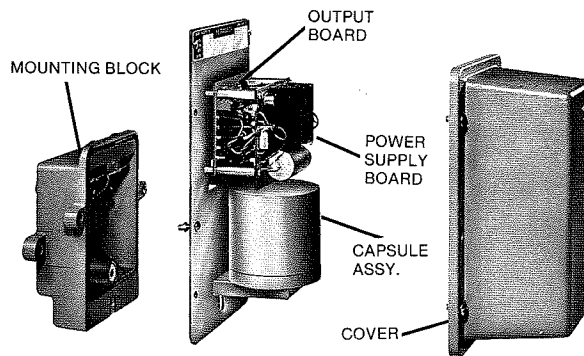


Pneumatic-to-Electric Transducers

DESCRIPTION

The P/E Transducer converts a 3 to 15 psig pneumatic input signal to a DC output signal that is directly proportional to the input. Standard output ranges are listed under MODEL SELECTION. There are two versions of the transducer: Model Series 781N is a 2-wire transducer — it is powered by an external DC source; Model Series 781P is a 4-wire transducer — its internal DC supply is powered by the AC supply line. Among the outstanding features inherent to all Series 781 P/E Transducers are:

- ACCURATE — suitable for use with electronic controllers, computers, data loggers and various other electronic data-accumulation and/or readout systems.
- RFI PROTECTED — minimizes adverse affects from walkie-talkies.
- PLUG-IN — permits speedy replacements to reduce down time. No need to disconnect wiring and tubing.
- COMPACT — for high density mounting.
- WEATHERPROOF — permits field mounting.
- RUGGED — to withstand field environments.



The plug-in design makes use of electrical receptacles and a self-sealing pneumatic manifold in the Mounting Block. User connections are made to this block — not to the plug-in transducer. The self-sealing manifold provides a positive, no-leak shut-off for the pneumatic input signal when the transducer is unplugged.

FOR INTRINSICALLY-SAFE OPERATION — Models 781N6F and 781N7F P/E Transducers are used for this application. They are FM approved and must be used with the barriers or converters listed on Moore Products Co. drawing 15032-7802.

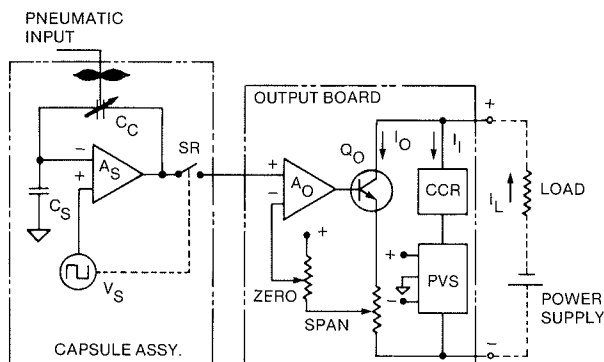
PRINCIPLE OF OPERATION

The Capsule Assembly provides a DC output proportional to the pneumatic input. Input variations change the gain of amplifier A_S by changing the clearance between the fixed and moveable plates of "air-variable" capacitor C_C . The moveable plate of C_C is attached to a temperature stable pressure capsule. The square-wave reference voltage V_S is amplified by A_S and converted to DC by synchronous rectifier SR.

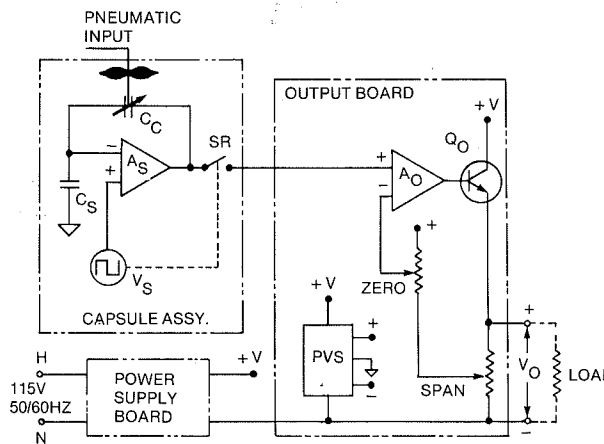
The Output Board converts the DC signal from the Capsule Assembly to the output required of the transducer. Op. Amp. A_O and drive transistor Q_O control the transducer's output by making the feedback to A_O equal to its

input from the Capsule Assembly. The precision voltage source PVS provides operating and reference voltages for the entire transducer. The constant current reference CCR — used on current output boards — controls the idle current I_I that drives the PVS. The idle current is maintained at a constant value (approx. 3.8 mA) regardless of supply or load changes. Note that the load current I_L is made up of I_O and I_I . Current output versions of Model Series 781P use their Power Supply Board to drive the CCR and the load. These models do not include the idle current I_I as part of the load current I_L .

MODEL 781N 2-WIRE CURRENT OUTPUT



MODEL 781P 4-WIRE VOLTAGE OUTPUT

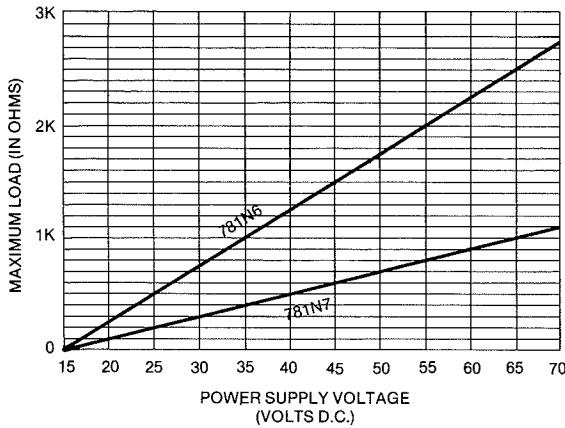


SPECIFICATIONS

Input 3 to 15 psig, standard.
 Overrange: 50 psig without damage,
 30 psig without recalibration.
 Metric and other ranges such as 3 to 27
 psig and 6 to 30 psig are available.

Output.....

Model No.	Output Range	Maximum Load
781N6	4 to 20 mAdc	•
781N6F	4 to 20 mAdc	•
781N7	10 to 50 mAdc	•
781N7F	10 to 50 mAdc	•
781P3	0 to 5 Vdc	20 mA
781P4	0 to 10 Vdc	20 mA
781P5	1 to 5 mAdc	6000 Ohms
781P6	4 to 20 mAdc	1500 Ohms
781P7	10 to 50 mAdc	600 Ohms



OUTPUT CHARACTERISTICS

Power Requirements

Model Series 781N See Output Characteristics graph.
 Model 781N6 24 Vdc, recommended.
 Model 781N6F 24 Vdc, recommended.
 Model 781N7 65 Vdc, recommended.
 Model 781N7F 24 Vdc, recommended.
 Maximum 70 Vdc, both ranges.

Model Series 781P 115 V ± 10%, 50/60 Hz, 3VA max.

Calibration Accuracy ± 0.25% of span

Adjustments

Zero ± 10% of span
 Span ± 10% of span

Performance Data

Response Time 30 milli-seconds (10-90% of span)
 Linearity 0.1% of span
 Hysteresis 0.1% of span
 Repeatability 0.1% of span
 Drift: less than 0.25% of span (30 days)
 Output Ripple less than 0.25% of span

Ambient Temp. Limits

Recommended + 10° to + 140°F
 Maximum - 40° to + 180°F

Ambient Temp. Effect 0.02% per °F (+ 10 to + 140°F)

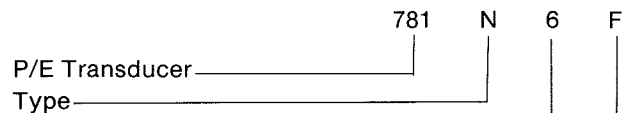
Electrical Classification (Factory Mutual Approved)

All Series 781 Non-Incendive for Class I, Div. 2, Groups A, B, C, D; Dust Ignition-Proof for Class II, Div. 1, Groups E, F & G; Suitable for Class III, Div. 1

Models 781N6F & 781N7F Intrinsically Safe for: Class I, Div. 1, Groups A, B, C & D; Class II, Div. 1, Groups E, F & G; Class III, Div. 1

Must be used with the barriers or converters listed on Moore Products Co. drawing 15032-7802.

MODEL SELECTION



N — "2-Wire" (output ranges 6 & 7 only)
 Requires external DC supply.
 P — "4-Wire" (all output ranges)
 Uses AC line supply.

Output Range

- 3 — 0 to 5 Vdc
 - 4 — 0 to 10 Vdc
 - 5 — 1 to 5 mAdc
 - 6 — 4 to 20 mAdc
 - 7 — 10 to 50 mAdc
- Special output ranges from 0-0.8 Vdc to 0-20 Vdc and ±7.5 Vdc to ±10 Vdc are available.

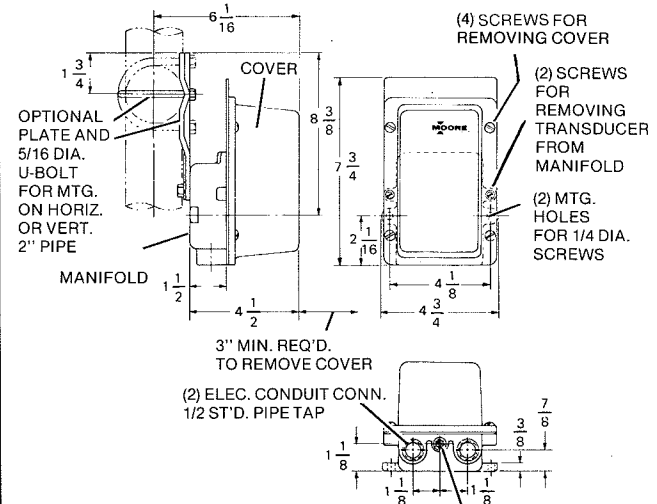
Intrinsically Safe

Applies only to Models 781N6F and 781N7F.
 Omit for all other electrical classifications.

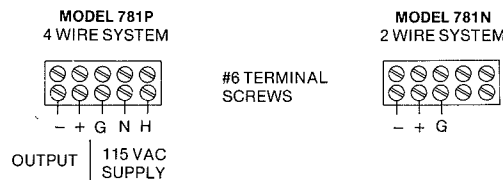
Sample listing of Barriers from MPCo. Dwg. #15032-7802. These are compatible with Term. #B5 (26 Vdc) of MYCRO 352 Stations.

MANUFACTURER	BARRIER TYPE	CLASS I, DIV. 1 GROUP (as listed)
MTL	Single, Positive Barrier MTL128+	A B C D
	Dual, Positive Barrier MTL188+	A B C D
	Dual, Positive Barrier MTL188R+	A B C D
STAHL	Single, Positive Barrier 8901/33-293/000/79	A B C D
	Single, Positive Barrier 8903/31-315/050/70	A B C D

DIMENSIONS



ELECTRICAL CONNECTIONS (LOCATED IN MANIFOLD)



FIELD OR CONTROL ROOM MOUNTING

