

코리올리스 유량계 Proline Promass F 300

컴팩트하고 접근이 용이한 트랜스미터가 장착된
정확하고 견고한 유량계



추가 정보 및 현재 가격:

www.kr.endress.com/8F3B

장점:

- 최고의 프로세스 안정성 - 유량 급변 및 열악한 환경에서도 정상 작동
- 프로세스 측정 개소 수 감소 - 다변수 측정(유량, 밀도, 온도)
- 좁은 공간에도 설치 가능 - 전/후단 직관부가 필요하지 않음
- 완전한 프로세스 및 진단 정보 액세스 - I/O와 Fieldbus를 자유롭게 결합
- 복잡성 및 변동성 최소화 - I/O 기능의 자유로운 구성
- 통합/자가 검증 - 하트비트(Heartbeat) 기술

사양 정보

- **Max. measurement error** Mass flow (liquid): $\pm 0.10\%$ (standard), 0.05% (option) Volume flow (liquid): $\pm 0.10\%$ Mass flow (gas): $\pm 0.25\%$ Density (liquid): $\pm 0.0005 \text{ g/cm}^3$
- **Measuring range** 0 to 2 200 000 kg/h (0 to 80 840 lb/min)
- **Medium temperature range** Standard: -50 to $+150$ °C (-58 ... $+302$ °F) Option: -50 to $+240$ °C (-58 ... $+464$ °F) High temperature option: -50 to $+350$ °C (-58 ... $+662$ °F) Option: -196 to $+150$ °C (-320 to $+302$ °F)
- **Max. process pressure** PN 100, Class 600, 63K
- **Wetted materials** Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022) Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

적용 분야: Promass F는 오랫동안 매우 정확한 센서로 인정받아 왔고, 유량이 급변하는 열악한 환경에서도 광범위한 어플리케이션에서 사용할 수 있습니다. 컴팩트한 트랜스미터가 장착된 Promass F 300은 한쪽 액세스, 원격 디스플레이, 향상된 연결 옵션 등 작동과 시스템 통합 측면에서 매우 유연합니다. 또한 하트비트(Heartbeat) 기술을 통해 신뢰할 수 있는 측정값을 보장하는 동시에 교정 주기의 연장을 가능케 합니다.

특징 및 사양

Density

측정 원리

Coriolis

Product Headline

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter.

Highest measurement performance for liquids and gases under varying, demanding process conditions.

Sensor features

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space - saving installation – no in-/outlet run needs.

Mass flow: measurement error $\pm 0.05\%$ (PremiumCal). Medium temperature: -196 to $350\text{ }^{\circ}\text{C}$ (-320 to $662\text{ }^{\circ}\text{F}$). Nominal diameter: DN 8 to 250 ($\frac{3}{8}$ to 10").

Transmitter features

Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses. Reduced complexity and variety – freely configurable I/O functionality. Integrated verification – Heartbeat Technology.

Compact dual-compartment housing with up to 3 I/Os. Backlit display with touch control and WLAN access. Remote display available.

Nominal diameter range

DN 8 to 250 ($\frac{3}{8}$ to 10")

Wetted materials

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

Density

Measured variables

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

Max. measurement error

Mass flow (liquid): ± 0.10 % (standard), 0.05 % (option)

Volume flow (liquid): ± 0.10 %

Mass flow (gas): ± 0.25 %

Density (liquid): ± 0.0005 g/cm³

Measuring range

0 to 2 200 000 kg/h (0 to 80 840 lb/min)

Max. process pressure

PN 100, Class 600, 63K

Medium temperature range

Standard: -50 to $+150$ °C (-58 to $+302$ °F)

Option: -50 to $+240$ °C (-58 to $+464$ °F)

High temperatur option: -50 to $+350$ °C (-58 to $+662$ °F)

Option: -196 to $+150$ °C (-320 to $+302$ °F)

Ambient temperature range

Standard: -40 to $+60$ °C (-40 to $+140$ °F)

Option: -50 to $+60$ °C (-58 to $+140$ °F)

Sensor housing material

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

Transmitter housing material

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygenic transmitter design

Degree of protection

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

Density**Display/Operation**

4-line backlit display with touch control (operation from outside)
Configuration via local display and operating tools possible
Remote display available

Outputs

3 outputs:
4-20 mA HART (active/passive)
4-20 mA WirelessHART
4-20 mA (active/passive)
Pulse/frequency/switch output (active/passive)
Double pulse output (active/passive)
Relay output

Inputs

Status input
4-20 mA input

Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus
RS485, Profinet, Ethernet/IP, OPC-UA

Power supply

DC 24 V
AC 100 to 230 V
AC 100 to 230 V / DC 24 V (non-hazardous area)

Hazardous area approvals

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex

Density/Concentration**측정 원리**

Coriolis

Density/Concentration

Product headline

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter.

Highest measurement performance for liquids and gases under varying, demanding process conditions.

Sensor features

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space - saving installation – no in-/outlet run needs.

Mass flow: measurement error $\pm 0.05\%$ (PremiumCal). Medium temperature: -196 to $350\text{ }^{\circ}\text{C}$ (-320 to $662\text{ }^{\circ}\text{F}$). Nominal diameter: DN 8 to 250 ($\frac{3}{8}$ to 10").

Transmitter features

Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses. Reduced complexity and variety – freely configurable I/O functionality. Integrated verification – Heartbeat Technology.

Compact dual-compartment housing with up to 3 I/Os. Backlit display with touch control and WLAN access. Remote display available.

Nominal diameter range

DN 8 to 250 ($\frac{3}{8}$ to 10")

Wetted materials

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

Measured variables

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

Density/Concentration**Max. measurement error**

Mass flow (liquid): $\pm 0.10\%$ (standard), 0.05% (option)

Volume flow (liquid): $\pm 0.10\%$

Mass flow (gas): $\pm 0.25\%$

Density (liquid): $\pm 0.0005\text{ g/cm}^3$

Measuring range

0 to 2 200 000 kg/h (0 to 80 840 lb/min)

Max. process pressure

PN 100, Class 600, 63K

Medium temperature range

Standard: -50 to $+150\text{ }^\circ\text{C}$ ($-58\dots+302\text{ }^\circ\text{F}$)

Option: -50 to $+240\text{ }^\circ\text{C}$ ($-58\dots+464\text{ }^\circ\text{F}$)

High temperature option: -50 to $+350\text{ }^\circ\text{C}$ ($-58\dots+662\text{ }^\circ\text{F}$)

Option: -196 to $+150\text{ }^\circ\text{C}$ (-320 to $+302\text{ }^\circ\text{F}$)

Ambient temperature range

Standard: -40 to $+60\text{ }^\circ\text{C}$ (-40 to $+140\text{ }^\circ\text{F}$)

Option: -50 to $+60\text{ }^\circ\text{C}$ (-58 to $+140\text{ }^\circ\text{F}$)

Sensor housing material

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

Transmitter housing material

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

Degree of protection

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

Display/Operation

4-line backlit display with touch control (operation from outside)

Configuration via local display and operating tools possible

Remote display available

Density/Concentration

Outputs

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

Inputs

Status input

4-20 mA input

Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, Profinet, Ethernet/IP, OPC-UA

Power supply

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

Hazardous area approvals

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex

Product safety

CE, C-tick, EAC marking

Functional safety

Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511

Density/Concentration**Metrological approvals and certificates**

Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025)

Heartbeat Technology complies with the requirements for measurement traceability according to ISO 9001:2015 – Section 7.1.5.2 a (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

Marine approvals and certificates

LR approval, DNV GL approval, ABS approval, BV approval, CCS approval

Pressure approvals and certificates

PED, CRN, AD 2000

Material certificates

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

Hygienic approvals and certificates

3-A, EHEDG, cGMP

Gas**측정 원리**

Coriolis

Product headline

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter.

Highest measurement performance for liquids and gases under varying, demanding process conditions.

Gas**Sensor features**

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space - saving installation – no in-/outlet run needs.

Mass flow: measurement error ± 0.05 % (PremiumCal). Medium temperature: -196 to 350 °C (-320 to 662 °F). Nominal diameter: DN 8 to 250 ($\frac{3}{8}$ to 10").

Transmitter features

Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses. Reduced complexity and variety – freely configurable I/O functionality. Integrated verification – Heartbeat Technology.

Compact dual-compartment housing with up to 3 I/Os. Backlit display with touch control and WLAN access. Remote display available.

Nominal diameter range

DN 8 to 250 ($\frac{3}{8}$ to 10")

Wetted materials

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

Measured variables

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

Max. measurement error

Mass flow (liquid): ± 0.10 % (standard), 0.05 % (option)

Volume flow (liquid): ± 0.10 %

Mass flow (gas): ± 0.25 %

Density (liquid): ± 0.0005 g/cm³

Measuring range

0 to 2 200 000 kg/h (0 to 80 840 lb/min)

Gas

Max. process pressure

PN 100, Class 600, 63K

Medium temperature range

Standard: -50 to +150 °C (-58 to +302 °F)

Option: -50 to +240 °C (-58 to +464 °F)

High temperature option: -50 to +350 °C (-58 to +662 °F)

Option: -196 to +150 °C (-320 to +302 °F)

Ambient temperature range

Standard: -40 to +60 °C (-40 to +140 °F)

Option: -50 to +60 °C (-58 to +140 °F)

Sensor housing material

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

Transmitter housing material

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

Degree of protection

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

Display/Operation

4-line backlit display with touch control (operation from outside)

Configuration via local display and operating tools possible

Remote display available

Gas**Outputs**

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

Inputs

Status input

4-20 mA input

Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, Profinet, Ethernet/IP, OPC-UA

Power supply

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

Hazardous area approvals

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex

Product safety

CE, C-tick, EAC marking

Functional safety

Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511

Gas

Metrological approvals and certificates

Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025)

Heartbeat Technology complies with the requirements for measurement traceability according to ISO 9001:2015 – Section 7.1.5.2 a (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

Marine approvals and certificates

LR approval, DNV GL approval, ABS approval, BV approval, CCS approval

Pressure approvals and certificates

PED, CRN, AD 2000

Material certificates

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

Hygienic approvals and certificates

3-A, EHEDG, cGMP

Steam

측정 원리

Coriolis

Product headline

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter.

Highest measurement performance for liquids and gases under varying, demanding process conditions.

Steam

Sensor features

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space - saving installation – no in-/outlet run needs.

Mass flow: measurement error ± 0.05 % (PremiumCal). Medium temperature: -196 to 350 °C (-320 to 662 °F). Nominal diameter: DN 8 to 250 ($\frac{3}{8}$ to 10").

Transmitter features

Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses. Reduced complexity and variety – freely configurable I/O functionality. Integrated verification – Heartbeat Technology.

Compact dual-compartment housing with up to 3 I/Os. Backlit display with touch control and WLAN access. Remote display available.

Nominal diameter range

DN 8 to 250 ($\frac{3}{8}$ to 10")

Wetted materials

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

Measured variables

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

Max. measurement error

Mass flow (liquid): ± 0.10 % (standard), 0.05 % (option)

Volume flow (liquid): ± 0.10 %

Mass flow (gas): ± 0.25 %

Density (liquid): ± 0.0005 g/cm³

Measuring range

0 to 2 200 000 kg/h (0 to 80 840 lb/min)

Steam**Max. process pressure**PN 100, Class 600, 63K

Medium temperature range

Standard: -50 to +150 °C (-58 to +302 °F)

Option: -50 to +240 °C (-58 to +464 °F)

High temperature option: -50 to +350 °C (-58 to +662 °F)

Option: -196 to +150 °C (-320 to +302 °F)

Ambient temperature range

Standard: -40 to +60 °C (-40 to +140 °F)

Option: -50 to +60 °C (-58 to +140 °F)

Sensor housing material

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

Transmitter housing materialAlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

Degree of protection

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

Display/Operation

4-line backlit display with touch control (operation from outside)

Configuration via local display and operating tools possible

Remote display available

Steam

Outputs

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

Inputs

Status input

4-20 mA input

Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus
RS485, Profinet, Ethernet/IP, OPC-UA

Power supply

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

Hazardous area approvals

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex

Product safety

CE, C-tick, EAC marking

Functional safety

Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511

Steam

Metrological approvals and certificates

Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025)

Heartbeat Technology complies with the requirements for measurement traceability according to ISO 9001:2015 – Section 7.1.5.2 a (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

Marine approvals and certificates

LR approval, DNV GL approval, ABS approval, BV approval, CCS approval

Pressure approvals and certificates

PED, CRN, AD 2000

Material certificates

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

Hygienic approvals and certificates

3-A, EHEDG, cGMP

Liquids

측정 원리

Coriolis

Product headline

Flowmeter with premium accuracy, robustness and a compact, easily accessible transmitter.

Highest measurement performance for liquids and gases under varying, demanding process conditions.

Liquids

Sensor features

Highest process safety – immune to fluctuating and harsh environments. Fewer process measuring points – multivariable measurement (flow, density, temperature). Space - saving installation – no in-/outlet run needs.

Mass flow: measurement error ± 0.05 % (PremiumCal). Medium temperature: -196 to 350 °C (-320 to 662 °F). Nominal diameter: DN 8 to 250 ($\frac{3}{8}$ to 10").

Transmitter features

Full access to process and diagnostic information – numerous, freely combinable I/Os and fieldbuses. Reduced complexity and variety – freely configurable I/O functionality. Integrated verification – Heartbeat Technology.

Compact dual-compartment housing with up to 3 I/Os. Backlit display with touch control and WLAN access. Remote display available.

Nominal diameter range

DN 8 to 250 ($\frac{3}{8}$ to 10")

Wetted materials

Measuring tube: 1.4539 (904L); 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022)

Connection: 1.4404 (316/316L); Alloy C22, 2.4602 (UNS N06022); 1.4301 (F304)

Measured variables

Mass flow, density, temperature, volume flow, corrected volume flow, reference density, concentration

Max. measurement error

Mass flow (liquid): ± 0.10 % (standard), 0.05 % (option)

Volume flow (liquid): ± 0.10 %

Mass flow (gas): ± 0.25 %

Density (liquid): ± 0.0005 g/cm³

Measuring range

0 to 2 200 000 kg/h (0 to 80 840 lb/min)

Liquids

Max. process pressure

PN 100, Class 600, 63K

Medium temperature range

Standard: -50 to +150 °C (-58 to +302 °F)

Option: -50 to +240 °C (-58 to +464 °F)

High temperature option: -50 to +350 °C (-58 to +662 °F)

Option: -196 to +150 °C (-320 to +302 °F)

Ambient temperature range

Standard: -40 to +60 °C (-40 to +140 °F)

Option: -50 to +60 °C (-58 to +140 °F)

Sensor housing material

Standard: 1.4301 (304)

Option: 1.4404 (316/316L)

Transmitter housing material

AlSi10Mg, coated; 1.4409 (CF3M) similar to 316L; stainless steel for hygienic transmitter design

Degree of protection

Compact version: IP66/67, type 4X enclosure.

External WLAN antenna: IP67

IP69

Display/Operation

4-line backlit display with touch control (operation from outside)

Configuration via local display and operating tools possible

Remote display available

Liquids

Outputs

3 outputs:

4-20 mA HART (active/passive)

4-20 mA WirelessHART

4-20 mA (active/passive)

Pulse/frequency/switch output (active/passive)

Double pulse output (active/passive)

Relay output

Inputs

Status input

4-20 mA input

Digital communication

HART, PROFIBUS DP, PROFIBUS PA, FOUNDATION Fieldbus, Modbus RS485, Profinet, Ethernet/IP, OPC-UA

Power supply

DC 24 V

AC 100 to 230 V

AC 100 to 230 V / DC 24 V (non-hazardous area)

Hazardous area approvals

ATEX, IECEx, cCSAus, NEPSI, INMETRO, EAC, UK Ex

Product safety

CE, C-tick, EAC marking

Functional safety

Functional safety according to IEC 61508, applicable in safety-relevant applications in accordance with IEC 61511

Liquids

Metrological approvals and certificates

Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025)

Heartbeat Technology complies with the requirements for measurement traceability according to ISO 9001:2015 – Section 7.1.5.2 a (TÜV SÜD attestation)

MI-005 (Liquids other than water, Hydrocarbons, LPG, cryogenic liquids)

NTEP (Liquids other than water, LPG, cryogenic liquids)

MC (Liquids other than water, cryogenic liquids)

MI-002, PTB

Marine approvals and certificates

LR approval, DNV GL approval, ABS approval, BV approval, CCS approval

Pressure approvals and certificates

PED, CRN, AD 2000

Material certificates

3.1 material

NACE MR0175/MR0103, PMI; welding test acc. to EN ISO, ASME, NORSOK

Hygienic approvals and certificates

3-A, EHEDG, cGMP

추가 정보 www.kr.endress.com/8F3B