

INSTALLATION & OPERATING MANUAL



AT 08 Analog Transmitter

SECTION I GENERAL INFORMATION

Introduction

The Model AT-08 Analog Transmitters are ideal for use on systems having a full scale range of 10 mV, 20 mV, or 30 mV with minimal tare weight values. Typical applications would be a single force or pressure transducer, or a platform scale.

Description

An integral 9-position terminal strip provides connections for the supply voltage, transducer wiring, and analog output.

The input signal range selection is accomplished with SW1 a 2-position dip-switch.

The output signal selection is performed by soldering one or more of the following jumpers JP1, JP2, or JP3.

The zero and span adjustments for the analog output are accomplished with two 18-turn trim pots R16 and R5 (refer to page 8).

The unit also include an adjustable filter which can be used to stabilize the 0-10 Vdc or the 0-20 mA outputs. Filtering is used to minimize the effects of vibration caused by agitators or other devices. The filter adjustment is performed by the 270° turn trim pot R17 (refer to page 8).

The standard packaging is an ABS plastic DIN-Rail mounted enclosure. Optional field-mounted, fiberglass or stainless steel enclosures are available.

The transmitters are available with an optional 24 Vdc power supply enabling the unit to be operated with 230 Vac. For additional information, please refer to Section III of the manual.

Specifications

Power

Power Supply	24 Vdc \pm 15%
Load Cell Excitation	10 Vdc
Load Current	120 mA (4 load cells x 350 Ω)
Power Consumption	4 Watts

Amplifier

Input Signal	Selectable, 10mV, 20mV, 30mV
Output Signals	Selectable (via jumpers)
Voltage	0-10 Vdc, bipolar (10 K Ω min load)
Current	0-20 / 4-20 mA (300 Ω max load)
Maximum Gain	\approx 4000
Zero Adjustment	18-turn trim-pot (- 8% / + 3% FS)
Span Adjustment	18-turn trim-pot (\pm 5% of FS)
Linearity	\pm 0.02% of Full Scale
Analog Filter	Adjustable, 270 $^\circ$ turn trim-pot

Environmental

Operating Temp. Range	-10 to +40 $^\circ$ C (+14 to +104 $^\circ$ F)
Storage Temp. Range	-20 to +50 $^\circ$ C (-4 to +122 $^\circ$ F)
Thermal Stability	0.005% FS/ $^\circ$ C
Relative Humidity	85% non-condensing

Enclosure

Dimensions (L x H x D)	76 x 90 x 65 mm (3.0" x 3.5" x 2.5")
Mounting	DIN-Rail mount
Material	ABS Plastic
Weight	120g (4.25 Ounces)
Wiring connections	Terminal block, pitch 5.08mm

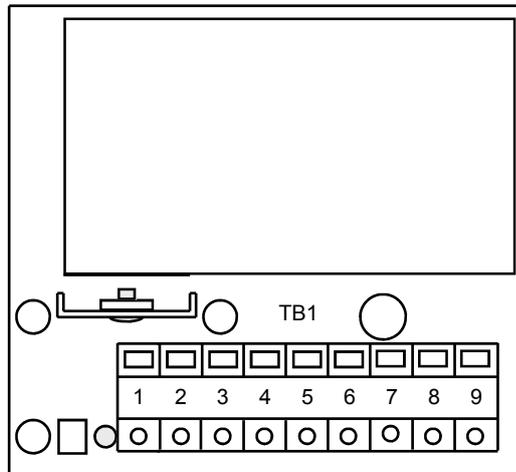
Options

230Vac to 24Vdc power supply	PS121, DIN-Rail mounted, (See pg. 10)
12Vdc \pm 15% power supply	Available Voltage output = 5Vdc, bipolar
Analog filter	Response delay: 0.5 to 25 mS

NOTE: All specifications are subject to change.

FIGURE 1
Wiring Connections

Mount the transmitter horizontally on a section of DIN-Rail with Terminal Block TB1 positioned on the bottom. If an optional 230 Vac to 24 Vdc power supply is used, the cable between the two devices must not exceed 1 meter.



Terminal	Description
1.	+ 24 Vdc (supply)
2.	0 Vdc (supply)
3.	+ Excitation (L.C)
4.	- Excitation (L.C)
5.	- Signal (L.C)
6.	+ Signal (L.C)
7.	+ 0-20 / 4-20 mA
8.	- Analog Output
9.	+ 0-10 Vdc

NOTE: When using a 6-conductor cable (+/- Sense leads) the + Sense lead must be connected to the + Excitation terminal and the - Sense lead must be connected to the - Excitation terminal.

NOTE: Load cells and analog output cables shields must be grounded.

NOTE: The voltage output can range from 0 to -10Vdc in case of negative LC's input signal.

SECTION II CALIBRATION

Remove the metal cover from the transmitter to expose the dip switch, soldered jumpers and trim pots.

Verify that soldered jumpers J1, J2, and J3 are in the correct position for the output required. Table 1 shows where the jumpers should be positioned for either a current or voltage output, Figure 2 shows where the jumpers are physically located on the circuit board.

Obtain the capacity and full scale output of the transducer/s from the calibration certificate/s.

In case of more than one transducer connected, the total capacity is the sum of the single capacities, while the nominal sensitivity is the average of the single nominal sensitivities. Multiply the full scale mV/V output of the transducer/s by the excitation voltage to obtain the max. millivolt (mV) input.

Example: $3.0 \text{ mV/V} \times 10 \text{ Vdc} = 30 \text{ mV}$.

Set dip-switch SW1 to match the full scale mV output obtained from the above calculation. See Table 2 on page 8.

Connect a digital multi-meter to terminal strip TB1 terminals 7 and 8 for current output or terminals 8 and 9 for voltage output.

Apply power to the unit and allow a couple of minutes for the transmitter to warm up before making the final calibration adjustments.

Remove any weight from the system and adjust the zero trim pot for a reading 0 Vdc, 0 mA or 4 mA. Turning the trim pot clockwise increases the output while turning it counter clockwise decreases the output. See Figure 3 for location of adjustments.

Apply a known weight or a mV/V simulator and adjust the span trim pot for the correct output. Turning the trim pot clockwise increases the output while turning it counter clockwise decreases the output. See Figure 3 for location of adjustments.

Re-check "zero" and "span" calibration and re-adjust if required.

Replace the metal cover on the transmitter after the calibration has been completed.

TABLE 1
Analog Output Selection

	0-10 Vdc	0-20 mA	4-20 mA
JP1	Open	Open	Closed
JP2	Open	Open	Closed
JP3	Closed	Closed	Open

FIGURE 2
Jumper Location

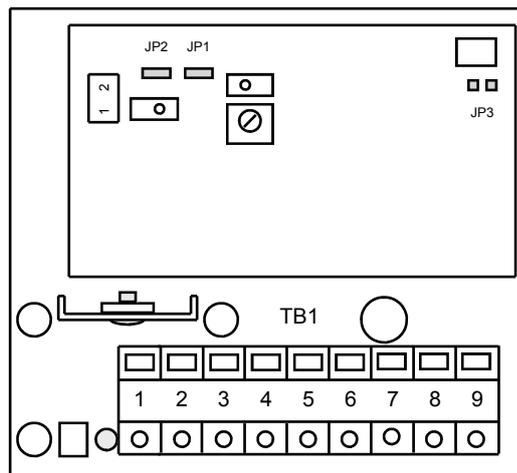
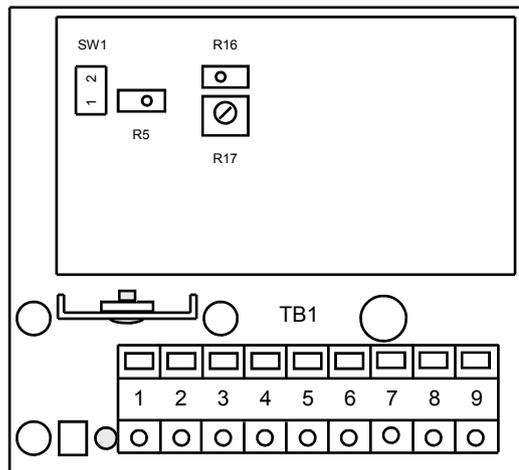


Figure 2 shows the jumpers positioned for a 4/20 mA output.

TABLE 2
Input Signal Selection

	10 mV	20 mV	30 mV
SW1-1	ON	OFF	OFF
SW1-2	ON	ON	OFF

FIGURE 3
Zero, Span & Analog Filter Adjustments



R16 is used for zero adjustment of both outputs,
R5 is used for span adjustment of both outputs.
R17 is a 270° turn trim pot which is **used for analog filter adjustment of the 0-10 volt or 0-20 mA outputs.**

If the 0-10 Vdc or 0-20 mA outputs are unstable under normal operating conditions, slowly turn **R17** clockwise until the output stabilizes.

R17 completely turned counter clockwise = filter de-activated
R17 completely turned clockwise = filter activated

The adjustable filter is not available if using the 4/20 mA output.

SECTION III
OPTIONS

Precise™ Model 121
24 Volt Power Supply

Specifications

Power

Input Voltage	230/115 Vac, 50/60Hz
Output Voltage	24 Vdc (nominal)
Power Consumption	15 Watts (maximum)
Fuse	100mA for 230V; 200 mA for 115V
Isolation	Class II

Environmental

Operating Temp. Range	-10 to +40°C (+14 to +104°F)
Storage Temp. Range	-20 to +50°C (-4 to +122°F)
Relative Humidity	85% non-condensing

Enclosure

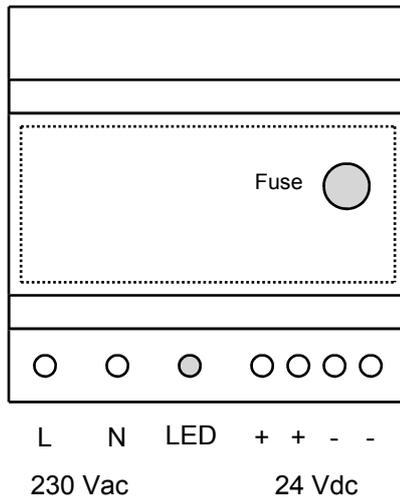
Dimensions (L x H x D)	70x90x57mm (2.75" x 3.50" x 2.25")
Mounting	DIN-Rail mount
Material	ABS Plastic
Weight	350g (12.5 Ounces)

Installation

- Make sure the installation complies with local regulations and electrical codes.
- Connect AC voltage to the terminals marked "L" and "N".
- The DC voltage is available on the terminals marked "+" and "-". The second set of terminals are used when powering two transmitters from a single power supply.
- A red LED is illuminated when the power supply is "ON".

Refer to Figure 4 on the following page for terminal locations.

FIGURE 4
Model 121 Power Supply



Fuse Replacement

- The following procedures require work inside the power supply enclosure and should be performed by qualified service personnel.
- Before opening the unit, disconnect the AC voltage.
- Remove the front cover from the power supply.
- Press down gently on the cover of the fuse holder, and turn counter-clockwise.
- Pull out the cover and fuse as an assembly, replace fuse with a new one.
- Re-install fuse and cover as an assembly, press down gently and turn clockwise.
- Replace the front cover on the power supply.
- Re-apply AC voltage to the unit.

In the event of a malfunction, please contact the nearest distributor for assistance. Any attempt to modify or repair the power supply will void the manufacturers warranty.



PAVONESYSTEMS

PAVONE SISTEMI S.R.L.

Via Tiberio Bianchi 11/13/15, 20863 Concorezzo (MB), ITALY

T 0039 039 9162656 F 0039 039 9162675 W en.pavonesistemi.it

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