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## Timed Air Pressure Regulator

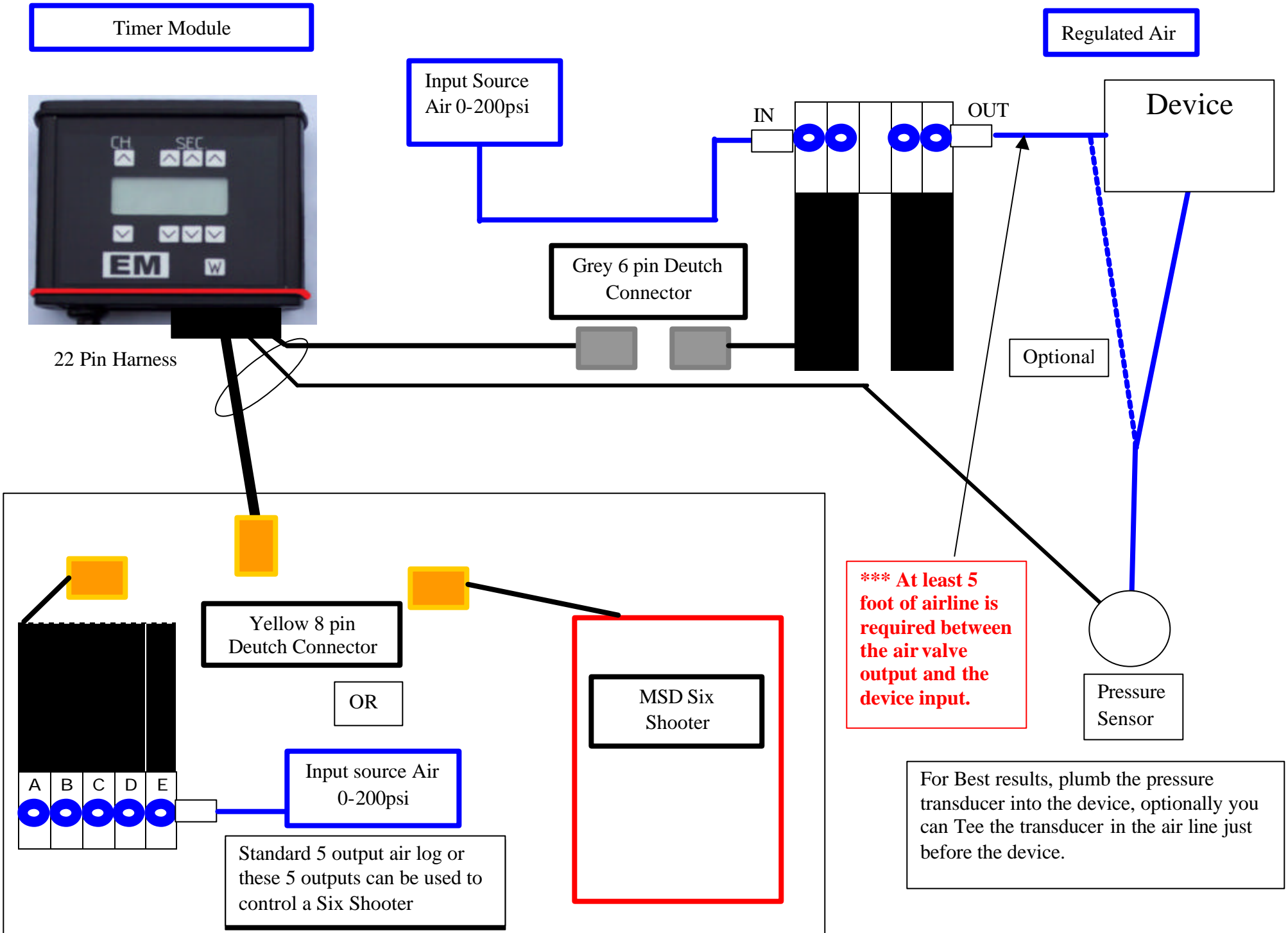
- Now with 3 pressure curves



### Connections

<p><b>Power Input connector:</b>          2 pin plug (red-black) wires          9-16 volt input</p>	<p><b>Start Switch connector:</b>          2 pin green connector          Short wires together to start regulator          (blk wire is ground). The unit is          ground to start.</p>																						
<p style="text-align: center;"><b>Outputs:      22 pin conn:</b></p> <table border="1" style="margin: auto; text-align: center;"> <tr> <td>R</td><td>B</td><td>ANA</td><td>B</td><td>7</td><td>8</td><td>Add Fast</td><td>Rel Fast</td><td>B</td><td>R</td><td>A</td> </tr> <tr> <td>psi</td><td>Add Slow</td><td>Rel Slow</td><td>B</td><td>5v</td><td>R</td><td>6</td><td>E</td><td>D</td><td>C</td><td>B</td> </tr> </table> <p style="text-align: center;">Red=Pos          Black=Neg</p>		R	B	ANA	B	7	8	Add Fast	Rel Fast	B	R	A	psi	Add Slow	Rel Slow	B	5v	R	6	E	D	C	B
R	B	ANA	B	7	8	Add Fast	Rel Fast	B	R	A													
psi	Add Slow	Rel Slow	B	5v	R	6	E	D	C	B													
<p><b>Mounting:</b>          10-32 screws—2.500” by2.000”</p>	<p><b>Overall Dims:</b>          4.250” * 3.500” * 1.750”</p>																						

# Hookup Diagram:



## Overview:

The Electrimotion Timed Air Pressure regulator is designed to control air pressure in a timed curve. The system consists of an air regulator valve, pressure transducer, air regulator module, start switch and a custom wiring harness. The system has the capability to store 3 separate air pressure curves (each curve has 8 points). The system also has an initial delay function, which allows you to shift a curve in or out in time. The system also has 5 timed outputs that can be used to turn on and off events electrically or with our optional air log, pneumatically. The system has an optional analog input mode which can be used to adjust the air pressure via a rheostat. This mode is for testing purposes only and is not used during normal operation.

## Modes of operation:

- **Standby Mode** – In standby mode the regulator will regulate output pressure to the value entered for Channel 1.
- **Timer Mode** - In timer mode the regulator will regulate the output pressure based on the times and pressures entered in channels 2 - 9. The timer will interpolate the pressures values between points.
- **Analog Mode** – In Analog mode the regulator acts as a variable pressure regulator. The pressure value is controlled from a rheostat connected to the 3 pin Molex connector on the timer. The rheostat and Molex connector is only included if requested.

## Operational Note:

**Once the regulator is triggered it enters timer mode. The air regulator valves will (motorboat), this is normal, as the regulator is trying to hold 1 psi accuracy. During standby mode the air regulator valves will occasionally pulse on to keep 3 psi accuracy. If the air regulator valves motorboat during standby mode, it is probably due to the pressure transducer being plumbed too close to the air regulator valve outlet. (See Hookup Diagram) on the previous page. Try plumbing the pressure transducer further away from the air regulator or add more air line between the air regulator valve outlet and the pressure transducer.**

## Startup:

1. Connect unit to +12V, (2 wire Deutch connector with red and black wires)
2. The display will sequence through 3 screens. The first screen shows "1 cur" this indicates which of the 3 pressure curves is currently selected. The second screen is the current battery voltage and the third screen is the current measured system pressure. Each time you scroll to channel 0 this sequence will be repeated. Channel 0 is the starting screen for the timer. (Fig 1,2,3)

Pressure Curve number



Fig. 1

Current battery voltage



Fig. 2

Current Pressure



Fig. 3

## Selecting which curve you want to use:

While in Channel 0 press the "W" button five times. The display will read "1 Cur", using the "CH ^" you can change the curve to any of the 3. Press the "W" button to save the curve number. Once the curve has been changed, all the pressure times and values as well as the 5 timer, on and off times will be updated to the newly selected curve.

## Entering the initial delay and pressure:

The initial delay is the time value stored in channel 1. This time is added to all the pressure curve points (2-9)  
**\*\*\*The timer channels (A-E) are not affected by the initial delay.\*\*\***

1. Press the CH. ^ button once. The display will read "1 0.00". This indicates that the initial delay is 0.00 sec. To change the initial delay, use any of the 6 SEC up and down buttons, then press the "W" button to save the value.
2. Press the CH. ^ button once again. The display will read "1 450". This indicates that the initial regulated pressure is 450 psi. To change the initial pressure, use any of the 6 SEC up and down buttons, then press the "W" button to save the value.

## Entering the Pressure Regulator points:

1. Press the CH. ^ button once again. The display will read "2 0.50". Press the CH. ^ button once again. The display will read "2 070". This indicates that (Channel 2) is set to 70 psi and becomes active at 0.50 seconds. To change the pressure or times, use any of the 6 SEC up and down buttons, then press the "W" button to save the value.
2. The regulator has 8 individual (time/pressure) channels (2 – 9) that can be individually timed.

The first entry is the

**"Time that the pressure becomes active"**

(Fig. 4)

The second entry is the

**"Pressure value for that time"**

(Fig. 5)

Channel 2 Time



Fig. 4

Channel 2 Pressure



Fig. 5

3. By pressing any of the 6 SEC buttons you can change the time or pressure for the channel that is selected.
4. As you change the time or pressure, the display value begins to blink. This indicates that you have not saved the value. Press the "W" button to save the time value.
5. The regulator will interpolate the pressure values in between time points. **See the attached pressure curve graph of a typical BDK pressure curve on the last sheet.**

Example.

Channel 2 is set to 1.00 seconds and 100 psi.

Channel 3 is set to 2.00 seconds and 200 psi

The regulated pressure value at 1.50 seconds will be 150 psi.

## Timer operation (On times and Off times):

1. The pressure regulator also has 5 timer outputs (Channels A-E) that can be set to turn on and off at specific times. **Channel output draw can not exceed 3 amps.**
2. To enter the on time for channel A, press “CH ^” until the display shows “A 4.50”, this indicates that channel A will turn on 4.50 seconds from the time the timer is activated.
3. To enter the off time for channel A, press “CH ^” until the display shows “A : 7.99”, this indicates that channel A will turn off 7.99 seconds from the time the timer is activated.
4. By pressing the any of the 6 SEC buttons you can change the on or off time for the channel that is selected.
5. As you change the on time, the display time value begins to blink. This indicates that you have not saved the value. Press the “W” button to save the time value.

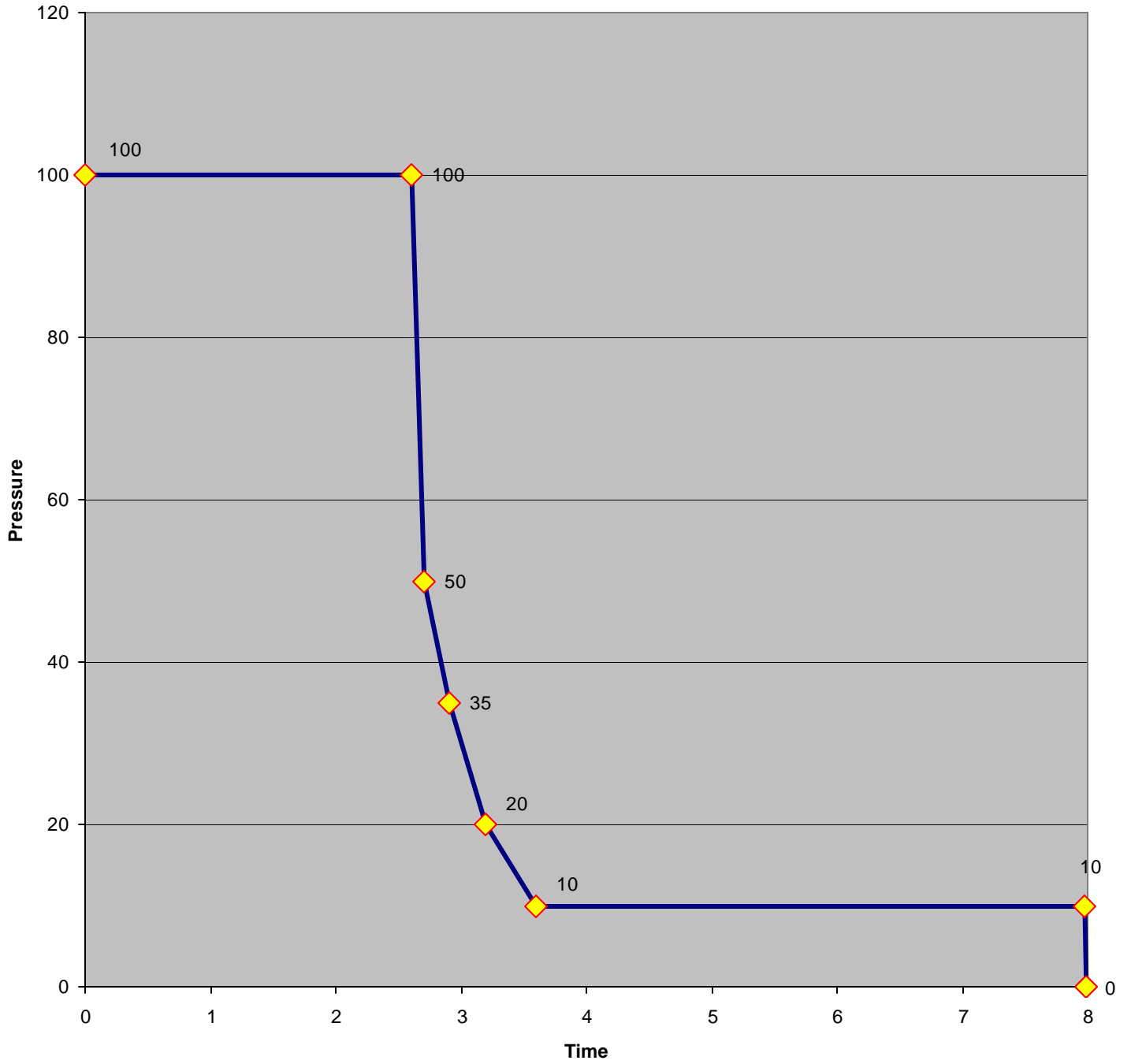
**Channel A on time 4.50 seconds**



**Channel A off time 7.99 seconds**



### Typical BDK Pressure Curve



Typical BDK Curve		
Channel	Time	Pressure
1	0	100
2	2.6	100
3	2.7	50
4	2.9	35
5	3.2	20
6	3.6	10
7	7.98	10
8	7.99	0
9	7.99	0

Unused Channels should  
be set to 7.99 sec and  
0 psi