

CODE: I031272700
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型式	SEC(F)-N136JM	SEC(F)-N136JR	SEC(F)-N146JM	SEC(F)-N146JR
<p>本製品は PROFIBUS 通信対応モデルで、特殊用途対応のマスフローコントローラ／メータになります。各特殊仕様に対しては、オプション番号を持っており各々個別に仕様書を揃えておりますので、別途弊社窓口までお問い合わせ下さい。</p>				

*1: SEF シリーズでは N.C. となります。

*2: 13~32V 入力で OPEN、GND~-15V 入力で CLOSE となります。

*3: 負荷抵抗は、0~5VDC: 最小負荷抵抗 2k Ω 、0~10VDC: 最小負荷抵抗 5k Ω 、4~20mA: 最大負荷抵抗 250 Ω です。

*4: 入力インピーダンスは、0~5VDC/0~10VDC: 1M Ω 以上、4~20mA: 250 Ω です。
Pin No.4、7 の信号コモンは、MFC 内部で接続されています。
Pin No.8 は、0~5VDC/0~10VDC 時に Pin No.4、7 と共通となります。
電源コモンと信号コモンは内部で接続されていません。
ノイズの影響を最小限に抑えるため、各ケーブルは必ずシールドケーブルをご使用下さい。

N.C.: ノンコネクション(何も接続しないで下さい。)
コネクタとケーブルは、PROFIBUS-DP 指定品をご使用下さい。終端抵抗は
内蔵していません。

ガスラインの接続を本体の矢印の向きに従い配管して下さい。
 入口・出口の継手は1/2inch VCR相当のオス継手が標準になっております。
 本体の取付姿勢は自由です。任意の姿勢でご使用下さい。
 ガスライン接続部のリークテストをHeリークディテクタ等の機器で行って下さい。

電気系接続をコネクタ接続表に従い配線して下さい。

供給可能電源	DC 13 ~ 32V	350mA at 13V
定格 24V		

電源投入後ガスの供給を止めた状態で5分以上(推奨30分)暖機を行って下さい。
暖機無しでも動作に支障はありませんが、流量精度は悪くなります。
(1時間以上通電後、ゼロ補正機能の使用をお勧めします。)

デジタルモード…プロフィバス通信による流量設定。
アナログモード…アナログ信号による流量設定。

1) 非公開のコマンド実行は避けて下さい。(非公開コマンドを探る作業を含みます。内部定数が消えたり、変化してしまうなどのトラブルの原因になったり、装置に悪影響を与える場合も考えられます。また、特別コマンドの実行も十分に注意し、何が起こるか承知した上で行なって下さい。完全な復旧が出来ない場合があります。

13) 本製品は工業環境用の製品です。家庭環境においては、無線妨害を生ずることがあり、その場合には使用者が適切な対策を講ずることが必要になることがあります。

1)保証期間
弊社発送後 1 年間とし、この期間内に発生し弊社に送付された下記4) 項以外の故障品については無償で修理いたします。

3)交換部品の保証
交換後 90 日または1)項保証期間までのどちらか長い期間。

a. 反応性の強いガスを使用した場合、バージが不完全であったり、ガスラインリークにより詰まりが生じた場合。

b. ダストやミストにより汚染又は詰まりを生じた場合。

返品されたものを分解点検し、有償、無償を判断いたします。

本标记运用在中华人民共和国售电器电子产品，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。

お買上げの代理店、もしくは、弊社までご連絡下さい。

〒601-8116 京都市南区上鳥羽錦立町 11-5
TEL. 075-693-2300 FAX. 075-693-2350
<http://www.horiba-stec.jp>

HORIBASTECH
INSTRUCTION MANUAL

MASS FLOW CONTROLLER / METER
SEC(F)-N136JM(R)/N146JM(R)

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1.SPECIFICATIONS

Table with 5 columns: MODEL, SEC(F)-N136JM, SEC(F)-N136JR, SEC(F)-N146JM, SEC(F)-N146JR. Content includes model specifications and contact information.

2.ELECTRICAL CONNECTION

Connector to be used D-subminiature 9 contact pin in connector with #4-40 UNC

Table with 2 columns: Pin No., Signal Name. Contains pin assignments for valve override, flow rate output, power supply, and signal common.

Notes:
*1: No connection for SEF series.
*2: 13~32V:OPEN,GND~-15V:CLOSE
*3: 0~5VDC:Minimum resistance 2kΩ,0~10VDC:Minimum resistance 5kΩ, 4~20mA:Maximum resistance:250Ω
*4: Input impedance 0~5VDC/0~10VDC: Minimum 1MΩ, 4~20mA:250Ω

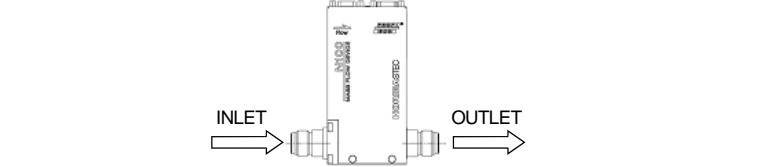
Connector to be used D-subminiature 9 contact socket in connector with #4-40 UNC

Table with 2 columns: Pin No., Signal Name. Contains pin assignments for N.C., RXD/TXD-P, CNTR-P, Digital signal GND, V.P., and RXD/TXD-N.

Notes: *1:N.C. means No Connection.
The connector and cable recommend the PROFIBUS-DP specification. The terminator is not built into.

3.HOW TO OPERATE

1) Connection to Gas System
The MFC case is labeled with a flow direction arrow. Please make sure that the MFC is mounted in the corrected direction with respect to flow.



Gas inlet and outlet of the MFC fittings are 1/2inch VCR or equivalent with male screw fitting as standard. These MFCs can be mounted in any orientation, in most applications, without degradation of performance. Please make sure that process connections are as leak tight as possible. Confirm leak integrity of the installed MFC at the gas system connections using a helium mass spectrometer leak detector with sufficient sensitivity

2) Connection to Electrical System
Electrical connection is in accordance with the electrical pin assignments table.
Power requirements for direct current are:
DC 13~32V、350mA at 13V Rated voltage: 24V

3) Warming Up Operation
The power is to be supplied more than five minutes without gas flowing, as warming-up operation. It is recommended to maintain 30 minutes as warming up operation. Without warming-up operation, flow rate accuracy may have variations. It is recommended to use Zero-Adjust function after power is supplied for more than one hour.

(4) Miscellaneous Functions

Diagram showing Zero Adjust Switch, Rotary switch (ADDRESS: 0x01~0x7D), PROFIBUS, and STATUS LED.

NET	PROFIBUS communication status	MOD	MFC status
Green	Communicating	Green, Flash	Digital mode
Red	Not communicating	Green, Solid	Analog mode
Yellow	Initialize communication error (Address setting is out of range, etc...)	Red, Flash	Digital mode, Alarm
		Red, Solid	Analog mode, Alarm

Digital mode ... MFC set point is supplied by PROFIBUS signal. Analog mode ... MFC set point is supplied by analog input.

4.CAUTION AND REMINDERS

- 1) Please make sure that process piping system is as leak tight as possible. It is important to purge the entire gas line. If the purge is not sufficient, it might invite troubles such as particle generation, clogging, decrease in throughput, etc.
- 2) Please install gas filter on inlet side of MFC for eliminating particles and impurities which flow from upstream of gas line.
- 3) Preservation temperature of MFC is 0 to 80°C. Please avoid the temperature out of range for preservation. Please do not dewing it, or make it to failure.
- 4) Never remove the MFC case, since there is a high voltage portion built inside the MFC. Removing the MFC case might invite to receive an electric shock, or to result in failure of the MFC.
- 5) Analog flow rate signal may be output transitionally within the range of the power supply voltage. When the analog flow rate signal is used, please take care of the input voltage resistance of the system.
- 6) Please do not turn on and off the power repeatedly in a short period. More than three(3) seconds should be kept before turning on the power again. Each ±15V power source should be turned on/off simultaneously. Partial power supply or signal input, and plugging/unplugging while power is supplied, may cause trouble.
- 7) When utilizing Zero-Adjust function, do not pressurize inside the DMFC. If pressurized gas is inside DMFC, the function does not work correctly. After gas flow is suspended, waiting more than 1 minute is recommended to make the sensor output steadier. It needs 1 hour for the DMFC becoming steady after power is turned on.
- 8) Please do not apply any excessive force on the main body of the MFC and the cable.
- 9) Please do not apply excessive pressure on the MFC.
- 10) The flow rate of MFC at shipment is calibrated at 25 under 1013hPa(1atm) or 0 under 1013hPa(1atm). The following notations are used for gas flow rate units for convenience; CCM, LM : ml/min, l/min at 25 under 1013hPa(1atm) SCCM, SLM : ml/min, l/min at 0 under 1013hPa(1atm)

- 11) Please keep in mind that the control valve used in the MFC cannot provide positive shut-off capability. Where positive shut-off is required, a separate isolation valve should be installed for this purpose.
- 12) Please do not search and/or run non-disclosed commands, or there is a possibility to change or ruin the important inner data, and to invite troubles having adverse effect on the DMFC performance. Even the special command should be executed with a great care, after recognizing what is to be executed by the commands. If not, the complete restoration may not be assured.
- 13) When the control valve in the DMFC is fully open or when it's out of control, the flow rate of gas exceeds the indicated F.S. value.
- 14) This is a product for industrial environments. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

*This instruction manual is subject to alteration without notice.

5.PRODUCT WARRANTY

- 1) 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 products 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.
- 2) 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.
- 3) Warranty: Replacement parts are warranted for ninety (90) days or the remainder of the warranty period (whichever is longer).
- 4) 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 product

Examples for out of scope of responsibility by HORIBA STEC;
*In case of use of high reaction gas, clogging due to incomplete purge or leakage, etc. in gas line.
*Contamination or clogging by dust or mist, etc.
Repair expense with/without charge is to be determined as examination and/or disassembly of the returned products.

产品中有害物质的名称及含量

Name and amount of hazardous substance used in a product

Table with 7 columns: 有害物质 (Hazardous substance), 部件名称 (Unit name), 铅 (Lead), 汞 (Mercury), 镉 (Cadmium), 六价铬 (Hexavalent chromium), 多溴联苯 (Polybromobiphenyl), 多溴二苯醚 (Polybromodiphenyl ether). Content includes RoHS compliance information and a 25-year environmental protection mark.