

SITRANS F flowmeters

SITRANS F R

Meters for lubricating oils
(distribution of mineral oils)

Overview

Type	Order No.	For custody transfer use		Not for custody transfer use	
		Flow rate in l/min (USgpm)		Flow rate in l/min (USgpm)	
		Minimum	Maximum	Minimum	Maximum
Pistol-grip meter					
Without delivery spout					
	7MS1111...	1 (0.26)	10 (2.6)	-	-
		1.5 (0.4)	15 (4)		
	7MS1122...	-	-	2 (0.5)	40 (10.6)
Fitted rotary-piston meter					
With double-pointer dial and totalizer, scale diameter 80 mm (3.15 inch)					
	7MS1113...	1 (0.26)	10 (2.6)	1 (0.26)	50 (13.2)
		1.5 (0.4)	15 (4)		
With pulser, display: LCD with totalizer					
	7MS1214	1 (0.26)	10 (2.6)	5 (1.3)	50 (13.2)
		1.5 (0.4)	15 (4)		
With single-pointer dial and totalizer, scale diameter 80 mm (3.15 inch)					
	7MS1122	-	-	2 (0.53)	50 (13.2)

SITRANS F flowmeters

SITRANS F R

Meters for lubricating oils
Pistol-grip meter for custody transfer

Overview



Pistol-grip meter with inspection glass

The pistol-grip meter is for connecting to filling hoses. These pistol-grip meters have been granted official approval for custody transfer in the European Union and in other countries.

The pistol-grip meter is designed for lubricating oils or other liquids with a viscosity range from 8 to 2000 mPa s (cp), excluding liquid food.

Design

The pistol-grip meter has a rotary-piston mechanism. The measuring chamber and the casing are made of zinc die-cast alloy, the rotary-piston is made of light alloy.

The register with an inspection glass required for custody transfer use has a resettable double-pointer dial and a 4-digit, non-resettable totalizer. The scale diameter equals 80 mm (3.15 inch)

The pistol-grip meter has a built-in shut-off valve.

Technical specifications

Valid for custody transfer according to European Union approval:

Liquids	Lubricating oils or other liquids with viscosity range 8 ... 2000 mPa·s, excluding liquid food
Permissible flow rate	
• q_{min}	1.0 or 1.5 l/min (0.26 or 0.4 USgpm)
• q_{max}	10 or 15 l/min (2.6 or 4 USgpm)
Flow rate ratio ($q_{min} : q_{max}$)	1:10
Minimum delivery quantity	0.2 l (0.05 USgpm)
Error limits	
• for preliminary official calibration tests in the European Union	0.3% of the actual value
• for other countries	According to the relevant regulations
Nominal pressure	PN 40 (MWP 580 psi)
Max. permissible pressure loss	7 bar (102 psi): at q_{max} and 100 mPa s (cp) the pressure loss is approx. 1 bar (14.5 psi)
Max. permissible liquid temperature	40 °C (104 °F)
Permissible ambient temperature	10 ... 50 °C (50 ... 102 °F)
Hose connection for liquid	Female thread G½ to DIN ISO 228-1

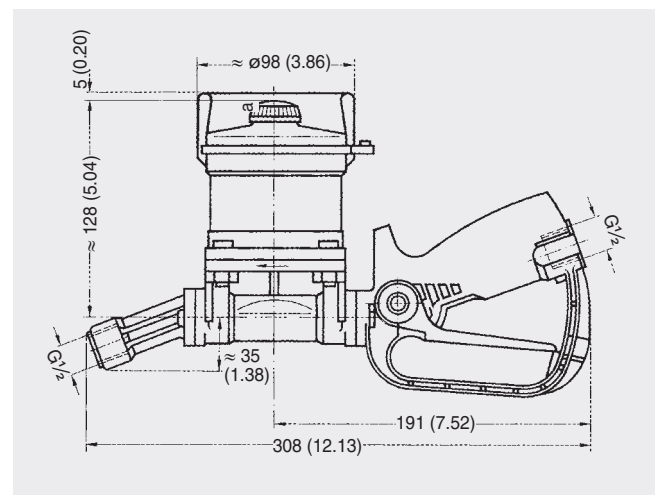
Double-pointer dial
Values per revolution

• Large/small pointer	1 l/20 l
• Smallest Scale division	0.01 l
Totalizer	
• End value	9,999 l
• Minimum flow rate	1 l

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC) For liquids of fluid gas group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice SEP)

Dimensional drawings



Pistol-grip meter with inspection glass, dimensions in mm (inch)

Selection and Ordering data

Order No.

Pistol-grip meter with double-pointer dial

For custody transfer use
Weight approx. 1.9 kg (4.2 lb)

Max. flow rate l/min (USgpm)

- 10 (2,6)
- 15 (4)

7MS1111-1B-Z
7MS1111-1A-Z

Selection and Ordering data

Order code

Liquid data

Specify in plain text:

Trade name ...

Viscosity... mPa s in operating condition

Temperature... °C at metering point

Preliminary custody transfer test:

- 10 l/min (2.6 USgpm)
- 15 l/min (4 USgpm)

A12
A12

Accessories

Order No.

Instruction Manual

German/English

C73000-B5174-C21

SITRANS F flowmeters

SITRANS F R

Meters for lubricating oils
Pistol-grip meter for non custody transfer

Overview



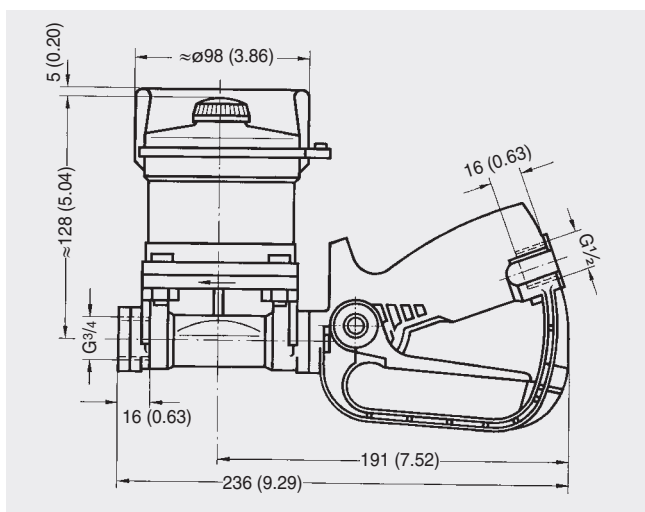
Pistol-grip meter

For applications other than for custody transfer the meter can be employed for flow rates up to max. 40 l/min depending on the viscosity of the liquid. The tolerance is 2% of the actual value.

Application

- Lubricating oils, paraffin oil, hydraulic oils, silicon fluids, flushing oils, cutting oils etc.
- Alcohols (96 ... 98 v/v, water-free), aromatic hydrocarbons, aliphatic hydrocarbons (mineral oil derivatives), chlorinated hydrocarbons (anhydrous)
- Fuels for internal combustion engines, heating fuel, petroleum.

Dimensional drawings



Pistol-grip meter, dimensions in mm (inch)

Technical specifications

Liquids	Lubricating oils or other liquids with viscosity range 8 ... 2000 mPa·s, excluding liquid food
Min. permissible flow rate	2 l/min (0.5 USgpm)
Max. permissible flow rate	40 l/min (11 USgpm)
Flow rate ratio ($q_{\min} : q_{\max}$)	1 : 20
Minimum delivery quantity	3,0 l (0.79 USg)
Error limits	2% of the actual value
Nominal pressure	PN 40 ((MWP 580 psi)
Max. permissible pressure loss	7 bar (102 psi); at q_{\max} und 100 mPa·s (cp) the pressure loss is approx. 1 bar (14.5 psi)
Max. permissible liquid temperature	60 °C (140 °F)
Permissible ambient temperature	10 ... 60 °C (50 ... 140 °F)
Hose connection for liquid	
• Einlauf	Female thread G $\frac{1}{2}$ DIN ISO 228/1
• Auslauf	Female thread G $\frac{3}{4}$ DIN ISO 228/1
Double-pointer dial	
Values per revolution large/small pointer	1 l/20 l
Totalizer	
• End value	9999 l
• Minimum flow rate	1 l

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)	For liquids of fluid gas group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice SEP)
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Selection and Ordering data

Pistol-grip meter with double-pointer dial
For non custody transfer use
Weight approx. 1.8 kg (4 lb)
Max. flow rate 40 l/min (11 USgpm)

Order No.

7MS1122-2A-Z

Selection and Ordering data

Liquid data
Specify in plain text:
Trade name ...
Viscosity... mPa s in operating condition
Temperature... °C at metering point

Order code

Y01

Accessories

Instruction Manual
German/English

Order No.

C73000-B5174-C21

SITRANS F flowmeters

SITRANS F R

Meters for lubricating oils
Rotary-piston meter with single pointer dial

Overview



Rotary-piston meter with single pointer dial

The rotary-piston meter is designed for applications other than for custody transfer and can be employed for flow rates up to 50 l/min (13.2 USgpm) depending on the viscosity of the metered liquid. The tolerance is 2% of the actual value.

Application

- Fuels for internal combustion engines, diesel, lubricating oils, paraffin oil, hydraulic oils
- Silicone fluids, flushing oils, cutting oils etc.

Design

The rotary-piston meter has a single-pointer dial and is a fitted meter for mounting in pipelines

- Metering mechanism
 - Rotary-piston mechanism
 - casing and measuring chamber made of zinc die-cast alloy,
 - Rotary piston made of light alloy
- Registers
 - Resettable double-pointer dial with non-resettable, 4-digit totalizer
 - Scale diameter 80 mm

Technical specifications

Liquids	Lubricating oils or other liquids with a viscosity range from 0.4 to 2000 mPa s, excluding liquid food
• Min. flow rate	2 l/min (0.53 USgpm)
• Max. flow rate	50 l/min (13.2 USgpm)
Flow rate ratio ($q_{\min} : q_{\max}$)	1 : 20 or 1 : 25
Minimum delivery quantity	5.0 l (1.32 USg)
Error limits	2% of the actual value
Nom. press.	PN 10 (MWP 145 psi)
Max. permissible pressure loss	3 bar (43.5 psi); at q_{\max} and 100 mPa s (cp) the pressure loss is approx. 1 bar (14.5 psi)
Max. permissible liquid temperature	60 °C (140 °F)
Permissible ambient temperature	10 ... 60 °C (50 ... 140 °F)
Mounting position	Any
Pipe connection for liquid	Female thread G $\frac{3}{4}$ DIN ISO 228/1
Single-pointer dial	
• Value per	100 l
• Smallest scale division	1.0 l

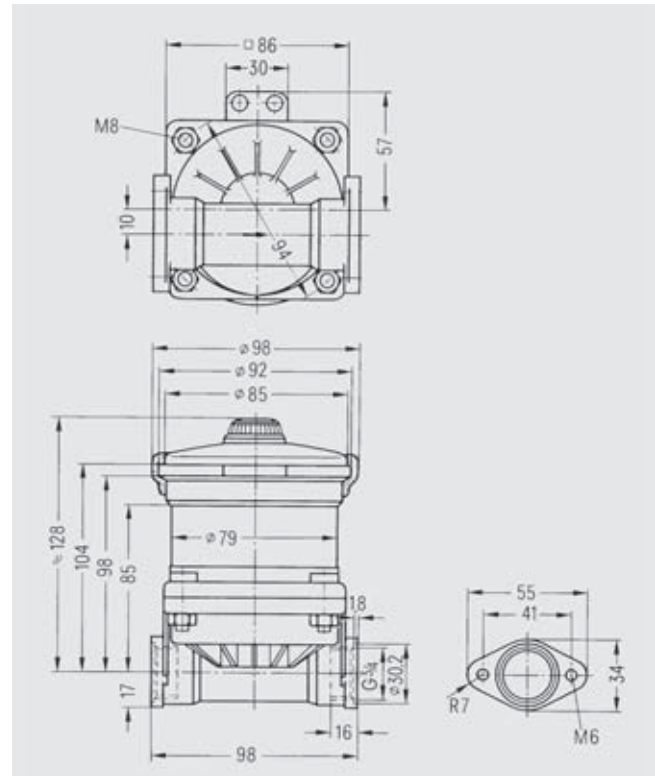
Totalizer

- End value 9,999 l
- Minimum flow rate 1 l

Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC) For liquids of fluid group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice SEP).

Dimensional drawings



Rotary-piston meter with single-pointer dial, dimensions in mm (inch)

Selection and Ordering data

Rotary-piston meter with single-pointer dial
For non custody transfer use; flow direction from left to right, related to reading direction
Weight approx. 1.2 kg (1.20 kg)
Max. flow rate 50 l/min (13.2 USgpm)
Value per revolution of register 100 l (26.4 USg)

Order No.

7MS1122-3A-Z

Selection and Ordering data

Liquid data
Specify in plain text:
Trade name ...
Viscosity... mPa s in operating condition
Pressure... bar at metering point
Temperature... °C at metering point

Order code

Y01

Accessories

Instruction Manual
German/English

Order No.

C73000-B5174-C21

SITRANS F flowmeters

SITRANS F R

Meters for lubricating oils
Rotary-piston meter with double-pointer dial

Overview



Rotary-piston meter 20/08 with double-pointer dial

The rotary-piston meter 20/98 has been granted official approval for custody transfer in the European Union (EU approval) and in other countries

For applications other than for custody transfer the meter can be employed for flow rates up to max. 50 l/min (13.2 USgpm) depending on the viscosity of the liquid. The tolerance is 1% of the actual value.

Application

- Alcohols (96 ... 98 v/v, water-free), aromatic hydrocarbons, aliphatic hydrocarbons (mineral oil derivatives), chlorinated hydrocarbons (anhydrous)
- Fuels for internal combustion engines, diesel, heating fuel, petroleum, paraffin oil, hydraulic oils
- Silicone fluids, flushing oils, cutting oils etc.

Technical specifications

Liquids	Lubricating oils or other liquids with a viscosity range from 0.4 to 200 mPa s, excluding liquid food
Permissible flow rate	1 or 1.5 l/min (0.26 or 0.4 USgpm) 15 l/min (4 USgpm)
Flow rate ratio ($q_{min} : q_{max}$)	1 : 10
Minimum delivery quantity	0.2 l (0.05 USg)
Error limits	3% of the actual value
• for preliminary official calibration tests in the European Union	
• for other countries	According to the relevant regulations
Nom. press.	PN 10 (MWP 145 psi)
Max. permissible pressure loss	3 bar (43.5 psi); at q_{max} and 100 mPa s (cp) the pressure loss is approx. 0.3 bar (4.35 psi)
Max. permissible liquid temperature	40 °C (104 °F)
Permissible ambient temperature	10 ... 50 °C (50 ... 122 °F)
Mounting position	Any
Pipe connection for liquid	Female thread G $\frac{3}{4}$ DIN ISO 228/1
Value per revolution of double-pointer dial	
• Large/small pointer	1 l/20 l
• Smallest scale division	0.01 l
Totalizer	
• End value	9,999 l
• Minimum flow rate	1 l

Certificate and approvals

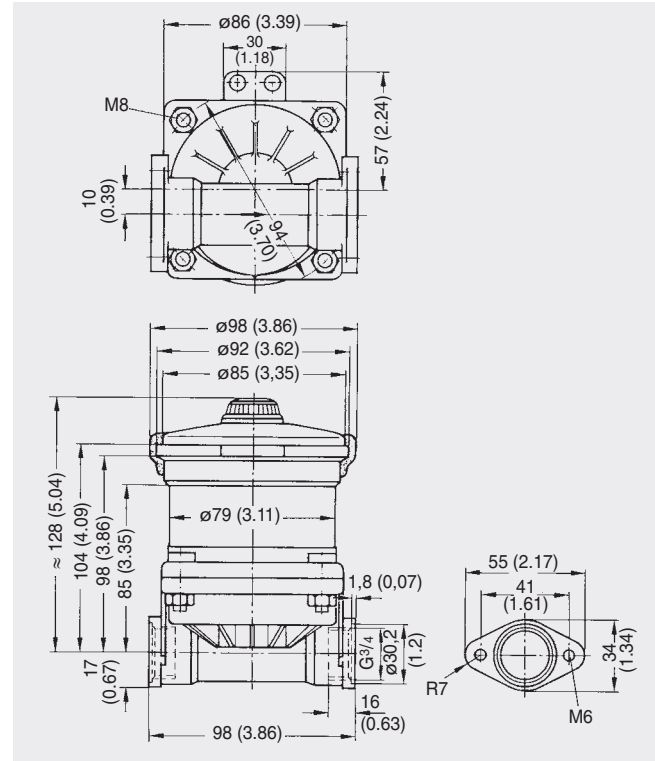
Classification according to pressure equipment directive (DRGL 97/23/EC) For liquids of fluid gas group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice SEP)

Design

The rotary-piston meter 20/08 is a fitted meter for mounting in pipelines.

- Rotary-piston mechanism, Casing and measuring chamber made of zinc die-cast alloy, rotary piston made of light alloy
- Resettable double-pointer dial with non-resettable, 4-digit totalizer, Scale diameter 80 mm (3.15 inch)

Dimensional drawings



Pistol-grip meter 20/08 with double-pointer dial, dimensions in mm (inch)

Selection and Ordering data

Order No.

Rotary-piston meter with double-pointer dial

Weight approx. 1.3 kg (2.9 lb)

Max. flow rate l/min (USgpm)

Custody transfer use

- 10 (2.6)
- 15 (4)

7NS1113-7B-Z
7NS1113-7A-Z

Non custody transfer use

- 50 (13.2)

7NS1113-7C-Z

Flow direction

Related to reading direction

- From left to right
- From right to left
- Upwards
- Downwards

1
2
3
4

Selection and Ordering data

Order code

Liquid data

Specify in plain text:

Trade name ...

Viscosity... mPa s in operating condition

Temperature... °C at metering point

Max. flow rate

- 10 l/min (2.6 USgpm)
- 15 l/min (4 USgpm)

Y01

A11
A12

Accessories

Instruction Manual

German/English

C73000-B5174-C21

SITRANS F flowmeters

SITRANS F R

Meters for lubricating oils
Rotary-piston meter with opto-electronic pulser

Overview



Rotary-piston meter with electronic pulser and totalizer

The rotary-piston meter has an electronic pulser and a totalizer. It has been granted official approval for custody transfer in the European Union (EU approval). The max. flow rate in custody transfer use is 15 l/min (3.96 USgpm)

For applications other than for custody transfer the meter can be employed for flow rates up to 50 l/min (13.2 USgpm) depending on the viscosity of the liquid. The tolerance is 1% of the actual value.

Application

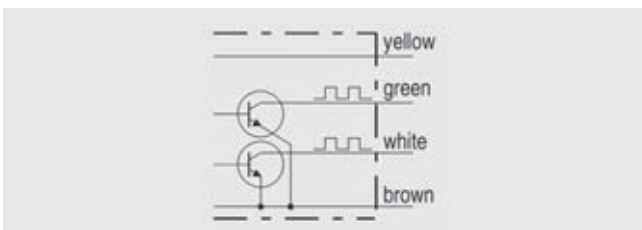
- Alcohols (water-free), aromatic carbon hydrocarbons, aliphatic hydrocarbons (mineral oil derivatives), chlorinated hydrocarbons (anhydrous)
- Fuels for internal combustion engines, diesel, petroleum, paraffin oil, hydraulic oils
- Silicone fluids, flushing oils, cutting oils etc.

Design

The rotary-piston meter has an electronic pulser and an electronic totalizer. The rotary-piston meter is a fitted meter for mounting in pipelines.

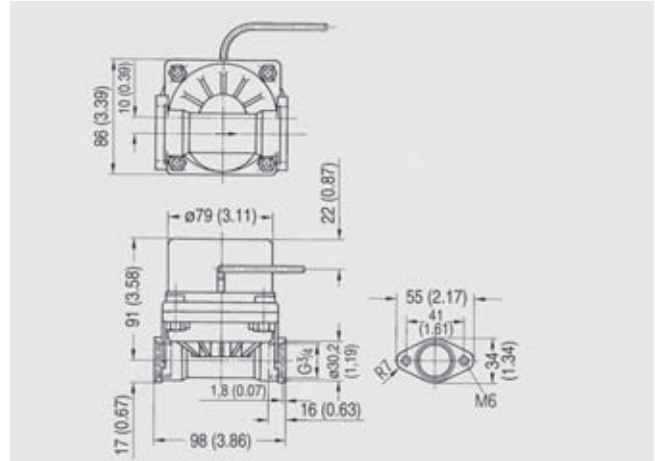
- Metering mechanism:
 - Rotary-piston mechanism
 - Casing and measuring chamber made of zinc die-cast alloy
 - Rotary-piston made of light alloy
- Electronic pulser with double pick-up
- LCD

Schematics



Connection diagram

Dimensional drawings



Rotary-piston meter with electronic pulser and totalizer, dimensions in mm (inch)

Technical specifications

Liquids	Lubricating oils or other liquids with a viscosity range from 20 to 2000 mPa s, excluding liquid food
Min. flow rate	1 or 1.5 l/min (0.26 or 0.4 USgpm)
Max. flow rate	15 l/min (4 USgpm)
Flow rate ratio ($q_{\min} : q_{\max}$)	1 : 10
Minimum delivery quantity	0.5 l (0.13 USg)
Error limits	<ul style="list-style-type: none"> • for preliminary official calibration tests in the European Union 3% of the actual value • for other countries According to the relevant regulations
Nom. press.	PN 10 (MWP 145 psi)
Max. permissible pressure loss	3 bar (43.5 psi); at q_{\max} and 100 mPa s (cp) the pressure loss is approx. 0.3 bar (4.35 psi)
Max. permissible liquid temperature	40 °C (104 °F)
Permissible ambient temperature	0 ... 60 °C (32 ... 140 °F)
Mounting position	Any
Pipe connection for liquid	Female thread G $\frac{3}{4}$ DIN ISO 228/1
Pulser	
Number of double pulses	100 pulses/l
Pulse off-set	90° ± 30°
Voltage	8 ... 30 V
Current consumption	< 30 mA
Max. frequency	400 Hz
Pulse outputs	max. 30 mA
Display	
• Total quantity	6-digit
• Batch	6-digit
Decimal point	xxx.xxx
Resolution	5 ml
Certificate and approvals	
Classification according to pressure equipment directive (DRGL 97/23/EC)	For liquids of fluid gas group 1; complies with requirements of article 3, paragraph 3 (sound engineering practice SEP)

