Promass 83F

More information and current pricing:
www.ca.endress.com/83F

Benefits:

- 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
- Quality – software for filling & dosing, density & concentration, advanced diagnostics
- Flexible data transfer options – numerous communication types
- Automatic recovery of data for servicing

Specs at a glance

- **Max. measurement error** Mass flow (liquid): ±0.1 % (standard), 0.05 % (option) Volume flow (liquid): ±0.1 % Mass flow (gas): ±0.35 % Density (liquid): ±0.0005 g/cm³
- **Measuring range** 0 to 2 200 000 kg/h (0 to 80 840 lb/min)
- **Medium temperature range** Standard: –50 to +200 °C (–58 to +392 °F) High temperature: –50 to +350 °C (–58 to +662 °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)

Field of application: Promass F has a long standing reputation as a highly accurate device under varying process conditions. It is suited for a broadest range of applications. Combined with the Promass 83 transmitter with touch control, four line display and extended functionality like software options for filling and dosing, concentration measurement or advanced diagnostics, Promass 83F offers premium accuracy in measurement of liquids and gases.

Features and specifications

Liquids

Measuring principle
Coriolis

Product headline
The flowmeter with premium accuracy, robustness and extended transmitter functionality. 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 ±0,05 % (PremiumCal). pressure-rated sensor housing up to 40 bar (580 psi).

Transmitter features
Quality – software for filling & dosing, density & concentration, advanced diagnostics. Flexible data transfer options – numerous communication types. Automatic recovery of data for servicing. 4- line backlit display with touch control. Device in compact or remote version.

Nominal diameter range
DN 8 to 250 (⅜ to 10")
High temperature: DN 25 (1"), DN 50 (2"), DN 80 (3")

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)

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

Liquids

Max. measurement error

Mass flow (liquid): ±0.1 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.1 %
Mass flow (gas): ±0.35 %
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 +200 °C (–58 to +392 °F)
High temperature: –50 to +350 °C (–58 to +662 °F)

Ambient temperature range

Standard: –20 to +60 °C (–4 to +140 °F)
Option: –40 to +60 °C (–40 to +140 °F)

Sensor housing material

1.4301/1.4307 (304L), corrosion resistant

Transmitter housing material

Powder-coated die-cast aluminium
1.4301 (304), sheet
CF3M (316L), cast

Degree of protection

IP67, type 4X enclosure. Remote transmitter: IP67, type 4X enclosure

Display/Operation

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

Liquids

Outputs

4 modular outputs:
0-20 mA (active)/4-20 mA (active/passive)
Pulse/frequency/switch output (passive)
Relay

Inputs

2 modular inputs:
Status
0-20 mA (active)/4-20 mA (active/passive)

Digital communication

HART, PROFIBUS PA/DP, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP

Power supply

DC 16 to 62 V
AC 85 to 260 V (45 to 65 Hz)
AC 20 to 55 V (45 to 65 Hz)

Hazardous area approvals

ATEX, IECEx, FM, CSA, NEPSI

Other approvals and certificates

3.1 material, calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025), NAMUR, SIL, marine
PED, CRN, AD 2000
3-A, FDA
NACE MR0175/MR0103, PMI; welding test acc. to EN, ASME,NORSOK

Product safety

CE, C-tick, EAC marking

Functional safety

CE, C-tick

Metrological approvals and certificates

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

Liquids

Marine approvals and certificates
Marine approval

Pressure approvals and certificates
PED, CRN, AD 2000

Material certificates
3.1 material
NACE MR0175/MR0103, PMI; welding test acc. to EN, ASME,NORSOK

Hygienic approvals and certificates
3-A, FDA

Gas

Measuring principle
Coriolis

Product headline
The flowmeter with premium accuracy, robustness and extended transmitter functionality. 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 ±0,05 % (PremiumCal). pressure-rated sensor housing up to 40 bar (580 psi).

Transmitter features
Quality – software for filling & dosing, density & concentration, advanced diagnostics. Flexible data transfer options – numerous communication types. Automatic recovery of data for servicing. 4- line backlit display with touch control. Device in compact or remote version.

Gas

Nominal diameter range
DN 8 to 250 (⅜ to 10")
High temperature: DN 25 (1"), DN 50 (2"), DN 80 (3")

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)

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

Max. measurement error
Mass flow (liquid): ±0.1 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.1 %
Mass flow (gas): ±0.35 %
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 +200 °C (−58 to +392 °F)
High temperature: −50 to +350 °C (−58 to +662 °F)

Ambient temperature range
Standard: −20 to +60 °C (−4 to +140 °F)
Option: −40 to +60 °C (−40 to +140 °F)

Sensor housing material
1.4301/1.4307 (304L), corrosion resistant

Gas

Transmitter housing material

Powder-coated die-cast aluminium
1.4301 (304), sheet
CF3M (316L), cast

Degree of protection

IP67, type 4X enclosure. Remote transmitter: IP67, type 4X enclosure

Display/Operation

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

Outputs

4 modular outputs:
0-20 mA (active)/4-20 mA (active/passive)
Pulse/frequency/switch output (passive)
Relay

Inputs

2 modular inputs:
Status
0-20 mA (active)/4-20 mA (active/passive)

Digital communication

HART, PROFIBUS PA/DP, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP

Power supply

DC 16 to 62 V
AC 85 to 260 V (45 to 65 Hz)
AC 20 to 55 V (45 to 65 Hz)

Hazardous area approvals

ATEX, IECEx, FM, CSA, NEPSI

Gas

Other approvals and certificates

3.1 material, calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025), NAMUR, SIL, marine
PED, CRN, AD 2000
3-A, FDA
NACE MR0175/MR0103, PMI; welding test acc. to EN, ASME,NORSOK

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

Metrological approvals and certificates

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

Marine approvals and certificates

Marine approval

Pressure approvals and certificates

PED, CRN, AD 2000

Material certificates

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

Hygienic approvals and certificates

3-A, FDA

Steam

Measuring principle

Coriolis

Steam

Product headline

The flowmeter with premium accuracy, robustness and extended transmitter functionality. 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 ±0,05 % (PremiumCal). pressure-rated sensor housing up to 40 bar (580 psi).

Transmitter features

Quality – software for filling & dosing, density & concentration, advanced diagnostics. Flexible data transfer options – numerous communication types. Automatic recovery of data for servicing. 4- line backlit display with touch control. Device in compact or remote version.

Nominal diameter range

DN 8 to 250 (⅜ to 10")
High temperature: DN 25 (1"), DN 50 (2"), DN 80 (3")

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)

Measured variables

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

Max. measurement error

Mass flow (liquid): ±0.1 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.1 %
Mass flow (gas): ±0.35 %
Density (liquid): ±0.0005 g/cm³

Steam

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 +200 °C (–58 to +392 °F)
High temperature: –50 to +350 °C (–58 to +662 °F)

Ambient temperature range
Standard: –20 to +60 °C (–4 to +140 °F)
Option: –40 to +60 °C (–40 to +140 °F)

Sensor housing material
1.4301/1.4307 (304L), corrosion resistant

Transmitter housing material
Powder-coated die-cast aluminium
1.4301 (304), sheet
CF3M (316L), cast

Degree of protection
IP67, type 4X enclosure. Remote transmitter: IP67, type 4X enclosure

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

Outputs
4 modular outputs:
0-20 mA (active)/4-20 mA (active/passive)
Pulse/frequency/switch output (passive)
Relay

Inputs
2 modular inputs:
Status
0-20 mA (active)/4-20 mA (active/passive)

Steam

Digital communication
HART, PROFIBUS PA/DP, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP

Power supply
DC 16 to 62 V
AC 85 to 260 V (45 to 65 Hz)
AC 20 to 55 V (45 to 65 Hz)

Hazardous area approvals
ATEX, IECEx, FM, CSA, NEPSI

Other approvals and certificates
3.1 material, calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025), NAMUR, SIL, marine
PED, CRN, AD 2000
3-A, FDA
NACE MR0175/MR0103, PMI; welding test acc. to EN, ASME,NORSOK

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

Metrological approvals and certificates
Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025), NAMUR

Marine approvals and certificates
Marine approval

Pressure approvals and certificates
PED, CRN, AD 2000

Steam

Material certificates
3.1 material
NACE MR0175/MR0103, PMI; welding test acc. to EN, ASME,NORSOK

Hygienic approvals and certificates
3-A, FDA

Density

Measuring principle
Coriolis

Characteristic / Application
The universal and multivariable flowmeter for liquids and gases

Ambient temperature
-20...65°C
(-4...+140°F)

Process temperature
-50...+350°C
(-58...+662°F)

Process pressure
PN 16...100
Cl 150...600
JIS 10...63K

Wetted parts
904L/1.4539
Alloy C-22/2.4602

Output
4...20mA
Pulse/Frequency (10KHz, active/passive)
Relays/Status

Density

Certificates / Approvals

ATEX
FM
CSA
TIIS

Density/Concentration

Measuring principle

Coriolis

Product headline

The flowmeter with premium accuracy, robustness and extended transmitter functionality. 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 ±0,05 % (PremiumCal). pressure-rated sensor housing up to 40 bar (580 psi).

Transmitter features

Quality – software for filling & dosing, density & concentration, advanced diagnostics. Flexible data transfer options – numerous communication types. Automatic recovery of data for servicing. 4- line backlit display with touch control. Device in compact or remote version.

Nominal diameter range

DN 8 to 250 (⅜ to 10")
High temperature: DN 25 (1"), DN 50 (2"), DN 80 (3")

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)

Density/Concentration

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

Max. measurement error
Mass flow (liquid): ±0.1 % (standard), 0.05 % (option)
Volume flow (liquid): ±0.1 %
Mass flow (gas): ±0.35 %
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 +200 °C (–58 to +392 °F)
High temperature: –50 to +350 °C (–58 to +662 °F)

Ambient temperature range
Standard: –20 to +60 °C (–4 to +140 °F)
Option: –40 to +60 °C (–40 to +140 °F)

Sensor housing material
1.4301/1.4307 (304L), corrosion resistant

Transmitter housing material
Powder-coated die-cast aluminium
1.4301 (304), sheet
CF3M (316L), cast

Degree of protection
IP67, type 4X enclosure. Remote transmitter: IP67, type 4X enclosure

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

Density/Concentration

Outputs
4 modular outputs:
0-20 mA (active)/4-20 mA (active/passive)
Pulse/frequency/switch output (passive)
Relay

Inputs
2 modular inputs:
Status
0-20 mA (active)/4-20 mA (active/passive)

Digital communication
HART, PROFIBUS PA/DP, FOUNDATION Fieldbus, Modbus RS485, EtherNet/IP

Power supply
DC 16 to 62 V
AC 85 to 260 V (45 to 65 Hz)
AC 20 to 55 V (45 to 65 Hz)

Hazardous area approvals
ATEX, IECEx, FM, CSA, NEPSI

Product safety
CE, C-tick, EAC marking

Functional safety
CE, C-tick

Metrological approvals and certificates
Calibration performed on accredited calibration facilities (acc. to ISO/IEC 17025), NAMUR

Marine approvals and certificates
Marine approval

Pressure approvals and certificates
PED, CRN, AD 2000

Density/Concentration

Material certificates

3.1 material

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

Hygienic approvals and certificates

3-A, FDA

More information **www.ca.endress.com/83F**