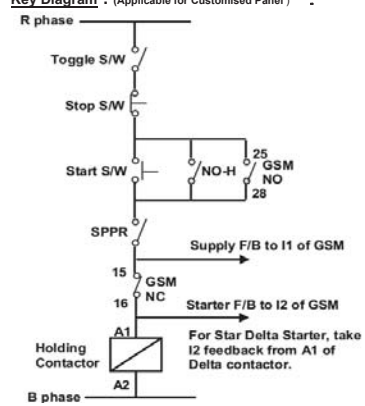
General SMS Queries : (To be sent only from Master number to Device number)

QUERY	DETAILS
Functionality Queries	
Call to device number	After 3-4 rings device cuts the call & turn on the starter.
Call to device number or send SMS 00	After 5-6 rings device cuts the call & turn off the starter or after receiving SMS 00 device turns off the starter.
11<space>1 to 47	Starter ON with timer . Here 1=30 min ,2=1hr ,3=1.5hrs…..,47=23.50hrs. e.g. 11 4 query will turn on starter for 2 hrs from the time GSM receives the query.
22<space>ON time<space>OFF time.	Enable Daily Timer. Here ON & OFF time are in 24Hrs format only. e.g.22 18 20 query will enable daily timer from 6pm to 8pm or 22 01 02 query will enable daily timer from 1am to 2 am.(Refer clock given below) To disable daily timer mode send same ON & OFF time i.e. 22 00 00 .
33<space>1 or 0	Auto response enable/disable (1–Enable,0-Disable). By default enable.
66<space>1 or 0	Auto mode enable / disable (1-Enable , 0- Disable). By default disable.
88	To know the available balance in prepaid account. (Note : Before sending this query first set the balance code by sending query 14).
99	To know current status of device.
INFO	To know all frequently used queries.
Configuration Queries	
44<space>last four digit of previous master number	For updating master number. To replace the previous master number with new one send query 44 xxxx from a new number which is to be configured as Master. (Note : 1.Before sending this query first press configuration key on device 2. After this query, previously stored Monitoring numbers will be deleted & new monitoring numbers need to be configured)
55<space>10 digit no.<space>10 digit number<space>10 digit no.	For pairing Monitoring numbers. By sending this query Master number can pair 3 monitoring numbers with device .
⚠ 77<space> 0	Starter Configuration – Non SPPR (30 sec delay added after error recovery to make starter ON). For DOL with SPPR, configure starter in SPPR. By default disable.
77<space>1	Starter configuration – SPPR.(30 sec delay after error recovery not applicable) . By default enable.
14<space>balance code	Set balance code. Balance code depends on Service provider. E.g 14 *121# (*121# is balance code for TATA DOCOMO).
15<space> 1 or 0	1-Postpaid option enable , 0- Prepaid option enable. By default Prepaid option enable.
⚠ 16	To set device clock .
17	To know configured master & monitor numbers.
Troubleshooting / Security Queries	
79	To put device in factory default setting provided CFG key is pressed till RED LED on device blinking.
12	To check signal strength.
13	To know IMEI number of the device.

NOTE : For monitor numbers only INFO, 99 , 16 & 12 queries are applicable.

Daily timer is set in 24Hrs format only. To convert 24 hrs format into 12 hrs format please refer the clock as shown.

Example :

24Hrs	01	11	13	23
12Hrs	01 AM	11 AM	01 PM	11 PM

Frequently Asked Questions (FAQs) :

1. How user can turn ON & OFF the starter ?

Ans : User can turn ON/OFF Starter by making a call from Master Number. For Starter ON, device cuts the call in 3 to 4 rings and for Starter OFF device cuts the call in 5 to 6 rings. Also user can turn ON/OFF starter manually using START/STOP switch on Panel. Additionally user can turn OFF the starter by sending SMS 00 from Master number.

2. What is Timer mode & Daily timer mode ?

Ans : In Timer Mode user can turn ON starter for a specified duration in multiple of 30 minutes (Minimum 30*1=30 min, Maximum 30*47= 23.5 hours).
In Daily Timer mode user can program Starter ON and OFF time in a Day based on device clock. Once daily timer enabled, every day starter will be ON and OFF as per programmed time . ON and OFF time is in 24 Hour format. In Timer mode as well as Daily timer mode, user can turn OFF starter using a call whenever he wish.

3. What is Auto Mode & Auto response Mode ?

Ans : In Auto mode of device , If Power fails or SPPR Error occurs during starter ON condition then Starter will turn ON after Power resumption or Error recovery.
In Auto response mode ,Master & Monitoring number receives SMS for Starter ON/OFF, Error & error recovery, Power fail duration, etc. Only Master number receives balance info between every 16th to 20th SMS if SIM is prepaid & balance code is set by sending query"14"..

4. In case of Prepaid SIM card , what will happen if device SIM balance is over ?

Ans : In case of prepaid SIM card If device SIM balance is over ,device can turn ON & OFF the starter, but does not give any response SMS.

5. How new master number can be configured ,if the user enters the wrong password or forgets the password ?

Ans : To reconfigure the master number user has to send the query 44<space> last four digits of previous master number from new number which is to be configured.
1. In case if the user wants to reconfigure the new master number but if he enters wrong password then user does not get response message.
2. In case if the user forgets the password then user can set new password by sending query "79" in configuration mode.(i.e User has to press CFG key on device before sending query "79"),User will receive SMS "79,"PRODUCT SET TO FACTORY DEFAULT" . Then follow procedure of Master number configuration.

6. How Network (NW) signal strength can be checked ?

Ans : After sending query "12" to device ,master number will receive the SMS for signal strength. Signal strength received is defined as : between 1 to 10 – Low signal strength , 11 to 20 – Medium signal strength , more than 20- High signal strength . E.g. User will receive SMS, 12,"SIGNAL STRENGTH: 29-HIGH" .

7. How user can check availability of electricity in the field ?

Ans : If user makes a call to device from any mobile number then in case of unavailability of electricity, he will get the response that "Number is switched off or Number is not reachable" .

8. What is meaning of SMS "Starter Fault "error?

Ans : "Starter Fault" error occurs due to lose connection / damage in " I2" wiring of device or if contactor is faulty. After fixing the problem user has to call to device to make the starter ON.

9. What is meaning of SMS " Supply Error or Manually OFF" ?

Ans : "Supply error or Manually OFF" SMS is sent due to phase fail , phase reverse ,phase imbalance in Supply or if starter is turned off manually by pressing stop switch on panel if starter is turned ON by call.

10. How to check healthy condition of GSM ?

Ans: 1. Connect 3 phase supply to R ,Y & B terminals of device, short R , I1 & I2 terminals , short B & COM terminal. 2.After power ON the device, I1 & I2 LED will turn ON. 3.Configure the master number in device as per given procedure. 4.Connect continuity tester between 25 & 28 terminal of device. There should not be any continuity. 5.Make a call from master number. device will cut the call in 3 to 4 rings & then there will be continuity between 25 & 28 terminal. 6.Now connect the continuity tester between 15 & 16 terminal of device. There will be continuity between 15&16. 6.Now make a call again from master number, device will cut the call in 5 to 6 rings & then there will not be continuity between 15 & 16 terminal for 3 seconds. After 3 seconds again there will be continuity between 15 & 16 terminal of device. If device operates as stated above then it is in healthy condition.