

STANDARD PRODUCTS CATALOGUE

## ENERGY PAC VARIABLE VOLTAGE AUTO TRANSFORMER (DIMMER)



LONG LIFE | LOW MAINTENANCE | SMOOTH CONTROL | MODERATE TEMPERATURE RISE



**Energypac**<sup>®</sup>

## DIMMER ( VARIABLE VOLTAGE AUTO TRANSFORMER)

### INTRODUCTION:

'Dimmer' is registered trademark for continuously variable voltage auto transformer. It is the most effective device for stepless, breakless & continuous control of AC voltage & therefore for various parameters, dependent on AC voltage.

The basic of dimmer is meant for operation from a nominal input voltage of 240 V AC & can give output voltage anywhere between 0 to 240 V or 0 to 270 V AC by simple transformer action. Three such Dimmer connected electrically in star and mechanically in tandem, become suitable for operation from a nominal input voltage of 415 V, 3-phase AC and can give output between 0 - 415 or 0 – 470 V.

As output voltage is continuously variable, Dimmer are rated in terms of current that can be drawn from the output.

### Functional Areas:

- Voltage control in power supplies -as for Servo-type, Automatic Voltage Stabilizers, constant current supplies etc.
- Servo type step less Automatic Power Factor Controller (APFC)
- Over voltage and under voltage tests.
- Control of A.C. voltage in testing and development work.
- Voltage control of aging racks for lamps, vacuum tubes, dry disk rectifiers, etc.
- Voltage control for meter calibration, phase-angle control in the calibration of watt meters and power-factor meters.
- Motor speed control.
- Control of electric heaters and ovens in laboratory, pilot plant, and production line.
- Lighting control in theater, auditoriums, photographic studio and dark rooms.
- Welding, Anodizing, Electroplating etc.
- Controlling of different appliances in Colleges, Universities, Hospitals, Clinics, Stadiums & Garments.



## DIMMER ( VARIABLE VOLTAGE AUTO TRANSFORMER)

### SALIENT FEATURES:

- High grade CRGO silicon-steel core
- 99.9% pure copper
- Good regulation
- Smooth control
- High efficiency
- Long life and low maintenance
- Linear output voltage
- Moderate temperature rise
- Rugged construction.
- Negligible waveform & power factor distortion
- Remote operation possible by motorization
- Wide range of current ratings
- High quality carbon brush used for current collection

### CONSTRUCTIONAL FEATURES:

**WINDINGS**-Single layer windings, high conductivity copper insulated with synthetic enamel of the polyvinyl acetal-phenol formaldehyde resin type providing good space factor, extremely high abrasion resistance and having a good ability to resist the effects of prolonged heating. Winding done by special torodial winding machines.

**BRUSH MECHANISM**-Following properties maintained the brush-

- Trouble free brush gear.
- Minimum heating and wear.
- Maximum contact area.
- Constant contact resistance and losses.
- Contained flat type heat shrink to dissipate the heat.

**FRAMES** - Frames are structured through the using advanced mechanical design.

**BEARINGS** - The full units of dimmer are fitted with bearings, of bush type of nylon or glass filled nylon.

Ball bearings are applicable as per requirement. The Torque figures for various models can be handed on request.

### DIMMER AS A GENERAL RATING-

Type-D are manufactured in 0.7, 2, 4, 8,10, 15, 28, 40, 50, 60, 75, 100, 150 and 200Amps., and voltages of Input 270 Volts for 1 Phase with taps at 0-30-240-270 voltages so that for 3 Phase operations, 3 single Phase unit can be connected in Star so as to provide for 470 Volts phase to phase connection facility.

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ELECTRICAL SPECIFICATIONS:

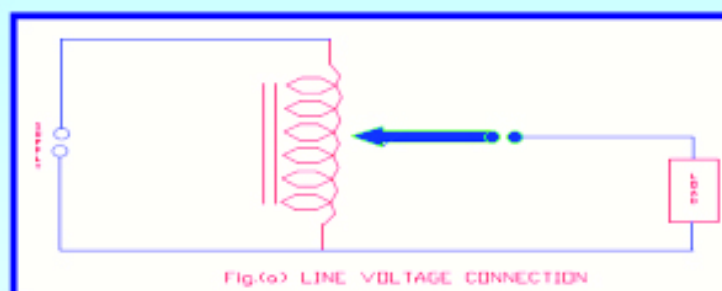
MODEL	▪ Single phase open/Flush air Natural cooled
	▪ Single Phase Enclosed air Natural cooled
	▪ Single Phase Enclosed Digital Metered with V & A
	▪ Single Phase Enclosed Digital Metered with V, A & W
	▪ Single Phase open motorized unit
	▪ Single Phase remote operatable Enclosed motorised unit
	▪ Single Phase tanked oil Cooled
	▪ Single Phase Enclosed motorised unit
	▪ Two Phase Open/Flush air Natural cooled
	▪ Two Phase Enclosed portable unit
	▪ Three Phase open/flush unit
	▪ Three Phase Enclosed portable unit
	▪ Three Phase open motorised unit
	▪ Three Phase Enclosed motorized
	▪ Three Phase tanked oil Natural Cooled type
	▪ Three Phase open,withouttank,wiring Handle wheel & Dial/OEM
	▪ Three Phase motorised tanked oil natural cooled units
Operating Voltage	▪ 240V AC,50-60 HZ,1-ph
	▪ 415 AC,50-60 HZ,3-ph-4wire
Current Ratings (Amps)	▪ 1,2,4,8,10,15,20,28,35,40,60,75,100,200,225,250,300
Operating Temp.	▪ 0 °- 50 °C
Dielectric Test	▪ 2.5kv RMS for 60 seconds
Insulation Resistance	▪ Not < 5 MΩ at 500 V DC
Storage Temp.	▪ -9 °C to 70 °C
Humidity	▪ Up to 95% RH
Transformer Oil	▪ Conforming to IS335, IEC 296



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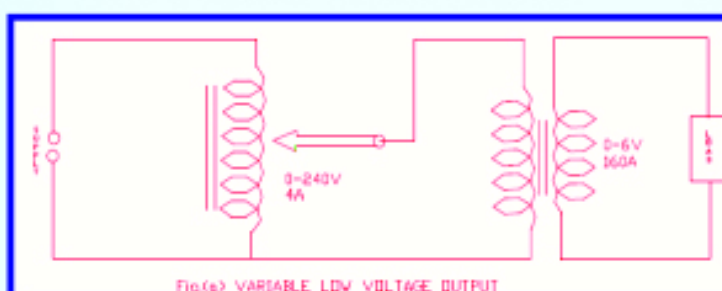
### TECHNICAL NOTES:

#### ❖ BASIC 1-PHASE CONNECTION:



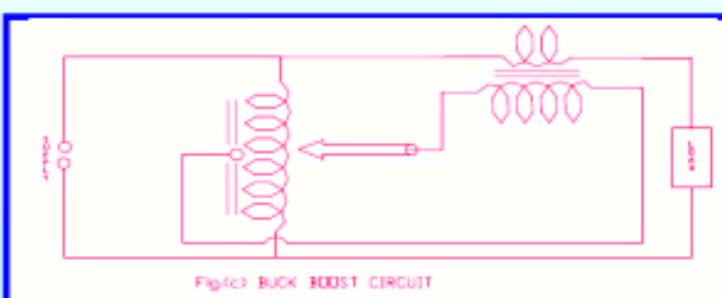
The input voltage (0-240 v) is applied across the whole winding and the output. Voltage is variable from zero up to the input voltage. Rated current can be drawn at or near about full output. For a constant impedance load which draws maximum current at the Dimmer rated input voltage can be controlled from zero to the line voltage. The connection diagram the above mentioned is the most COMMONLY USED circuit for all GENERAL PURPOSE-VOLTAGE-CURRENTLIGHT-SPEED-HEAT CONTROL & etc.

#### ❖ DIMMER & AUXILIARY TRANSFORMER AS A VARIABLE LOW VOLTAGE PROVIDER:



The above connection diagram shows that the 4A, 240 Volt Dimmer is connected with a 40:1 step down transformer just to provide a variable voltage output at 160 amps rated current. As well as with the same procedure we may use the higher rating Dimmer for different purposes. This being the most useable common circuit for High Current D.C Power Supplies as Stator Heating Rectiformers, Electroplating Sets and etc.

#### ❖ BUCK BOOST CONNECTION



Both above or below supply voltage for limited range voltage adjustment, the circuit is the basic diagram of the servo voltage stablizers /automatic voltage regulators (AVR).

## DIMMER ( VARIABLE VOLTAGE AUTO TRANSFORMER)

Photo Gallery :



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## DIMMER ( VARIABLE VOLTAGE AUTO TRANSFORMER )



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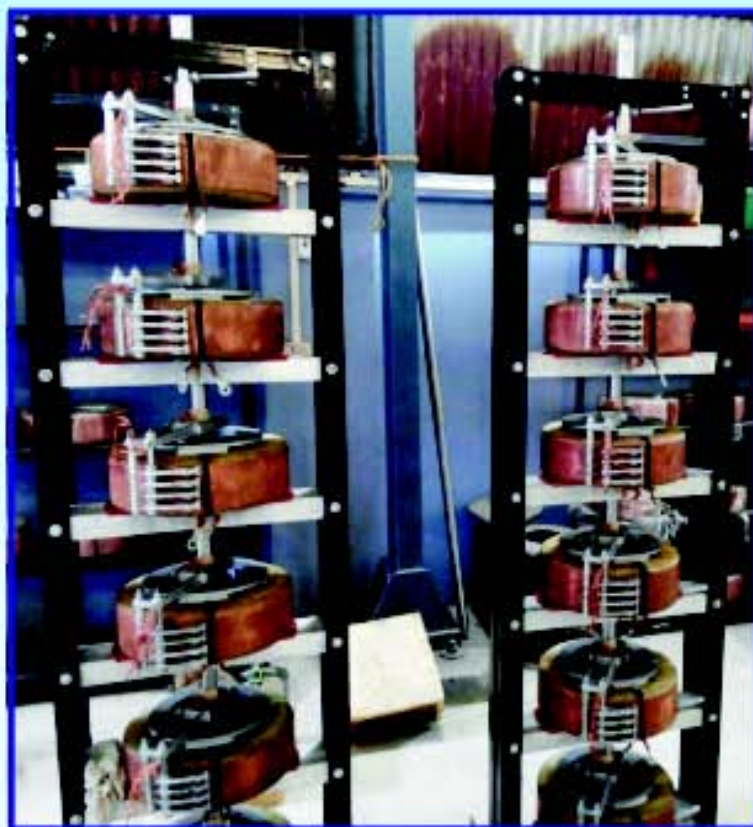
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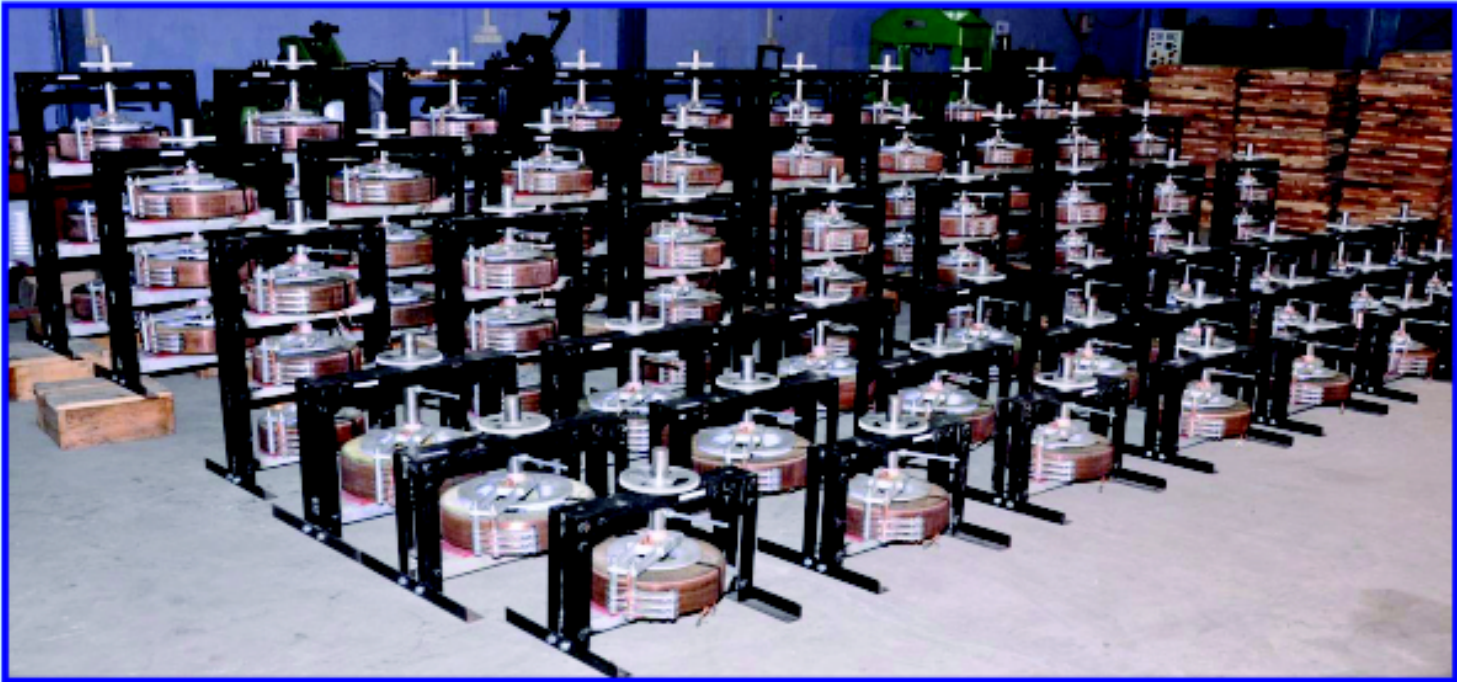
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