Measurement · Weighing · Control

GB

Analog Weight Transmitter
PS-1000

Installation and Operating Manual

VISHAY
PRECISION
GROUP

LIST OF CONTENTS

SECTION 1
GENERAL INFORMATION

Introduction

PS-1000 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 three trim pots. Two of them are 20-turn trim-pots and one is a 270° turn trim-pot. The function of the 270° turn trim-pot changes depending on the type of output selected. It is used for span adjustment for the 4/20 mA output, or to change the filter setting when using the 0-10 Vdc output.

The units also include an adjustable filter which can be used to stabilize the voltage output. Filtering is used to minimize the effects of vibration caused by agitators or other devices.

The standard packaging is an ABS plastic DIN-Rail mounted enclosure.

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 3.

Specifications

Power

Power Supply	24 Vdc ± 15%
Power Consumption	5 Watts
Load Cell Excitation	10 Vdc
Load Current	200 mA (4 load cells x 350Ω)

Amplifier

Input Signal	Selectable, 10 mV, 20 mV, 30 mV
Output Signals	Selectable (via jumpers)
Voltage	0-10 Vdc (2 kΩ min load)
Current	4-20 mA (500 Ω load max)
Maximum Gain	≈ 4000
Zero Adjustment	20-turn trim-pot (- 7% / + 3% FS)
Span Adjustment	20-turn trim-pot (± 5% of FS)
Linearity	± 0.02% of Full Scale
Analog Filter	Adjustable, 270° turn trim-pot

Environmental

Operating Temp. Range	-10 to +40°C
Storage Temp. Range	-20 to +50°C
Thermal Stability	20 ppm/°C
Relative Humidity	85% non-condensing

Enclosure

Dimensions (L x H x D)	76x90x65 mm
Mounting	DIN-Rail mount
Material	ABS Plastic
Weight	120g
Wiring connections	Terminal block, pitch 5.08 mm

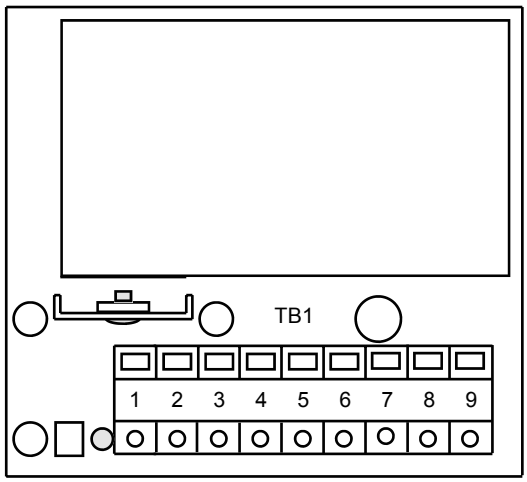
Options

230 Vac Power Supply	DIN-Rail mounted, (See page 9.)

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 24 Vdc power supply is used, the cable between the two devices must not exceed 1 meter.



TB1
1. + 24 Vdc (supply)
2. - 24 Vdc (supply)
3. + Excitation
4. - Excitation
5. - Signal
6. + Signal
7. + 4/20 mA
8. - Analog Output
9. + 0-10 Vdc

NOTE: Some transducer manufacturers utilize a 6-conductor cable (+/- Sense leads). When using these type of transducers, the + Sense lead must be connected to the + Excitation terminal and the - Sense lead must be connected to the - Excitation terminal.

SECTION 2
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, and 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. Multiply the full scale mV/V output of the transducer/s by the excitation voltage to obtain millivolts (mV).

Example: 3.0 mV/V x 10 Vdc = 30 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 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.

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	4/20 mA
JP1	Open	Closed
JP2	Open	Closed
JP3	Closed	Open

FIGURE 2
Jumper Location

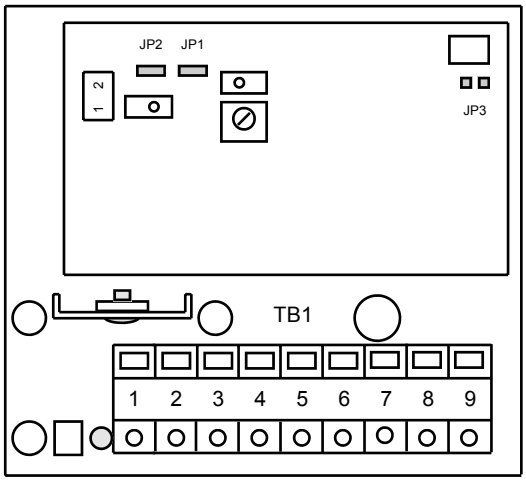
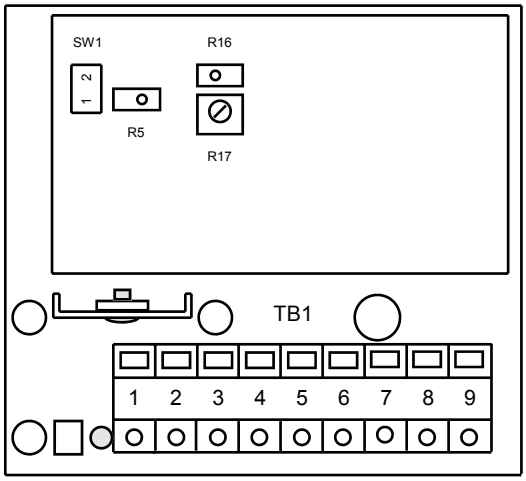


Figure 2 shows the jumpers positioned for a 4/20 mA output.

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 Vdc output**.

If the 0-10 Vdc output is 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 3
OPTIONS

24 Volt Power Supply, PS-121

Specifications

Power

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

Environmental

Operating Temp. Range	-10 to +40°C
Storage Temp. Range	-20 to +50°C
Relative Humidity	85% non-condensing

Enclosure

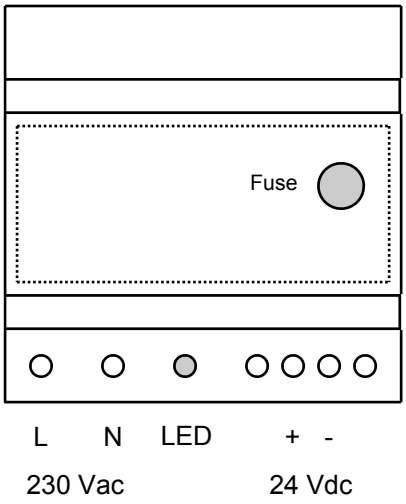
Dimensions (L x H x D)	70x90x57 mm	?
Mounting	DIN-Rail mount	
Material	ABS Plastic	
Weight	350g	?

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 “-”.
- 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.

EC DECLARATION OF CONFORMITY

CE

We: **Vishay Nobel AB**
Box 423
S-691 27 KARLSKOGA
SWEDEN

Hereby declares that the product named: **PS-1000**
complies with the essential requirements of the directives
89/336/CEE, 93/68/CEE, when used for its intended purpose

The product is made in accordance with the following standards:

ELECTROMAGNETIC COMPATIBILITY:

EN 61000-4-2
EN 61000-4-3
EN 61000-4-4
EN 61000-4-6
EN 61000-4-8
EN 61000-6-3

The CE mark has been applied on the product

Karlskoga, November 9, 2004

Robert Pettersson, Deputy Managing director

APPENDIX 1

EC DECLARATION OF CONFORMITY

CE

We: **Vishay Nobel AB**
Box 423
S-691 27 KARLSKOGA
SWEDEN

Hereby declares that the product: **PS-121**
Complies with the essential requirements of the directives 73/23/CEE, when used for its intended purpose

The product is made in accordance with the following standards

ELECTROMAGNETIC COMPATIBILITY:

EN 61000-3-2
EN 61000-3-3

ELECTRICAL SAFETY:

EN 61010-1

The CE mark has been applied on the product

Karlskoga, May 07, 2004

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Bengt Schultz, Managing director

APPENDIX 2

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Article no. 600 704 R2

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