



FC2000 Gas & Steam Flow Computer

Overview



The FC2000 Steam and Gas Flow Computer는 가스 및 증기 (응축수)에 대해 다음과 같은 보정 방정식을 사용합니다.

이상기체(Ideal Gas) 온도와 압력을 보정하지만 압축성은 무시합니다.

일반가스(General Gases) Redlich-Kwong 상태 방정식을 사용하여 압축률을 계산합니다. 이 방정식은 알려진 특성을 갖는 가스에 적합하며 일반적인 산업용 가스에 대한 정보는 매뉴얼에 제공됩니다.

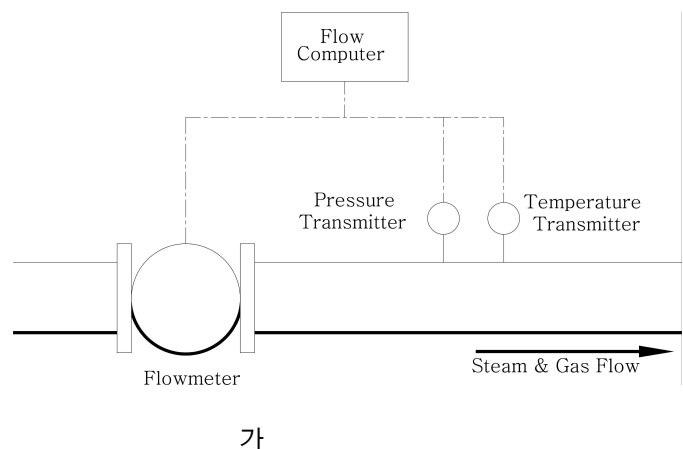
천연가스(Natural Gas) NX-19 방정식을 사용하여 퍼 압축률을 계산합니다

Steam 방정식 포화 및 과열 증기에 대한 스팀 방정식 (응축수포함). 질량 및 에너지 유속은 증기의 비 및 엔탈피를 결정하기 위해 표준 방정식을 사용하여 계산됩니다.

와류, 터빈, 오리피스 플레이트, 평균 피토 튜브 웨지 및 양 방향 차압유량계를 포함하여 광범위한 유량계의 입력을 처리 할 수 있습니다. 또한 두 개의 차압 전송기가 오리피스 또는 유사 장치에서 사용되는 경우 측정된 유량범위를 늘리기 위해 두 개의 차압 전송기입력이 자동 크로스 오버로 개별적으로 허용되고 조정됩니다.

Features

- ✓
- ✓ 가
- ✓
- ✓
- ✓ 14-28VDC AC
- ✓
- ✓
- ✓
- ✓ Backlight





■ Specifications

General

Display 96X31mm Graphic LCD (Backlight)

Transducer Supply

8-24V dc field adjustable, 100mA max

Power Requirements

DC Supply : 24VDC

AC Supply : 100~240VAC

Operating Temperature 0 to 55°C

Dimension 146mm(w) X 75mm(h) X 151mm(d)

Panel cutout 139mm(w) X 66.5mm(h)

Frequency Input

Range

Minimum : 0.25Hz on Rate, 0Hz on Total

Maximum : 10KHz

Input Circuits

Sine, logic and proximity switch inputs,

Current Pulses, Open Collect Pulses.

Meter factor Range 0.000001 to 1000

Non-Linear Correction

Up to 10 correction points

4~20mA Inputs

Input Types

Flow (2 ranges), pressure and temperature

Input Impedance 250 ohms

Measurement Range

Pressure: 0 kPa abs to 100,000 kPa abs

Temperature:

-273°C(0°K) to 1200°C (1473.15°K)

Flow : 999,999

Accuracy : 0.1%

Circuit 250 ohm resistors connected to a common signal ground (current sinking)

Non-Linear Correction

A 20 point curve can be applied to the flow input

RTD Input

Type Platinum PT100 4Wire or 2,3Wire

Range -100°C (173.15°K) to 300°C (573.15°K).

(Note a wider temperature range can be handled via a 4~20mA input.)

Accuracy 0.1 °C

Linearity

The non-linearity of the RTD is internally compensated for

Pressure Input

Type Absolute or gauge

Span Absolute or gauge pressure is programmable at 4mA and 20mA

Atmospheric If a gauge pressure sensor is used, the atmospheric pressure is programmable

Pulse Output

Corrected Pulse

Pulse Width

10, 100, 250, 500ms (negative going pulse)

Duty Cycle 50 pulses/sec. max.

Uncorrected Pulse

Specification of the output is the same as the input.

Output

Open collector transistor will sink 50mA max. (Note: Suitable for driving remote counters or PLC's.)

Current Pulse. (Only Corrected pulse.)



4~20mA Output

Function

Output flow rate in calculated volume, mass and Energy. The 4~20mA Point

Resolution 12 Bits

Accuracy Better than 0.1%

Maximum Load

600 ohms internally powered.

Isolation Output is isolated

RS232/422/485

Type

Both RS232 and RS422 are provided.

(Note : When using the RS422, multi-point communication (RS485) can be implemented with up to 32 instruments connected to a common bus.)

Function

Printer and computer protocols are fully programmable

Printer

A print is initiated on each reset or at a programmable time interval. (Note: Protocols are provided for roll & column printers.)

Computer

An ASCII based protocol enables all displayed parameters to be read and the totals to be reset

Baud Rate : 300 to 19200

Data Bits : 7 or 8

Parity : None , Odd or Even

Protocol

ASCII, ASCII2, MODBUS RTU,
MODBUS ASCII

Data Logging

Output generated at intervals of once a minute to once every 24 hours. The totals can be programmed to reset on each print or at 24:00 hours

Time

A real time clock is provided to give time and date on each output

Relay Output

Function

High and low flow rate alarms based on the flow rate in mass, corrected volume or energy

Maximum Ratings

Power : 250VA

Voltage : 250VAC, 30VDC

Current : 5 Amps

Options

SD Card 2-64GB Potable Data memory

Ethernet 10/100 Base-T Ethernet

TCP, UDP, IP, ARP, ICMP, MAC, DHCP

WiFi IEEE802.11/b/g/n Compatible

CDMA External Module(BSM865)

Ideal Gas

Display Corrected Volume, Mass

Temperature Range

-273°C (0°K) to 400°C (673.15°K)

Pressure Range

0 kgf/cm² to 100 kgf/cm² abs

General Gas

Gases Handles most gases for which the critical temperature, pressure and specific gravity are known

Compressibility Calculated using the

Redlich-Kwong¹ equation

Temperature Range

-273°C (0°K) to 450°C (723.15°K)

Pressure Range

0 kgf/cm² to 100 kgf/cm² abs



Natural Gas

Calculation Uses NX-19 equation to calculate supercompressibility F_{pv}

Temperature Range

-40°C (233.15°K) to 115°C (388.15°K)

Pressure Range

0 kgf/cm² to 100 kgf/cm² abs

SG Range 0.554 to 1.000

Carbon Dioxide 0 to 15% mole

Nitrogen 0 to 15% mole

Steam

Calculations Uses 1997 IFC Formulation(ASME) equation to calculate specific weight and enthalpy of steam

Steam Type Saturated and Superheated.

Temperature Range

100°C (373.15°K) to 450°C (723.15°K)

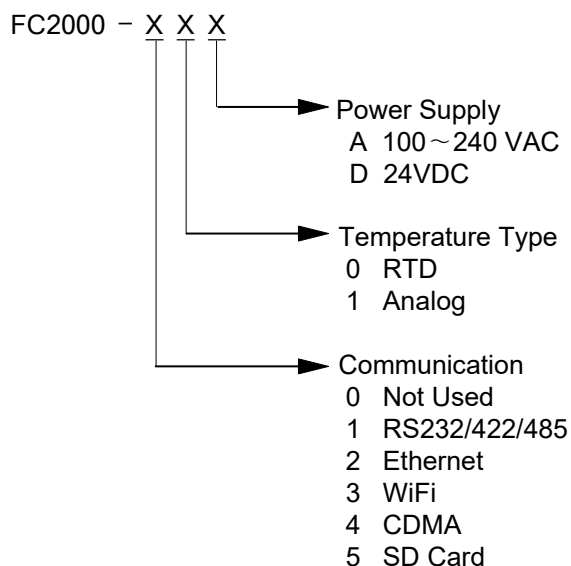
Pressure Range

0 kgf/cm² to 100 kgf/cm² abs

Saturated Steam

When measuring saturated steam, it is possible to omit either the pressure or temperature sensor since, on the saturated line, there is a corresponding pressure for all temperatures.

■ Ordering Information





Dimension

