OM-EN-EB7EP-3.10HP
April 1, 2021

EcoBooster®

# Operation Manual

# Type EB7EP

HP Simplified edition (Excluding wiring and terminal layout diagram)

FUJI BC ENGINEERING

Bluebe

# Contents

## FOR YOUR SAFETY

⚠WARNING Improper use of the equipment may cause serious injury or death.

⚠CAUTION Improper use of the equipment may cause injury or material damages.

⚠WARNING

- ●EcoBooster is the device for Micro lubrication system to cut metals. Do not use for other purposes.
- ●When flammable oil such as volatile oil is used, it may catch a fire.
- ●Air pressure should be less than 0.8MPa. When it was over 0.8 MPa, it may damage tubing and other devices. (AC SOLENOID type Max . Pressure 0.7MPa)
- ●Do not expose to a material, such as strong acid, strong alkali, corrosive gas. They may damage tubing and other devices.

⚠CAUTION

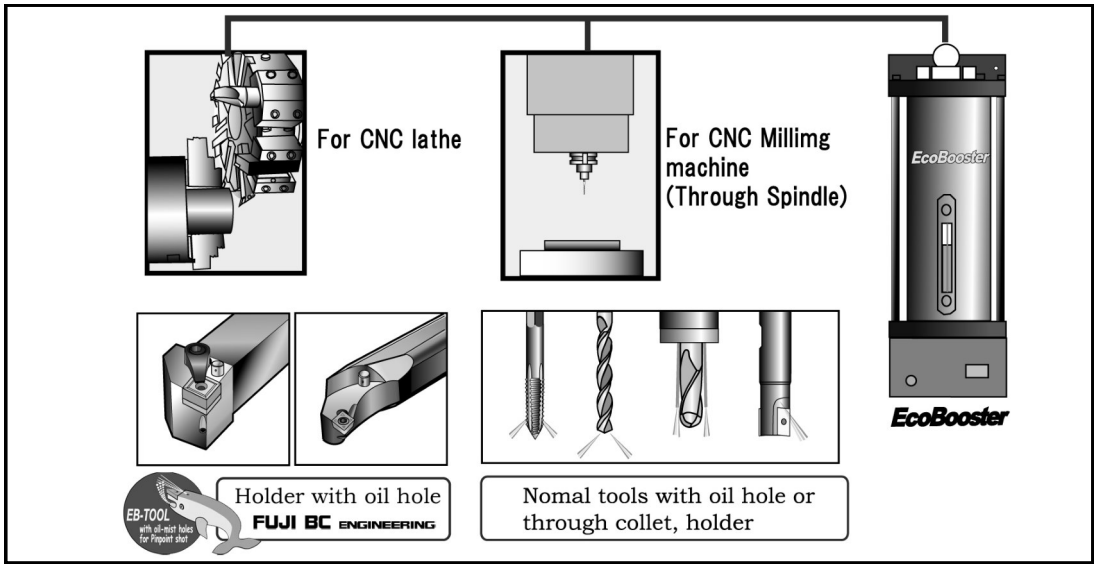
- ●Use Bluebe LB-7 or LB-10 type oil. When other oil is used, it may damage the device.
- ●Do not fill the oil over H line. Drain the overflow oil from the drain valve.

Background Information
EcoBooster has been specifically designed to dispense controlled amount of Bluebe oil for variety of machining applications. Use of non-genuine oil in the system may result in damage to the unit.

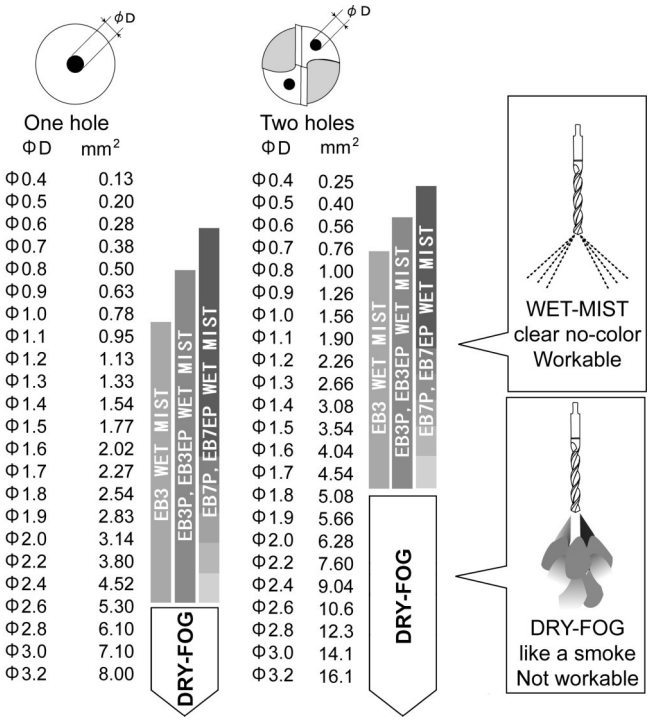
# SPECIFICATION

| | |
|---|---|
| ○ Maximum working pressure | 0.8 MPa |
| ○ Working pressure range | 0.4 ～ 0.8 MPa (AC SOLENOID Type 0.7MPa) |
| ○ Tank capacity | 1,200mL |
| ○ Oil consumption | 2 ～ 70 mL/hour（Depend on use condition） |
| ○ Pump strokes | ※ 0Hz, 0.125 Hz ～ 0.5 Hz (Max)<br>※ In case of minimum amount, the mist is generated only with the Air Acceleration Solenoid without driving the pump and the Mist Air Solenoid. |
| ○ Mounting | M6 (2 holes) |
| ○ Mist outlet | 1 place (Φ12 tube connector) |
| ○ For input connect | OIL DETECTOR (in Tank)<br>INNER PRESSURE CONTROL SWITCH (2 outputs) |
| ○ For output connect | AIR ACCELERATION SOLENOID VALVE<br>MIST AIR SUPPLY SOLENOID VALVE<br>PUMP DRIVE SOLENOID VALVE |
| ○ Dry weight | 8kg |

## Recommended tools



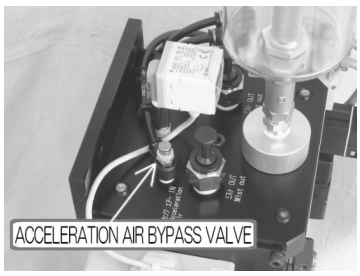

| Cutting tool / Holder | Total cross section area |
|---|---|
| Gap(sukima) through | 0.3 mm² < Total cross sectional area < 2.0 mm² |
| Collett through nozzle | |
| Drill with oil hole | |
| Tap with oil hole | |
| Milling tool with oil hole | |
| Bluebe ***EB-TOOL*** | Optimized for *EcoBooster* |




## Recommended oil hole diameter

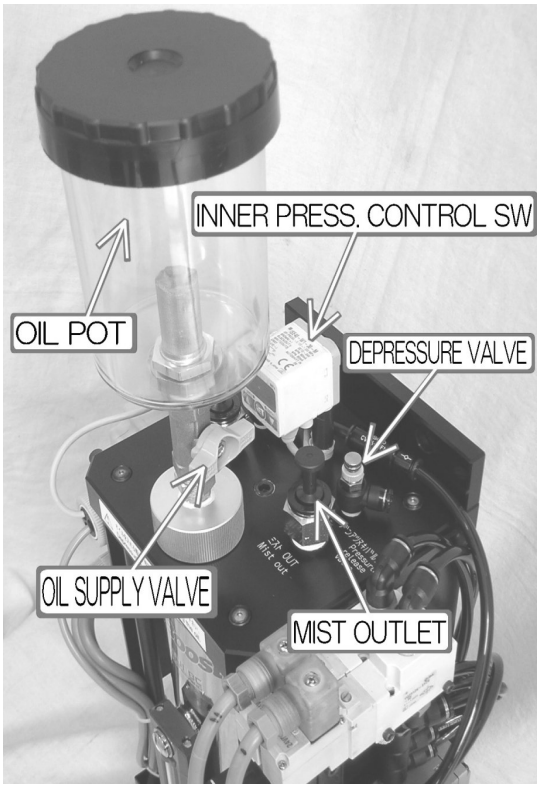
Dry mist does not adhere to the inside of piping or spindle but it must be liquefied at the cutting point. Oil hole diameter need to be between 0.3mm² to 2mm² in diameter to obtain the workable condition of EB7EP.

Open Acceleration air bypass valve when oil hole diameter is more than 2mm². (Supported cross sectional area within 5mm².)



## HOW TO USE

PROCEDURE TO FILL THE OIL




**⚠CAUTION**
Depressurize oil tank (EB body) before filling the oil by the DEPRESSURE VALVE.

1. For your safety, be sure to stop the operation of the EcoBooster when oil is refilled.
2. Depressurize the oil tank before filling the oil by the DEPRESSURE VALVE.
3. Check if the tank is completely depressurized.
4. Remove the OIL POT cap.
   Do not allow any dust into the OIL POT.
5. Fill up the OIL POT.
   The capacity of the OIL POT is about 300ml.
6. Supply oil from OIL POT to the tank by opening the OIL SUPPLY VALVE.
7. When the filling level is not enough, repeat 5 & 6 again.
8. Do not fill the oil over the H-level.
   When the filling level is over the H-level, drain the oil from drain valve.
9. When oil is filled, tighten the OIL POT cap and shut off the OIL SUPPLY VALVE & the DEPPRESSURE VALVE.

Air Control

EcoBooster generates dry mist in the chamber with the difference of air pressure.

a) Mist air
When the solenoid valve for controlling mist air line is ON, it always supplies constant amount of dry mist (micro lubricant droplets).
Inner pressure control switch control the solenoid valve ON/OFF. See the "Inner Pressure Switch setting" at page 8.

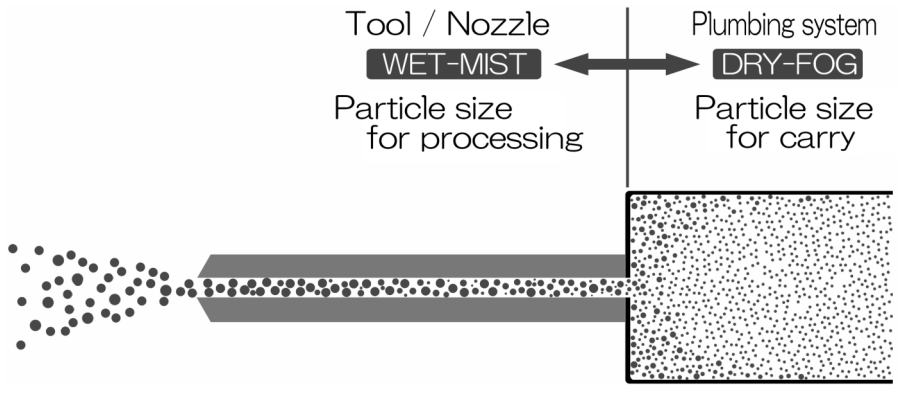
b) Acceleration air
Inner air pressure changes when the size of oil hole of the tools changes. When oil hole get larger, inner air pressure decreases. When inner pressure get lower and need more air to generate dry mist, acceleration air start to work together with the Mist air. See the "Inner Pressure Control Switch setting" at page 8.

Furthermore, EB7EP has the Acceleration air bypass valve (manual adjustment) to add more air to hold the necessary air pressure level in the chamber. If inner pressure switch indicates the figure lower than the set value at n-1, open the Acceleration air bypass valve to boost the reading between n-1 and (n-1+H-1). In a case when reading stays still less than the n-1 value, it means the oil hole of that particular tool is too big. It is suggested to set the tool which has biggest oil hole and run EcoBooster to test if air pressure can be adjusted in advance. The tool which has too big oil hole needs to be plugged and drilled again for smaller hole. However, keep in mind that too much of additional air supply may disturb creating the mist in the chamber.

Caution: If you see white smoke at the tip of the cutting tool, it means the size of hole is too big. Make the oil hole smaller. Acceptable size of oil hole is 0.3—2.0 $mm^2$ in total. (Max. 0.5$mm^2$ : when Acceleration air bypass valve opened.)

## Key factor to smart use.

Dry Fog does not adhere to the inside of piping or spindle but it must be liquefied to Wet-Mist at the cutting point. Therefore, it is necessary to narrow the tool oil hole, and to liquefy Dry fog. Refer to "Recommended tools" for details.




OIL CONSUMPTION

The speed of the pump cycle is controlled by CNC of machine. The standard speed of the pump is one stroke per two second. Adjustment is made by changing M-code or switch. Sound of 1 times / 2 sec.(0.5Hz) is for maximum dispensing volume and 1 time / 8 sec.(0.125Hz) is for middle dispensing volume of oil. No sound is for minimum volume. Standard consumption is 4ml per one hour. Oil consumption depends on cutting condition and size of oil hole of tools.

# CONFIGURATION OF INNER PRESSURE CONTROL SWITCH

Why Inner Pressure control switch required.

EcoBooster generates dry mist in the unit (chamber) by utilizing difference pressure of supplied air and that of tank inside. Basically, the hole of cutting tools has been changed, pressure of tank inside is changed so inner pressure must be maintained with oil holes of cutting tool changed every time. Inner Pressure control switch offers above issue to keep the difference of pressure constant with cutting tools changed.

Here shows pressure switch configuration.
The configuration value depends on supplied air pressure. Please read “How to configure inner pressure switch” in detail.

Example ▶

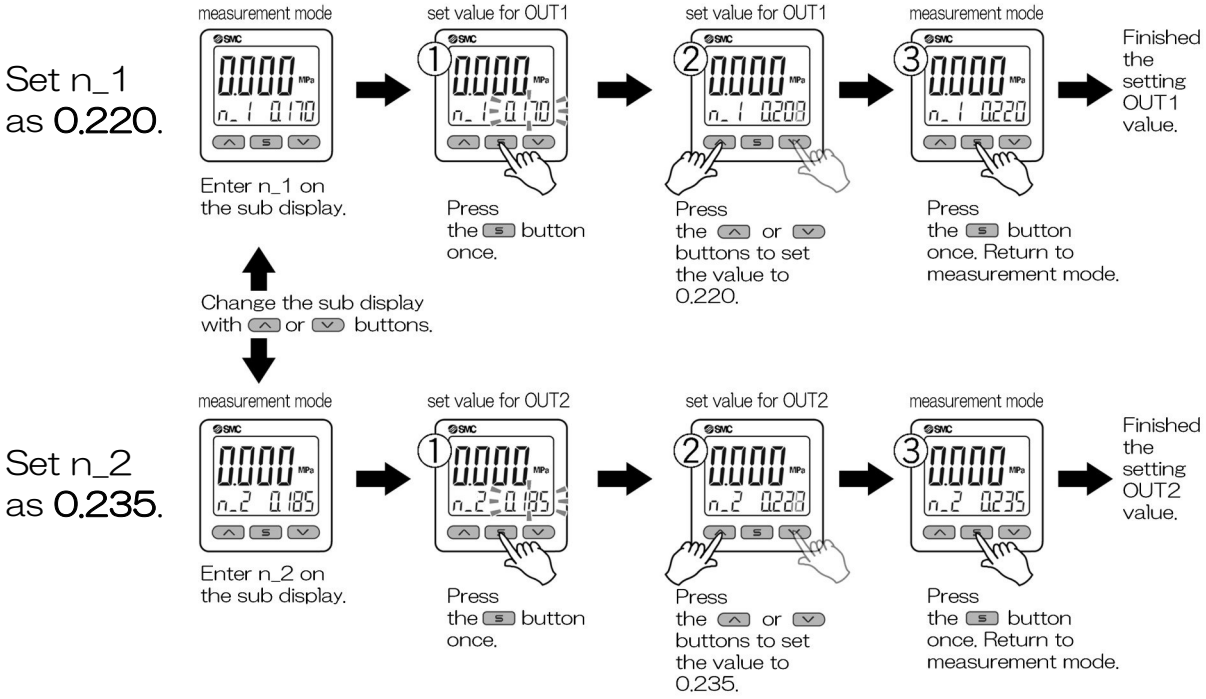
| | Acceleration Air OUT1 | | Mist Air OUT2 | |
|---|---|---|---|---|
| Air Supply | n_1 | H_1 | n_2 | H_2 |
| 0.4 MPa | 0.170 | 0.020 | 0.185 | 0.015 |
| 0.5 MPa | 0.220 | 0.020 | 0.235 | 0.015 |
| 0.6 MPa | 0.320 | 0.020 | 0.335 | 0.015 |
| 0.7 MPa | 0.440 | 0.020 | 0.435 | 0.015 |
| 0.8 MPa※ | 0.540 | 0.020 | 0.535 | 0.015 |

※AC type solenoid valves have a maximum working pressure of 0.7MPa.

Be sure to set the value as indicated according to the given air supply pressure. See the setting procedure at next page.

# How to set INNER PRESSURE CONTROL SWITCH

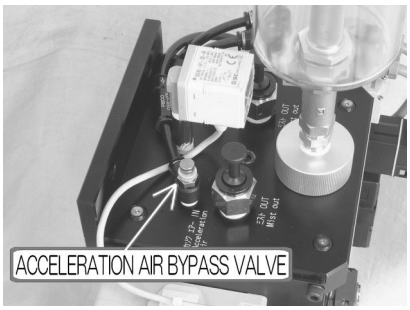
**Example** for Supply air pressure of 0.5MPa

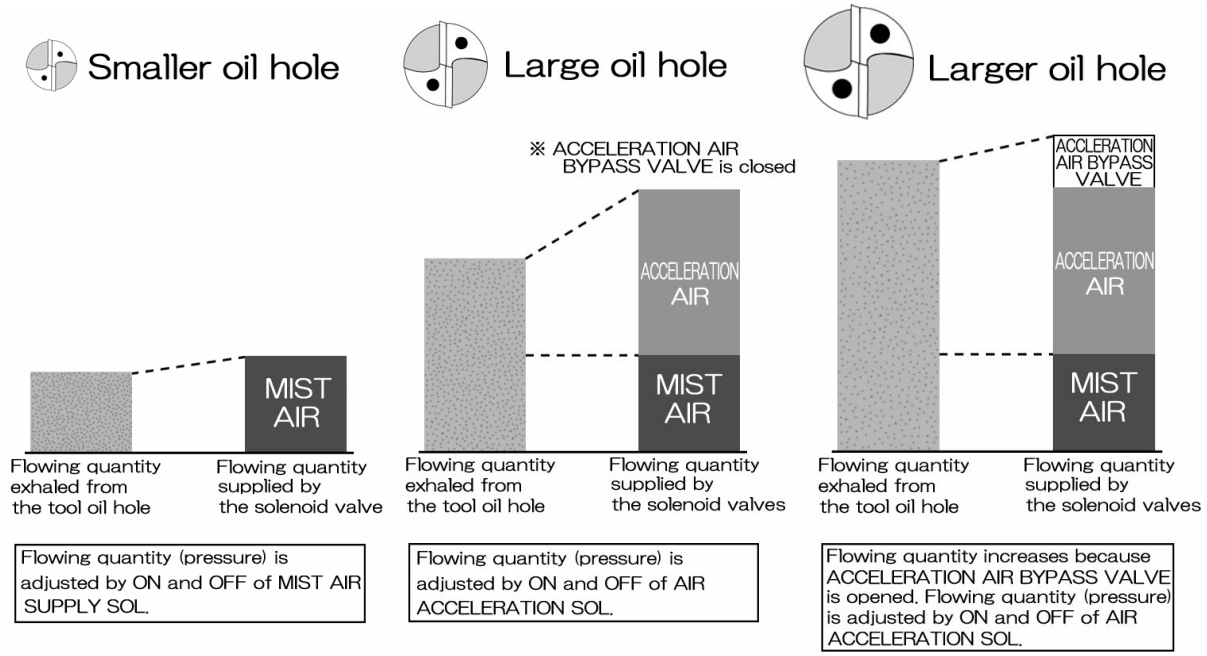



**※ Please look at the Digital Pressure Switch operation manual attached at the end.**

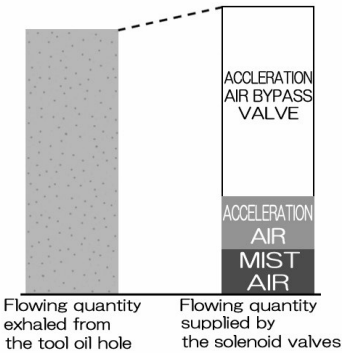
# ACCELRATION AIR BYPASS VALVE SETTING

Flow quantity of mist is increases when oil hole diameter is larger. And inner pressure is goes down to maintain the proper differences between air supply and inner pressure, additional air need to be supplied by ACCELERATION AIR BYPASS VALVE .
Use the large oil hole diameter among tolls at ATC to set up the inside pressure of EcoBooster. Open the ACCELERATION AIR BYPASS VALVE until the value of INNER PRESS. CONTROL SW. stays within the set value.
If ACCELERATION AIR BYPASS VALVE was adjusted once, it is not necessary to adjust ACCELERATION AIR BYPASS VALVE as long as the large oil hole tool in ATC is not changed. EcoBooster will control the inner pressure automatically according to the tools in ATC.




Open ACCELERATION AIR BYPASS VALVE too much, if so・・・




The air supplied by the ACCELERATION AIR BYPASS VALVE is not to make mist. It helps to maintain pressure in the chamber when necessary. When the ACCELERATION AIR BYPASS VALVE is opened too much, pressure in the chamber can be maintained by air but it doesn't make mist. As a result, mist quantity decreases.
It is important to set the ACCELERATION AIR BYPASS VALVE at the minimum requirement that can maintain proper pressure in the chamber. Concretely, adjust the AIR ACCELERATION SOL to turn off once every 3 to 5 seconds.

## RECOMMENDED LUBRICANTS

Viscosity of oil is important factor to generate micro lubricant droplets. Also from the safer work condition view point, we recommend the following oil to use.

**Bluebe LB-7, or LB-10 (in JAPAN)**
**Accu-lube LB-6000 (in USA, Europe)**

## WARRANTY

EcoBooster is backed with One-year Limited Warranty against defects in workmanship and/or materials. Warranty applies only when used under normal operating conditions. Warranty does not applied if a lubricant other than recommended oil is used.

## CONTACT

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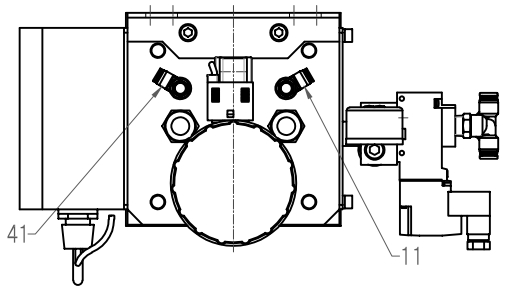
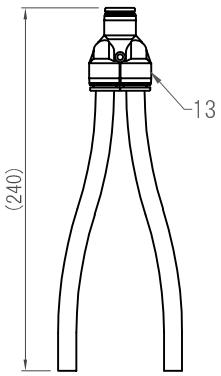
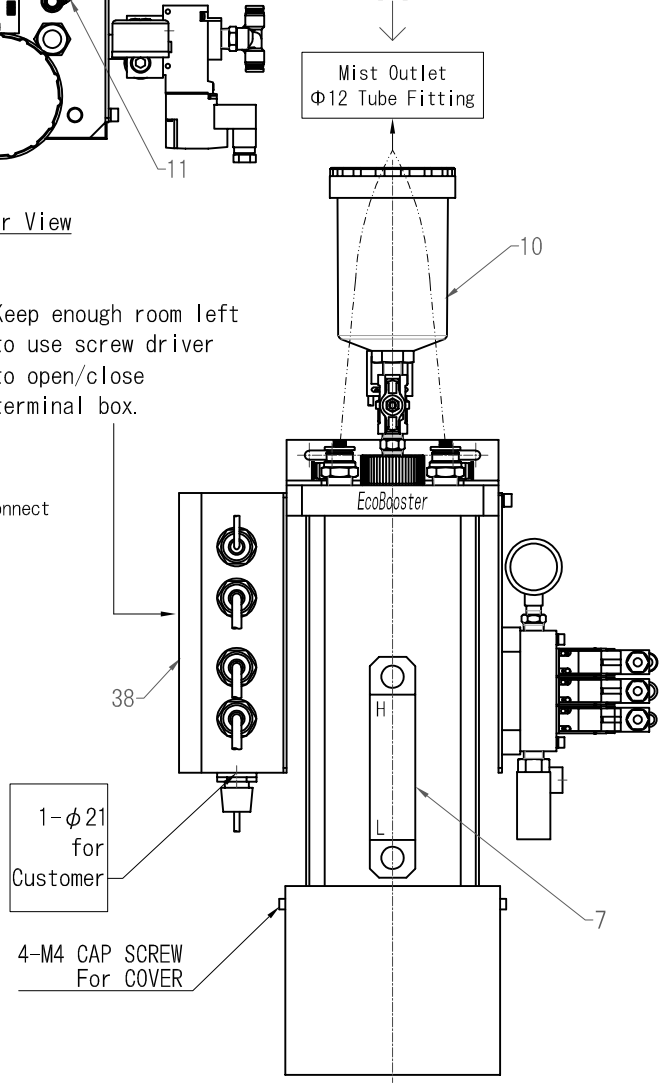
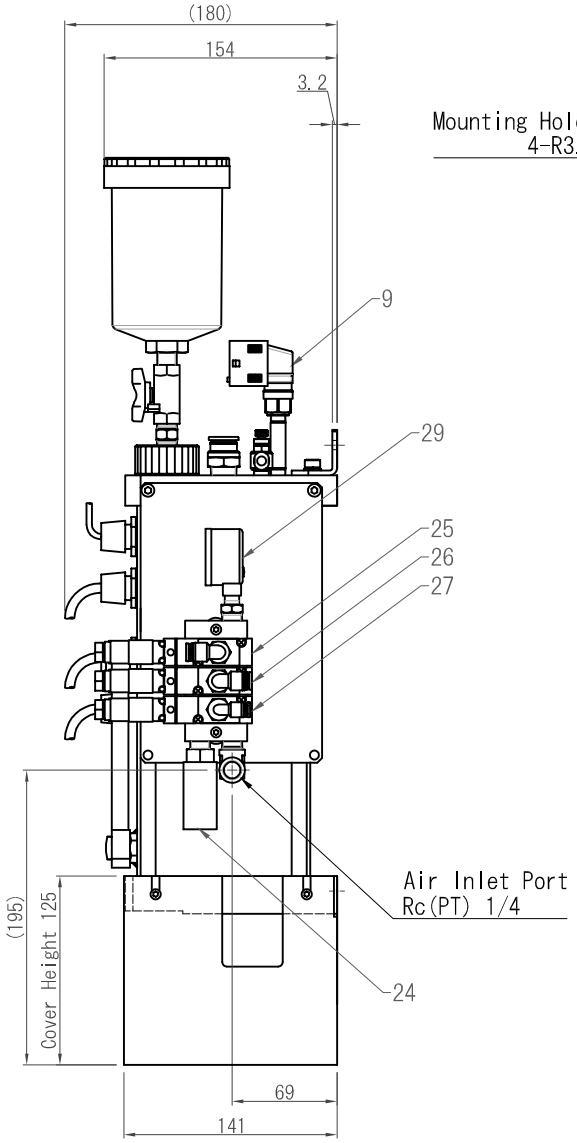


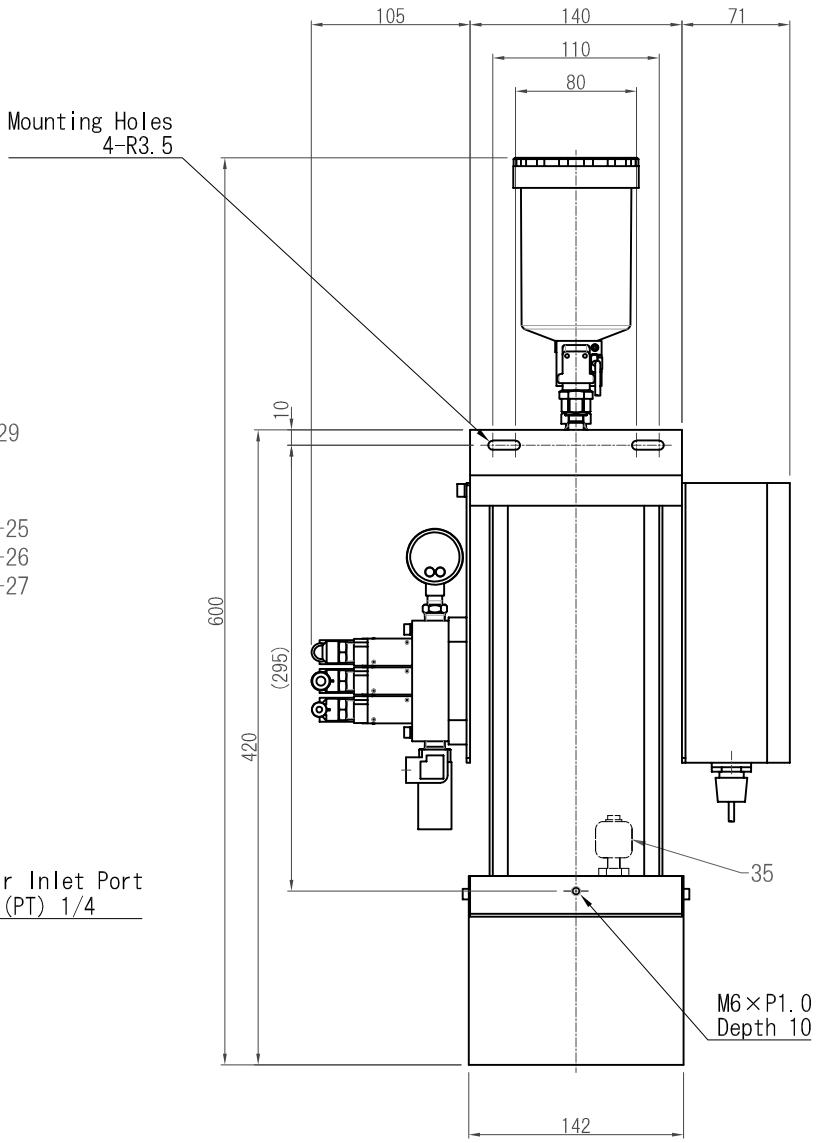

A:Upper View

Install and keep EcoBooster vertically.
Keep enough room on the top and bottom of EcoBooster to fill lubricant, set piping, remove bottom cover and drain lubricant.

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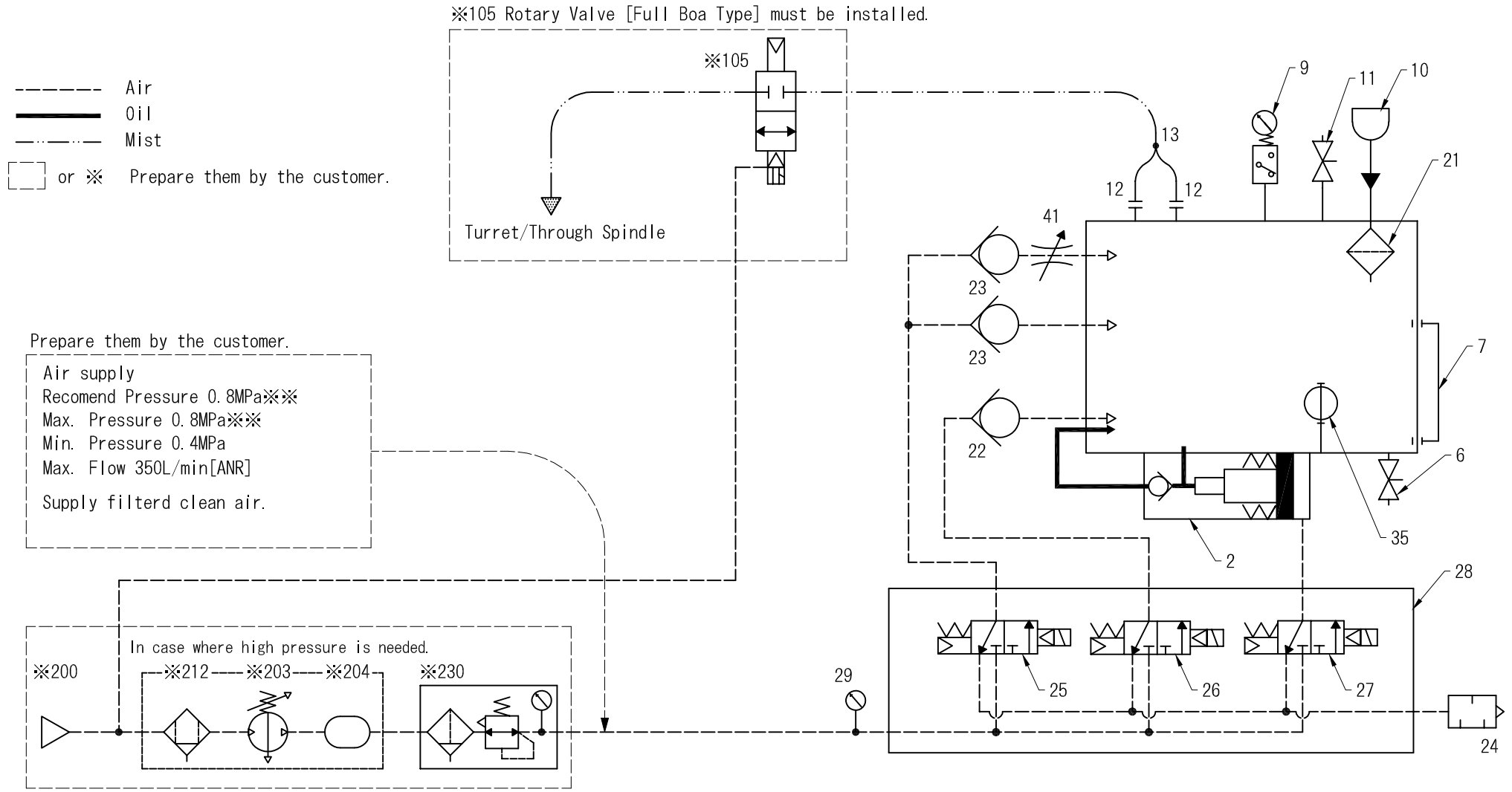
| REVISIONS | DATE | DESIGNED | DRAWN | CHECKED | APPROVED | TITLE |
|---|---|---|---|---|---|---|
| | '20.09.10 | INOUE | MAENO | M.ITO | INOUE | EcoBooster EB7EP Outline |
| | FUJI BC ENGINEERING CO.,LTD | | | | 3RD ANGLE PROJECTION | SCALE 1:5 / DRAWING CODE EN-EB7EP-01-STD3.10 |




※ They are not included in Ecobooster.
※※ AC type solenoid valves have a maximum working pressure of 0.7MPa.

PAPER SIZE : A 4

| REVISIONS | DATE | DESIGNED | DRAWN | CHECKED | APPROVED | TITLE |
|---|---|---|---|---|---|---|
| | '18.06.05 | INOUE | MAENO | SAKAI | FUTATSUGI | Ecobooster EB7EP Flow Sheet |
| | FUJI BC ENGINEERING CO.,LTD | | | | 3RD ANGLE PROJECTION | SCALE: - / DRAWING CODE: EN-EB7EP-02-STD3.01 |

## EcoBooster EB7EP Parts List

Drawing Code: EN-EB7EP-03-STD3.10 '20.09.10

| No. | ITEM | Q'ty | MAKER | TYPE | REMARKS |
|---|---|---|---|---|---|
| 2 | BX PUMP | 1 | FUJI BC | 7250 | |
| 6 | DRAIN | 1 | KITZ | TKT1/8 | |
| 7 | OIL LEVEL GAUGE | 1 | KYOWA | KHR-120A-M10 | |
| 9 | INNER PRESS. CONTROL SW | 1 | SMC | ISE20C-Y-M-C01L-W<br>ISE20C-X-M-C01L-W | 2 PNP OUTPUT<br>2 NPN OUTPUT |
| 10 | OIL SUPPLY | 1 | FUJI BC | EB7CAP | OIL POT:300mL |
| 11 | DEPRESSURE VALVE | 1 | PISCO | JNC6-01 | |
| 12 | MIST OUTLET | 2 | PISCO | PC12-03 | |
| 13 | UNION Y | 1 | PISCO | PY12 | |
| 21 | OIL FILTER | 1 | FUJI BC | 102TNK2103 | |
| 22 | CHECK VALVE | 1 | PISCO | CVU6-6FN | MIST AIR LINE |
| 23 | CHECK VALVE | 2 | PISCO | CVU6-6FN | ACCELERATION AIR LINE |
| 24 | SILENSER | 1 | SMC | ANA1-02 | |
| 25 | SOLENOID VALVE(AIR ACCELERATION) | 1 | SMC | VQZ312K-5YZB1-02 | DC24V |
| 26 | SOLENOID VALVE(MIST AIR) | 1 | | VQZ312-1YZB1-02 | AC100V (0.7MPa) |
| 27 | SOLENOID VALVE(PUMP DRIVE) | 1 | | VQZ312-2YZB1-02 | AC200V (0.7MPa) |
| 28 | MANIFOLD | 1 | SMC | VV3QZ32-03C | 3 stations |
| 29 | PRESSURE GAUGE | 1 | SMC | GA36-10-01 | Air supply |
| 35 | FLOAT SWITCH(OIL DETECTOR) | 1 | NOHKEN | OLV-5 | |
| 38 | TERMINAL BOX | 1 | TOYOGIKEN | BOXTM-2001 | 20 TERMINAL BLOCKS |
| 41 | ACCELERATION AIR BYPASS VALVE | 1 | PISCO | JNC6-01 | |
| | | | | | |
| | | | | | |
| | | | | Prepare it by the customer. | |
| 105 | Rotary valve (Air operated type 2 port valve) | | CKD | CHB-V1-10-0L-☐<br>(☐ : Coil voltage) | (We recommend it.) |
| 200 | Air supply | | | | |
| 203 | Booster regulator | | SMC | VBA40A-04GN | 〃 |
| 204 | Air tank | | SMC | VBAT20A1-V | 〃 |
| 212 | Mist separator | | SMC | AFM30-03C-2-A | 〃 |
| 230 | Filter regulator | | SMC | AW30-03CG-2-B | 〃 |
| | | | | | |
| | | | | | |

# Wiring

Diagrams vary on the specification.
Please refer to see electrical circuit of machinery maker or our operating instructions included with EcoBooster.
For more information on diagrams contact your FUJI BC sales engineer.

# Terminal block layout

Diagrams vary on the specification.
Please refer to see electrical circuit of machinery maker or our operating instructions included with EcoBooster.
For more information on diagrams contact your FUJI BC sales engineer.

# 【Digital Pressure Switch Operation Manual】

April 1, 2021 FUJI BC ENGINEERING M. MAENO

Setting of EcoBooster INNER PRESSURE CONTROL SWITCH

| | Acceleration Air OUT1 | | Mist Air OUT2 | |
|---|---|---|---|---|
| Air Supply | n_1 | H_1 | n_2 | H_2 |
| 0.4MPa | 0.170 | 0.020 | 0.185 | 0.015 |
| 0.5MPa | 0.220 | 0.020 | 0.235 | 0.015 |
| 0.6MPa | 0.320 | 0.020 | 0.335 | 0.015 |
| 0.7MPa | 0.420 | 0.020 | 0.435 | 0.015 |
| ※0.8MPa | 0.520 | 0.020 | 0.535 | 0.015 |

Example for Supply Air Pressure of 0.4MPa

※ EB7EP AC Solenoid Type and EB3P, EB3EP Maximum Pressure : 0.7MPa

Adapted from SMC Co., Ltd. home page

Model : ISE20C-X/Y-M-C01L-W

Display unit : MPa
Display color : Nomally red

OUT1 Output mode : Hysteresis
Normal/Reveresed Output : Reveresed
Response time : 1.5ms

OUT2 Output mode : Hysteresis
Normal/Reveresed Output : Reveresed
Response time : 1.5ms

OUT1 Set value n_1 : 0.170 MPa
Hysteresis H_1 : 0.020 MPa

OUT2 Set value n_2 : 0.185 MPa
Hysteresis H_2 : 0.015 MPa

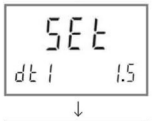
Setting Procedure 1 (3-step setting) The usual procedure. Other settings are set at the shipping time from FUJI BC ENGINEERING.

Setting items : OUT1, OUT2 Set value [n_1, n_2]

| Mode | Display | Operation procedure |
|---|---|---|
| Preparation, measurement mode | 0.000 n_1 0.500 | Connect 12 to 24 VDC power supply. Go to measurement mode. |
| Entering the set value [n_1] for OUT1 | 0.000 n_1 0.500 | Enter OUT1 set value [n_1] on the sub display with ▲ or ▼ buttons. |
| | 0.000 n_1 0.170 | Press the Ⓢ button once. Go to the setting of set value [n_1] for OUT1. Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| | 0.000 n_1 0.170 | Press the Ⓢ button once. Return to measurement mode. |
| Entering the set value [n_2] for OUT2 | 0.000 n_2 0.500 | Enter OUT2 set value [n_2] on the sub display with ▲ or ▼ buttons. |
| | 0.000 n_2 0.185 | Press the Ⓢ button once. Go to the setting of set value [n_2] for OUT2. Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| | 0.000 n_2 0.185 | Press the Ⓢ button once. Return to measurement mode. |
| | Settings complete. | |

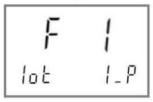
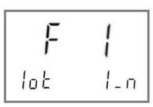
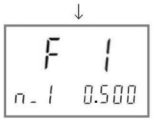
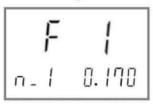
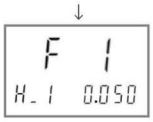
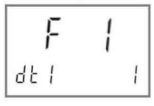
## Setting Procedure 2 (Simple setting) Perform this procedure if you have changed the Hysteresis or Response time by mistake.

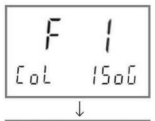
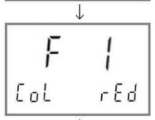
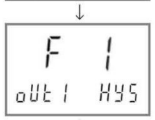
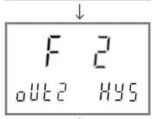
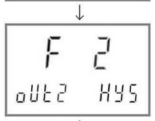
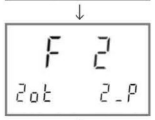
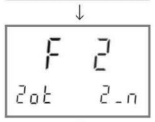
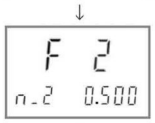
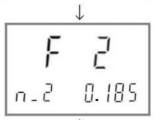
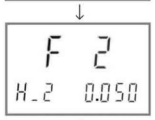
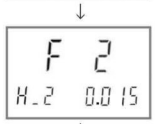
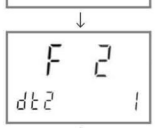
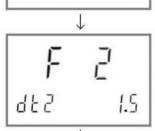
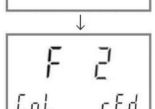
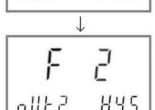
**Setting items : OUT1, OUT2 Set value [n_1, n_2]、Hysteresis [H_1, H_2]、Response time**

| Mode | Display | Operation procedure |
|---|---|---|
| Preparation, measurement mode |  | Connect 12 to 24 VDC power supply.<br>Go to measurement mode. |
| Entering the set value [n_1] for OUT1 |  | Hold down the Ⓢ button for at least 1 seconds, but no more than 3 seconds [SEt] will be shown on the main display. |
| |  | Release the button while [SEt] is showing on the display. The main display will show the current pressure value and the left sub display will show the set value [n_1]. The set value will be blinking on the right sub display.<br>Go to the setting of set value [n_1] for OUT1. |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| Setting of hysteresis [H_1] for OUT1 |  | Press the Ⓢ button once.<br>Go to hysteresis [H_1] settings for OUT1. |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| Setting response time for OUT1 |  | Press the Ⓢ button once.<br>Go to response time settings for OUT1. |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| Entering the set value [n_2] for OUT2 |  | Hold down the Ⓢ button for at least 1 seconds, but no more than 3 seconds [SEt] will be shown on the main display. |
| |  | Press the Ⓢ button once.<br>Go to the setting of set value [n_2] for OUT2. |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| Setting of hysteresis [H_2] for OUT2 |  | Press the Ⓢ button once.<br>Go to hysteresis [H_2] settings for OUT2. |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| Setting response time for OUT2 |  | Press the Ⓢ button once.<br>Go to response time settings for OUT2. |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| Measurement mode |  | Hold the Ⓢ button for 2 second or longer.<br>Return to measurement mode. |
| | Settings complete. | |

## Setting Procedure 3 (Function Settings) Perform this procedure if you have restored SMC default settings.

Setting items : OUT1, OUT2 Output mode、Normal/Reversed output、Set value [n_1, n_2]、Hysteresis [H_1, H_2]、Response time、Display color

| Mode | Display | Operation procedure |
|---|---|---|
| Preparation, measurement mode |  | Connect 12 to 24 VDC power supply.<br>Go to measurement mode. |
| ↓ | | |
| Function selection mode |  | Hold down the Ⓢ button for at least 3 seconds, but no more than 5 seconds [F 0] will be shown on the main display.<br>Release the button when [F 0] is displayed to return to function selection mode. |
| ↓ | | |
| Display unit settings |  | Display [F 0] by pressing the▲ or ▼ button in function selection mode.<br>Press the Ⓢ button once.<br>Go to display unit settings. |
| ↓ | | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| ↓ | | |
| |  | Press the Ⓢ button once.<br>Return to function selection mode. |
| ↓ | | |
| Setting output mode for OUT1 |  | Display [F 1] by pressing the▲ or ▼ button in function selection mode.<br>Press the Ⓢ button once.<br>Go to output mode settings for OUT1. |
| ↓ | | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| ↓ | | |
| Setting of nomal/reversed output for OUT1 |  | Press the Ⓢ button once.<br>Go to normal/reversed output settings for OUT1. |
| ↓ | | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| ↓ | | |
| Entering the set value [n_1] for OUT1 |  | Press the Ⓢ button once.<br>Go to the setting of set value [n_1] for OUT1. |
| ↓ | | |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| ↓ | | |
| Setting of hysteresis [H_1] for OUT1 |  | Press the Ⓢ button once.<br>Go to hysteresis [H_1] settings for OUT1. |
| ↓ | | |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| ↓ | | |
| Setting response time for OUT1 |  | Press the Ⓢ button once.<br>Go to response time settings for OUT1. |
| ↓ | | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| ↓ | | |

| | | |
|---|---|---|
| Display color settings |  | Press the Ⓢ button once.<br>Go to display color settings. |
| | ↓ | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| | ↓ | |
| |  | Press the Ⓢ button once.<br>Return to function selection mode. |
| | ↓ | |
| Setting output mode for OUT2 |  | Display [F 2] by pressing the▲ or ▼ button in function selection mode.<br>Press the Ⓢ button once.<br>Go to output mode settings for OUT2. |
| | ↓ | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| | ↓ | |
| Setting of nomal/reversed output for OUT2 |  | Press the Ⓢ button once.<br>Go to normal/reversed output settings for OUT2. |
| | ↓ | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| | ↓ | |
| Entering the set value [n_2] for OUT2 |  | Press the Ⓢ button once.<br>Go to the setting of set value [n_2] for OUT2. |
| | ↓ | |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| | ↓ | |
| Setting of hysteresis [H_2] for OUT2 |  | Press the Ⓢ button once.<br>Go to hysteresis [H_2] settings for OUT2. |
| | ↓ | |
| |  | Press the ▲ or ▼ button to change the set value on the right side of the sub display (see left). |
| | ↓ | |
| Setting response time for OUT2 |  | Press the Ⓢ button once.<br>Go to response time settings for OUT2. |
| | ↓ | |
| |  | Press the ▲ or ▼ button to change the value on the right side of the sub screen (see left). |
| | ↓ | |
| Display color settings |  | Press the Ⓢ button once.<br>Move to display colour settings; this is the same as that of OUT1, which has already been set. |
| | ↓ | |
| |  | Press the Ⓢ button once.<br>Return to function selection mode. |
| | ↓ | |
| Measurement mode |  | Hold the Ⓢ button for 2 second or longer.<br>Return to measurement mode. |
| | ↓ | |
| | Settings complete. | |
| | ↓ | |
| Zero-clear |  | Press the▲ and ▼ buttons simultaneously for around 1 second under atmospheric pressure.<br>This will reset the displayed value to zero. |

## ■[F99] Reset to default settings

If the product settings are uncertain, the SMC default values can be restored.

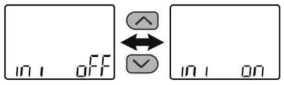
**<Operation>**

Press the ▲ or ▼ button in function selection mode to display [F99].

Press the S button. ▼ Move on to reset to default settings.

**Reset to default settings**

Press the ▲ or ▼ button to select reset to default settings.


Unused

Reset to the default setting

[oFF] (not use) is selected
Press the S button to set.

Return to function selection mode.

[on] (reset to default settings) is selected
Press the S and ▼ buttons simultaneously for 5 second or longer.
All settings are returned to the default values. Return to function selection mode.

[F99] Reset to default settings completed

Return to 【Digital Pressure Switch Operation Manual】、
Perform Setting Procedure 3 (Function Settings).