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CKD

SM-277346-A

NSTRUCTDN MANUAL

PARECT ELECTRO- PNEUMATC REGULATOR

ER100

- Please read this instruction manual carefully before using this product, particularly the section describing safety.
- Retain this instruction manual with the product for further consultation whenever necessary.

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For Safety Use

To use this product safety, basic knowledge of pneumatic equipment, including materials, piping, electrical system and mechanism, is required (to the level pursuant to JIS B 8370 Pneumatic System Rules).

We do not bear any responsibility for accidents caused by any person without such knowledge or arising from improper operation.

Our customers use this product for a very wide range of applications, and we cannot keep track of all of them. Depending on operating conditions, the product may fail to operate to maximum performance, or cause an accident. Thus, before placing an order, examine whether the product meets your application, requirements, and how to use it.

This product incorporates many functions and mechanisms to ensure safety. However, improper operation could result in an accident. To prevent such accidents, **read this operation manual carefully for proper operation.**

Observe the cautions on handling described in this manual, as well as the following instructions:

⚠ DANGER : Failure to pay attention to DANGER notices may cause a situation that results in a fatality or serious injury and that requires urgent addressing.

⚠ WARNING : Failure to pay attention to WARNING notices may result in a fatality or serious injury.

⚠ CAUTION : Failure to pay attention to WARNING notices may result in injury or damage to equipment or facilities.

※1)IS0 4414 :Pneumatic fluid power・・・Recommendations for the application of equipment to transmission and control systems.

※2)JIS B 8370:General rule for pneumatic systems

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DESIGN AND SELECTION

⚠ CAUTION

1) Inferior quality air will deteriorate the product characteristics and affect its durability badly. Use an air dryer, filter and sub micron filter to eliminate solid material, moisture and tar and thus provide clean air from the pressure source.

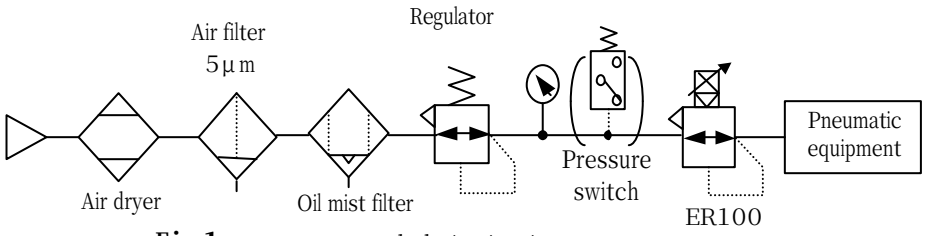

Fig 1 Recommended air circuit

In the case where the secondary side air pressure is reduced, the secondary side air flows through the model ER100 and will be discharged from the exhaust port. The inside of the secondary piping and that of the load side should be kept clean. Otherwise, similar conditions such as deteriorated product characteristics result.

2) The products response capability will be affected by the working pressure and load volume. When a stable response is required, regulate the working pressure.

3) When the product is used with the secondary side being opened to the atmosphere as in the case of air blowing, air pressure may vary depending on conditions of piping and air blowing. In such a case, be sure to test the product under actual using conditions or contact us in advance.

4) Select only the dryer, air filter, oil mist filter and regulator having the flow rate higher than that used for PARECT units.

5) Maximum current consummation of the voltage input type unit is 20mA or less for the model ER150, and 25mA or less for the model ER170.

MOUNTING, INSTALLATION AND ADJUSTMENT

⚠ CAUTION

1) Basically, the attitude of installation shall be vertical (i.e., the black portion of the coil should face upward). In the event of the horizontal installation, the unit should be re-adjusted for zero point as well as span.

2) Install the unit in a place where the vibration is $2m/s^2$, 10Hz or less.

3) Avoid operating the product in places where it may be affected by direct sunlight, water or oil.

4) Flush air into the pneumatic pipes employed in the PARECT electro-pneumatic regulator before connection

5) The model ER100 always bleeds the secondary air pressure from the relief hole provided on the side, generating a bleeding sound. This bleeding sound is normal although it grows as the secondary side pressure increases.

6) For the input signal specifications, the model ER100 is available in the voltage input type (0 to 10V) and the current input type (4 to 20mA). Check the type of your model before use.

USAGE AND MAINTENANCE

⚠ WARNING

1) When the primary side pressure is applied to the unit, do not loosen the screw securing the orifice. Otherwise, the orifice will fly out.

2) Do not disassemble the unit because it will fail. Operations of the disassembled unit will not be guaranteed.

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ER100 Series

PARECT Electro-pneumatic Regulator

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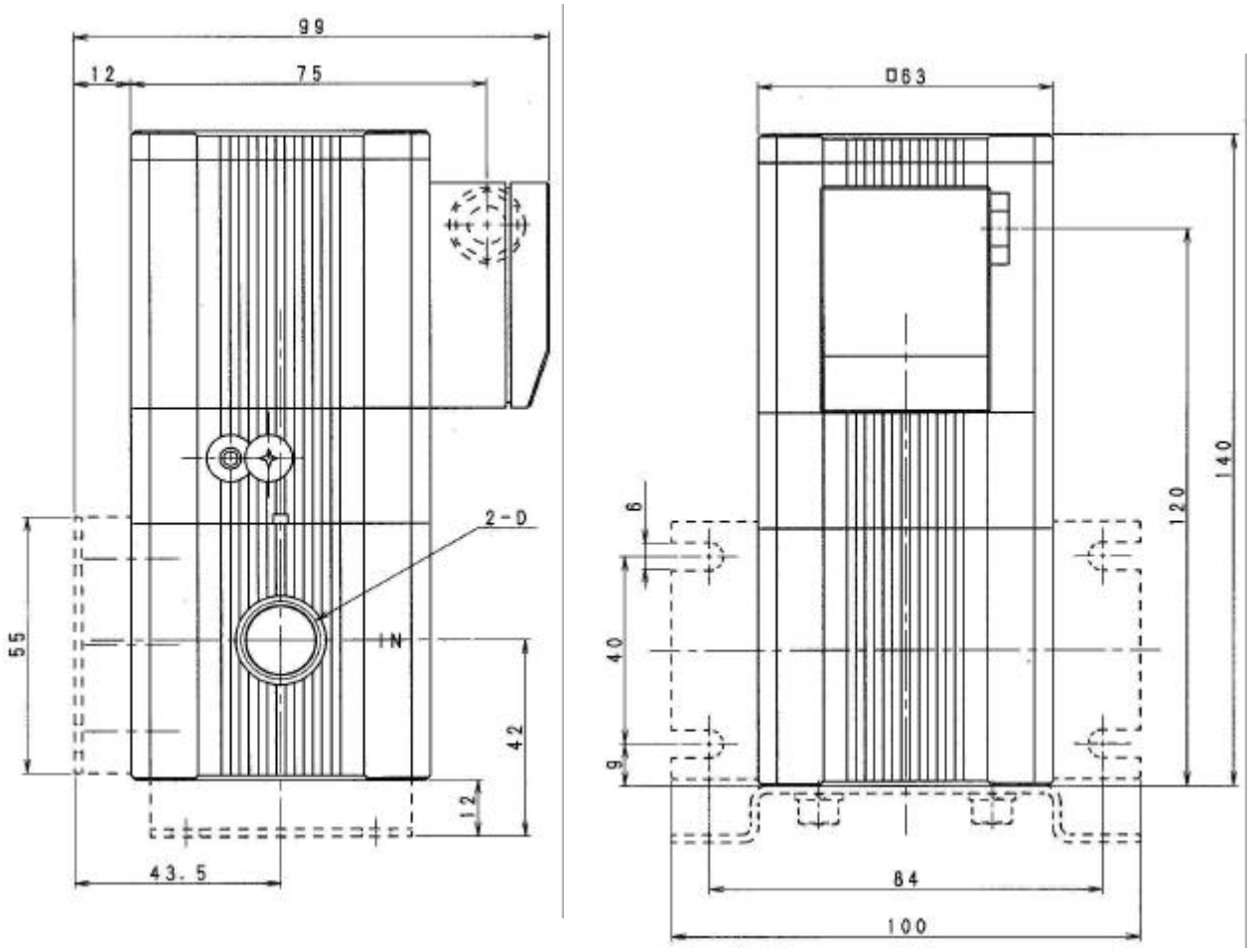
1.PRODUCTS

1.1 Specifications

Model / Item			ER150	ER170
Media (Refer to CAUTION)			Cleaned air	
Working pressure range			0.39 - 0.78MPa	
Pressure control range ※1			0.0098 - 0.49MPa	0.0098 - 0.69MPa
Input Signal ※2	Voltage 2-wire type	Input Voltage rate	0 - 10VDC	0 - 10VDC
		Input impedance	400Ω	500Ω
	Current 2-wire type	Input current rate	4 - 20mADC	
		Input impedance	250Ω	
Insulation resistance			100MΩ (DC100V)or more	
Hysteresis			3%F.S. or less	
Linearlity			±1.5%F.S. or less	
Maximum flow ※3			1500L/min(ANR)	
Step response ※4			0.8s or less (at no load)	
Air consumption			15L/min(ANR) or less	20L/min(ANR) or less
Withstanding vibration			2m/s² or less (10Hz)	
Working temperature range			5 - 50°C	
Mounting attitude			The black portion of the coil should face upward (In the event of the horizontal installation, the unit should be re-adjusted for zero point as well as span.)	
Dimensions			See to 1.2 Dimensions	
Port size			Rc1/4、3/8	
Mass			1.5kg	

※1. Working pressure : Max. control pressure+0.098MPa
※2. ER170is voltage input signal type only.
※3. Working pressure : Max. control pressure+0.098MPa,
Control Pressure : Max. control pressure
※4. Working pressure : Max. working pressure, step rate :0%F.S.→100%F.S.

1.2 Dimensions



Port size (D)
Rc 3/8
Rc 1/4

Fig2 Dimensions

2. INSTALLATION

2.1 Installation Position

Basically, the attitude of installation shall be vertical (i.e., the black portion of the coil should face upward). In the event of the horizontal installation, the unit should be re-adjusted for zero point as well as span.

When a special bracket is used, the unit can be installed on the floor or on the wall, as shown in Fig.2.

2.2 Wiring

For electrical wiring, remove the cap of the terminal box as shown in Fig.3.

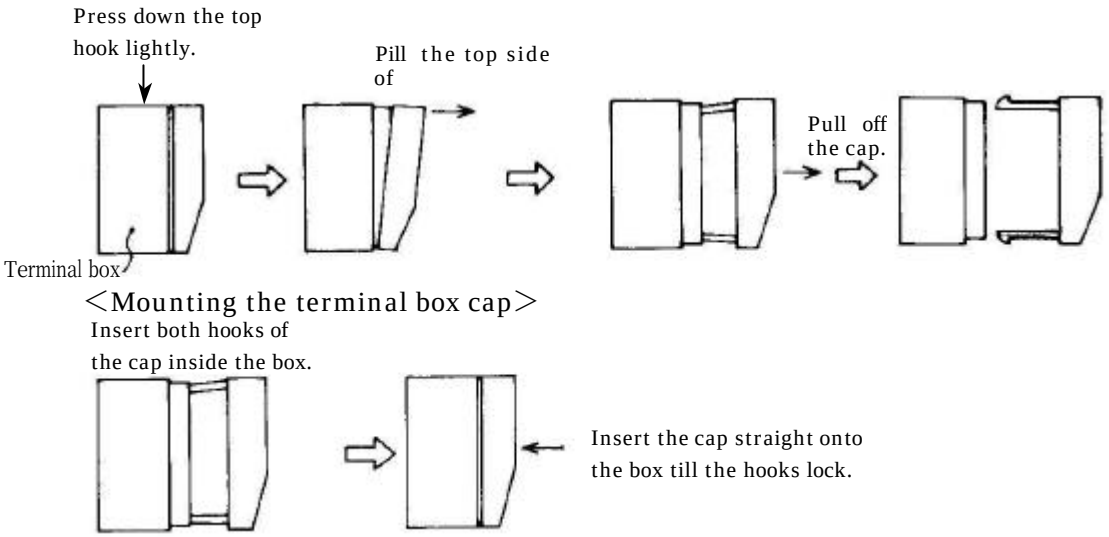


Fig 3

Connect (+) and (-) of the input signal from other unit, etc. to the terminal box of the model ER100 unit, as shown in Fig.4.

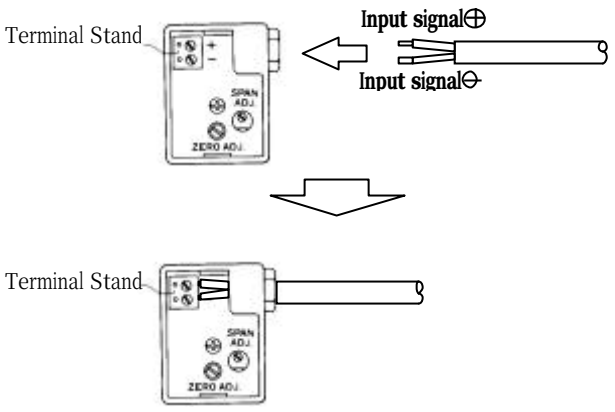


Fig 4

Use cabtyre cord (2-conduit type) of φ6 O.D. which enables to fix lead wire with a cable packing.

3. INSTALLATION

3.1 Adjustment

Factory adjustment is given prior to shipment so adjusted for upright installation (coil riding atop of regulator).

Zero and Span adjustment at factory

Model	Zero (MPa)	Span (MPa)
ER170	0.01	0.69
ER150	0.01	0.49

When it is required to mount it otherwise or to control pressure with higher accuracy, give a zero adjustment (0.01MPa) in accordance with the following procedures after mounting a pressure gage of accuracy commensurating with the accuracy expected on the secondary side.

A span adjustor is attached to the electro-pneumatic regulator for the purpose of adjusting the set pressure at the maximum rating of input electric signal. Making use of this, the conversion between input signal voltage and set air pressure is done easily. Make span adjustment, as same principle as that of zero adjustment, while watching the mounted high accuracy pressure gage commensurating with that of expected.

Span adjustment range : ER170 0.39 - 0.69MPa (Working pressure:0.79MPa)
:ER150 0.34 - 0.49MPa (Working pressure 0.59MPa)
However, it varies depending upon working pressure

Procedure－1 Adjust operational pressure.(primary side).

Procedure－2 Zero point adjustment

After fixing electro-pneumatic regulator, adjust the set pressure to 0.01 MPa while voltage keeping the circuit short. Pressure is set higher when the adjustor is turned clockwise with "－"driver.

Procedure－3 Span adjustment

Apply the rated voltage or current (DC10V or DC20mA) to set the span adjustment up to the required pressure.(Set the maximum pressure equal to supplied pressure less 0.1 MPa or lower.) Pressure is set higher when the span adjustor is turned clockwise with a minute "－"driver.

Note Beware the adjustment reflects to the output pressure broadly because of being a sensitive equipment. Cautiously adjust it.

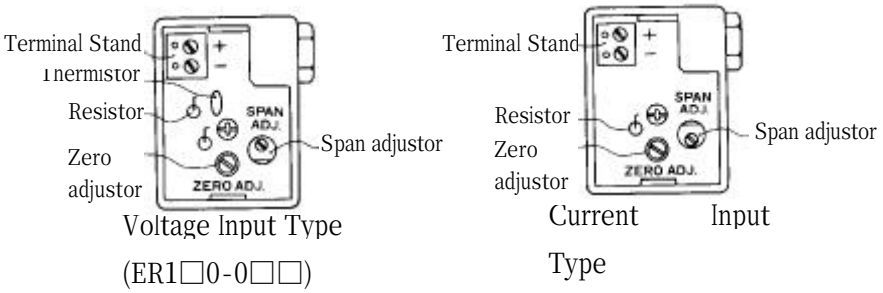


fig 5

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MODEL

4. HOW TO ORDER

ER1Ⓐ 0 — Ⓑ Ⓒ — Ⓓ

Symbol	Optional blacket
No symbol	Nothing
B	Blacket attached

Symbol	Port size
08	Rc 1/4
10	Rc 3/8

Symbol	Input signal
0	0 - 10VDC
2	4 - 20mADC

Symbol	Pressure control range
5	0.0098 - 0.49MPa
7	0.0098 - 0.69MPa