

# Servolite User Guide V-03

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## 1. Normal Operation

This is the normal operating state of Servo. During normal operation servo corrects the output voltage to the set regulation voltage within regulation range.

This condition is achieved if the following conditions are met.

- ✓ The output voltage is below the set Hi CutOff.
- ✓ The output voltage is above the set Lo CutOff.
- ✓ Within the regulation range if the servo is already tripped due to Lo Cutoff or Hi Cutoff.
- ✓ The out put current is within permissible range.
- ✓ No phase reversal detected at start up.

During normal operation the display switches between Page 1 and Page 2 every 5 seconds.

Press UP Key to freeze display to Page 1,2 or 3.

Press DOWN Key restart autoscrolling.

### ➤ Page 1

<b>Vi</b>	<b>229</b>	<b>230</b>	<b>231</b>	<b>V</b>
<b>Vo</b>	<b>232</b>	<b>227</b>	<b>230</b>	<b>V</b>

- Vi indicates the input voltage for R,Y and B phase respectively.
- Vo indicates the output voltage for R,Y and B phase respectively.

### ➤ Page 2

<b>Vp</b>	<b>400</b>	<b>398</b>	<b>399</b>	<b>V</b>
<b>Io</b>	<b>018</b>	<b>017</b>	<b>002</b>	<b>A</b>

- Vp indicates the output phase to phase voltage for RY, RB and BY respectively.
- Io indicates the output current for R,Y and B phase respectively.

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## Manual Scrolling.

- Press UP key to scroll pages 1,2 and 3.
- Press Down Key to start auto scrolling.
- During manual scrolling Page 3 (Event Log) is displayed.

Er	EEE	PPP	VVV
Et	HHH	MMM	SSS

- Line1(Er) EEE indicates Trip Code, PPP indicates Phase and VVV indicates the value(either voltage or current). Trip details are stored in non volatile memory, so trip details remain valid after power recycling.
- Line2 displays the time (HHH hour MMM minutes SSS seconds) after last trip or Power ON, which ever happened last. Time information is lost after power OFF.

## Trip Code

EEE	Description
0	Indicates no Error
1	Servo tripped due Low voltage. (LV1).
2	Servo tripped due Low voltage. (LV2)
3	Servo tripped due Low voltage. (LV3)
4	Servo tripped due High voltage. (HV1)
5	Servo tripped due High voltage. (HV2)
6	Servo tripped due High voltage. (HV3)
7	Servo tripped due High current. (OL1)
8	Servo tripped due High current. (OL2)
9	Servo tripped due High current. (OL3)

## Trip Phase

PPP	Description
0	Indicates trip was due to R phase
1	Indicates trip was due to Y phase
2	Indicates trip was due to B phase

- VVV indicates the value of output voltage or current which was responsible for Trip.

## **2. Configuration Setting.**

Servo configuration parameters can be viewed and edited using MENU keys. Servo parameters are stored in EEPROM to avoid data loss during power failure. See explanation for each configuration parameter below.

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- Press Menu and UP key together to enter configuration mode.
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<b>Configuration Parameters.</b>		<b>Range</b>
<b>SET_R</b>	This is the centre value of R Phase voltage after correction.	0-255
<b>SET_Y</b>	This is the centre value of Y Phase voltage after correction.	0-255
<b>SET_B</b>	This is the centre value of B Phase voltage after correction.	0-255
<b>REG</b>	The range of voltage allowed during correction(40ms).	0-255
<b>DELAY</b>	Time taken(in Seconds) to switch servo ON after switch OFF or Trip due to High or low voltage. Press OK key to bypass On delay. A value of 0 indicates manual mode(Servo will be switched on only manually by pressing Ok Key.)	0-255
<b>CTR</b>	Current multiplication factor. (To be used with external CT)	0-255
<b>LV1</b>	Low voltage trip point 1.	0-255
<b>LVT1</b>	Maximum time allowed in LV1 for each phase.	0-255
<b>LV2</b>	Low voltage trip point 2.	0-255
<b>LVT2</b>	Maximum time allowed in LV2 for each phase.	0-255
<b>LV3</b>	Low voltage trip point 3(Immediate trip within one second).	0-255
<b>HV1</b>	High voltage trip point 1.	100-355
<b>HVT1</b>	Maximum time allowed in HVT1 for each phase.	0-255
<b>HV2</b>	High voltage trip point 2.	100-355
<b>HVT2</b>	Maximum time allowed in HV2 for each phase.	0-255
<b>HV3</b>	High voltage trip point 3. (Immediate trip within one second).	100-355
<b>OL1</b>	Over load current point 1.	0-255
<b>OLT1</b>	Maximum time allowed in OL1 for each phase.	0-255
<b>OL2</b>	Over load current point 2.	0-255
<b>OLT2</b>	Maximum time allowed in OL2 for each phase.	0-255

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<b>OL3</b>	Over load current point 3. (Immediate trip within one second).	0-255
<b>TRP_L</b>	Restart voltage after Low voltage = LV1 + TRP_L	0-255
<b>TRP_H</b>	Restart voltage after High voltage = HV1-TRPH	0-255
<b>REF_V</b>	Set voltage for voltage calibration.	0-255
<b>REF_I</b>	Set current for current calibration.	0-255
<b>I_FAC</b>	Do not change this value(Default=60)	0-255
<b>eCODE</b>	Error Code of Last trip	0-255
<b>ePH</b>	Phase of last error (0=R,1=Y, 2=B)	0-255
<b>eVAL</b>	Value(Voltage or Current ) of last Error **For current value should be multiplied by OL_MF.	0-255
<b>OL_MF</b>	Multiplication factor for over load current OL1,OL2 and OL3.	0-4
<b>PRCHK</b>	1=Phase reversal check active, 0=No phase reversal check.	0-1
<b>FREQ?</b>	Frequency Tolerance	0-255
<b>FLT_Q</b>	Filter co-efficient for voltage measurement Default =1	0-6

### 3. Menu Operation.

1. Press and hold MENU and UP Button.
  - LCD displays servo parameters as below.

```
SET_R 230 230
XX XXX XXXX XXXX X
```

2. Use UP/DOWN Key to scroll thru menu.
  - For example LV1 is set to 200volt.
  -

```
LV1 200 200
Xx XXX XXXX XXXX X
```

3. Press OK key if Parameter need to be changed.
  - For example to change LV1 press Ok key
4. Use UP/DOWN and OK key to change the parameter.
  - Use UP/DOWN key to change the first digit of parameter.
  - Use OK key to change the second digit.

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- Use the UP/DOWN and key combination to change all the three digits.

5. Use OK Key again to confirm the change and store the new parameter in EEPROM.



```
LV1 180 180
Xx XXX XXXX XXXX X
```

## **2) Low Output**

Servo displays Low output if any of phase output voltage falls below the set Low cutoff voltage.

```
OUT PUT LOW.
Xx XXX XXXX XXXX X
```

Once tripped(Output Switched OFF) the servo switch On automatically when the output voltage is within regulation range and after On delay time.

## **2) High Output**

Servo displays High output if any of phase output voltage exceed the set High cutoff voltage.

```
OUT PUT HIGH.
Xx XXX XXXX XXXX X
```

Once tripped(Output Switched OFF) the servo switch On automatically when the output voltage is within regulation range and after On delay time.

## **2) OverLoad**

Servo displays OVER LOAD if any of phase output current exceed the rated current

```
OVER LOAD
Xx XXX XXXX XXXX X
```

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Once tripped(Output Switched OFF) the servo can be switched On by pressing OK key.