

# STACO ENERGY<sup>®</sup> PRODUCTS CO.

## MP Controllers

**Microprocessor Based  
Variable Transformer  
Controllers**



**For the Precise Control of:**

- **Voltage Level**
- **Current Level**
- **Rate of Change**
- **Local or Remote Adjustable Industrial Process Interface**

The MP Series Microprocessor based controller provides for an easy interface of a computer or process controller to a Staco motor driven variable transformer.

The basic MP controller provides for single channel feedback and control, and is supplied with an internally mounted set point potentiometer and a series of programmable DIP switches, all within a NEMA 12 style enclosure. The microcontroller is capable of operating in several different operational modes with selectable control ranges—high/low variable transformer motor speed, output voltage ramping, serial/analog set point selection and feedback voltage range.

The controller offers unlimited interface flexibility through a series of standard options for “customization” to meet virtually any application or special requirement.

### How It Operates

The MP Controller accepts set point and feedback voltage inputs and provides output signals until the feedback voltage matches the predetermined set point.

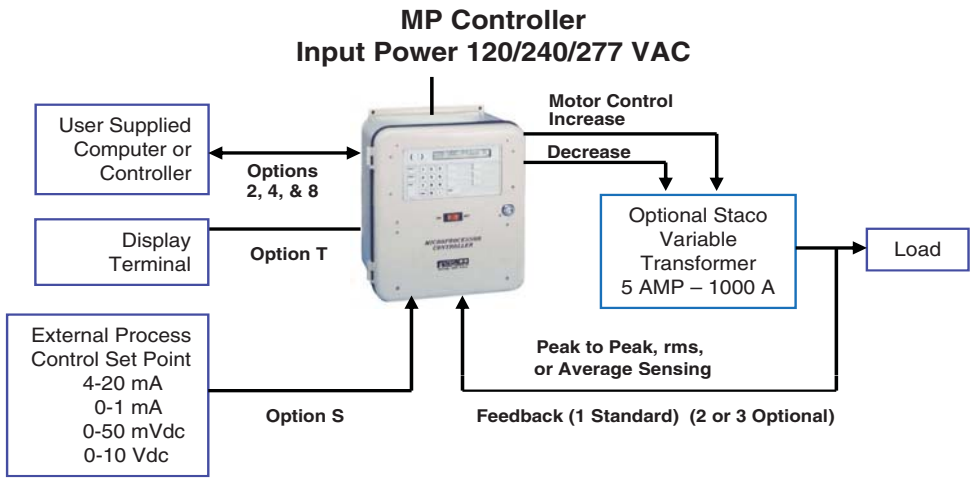
The input set point signal can accept standard analog signals (0-50mVdc, 0-10Vdc, 0-1mA, and 4-20mA) or digital interface (RS-232, IEEE-488 or RS-422). Multiple set points may be programmed for variable speed (time proportioning), ramping and variable dwell.

The AC feedback signal may be configured to be compatible to your output voltage. The AC feedback signal can be user-programmed to accept peak to peak, average, or rms measurements as required for your specific application.

In addition, the MP Controller provides output signals for feedback and/or your external monitoring or control.

### Outputs include:

- Three form “C” contact closures
- Eight 5 volt logic signals.

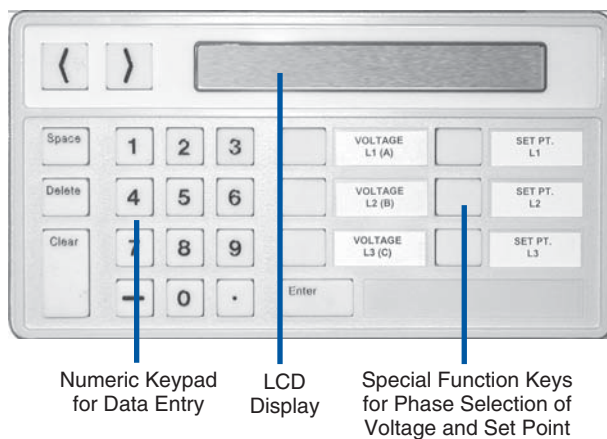


### MP Series Controller Advantages

- Intelligent Microprocessor based.
- Controls variable voltage transformer regulation to within +/-0.5 volts.
- Multi-channeled unit enables control of one, two or three individual variable transformers or each phase of a three phase unit.
- LCD display of feedback signals and set points.
- Available with standard analog control signals (0-1 mA, 4-20 mA, 0-50 mVDC, 0-10VDC) for set point and control functions.
- Available with standard bi-directional RS-232, RS-422, IEEE-488 communication ports for set point and control functions.
- Multiple set points, ramping and dwells available.
- User programmable to accept peak-to-peak, rms, or average AC feedback signals
- Heavy duty wall mountable NEMA 12 style enclosure
- Control of the unit can be local, at a remote location, or both.
- Battery back-up RAM retins data if power is lost
- Microterminal available for remote or stand-alone monitoring and control.
- Precise control of voltage ramping through the use of state of the art PWM technology.
- Expanded memory allows customization to specific application requirements.
- Field upgradable—options can be installed in the field as your needs change.
- Fast data transfer at 9600 baud.
- Automatic shut-down or alarm with phase loss detection.

## Available Options:

- Bi-directional RS-232, RS-422, IEEE-488 communication ports
- Single, double or triple channel feedback
- Process control set point (0-50mVDC, 0-10VDC, 0-1mA and 4-20mA)
- Optical isolation of control and feedback inputs for reduced noise interference
- Panel mounted microterminal for local control and monitoring
- Phase loss detection



## Three Basic Models

### Model Function

MPA	Single channel feedback and control
MPB	Two independent channels of feedback and control
MPC	Three independent channels of feedback and control

The MP Controller can be used as a stand-alone unit installed on the Variable Transformer's or Voltage Regulator's enclosure, or as a remote unit.

## How to Specify and Order MP Controllers

Basic microprocessor units are full-range controllers in a NEMA 12 style enclosure with an internal mounted set point potentiometer plus a series of programmable DIP switches for motor speed, averaging, and dead-band adjustment.

### Model:

Single Channel	MPA
Two Channel	MPB
Three Channel	MPC

### Options

### Suffix

Process Control Set Point	S
Enclosure mounted MicroTerminal	T
Microterminal only, for remote mounting	MT
Phase Loss Detection	L
Optical isolated inputs (reduces noise interference)	I
RS-232 Communications Port	2
RS-422 Communications Port	4
IEEE-488 Communications Port	8

## Typical Examples

A single channel controller with an enclosure mounted terminal and an RS-232 port.  
**Specify MPA2T**

A single channel controller with an enclosure mounted terminal and process control set point.  
**Specify MPAST**

A single channel controller in a NEMA 12 style enclosure.  
**Specify MPA**

A three channel controller for control of 3 phase bank of variable transformers with three motors for individual phase control plus an RS-422 port.  
**Specify MPC4**

## Technical Specifications

**Operating Voltage:** 120/240/277 VAC, 50/60 Hz

### Input Signals:

#### Set Point:

- Internal potentiometer
- Remote analog input
- Digital input - remote and local

#### Configurable Voltage Feedback:

0-8 VAC, 0-150 VAC, 0-300 VAC,  
0-600 VAC, 0-10 VDC

### Output Signals:

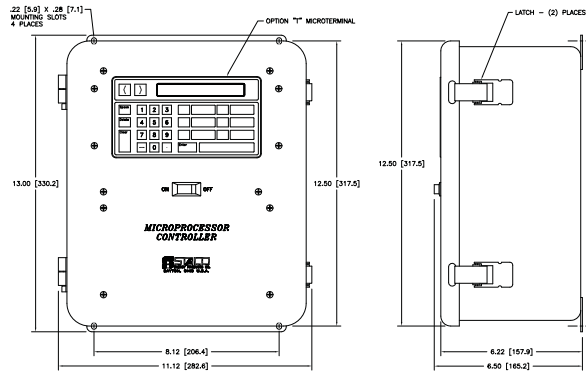
Three form "C" contact closures for  
increase/decrease, eight 5 volt logic signals

### Options:

- **Computer Interface:** RS-232, RS-422, IEE-488
- **Process Control Signals:** 0-1 mA, 4-20 mA,  
0-50 mVDC, 0-10 VDC

### General:

- 1500 VAC Isolation
- 5 year battery backed memory
- Watch dog timer
- Dimensions: 13H x 8.45W x 7.44D
- Net Wt: 18 lbs; Shipping Wt: 21 lbs.
- Operating temperature: 0-50C
- 4 mounting slots



## About Staco Energy Products

Since 1937, customers worldwide have been relying on Staco Energy Products Company to deliver voltage control and power quality solutions tailored to their needs.

As a leading power quality resource, we offer our customers world-class support; from our thorough applications assessment, to our ability to design and deliver a solution that is tailored to the specific needs of our customers; through delivery and commissioning.

Our professional, factory trained service team is in place to ensure that our customers' revenues are protected, and their investment provides them with many years of trouble free operation.

Staco develops total power solutions for OEM and end user applications.

**In addition to the Automatic Voltage Regulator we offer a wide array of power quality products, including:**

- **Uninterruptible Power Supplies**
- **Power Conditioners**
- **Voltage Regulators**
- **Power Factor Correction and Harmonic Mitigation**
- **Active Harmonic Filters**
- **Variable Transformers**
- **Custom Engineered Test Sets**



# STACO ENERGY PRODUCTS CO.

Your Tailored Power Solutions Provider™

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For more information about Staco Voltage Regulation

[www.stacoenergy.com/voltage\\_regulation.htm](http://www.stacoenergy.com/voltage_regulation.htm)