

**Multifunction  
Pulse-to-Pneumatic  
Pressure Converter  
Model J-APN11**

**User's Manual**

# Copyright, Notices and Trademarks

---

**©1997-2015 Azbil Corporation All Rights Reserved.**

While this information is presented in good faith and believed to be accurate, Azbil Corporation disclaims the implied warranties of merchantability and fitness for a particular purpose and makes no express warranties except as may be stated in its written agreement with and for its customer.

In no event is Azbil Corporation liable to anyone for any indirect, special or consequential damages, The information and specifications in this document are subject to change without notice.

# For Safe Operation

---

Preface

Safe equipment use requires accurate installation, operation and maintenance. Be sure to read and understand the section on "Important Items" thoroughly before attempting installation, operation or maintenance.


---


Checkup

- Upon arrival, check equipment specifications and ensure there is no damage in transit. Equipment is tested by strict quality control programs before shipment. For oversights in quality or specifications, contact Azbil Corporation, providing equipment information and serial No.
  - The nameplate is on the top of the case.
- 

Message Con-  
ventions



This manual uses the following message conventions:

 **Warning** Personal injury could occur if procedures are not followed closely.

 **Caution** Minor personal injury could occur if procedures are not followed closely. Inconvenience such as equipment damage could occur if procedures are not followed closely.

---

Other indications



	<p>An illustration in a white circle with a back slash ○ indicates an action to avoid. A detailed explanation of the action is given in the circle or near the mark.</p>
	<p>An illustration in a black circle ● indicates an instruction regarding a specific action to avoid. A detailed explanation is given in the circle. The illustration at left means to pull the plug from the socket.</p>






---

# Notes on Handling



---




Notes  
on Installation

 <b>Warning</b>	
	• Do not use equipment outside the range determined in the specifications. Serious accident could occur.

 <b>Caution</b>	
	• After installation, do not step or climb on this product. Equipment may be damaged or personal injury occur.
	• Do not press or hit door glass. Glass may be broken or personal injury occur.
	• Ground correctly. Incomplete grounding violates rules and may cause output errors.
	• Equipment is heavy. Wear safety shoes.

Notes on  
Wiring

 <b>Warning</b>	
	• Electrical shock may occur if working with wet hands or power on.

 <b>Caution</b>	
	• Perform wiring according to wiring specifications. Incorrect wiring may damage equipment or lead to operation errors.
	• Operate the power supply according to specifications. Incorrect operation may damage equipment.

Notes on  
Maintenance

 <b>Caution</b>	
	• Do not modify equipment. Modification may damage equipment.

---

# Contents

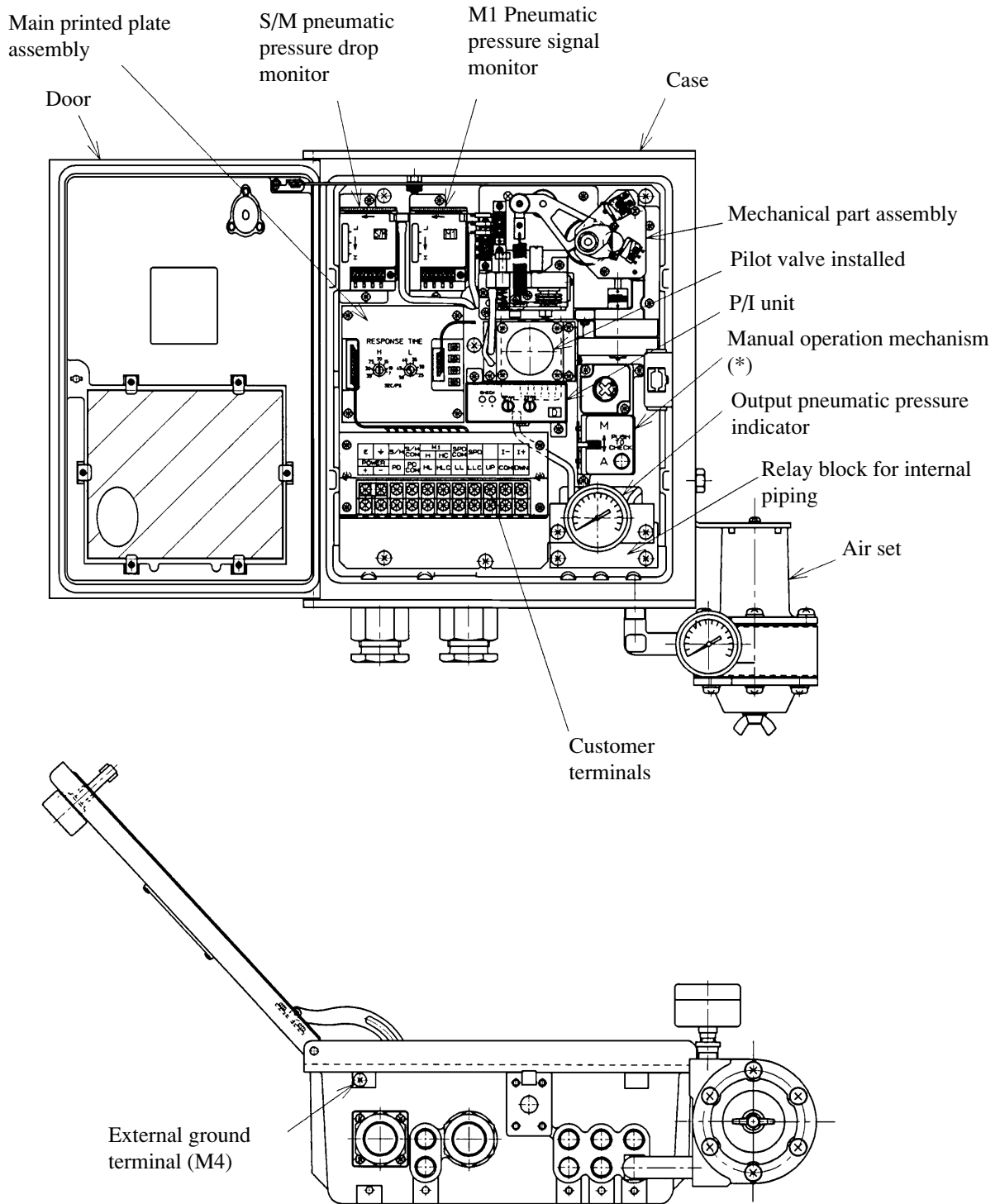
1. Outline .....	1-1
2. Converter Configuration and Parts .....	2-1
3. Installation and Operation .....	3-1
3-1 Installation .....	3-1
3-2 Operation .....	3-1
3-3 Connection .....	3-2
3-4 Wiring Procedure .....	3-3
4. Adjustment and Setting .....	4-1
4-1 Preparation .....	4-1
4-2 Adjustment of Pneumatic Pressure Output (Figure 4-2) .....	4-2
4-3 Adjustment of Current Output (Figure 4-3) .....	4-4
4-4 Setting Pneumatic Pressure Monitor .....	4-5
4-5 Setting Output Speed .....	4-6
4-6 Manual Operation (with A/M switch) .....	4-7
5. Parts List .....	5-1
6. Maintenance .....	6-1
6-1 Regular Maintenance .....	6-1
6-2 Periodical Maintenance and Checking .....	6-1

## 1. Outline

The J-APN 11 Multifunction Pulse-to-Pneumatic Pressure Converter responds to up (upward) and down (downward) pulse signals. It drives pulses and a (four-phase) motor to send out pneumatic pressure signals of 20 to 100[kPa] and current signals of 4 to 20 [mA] DC via a nozzle and a flapper mechanism.

In case of power failure, the converter automatically keeps the pneumatic pressure signal at its pre-failure position (provided that the pneumatic source is in normal operation).

## 2. Converter Configuration and Parts



(\*): If manual operation is not used, a pneumatic pressure signal monitor (M2) can be installed.

Figure 2-1 Converter configuration and parts

### 3. Installation and Operation

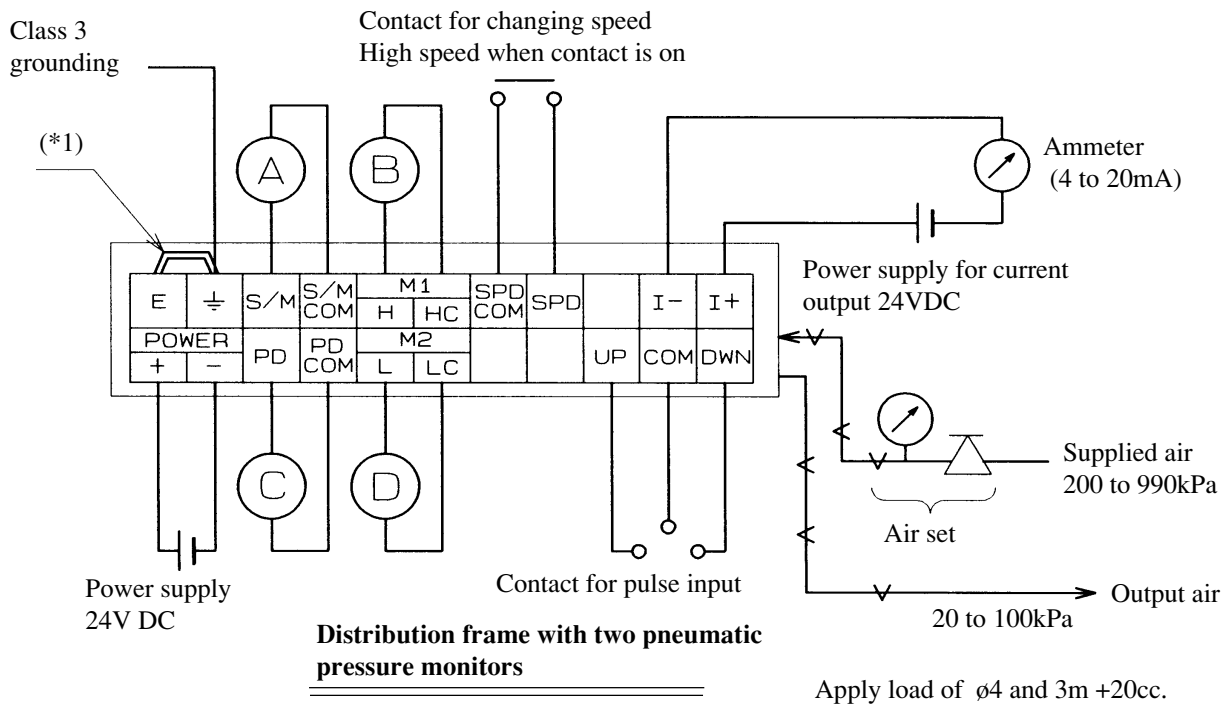
#### 3-1. Installation

Mount the converter securely on a 2-inch pipe or on a wall. (refer to Specification Sheets :SS2-APN100-0100, the figure for external dimensions.)

#### 3-2. Operation

Complete wiring and piping according to Figure 3-2-1. Warm up the converter for about 30 minutes before operating.

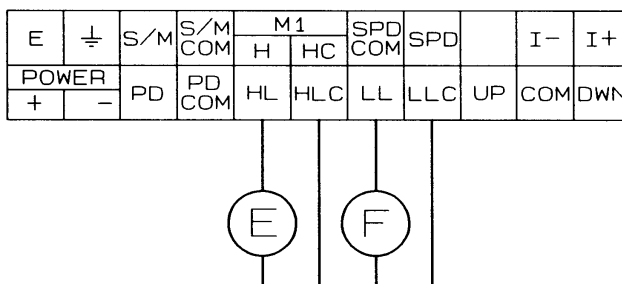
For air supply, please use the prescribed instrumentation air.



#### Contacts

- A: Supplied air drop monitor
- B: Output pneumatic pressure signal monitor (high)
- C: Power supply down monitor
- D: Output pneumatic pressure signal monitor (low)
- E: High
- F: Low

(\*1): Remove jumper plate when testing withstand voltage or insulation resistance.



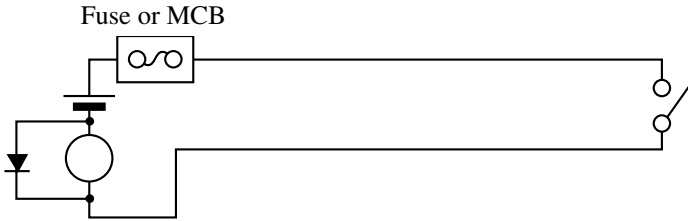
**Distribution frame with limit contact output**

**Figure 3-2-1 Customer terminal wiring and air piping**



**3-3. Connection**

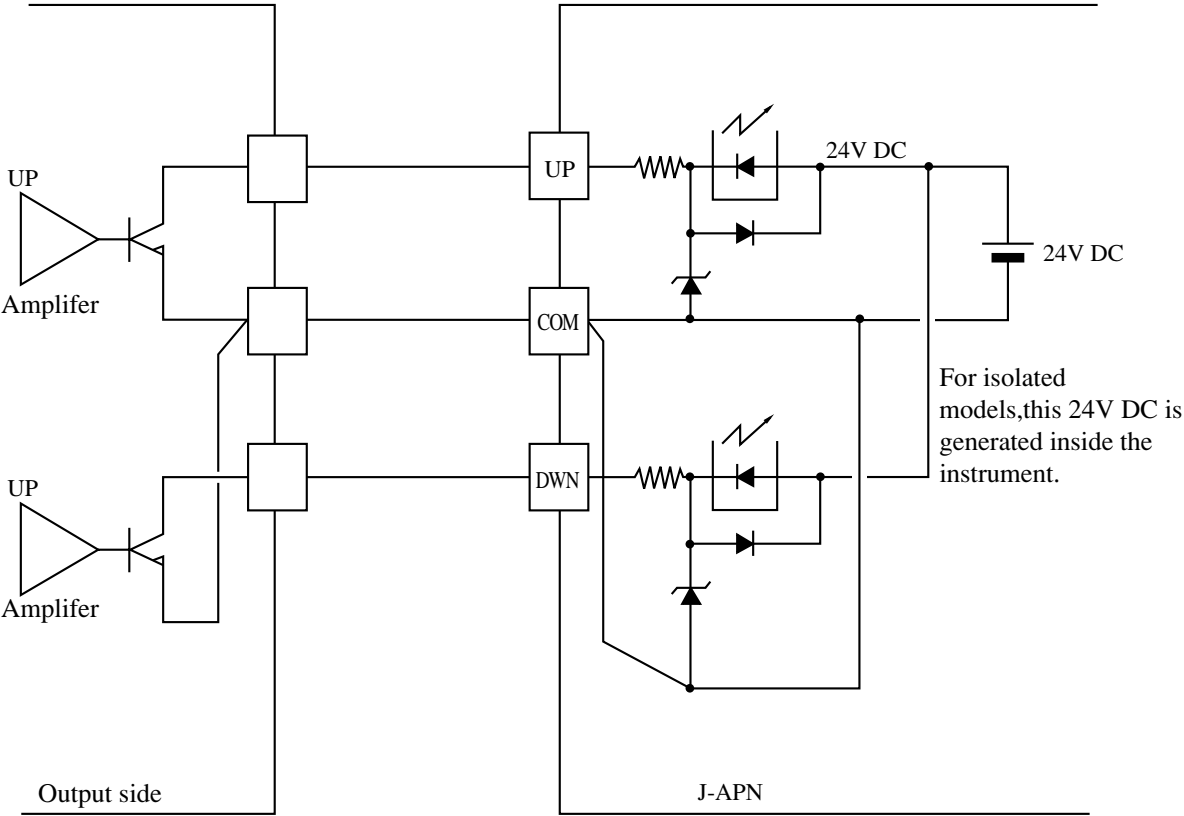
(a) Contact output



**Figure 3-3-1**

Combine the contact with a surge suppression device for safety.

(b) UP/down signals



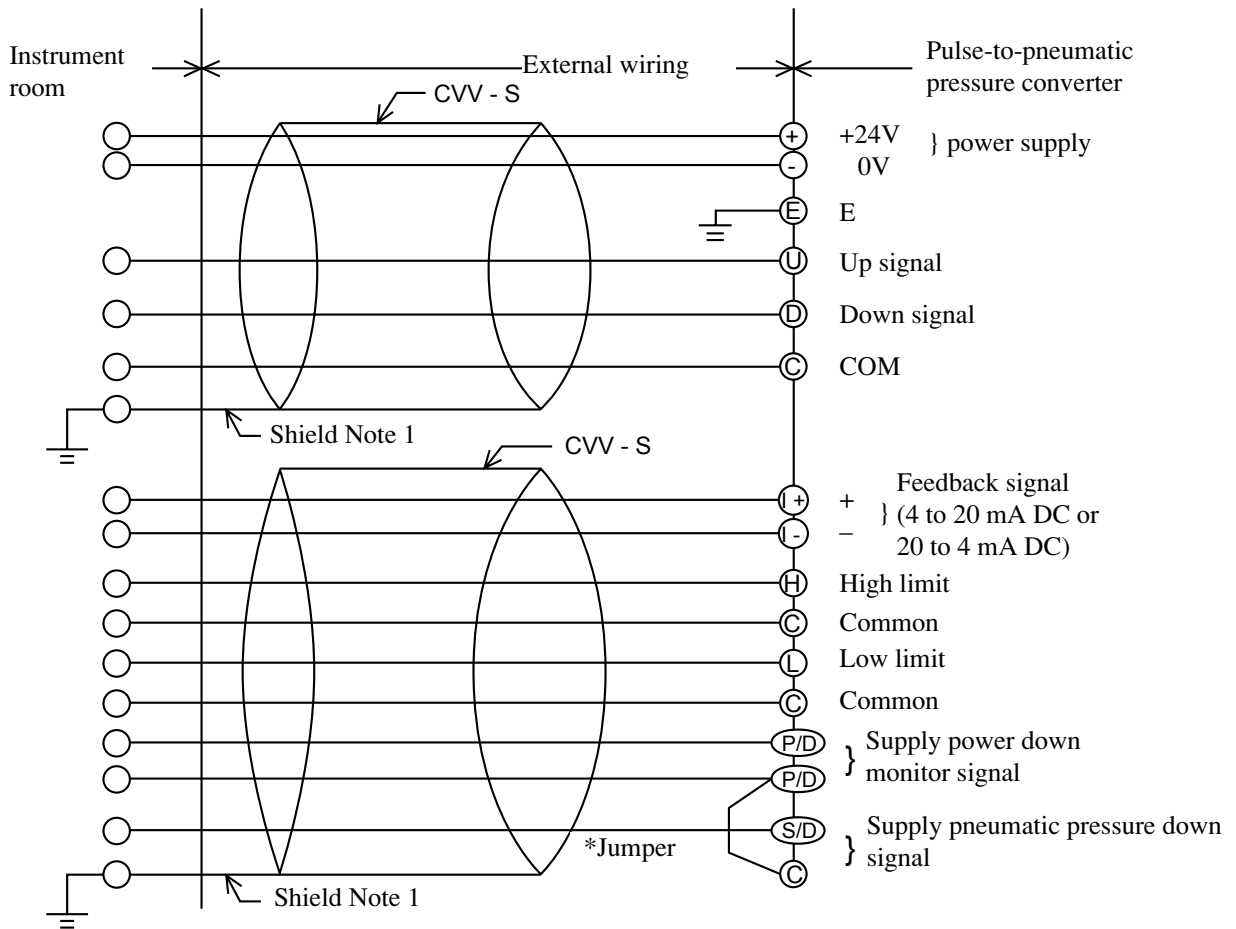
**Figure 3-3-2 Connection method**

Open collector output is desirable for up/down signals.

For contact output, use a mercury relay.

### 3-4. Wiring Procedure

- 1) Recommended wiring for pulse width input



Note 1: Ground the cable shield only on the instrument room side (Class 3 or higher).

Note 2: Install the jumpers on the external wiring.

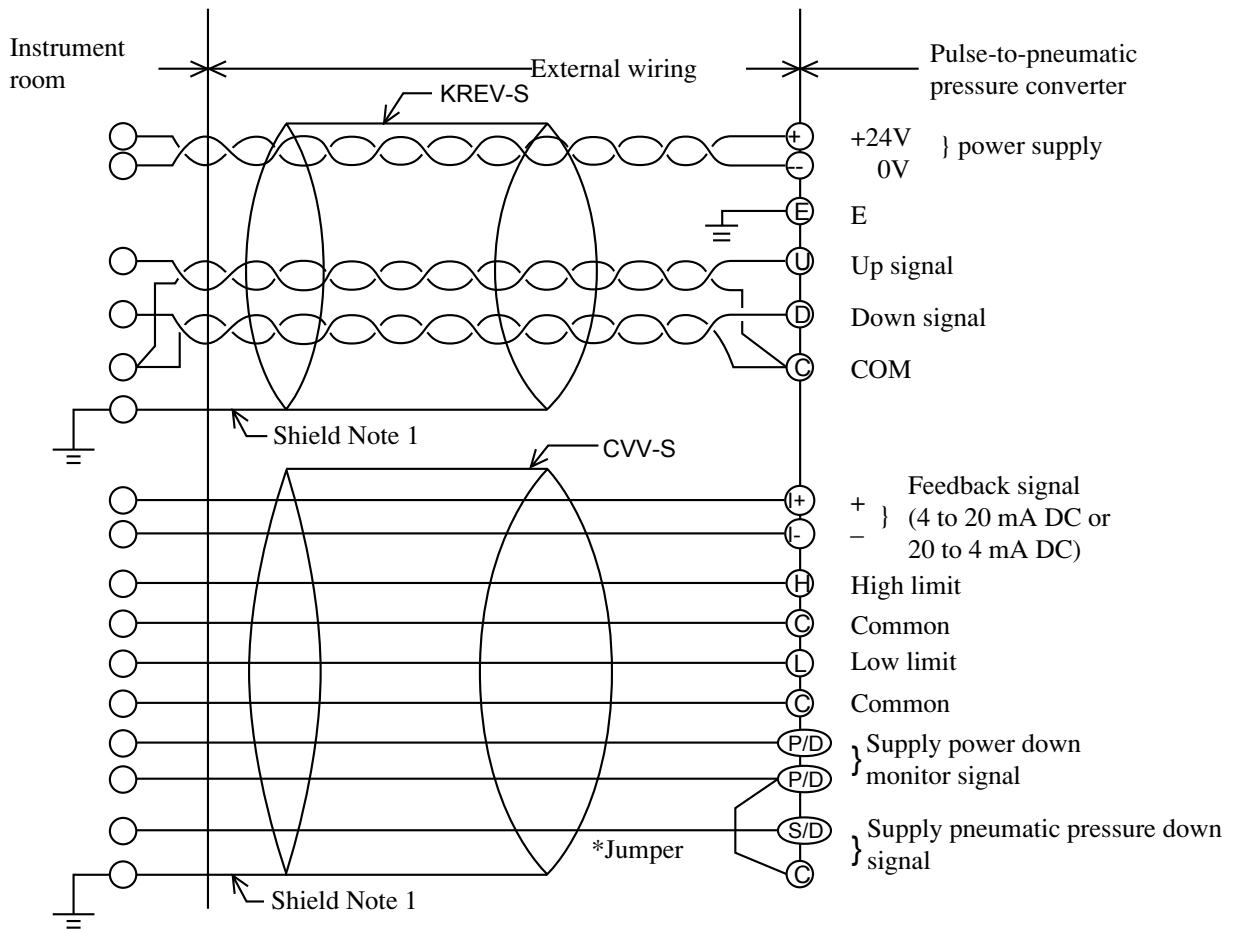
Note 3: Although a large number of additional functions can be selected on the pulse-to-pneumatic pressure converter, the number of external wires may be limited depending on the conduit dimensions. The cable shapes and the number of wire cores should be your guides when selecting functions.

Note 4: Ground the main unit to Class 3 or higher.

**Figure 3-4-1 Wiring Procedure (for pulse width input)**

2) Recommended wiring for pulse train input

Use KPEV-S for up and down signals and CVV-S for other signals.



Note 1: Ground the cable shield only on the instrument room side (Class 3 or higher).

Note 2: Install the jumpers on the external wiring.

Note 3: Although a large number of additional functions can be selected on the pulse-to-pneumatic pressure converter, the number of external wires may be limited depending on the conduit dimensions. The cable shapes and the number of wire cores should be your guides when selecting functions.

Note 4: Ground the main unit to Class 3 or higher.

**Figure 3-4-2 Wiring Procedure (for pulse train input)**

### 3) Recommended cables

#### Up and down signals

Pulse train input cable : KPEV-S.

Pulse width input cable : CVV-S.

Signals other than up and down signals : CVV-S.

#### ① KPEV-S cable specifications

(Used for up and down signals for pulse train input)

Polyethylene insulated vinyl sheath cable for shielded instrumentation

Performance :

Conductor : twisted soft copper wire for electrical use (JIS C 3102)

Insulator : polyethylene

Pair twisting : two wire cores twisted together at a proper pitch

Structure: 2P × 3, blanket shielding

Electrical characteristics

Conductor : Nominal cross area:	2 mm <sup>2</sup>
Structure :	7 cores/0.6 mm
Conductor resistance :	9.61 ohms/km
Line capacity (reference value) :	0.08 μF
Sheath thickness :	1.5 mm
External diameter :	15.0 mm

#### ② CVV-S cable specifications

(Used for signals other than up and down signals for pulse train input)

Vinyl insulated vinyl sheath cable for shielded instrumentation

Performance :

Conductor : twisted soft copper wire for electrical use (JIS C 3102)

Insulator : vinyl

Structure : 6 cores or 8 cores, blanket shielding

Electrical characteristics

Conductor : Nominal cross area :	2 mm <sup>2</sup>
Structure :	7 cores/0.6 mm
Outside shape :	1.8 mm
Conductor resistance :	9.42 ohms/km
Line capacity (reference value) :	0.12 μF/km
Sheath thickness :	1.5 mm
External diameter :	14.0 to 15.0 mm
	(depends on the number of cores)

4) Outside cable diameter and number of wire cores

**Structure table CVV-S (2-30 × 1.25 mm<sup>2</sup>)**

No. of cores	Conductor		Insulator thickness	Copper tape thickness (approximate)	Sheath thickness	External diameter (approximate)	Approximate mass	
	Nominal profile	Diameter						
	mm <sup>2</sup>	mm						
		Structure						
		Cores/mm					kg/km	
2	1.25	7/0.45	1.35	0.8	0.1	1.5	9.6	120
3	1.25	7/0.45	1.35	0.8	0.1	1.5	10.5	140
4	1.25	7/0.45	1.35	0.8	0.1	1.5	11.0	160
5	1.25	7/0.45	1.35	0.8	0.1	1.5	12.0	190
6	1.25	7/0.45	1.35	0.8	0.1	1.5	13.0	220
7	1.25	7/0.45	1.35	0.8	0.1	1.5	13.0	230
8	1.25	7/0.45	1.35	0.8	0.1	1.5	13.5	260
10	1.25	7/0.45	1.35	0.8	0.1	1.5	15.5	320
12	1.25	7/0.45	1.35	0.8	0.1	1.5	16.0	355
15	1.25	7/0.45	1.35	0.8	0.1	1.5	17.0	420
20	1.25	7/0.45	1.35	0.8	0.1	1.5	19.0	525
30	1.25	7/0.45	1.35	0.8	0.1	1.6	23	750

**Structure table CVV-S (2-30 × 2 mm<sup>2</sup>)**

No. of cores	Conductor		Insulator thickness	Copper tape thickness (approximate)	Sheath thickness	External diameter (approximate)	Approximate mass	
	Nominal profile	Diameter						
	mm <sup>2</sup>	mm						
		Structure						
		Cores/mm					kg/km	
2	2	7/0.6	1.8	0.8	0.1	1.5	10.5	150
3	2	7/0.6	1.8	0.8	0.1	1.5	11.5	180
4	2	7/0.6	1.8	0.8	0.1	1.5	12.0	210
5	2	7/0.6	1.8	0.8	0.1	1.5	13.0	250
6	2	7/0.6	1.8	0.8	0.1	1.5	14.0	290
7	2	7/0.6	1.8	0.8	0.1	1.5	14.0	310
8	2	7/0.6	1.8	0.8	0.1	1.5	15.0	355
10	2	7/0.6	1.8	0.8	0.1	1.5	17.5	430
12	2	7/0.6	1.8	0.8	0.1	1.5	18.0	490
15	2	7/0.6	1.8	0.8	0.1	1.5	19.5	585
20	2	7/0.6	1.8	0.8	0.1	1.6	22	745
30	2	7/0.6	1.8	0.8	0.1	1.7	26	1,080

Packings applicable to waterproof glands

Use one of three kinds : 12,13, and 15 in diameter.



## 4-2. Adjustment of Pneumatic Pressure Output (Figure 4-2)

Perform zero and span adjustments of pneumatic output with mechanical stoppers for upper and lower limits (between the 56T helical gear and base) in contact.

Use the fine-zero adjustment screw and fine-span adjustment nuts on the transmitter.

1) At the lower contact with mechanical stopper

Pneumatic pressure output: 16kPa (-5%F.S.)  $\pm 1\%$ F.S.

2) At the upper limit of contact with mechanical stopper

Pneumatic pressure output: 104kPa (105%F.S.)  $\pm 1\%$ F.S.

Repeat zero and span adjustments until conditions (1) and (2) are met.

- Turn off power and remove the pulse motor connector, so that coupling can be done easily by hand.
- Pneumatic pressure output is measured by connecting a tube to the pneumatic pressure output check plug.

Note 1 : Upper and lower limits are set to  $-3\pm 1\%$ F.S. and  $103\pm 1\%$ F.S. The output value must not exceed the mechanical stopper range.

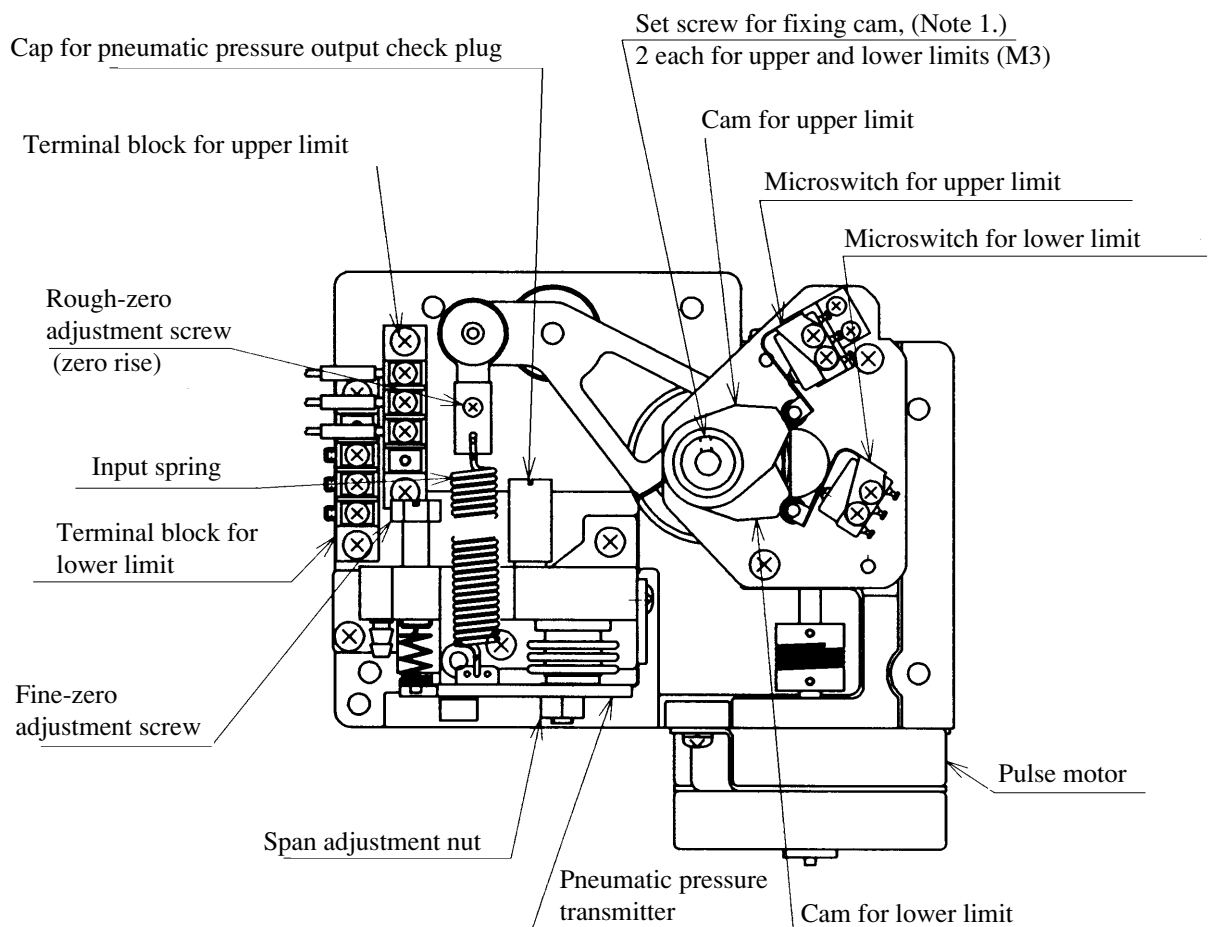


Figure 4-2 Mechanical assembly

#### 4-2-1. Changing contact of limit contact signal

The following are contacts between the limit contact signal terminal block and customer terminal connection cables.

Customer terminal cables

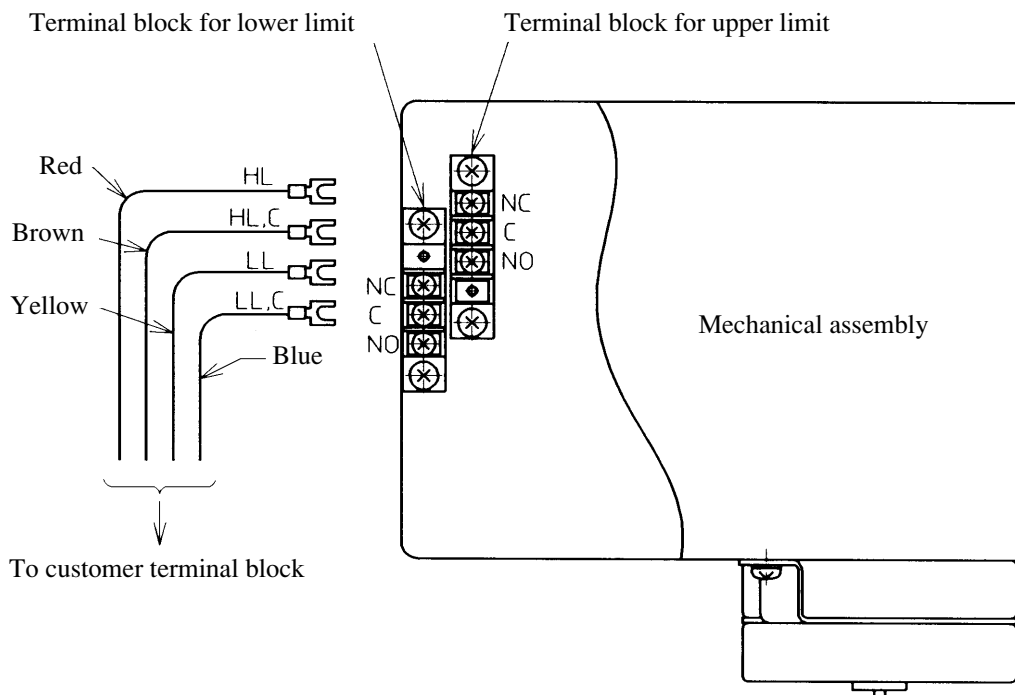
- HL ..... Upper limit contact cable
- HL .C ..... Upper limit common cable
- LL ..... Lower limit contact cable
- LL .C ..... Lower limit common cable

Upper limit contact (terminal block)

- When using at NC (normally closed) (type H or E)
  - HL → NC (terminal board)
  - HL .C → C (terminal board)
- When using at NO (normally opened) (type K or F)
  - HL → NO (terminal block)
  - HL .C → C (terminal block)

Lower limit contact (terminal block)

- When using at NC (normally closed) (type H or E)
  - LL → NC (terminal board)
  - LL .C → C (terminal board)
- When using at NO (normally opened)
  - LL → NO (terminal board)
  - LL .C → C (terminal board)



**Figure 4-2-1 Connecting limit contact signal terminal block with customer terminals**



## 4-3. Adjustment of Current Output (Figure 4-3)

### 4-3-1. For direct feature

Conduct wiring and piping as shown in Figure 3-2-1.

- 1) Adjust input up and down so that pneumatic pressure output is about (\*1) 20kPa (0% F.S.), then zero-adjust the P/I converter to attain current output corresponding to pneumatic pressure output (\*2).
- 2) Adjust input up and down so that pneumatic pressure output is about 100kPa (100% F.S.), then span-adjust the P/I converter to attain current output corresponding to pneumatic pressure output.

Repeat steps (1) and (2) until the specified accuracy is achieved.

For reverse characteristics, start from step (3) below.

(\*1): Pneumatic pressure output cannot be set precisely since it changes with a pulse motor.

(\*2): To calculate the current output corresponding to pneumatic pressure output:

$$I = 4 + \left( \frac{P - 20}{80} \right) \times 16$$

I : corresponding current output      [mA DC]

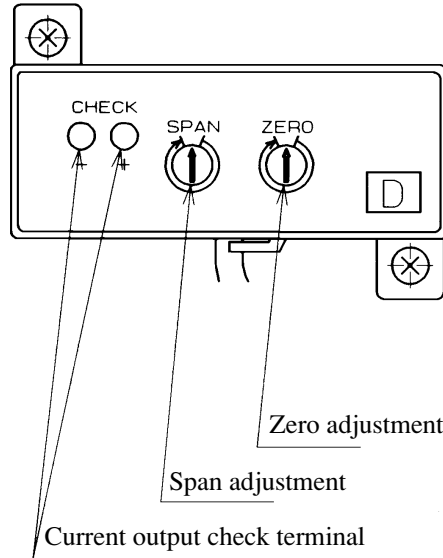
P: pneumatic pressure output      [kPa]

### 4-3-2. For reverse feature

- 1) Set pneumatic pressure output to about 20kPa (0% F.S.). Zero-adjust so that current output becomes 20mA.
- 2) Set pneumatic pressure output to about 100kPa (100% F.S.). Span-adjust so that current output becomes 4mA. (See (2) note (\*2) of Section 4-3-1.)

Repeat steps (1) and (2) until the specified accuracy is achieved.

$$I = 20 - \left( \frac{P - 20}{80} \right) \times 16 \quad (\text{For reverse feature})$$



**Figure 4-3 P/I conversion unit**

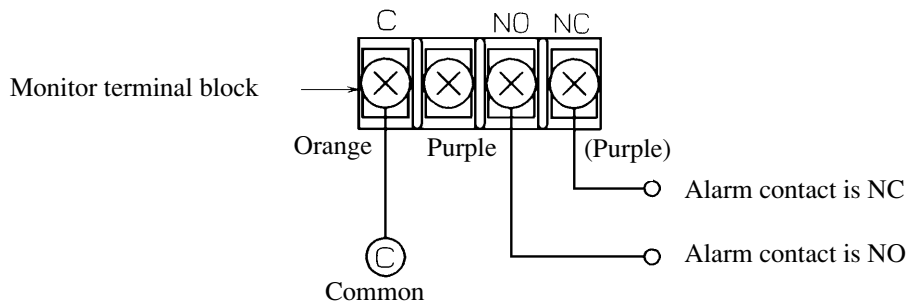
#### 4-4. Setting Pneumatic Pressure Monitor

- 1) For models with both a pneumatic-pressure signal monitor (set at M1 (upper limit):  $90 \pm 1\% \text{F.S.}$ , M2 (lower limit):  $10 \pm 1\% \text{F.S.}$  when shipping) and a supplied-air pressure drop monitor (set at 110kPa when shipping), alarm settings are changed by adjusting the setting wheel on each unit. To raise the set value, turn the setting wheel counterclockwise.

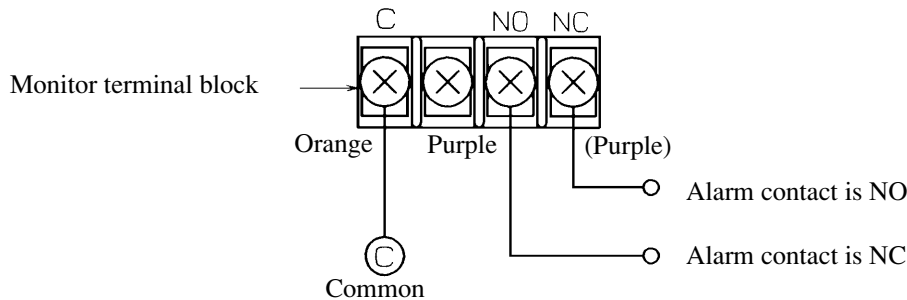
When only one monitor is used, select the upper limit or lower limit alarm.

- 2) Connect the monitor unit terminal and customer terminal connection cable as shown below.

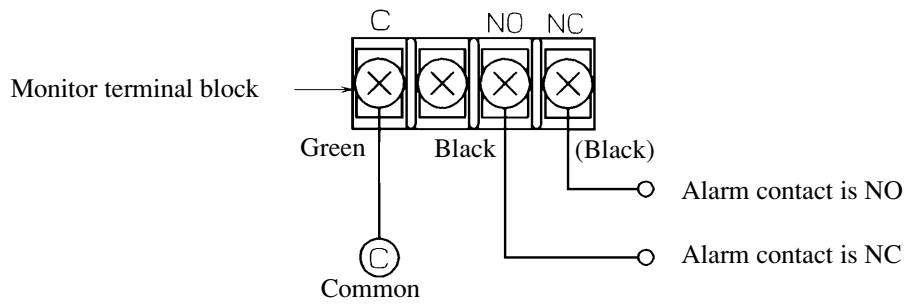
(When used as an upper limit alarm) M1 monitor



(When used as a lower limit alarm) M2 monitor (or when used M1 monitor as a lower limit alarm)



(When used as a supplied pneumatic pressure drop monitor) S/M monitor



#### 4-5. Setting Output Speed

##### 1) Setting high speed output

Turn on the section between the customer terminal block (SPD COM) and (SPD). Adjust the variable resistor for high speed on the main printed plate assembly to set the specified speed.

##### 2) Setting low speed output

Turn off the section between customer terminal block (SPD COM) and (SPD). Adjust the variable resistor for low speed on the main printed plate assembly to set the specified speed.

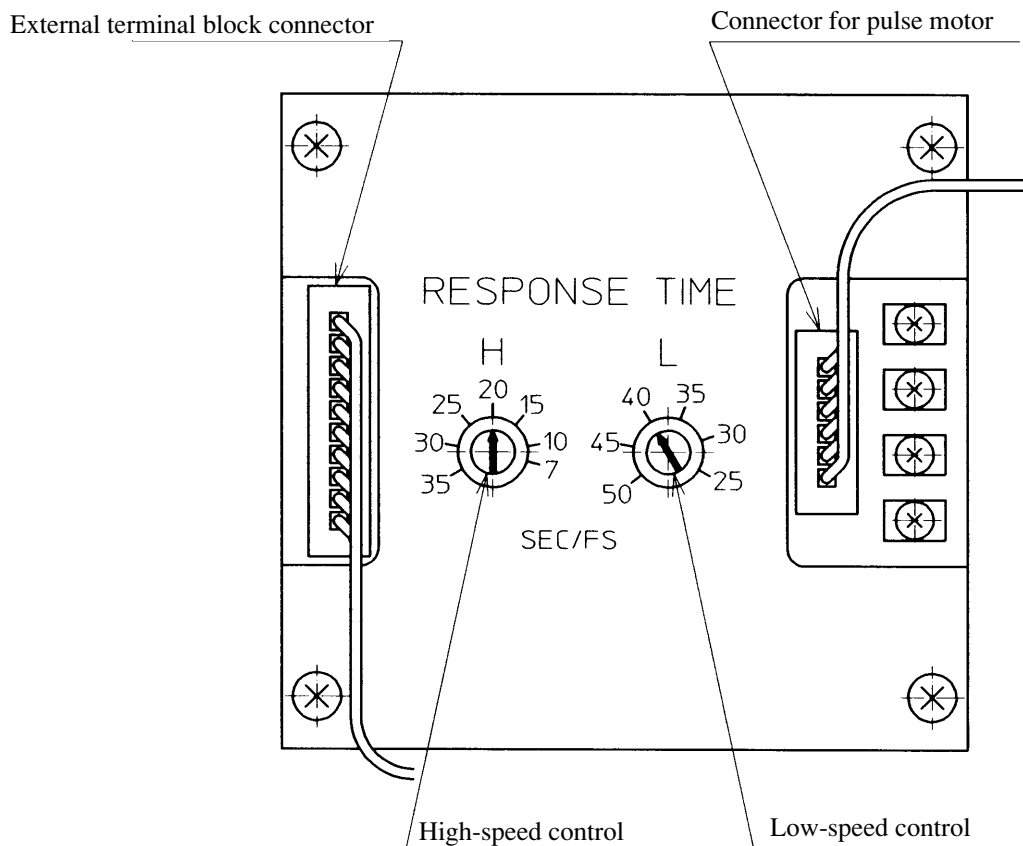


Figure 4-5 Setting output speed

## 4-6. Manual Operation (with A/M switch)

A manually-operated unit has a reducing valve for manual pneumatic-pressure setting and auto/manual switch.

From this unit, switch A →M and M →A following the procedure below.

Under automatic operation (lever set to A), the automatic adjustment output pneumatic pressure is displayed on the output pneumatic-pressure manometer. Pressing the check button displays output (manual adjustment output pressure) of the reducing valve. To switch to manual operation, operate the setting knob of the reducing valve to set the manual output to be the same as the automatic output, then switch the mode.

Under manual operation (lever set to M), the reducing valve output is displayed on the output pneumatic-pressure manometer, and remote operation of the valve is enabled. Pressing the check button displays automatic adjustment output. To switch to automatic operation, set automatic output to the same as manual output, then switch the mode.

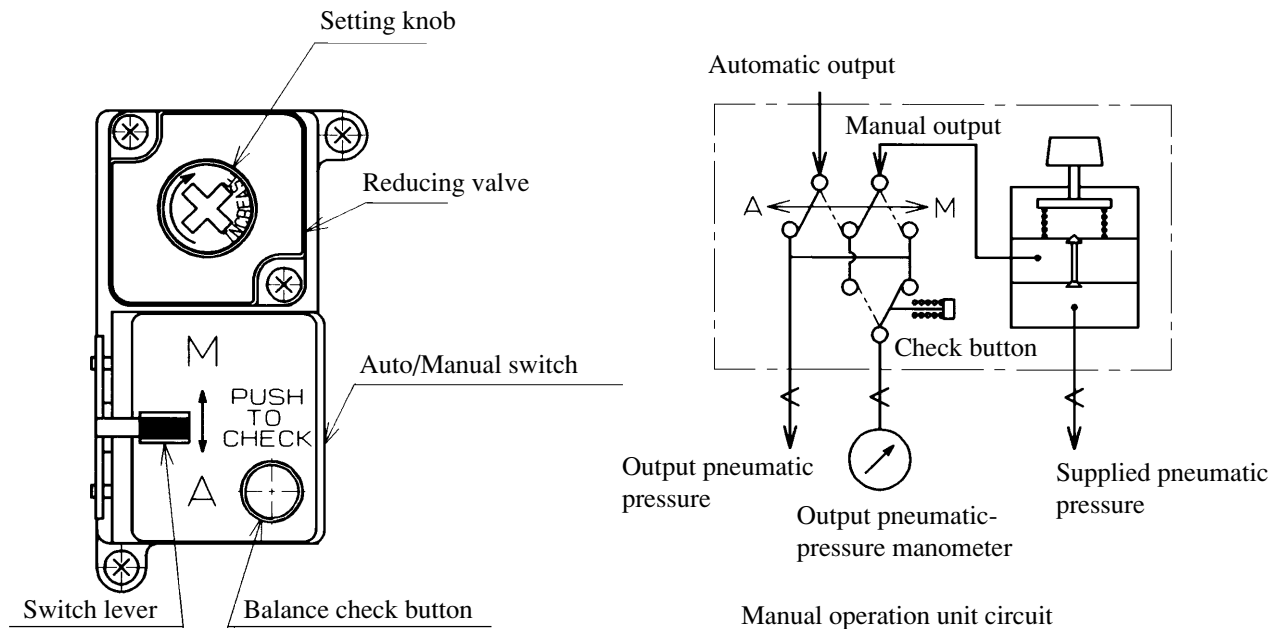


Figure 4-6 Manual operation

## 5. Parts List

KEY NO.	Part No.	Name	Quantity	Recommendation exchange period (years)
1	80345502-ITEM	Case Assembly	1a	10
2	80345454-001	Door Assembly	1a	7
3	80345503-001	Mechanical part assembly	1a	5
4	80345504-001	Pilot valve installed	1a	5
5	80250366-ITEM	Output pneumatic pressure indicator	1a	7
6	80345505-001	S/M pneumatic pressure drop monitor	1a	7
7	80345505-002	Pneumatic pressure signal monitor(M1)	1a	7
8	80345505-003	Pneumatic pressure signal monitor(M2)	1a	7
9	80353282-001	Manual operation mechanism	1a	5
10	80513486-ITEM	KF Air set	1a	5
11	80345506-ITEM	P/I	1a	7
12	80345437-ITEM	Main printed plate assembly	1a	5
13	80345442-ITEM	Customer terminals	1a	7
14	80510478-ITEM	SUS water-proof gland	1	10
	80510497-001	Plastic water-proof gland	1	10

Note 1: "-ITEM" depends on instrument specifications.

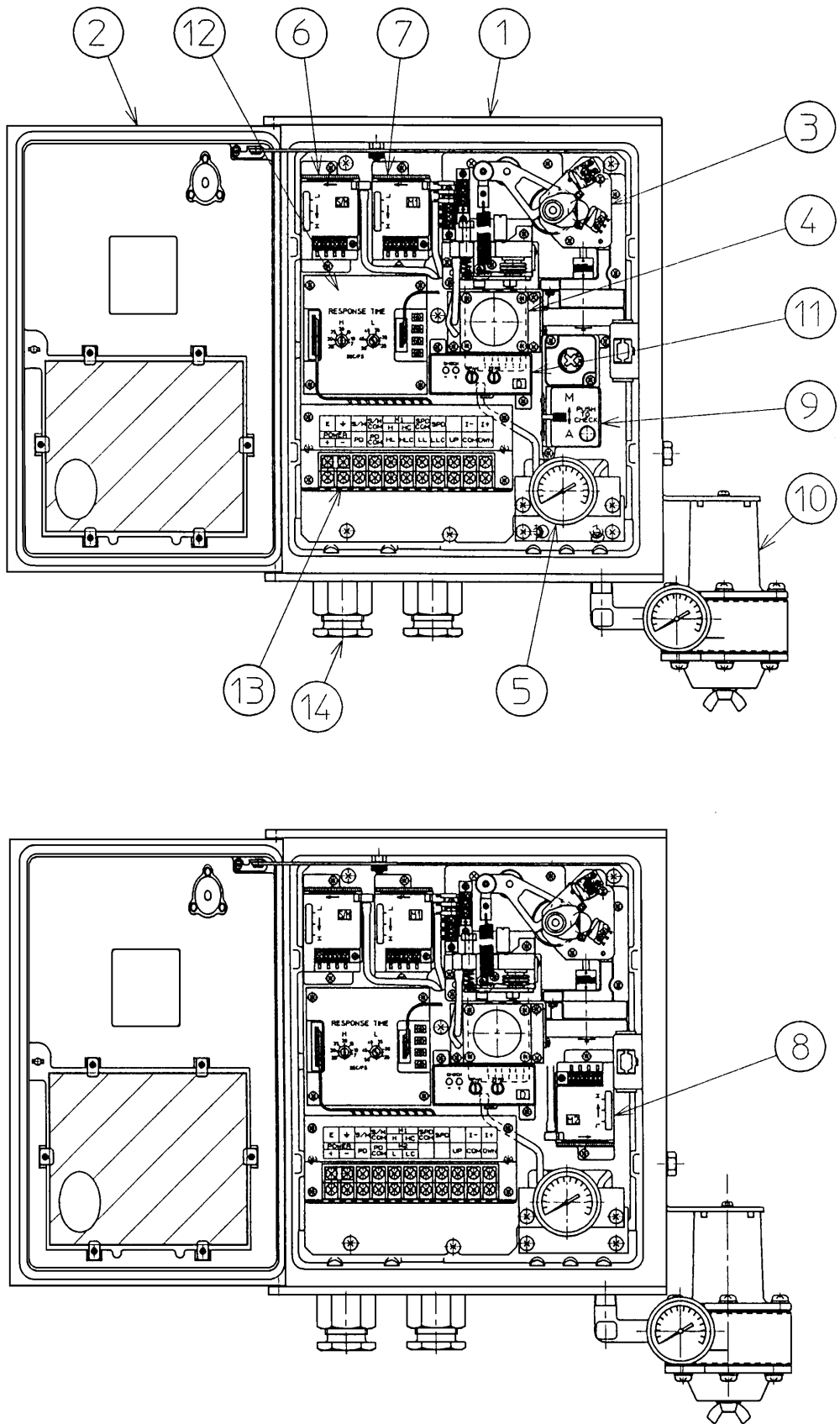


Fig 5-1. Parts key No.

## 6. Maintenance

### 6-1. Regular Maintenance

- 1) Check the supplied air pressure

Keep the supplied air pressure unit clean. Drain unit and check filters regularly. Check the compressor, the air cleaning and dehumidifying unit, and the tank.

### 6-2. Periodical Maintenance and Checking

- 1) Check for air leaks

Make sure that there is no air leak from the air pipe or the connection joints.

- 2) Check the nozzle flapper for staining

Remove stains on the nozzle flapper of the pneumatic pressure sending unit (mechanical parts assembly, see Figure 4-2, with a cloth impregnated with a solvent such as petroleum, naphtha or chlorosene 1, 1, 1-Trichloroethane (Chloroethene). Wipe gently to prevent damage to the flapper beam (plate spring).

- 3) Check the gear mechanism of the pulse motor for wear

Damaged or worn gears, especially the worm gears and worm wheels must be replaced.

- 4) Check the pilot relay (Figure 6-1)

- (1) Remove the pilot relay from the manifold : remove the two screws (14), the spring washers (15), and the gaskets.

- (2) Disassemble the pilot relay : remove the two flat-head screws (13).

- (3) Dismount parts (6) to (12). Parts (2) to (5) need not be dismounted unless they need replacing.

- (4) Clean the metal parts with a solvent such as petroleum, naphtha or chlorosene. 1, 1, 1-Trichloroethane (Chloroethene).

Do not stain the diaphragms with the solvent.

Clean the valve stem (2) on the seal surface and the hole. Let solvent be absorbed by pressing the conic spring (4) to push the valve stem (2) in the compression direction.

- (5) Check the inside of the exhaust ring (10) for stains. If stained, clean with a cloth impregnated with a solvent.

- (6) Dry all the parts with clean compressed air.

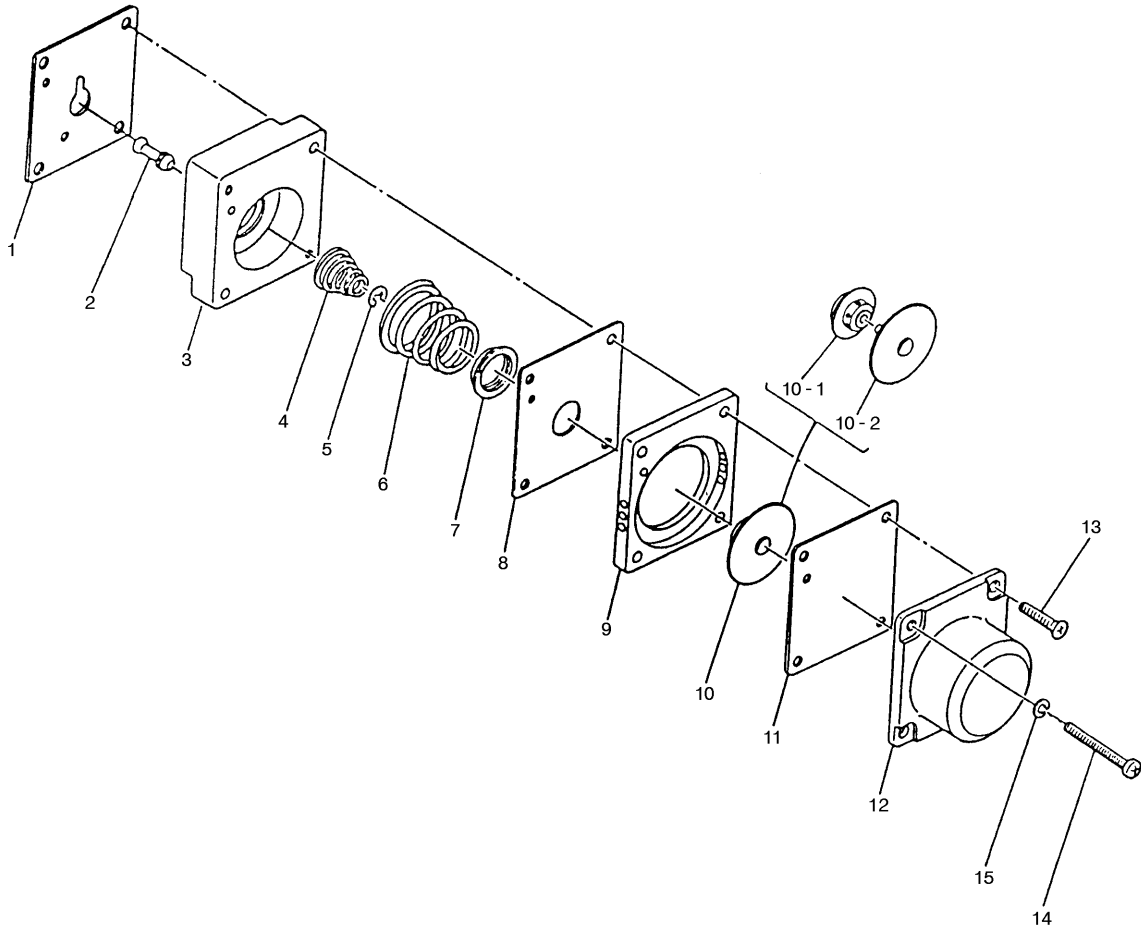
- (7) Replace the rubber diaphragms (8) and (11) if they are worn or damaged.

- (8) Reassemble the pilot relay : replace all parts in correct order and tighten them with two flat-head screws (13).

- (9) Remount the pilot relay on the manifold, position the gasket (1) correctly.

- (10) Fix the pilot relay on the manifold using mounting screws (14) and two spring washers (15).

- 5) You are recommended to replace rubber parts (such as the diaphragms and gaskets on the pilot relay, the tube for piping, and the O-ring for the check plug of the pneumatic pressure sending unit) at intervals of about five years, though this may vary depending on conditions.



**Figure 6-1 Pilot relay disassembled**





# Terms and Conditions

We would like to express our appreciation for your purchase and use of Azbil Corporation's products. You are required to acknowledge and agree upon the following terms and conditions for your purchase of Azbil Corporation's products (system products, field instruments, control valves, and control products), unless otherwise stated in any separate document, including, without limitation, estimation sheets, written agreements, catalogs, specifications and instruction manuals.

## 1. Warranty period and warranty scope

### 1.1 Warranty period

Azbil Corporation's products shall be warranted for one (1) year from the date of your purchase of the said products or the delivery of the said products to a place designated by you.

### 1.2 Warranty scope

In the event that Azbil Corporation's product has any failure attributable to azbil during the aforementioned warranty period, Azbil Corporation shall, without charge, deliver a replacement for the said product to the place where you purchased, or repair the said product and deliver it to the aforementioned place.

Notwithstanding the foregoing, any failure falling under one of the following shall not be covered under this warranty:

- (1) Failure caused by your improper use of azbil product (noncompliance with conditions, environment of use, precautions, etc. set forth in catalogs, specifications, instruction manuals, etc.);
- (2) Failure caused for other reasons than Azbil Corporation's product;
- (3) Failure caused by any modification or repair made by any person other than Azbil Corporation or Azbil Corporation's subcontractors;
- (4) Failure caused by your use of Azbil Corporation's product in a manner not conforming to the intended usage of that product;
- (5) Failure that the state-of-the-art at the time of Azbil Corporation's shipment did not allow Azbil Corporation to predict; or
- (6) Failure that arose from any reason not attributable to Azbil Corporation, including, without limitation, acts of God, disasters, and actions taken by a third party.

Please note that the term "warranty" as used herein refers to equipment-only-warranty, and Azbil Corporation shall not be liable for any damages, including direct, indirect, special, incidental or consequential damages in connection with or arising out of Azbil Corporation's products.

## 2. Ascertainment of suitability

You are required to ascertain the suitability of Azbil Corporation's product in case of your use of the same with your machinery, equipment, etc. (hereinafter referred to as "Equipment") on your own responsibility, taking the following matters into consideration:

- (1) Regulations and standards or laws that your Equipment is to comply with.
- (2) Examples of application described in any documents provided by Azbil Corporation are for your reference purpose only, and you are required to check the functions and safety of your Equipment prior to your use.
- (3) Measures to be taken to secure the required level of the reliability and safety of your Equipment in your use  
Although azbil is constantly making efforts to improve the quality and reliability of Azbil Corporation's products, there exists a possibility that parts and machinery may break down.  
You are required to provide your Equipment with safety design such as fool-proof design, \*1 and fail-safe design\*2 (anti-flame propagation design, etc.), whereby preventing any occurrence of physical injuries, fires, significant damage, and so forth. Furthermore, fault avoidance, \*3 fault tolerance,\*4 or the like should be incorporated so that the said Equipment can satisfy the level of reliability and safety required for your use.

\*1. A design that is safe even if the user makes an error.

\*2. A design that is safe even if the device fails.

\*3. Avoidance of device failure by using highly reliable components, etc.

\*4. The use of redundancy.

## 3. Precautions and restrictions on application

Azbil Corporation's products other than those explicitly specified as applicable (e.g. azbil Limit Switch For Nuclear Energy) shall not be used in a nuclear energy controlled area (radiation controlled area).

Any Azbil Corporation's products shall not be used for/with medical equipment.

The products are for industrial use. Do not allow general consumers to install or use any Azbil Corporation's product.

However, azbil products can be incorporated into products used by general consumers. If you intend to use a product for that purpose, please contact one of our sales representatives.

In addition,

you are required to conduct a consultation with our sales representative and understand detail specifications, cautions for operation, and so forth by reference to catalogs, specifications, instruction manual, etc. in case that you intend to use azbil product for any purposes specified in (1) through (6) below.

Moreover, you are required to provide your Equipment with fool-proof design, fail-safe design, anti-flame propagation design, fault avoidance, fault tolerance, and other kinds of protection/safety circuit design on your own responsibility to ensure reliability and safety, whereby preventing problems caused by failure or nonconformity.

- (1) For use under such conditions or in such environments as not stated in technical documents, including catalogs, specification, and instruction manuals
- (2) For use of specific purposes, such as:
  - \* Nuclear energy/radiation related facilities  
[For use outside nuclear energy controlled areas] [For use of Azbil Corporation's Limit Switch For Nuclear Energy]
  - \* Machinery or equipment for space/sea bottom
  - \* Transportation equipment  
[Railway, aircraft, vessels, vehicle equipment, etc.]
  - \* Antidisaster/crime-prevention equipment

- \* Burning appliances
  - \* Electrothermal equipment
  - \* Amusement facilities
  - \* Facilities/applications associated directly with billing
- (3) Supply systems such as electricity/gas/water supply systems, large-scale communication systems, and traffic/air traffic control systems requiring high reliability
  - (4) Facilities that are to comply with regulations of governmental/public agencies or specific industries
  - (5) Machinery or equipment that may affect human lives, human bodies or properties
  - (6) Other machinery or equipment equivalent to those set forth in items (1) to (5) above which require high reliability and safety
4. Precautions against long-term use
 

Use of Azbil Corporation's products, including switches, which contain electronic components, over a prolonged period may degrade insulation or increase contact-resistance and may result in heat generation or any other similar problem causing such product or switch to develop safety hazards such as smoking, ignition, and electrification. Although acceleration of the above situation varies depending on the conditions or environment of use of the products, you are required not to use any Azbil Corporation's products for a period exceeding ten (10) years unless otherwise stated in specifications or instruction manuals.
  5. Recommendation for renewal
 

Mechanical components, such as relays and switches, used for Azbil Corporation's products will reach the end of their life due to wear by repetitious open/close operations. In addition, electronic components such as electrolytic capacitors will reach the end of their life due to aged deterioration based on the conditions or environment in which such electronic components are used. Although acceleration of the above situation varies depending on the conditions or environment of use, the number of open/close operations of relays, etc. as prescribed in specifications or instruction manuals, or depending on the design margin of your machine or equipment, you are required to renew any Azbil Corporation's products every 5 to 10 years unless otherwise specified in specifications or instruction manuals. System products, field instruments (sensors such as pressure/flow/level sensors, regulating valves, etc.) will reach the end of their life due to aged deterioration of parts. For those parts that will reach the end of their life due to aged deterioration, recommended replacement cycles are prescribed. You are required to replace parts based on such recommended replacement cycles.
  6. Other precautions
 

Prior to your use of Azbil Corporation's products, you are required to understand and comply with specifications (e.g., conditions and environment of use), precautions, warnings/cautions/notices as set forth in the technical documents prepared for individual Azbil Corporation's products, such as catalogs, specifications, and instruction manuals to ensure the quality, reliability, and safety of those products.
  7. Changes to specifications
 

Please note that the descriptions contained in any documents provided by azbil are subject to change without notice for improvement or for any other reason. For inquires or information on specifications as you may need to check, please contact our branch offices or sales offices, or your local sales agents.
  8. Discontinuance of the supply of products/parts
 

Please note that the production of any Azbil Corporation's product may be discontinued without notice. For repairable products, we will, in principle, undertake repairs for five (5) years after the discontinuance of those products. In some cases, however, we cannot undertake such repairs for reasons, such as the absence of repair parts. For system products, field instruments, we may not be able to undertake parts replacement for similar reasons.
  9. Scope of services
 

Prices of Azbil Corporation's products do not include any charges for services such as engineer dispatch service. Accordingly, a separate fee will be charged in any of the following cases:

    - (1) Installation, adjustment, guidance, and attendance at a test run
    - (2) Maintenance, inspection, adjustment, and repair
    - (3) Technical guidance and technical education
    - (4) Special test or special inspection of a product under the conditions specified by you

Please note that we cannot provide any services as set forth above in a nuclear energy controlled area (radiation controlled area) or at a place where the level of exposure to radiation is equivalent to that in a nuclear energy controlled area.







---

**Document Number :** CM2-APN100-2001  
**Document Name :** Multifunction Pulse-to-Pneumatic  
Pressure Converter Model J-APN11

---

**Date :** 1st edition: Mar. 1997  
3rd editoin: Mar. 2015

**Issued / Edited by :** Azbil Corporation

---

Azbil Corporation