

# DI-VISUAL / DI-VISUAL+

## INSTRUCTION MANUAL



# **Intelligent Alternator Fault Indicator, Diagnostic & Rectification System (DI Visual/DI-Visual+)**

1. Alarm Indication with Auto scroll for Multiple Alarms.
2. Download Alarm's on SD card.
3. Alarm display on LCD screen.
4. Address and Parameter value display on LCD screen.
5. Changing Parameter value as desired and writing it back to DSR.
6. Download Address and Parameter values on SD card.
7. All settings are Password protected.
8. GSM Modem SMS communication (Send and Receive SMS).

*(GSM module may not be available as per the Device Model)*

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## INTRODUCTION

This manual contains information on the operation and use of the DI-Visual and DI-Visual+.



In order to avoid damage to persons and/or property, only qualified personnel, having full knowledge and understanding of the information contained in this manual, should perform the procedures described herein; when power to the unit is on, the voltage present may be lethal for the operator.

All connections must be made with the power off.

## DI-VISUAL+ INSTALLATION

### 1. Wiring of DI-Visual+ with DSR

Connect 12V AC/DC supply to DI-Visual+ as shown in Fig. 1.  
Connect the communication cable provided with device to DSR/DER1 as shown in Fig. 1

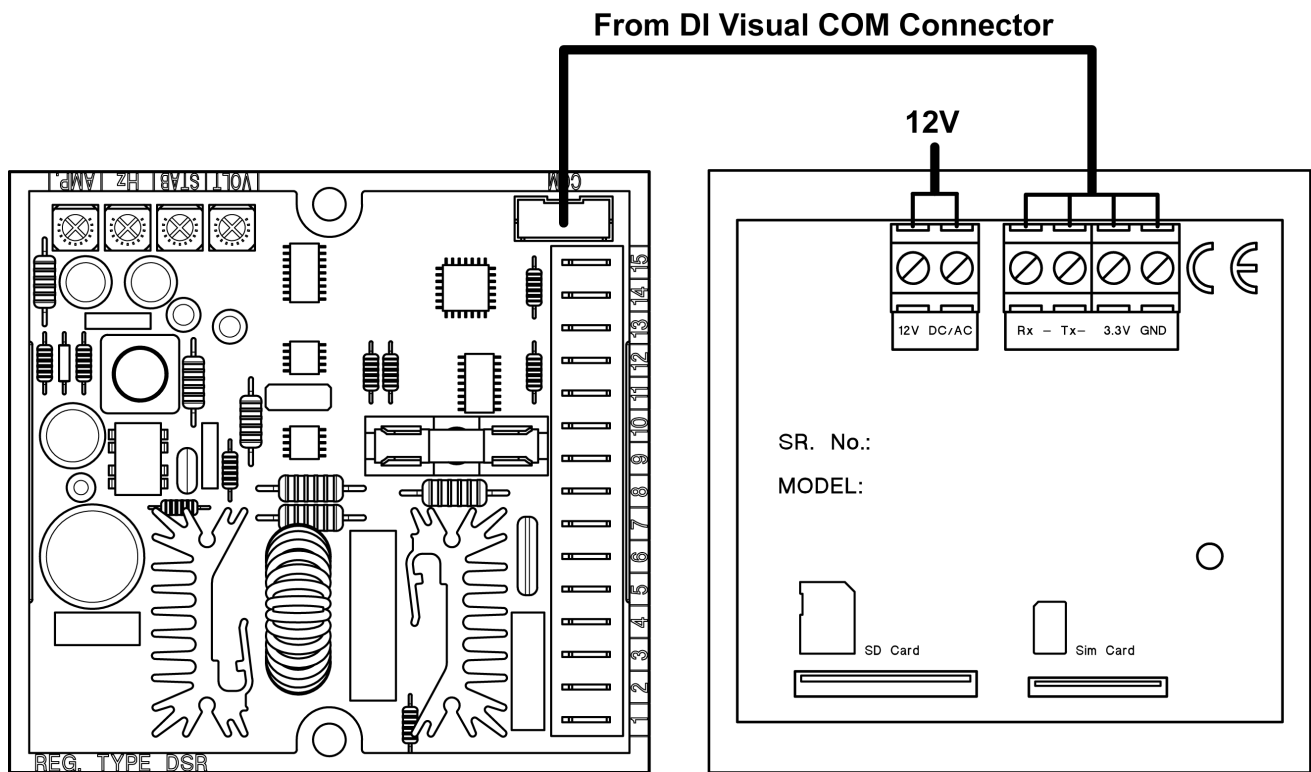


fig. 1

INSTALLATION SETTING FOR DI-VISUAL+

Fig. 2 shows DI-Visual+ Device status when 12V AC/DC Power is given with communication connector connected to DSR as shown in Fig 1.

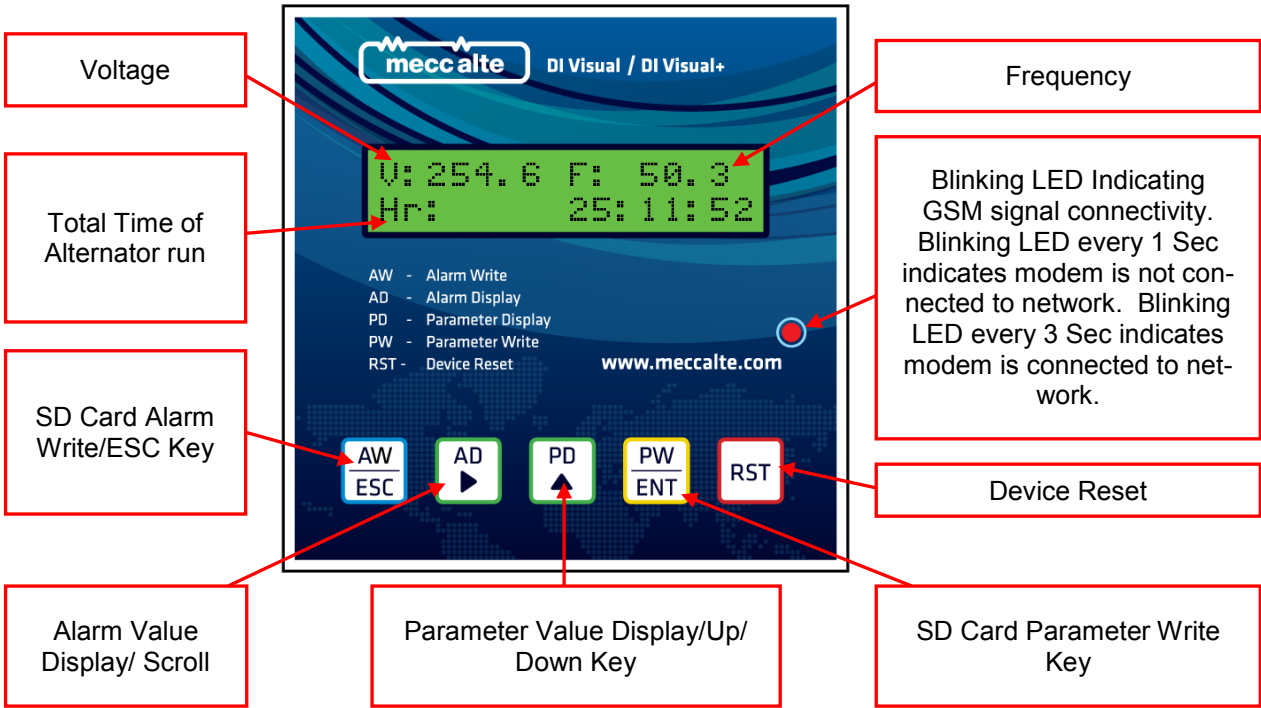


fig. 2

1. Address Settings of DSR in DI-Visual+

For setting the address of DSR in DI-Visual+, after Power On or Resetting DI-Visual+ device using **RST** key and keep the **PW/ENT** key pressed to prompt for the address stored in DI-Visual+ device as shown in Fig. 3. Default address stored is 1. To change the address you need to enter the password, see Par. 3.

- 1) To change the address press **AD** or **PD** key as shown in Fig. 3. Once you reach to desired address press **PW/ENT** key to update the change in address.

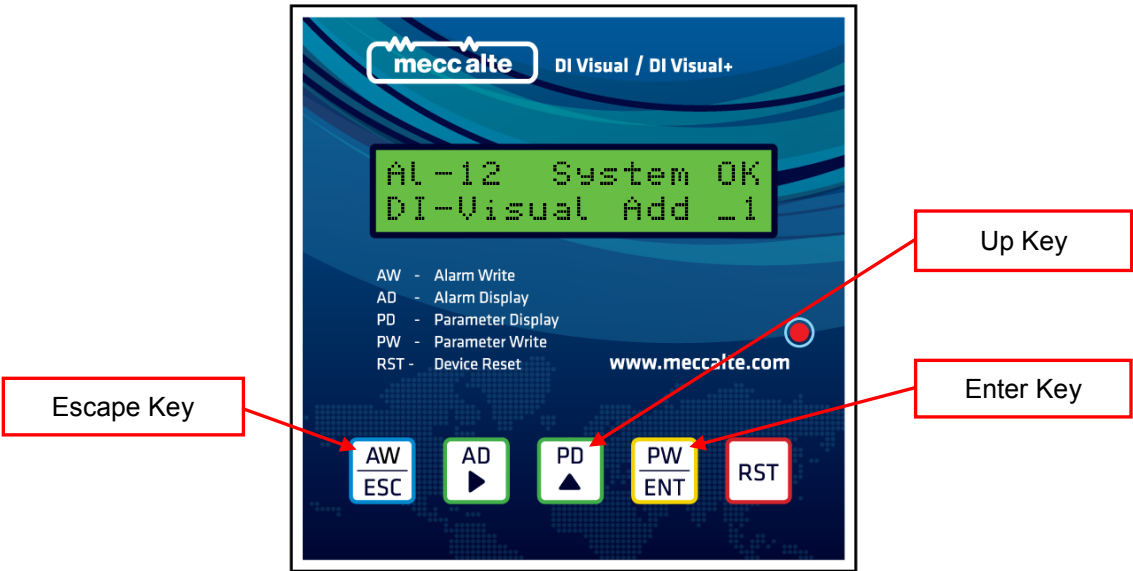



fig. 3

- 2) If the DI-Visual+ is connected to DSR and the changed address is proper then normal screen with Voltage, Frequency and Time parameter will appear on LCD. If the communication is failed with DSR a “No response” message will appear on LCD as shown in Fig. 4.
- 3) For proper communication with DSR check the communication cable connection or the address stored in DI-Visual+ Device.
- 4) Along with the Address Parameter the last alarms triggered in DSR communication are also shown on LCD with auto scrolling for multiple alarms.
- 5) Press  key any time to quit out of this setting.

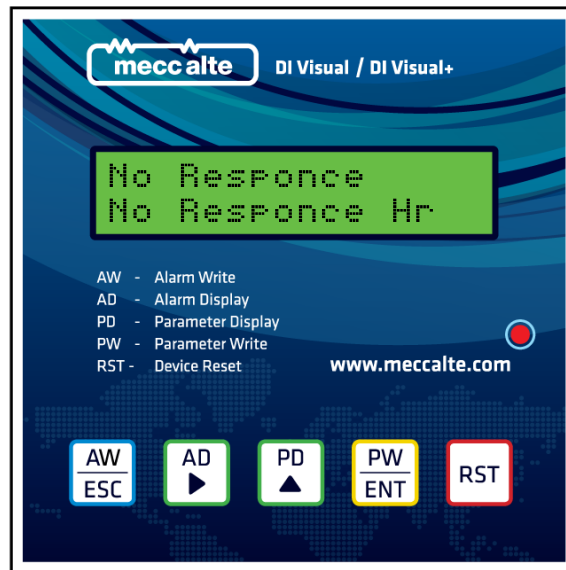







fig. 4

## 2. Single Phase /Three Phase Alternator Type selection

- 1) For Selecting Alternator Type i.e. Single Phase or Three Phase which will be used for Voltage display press  key  and key together after Power On or Resetting DI-Visual+ device.
- 2) Use key  or  key to change scroll between Single Phase and Three Phase Alternator type. Once you have entered desired type press  key as shown in Fig. 5 below to update the Alternator Type.

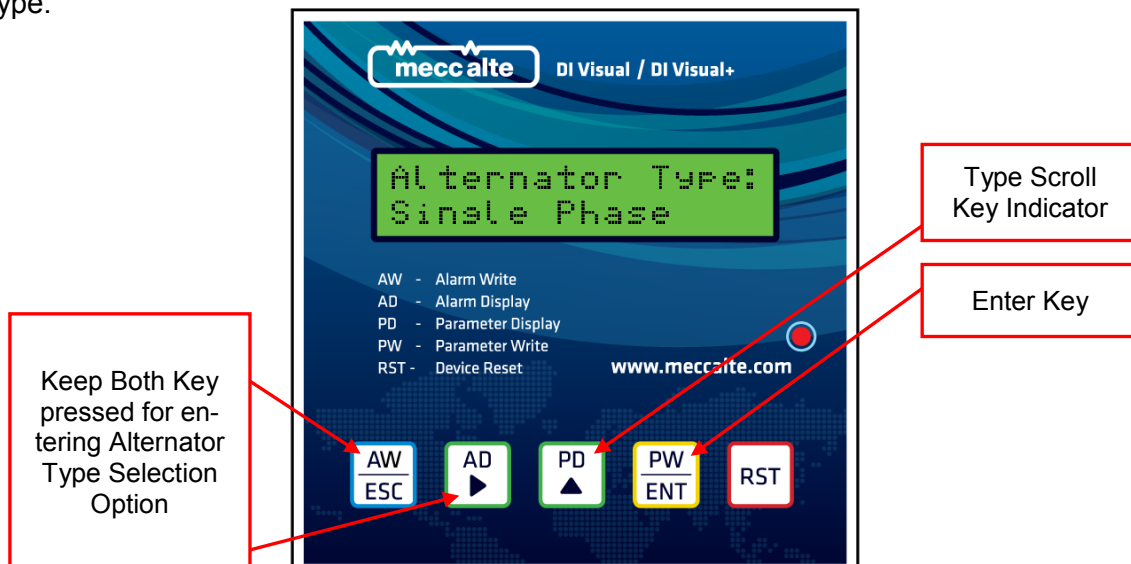





fig. 5

### 3. Device Password

- 1) Every setting is 4 Digit password Protected. Default password is **1234**.
- 2) If you try to enter any setting the system will prompt for Password as shown in Fig. 6 below.
- 3) Use  key to move the cursor and  key to Change the password bit from 0 to 9 digits.
- 4) Once you enter a valid password press  key to enter into the setting.
- 5) System Password can be changed.

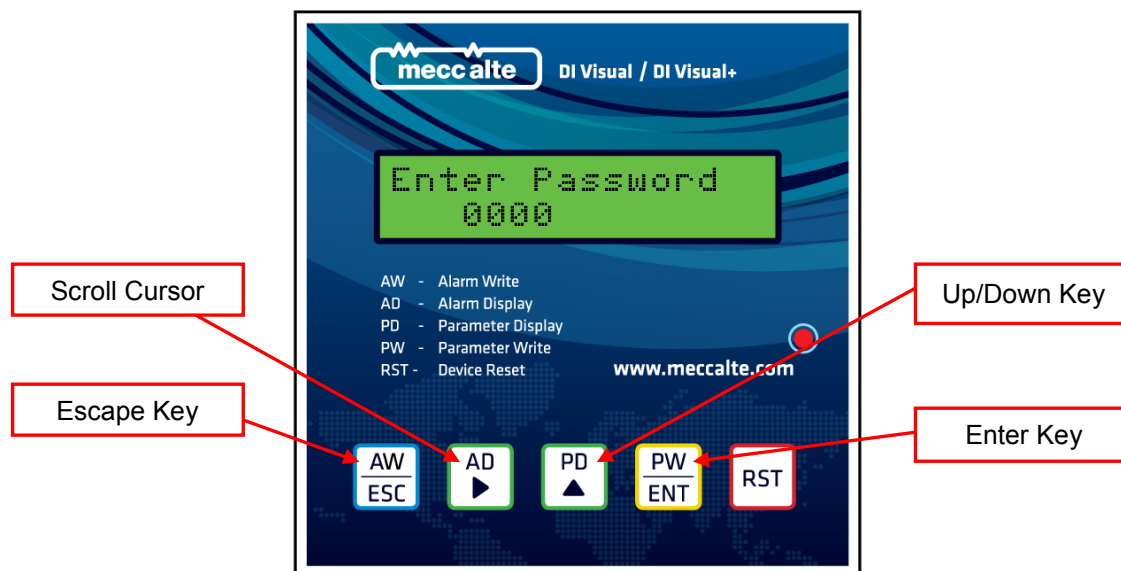




fig. 6

#### Changing Password:

- 1) For changing the password keep the  key and  key pressed together after Power On or Resetting DI-Visual+ device where the system will prompt for existing password to be entered as shown in Fig. 6 above.
- 2) Once valid password is entered the System will prompt for new password entry as shown in Fig. 7 below.

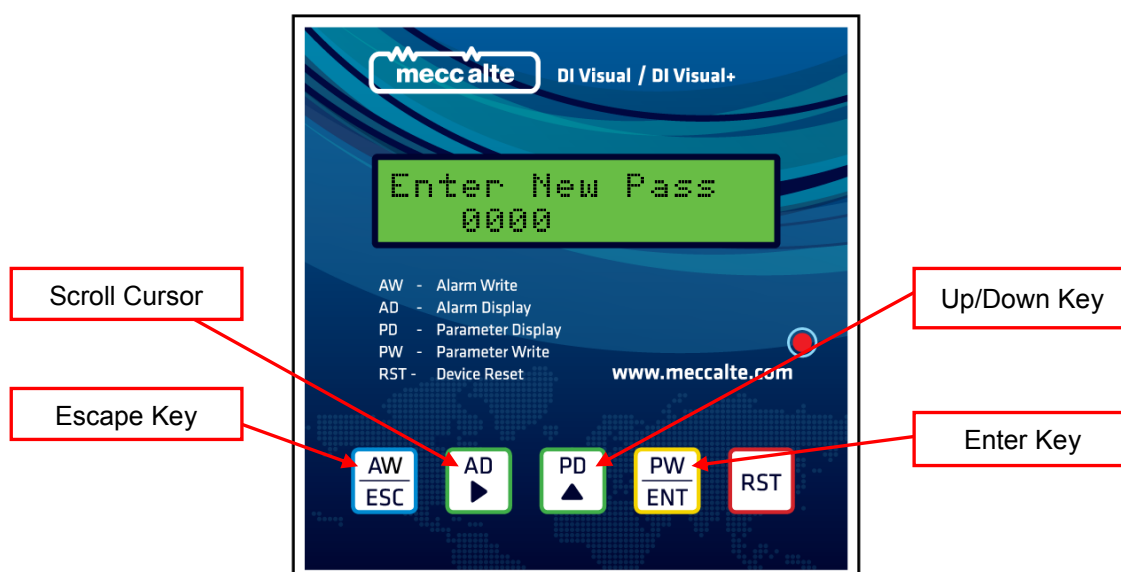







fig. 7

- 3) Use  key to move the cursor and  key to Change the password bit from 0 to 9 digits.
- 4) Once you enter a new password press  key to set the new password.
- 5) Press  at any time to exit the new password setting. Keeping the old password.

#### 4. Mobile PIN setting

(For PIN Enabled SIM Cards only)

SIM cards in some countries are PIN enabled. DI-Visual+ is default set to PIN Disabled. To enable DI-Visual+ with SIM PIN press  key after Power On or Resetting DI-Visual+ device to enter into PIN settings as shown in Fig. 8 below after valid password is set to the device.

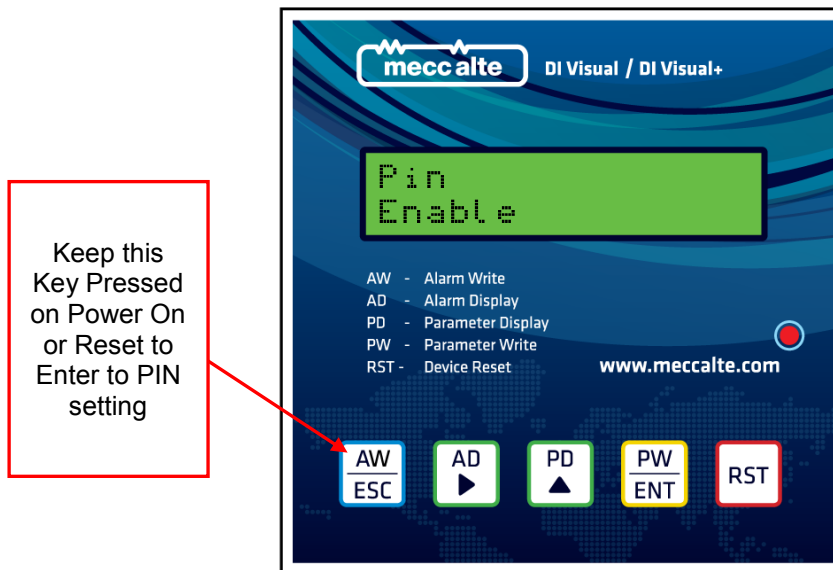







fig. 8

Using  Key you can enable/disable DI-Visual+ with SIM PIN. Once you select desired setting press  key. Device will prompt with PIN Desired setting "PIN Enable/Disable Y N" message. Press  to update the save setting or  to cancel setting update. If you have selected to Enable PIN, the device will prompt for PIN no Value "Update PIN Y N" Message. Pressing  key will prompt for PIN value updating window as show Fig 9 below.

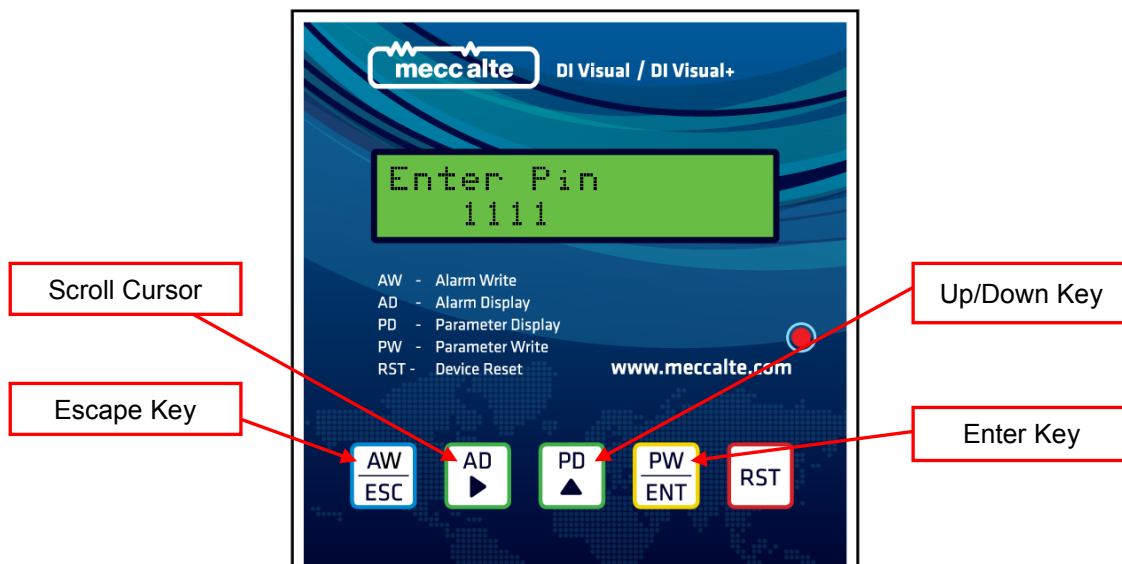





fig. 9





Use  Key to scroll in the PIN value bits and  key to change the value of PIN digit. Once you have entered desired PIN No. press  key as shown in Fig. 9 to update the PIN value of the SIM. If valid PIN value is not stored in DI-Visual+ and the SIM card needs the PIN to register to mobile service provider in your country the SMS system for DI-Visual+ will not work as the device will not be able to register the SIM to mobile network.

Please take care to set settings in DI-Visual+ as per the setting required by your mobile service provider in your country.



**NOTE:** Blinking LED on front panel of DI-Visual+ indicates GSM signal connectivity with mobile service provider. Blinking LED every 1 Sec indicates Device is not connected to mobile service provider. Blinking LED every 3 Sec indicates modem is connected to mobile service provider network. DI-Visual+ GSM modem is Quad Band Modem supporting 850,1900,900,1800MHz mobile frequencies.

## 5. Mobile No. Storing for receiving DSR/DER1 alarms

- 1) For storing Mobile number which will be used to send Alarms SMS, after Power On or Resetting DI-Visual+ device Press the  as shown in Fig. 10 below to prompt mobile number settings.
- 2) Use  Key to scroll in the mobile number bits and  key to change the value of Mobile No. Once you have entered desired Mobile No. Press  key as shown in Fig. 10 below to update the Mobile No. for Alarm SMS.
- 3) The stored mobile no will be used to send Alarms SMS.

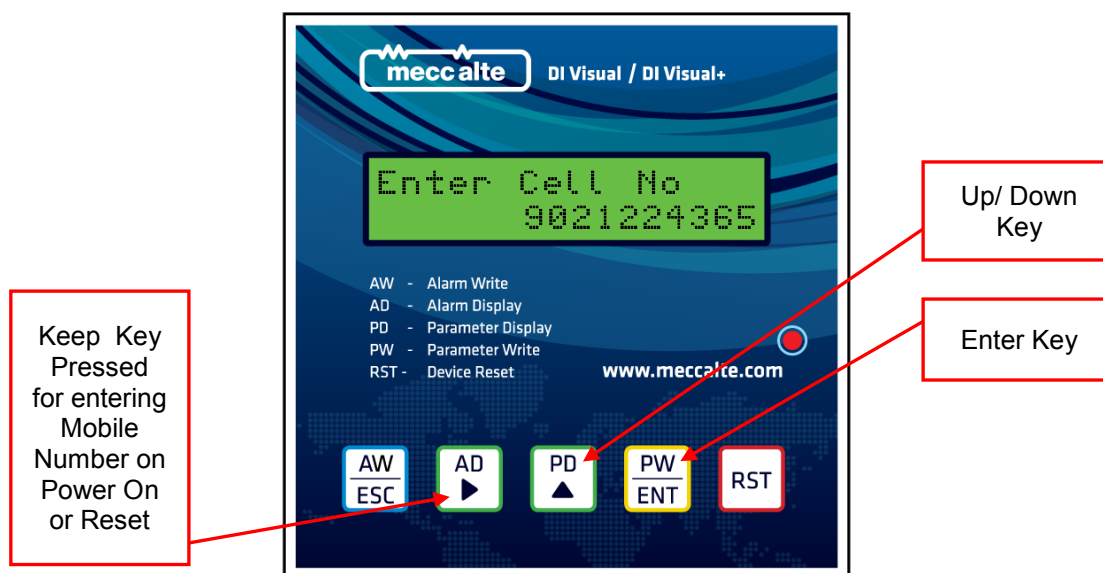


fig. 10

*(GSM module may not be available as per the Device Model)*



# FEATURES

## 1. Auto Scroll Alarm Indications of DSR with Voltage, Frequency and No of Alternator Run Hours display

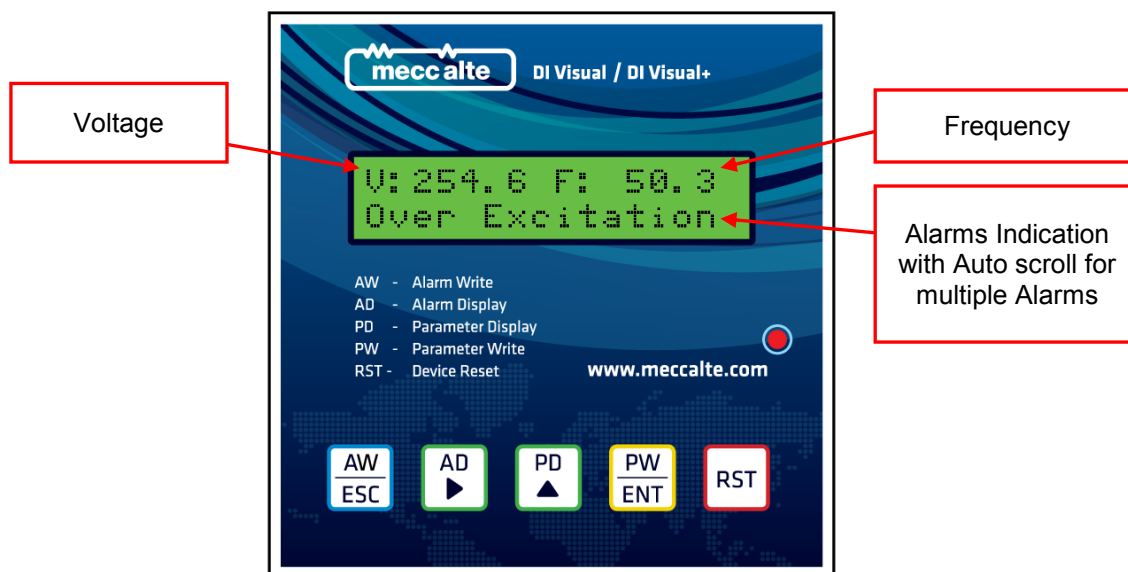


fig. 11

Alarm indication will be indicated as shown in Fig. 11 above with Auto scroll for multiple Alarms.

## 2. Alarm Writing on SD Card

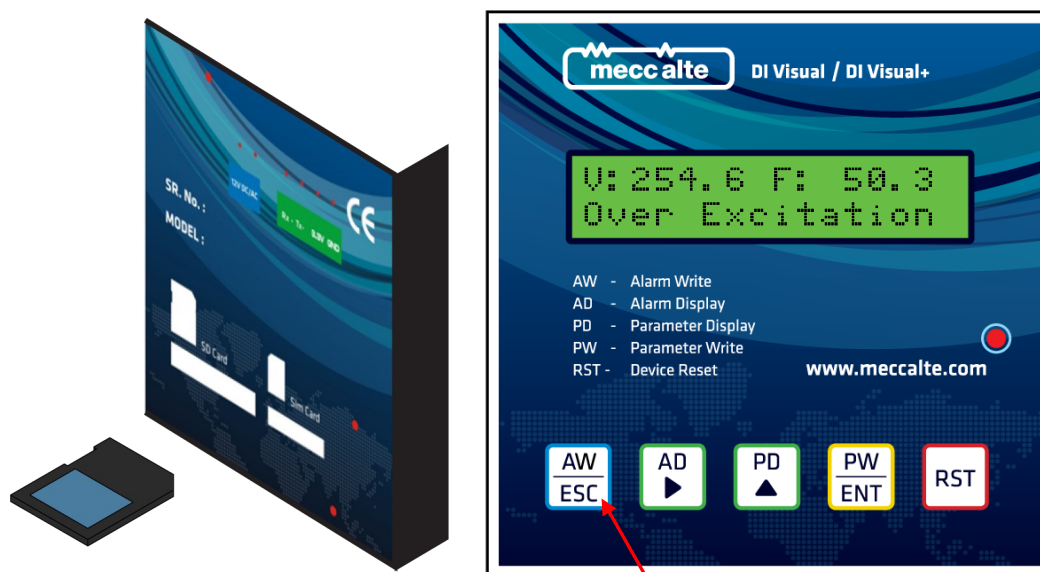


fig. 12

1. Insert SD Card On Back side of Device

2. Keep Pressed this Key Until "Collecting Alarm" Message Displayed to write alarm values on SD Card

1) To backup the stored alarm values on DSR to SD card first insert the SD card on the back side of device as indicated by a SD card picture on back side of device.

2) Once the SD card is inserted keep the **AW / ESC** key pressed as shown in Fig. 12 above until you see "Collecting Alarms" message on the display as shown in Fig. 13 below.

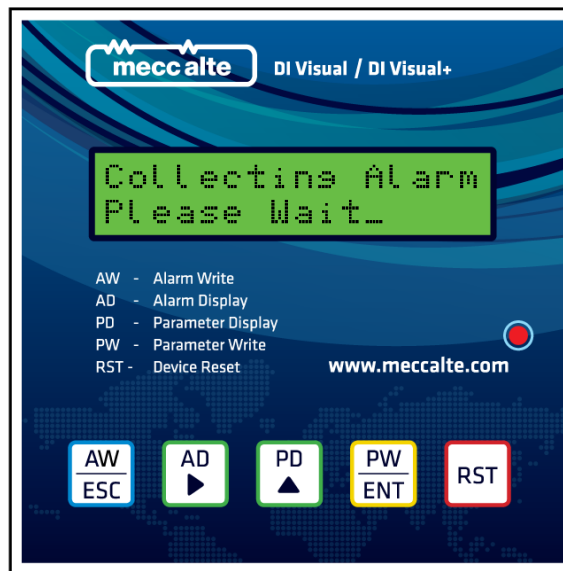


fig. 13

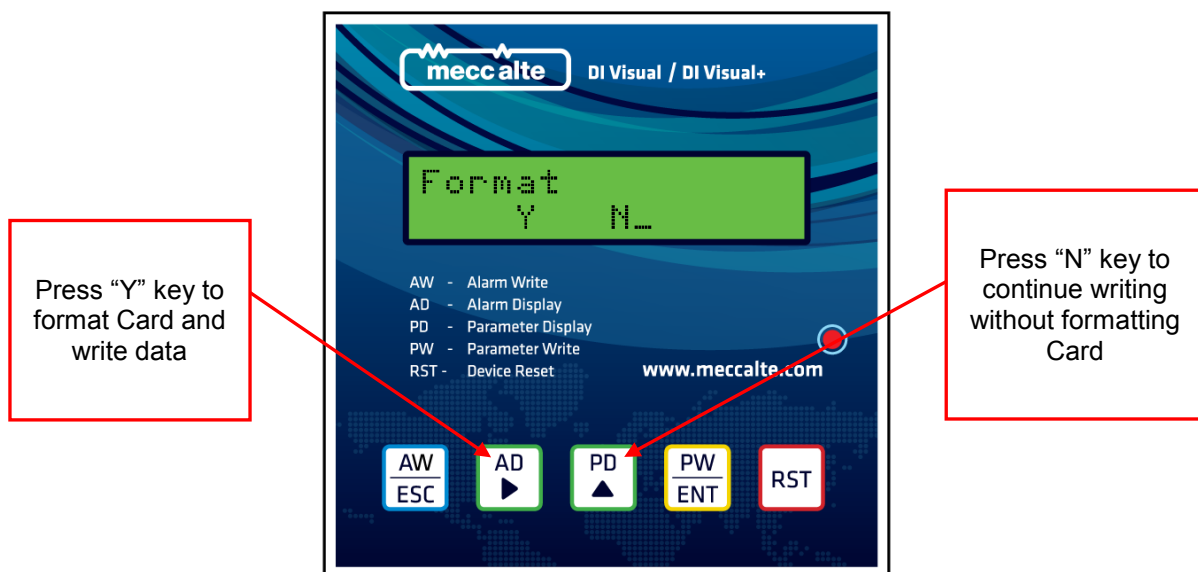




fig. 14

- 3) Once the Alarms values are collected from the DSR "Format Y N" message will be displayed on the LCD display. Press  key as shown in Fig. 14 above to format the SD Card and continue writing Alarm values on the SD card and LCD display will show message "Writing Data" blinking as shown in image below. Press  key to continue writing alarms without formatting the SD Card. (Recommended to Format card for the first time writing).



- 4) As the writing is completed, this will be indicated on LCD display by a message “Writing Complete” as shown in image below. After writing is completed the system will start the continuous scanning process of Voltage, Frequency and Time calculation.



### 3. Alarm Display on LCD

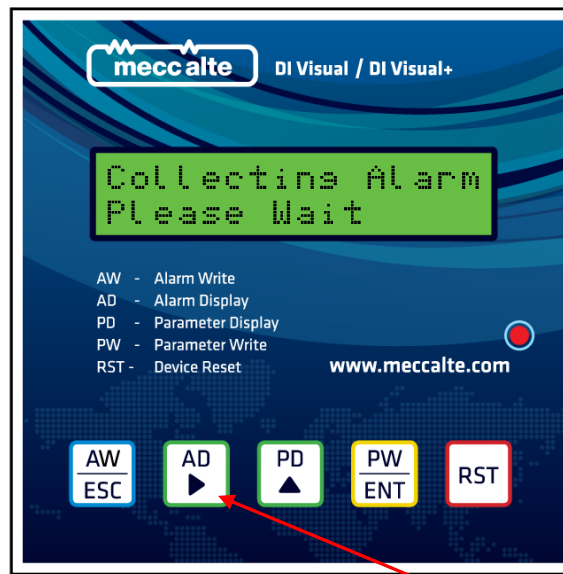



fig. 15

Alarm Display Key

- 1) Keep the  key pressed as shown in image above to pull the alarm values from DSR and display them on the LCD. Keep the key pressed until you see “Collecting Alarm” message as shown in Fig. 15.
- 2) After successful pulling of the alarm values from DSR the first Alarm number and Occurrence will be displayed on the LCD as shown in Fig. 16 below.

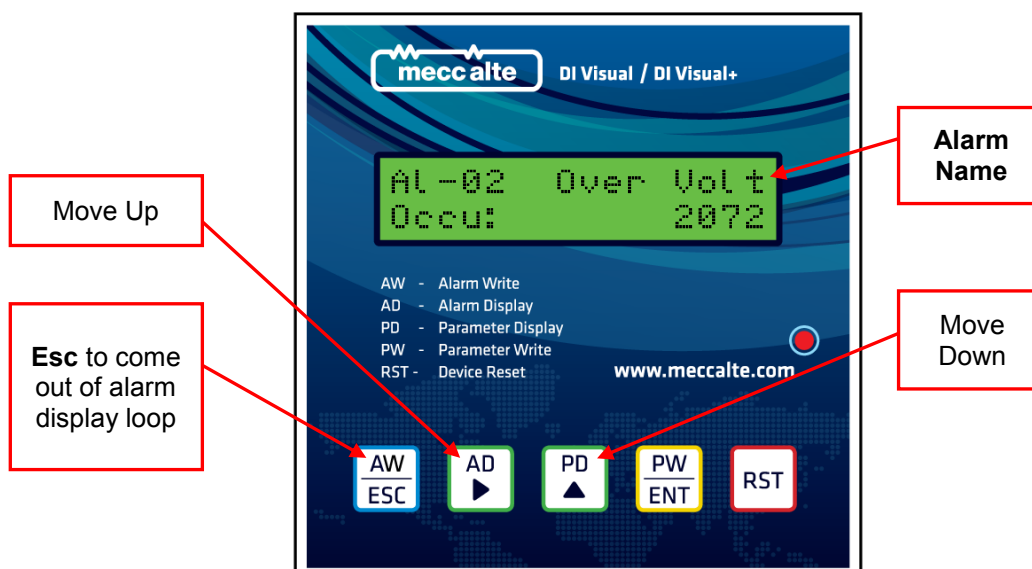






fig. 16

- 3) To move to next values i.e. Last Event and Accumulator value, press  key. To see the previous alarm values press  key and to see next value press  key as shown in Fig. 16 above.
- 4) To come out of the Alarm display option press  key as shown in Fig. 16 above which will put the device again into continuous scanning process of Voltage, Frequency and Time.

#### 4. Parameter Display on LCD with manual parameter value changing and writing to DSR/DER1

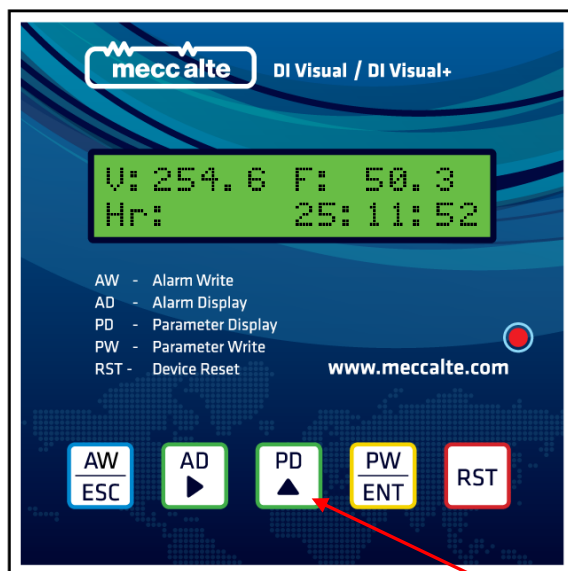



fig. 17

Parameter Display Key

- 1) Keep the  key pressed as shown in Fig. 17 above to pull the Parameter values from DSR and display them on the LCD. Keep the key pressed until you see "Please Wait" message displayed or first parameter displayed.
- 2) After successful pulling of the parameter value from DSR the first Address and its Parameter Value will be displayed on the LCD as shown in Fig. 18 below.

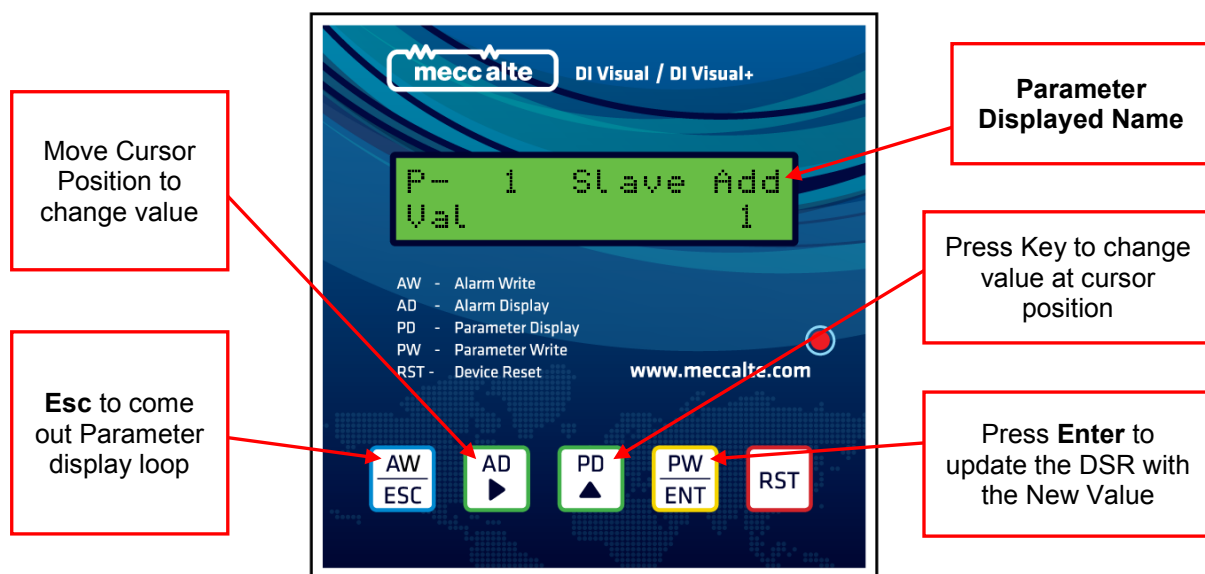







fig. 18

- 3) To change value move the cursor using  key as shown in image above to reach to desired position. To increase or decrease the value at cursor position press  key as shown in Fig. 18 above. Once you reach the desired value of the parameter press  key to send the new value to update DSR with new value.
- 4) If the new value is in the allowed range of DSR for that address system will prompt "Write DSR Y N" message on LCD. Using  key as shown in image you can update the new value to DSR. Using the  key you can move to next address without updating the new value to DSR.

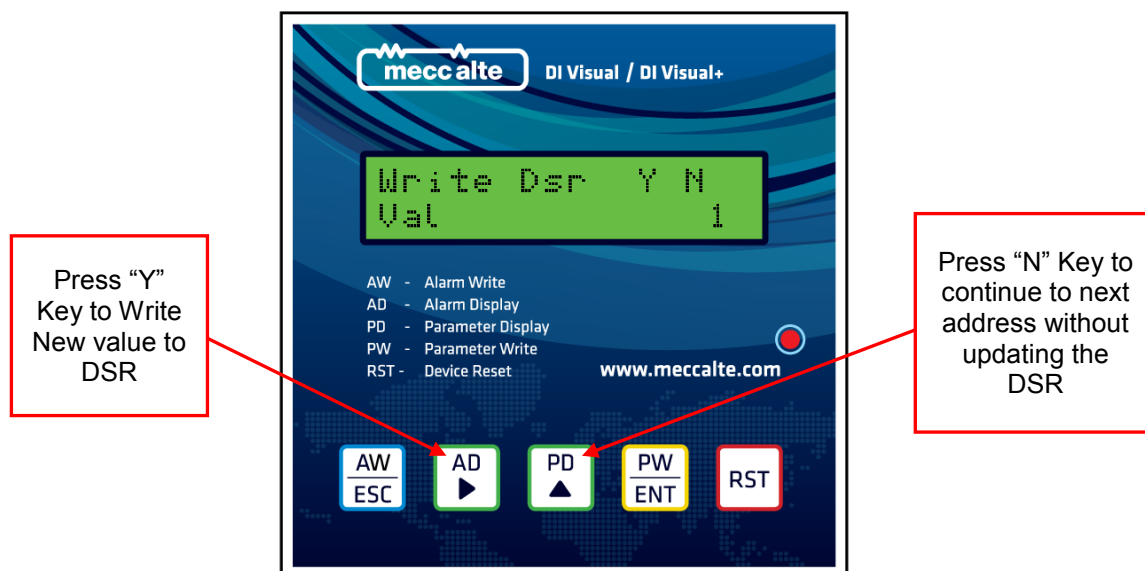


fig. 19

- 5) If New value set is not in the range of allowed values for DSR then system will prompt for "Parameter Invalid" as shown in Fig. 20 below and the value which was there before changing will be again shown on LCD.

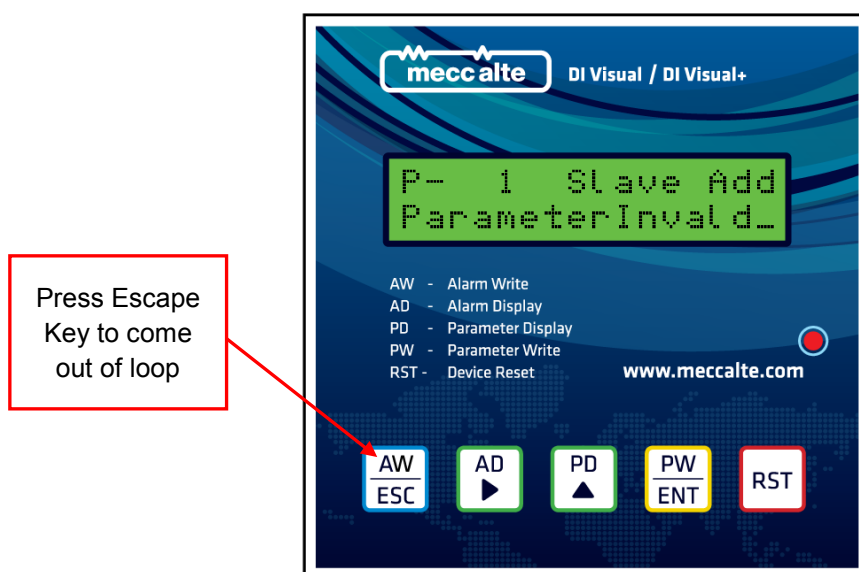



fig. 20

- 6) To come out of the Parameter display option at any time press  key as shown in Fig. 20 above.

## 5. Parameter writing to SD card

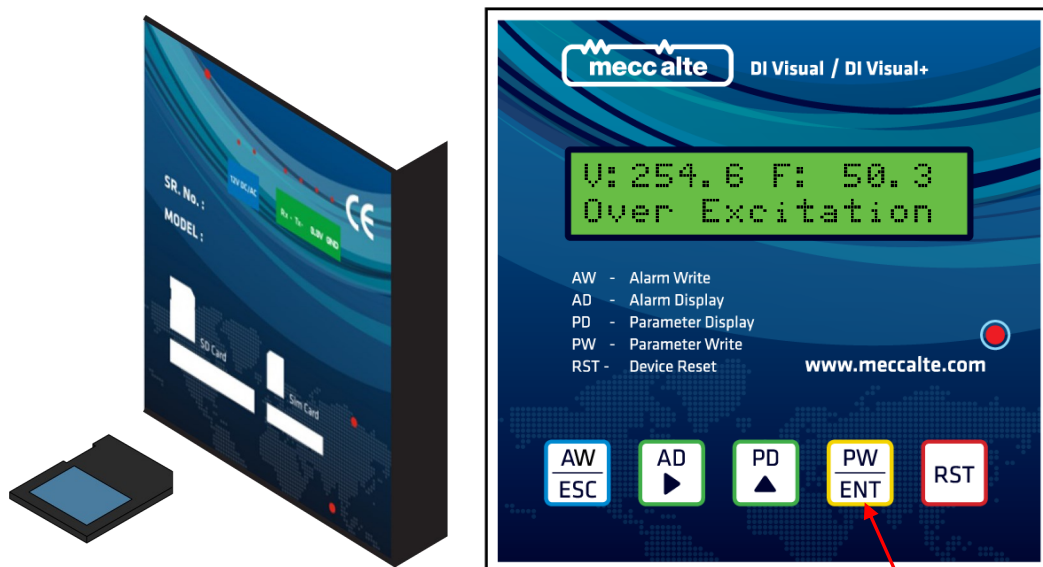


fig. 21

1. Insert SD Card On Back side of Device

2. Keep Pressed this button until "Collecting Param" Message is displayed to write Address and Parameter values on SD Card

- 1) To backup the stored Address and parameter values on DSR to SD card first insert the SD card on back side of device as indicated by a SD card picture in Fig 21.
- 2) Once the SD card is inserted keep **PW/ENT** key as shown above pressed until you see "Collecting Param" message on the display as shown in Fig. 22 below.

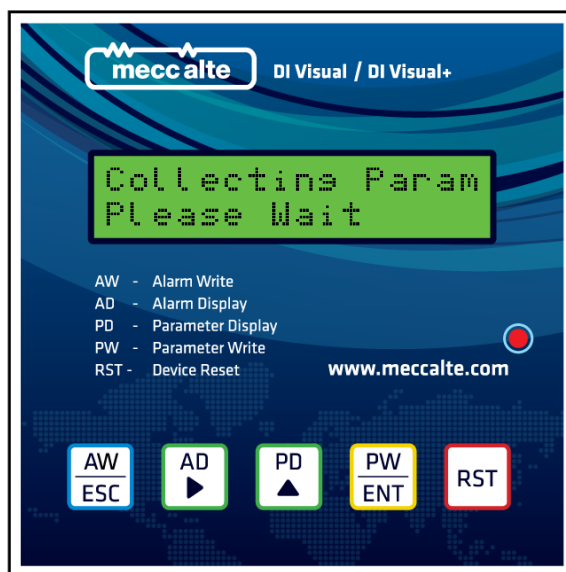


fig. 22

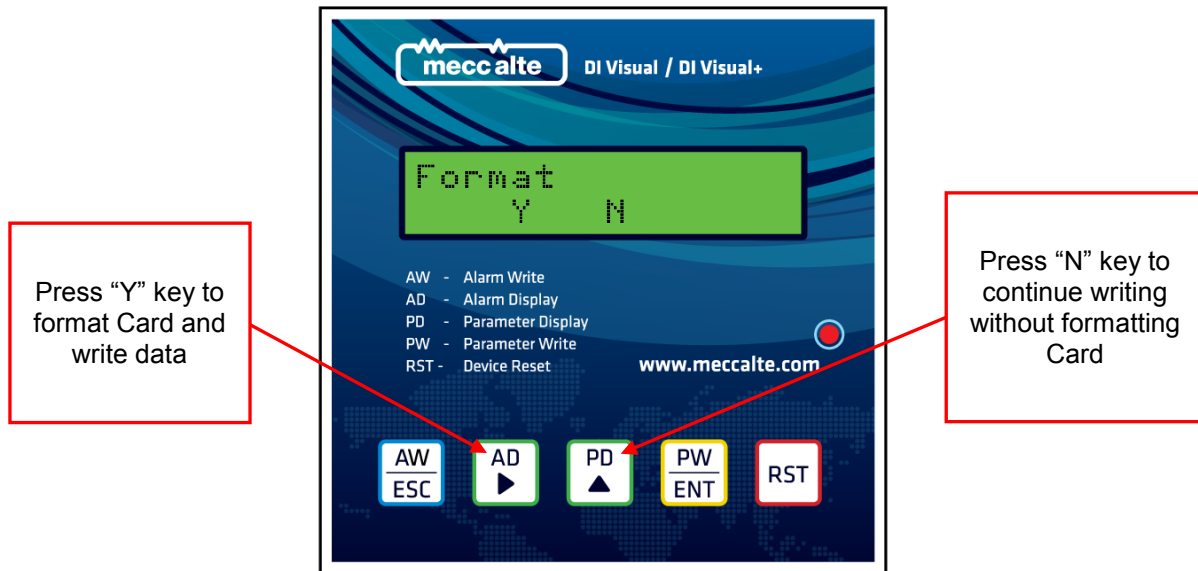


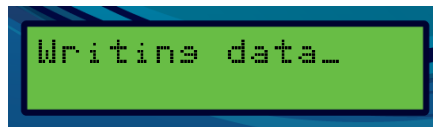


fig. 23


- 3) Once the Parameter values are collected from DSR “Format Y N” message will be displayed on the LCD display. Press  key as shown in fig 23 above to format the SD Card and continue writing Parameter values on the SD card and LCD display will show message “Writing Data” blinking as shown in image below. Press  key to continue writing Parameter without formatting the SD





- 4) As the writing is completed, this will be indicated on LCD display by a message “Writing Complete” as shown in image below. After writing is completed the system will start the continuous scanning process of Voltage, Frequency and Time calculation.





## 5. Manual Configuration and POT bit setting from DI-Visual+

For changing the configuration Bits of DSR i.e. Volt, Stab, Hz, Amp Pots etc after Power On or Resetting DI-Visual+ device keep the  key as shown in Fig 24 below to prompt for the first configuration bit setting stored in DSR.

- 1) To change the configuration bit setting from Enable to Disable or vice versa press  key. Once you have set the desired setting for the selected configuration bit Press  key to update that setting to DSR. The DI-Visual+ will show “Success” message on the LCD for updated DSR POT of configuration bit setting as shown in Fig 24 below.



- 2) To move to next configuration bit press  key as shown in Fig. 24 below.
- 3) Press  key any time to quit out of this setting.

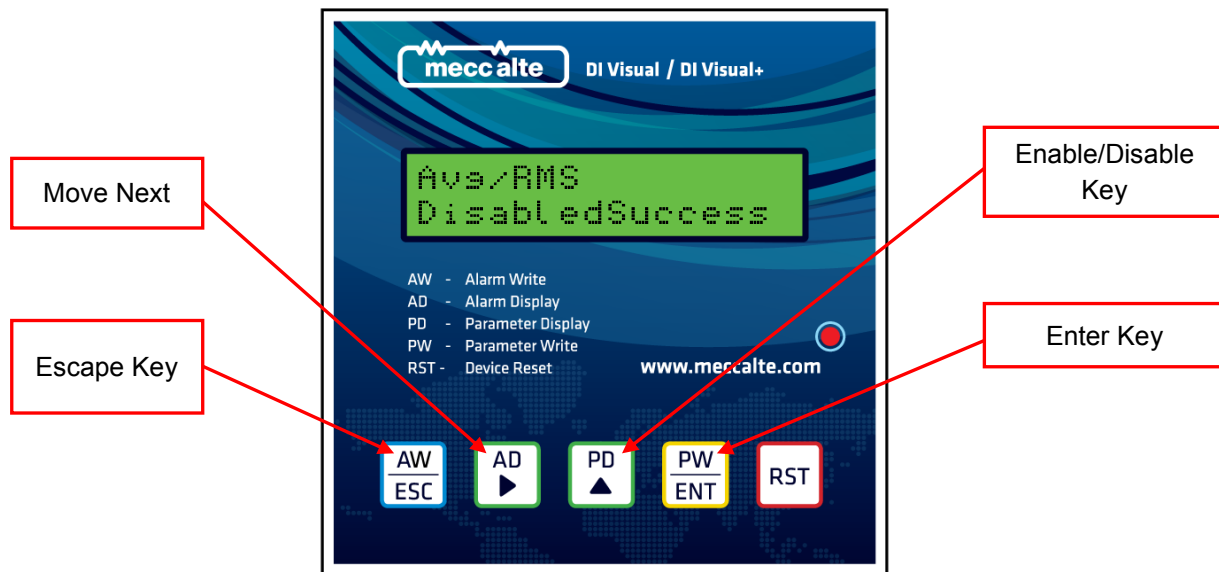


fig. 24

## GSM FEATURES (GSM module may not be available as per the Device Model. Only DI-Visual+ has this feature)

### 1. Receiving Configuration and POT bits of DSR/DER1 using mobile SMS

Using this you can get the existing status of Volt, Stab, Hz, Amp POT on the DSR i.e. Pots are Enabled or Disabled (E or D).

(SMS are Case sensitive)

**SEND SMS format description: @GPXXXXP@**

**@** : Default character

**P** : Default character

**GP** : Get POT status

**XXXX** : Password for DSR

If you send SMS in above format to DI-Visual+ for e.g.: @GP1234P@ you will get the reply SMS for e.g.

“Volt : E, Stab : D, Hz : E, Amp : E” on the number from which you have send if the password is correct. If the password is not correct the system will send reply as Invalid Password.

**Reply SMS format description: Volt : X, Stab : X, Hz : X, Amp : X**

**X** - E: Respective Pot is Enabled, D: Respective Pot is disabled



## 2. Changing Configuration and POT bits of DSR/DER1 using mobile SMS

Using this you can set the existing status of Volt, Stab, Hz, Amp POT on the DSR i.e. Pots can be Enabled or Disabled (E or D).

(SMS are Case sensitive)

**SEND SMS format description: @SPXXXXP\$#@**

**@** : Default character

**P** : Default character

**SP** : Set POT status

**XXXX** : Password for DSR

**\$** : Pot Value i.e. 1- Volt, 2- Stab, 3-Hz, 4- Amp

**#** : E :Enable POT, D: Disable POT

If you send SMS in above format to DI-Visual+ for e.g.: @SP1234P2E@ to Enable POT “Stab” you will get the reply SMS for e.g. “Stab: E” on the number from which you have send “Stab: E” if the password is correct. If the password is not correct the system will send reply as Invalid Password.

**Reply SMS format description: Stab Pot X Set**

**X – E**: Respective Pot is Enabled, **D**: Respective Pot is disabled

If you try to Enable or Disable POT which is already Enabled or Disabled you will receive reply SMS as “POT already Enabled or Disabled” as per the POT status.

## 3. Receiving Parameter values of DSR/DER1 using mobile SMS

Using this you can get the existing value of Parameter on the DSR i.e. 1-30 Parameters as per DSR mechanical manual.

(SMS are Case sensitive)

**SEND SMS format description: @SVXXXXP\$\$@**

**@** : Default character

**P** : Default character

**–** : Default character

**SV** : Get parameter value

**XXXX** : Password for DSR

**\$\$** : 01-30 Parameter No

If you send SMS in above format to DI-Visual+ for e.g.: @SV1234P19@ you will get the reply SMS for e.g. “**Volt : 0**” on the number from which you have send SMS “Volt : 0” i.e. Parameter name and its value on the DSR if the password is correct. If the password is not correct the system will send reply as Invalid Password.

#### 4. Changing Parameter values of DSR/DER1 using mobile SMS

Using this you can set the existing value of Parameter on the DSR i.e. 1-30 Parameters as per DSR meccalte manual.

(SMS are Case sensitive)

**SEND SMS format description: @SVXXXXP\$-#####@**

**@** : Default character

**P** : Default character

**-** : Default character

**SV** : Get parameter value

**XXXX** : Password for DSR

**\$** : 01-30 Parameter No

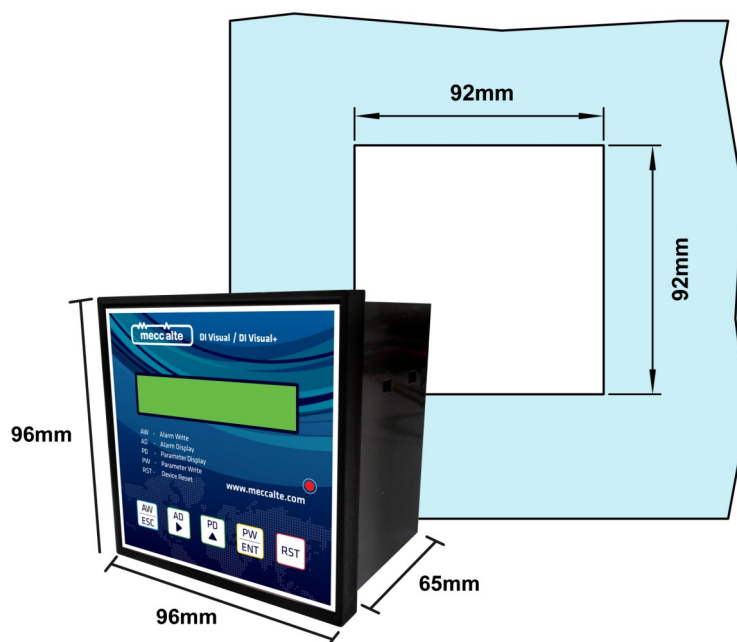
**#** : Numeric Value of the Parameter to be Set in the range valid as per meccalte manual for the respective parameter.

If you send SMS in above format to DI-Visual+ for e.g.: @SV1234P19-16384@ you will get the reply SMS for e.g. **"Volt : Value Set "** on the number from which you have send SMS "Volt : Value Set " if the password is correct. If the password is not correct the system will send reply as Invalid Password.

## APPENDIX A: Technical Specifications

| TABLE 1 : TECHNICAL SPECIFICATIONS |        |                   |                        |
|------------------------------------|--------|-------------------|------------------------|
| Enclosure                          |        | Dimension         | 96x96x65mm             |
|                                    |        | Weight            | 240g                   |
| Display                            |        |                   | 16x2 LCD               |
| Input                              | Supply | Voltage           | 12V AC/DC<br>50Hz-60Hz |
|                                    |        | Operating Current | 200mA                  |
|                                    |        | Voltage Tolerance | Min 10V to 35V Max     |
| Operating Temperature              |        |                   | 0°C ÷ 80°C             |
| Communication Cable                |        | Length            | 1,5m                   |

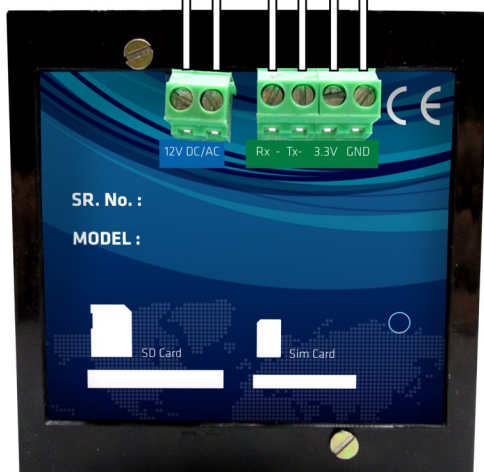
### CUT OUT Diagram



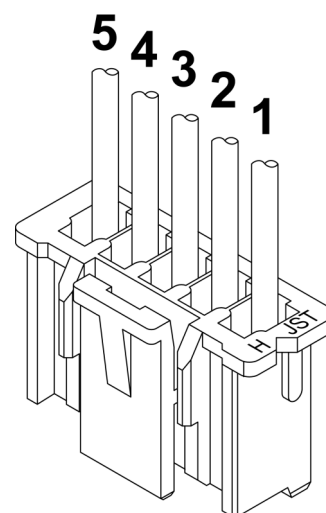
### Wiring Diagram

12V  
AC/DC  
1Amp

4 3 5 1 To DSR  
Ralimate




### DSR Ralimate



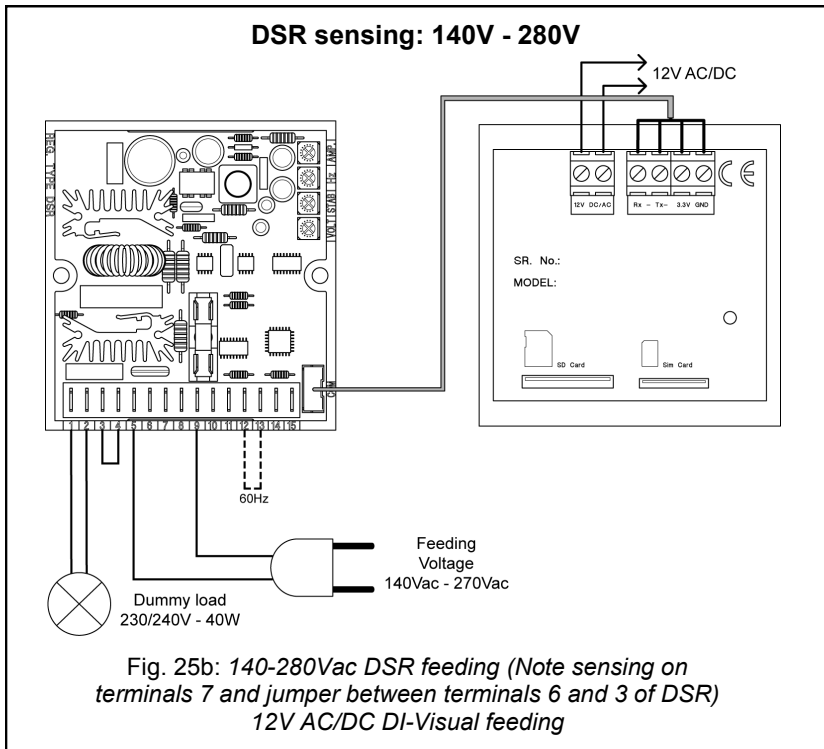
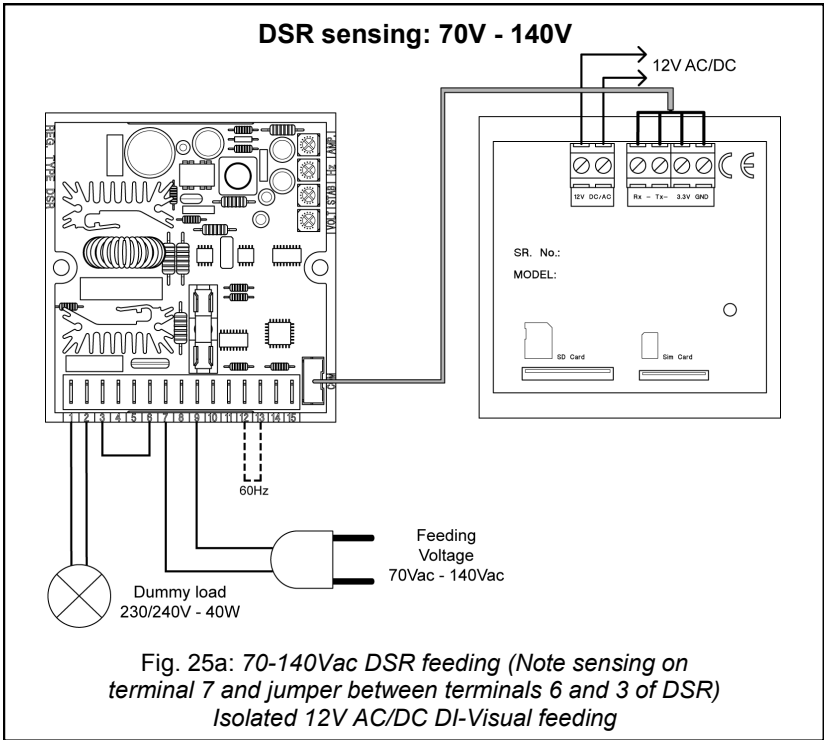
## APPENDIX B: DSR Set up on a Test Bench with DI-Visual/DI-Visual+

The use of a test bench will result in a much easier set up of the DSR and its communication devices.  
The connection schemes of the DSR and the communication device DI Visual/DI Visual+ are reported from figures 25 below, depending on the power source available.



Some of the DSR components are working at high voltage and can be potentially dangerous for safety: for this reason it is mandatory to insulate the power source of the regulator from the grid by means of an insulation transformer.

The connection must be accomplished by trained and skilled personnel, perfectly aware of the potential risks of high voltages for health and safety. A full knowledge of this manual is also required for a safe operation on the DSR.



| REVISION HISTORY |       |                 |
|------------------|-------|-----------------|
| Revision         | Date  | Description     |
| rev.00           | 04/14 | Initial Release |
|                  |       |                 |
|                  |       |                 |
|                  |       |                 |
|                  |       |                 |
|                  |       |                 |
|                  |       |                 |



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