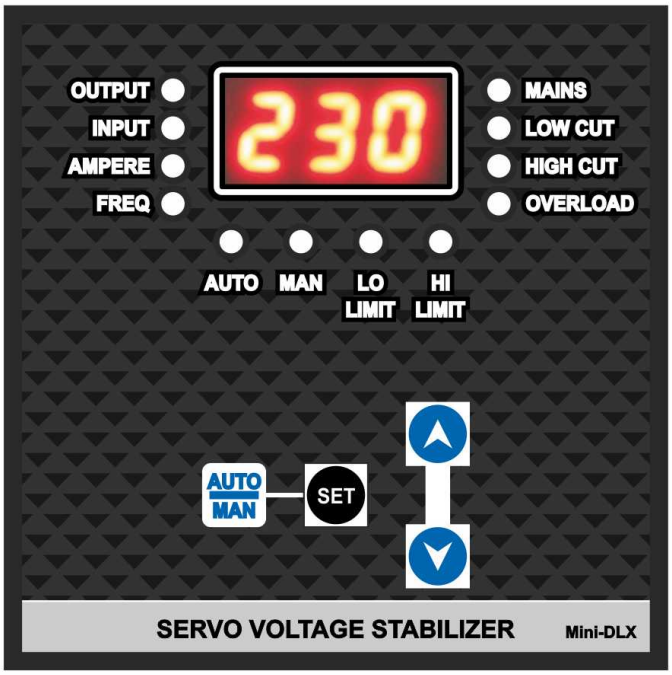
USER MANUAL
MINI MODEL



SALIENT FEATURES OF SMART Model

- ***Range 10-20 % Extra***
- ***Current - Straight Program (No Formula)***
- ***Mounting 96x96 (Drawing enclosed)***
- ***SMD Technology***
- ***Voltage Display upto 500V***
- ***Software Calibration***

This manual is divided into four parts. These four parts are as follows:

All these four parts are explained as follows:

1. Normal (Running) Operation Mode

MINI MODEL panel for servo control card has a set of seven segment display. It has four push button switches. This model displays following four parameters:

1. OUTPUT VOLTAGE
2. INPUT VOLTAGE
3. CURRENT
4. FREQUENCY

These four parameters keep coming one by one. Every display is associated with corresponding LED display on its left side which displays that what parameter is being displayed now. Out of these four parameters, if we do not want to see some parameters, then we can program it for NO. This we shall see in programming part of this manual

LED INDICATIONS:

On the right side of display there are four indicators. Top one is mains indicator. It represents relay or contactor for output voltage. On means, output relay is ON and Off means, output relay is OFF. And when it is blinking that means relay is about to turn ON and it is in tdr time.

Four indicators LED on right side.

- MAINS
- LOW CUT
- HIGH CUT
- OVERLOAD

After mains led, there are fault indicators LED. And in case of fault cut off, it displays which fault has happened. This could be Low Cut / High Cut / Overload Cut off.

And then there are four indicators at the bottom of display. This indicates Auto Mode / Manual Mode indicator and Hi Limit / Lo Limit Indicator.

PUSH BUTTONS:

There are seven four buttons. As mentioned, these push buttons are

- AUTO / MAN
- SET
- UP
- DOWN

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After having gone through front panel layout, let us see it's operation.
In normal operation there are two modes in which this unit can be operated.

AUTO MODE:

This is mode which normally is used. In this mode desired output voltage can be set and then the card gives command to motor to move so as to achieve the desired output voltage. AUTO MODE and MANUAL MODE are toggled by long pressing the AUTO / MAN button for about 3 seconds. Here motor will take care automatically to keep it at set voltage +/- hysteresis, provided the low limit or high limit has not reached.

MANUAL MODE:

Again this mode can be entered by toggling the same AUTO/MAN button by long pressing for around 3 seconds. In this way it detects a genuine press for ***MANUAL*** button.

In this mode the desired output voltage is achieved by pressing ***UP*** or ***DOWN*** key. Here it does not correct the output voltage when there is fluctuation in the incoming power supply.

SET VOLTAGE:

To see the set output voltage, press the ***SET*** button. Now the display shows SET and then it shows set voltage along with blinking. For changing the set voltage, press ***UP*** or ***DOWN*** button to reach at desired set voltage.

If we press SET button again then it comes out of set voltage mode or otherwise, if we do not press any button for some time, then it automatically comes out of it.

2. *Programming Mode*

To enter in programming, press ***SET*** and ***AUTO/MAN*** buttons together. Left display shows ***Lo.*** Now it has entered in programming mode.

There are seven settings which can be set in this mode. And the parameters can be changed with the help of ***UP*** and ***DOWN*** button. Parameters can be toggled by ***SET*** button. Here first display will show parameter and then it displays the value set. These settings are:

• Low voltage cut off set	Display shows-	Lo	
• High voltage cut off set	Display shows-	Hi	
• Time delay relay set (TDR)	Display shows-	tdr	
• Hysteresis	Display shows-	HYS	
• Current	Display shows-	CUR	
• Output Voltage Display	Display shows	Out	YES
• Input Voltage Display	Display shows	In	YES
• Current Display	Display shows	In	YES
• Frequency Display	Display shows	In	YES
• Buzzer	Display shows	In	YES

Low Voltage cut off:

This value can be changed from 100V to 220V. Whenever there is any fluctuation present in the power supply to the extent that output voltage has turned out to be below this set voltage range then relay switches OFF.

High Voltage cut off:

This value can be changed from 220V to 280V. Whenever there is any fluctuation present in the power supply to the extent that output voltage has turned out to be above this set voltage range then relay switches OFF.

Time Delay Relay:

This value can be programmed from 1 sec to 180 sec. Whenever the output voltage goes beyond the low and high voltage range or load current exceeds the set limit, the relay switches off. When the output voltage has reached in this range and now this much time (which has been programmed in TDR) is introduced and after this the relay turns ON.

Hysteresis:

Hysteresis can be programmed from 1V to 15V. It is used to minimize hunting of motor when there is a lot of fluctuation in the power supply. In this case we allow a min. and max. band for the servo motor to operate. For example if hysteresis is set at 4V and auto set voltage is 225V then servo motor will not take action between 221V—229V. In this way hunting of motor is avoided at places where there is lot of voltage fluctuations.

Display Option →Output Voltage:

Once entered in this setting it displays **Out YES** and it has two options: a) Yes b) No which can be done by pressing **UP** & **DOWN** buttons. If selected Yes then it will show **Output Voltage** otherwise it will not.

Display Option →Input Voltage:

In the same way again it displays **In YES** and it has two options: a) Yes b) No which can be done by pressing **UP** & **DOWN** buttons. If selected Yes then it will show **Input Voltage** otherwise it will not.

Display Option →Current:

In the same way again it displays **Cur YES** and it has two options: a) Yes b) No which can be done by pressing **UP** & **DOWN** buttons. If selected Yes then it will show **Current** otherwise it will not.

Display Option →Frequency:

In the same way again it displays **Fre YES** and it has two options: a) Yes b) No which can be done by pressing **UP** & **DOWN** buttons. If selected Yes then it will show **Frequency** otherwise it will not.

Option →Buzzer:

In the same way again it displays **Bjr YES** and it has two options: a) Yes b) No which can be done by pressing **UP** & **DOWN** buttons. If selected Yes then Buzzer will be ON otherwise it will be OFF.

Note:

- If all display options are selected No then it will by default show OUTPUT VOLTAGE.
- It has an auto exit function that means if no key is pressed for some time in Programming Mode then it will come out of it automatically.
- If panel is turned OFF in between programming, then values programmed are not saved.

3. Calibration Mode

Some times, we see that voltage readings displayed at panel does not match with the readings displayed by our standard meters. And there is a mismatch. So here this calibration can be done which is software based.
For this, press AUTO/MAN key button and DOWN key button together. So display shows CAL and then OUT is displayed. So with the help of UP/DOWN button we make it match with standard meter. Again press the SET button, it shows CAL and then IN. In a similar way calibrate it for Input Voltage. Then again press SET button and display shows CAL and then CUR. Here we match the current reading by pressing UP and DOWN button. Then again we press SET button and it comes out of calibration mode and readings are saved.

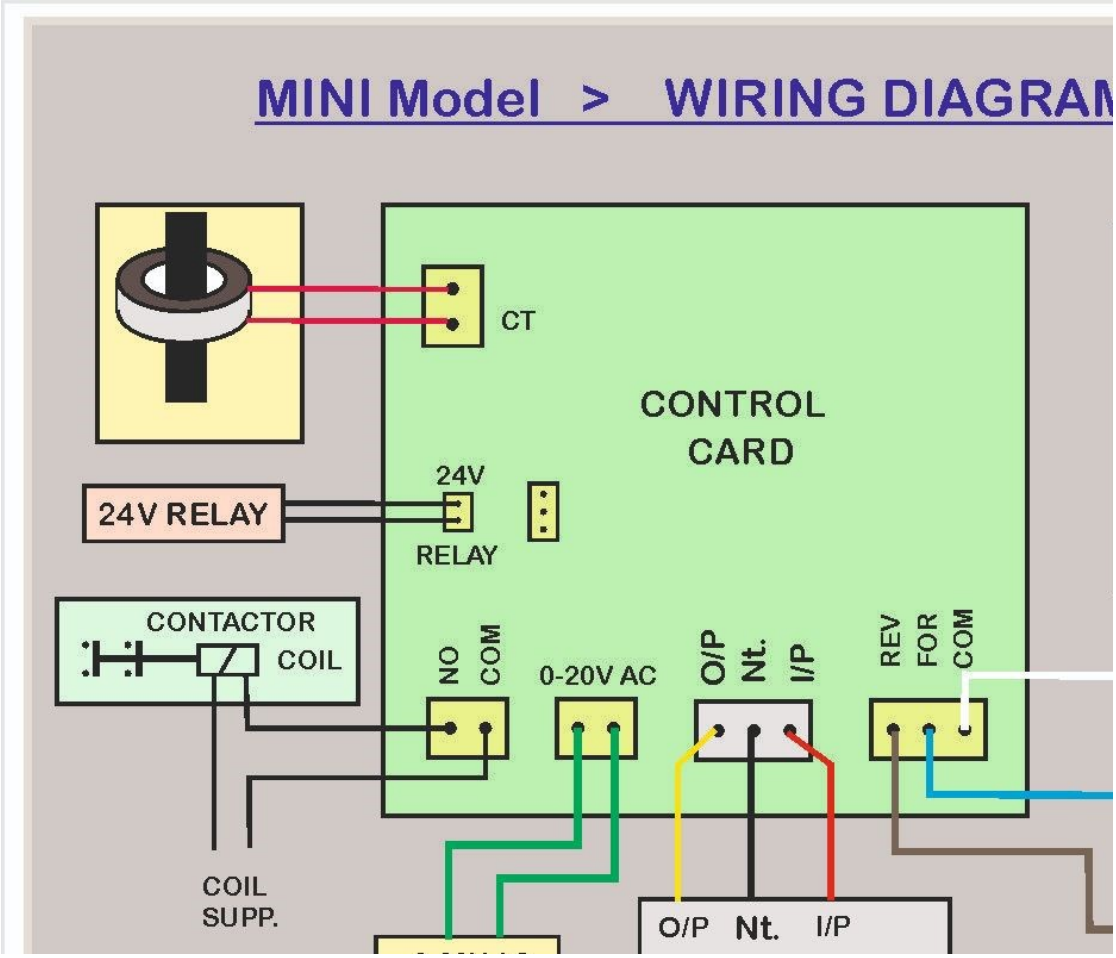
Note:

- It has an auto exit function that means if no key is pressed for some time in Calibration Mode then it will come out of it automatically.
- If panel is turned OFF in between calibration, then values programmed are not saved.

Disclaimer:

Features / Specifications mentioned above are for tentative indications and explanations. However research and design is a continuous process which keep evolving and changing over a period of time or it may have already changed. It may change as per customized requirements. And there could be some differences between models to model. Users of advised to go through their own systems checkup and settings.

Wiring Diagram



Mounting Dimensions: