

# COPAL ELECTRONICS

Thin Film Semiconductor type  
Pressure sensor

# PA-930

INSTRUCTION MANUAL Ver.2.0

Thank you for purchasing Nidec Copal  
Electronics Product.

In order to safely use this product, Please carefully read  
the instruction manual and keep it for future reference.

For inquires :

## COPAL ELECTRONICS

Nishi-Shinjuku Kimuraya Bldg., 7-5-25  
Nishi-Shinjuku, Shinjuku-ku, Tokyo 160-0023 Japan Tel,03-3364-7055

## Handling Notes

**⚠ CAUTION** This caution mark describes when there is a possibility that under may suffer from damage or physical damage may occur if the product is used improperly.

### ⚠ CAUTION

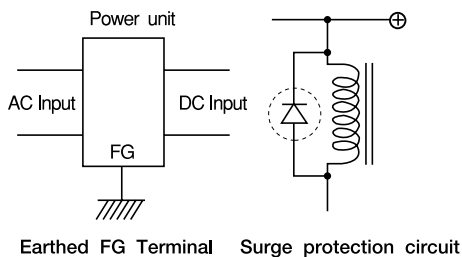
- This product is neither drip-proof nor dust-proof structure. Do not use it under the condition where water or oil drip, dust rises, or corrosion occurs.
- Do not apply pressure over the maximum pressure.
- Do not short circuit and/or mis-wire. It will result in internal circuit damage.
- When handling the product, please hold the body of the product. Do not apply unnecessary force to the wire when holding the body of the product.
- When installing the sensor to a piping, turn the sensor by using a wrench on the hexagonal part only. And make sure not to turn yourself when piping.
- For gasket fitting (VC type), since the edge of the fitting is mirror polished, do not scratch the edge of the fitting.
- When setting the Vzero output, do not apply over torque to the volume. The specified torque is 0.02N-m max.

• Please use a stable direct current power supply.

Also, if in case the power line for the sensor is connected with a relay or solenoid, please insert a varistor or diode to the power line. Refer to the picture below for details.

• When cleaning the product, use a neutralized detergent.

Do not use a solution such as thinner



## Piping

Please gently use a hexagonal wrench when piping.

**⚠** Please do not turn the sensor by holding the main body and cables when installing the sensor to a piping.

## Wiring

Please connect the wire accordingly to the chart below.

Color	Connection
Red	Power +
Black	Common
White	Analog output
Green	—
Shield	Case

## Setting Vzero

The Vzero output can be adjusted by turning the Vzero volume. When adjusting the Vzero volume, make sure the pressure port is open to the atmosphere and the temp. at the pressure point is at stable condition.

※ Gauge type only.

## Warranty

This product is covered by warranty for a period of one year from the date of delivery.

This warranty is only applicable to this product itself.

This warranty covers free-of-charge repair and replacement for defects occurring through design or manufacturing inadequacy of NIDEC COPAL ELECTRONICS CORP.

Even during the warranty period, the following failures will be handled on a fee basis.

- 1.Failure or damages occurring through misuse or disoperation performed not following the instruction manual, the catalog and the specification sheet.
- 2.Failure or damages occurring through improper modification, adjustment, or repair.
- 3.Failure or damages occurring through technically and scientifically unpredictable factors.
- 4.Failure or damages occurring through natural calamities, fires or other inevitable accidents.

## Part number designation

**PA—930 — 102V — VC**

Pressure Range	Fitting
102V:0~—100kPa	VC:9/16—18UNF
102G:0~100kPa	R2:R1/4 (PT1/4)
102R:—100~100kPa	
302R:—100~300kPa	
103G:0~1000kPa	
102A:0~100kPa abs	
202A:0~200kPa abs	

## Specifications

Pressure range	102V	102G	102R	302R	103G	102A	202A
Rated pressure range	0~—100kPa	0~100kPa	—100~100kPa	—100~300kPa	0~1000kPa	0~100kPa abs	0~200kPa abs
Maximum pressure	200kPa	200kPa	200kPa	600kPa	2000kPa	300kPa abs	300kPa abs
Vzero voltage	1±0.04V	1±0.04V	3±0.04V	2±0.04V	1±0.04V	1±0.04V	1±0.04V
Vspan voltage	4±0.04V						
Pressure medium	Liquids/gases compatible with SUS316L, Nickel alloy						
Dielectric strength	125Vdc for 1 min.						
Operating temp. at pressure	0~150℃						
Compensated temp. at pressure port	100~150℃						
Atmosphere temp. (circuit)	0~50℃						
Storage temp.	—20~70℃ (At atmospheric pressure, humidity below 65%)						
Operating humidity	35~85%RH (No condensation)						
Operating voltage	10.8~26.4Vdc (Includes ripple current)						
Current consumption	20mA maximum						
Linearity/Hysteresis	±0.5%F.S. *						
Temp. thermal error (Vzero)	±0.10%F.S./℃ (Standard : 100~150℃ : 125℃ at pressure port)					±0.30%F.S./℃	±0.20%F.S./℃
Temp. thermal error (Vspan)	±0.10%F.S./℃ (Standard : 100~150℃ : 125℃ at pressure port)					±0.20%F.S./℃	±0.20%F.S./℃
Weight	Approx.100g					Approx.140g	

\* Thermal conductance is different when measuring high vacuum due to change in density of pressure media.

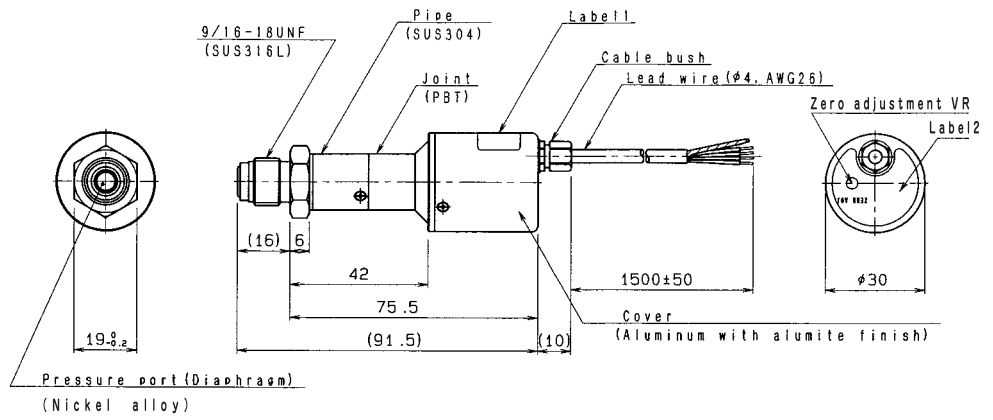
Therefore, the temperature at the pressure point may not reach its assumed temperature.

Especially under conditions with high temperature, the thermal error and the linearity/hysteresis may look as if it is out of specification.

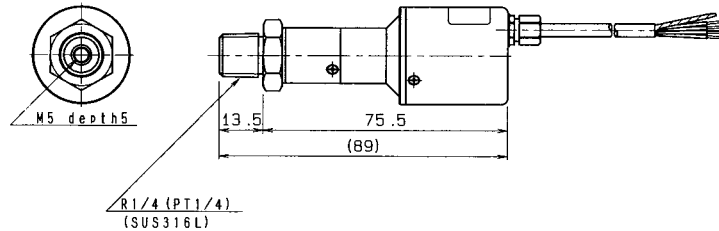
Outline dimensions (unit : mm)

Unless otherwise specified, tolerance±0.5mm

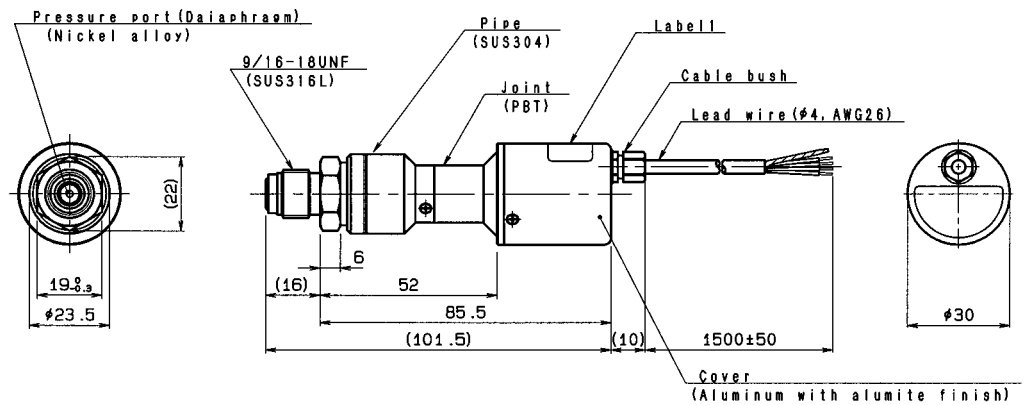
VC type (9/16-18UNF)



R2 type (R1/4)



XXXA-VC type (9/16-18UNF)



Internal circuit

