EQUO Series

OMRON

D6FZ-FGX21 Air Flow Station

Start-Up Guide

Thank you for selecting OMRON product.
This guide describes the quick procedures and operational method to start up this product.
For further information, refer to the Instruction Sheet in the package and a user's manual.

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⚠ Read PRECAUTIONS FOR SAFE USE and PRECAUTIONS FOR CORRECT USE described in the Instruction Sheet before using the product.

OMRON Corporation

STEP 1 Checking the contents

Air Flow Station (D6FZ-FGX21)

- ☐ Air Flow Station Unit 1
- ☐ Connection cable 1
- ☐ Alarm output connector 1
- ☐ Instruction Sheet 1
- ☐ Start-Up Guide (This document) 1

STEP 2 Preparing necessary items

- ☐ Air Flow Sensor Unit
  Model :
  D6FZ-FGS1000, D6FZ-FGT
  *Up to 8 units can be connected.
- ☐ Power supply: DC24V
  (Recommended power supply type:
  Omron's S8VS-09024BE)
- ☐ T-branch connector: D6FZ-FC02
- ☐ Double-sided connector cable:
  D6FZ-JD☐B

Recording the measured data into the device

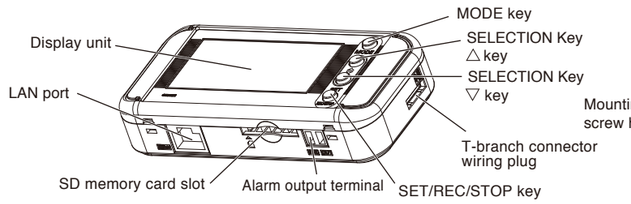
- ☐ SD memory card (SDHC compatible)
  HMC-SD291 (2 GB) (Operation checked.)

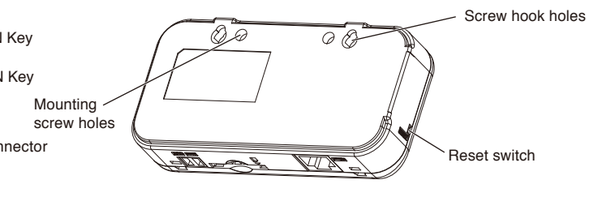
Connecting to the network

- ☐ LAN Cable, HUB for LAN Supporting 10BASE-T and 100BASE-TX
- ☐ SD memory card (SDHC compatible)
  HMC-SD291 (2 GB) (Operation checked.)

Exterior features

Air Flow Station (D6FZ-FGX21)

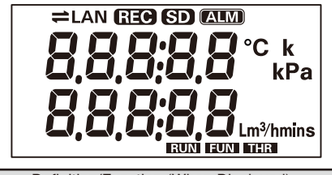




Control unit

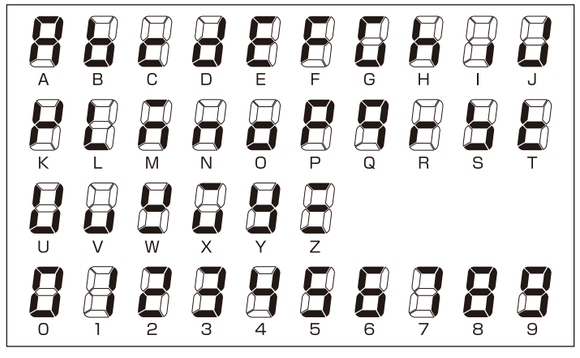
Name	Main function
MODE key	Switches the operation mode. Resets an alarm or error (Long press). Cancels the setting before applying it.
SELECTION key (△key)	Moves the setting items (Upward). Switches the display. Changes the setting value (Incremental). Sequentially switches the Air Flow Sensor unit numbers (Long press).
SELECTION key (▽key)	Moves the setting items (Downward). Switches the display. Changes the setting value Decremental).
SET/REC/STOP key	Applies the setting value or changes. Starts/stops recording (Long press). Saves the recorded data to the SD memory card.

Display unit



Display	Definition/Function (When Displayed)
⇌	Communication via LAN cable is in process.
LAN	A LAN cable is connected and network communication is ready.
REC	Data is being recorded in the internal memory.
SD	An SD memory card is inserted. Blinking: The SD card is being accessed.
ALM	Any of connected Air Flow Sensors has exceeded the specified upper or lower threshold.
RUN	The unit is currently operating in RUN mode.
FUN	The unit is currently operating in FUN mode.
THR	The unit is currently operating in THR mode.

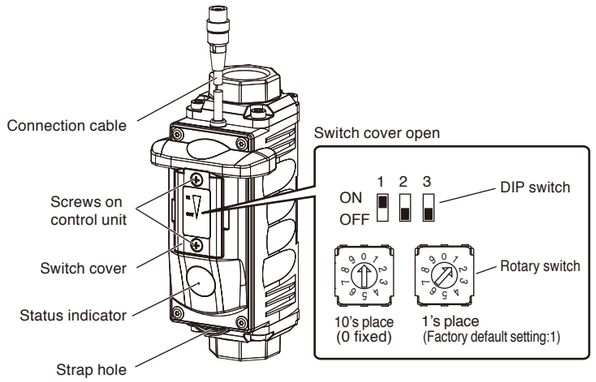
Character Display List



Major messages displayed

Display	String	Display	String	Display	String
cYcLE	CYCLE	month	MONTH	nn.Lo	NN.LOW
Unit	UNIT	dAY	DAY	nn.cUt	NN.CUT
init	INIT	t imE	TIME	hoLd	HOLD
Etc	ETC	oFF	OFF	r inG	RING
nn.SEt	NN.SET	on	ON	rESEt	RESET
nn.PLS	NN.PLS	diSP	DISP	donE	DONE
nn.SCL	NN.SCL	norM	NORM	dAtA	DATA
nn.AvE	NN.AVE	iP	IP	SEn	SEN
nn.GAS	NN.GAS	SUb	SUB	no Sd	NO SD
rESEr	RESTR	rAtE	RATE	SdLcY	SDLCK
bcYUP	BCKUP	conu	CONV	HArd	HARD
cLocY	CLOCK	FUn it	FUNIT	totAL	TOTAL
YEAr	YEAR	nn.hi	NN.HI		

Air Flow Sensor (D6FZ-FGS1000)



Control unit

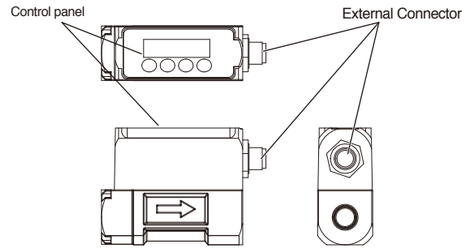
<DIP switch>

No.	Meaning
1	Communication line terminator setting: To use an Air Flow Station or RS-485 communication, turn ON the DIP SW1 of the termination Air Flow Sensor unit in the multi-drop connection. (Factory default setting: ON)
2	Not used (OFF fixed)
3	Default communication setting: Used when you forget changes you made on communication settings. (Factory default setting: OFF)

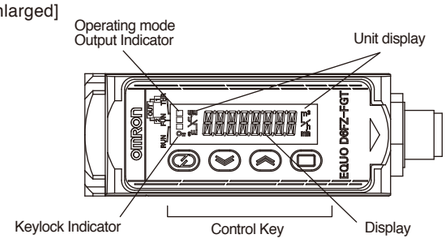
<Rotary switch>
Used to specify the Unit NO.s of the Air Flow Sensors connected to the Air Flow Station. Ten's place is fixed 0. Only the number 1 to 8 can be assigned in 1's place. The Unit numbers must be assigned in the ascending order sequentially without skipping any number. (Do not set the Unit No. to 0 and 9.)

Regarding to the details about refer to the Instruction Sheet and the User's Manual in the Utility CD, both contained in the package.

Air Flow Sensor (D6FZ-FGT☐☐☐)



[Enlarged]



Control Key

Name	Function
MODE Key	Switches operationg modes (RUN/FUN/THR)
	Sets / Resets Key lock mode (Holding* in RUN-mode)
	Cancels settings (In FUN-mode/ THR-mode)
SELECTION Key ≪ / ≫	Selects setting items
	Switches displayed contents
	Changes the setting value(In FUN-mode / THR-mode, High-speed changing by holding* key)
	Flips upside down(Holding* key in RUN-mode)
SET Key	Confirms the setting value
	Sets / Resets zero adjust (Holding* in RUN-mode)
	Sets auto-teaching function(Holding* in THR-mode)

Regarding to the details about refer to the Instruction Sheet and the User's Manual in the Utility CD, both contained in the package.

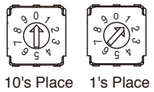
STEP 3 Air Flow Sensor Setting

Set the Unit.No. and Termination resister
- Set Unit number from 01 in sequence.
- When more than one sensors is connected with Air Flow Station, communication terminator of the last sensor must be ON.

Air Flow Sensor (D6FZ-FGS1000)

1 Setting of the Unit No.

Use the right rotary switch to assign the unit number.



10's Place 0 (Fixed)

1's Place

2 Setting of the Termination resister

Set the communication terminator (No. 1) to ON by the DIP switch.

1: ON
2: OFF
3: OFF

1: OFF
2: OFF
3: OFF

Air Flow Sensor (D6FZ-FGT☐☐☐)

1 Setting of the Unit No. display

In order to set the Unit.No.display ,
[1]Select FUN mode by MODE Key.
[2]Press UP-DOWN Key until "SER" is displayed. Then Press SET Key.
[3]Press UP-DOWN Key until "DISP" is displayed.

2 Setting of the Unit No.

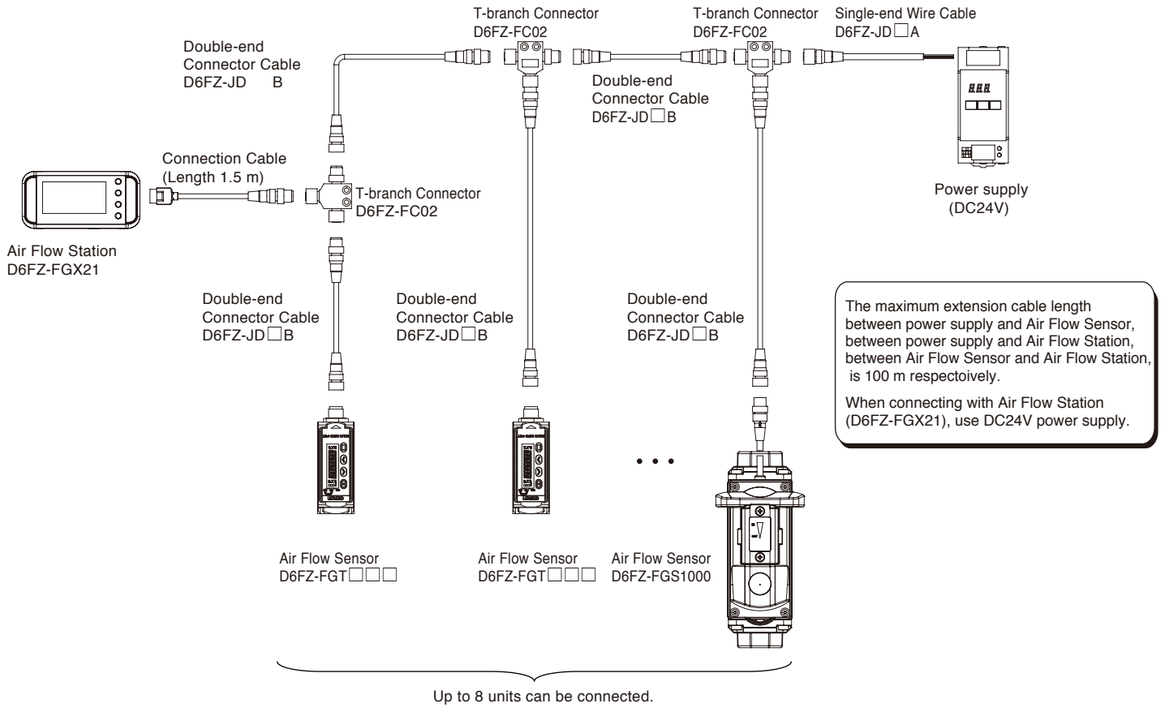
In order to set the Unit No.
[1]Select FUN mode by MODE Key.
[2]Press UP-DOWN Key until "U.No. 01" is displayed. Then Press SET Key.
[3]Press UP-DOWN Key and set the Unit.No. (01 to 08). Then Press SET Key.

3 Setting of the Termination resister

In order to set Termination resister ,
[1]Select FUN mode by MODE Key.
[2]Press UP-DOWN Key until "TER" is displayed. Then Press SET Key.
[3]Press UP-DOWN Key until "ON" is displayed. Then Press SET Key.

STEP 4 Connecting and turning ON the Air Flow Sensor and Air Flow Station

Up to eight* Air Flow Sensor units can be connected to an Air Flow Station. (* When the measurement data recording cycle is 2 second or longer.
Up to four units when the cycle is 1 second.) Connect the Air Flow Sensor and Air Flow Station units as shown below:

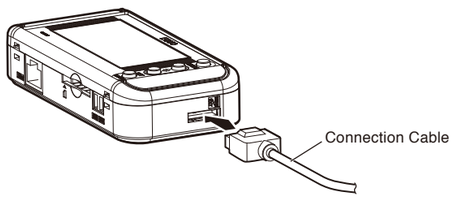


The maximum extension cable length between power supply and Air Flow Sensor, between power supply and Air Flow Station, between Air Flow Sensor and Air Flow Station, is 100 m respectoively.

When connecting with Air Flow Station (D6FZ-FGX21), use DC24V power supply.

1 Connect the connection cable to the Air Flow Station.

Insert the connection cable in the sensor head connector until it clicks.

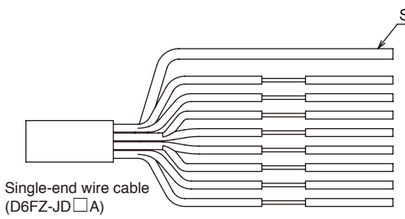


2 Connect an Air Flow Sensor unit to a T-branch connectors (D6FZ-FC02) with the double-end connector cable (D6FZ-JD□B).

If there are multiple Air Flow Sensor units, connect them with T-branch connectors and double-end cables.

3 Connect the connector of the single-end wire cable (D6FZ-JD□A) to the T-branch connector and connect wire cable to the power supply.

For power supply side, connect blue (Pin No.7) of single-end wire cable to 0V and brown (Pin No.2) to DC24V.



Pin No.	Coating color	Signal name	
		D6FZ-FGS1000	D6FZ-FGT□□□
1	White	Pulse output	Pulse/Judgement/Unit Error output1
2	Brown	DC24V	DC24V
3	Black	Analog output 1	Analog output 1
4	Yellow	Analog output 2	NC
5	Gray	RS-485(+)	RS-485(+)
6	Pink	RS-485(-)	RS-485(−)
7	Blue + shield	0 V	0 V
8	Red	Unit Error output2	Pulse/Judgement/Unit Error output2

4 After power supply ON, the units become free-run (recordable) state and measured values are displayed.

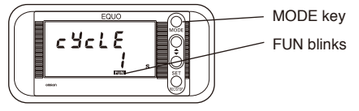
- For details on connecting to the alarm output of Air Flow Station, refer to the Instruction Manual or the User's Manual.
- For details on connecting to the analog, pulse and unit abnormal outputs of Air Flow Sensor, refer to the Instruction Manual or User's Manual.

STEP 5 Setting measurement conditions

Specify the number of Air Flow Sensor units to be connected to the Air Flow Station.
Measurement condition settings can be made on FUN mode.

1 Press the MODE key to blink "FUN".

This operation is not required if FUN is already blinking.

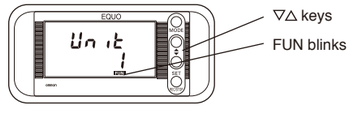


2 Set the UNIT (number of connecting units) of Air Flow Sensor.

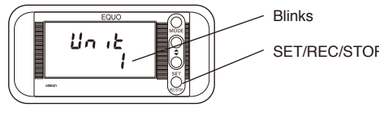
Example: Set to 5 units.

If the display at the lower row is "5", operations (2) to (4) are not required.

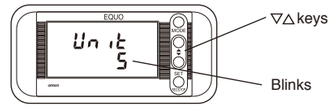
(1) Press the ▽△ keys until "UNIT" is shown at the upper row of the display.



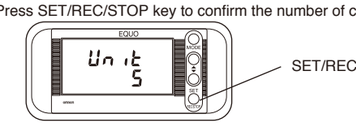
(2) Press the SET/REC/STOP key to blink the display at the lower row.



(3) Press ▽△ keys until "5" is shown at the lower row.



(4) Press SET/REC/STOP key to confirm the number of connecting units to "5".



NOTE.
Specify the measurement data recording cycle to 2 seconds or longer.
(1 second is not selectable.)
Refer to the User's Manual for the setting procedure.

STEP 6 Installing PC software

Installation data is downloaded in a PC from following URL.

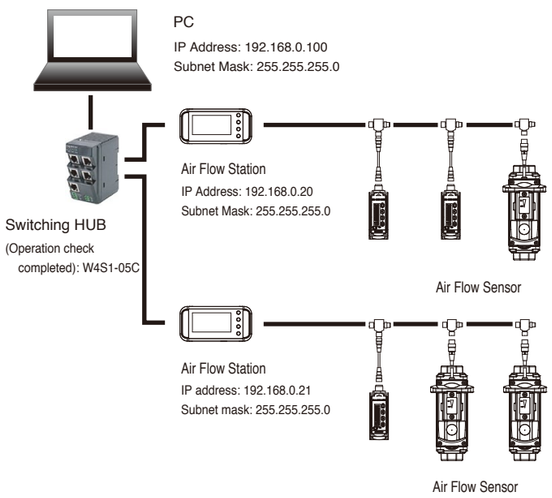
http://www.fa.omron.co.jp/multi-d-v-e

For details on installation and usage of the provided PC software, refer to the User's Manual of the PC software (Installation data).

STEP 7 Connecting to network

Network settings are required to connect Air Flow Station and PC.
Connect the LAN cables after completing the network settings on the Air Flow Station units.

Connection example



Setting example

IP Address of the PC	192.168.0.100
Air Flow Station IP Address	(Unit 1) 192.168.0.20 (Factory default) (Unit 2) 192.168.0.21 (Changed from factory default)
Subnet Mask	255.255.255.0 (Factory default)

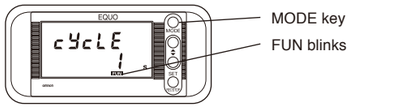
NOTE
- A full understanding of network is required to connect stations to a network.
- Establish a dedicated network for connecting Air Flow Station units to a network.
- Connection to an in-house network or an existing network requires caution, since specific restrictions or rules may have been applied to the IP address management. Consult your network administrator. In case that such a network is used, OMRON cannot guarantee the performance of the Air Flow Station units and the provided PC software.
- The IP addresses of Air Flow Station units and the PC must not overlap one another in the network. When using the subnet mask other than 255.255.255.0, the 4th segments (IP4) of the IP addresses must be individually unique.

Setting Air Flow Station

Make settings on the Air Flow Station in FUN mode.

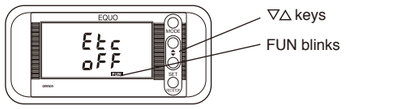
1 Press the MODE key to blink "FUN".

If FUN is already blinking, this operation is not necessary.

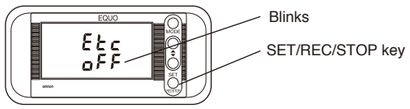


2 Display "ETC" in the upper row and set the lower row to "DISP".

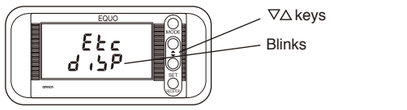
(1) Press the ▽△ keys until "ETC" is shown in the upper line.



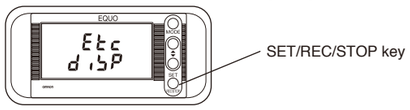
(2) Press the SET/REC/STOP key to make the display in the lower line blink.



(3) Press the ▽△ keys until [DISP] is displayed at the lower row.



(4) Press the SET/REC/STOP key to confirm [DISP].



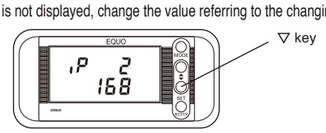
3 As with 2, display "IP" at the upper row and set to "DISP" at the lower row.

4 Set the IP address.

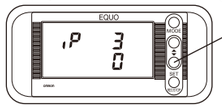
The factory default is “192.168.0.20”.
Here, change the IP address to “192.168.0.21”.

(1) Apply "IP" to "DISP". Then, press the ▽ key to display "IP1".
If "192" is not displayed, change the value referring to the changing "IP 4" example shown later.

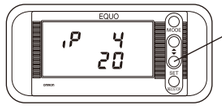
(2) Press the ▽ key to display "IP2".
If "168" is not displayed, change the value referring to the changing "IP 4" example shown later.



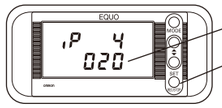
(3) Press the ▽ key to display “IP3”.
If "0" is not displayed, change the value referring to the changing "IP 4" example shown later.



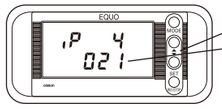
(4) Press the s key to display "IP4".
Change "20" to "21".



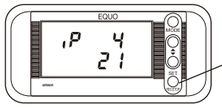
(5) Press the SET/REC/STOP key. "20" in the lower row blinks.



(6) Press the ▽△ keys to change the value to "21".



(7) Press the SET/REC/STOP key to confirm the setting.



5 As with 4 , set SUB 1 to 4 (subnet mask).

Use "255.255.255.0" (Factory default) for subnet mask.
To change the subnet mask, contact your network administrator.

6 Restart the unit by pressing the MODE key twice to exit THR mode.

The unit is connected through the new IP address after restart.

PC settings

For information on IP address settings of PC, refer to Air Flow Sensor/Station User's Manual.
User’s Manual is downloaded in a PC from following URL.

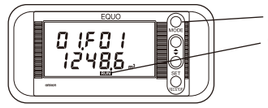
http://www.fa.omron.co.jp/products/family/3160/download/manual.html

STEP 8 Recording

Measured values are recorded into the Air Flow Station. For details on recording into a PC, refer to the User's Manual provided with the PC.

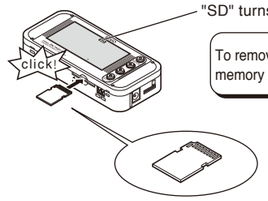
1 Press the MODE key to turn "RUN" ON.

If RUN is already on, this operation is not necessary.



2 Insert an SD memory card to take out the data recorded in the internal memory.

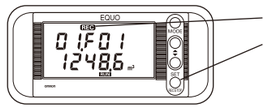
Insert an SD memory card into the SD memory card slot with the metal terminal facing up. "SD" appears on the display.



To remove the card, push the inserted SD memory card inward until it clicks and then pull it out.

3 Hold the SET/REC/STOP key (for 3 seconds or longer) to start recording.

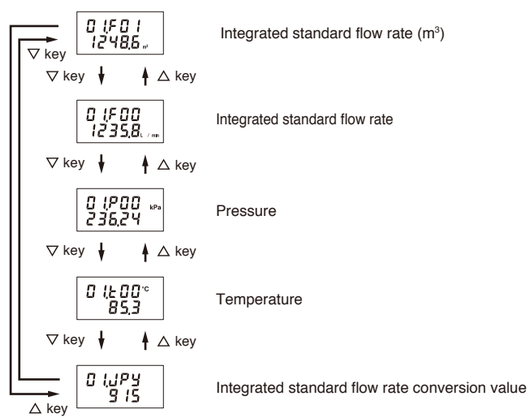
During recording, "REC" is turned ON.
Data is recorded in the internal memory.



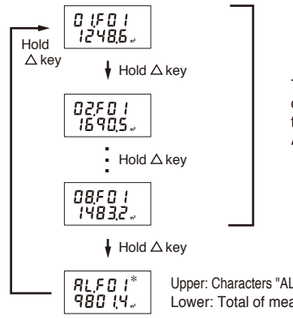
4 By pressing the ▽△ keys, the measurement type can be switched without changing the Air Flow Sensor Unit No.

Measurement type

ID	Item	Unit
F01	Integrated Standard Flow	m3
F00	Momentary Standard Flow	L/min
P00	Pressure	kPa
T00	Temperaturen	℃
JPY	Integrated Standard Flow rate conversion value	JPY



5 By holding the △ key, the Air Flow Sensor Unit No. can be switched without changing the measurement type.



The measured values are displayed for only the number of connected Air Flow Sensors.

Upper: Characters "AL" (represents a total).Measured value code
Lower: Total of measured values

* The total is displayed only when the measured value code is F01 (integrated standard flow rate).

6 By pressing SET/REC/STOP key, the accumulated data is output as file into the SD memory card.

Do not eject the SD memory card while “SD” is blinking.
When “SD” changes from the blinking to turned-on status, writing is complete and you can eject the SD memory card.

- If you hold the SET/REC/STOP key less than 3 seconds, file output is carried out while recording in the internal memory continues.
- If you hold the SET/REC/STOP key more than 3 seconds, file output is carried out though recording into the internal memory is stopped. “REC” turns OFF.
- After "SD" stops blinking, you can eject the SD memory card.

If the internal memory is used up, recording stops. However, when SD card has been inserted, data will be automatically output to the card as a file to continue recording (in the case when factory default is set to the CONTINUE Mode).

Main error messages displayed

Display (Upper line/ Lower line)	Meaning	Description
DATA E1100	Measured data writing failure	Failure in writing the measured data on the SD memory card due to no free memory or pulling out the card while writing. Insert a writable SD memory card. Press and hold the MODE key (for 3 seconds or longer) to release an error display. If an error occurs, insert a proper SD card and stop recording. After the data is properly written to the SD memory card, restart recording.
NO SD E3000	No SD memory card inserted.	No SD memory card is inserted. Insert an SD memory card. Press and hold the MODE key (for 3 seconds or longer) to release an error display.
SDLOC E3002	SD memory card writing is prohibited.	SD memory card writing is prohibited. Insert a writable SD memory card. Press and hold the MODE key (for 3 seconds or longer) to release an error display.

List of Air Flow Station setting items

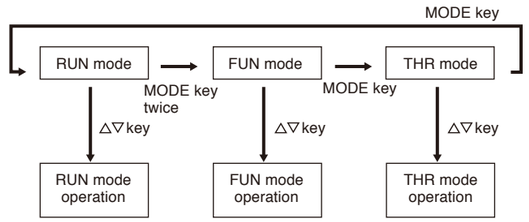
For details, refer to the User's Manual.

Operation mode

The Air Flow Station has three operation modes.
Measurement and recording are performed in RUN Mode.

Mode	Name	Display	Description
RUN	Measurement execution mode	"RUN" turns ON	Used for air flow measurement and recording.
FUN	Function setting mode	"FUN" blinks	Entered to make measurement and recording settings.
THR	Threshold setting mode	"THR" blinks	Sets the threshold of the status indicator of Air Flow Sensor and the upper / lower limit thresholds of Air Flow Sensor for alarm outputs.

Change of operating modes is executed by the MODE key.
Press the MODE key twice to change the mode from RUN to FUN.
For other cases, press the MODE key once.
Press the △ key/▽ key to display the detailed screen.
During recording into the device, transition from RUN mode to other modes is disable.



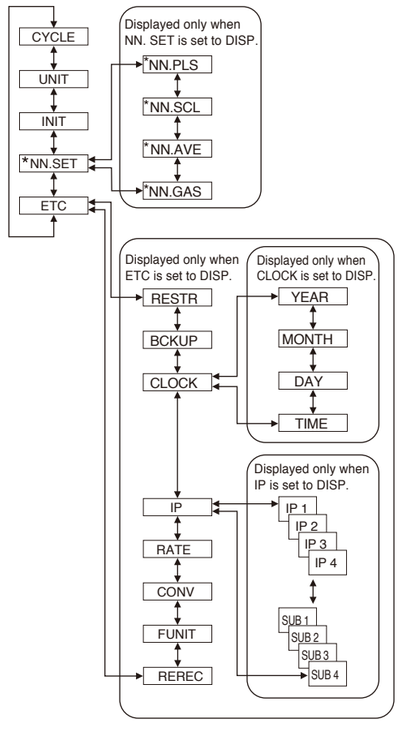
FUN mode

Settings regarding measurement and recording functions can be made in FUN mode.

Display item		Setting item	Description
CYCLE		Data recording cycle	Sets the update intervals of measured values. 1s (second)/2s/5s/10s/20s/30s/1 min (minute)
UNIT		The number of Air Flow Sensor units to be connected	Specifies the number of Air Flow Sensor units to be connected. 1 to 8
INIT		Return to the factory default	Press and hold the SET/REC/STOP key to start initializing. If the operating mode is changed with the MODE key after displaying DONE, the device is reset and starts again.
*NN.SET	*NN.PLS	Pulse setting	Sets the integrated flow rate for a single pulse output from the Air Flow Sensor unit. 1.0/10.0/100.0/1000.0 (L/Pulse)
	*NN.SCL	Flow rate full-scale value setting	Sets the flow rate full-scale value for Analog Output 1 from the Air Flow Sensor unit. 0 to 1000
	*NN.AVE	Setting of frequency of averaging	Sets the frequency of averaging when obtaining the measured value. 1/2/4/8/16/32 (times)
	*NN.GAS	Measurement target gas setting	Specifies the gas to be measured by the Air Flow Sensor unit. Air / N_2
ETC (at DISP)	RESTR	Reading the setting data from the SD memory card	Press and hold the SET/REC/STOP key to read the setting data from the SD memory card and set them on the main unit. If the operating mode is changed with the MODE key after displaying DONE, the device will be reset and reboot.
	BCKUP	Writing the setting data on the SD memory card	Press and hold the SET/REC/STOP key to save the setting data on the SD memory card.
	CLOCK (at DISP) YEAR	Year	Sets the year.
	CLOCK (at DISP) MONTH	Month	Sets the month.
	CLOCK (at DISP) DAY	Day	Sets the day.
	CLOCK (at DISP) TIME	Hour: Minute	Sets Hour and Minute.
	IP (at DISP) IP	IP1 to IP4	IP address 0 to 255
	IP (at DISP) SUB	SUB1 to SUB4	Subnet mask 0 to 255
	RATE	Rate/CO_2 conversion value setting	Sets the rate or CO_2 emission level per 1 m3 of integrated flow rate. 0.000 to 99.999
	CONV	Conversion unit setting	Specifies the unit for the rate/CO_2 conversion setting (RATE). JPY (Japanese yen) / USD (US dollar) / EUR (Euro) / CNY (Chinese yuan) / KRW (Korean won) / CO_2 (CO_2 emission level per 1m^3)
	FUNIT	Unit of display setting	Specifies the unit for displaying the momentary standard flow rate. L/min, m^3/min, L/h, m^3/h

* NN : Unit No. of the Air Flow Sensor which is designated by in RUN mode.

Use the △ key/▽ key to move among the setting items, and fix it with the SET/REC/STOP key.



If "*NN.SET" , "ETC" , "CLOCK" or "IP" is set to "DISP" , the setting will return to "OFF" upon restart.

*NN : Unit No. of the Air Flow Sensor which is designated by in RUN mode.

THR mode

Sets the threshold of the status indicator of Air Flow Sensor and the upper / lower limit thresholds of Air Flow Sensor for alarm outputs in THR mode.
When measurement is performed in RUN mode, if a measured value exceeds the threshold value, "ALM" is turned ON and alarm output becomes ON condition.

Display items	Setting items	Description
*NN.HI	Air Flow Sensor upper threshold value	"ALM" lights and alarm output turns ON if the flow rate is larger than the set value. 0 L/min to 1000 L/min
*NN.LOW	Air Flow Sensor lower threshold value	"ALM" lights and alarm output turns ON if the flow rate is smaller than the set value. 0 L/min to 1000 L/min
*NN.CUT	Leak detection flow rate	The threshold value for zero flow rate and specified between the lower threshold and zero flow rate values. 0 L/min to 1000 L/min
HOLD	Alarm hold setting	Sets if the alarm output is held when a measured value outside the upper and lower threshold range (Alarm status) returns to a normal value within the range during RUN operation. ON/OFF

Use the △▽ key to move among the items, and confirm them with the SET/REC/STOP key.

* NN : Unit No. of the Air Flow Sensor which is designated by in RUN mode.

Suitability for Use: Refer to Suitability for Use in the Instruction Sheet

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