



APPLICATION DATA

No. 8710E9

E9 AUTOMATIC TENSION CONTROLLER

DESCRIPTION

The E9 is a closed loop automatic tension controller of advanced design. It compares the actual tension, measured by DFE strain gauge tension transducers, to the desired tension, set by the operator. The difference between the actual tension and the desired tension produces a compensated reference signal, between 0 and 10 volts DC, to increase or decrease the output of the device being controlled. Both the high and low ends of the 0-10 VDC reference signal can be adjusted to suit the requirements of the application.

In its standard configuration the E9's output will go high if the actual tension is below the set point, and will go low if the actual tension is too high. A reverse output option is available.

The E9 is easy to use. The operator turns the tension set point adjustment until the tension is at the desired level. Operation of the controller is then automatic. The reference signal will be constantly adjusted to maintain tension at the desired level.

The E9 is packaged in an industrial quality steel enclosure, with all operator devices mounted in an aluminum legend plate on the hinged front cover. If desired, the E9 can be supplied without an enclosure, with the built-up legend plate connected to the electronic subplate by a wire harness. Several standard and optional voltage and current options allow the E9 to interface with computers and recorders.

BENEFITS

- Automatic control of tension. No manual adjustments needed.
- Used with existing motor control.
- Actual web tension is displayed on meter. No guesswork.
- Easy to operate. No skill or training needed.



- Simple to install and fast to start up.
- Tension transducers require very little space in the machine.
- Wide tension control range without recalibration.
- Permits higher running speed without losing control of web.
- Reduces web breakage, registration, and stretching problems.
- Fast payback.
- Tension transducers have negligible movement, so the web is not affected.
- Enables the machine operator to easily determine the proper tension or any web and consistently reproduce it at any time.
- Eliminates troublesome dancer rolls.
- Compatible with automated factory systems.

DOVER FLEXO ELECTRONICS, INC.

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APPLICATIONS

The E9 is used on any machine having a continuous web process, such as printing presses, coaters, laminators, slitters, sheeters, label presses, extruders, metallizers, and inspection machines.

Typical web materials include paper, plastic films, foils, rubber, laminates, wallpaper, linoleum, textiles, non-wovens, tapes, filaments, ribbons, and wire.

The E9 produces a compensated reference signal, from 0 to 10 VDC, which can interface with any control device which will accept such a signal to control speed or torque. When used with a DC drive, the drive must be armature voltage regulated, not speed (tachometer feedback) regulated.

The E9 will reduce or eliminate tension related problems such as web breakage, stretching or looseness, misregistration, repeat length variation, wrinkling, curling, and coating thickness variation. It will also help reduce waste during starts, stops, and splicing, and will help produce consistent product quality.

STANDARD FEATURES

- NEMA 12, 13 steel enclosure, 12x12x6, with all operator devices in cover. Wall mounted.
- MS connectors for transducer cables.
- 7/8" hole for AC power wiring.
- 0-10 volt DC reference signal for control of motor torque. (Maximum output adjustable from 0 to 10 VDC, minimum adjustable from 0% to 20% of maximum setting.)
- Removable circuit cards with terminal strips that unplug.
- Operator devices include: 6" analog tension indicating meter, Tension setting knob, toggle switch and indicator lamp for AC power, toggle switch and indicator lamp for tension ON/OFF.
- 120 volt AC power input.
- 0-100 millivolt DC output, proportional to tension.
- Choice of standard meter scales: 0-1, 5, 10, 25, 50, 100, 150, 250, 500, 1000.
- Sample & Hold output circuit with ratio adjustments (multiply and divide) for flying splice operation.
- Maximum and Minimum output adjustments.
- Taper tension circuit (requires rider roll pot. E374B, and switch, at extra cost).
- Emergency stop circuit.
- Soft start circuit with disable switch.
- Used with any DFE tension transducers.

SPECIFICATIONS

- Power input 120 volts 60Hz @ 0.5 amp
- Power connection 7/8" hole for conduit connector
- Output voltage range 0-10 volts DC @ 60 ma
- Low voltage output 0-100 mVDC, proportional to tension
- Transducer power supply 5 volts DC, regulated
- Transducer signal 500 millivolts DC per pair at rated load
- Transducer cable connectors Amphenol MS3102A-10SL-3P
- Zero range 95% of the load rating of 1 transducer, minimum
- Calibration range 25:1
- Temperature range 0 to 40° C
- Max. output adjustment range 0-10VDC
- Min. output adjustment range 0% to 20% of maximum
- Taper tension range 0 to 50%
- Tension meter Heavy duty, 2%, taut band with solvent proof front
- System accuracy 1% to 3% typical
- Manual output range 0 to 100% of rated output voltage
- Weight 26 lbs.
- Output multiplier range 10:1
- Output divider range 1:10

OPTIONS

No.	Description
CC	E9 less enclosure and operator devices.
H6	E9 less enclosure, but with 6' long wire harness to legend plate, with all operator devices installed and wired.
ATM	Auxiliary tension meter for remote mounting.
RME	Auxiliary or remote tension meter in 6"x8"x4" enclosure.
DM	Digital meter: 3½ digit, red LED ½" high (includes 5V power supply).
420M	4-20 milliamp DC output, proportional to tension.
020M	0-20 milliamp DC output, proportional to tension.
10V	0-10 volt DC adjustable output, proportional to tension. Range = 0-3.5 to 0-13.
DC	Dual calibration (includes dual meter scale and switch).
NMS	Non-standard meter scale (single or dual range, specify scale).
220	220 volt 50Hz AC power input.
ST	Single transducer operation (except NW).
5V	Extra 5 volt DC power supply (used with digital meter).
APC	Attached power cord, Type SJ, 3 conductor, 5' long.
TLS-L	Low tension detector with SPDT relay output.
TLS-H	High tension detector with SPDT relay output.
TLS-LH1	Low and high tension detectors with one SPDT relay output and switch.
TLS-LH2	Low and high tension detectors with two separate SPDT relay outputs.
RO	Reverse output.
RS	Remote tension on/off switching.
TT	Taper tension, by diameter computer, using two 50 volt DC tachometers.
TTS	Taper tension on/off switch (included in option TT).
RTA	Remote tension amplifier (no tension amplifier in E9).

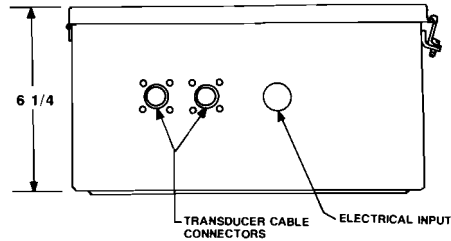
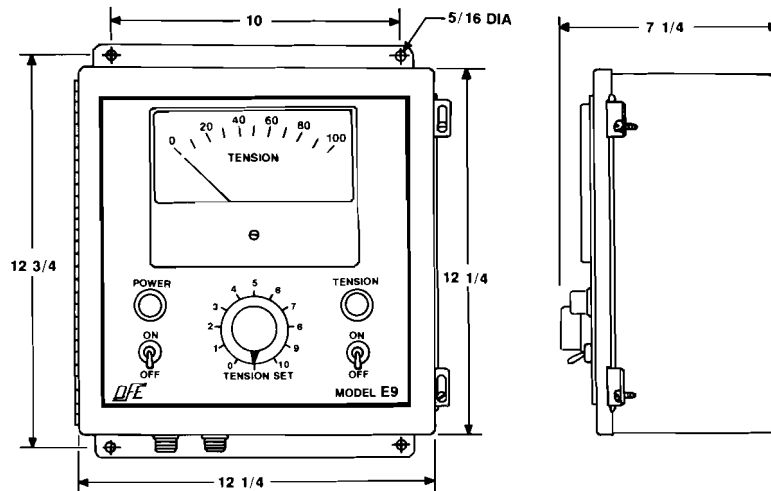
Consult factory for special requirements.

TO ORDER: Specify model, option numbers, and meter scale; example: E9-H6, TLS-L, 0-50.

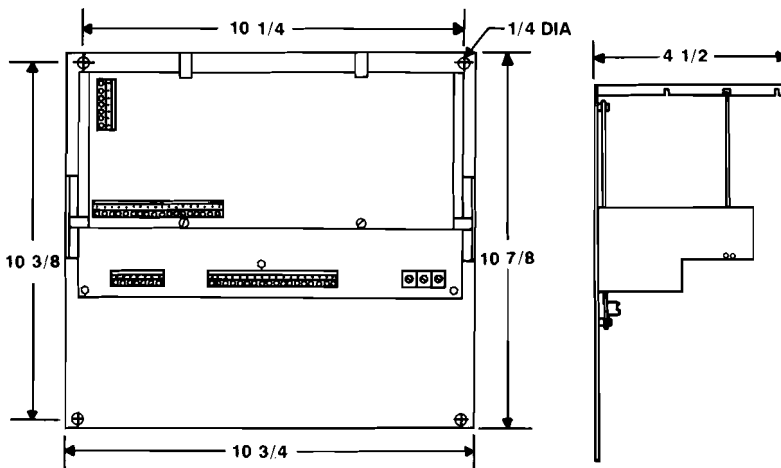
DIMENSIONS

(Expressed in inches)

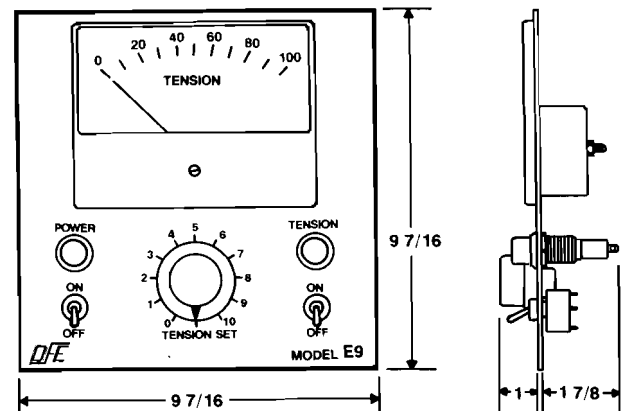
ENCLOSURE



PANEL



LEGEND PLATE



DOVER FLEXO ELECTRONICS MANUFACTURERS: Tension Transducers, Tension Indicators, Rewind Tension Controllers, Unwind Tension Controllers, D.C. Motor Tension Controllers, Pneumatic Tension Controllers, and Electric Tension Controllers.