

HORIBASTECH

INSTRUCTION MANUAL

MONITOR UNIT PE-D10

CODE: I031067900E
June 2016 © 2008-2016 HORIBA STEC, CO., Ltd.

For your safety

We describe warning messages in this manual. Before use, make sure to understand the meaning of these messages.

● Meaning of warning messages

⚠ DANGER This indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

⚠ WARNING This indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION This indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. Without safety alert indication of hazardous situation which, If not avoided, could result in property damage.

● Symbols



Preface

This manual describes the operation of the PE-D10 Series. Be sure to read this manual before using the product to ensure proper and safe operation of the instrument. Also safely store the manual so it is readily available whenever necessary. Product specifications and appearance, as well as the contents of this manual are subject to change without notice.

1. Outline

The PE-D10 is an all-in-one control unit that contains a power source, indicator setting and processing circuits designed for the meters compatible with HORIBA STEC's mass flow meters.

2. Specification

Type	PE-D10
Indicator	Display (Red) Maximum Indication 4 1/2 digit
	Display (Green) Maximum Indication 5 digit
	Indication Accuracy F.S.±0.1%±1digit
	Display Average Time Setting is possible voluntarily until 0.1~1.0 seconds
	Unit Attached unit indication seal pasting
Monitor Output	External Output Flow Output Monitor Maximum Output Current 1mA
	Indication Indicate ! ! mark
Alarm Output	External Output High Limit, Low Limit, 2 point Open-collector Output Maximum Rating DC30V 50mA
	Data Backup Data save to the EEPROM
Power Supply Output	MFG Power Supply +15V ±5% 200mA MAX -15V ±5% 300mA MAX +5V ±5% 500mA MAX
	AC Input Rating AC100V~240V (Allowance Input Power Voltage:AC90V~250V)
	Frequency 50/60Hz Consumption Power MAX 30VA (Include power supply capacity of the outside supply)
Temperature	5°C~45°C (Altitude up to 2000m)
	Humidity 30~85% (Non condensing)
	Dimension (mm) 48(W) × 96(H) × 170(D) (Except Protrusion)
Weight	About 800g
	Dielectric Resistance Between AC line and body case DC500V more than 5MΩ by the Megger
	Dielectric strength voltage Between AC line and body case AC1500V 60Hz for a minute
Compatible Specification	CE Marking EMC Directive :EN61326-1 Low Voltage Directive :EN61010-1
	FCC Rules FCC Part15 class B
	Environment RoHS Directive
Accessory	Instruction Manual
	Unit Seals Power Cable 3m [AC125V 7A] Note1)

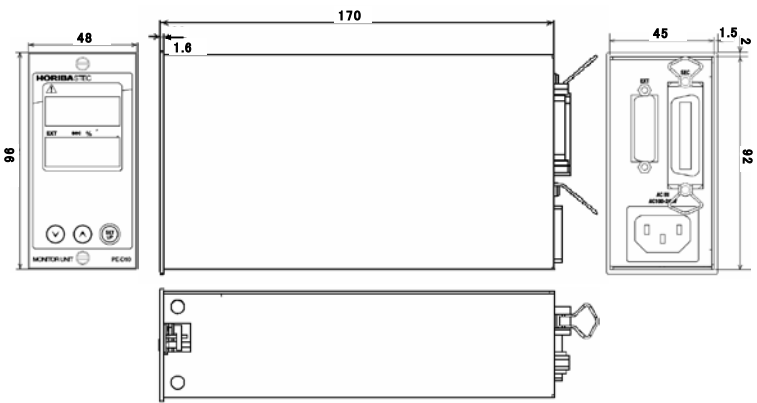
Note

- Note1) Power cable may not be included when this product is exported to specific countries. and attach a label showing the rating of the power cable. Please purchase it on the occasion of use with the voltage more than power supply input 125V separately.
- Note2) This power unit has no power switch. Install a power switch or a circuit breaker near the power unit to turn ON/OFF the power unit.

⚠ WARNING

- The accessory cord set (Power cable) cannot be used for other purpose except this unit.
- The accessory cord set (Power cable) complies with PSE, UL, and CSA standard. When this unit is exported to or used in countries where the standard is not applied, use power cable that complies with the standard in those countries.

3. External Dimension Drawing

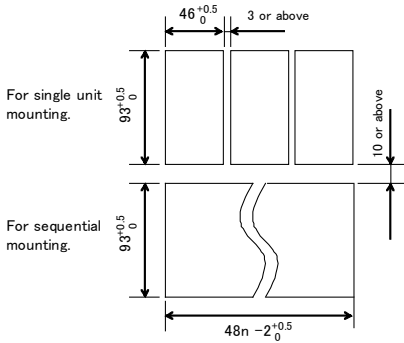


Panel Cut Dimensions

Panel thickness 1.0~3.2mm

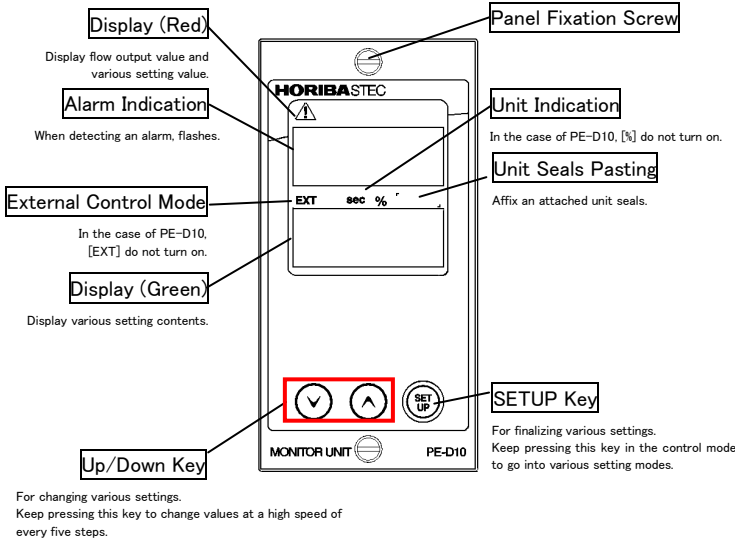
※Fitting hole distances in each row when mounting in two or more units.

“n” indicates the number of PE-D10's to be mounted.

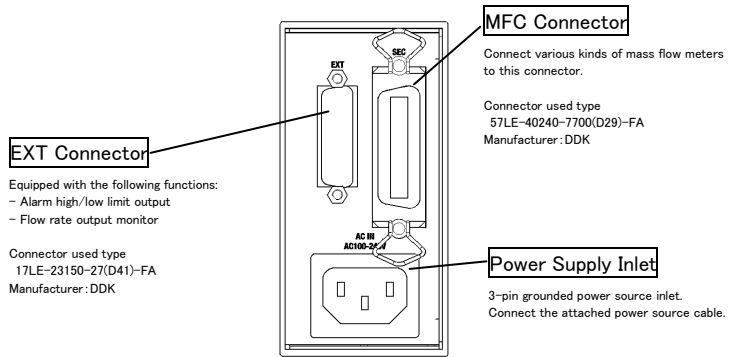


Please install in environment with space to ensure proper airflow.

4. Operating Panel Side



5. Connector Side



MFC Connector

Pin No	Signal name	Content
1	Power supply +5V	+5V power supply Note2)
8	OUT signal	Flow output signal from mass flow meter
10	Power supply +15V	+15V power supply to mass flow meter
11	Power supply -15V	-15V power supply to mass flow meter
12	Valve power supply -15V	-15V power supply to control valve
13	Power supply +5V COM	+5V power supply common
23	Power supply COM	Flow output signal common
24	Valve power supply COM	Valve -15V power supply common Note3)

Connector used: 57LE-40240-7700(D29)-FA

Connector applicable: 57-30240

Manufacturer: DDK

Note

Note2) Power supply +5V is not isolated it from the other power supply.

Note3) This is combined with the Power Supply Voltage ±15V COM.

Note4) The pin except above is a no connection. Do not connect anything.

EXT Connector

Pin No	Signal name	Content
1	N/C	Do not connect anything.
2	N/C	Do not connect anything.
3	N/C	Do not connect anything.
4	N/C	Do not connect anything.
5	N/C	Do not connect anything.
6	ALARM ON/_OFF	While turning No.6 pin of the EXT Connector ON (short circuiting with No.7 pin), an alarm function becomes invalid.
7	DIGITAL COM	It use as common for the input signal No.6 pin of the EXT Connector.
8	ANALOG COM	It use as common for the input and output signal No.14 pin of the EXT Connector.
9	HIGH ALARM COLLECTOR	High limit alarm detection output
10	HIGH ALARM EMITTER	An electric current pass from a collector to an emitter.
11	LOW ALARM COLLECTOR	Low limit alarm detection output
12	LOW ALARM EMITTER	An electric current pass from a collector to an emitter.
13	N/C	Do not connect anything.
14	OUT SIGNAL MONITOR	Monitor output of the flow output signal
15	N/C	Do not connect anything.

Connector used: 17LE-23150-27(D41)-FA

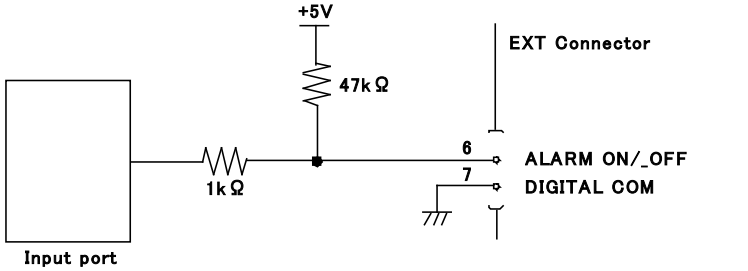
Connector applicable: 17JE-13150-02(D8B)A-CG

Manufacturer: DDK

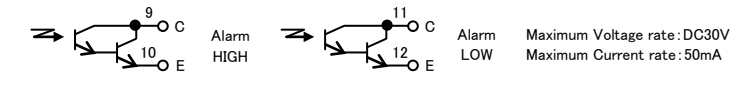
[M3 hexagon nut: 17L-003B3]

[M3 authorized screw]

•The input circuit for No.6 pin of the EXT Connector is as follows.



•The alarm output circuits for No.9~12 pins of the EXT Connector are as follows.



PRODUCT WARRANTY

- Period: This product is warranted for one (1) year (parts and labor) from date of shipment. Repair will be provided free of charge during this period if the product is returned to HORIBA STEC or authorized service representative with a description of the problem. HORIBA STEC is not responsible for damage due to customer neglect or improper operation of this product.
- Scope: Warranty coverage is restricted to this product only. HORIBA STEC is not responsible for damage to other components due to improper operation of this product.
- Warranty: Replacement parts are warranted for ninety (90) days or the remainder of the warranty period (whichever is longer).
- HORIBA STEC is not responsible for damage due to:
 - a) Natural disasters
 - b) Miss-operation or abuse of this product
 - c) Operation or storage in an unsuitable environment
 - d) Operation outside of the rated specifications
 - e) Unauthorized alterations or retrofits to this productRepair expense with / without charge is to be determined as examination and / or disassembly of the returned

■Conformable Directive

This equipment conforms to the following directives and standards:



EMC: EN61326-1
Class B. Industrial electromagnetic environment
Safety: EN61010-1

■Installation Environment

This product is designed for the following environment.

- Installation Categories II
- Pollution degree 2

■FCC Rules

Any changes or modifications not expressly approved by the party responsible for compliance shall void the user's authority to operate the equipment.

■Note

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

标记的意义 Meaning of Marking マークの意味

本标记适用在中华人民共和国销售电器电子产品，标记中央的数字表示环境保护使用期限的年数。（不是表示产品质量保证期间。）只要遵守这个产品有关的安全和使用注意事项，从制造日开始算起在这个年限内，不会给环境污染、人体和财产带来严重的影响。请不要随意废弃本电器电子产品。



This marking is applied to electric and electronic products sold in the People's Republic of China. The figure at the center of the marking indicates the environmental protection use period in years. (It does not indicate a product guarantee period.) It guarantees that the product will not cause environment pollution nor serious influence on human body and property within the period of the indicated years which is counted from the date of manufacture as far as the safety and usage precautions for the product are observed. Do not throw away this product without any good reason.

本マークは、中華人民共和国で販売される電気電子製品に適用され、マークの中央の数字は環境保護使用期限の年数を意味します（製品の品質保証期間を示すものではありません）。この製品に関する安全や使用上の注意をお守り頂く限り、製造日から起算するこの年限内では、環境汚染や人体や財産に深刻な影響を及ぼすことはありません。本製品をみだりに廃棄しないでください。

产品中有害物质的名称及含量

Name and amount of hazardous substance used in a product

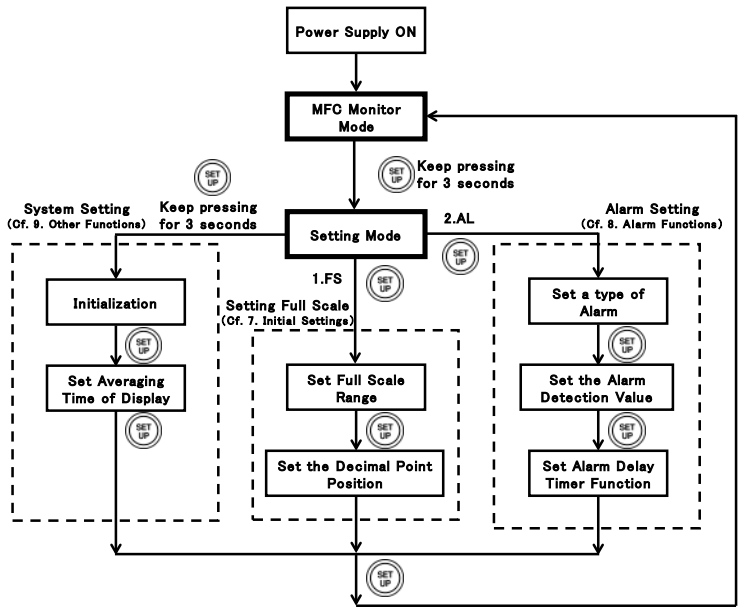
部件名称 Unit name	有害物质 Hazardous substance					
	铅 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent chromium (Cr (VI))	多溴联苯 Polybromo- biphenyl (PBB)	多溴二苯醚 Polybromo- diphenyl ether (PBDE)
印刷电路板 Printed board	×	○	○	○	○	○
箱 Case	○	○	○	○	○	○
电源单元 Power supply unit	×	○	○	○	○	○
线材 Wire rod	○	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

This form is prepared in accordance with SJ/T 11364.

- : 表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。
Denotes that the amount of the hazardous substance contained in all of the homogeneous materials used in the component is below the limit on the acceptable amount stipulated in the GB/T 26572.
- ×: 表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。
Denotes that the amount of the hazardous substance contained in any of the homogeneous materials used in the component is above the limit on the acceptable amount stipulated in the GB/T 26572.

6. State Transition Diagram



7. Initial Settings

Before starting to use the unit, follow the steps below to set it up.

⦿ Attaching Unit Seals

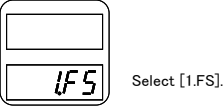
Choose unit seals you use from those coming with the meter. Affix the unit seals to the unit positions. (Cf. 4. Operating Panel Side diagram)

⦿ Setting Full Scale

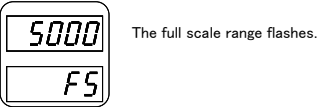
Set the full scale value (equivalent to 5V of the mass flow meter).

Follow the steps below to set the full scale value depending on the model you use.

- ① Enter the setting menu selection mode.
Keep pressing the 【SETUP】 key for 3 seconds.
- ② Enter the full scale setting mode.
Press 【↑】 key or 【↓】 key to select [1.FS].
With the following indication appearing on the screen, press the 【SETUP】 key.

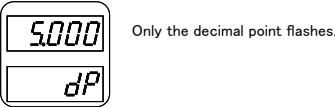


- ③ Set the full scale range. (100 to 5,000)
Press the 【↑】 key or 【↓】 key to change the value.



Press the 【SETUP】 key to register the range.

- ④ Set the position of decimal point. (□□□□~□. □□□)
Press the 【↑】 key or 【↓】 key to change the position of decimal point.



Press the 【SETUP】 key to register the decimal point position.

⦿ Factory Settings

The Initial Settings of the factory settings are as follows.

• Setting Value	: 1000 (5.000V)
• Full Scale Range	: 1000
• Decimal Point	: Put off

8. Alarm Functions

The system output the high and low limit external output and displays them on the panel.

○ Method of Alarm Detection

- Alarm3 : Set the high limit and low limit of the flow rate output (OUT value) separately.
The high limit of the flow rate is up to +150% of the full scale value.
The low limit of the flow rate is up to -5% of the full scale value.
As the alarm external output, the system output the high limit alarm when exceeding the alarm high limit and the low limit alarm when exceeding the alarm low limit.

○ Alarm External Output

- The system output an external output of the high limit and the low limit separately.
The output is of isolated open collector output.
The alarm output can be chosen from Contact A and Contact B.
(For both high and low alarms)
- Contact A : Normal Open (Closed on occurrence of alarm)
 - Contact B : Normal Close (Opened on occurrence of alarm)

○ Alarm Display on Panel

When detecting an alarm, flashes.

○ Alarm Delay Timer Function

When it continued the state that the output was against from the alarm setting range more than number of seconds setting, the alarm output.
Setting is available within a range of 0-60 seconds.

○ Alarm OFF

When the EXT connector No.6 pin (ALARM ON/_OFF) has been shorted with the EXT connector No.7 pin (DIGITAL COM), alarm is made invalid.

Note

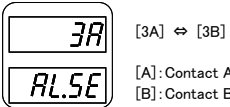
- There is no alarm hold function.
- The PE-D10 can read out the range of flow rate output from -0.4V to 8V.

To use the alarm functions, follow the steps below for the setting.

- ① Enter the setting menu selection mode.
Keep pressing the 【SETUP】 key for 3 seconds.
- ② Enter the alarm setting mode.
Press the 【↑】 key or 【↓】 key to select [2.AL].
With the following indication appearing on the display, press the 【SETUP】 key.

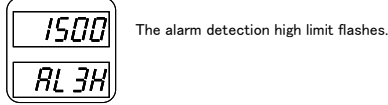


- ③ Select a type of alarm detection. (3A, 3B)
Press the 【↑】 key or 【↓】 key to select a type of alarm.



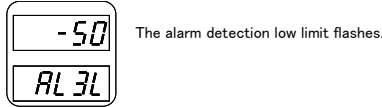
Press the 【SETUP】 key to register the type of alarm detection.

- ④ Set the alarm detection value.
 - Alarm 3 (High limit: +150% of the full scale value, Low limit: -5% of the full scale value)Press the 【↑】 key or 【↓】 key to set the alarm detection high limit.



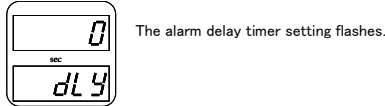
Press the 【SETUP】 key to register the high limit.

Press the 【↑】 key or 【↓】 key to set the alarm detection low limit.



Press the 【SETUP】 key to register the low limit.

- ⑤ Set the alarm delay timer. (0 to 60 seconds)
Press the 【↑】 key or 【↓】 key to set the alarm delay timer.



Press the 【SETUP】 key to register the alarm delay timer setting.

⦿ Factory Settings

The Alarm Functions of the factory settings are as follows.

• Alarm Type	: Alarm3
• Alarm Output	: Contact A
• Alarm Detection Value	: 1500 (High limit) / -50 (Low limit)
• Alarm Delay Timer Value	: 0 second

9. Other Functions

Additionally, the system has the following functions. Use them as necessary.

○ Initialization

This is to reset the system back to the factory settings.

○ Averaging Time of Display

This is to change the number of times for averaging the flow rate output that appear on the display.
Set the value to 1 to 10 (0.1 to 1 second).

For Initializing and Averaging Time of Display, follow the steps below for the system setting.

- ① Enter the setting menu selection mode.
Keep pressing the 【SETUP】 key for 3 seconds.
- ② Enter the system setting mode.
In the setting menu selection mode, keep pressing the 【SETUP】 key for 3 seconds.
- ③ Select whether to initialize or not. (yes or no)
Press the 【↑】 key or 【↓】 key for the selection.



Press the 【SETUP】 key to register the setting.

- ④ Set the Averaging Time of Display. (1 to 10)
Press the 【↑】 key or 【↓】 key for the selection.



Press the 【SETUP】 key to register the setting.

⦿ Factory Settings

Other Functions of the factory setting is as follows.

• Averaging Time of Display	: 1
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