



# APPLICATION DATA

## No. 8806P3

### P3 PNEUMATIC TENSION CONTROLLER



#### DESCRIPTION

The P3 is an automatic closed-loop tension controller of advanced design utilizing force transducers to measure web tension. It has a pneumatic output, however all signal processing is done electronically. The output operates a standard pneumatic brake or clutch to control unwind, rewind or intermediate tension.

An industrial-duty steel enclosure contains all electrical and pneumatic parts. A large meter on the front displays actual web tension. Two to four (depending on options) circuit cards are installed, and easily removed, using a screwdriver. Each card has identified test jacks and a plug-in terminal strip for easy maintenance. A servo valve is used to convert the electrical signals to a pneumatic output. It is a valve designed for closed loop control and has been proven extremely reliable over many years of use. Unlike the typical E/P converter, it has no adjustments and does not need volume or pressure boosters.

The P3 is very easy to operate. Simply turn the tension-setting knob until the meter displays the tension desired. The controller will automatically vary output air pressure to maintain correct tension regardless of changes in speed, roll diameter or brake/clutch characteristics. A soft-start circuit prevents brake lockup when starting with a slack web. Sample/hold and multiply/divide circuits provide smooth operation during flying splices on either unwind or rewind.

The unusually large variety of standard and optional features make the P3 the most advanced and versatile controller of its kind.

#### BENEFITS

- Automatic control of tension. No manual adjustments needed.
- Fast payback.
- Improves product quality and reduces waste by eliminating most web breakage, registration, wrinkling, stretching and curling problems.
- Maintains correct tension regardless of changes in speed and roll diameter.
- Actual web tension is displayed on meter. No guesswork.
- Permits higher running speed without losing control of web.
- Simple to install and fast to start up.
- Easy to operate. No training or skill required.
- Wide tension control range without recalibration.
- No dancer roll needed.
- The tension sensing transducers used with the P3 have negligible movement so the web is not affected.
- Transducers require very little space in the machine.
- Compatible with automated factory systems.

# DOVER FLEXO ELECTRONICS, INC.

93 Pickering Road, Rochester, N.H. 03867 (603) 332-6150 • FAX (603) 332-3758

## APPLICATIONS

Typical machines requiring the P3 include: printing presses, coaters, laminators, slitters, sheeters, embossers, metallizers and any other machine involving a continuous web process. The web may be narrow or wide and may run at any speed.

Typical web materials include: paper, films, foil, board, rubber, laminates, wallpaper, linoleum, textiles, nonwovens. Total web tension may range from a few ounces to several thousand pounds, depending on material and thickness.

The P3 will automatically control unwind, rewind or intermediate tension. It will eliminate or greatly reduce web stretching or breakage and will improve registration; reduce wrinkling, curling, and coating thickness variation; reduce waste during starts, stops, and splicing; produce more consistent product quality. A typical pay-back period is 6 months or less.

## STANDARD FEATURES

- NEMA 12, 13 steel enclosure, 12x14x6, with all operator devices in cover. Wall mounted.
- MS connectors for transducer cables.
- 7/8" hole for AC power wiring.
- Removable circuit cards with unpluggable terminal strips for all electrical connections except AC power.
- Operator devices include: 6" analog tension indicating meter, tension setting knob, toggle switch and indicating light for AC power, output air pressure gauge, toggle switch and indicating light for tension off/on, toggle switch for AUTO/MANUAL mode selection, output adjustment knob for MANUAL mode.
- 120 volt 60Hz 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.
- Automatic and Manual modes of operation with bumpless switching.
- Sample and hold output circuit with ratio adjustments for flying splice operation and roll coasting prevention.
- Max/min output adjustments.
- Taper tension circuit (requires rider roll pot. E374B and switch, at extra cost).
- Emergency stop circuit.
- Soft start circuit with dis-able switch.
- Internal air pressure regulator and air filter with automatic drain.
- Compression type tubing fittings for air connections.
- Used with DFE tension transducers.

## SPECIFICATIONS

- Power input ..... 120 volts 60Hz @ 1/2 amp
- Power connection ..... 7/8" hole for conduit connector
- Input air pressure ..... 80 to 150 psi  
(may be less than 80 psi if maximum output is not required)
- Output air pressure range ..... 1/2 to 75 psi
- Air connections:
  - IN: ..... 5/16" (8mm) compression fitting for plastic tubing
  - OUT: ..... 1/4" (6mm) compression fitting for plastic tubing
- Transducer power supply ..... 5 volts DC, regulated
- Transducer signal ..... 500 millivolts DC per pair at rated load
- Mating transducer cable connectors ..... Amphenol MS3106A-10SL-3S
- Zero range ..... 95% of transducer rating, minimum
- Calibration range ..... 25:1
- Temperature range ..... 0 to 40° C
- Max. output adjustment range ..... 0 to 100%
- Taper tension range ..... 0 to 50%
- Tension meter ..... Heavy duty, 2% taut band, with solvent proof front
- System accuracy ..... 1% to 3% typical
- Internal air filter ..... 5 micron with 1/2 pint bowl and automatic drain
- Manual output range ..... 0 to maximum applied pressure
- Weight ..... 32 lbs.
- Min. output adjustment range ..... 0-20%
- Output multiplier range ..... 10:1
- Output divider range ..... 1:10

## OPTIONS

No.	Description
CC	P3 less enclosure and operator devices
H6	P3 less enclosure but with 6' long wire harness to legend plate with all operator devices
2E	Separate enclosures for electronic and pneumatic components. Includes E870A interconnection cable 20' long
2CC	Same as option 2E but less enclosures, cable, operator devices
ATM	Auxiliary tension meter for remote mounting
RME	Auxiliary or remote tension meter in 6x8x4 inch 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 AC power input
5V	Extra 5 volt DC power supply (used with digital meter or extra transducers)
APC	Attached power cord, Type SJ, 3 conductor, 5' long
TLS	Low and high tension detectors with two separate SPDT relay outputs
RO	Reverse output
RS	Remote tension switching
TT	Taper tension, by diameter computer.
TTS	Taper tension off/on switch (included in option P3-TT)
RTA	Remote tension amplifier
	Consult factory for special requirements.

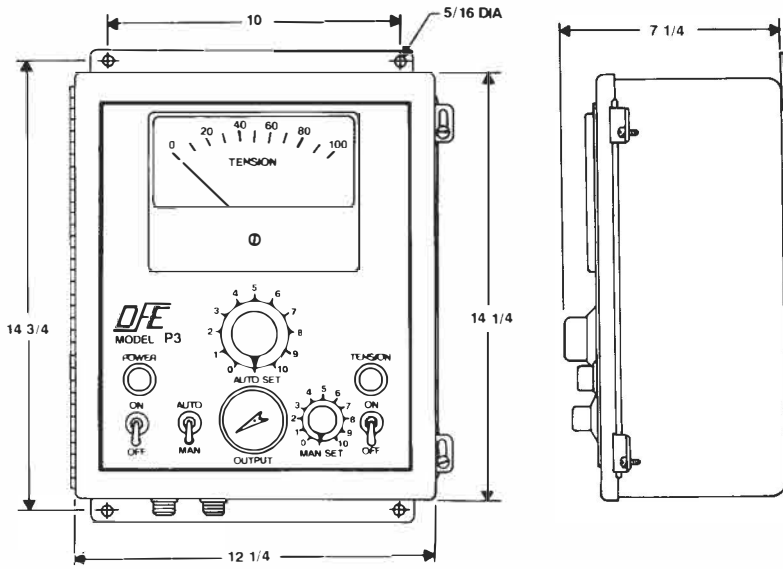
---

**TO ORDER:** Specify model, option numbers and meter scale; example: P3-H6, TLS, 0-50.

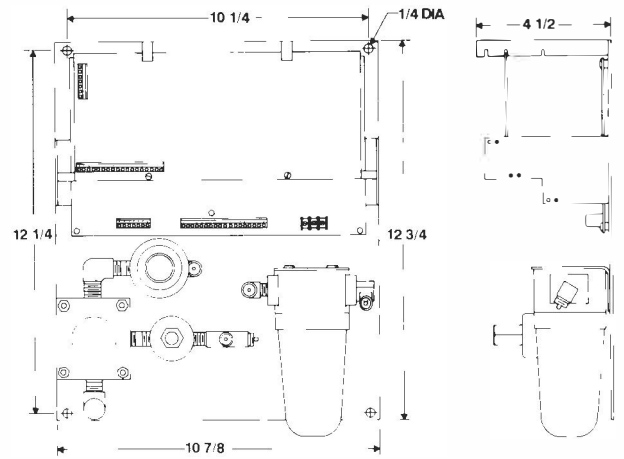
# DIMENSIONS

(Expressed in inches)

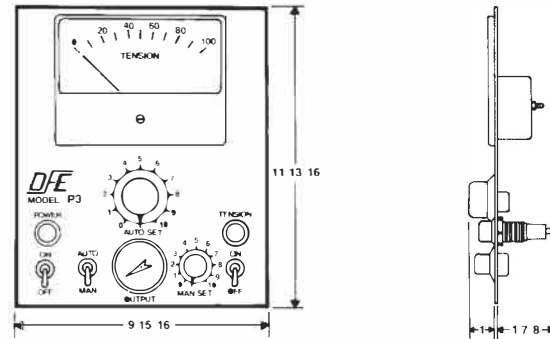
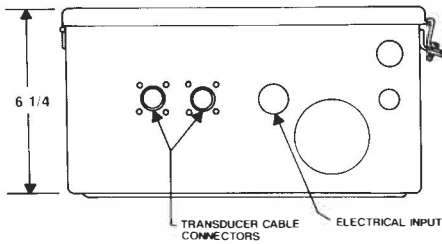
## SINGLE ENCLOSURE



## PANEL ONLY

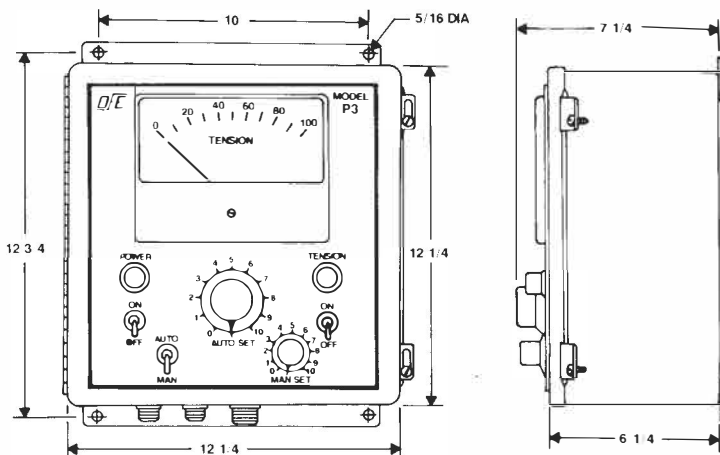


## LEGEND PLATE



## DOUBLE ENCLOSURE

### ELECTRONIC ENCLOSURE



### PNEUMATIC ENCLOSURE

