

Model T7900 Electro-Pneumatic Transducer

Model T7900 Analog Control
Model T7900 DeviceNet™
Communication



Features

The Model T7900 Series Electro-Pneumatic Transducers include the Model T7900 with Analog Output and the Model T7900D with DeviceNet™ Communication.

The Model T7900 controls pressure in proportion to an analog electrical input signal. An internal feedback sensor monitors output pressure to achieve high accuracy.

The Model T7900D Transducer with DeviceNet™ Communications controls output pressure in response to a digital communication command.

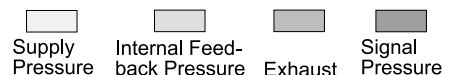
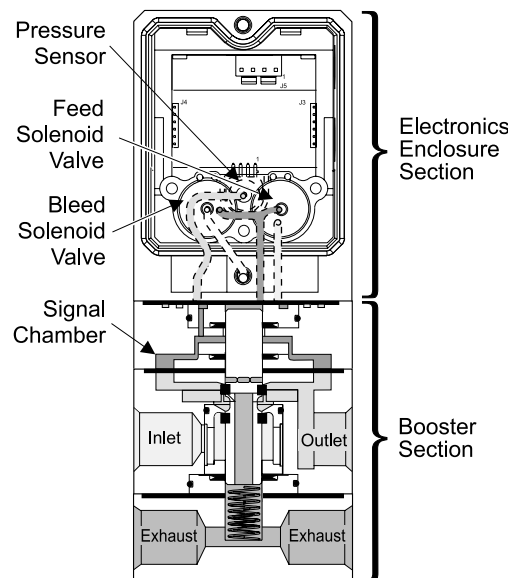
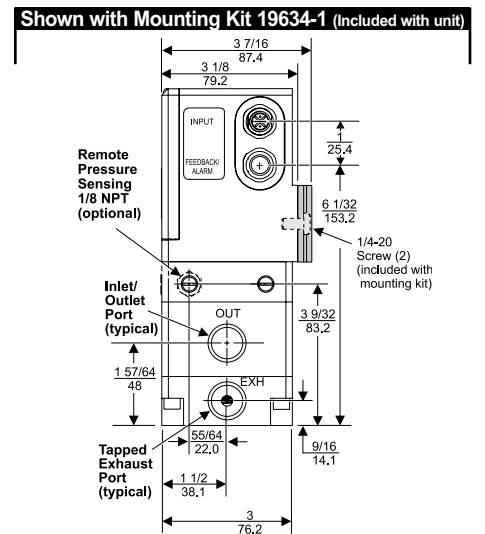
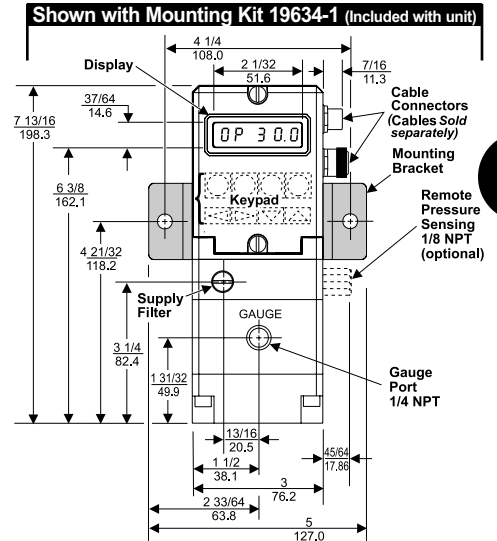
Common Features of the T7900 & T7900D

- RFI/EMI protection eliminates electromagnetic and radio interference.
- Output pressure displays in psig, BAR, kPa, or user-defined pressure units.
- Reverse acting capability for analog input and output signals.
- Select Current or Voltage mode for input signal or optional analog channels using the keypad.
- Independently adjustable PID tuning coefficients.
- Fully functional keypad and display.
- Backlit Liquid Crystal display screen.

Operating Principles

The Model T7900 Series Transducers have a closed-loop, integrated, microprocessor control system that regulates outlet pressure. You can control the output from the Model T7900 using the keypad or from an analog control signal. You can control the output from the Model T7900D using the keypad and through DeviceNet™ Communication network.

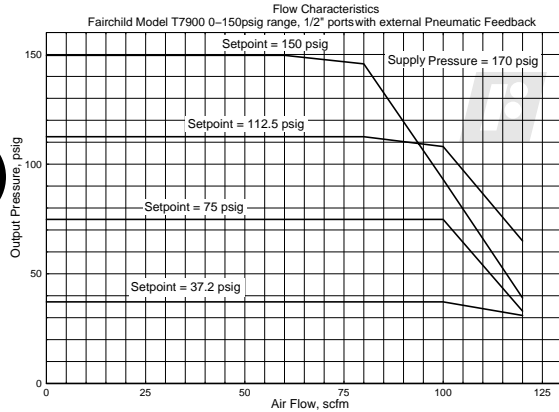
The Feed and Bleed Solenoid Valves control pressure in the Signal Chamber of the Booster Section. A pressure sensor measures the outlet pressure and provides a feedback signal to the Electronics Section. Any variation in pressure between the set-point and the outlet pressure activates the Feed and Bleed Solenoid Valves to change the output pressure.



B
Model T7900

Model T7900 Electro-Pneumatic Transducer

Technical Information



Specifications

Supply Pressure¹

200 psig, [14 BAR], (1400 kPa) Maximum

Pneumatic Outputs

psig:	0-30	0-75	0-150
[BAR]:	[0-2]	[0-5]	[0-10]
(kPa):	(0-200)	(0-500)	(0-1000)

Minimum Span

psig:	12	30	60
[BAR]:	[0.8]	[2.0]	[4.0]
(kPa):	(80)	(200)	(400)

Input Signal

4-20 mA, 0-10 VDC

Flow Rate (SCFM)

100 (170 m³/HR) @ 100 psig, [7 BAR], (700 kPa) supply
@ 20 psig, [1.5 BAR], (150 kPa) setpoint

Exhaust Flow (SCFM)

50 (85 m³/HR) @ 60 psig, [4 BAR], (350 kPa) downstream
pressure @ 5 psig, [.35 BAR], (35 kPa) above setpoint

Air Consumption

0 @ steady state output with Deadband @ 1 % of Full Scale

Supply Pressure Effect

No Measurable Effect

Electrical Supply

24 VDC ± 10 %

Power Consumption

Less than 5 watts

Analog Output Signal / Impedance

4-20 mA/500 ohms Maximum, 0-10 VDC/400 ohms Minimum

Deadband (ISA S51.1)

Adjustable from 0 to 10 % of Full Scale

Unit Accuracy (ISA S51.1)

Less than 0.50% Output Span

Frequency Response

-3 db @ 1 HZ per ISA S26.4.3.1 load Configuration A

Vibration Effect

Less than 1 % of Span under the following conditions: 5 - 15
Hz @ 0.8 inches constant displacement 15-500 Hz @ 10 g's

RFI/EMI Effect

Less than 0.5%. EMC Directive 89/336/EEC European
Norms EN 50081-2 & EN 50082-2.

Temperature Range

0° F to + 160° F, (-18° C to + 71° C)

Materials of Construction

Body and Housing.....Chromate Treated Aluminum
Cover and Pintle.....Acetel Plastic
Trim.....Zinc Plated Steel
Elastomers.....Fluorocarbon and Silicone
Finish.....Epoxy

¹ Supply Pressure must be no less than 5 psig, [0.35 BAR], (35 kPa) above maximum output.

Catalog Information

Catalog Number T7900

Input

0-10 VDC 0
4-20 mA 4
DeviceNet™ D

Output

0-30 psig 04
0-75 psig 05
0-150 psig 07
[0-2.0 BAR] 14
[0-5.0 BAR] 15
[0-10.0 BAR] 17
(0-200 kPa) 24
(0-500 kPa) 25
(0-1000 kPa) 27

Pipe Size

1/4" NPT 02
3/8" NPT 03
1/2" NPT 04

Pipe Thread Type

NPT Thread O
BSPT Thread U
BSPB Thread H

Option Type

No Option Board N
0-10 VDC Analog Output 0
4-20 MA Analog Output 4
0-10 VDC Feedback Input ¹ 5
4-20 MA Feedback Input ¹ 6

Option

External Pneumatic Feedback P

¹ Consult factory for availability

Unique Feature of the T7900D

- DeviceNet™ Communications that connect the Model T7900D to a digital network to increase functional flexibility, installation speed, and reduce system wiring cost.

Available Options for the T7900D Series Transducer

- Optional analog output channel configured as an output pressure monitor or as a user-defined output.
- External Pneumatic Feedback port to monitor down stream pressure.
- Optional Feedback Input Channel configurable to control setpoint, External process variable, or accept a user defined input. (Consult factory for availability.)

T7900 Cables and Connectors (sold separately)

Part Number	Description
055-IPI-089-M	Male Connector (Feedback Output)
055-IPI-089-F	Female Connector (Control Input)
032-IPI-009-3M	Male cable with one connector (3 meter)
032-IPC-009-3F	Female cable with one connector (3 meter)

Installation

For operating instructions, refer to the corresponding *Fairchild Model T7900 Electro-Pneumatic I/P, E/P Transducer Operation and Maintenance Instructions*, OM-500T79FI, OM-500T79AB, OM-500T79AO, OM-500T79DB, OM-500T79DI, OM-500T79DO.

For installation instructions, refer to the *Fairchild Model T7900 Electro-Pneumatic I/P, E/P Transducer Installation Instructions*, II-500T7900.