3-Color Display
Digital Flow Switch for Large Flow

Applicable fluid | **Air, N₂**

CE UKCA RoHS

IP65

◈ IO-Link *1

*1 For the PF3A□□H-L

Flow ratio *2 **100:1** A wide range of flow measurement is possible with 1 product.

*2 The flow ratio is 20 : 1 for the existing model (PF2A7□H/Large flow type).

Series	Output type	Rated flow range [L/min]
Body ported type PF3A703/706/712H(-L) Series	Switch output	30 — 3000 L type — 3000
	Analog output	60 — 6000 L type — 6000
	IO-Link	120 — 12000 L type — 12000
Modular type PF3A701/702H(-L) Series	Switch output	10 — 1000 L type — 1000
	Analog output	20 — 2000 L type — 2000
	IO-Link	
(New) **Modular type** With pressure/ temperature sensor PF3A801/802H-L Series	Switch output	10 — 1000 L type — 1000
	IO-Link	20 — 2000 L type — 2000

(New) ◈ IO-Link

4-Screen Display

Digital Flow Switch with Pressure/ Temperature Sensor

Simultaneous measurement of the (accumulated) flow rate, pressure, and temperature is possible.

PF3A8□H-L Series p. 6

◈ IO-Link Compatible

The measured value and the device status can be figured out easily via the process data. p. 3

Improved resistance to moisture and foreign matter

The bypass construction reduces sensor accuracy deterioration and damage. p. 1

PF3A□H(-L) Series

Modular type

Can be connected to the air combination p. 5

3-Screen Display **Digital Flow Monitor**

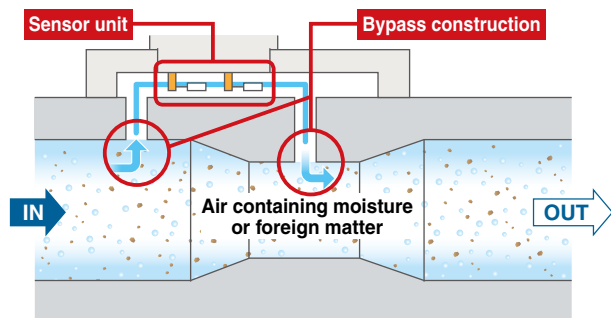### Allows for the monitoring of remote lines p. 7

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CAT.ES100-117D Ⓐ

Improved resistance to moisture and foreign matter

The bypass construction reduces the moist air or foreign matter in contact with the sensor, reducing sensor accuracy deterioration and damage.

Sensor unit — Bypass construction

Air containing moisture or foreign matter

IN   OUT

* The figure shows the PF3A703/6/12H(-L).

Through bore construction [1]

- **Pressure loss: 75% reduction** [2]
  (20 kPa → 5 kPa)

- **Maintenance-free fluid passage**

[1] Excludes the modular type
[2] Compared with the existing model (PF2A7□H/ Large flow type)

3-color/2-screen display

* 2-screen display: 2-row display of main screen and sub screen

Upper Main display: Green **At set point**

Instantaneous flow rate Green Red (Upper Main display)

1500
P 1500

Set value Orange (Lower Sub display)

The lower/sub display can be changed by pressing the up/down buttons.
* Either "Input of line name" or "Display OFF" can be added via the function settings.

Upper Main display: Red **At set point**

0
P 1500

■ **Accumulated value**

AC 17,470

■ **Peak/Bottom value**

Hi 1500

■ **Line name**

Ln PF3A

Display rotates 90° and can be reversed.

Clockwise 90° **Easy operation, improved visibility**

The display can be rotated in increments of 90° according to the installation. The display can be reversed for easy operation.

Installation Example

Reversed display OFF

Normal

OUT   HEJd ∀7   IN
0

90° rotation

IN

HEJd ∀7
0

OUT

Reversed display ON (Can be set with the "Reversible display mode")

Normal

OUT   0   IN
Ln PF3A

90° rotation

IN

0
Ln PF3A

OUT

SMC

▸ Smallest settable increment: **2 L/min**

∗ For the PF3A703H
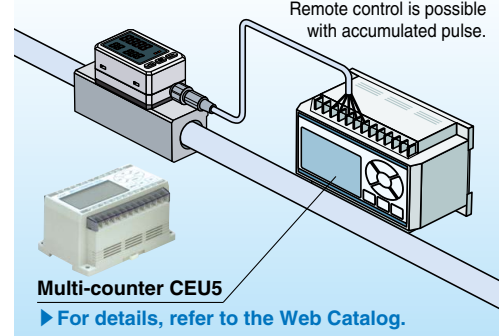∗ 5 L/min for the existing model (PF2A703H/Large flow type)

▸ Functions `pp. 37 to 39`

- Output operation
- Simple setting mode
- Display color
- Reference condition
- Response time (Digital filter)
- FUNC output switching function
  (Analog output ⇔ External input)
- Selectable analog output function
- External input function
- Forced output function
- Accumulated value hold
- Peak/Bottom value display
- Display OFF mode
- Setting of a security code
- Key-lock function
- Reset to the default settings
- Reversible display mode
- Zero cut-off function
- Delay time setting
- Selection of the display on the sub screen
- Analog output free range function
- Error display function
- Zero-clear function
- Display fine adjustment function
- Measurement display setting

▸ Grease-free

▸ Application

■ **Flow control of equipment, main line, and branch line**

Remote control is possible with accumulated pulse.

Multi-counter CEU5
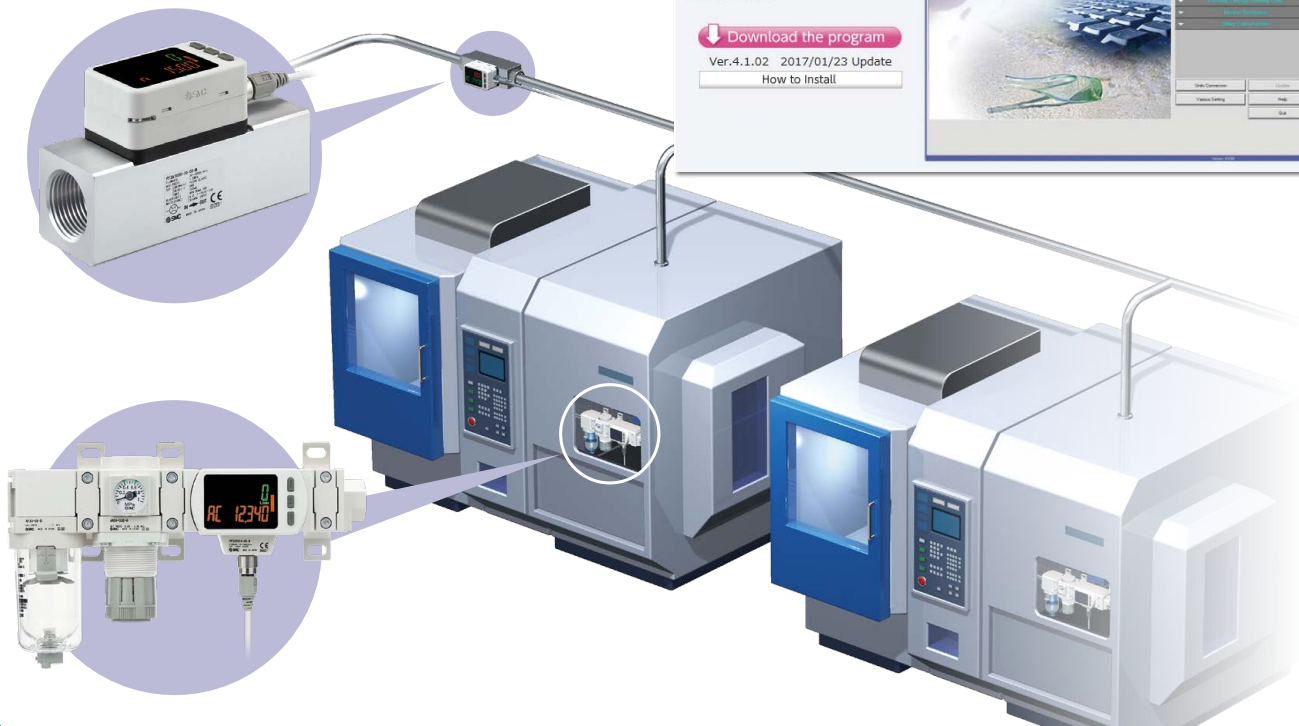▸ **For details, refer to the Web Catalog.**

Select a digital flow switch to increase energy savings!

Flow control is necessary for promoting energy saving in any application. Saving energy starts from numerical control of the flow consumption of equipment and lines and clarification of the purpose and effect.

- **Digital display allows visualization.**
- **3-color/2-screen display, Improved visibility**
- **Remote control is possible with accumulated pulse.**

### Energy Saving Program

For details, refer to the SMC website.

https://www.smcworld.com SMC Model Selection Software Search

Energy Saving Program

Allows you to perform various calculations necessary to improve the pneumatic energy saving.

This software is the download version. After downloading the software, install it into your personal computer.

Download the program
Ver.4.1.02 2017/01/23 Update
How to Install

🔴🟢🔵 IO-Link Compatible PF3A□□H-□□-L□-□□ p. 15

Supports the IO-Link communication protocol

🔗 IO-Link

IO-Link is an open communication interface technology between the sensor/actuator and the I/O terminal that is an international standard: IEC 61131-9.
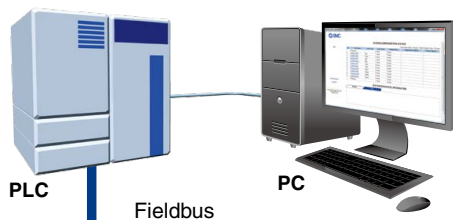
Configuration File (IODD File)*¹
· Manufacturer · Product part no. · Set value

*1 IODD File:
IODD is an abbreviation of IO Device Description. This file is necessary for setting the device and connecting it to a master. Save the IODD file on the PC to be used to set the device prior to use.

PLC

Fieldbus

PC

Device settings can be set by the master.
· Threshold value
· Operation mode, etc.

Read the device data.
· Switch ON/OFF signal and analog value
· Device information:
  Manufacturer, Product part number, Serial number, etc.
· Normal or abnormal device status
· Cable breakage

IO-Link Master

**IO-Link Compatible Device:
Digital Flow Switch for Large Air Flow
PF3A7□H-L Series**

**IO-Link Compatible Device:
Digital Flow Switch for Large Air Flow
PF3A8□H-L Series**

Display function

Displays the output communication status and indicates the presence of communication data

SIO mode	Start-up mode	Preoperate mode	Operate mode
ModE SIo	ModE Strt	ModE PrE	ModE oPE
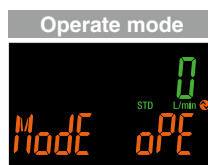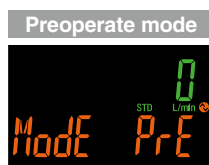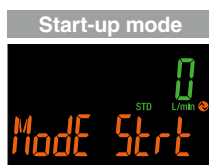
Operation and Display

Communication with master	IO-Link status indicator light	Status			Screen display*²	Description
Yes	🔶*¹	IO-Link mode	Normal	Operate	ModE oPE	Normal communication status (readout of measured value)
	🔶*¹ (Flashing)			Start up	ModE Strt	At the start of communication
				Preoperate	ModE PrE	
			Abnormal	Version does not match	Er 15 / 1 1.0	The IO-Link version does not match that of the master. * The applicable IO-Link version is 1.1.
No				Communication disconnection	ModE oPE / ModE Strt / ModE PrE	Normal communication was not received for 1 s or longer.
	OFF	SIO mode			ModE SIo	General switch output

*1 In IO-Link mode, the IO-Link indicator is ON or flashing.   *2 When the lower line (sub screen) is set to mode display (Upper line for the PF3A8□H-L)
* "ModE LoC" is displayed when the data storage lock is enabled. (Except for when the version does not match or when in SIO mode)

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Implement diagnostic bits in the process data.

The diagnostic bit in the cyclic process data makes it easy to find problems with the equipment.
It is possible to find problems with the equipment in real time using the cyclic (periodic) data and to monitor such problems in detail with the noncyclic (aperiodic) data.

For the PF3A7☐H-L

Process Data

Bit offset	Item	Note
0	OUT1 output	0: OFF 1: ON
1	OUT2 output	0: OFF 1: ON
8	Flow rate diagnosis	0: OFF 1: ON
14	Fixed output	0: OFF 1: ON
15	Error (Failure)	0: OFF 1: ON
16 to 31	Measured flow rate value	Signed 16 bit

Diagnosis items
· Over current error
· Rated flow error
· Accumulated flow error
· Flow sensor failure
· Temperature sensor failure
· Internal product malfunction

Bit offset	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
Item	Measured flow rate value (PD)																

Bit offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Item	Error (Failure)	Fixed output	Reservation					Flow rate diagnosis	Reservation							OUT2	OUT1
															Switch output	

For the PF3A8☐H-L

Process Data

Bit offset	Item	Note		Bit offset	Item	Note
0	Accumulated flow SW1	0: OFF 1: ON		11	Temperature diagnosis	0: Normal 1: HHH/LLL
1	Accumulated flow SW2	0: OFF 1: ON		12	Pressure diagnosis	0: Normal 1: HHH/LLL
2	Flow rate SW1	0: OFF 1: ON		13	Fixed output	0: Normal output 1: Fixed output
3	Flow rate SW2	0: OFF 1: ON		14	Error	0: Normal 1: Abnormal
4	Temperature SW1	0: OFF 1: ON		15	System error	0: Normal 1: Abnormal
5	Temperature SW2	0: OFF 1: ON		16 to 31	Measured pressure value	Signed 16 bit
6	Pressure SW1	0: OFF 1: ON		32 to 47	Measured temperature value	Signed 16 bit
7	Pressure SW2	0: OFF 1: ON		48 to 63	Measured flow rate value	Signed 16 bit
8	Flow rate unit	0: L 1: ft3		64 to 79	Accumulated flow rate lower limit	Unsigned 32 bit
9	Flow rate criteria	0: STD 1: nor		80 to 95	Accumulated flow rate upper limit	
10	Flow rate diagnosis	0: Normal 1: HHH				

Diagnosis items
· Rated flow error
· Above/Below the rated pressure range
· Above/Below the rated temperature range
· Error (Over current, Outside of zero-clear range, Version does not match)
· System error (Flow/Temperature sensor failure, Internal malfunction)

Bit offset	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	80
Item	Accumulated flow rate upper limit (PD)																

Bit offset	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	64
Item	Accumulated flow rate lower limit (PD)																

Bit offset	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
Item	Measured flow rate value (PD)																

Bit offset	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
Item	Measured temperature value (PD)																

Bit offset	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
Item	Measured pressure value (PD)																

Bit offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Item	System error	Error	Fixed output	Pressure diagnosis	Temperature diagnosis	Flow rate diagnosis	Flow rate criteria	Flow rate unit	Pressure 2	Pressure 1	Temperature 2	Temperature 1	Flow rate 2	Flow rate 1	Accumulated flow 2	Accumulated flow 1

Application Example

Main line flow control

Can be used for the flow control, etc., of the main line and branch lines
The instantaneous flow, set value, and accumulated value can be checked at the same time.

M/C

M/C

M/C

Flow control for each branch line

3-Color Display Modular Type Digital Flow Switch
PF3A701H/702H(-L) Series

Can be connected to the air combination

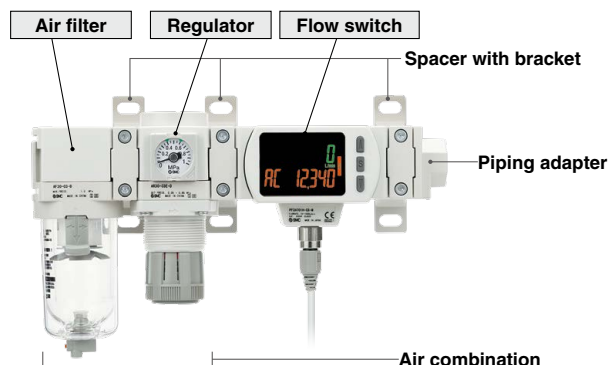| Series	AC30-D	AC40-D	Flow range
PF3A701H(-L)	●		1000 L/min
PF3A702H(-L)		●	2000 L/min

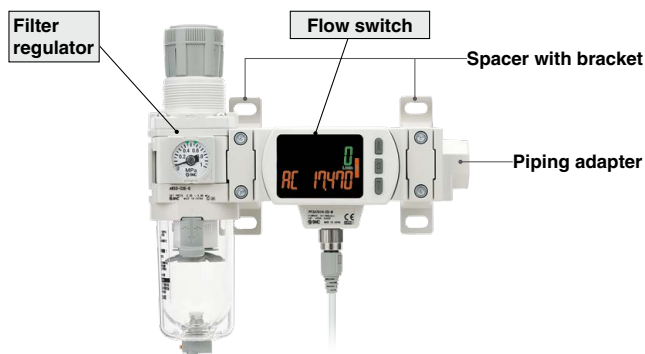1000 L/min
(PF3A701H)

2000 L/min
(PF3A702H)

Air Combination Connection Examples

**Products do not come assembled.
They should be ordered separately and assembled by the customer.**

■ **For the AC30B-D + PF3A701H**

Air filter | Regulator | Flow switch

Spacer with bracket

Piping adapter

Air combination

■ **For the AW30-D + PF3A701H**

Filter regulator | Flow switch

Spacer with bracket

Piping adapter

Simple
Specials
System
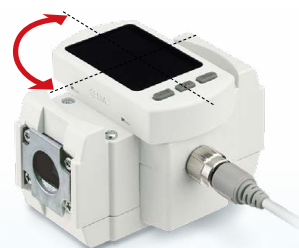
Simple Specials System

Unit with F.R.L is available with the simple special ordering system.
The lead time is almost the same as the standard product.

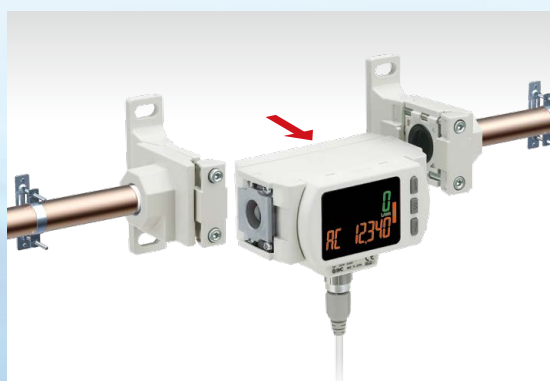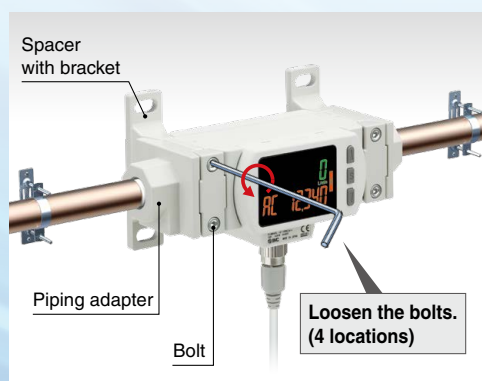Please contact your local sales representative for more details.

■ **A right to left (-R) flow direction is also available.**

← IN

■ **90° rotation**

■ **The flow switch can be installed/removed without removing the piping.**
Reduced maintenance time for inspection, cleaning, replacement, etc.

Spacer with bracket

Piping adapter

Bolt

**Loosen the bolts.
(4 locations)**

When the PF3A703H is used with steel pipes

Loosen the bracket-retaining ring.

Remove the steel pipe from the flow switch.

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