Promass 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**

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<tr>
<th><strong>Ambient temperature range</strong></th>
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<tr>
<td>Standard: −20 to +60 °C (−4 to +140 °F)</td>
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<th><strong>Sensor housing material</strong></th>
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<th><strong>Transmitter housing material</strong></th>
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<tbody>
<tr>
<td>Powder-coated die-cast aluminium</td>
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<tr>
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<td>CF3M (316L), cast</td>
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<td>IP67, type 4X enclosure. Remote transmitter: IP67, type 4X enclosure</td>
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<th><strong>Display/Operation</strong></th>
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<tr>
<td>4-line backlit display with touch control (operation from outside)</td>
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<tr>
<td>Configuration via local display and operating tools possible</td>
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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**

**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
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

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
Promass 83F

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

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### 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)
### 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.us.endress.com/83F](http://www.us.endress.com/83F)