

INSTRUCTION MANUAL

ITEM : Explosion Proof Type - Stator Winding RTD

Model No :

- 1) Increased Safety "e" - R810 Series
- 2) Intrinsic Safety "i" - R820 Series

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WISE[®] WISE Control Inc.
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1. Introduction

Stator Winding RTD manufactured by Wise Control Inc. is a well-customized product.

The product should be tested and kept at a proper place. To maintain the best state of the product in use, please carefully read this instruction manual of the product and properly use it.

2. Purpose

The purpose of the Stator Winding RTD is to mainly detect and prevent overheating of motors.

It is inserted in between a stator and a slot to measure a temperature.

3. Features

Stator Winding RTD uses the phenomenon of changing electric resistance to measure a temperature.

Since it has high stability and sensitivity, it is used to measure a temperature precisely.

Also, it is made of a nonmetallic material, and therefore it has a structure of protecting element.

It is designed well enough to get flexible and endure vibration and high pressure.

4. Safety

1) Preface

Stator Winding RTD manufactured by WISE Control Inc. are precision instrument, so user must follow its instruction manual, and any other documents to promote longer life of the instruments.

2) Usage

Stator Winding RTD are designed to use for temperature measuring.

It can control and record, and its value can be used by control board.

3) Warranty provision

WISE Control Inc. Will not be responsible any damage or loss which are caused by misuse or modification of the instrument.

4) Warning

WARNING

For safety reasons, attachment of instruments must be done by trained personnel.

WARNING

Please comply with the stated range of capacity of the instrument to avoid the malfunction of the instruments.

WARNING

Instrument should be properly installed in the suitable area for use.

WARNING

Wiring must be done according to its regulation.

WARNING

Before wiring, all the electric power should be turned off.

WARNING

For the end of the wiring, insulated compressed terminal must be used.

WARNING

Disassembling of the instrument is prohibited.

WARNING

Please use the product within the range of workable temperature.

WARNING

Please DO NOT give any excessive load, vibration and impact.

5. Specification, Dimension and Marking

The specifications and external dimensions of the product should be chosen rightly depending on installation conditions. The specifications of the product are different depending on performance and treatment conditions. For example, a 4-wire product is good in measuring a temperature precisely. And the thicker the product's body is, the stronger it is in enduring an impact.

5.1 Specification

(1) Model description (Increased Safety "e")

- R811 : RTD Single Element - 3 wire
- R812 : RTD Double Element - 6 wire
- R813 : RTD Single Element - 3 wire with Shield wire
- R814 : RTD Double Element - 6 wire with Shield wire
- R815 : RTD Single Element - 4 wire
- R816 : RTD Double Element - 8 wire
- R817 : RTD Single Element - 4 wire with Shield wire
- R818 : RTD Double Element - 4 wire with Shield wire

(2) Model description (Intrinsic Safety "i")

- R821 : RTD Single Element - 3 wire
- R822 : RTD Double Element - 6 wire
- R823 : RTD Single Element - 3 wire with Shield wire
- R824 : RTD Double Element - 6 wire with Shield wire
- R825 : RTD Single Element - 4 wire
- R826 : RTD Double Element - 8 wire
- R827 : RTD Single Element - 4 wire with Shield wire
- R828 : RTD Double Element - 4 wire with Shield wire

(3) Explosion Proof Type

- Increased safety "e" : ATEX II 2G Ex e IIC Gb
- Increased safety "e" : IECEx Ex e IIC Gb
- Intrinsic safety "i" : ATEX Ex ia IIC T6...T3
- Intrinsic safety "i" : IECEx Ex ia IIC T6...T3

(4) Body Material

- High temperature epoxy glass.

(5) Accuracy Class

- Platinum (0.00385 TCR), Class "AA" - EN 60751
- Platinum (0.00385 TCR), Class "A" - EN 60751
- Platinum (0.00385 TCR), Class "B" - EN 60751

(6) Working Temperature : -50 °C ~ 180 °C

We would like to recommend you to determine "Working Temperature" to meet higher accuracy for the product as below.

- AA Class : 0 °C ~ 180 °C
- A Class : -30 °C ~ 180 °C
- B Class : -50 °C ~ 180 °C

(7) Ambient Temperature :

- Tamb = -40 °C ~ 80 °C : T6
- Tamb = -40 °C ~ 95 °C : T5
- Tamb = -40 °C ~ 130 °C : T4
- Tamb = -40 °C ~ 180 °C : T3

(8) Body Thickness

- 0.079" [2.0 mm]
- 0.118" [3.0 mm]
- 0.138" [3.5 mm]
- 0.157" [4.0 mm]

(9) Body Length

- 6mm (W) x 155mm (L) - Single Element
- 11mm (W) x 155mm (L) - Double Element
- Min. 6mm (W) ~ Max. 14mm (W) x Min 155mm (L) -Other

(10) Voltage

- Maximum input voltage : U_i 30 V
- Maximum input current : I_i 5 mA
- Maximum input power : P_i 0.15 W

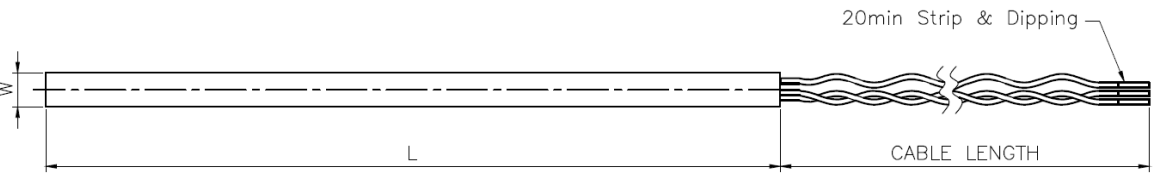
(11) Parameter

- Maximum internal capacitance : C_i 0.1 nF
- Maximum internal inductance : L_i 0.01 mH

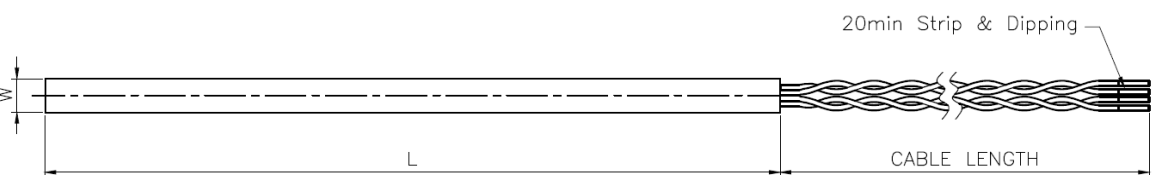
5.2 Product type and component name

The models of the product by specifications are presented in the following. Please refer to the connection diagram of paragraph 7 for the specifications of the product.

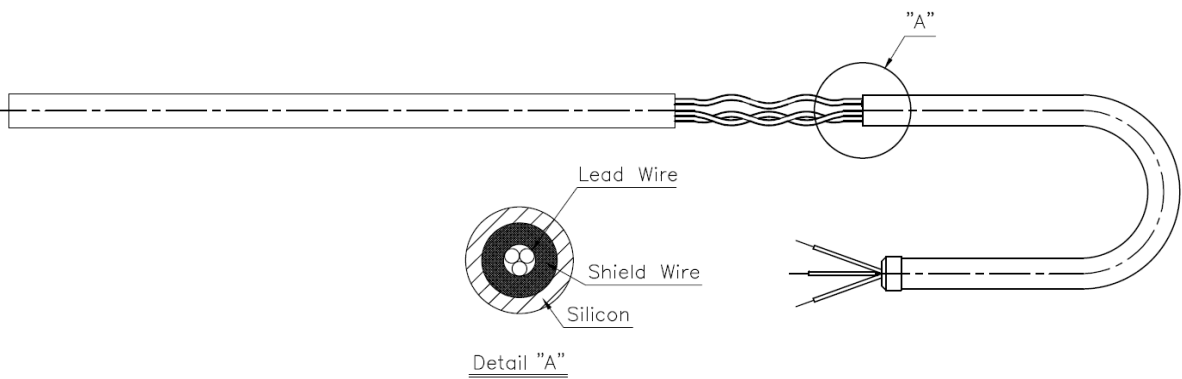
- R811 / R821 (RTD Single Element - 3 wire)



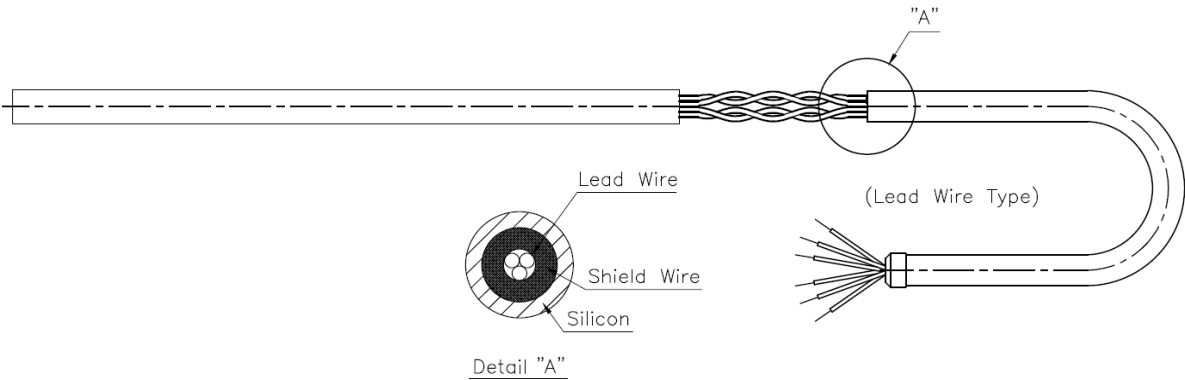
- R812 / R822 (RTD Double Element - 6 wire)



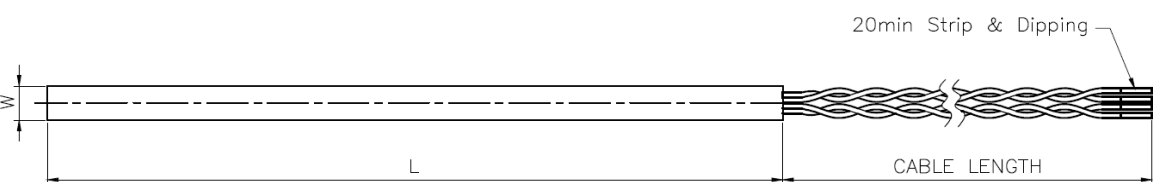
- R813 / R823 (RTD Single Element - 3 wire with Shield wire)



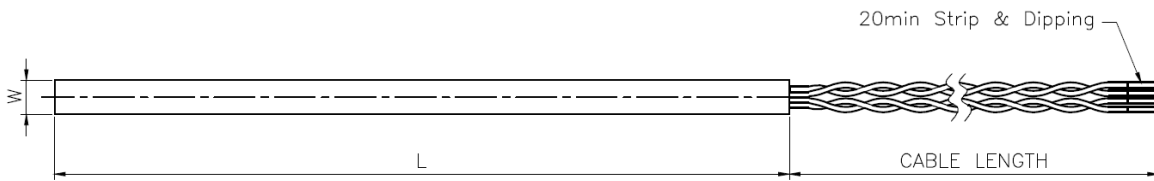
- R814 / R824 (RTD Double Element - 6 wire with Shield wire)



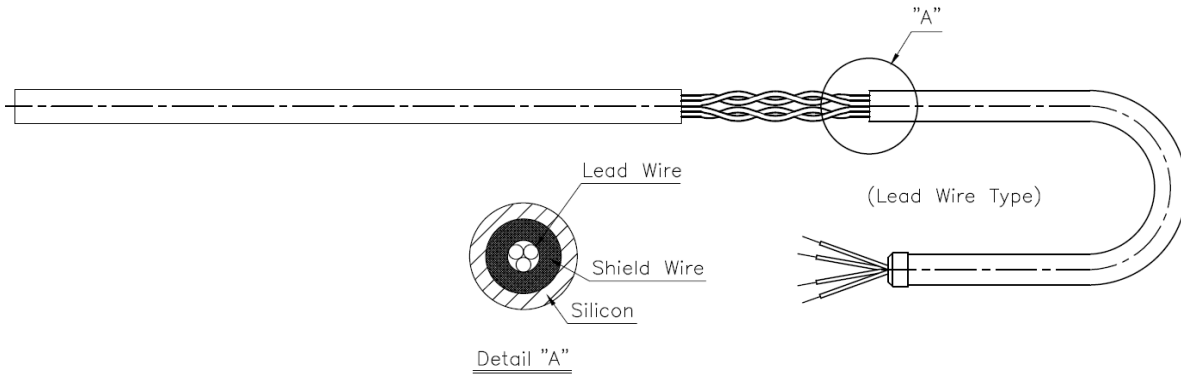
- R815 / R825 (RTD Single Element - 4 wire)



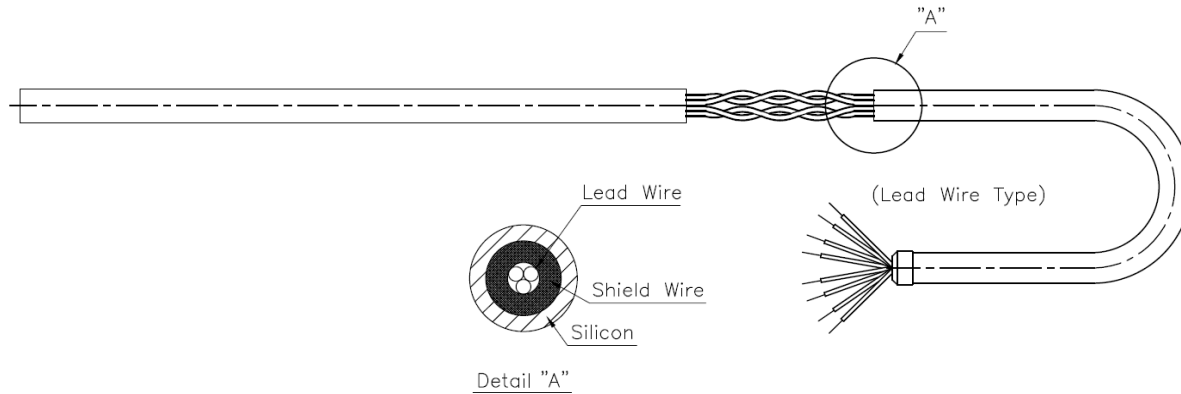
- R816 / R826 (RTD Double Element - 8 wire)



- R817 / R827 (RTD Single Element - 4 wire with Shield wire)



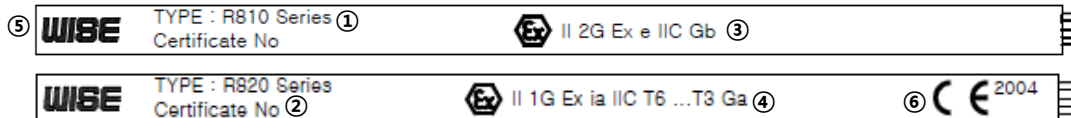
- R818 / R828 (RTD Double Element - 4 wire with Shield wire)



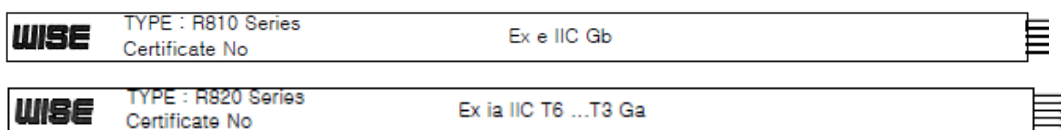
6. Marking Requirement

Making requirement is performed to body with stencil. Making information is presented in the following.
For workable temperature and for product treatment and installation, please refer to instruction manual.

< ATEX Marking >



< IECEx Marking >



- ① Model name
② Certificate No.

- ③ Increased safety gread
④ Intrinsic safety gread

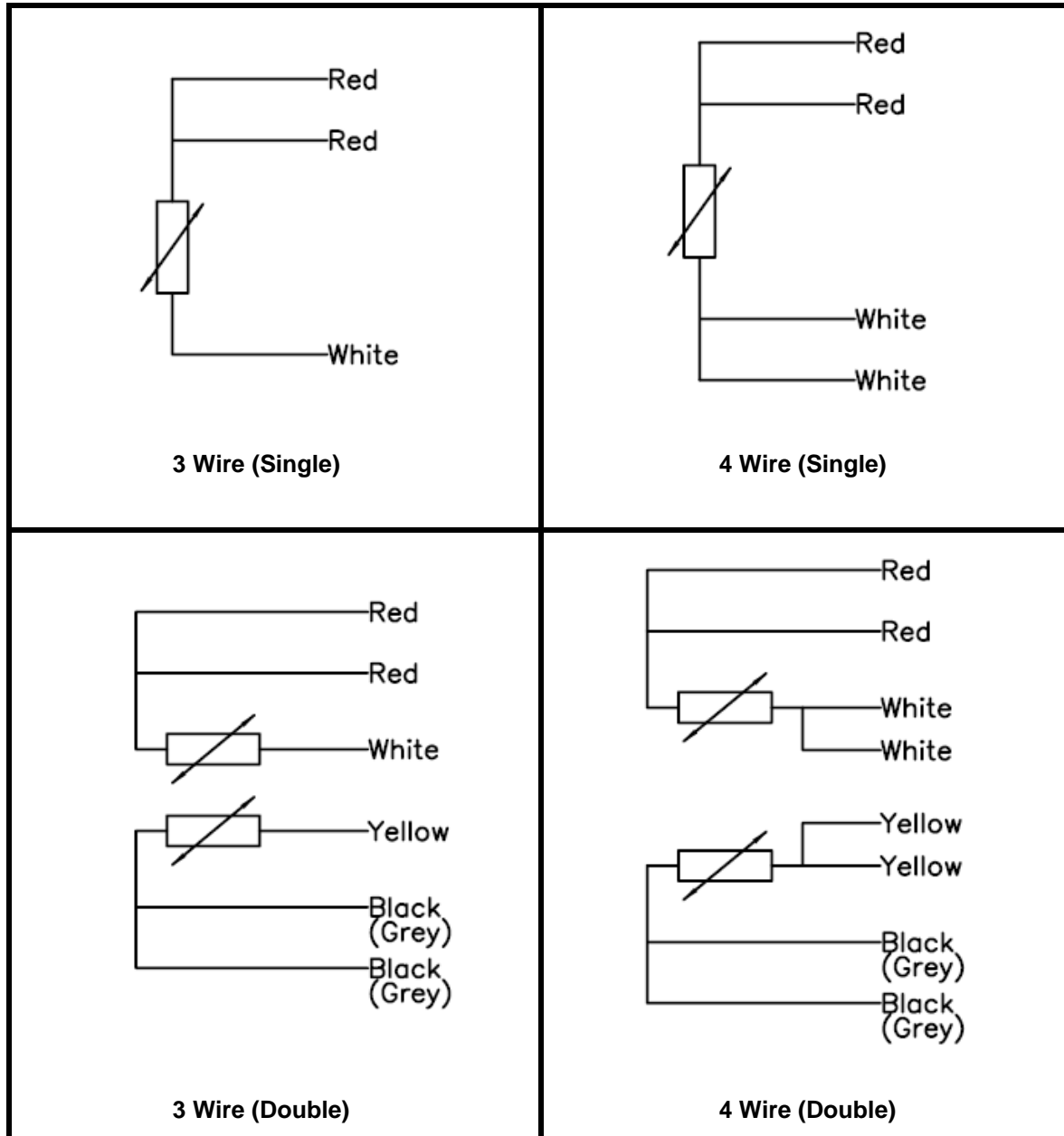
- ⑤ Maker
⑥ CE Marking

7. Electrical connection

Please refer to below picture to connect the product.

Extension lead wire color shall be different as per customer's requirement.

< Extension lead wire color : According to "BS EN 60751:2008 and IEC 60751:2008" >



- 1) Extension cable must share the same specification with Stator Winding RTD
- 2) Wire size of extension cable must be considered with voltage flow.
- 3) Extension cable should be protected from damages such as cutting.
- 4) Stator Winding RTD cable must be chosen by 3 wire, and 4 wire accordingly, and the end wire must be grounded.

※ It must be ensured with this instrument that the power feed occurs using an approved intrinsically safe power supply of the category [Ex ia] IIC. The electrical parameters supplied to each temperature

sensing element in the body (sensor assembly) shall be limited within maximum permissible entity parameters(U_i , I_i) and the total power supplied to all temperature sensing elements in the body shall be limited within maximum permissible entity power(P_i).

For use in explosion risk areas, attention must be paid so that an unallowable electrostatic charging of the temperature sensor is avoided.

8. Installation

- 1) Install the Winding RTD in between wires of a mild and large motor and of a power generator.
- 2) It is recommended that six sensors per motor be installed. Install two sensors per phase.
- 3) For the best performance, it is recommended that the product be installed in the most heating part of a motor and a power generator.
- 4) Please be careful for any strong impact during installation. After installation, check if the Stator Winding RTD works well.

9. Attention for transportation, storage, and unpacking

(1) Attention for transportation

An impact by falling can cause damage to its performance. Therefore, please be greatly careful for transportation.

(2) Attention for storage

Please keep it away from humidity, vibration, and dust.

In the case of double-loading, it should weigh too much to transform a packaging box.

Please be always careful about not making it fall.

(3) Attention for unpacking

In the case of unpacking, please be careful about handling and treating the product.

10. Storage

- (1) Please install in a less humid place with small corrosive gas.
- (2) Please DO NOT install in a place whose temperature exceeds the temperature defined in this Manual.
- (3) Please make enough preparation to prevent lightning and vapor.
- (4) Please keep it away from a place with direct rays of light.
- (5) If mounting kits & accessories are used, please install them firmly.
- (6) For extension and cable, end wire should be used with compressed terminal, and use screw to secure the wire.

11. Wiring

- (1) Please be careful about not overworking the main body.
- (2) Please use vinyl insulated electric wire and cabtyre cable fitting load.
- (3) Please firmly wire the terminal block by using M4 compression terminal.

- (4) Please check the connection point type displayed in the connection diagram before wiring.
- (5) If a cable entry with Conduit type is used, then please use waterproof sealing fitting.
- (6) If a cable entry with cable gland type is used, then please waterproof cable gland.

12. Maintenance

- 1) The general safety of facility often depends on the reliability of indications on the temperature sensor installed in the facility, thus any temperature sensor that seems to be abnormal must be maintained by periodic testing if necessary confirmation of temperature sensor accuracy should be maintained by periodic testing
- 2) Verification and recalibration must be carried out by appropriate test equipment and qualified personnel.