

Standard Instruction Manual (SOS TYPE PRESSURE TRANSMITTER)

Prior to starting use of the product, read this instruction manual with full care. Be sure to observe the important points shown with a caution mark in this manual. File this instruction manual nearby so that you may refer thereto whenever required.

MARKS AND IMPORTANT POINTS USED IN THIS MANUAL.

What you must not do absolutely or you must pay full attention or refer thereto are explained with the following marks. Be sure to read the parts of text marked with such marks.

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|  | WARNING If not observed, a trouble of injury or an accident will be caused, resulting in endangering human body. What is explained with this mark shall not be done absolutely. |
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|  | Important points and limitations to be observed for operation and handling . Be sure to read for avoiding marking a mistake. |
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1. Preface

Thank you very much for your purchase of a MinebeaMitsumi type pressure transmitter this time. To begin with, check whether or not there is any damage done in transmit or a mistake in type. If any damage or mistake should be found, be sure to contact the dealer from which you purchased this product or our sales office nearby.

2. Outline

NS100A series are pressure transmitters into which SOS (silicon on sapphire) technology has been introduced. They have high reliability and durability. Standard output are 4mA to 20mA, 0V to 5V, 0V to 10V.

NOTE: For special type products other than the standard unit, refer to the enclosed supplementary notes and instruction manual or the specification figure of external appearance . (Power voltage, wiring diagram etc.)

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|---|---|
|  | <p>WARNING</p> <ul style="list-style-type: none"> ▪ In the case of static pressure, use it within the range of rated pressure and in the case of dynamic pressure, use it within 70% of the rated capacity. ▪ A voltage exceeding the max, applying voltage shall not be applied to the input terminal. ▪ Avoid using the product in atmosphere containing corrosive gas, chloric composition etc. ▪ When fitting this product to medical treatment apparatuses and instruments involving human life, be sure to provide a protective circuit in preparation for stop of function of the pressure transmitter. |
|---|---|

3. Construction of P/N

Name of Series Rated capacity Unit
NS100A * * * * * - * * * *

200 KPa~500KPa: KP

1MP~50MP: MP

No display : gage pressure

A : absolute pressure

F : negative pressure

Interface
 1: Cable direct
 2: Connector
 3: Terminal box

Thread for installation (normal designation)

1: 1/8 External thread

2: 1/4 External thread

3: 3/8 External thread

Thread for installation (Configuration)

1: G

2: R

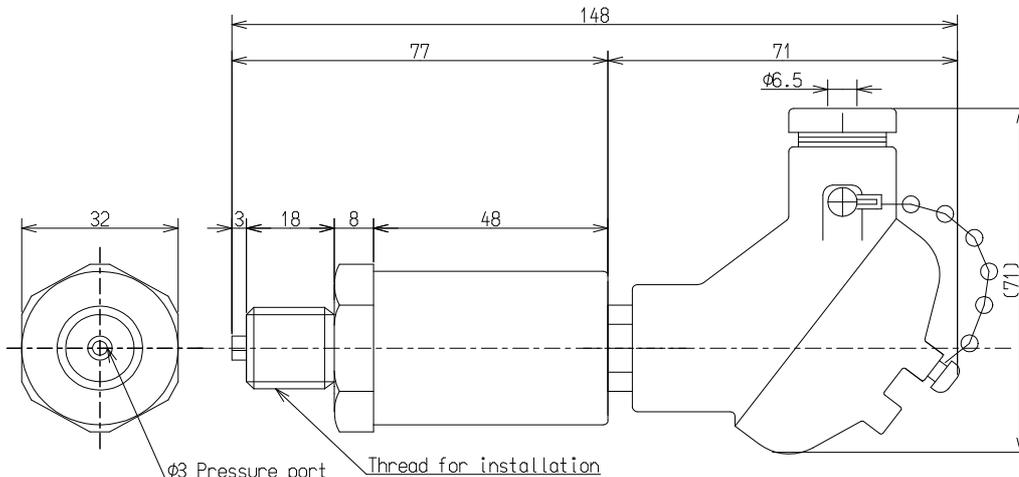
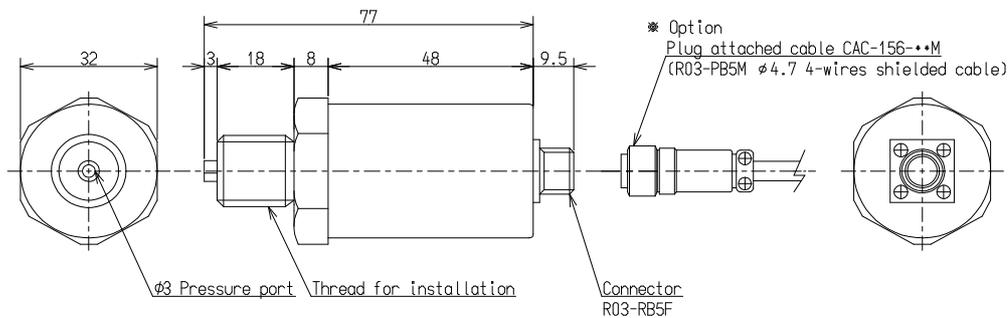
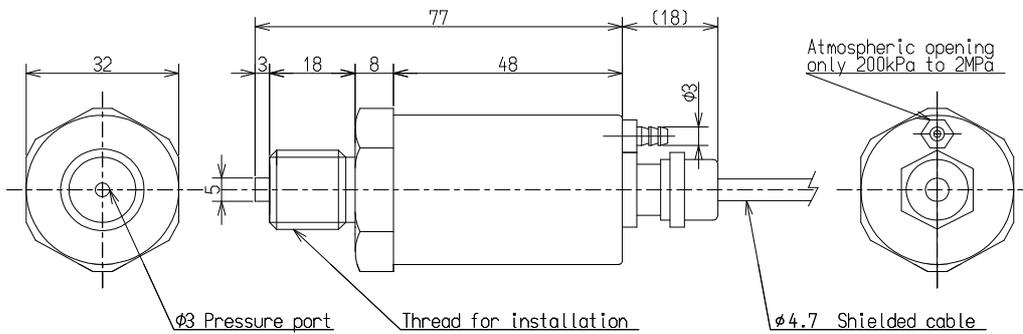
Output

1: 4mA to 20mA

2: 0V to 5V

3: 0V to 10V

4. Outline dimension



5. Specification

| | |
|----------------------------------|--|
| Rated capacity | 200,500 kPa 1,2,5,10,20,25,30,35,50 MPa |
| Safe overload | 200%R.C. |
| Accuracy | 0.2%R.O. |
| | (Non-linearity,hysterresis and repeatability are included) |
| Output | 4mA to 20mA (load resistance 500 Ω or less) |
| | 0V to 5V (Load resistance 5k Ω or more) |
| | 0V to 10V (Load resistance 5k Ω or more) |
| Power supply voltage | 24 VDC (18VDC to 28VDC) |
| Insulation resistance | 1000M Ω or more (Lead to Main body) |
| Consumption current | About 20mA |
| Compensated temperature range | -20°C to 70°C |
| Safe temperature range | -30°C to 80°C |
| Temperature effect on zero point | ±0.2%R.O./10°C |
| Temperature effect on output | ±0.2%LOAD/10°C |
| Pressure port | Stainless steel |
| Pressure receiving section | Sapphire |
| Cable connection | Cable direct, Connector type, Terminal box type |
| Thread for installation | G(PF)orR(PT) 1/8,1/4,3/8, |
| Constructions | Indoor type |
| Clamping torque | 20 to 40 N·m |
| Weight | Approx.200g (Main body only) however, terminal box type is approx. 400g. |

6. Important points for use



- ① Fit it within the range of tightening torques of 20 – 40 N·m.
- ② If there should be any impact pressure or vibration, set it in such a way that the value taking into consideration surging pressure does not exceed the rated pressure of pressure transmitter.
- ③ Use it at an ambient temperature in the temperature compensation range.

| | | | |
|---------------------|---|---|-------|
| Ambient temperature | -20 °C | - | 70 °C |
| Ambient humidity | 85% RH or less (shall be free from formation of dew). | | |
- ④ Avoid rapid change in temperature and direct heat.
- ⑤ though the instrument has the features of drip-proofed constructions, avoid using it where water may splash or in the water
- ⑥ Shall be installed in such a place where vibration and impact are as little as possible.
- ⑦ In vibration environment, the cord shall be fixed in the vicinity of cable outlet and vibration stop, be provided.
- ⑧ In an environment where screws tend to loosen, retighten periodically or provide detent as required.
- ⑨ Do not install it near an apparatus or machine generating strong magnetism or strong electromagnetic waves.
- ⑩ Under special operating environment and in the case of special pressure medium, consult with us once before use.
- ⑪ Do not disassemble the pressure transmitter.
- ⑫ Do not drop the pressure transmitter or give a shock thereto.
- ⑬ If disused, dispose of it, taking into full consideration the environmental condition.

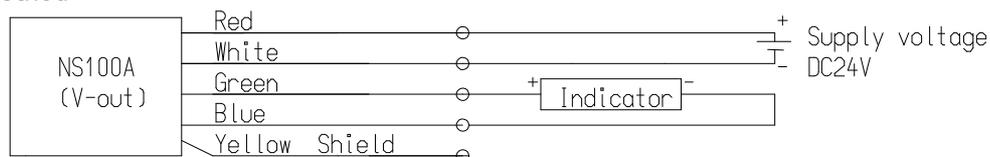
7. Connecting diagram

| Voltage output type | | Current output type | |
|---------------------|-----------------------------|---------------------|-----------------------------|
| Red | Supply voltage input (+24V) | Red | Supply voltage input (+24V) |
| White | Supply voltage input (COM) | | |
| Green | Voltage output (+) | Green | Current output (+) |
| Blue | Voltage output (COM) | | |
| Yellow | Shield (Earthed) | Yellow | Shield (Earthed) |

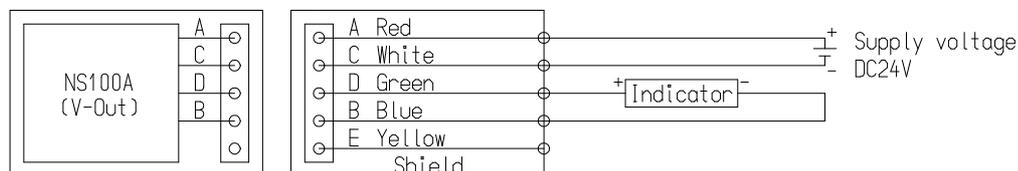
8. Wiring diagram

Voltage output type

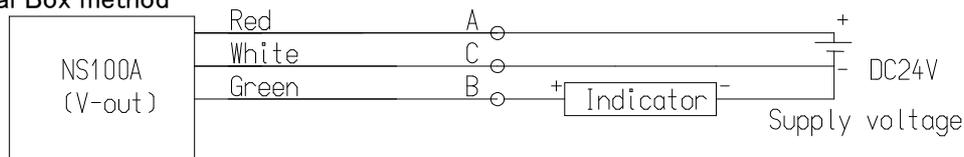
Cable method



Connector method

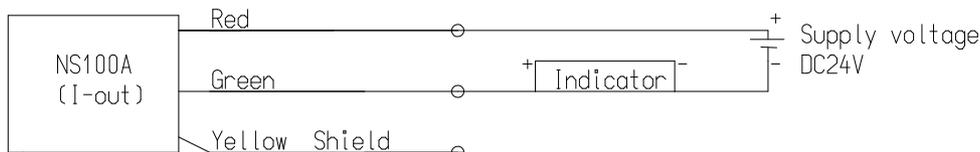


Terminal Box method

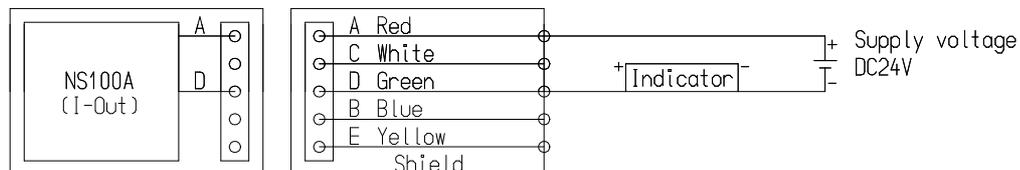


Current output type

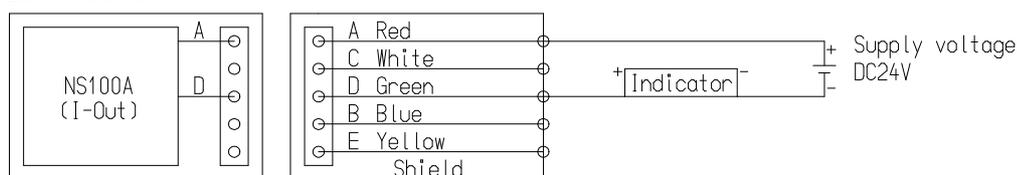
Cable method



Connector method



Terminal Box method



- ① Wiring of 4 line type serves as the standard for the purpose of compensation of the zero point error according voltage output use of this unit to cable length. Although the use as a wiring of 3 line type (it is common COM about white or blue) is also possible, when cable length is extended, the zero point error of about 1.3 mV/m occurs. (at the time of our company cable use)
- ② The shield wire must be earthed without fail. If not earthed, when a surging voltage is applied, pressure transmitter will result in damage.
- ③ Separate the cable as much as possible from the power line. If not separated as much as possible, a trouble of output interference will be caused due to power noise etc.
- ④ When measuring voltage output, load resistance will be more than 5Ω.
When measuring current output, load resistance will be less than 500Ω.



'9. Countermeasures to be taken for abnormalities.

If there should arise an abnormality in the pressure transmitter, contact our company or dealer from which you have purchased.

The content of this manual is subject to change with out notice.