

FULLY ELECTRONIC CONTROLLED AC VOLTAGE STABILIZER POWER LINE CONDITINER



MCT Series

Advanced Power Conditioning Technology
For Protection Of
Sensitive Electronic & Electrical Equipment

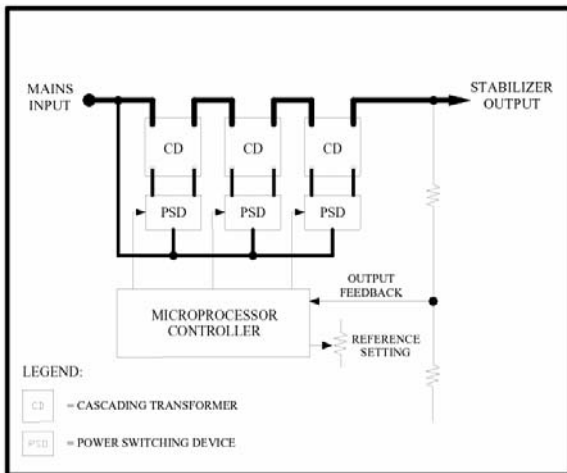


SUPPLY VOLTAGE FLUCTUATION AND REGULATION

Electric machine, regardless of its size, be it a small power tool or a gigantic set of manufacturing equipment, will operate properly only on electrical power with a voltage level that is within its allowable tolerance.

When the supply voltage fluctuates beyond a machine's tolerable limit, it results in over-voltage or under-voltage stress, which can have detrimental effect on the machine.

Usually, over-voltage and under-voltage electrical problems are beyond the control of any electricity user. One of the possible means to tackle such problems is by the use of automatic voltage stabilizer that can provide stable output voltage from fluctuating supply voltage.



FUNCTIONAL BLOCK DIAGRAM OF MICRO-PROCESSOR CONTROLLED MULTI CASCADING TRANSFORMER (MCT) STABILIZER

MICROPROCESSOR CONTROLLED MULTI-CASCADING-TRANSFORMER (MCT) STABILIZER

How it works:

Three or more double-winding transformers are arranged in a cascade manner with their secondary windings connected in series with the power line between the input and output circuit. The primary windings of the transformers are connected to the mains supply via power switching devices that are commanded by a microprocessor.

Each transformer can be commanded to feed a specific amount of subtracting or adding voltage into the power line via its secondary winding to decrease or increase the output voltage respectively. All switching operations are carried out on the primary side of the transformer without interrupting the secondary winding that constitutes part of the power line circuit.

A microprocessor based closed-loop feedback control circuit is used to monitor and maintain the output voltage tolerance. A portion of the output voltage is fed-back to the microprocessor and compared with a preset reference that corresponds to the preset output voltage level to determine the amount of drift from the preset level. The microprocessor calculates the compensating voltage and activates the number of transformers to be switched into the circuit to restore the output to its rated voltage level.

All switching sequences are synchronized to the zero-crossings of the current waveform to eliminate switching transients. The switching operation can be configured to achieve very fast correction time to cater for specific application requirement.

POWER LINE CONDITIONING

Power line conditioners are stabilizers incorporated with voltage isolation or filter networks to suppress transient electrical disturbances such as voltage spikes and radio frequency interference (RFI).

Isolation transformer, power line filters or surge suppressors may be incorporated depending on load applications.

DESIGN FEATURES

No Sliding Electrical Contacts

In motor-driven-variac technology, sliding contacts are the major contributor to the inherent wear and tear problem associated with the design. MCT stabilizer employs digital switching technology, eliminating the use of sliding contact, thereby achieving long term reliability.

High Efficiency

Motor-driven-variac technology uses two sets of power transformers: a variac and a boost-buck transformer, which contribute to almost all of the energy loss in the stabilizer. The multiple transformers used in MCT stabilizer have a loss of energy equal to that of the buck-buck transformer minus that of the variac. As a result, the power efficiency is almost improved by two fold.

Fast Correction Time

Depending on the application requirement, MCT stabilizer can be configured to attain its rated output voltage level in not more than 0.1 of a second responding to a full range of supply voltage variation.

Automatic Bypass Device

In the unlikely event of component failure that may result in the loss of output voltage regulation, MCT stabilizer is incorporated with automatic bypass device to switch the load directly to the supply, bypassing the stabilizer circuit, without interrupting the output power.

Modular Design For Easy Maintenance

The absence of complicated mechanical attachments and modular design offers ease of access to all internal components, considerably cut down time and cost of maintenance work.

Individual Phase Control

MCT three phase stabilizer is made up of three independent single phase stabilizers integrated into a single enclosure allowing 100% unbalance load or three individual single phase load.

Intelligent Soft Start

When MST stabilizer is powered up, the output voltage is made to follow the input to avoid under-voltage or over-voltage problem. The voltage correction function is initiated to regulate the output voltage only in 5 seconds after the supply power is connected to the stabilizer.

TECHNICAL SPECIFICATIONS

Input

Single Phase	: 240V $\pm 10\%^*$
Three Phase	: 415V $\pm 10\%^*$
Frequency	: 50Hz / 60Hz $\pm 5\%$
Power Factor	: 0.98

Output

Single Phase	: 240V $\pm 2\%^*$
Three Phase	: 415V $\pm 2\%^*$
Frequency	: 50Hz / 60Hz $\pm 5\%$
Harmonic Distortion	: Nil
Efficiency	: Better than 98%
Load Power Factor	: 0.5 lagging / leading

*** Difference range of input and output voltages is available on request.**

Environmental

Operating Temperature	: 0 to 45 °C
Relative Humidity	: 0 to 90% non-condensing
Audible Noise at 1 meter	: <35dB

STANDARD FEATURES

- Power On Indicator
- Output Voltmeter (3KVA and above)
- Output Ammeter (10KVA and above)
- Input Breaker (90 KVA and below)