

## F-213AI

工業級氣體熱質流量控制器



## 技術規格

## 測量與控制

|                                     |                                                            |
|-------------------------------------|------------------------------------------------------------|
| Type of media                       | 氣體                                                         |
| 流量範圍                                | min. 4...200 l <sub>N</sub> /min                           |
|                                     | max.33...1670 l <sub>N</sub> /min                          |
| 準確性                                 | ±0.5% Rd 加 ±0.1% FS                                        |
| 再現性                                 | <±0.2% Rd (或 <±0.04% FS, 以較大者為準)                           |
| Turndown ratio                      | 最高可達 1:187.5(類比模式為 1:50)。                                  |
| 多種流體功能                              | 最多可儲存8 條校準曲線                                               |
| Settling time (in control, typical) | 2 ... 4 秒。                                                 |
| 控制穩定性                               | <± 0.1 % FS (典型值)                                          |
| 操作溫度                                | -10...+70°C; 0...+50°C for ATEX zone 2, KCs, Class1 Div 2  |
| 溫度敏感性                               | zero: < 0.05% FS/°C; span: < 0.05% Rd/°C                   |
| Leak integrity, outboard            | 經過測試 < 2 x 10 <sup>-9</sup> mbar l/s He                    |
| 壓力敏感度                               | 0.1% Rd/bar typical N2; 0.01% Rd/bar typical H2            |
| Max. Kv-value                       | 0.15 ... 1.5                                               |
| 安裝                                  | max. error at 90° off horizontal 0.2% at 1 bar, typical N2 |
| 熱機時間                                | 30分鐘                                                       |
| 儲存/運輸條件                             | 0...+50°C, max. 95% RH (non-condensing)                    |

## 審批

|         |                                 |
|---------|---------------------------------|
| 電氣安全    | IEC 61010-1                     |
| Marking | CE, UKCA, RoHS, WEEE, REACH     |
| 防爆      | Class I Div 2, ATEX Zone 2, KCs |

## 機械規格

|                       |                                                                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 壓力等級 (PN) - 單位 : barg | 100                                                                                                                                                 |
| Ingress protection    | IP65                                                                                                                                                |
| Material wetted parts | 不銹鋼 316L 或同類材質                                                                                                                                      |
| 密封材質                  | 標準 : FKM/Viton®;選項 : EPDM, FFKM/Kalrez®, FDA and USP Class VI 認可化合物                                                                                 |
| Plunger material      | standard: FFKM with PI (polyimide) foil; options: EPDM with PI foil, FDA and USP Class VI approved EPDM, FDA and USP Class VI approved FFKM/Kalrez® |
| Process connections   | compression type or face seal (VCR/VCO)接頭                                                                                                           |
| Min.ΔP                | 2 bar(d)                                                                                                                                            |
| Max. ΔP               | 20 bar(d)                                                                                                                                           |
| 重量                    | 5.0 kg                                                                                                                                              |

## 電氣特性

|       |                                                                                                                                                  |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 電源供應  | +15...24 Vdc                                                                                                                                     |
| 耗電量   | 3.5 W typical at 24 V<br>for fieldbus: add 0.9 W                                                                                                 |
| 類比輸出  | 0...5 (10) Vdc or 0 (4)...20 mA (sourcing)                                                                                                       |
| 類比設定點 | 0...5 (10) Vdc or 0 (4)...20 mA (sinking)                                                                                                        |
| 數位通訊  | standard: RS232 options: CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus RTU, ASCII or TCP/IP, EtherNet/IP, POWERLINK or FLOW-BUS |

## 電氣介面

|                                                               |                        |
|---------------------------------------------------------------|------------------------|
| 電源(儀表接口)                                                      | 8-pin DIN (male)       |
| 通訊(儀表接口)                                                      | Analog, RS232, RS485   |
| PROFIBUS DP                                                   | 8-pin M12B (female)    |
| CANopen / DeviceNet                                           | 5-pin M12A (male)      |
| Modbus RTU/ASCII/FLOW-BUS                                     | 5-pin M12A (male)      |
| Modbus TCP / EtherNet/IP / EtherCAT®/<br>PROFINET / POWERLINK | 2x 4 pin M12D (female) |