



The Generation of Flow Meters In Touch with the Future

Turbine Wheel Meter TR Series
Nutating Disc Meter TS Series
Oval Gear Meter HDO Series



Safety is our Concern

You can count on Lutz.

Precise work counts more than ever in laboratories as well as in production and fluid handling. Flow measurement must therefore be efficient, economical and, above all, practical – in mobile application as well as in stationary operation.

Precise capture of fluid data ensures quality work processes and economical handling of operating resources.

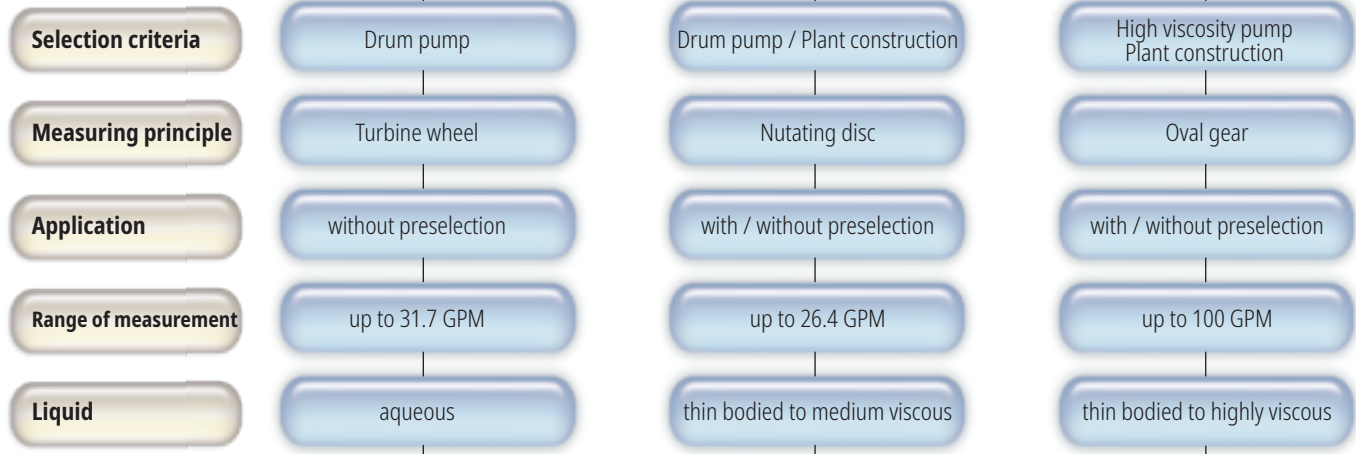
For nearly 20 years, experts have relied on tried-and-true Lutz flow meters – and the new generation of meters will inspire you.

- **TR turbine wheel meter**
- **TS nutating disc meter**
- **HDO oval gear meter**

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product video



Selection Criteria



TR Series

- ✓ Can be combined with all drum and container pumps
- ✓ Wide measuring range
- ✓ Also for small volume flow
- ✓ Sub totals can be reset

(see pages 4-5)



TS Series

- ✓ Touch screen display
- ✓ Multilingual menus
- ✓ Simple plain-text operation
- ✓ Plug & play modular design

(see pages 6-15)



HDO Series

- ✓ Touch screen display
- ✓ Multilingual menus
- ✓ Simple plain-text operation
- ✓ Plug & play modular design
- ✓ For high flowrates, temperatures and pressures

(see pages 16-22)

Lutz Flow Meter Program

The Reasonable: Lutz flow meter TR

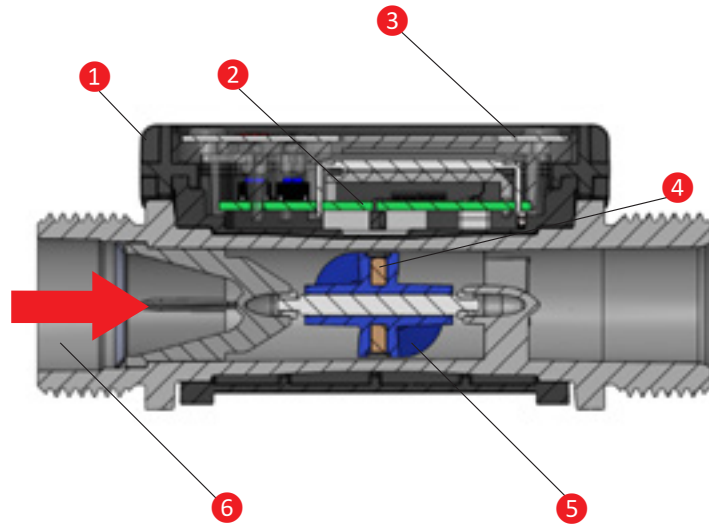


Easy to operate

Easy to operate, compact and quick to install on all drum and container pumps: The new Lutz flow meter TR3 in PP or PVDF. A flow meter, easy to handle, that you can „count on“ in any situation. The symmetrical measuring chamber can be used for all flow directions and measures low-viscosity, non-flammable substances precisely, quickly and above all efficiently.

With drive to the measurement result

The new TR3 turbine wheel meter with illuminated, digital display has a two-line LED display showing the current output and the total memory or the 8 partial quantity memories. The display can be adjusted for best viewing angle or moved when mounted. The measuring accuracy is higher than $\pm 1\%$, the nominal operating pressure is 145 psi.



- 1 Housing top (PC) with shock protector (NBR)
- 2 PCB
- 3 Keypad foil
- 4 Magnet
- 5 Axial flow turbine (PP or PVDF)
- 6 Measuring chamber (PP or PVDF)

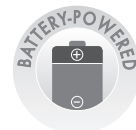
The economical liquid volume measurement

The choice is yours



PP for neutral and aggressive liquids

such as glycol, ferric (III) chloride, hydrochloric acid, phosphoric acid, etc.



PVDF for highly aggressive fluids

such as chlorine solution, nitric acid, sulphuric acid, etc.

Lutz offers complete pumping systems for the laboratory and research sector. Both pump sets Lutz B2 Battery and B2 Vario can be equipped with a TR3-PP flow meter (Order No. 0213-051).

Type	TR3-PP		TR3-PVDF	
Material	Housing top Housing Keypad Shock protector	PC POM PES NBR	PC POM PES NBR	
Material (in contact with the medium)	Measuring chamber Rotor Shaft Bearing ball Seal	PP PP Hastelloy C-22 PTFE PTFE	PVDF PVDF Hastelloy C-22 PTFE PTFE	
Range of measurement	1.3-31.7 GPM		1.3-31.7 GPM	
Range of viscosity	0.8-40 cps		0.8-40 cps	
Max. operating pressure	145 psi		145 psi	
Measuring accuracy (uncalibrated)	± 2%*		± 2%*	
Measuring accuracy (calibrated)	± 1%*		± 1%*	
Repeating accuracy	± 0,5%		± 0,5%	
Connection	1" BSP	1 1/4" BSP	1" BSP	1 1/4" BSP
Protection class	IP 65		IP 65	
Battery	Two 1.5 V batteries (AAA) replaceable		Two 1.5 V batteries (AAA) replaceable	
Range of temperature	14 up to 122 °F		14 up to 122 °F	
Dimensions	3.35 x 4.9 x 2 inches		3.35 x 4.9 x 2 inches	
Weight	0.49 lbs		0.53 lbs	
Order No. Assembly at B1/B2 Battery/B2 Vario	0213-051	-	0213-061	-
Order No. Assembly at drum pump	-	0213-050	-	0213-060
Order No. Assembly at nozzle	-	0213-052	-	0213-062

* Test assembly: Medium: water, 0.66 ft inlet runs and outlet runs



Flexible to use. A wide array of possibilities:

- Food, gourmet and beverage industry
- Chemical industry
- Petrochemicals
- Chemicals and mineral oils
- Machine shops and metal working
- Automotive industry and suppliers
- Electroplating and surface treatment
- Paint and varnish industry
- Pharmaceuticals and cosmetics
- Plant and equipment construction
- Engineering and design



There are a lot of measuring devices for fluids.
But the advantages of the new Lutz flow meters stand out from all the rest.
Their precision, flexibility and user-friendliness will win you over.

Discover the benefits of innovative Lutz technology:

- + Touch screen display
- + Multilingual menus
- + Simple plain-text operation
- + Integrated help function
- + High precision through overrun correction and characteristic adjustment
- + Safety and monitoring functions
- + Simple system connection
- + Plug & play modular design

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product video



Outstanding user-friendliness.

The first flow meter with a **touch screen display** and backlighting convinces through its simple operation, multilingual user interface and its compact design.

With plain-text instructions, system reports and help texts, as well as **monitoring functions**, its user controls practically eliminate errors. Both manual and external controls are available.

■ In Touch with the Future.





Simply easy to use: Flow measurement with volume preselection.

The relay module – an intelligent cornerstone of Lutz meter innovation – helps you automate work processes and organize more efficiently.

The desired volume can simply be preselected and started with the touch of a button. Whether for mobile use with a drum pump or for controlling complex systems: With easy volume preselection, your processes will be simpler and safer. The pump, the system and/or the solenoid valve are turned on and off by the integrated electronics.

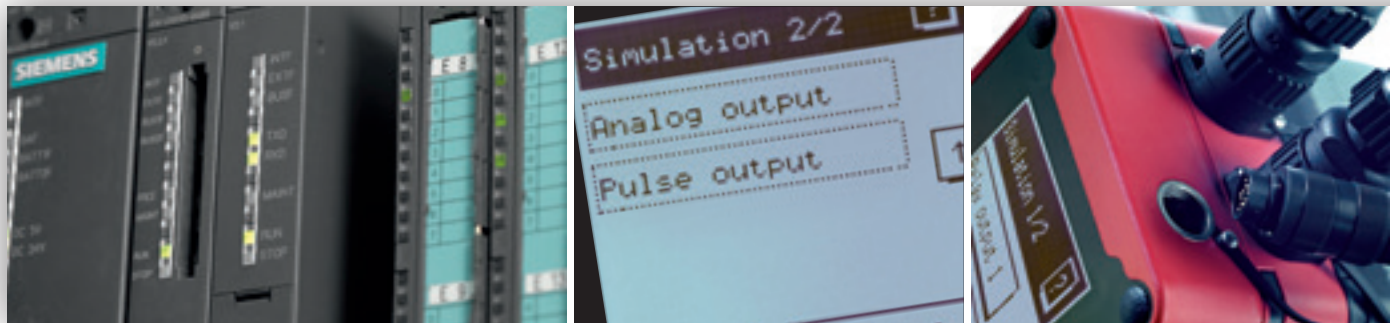
■ **Precise, safe and economical.**



Combine to meet your needs. Easy to assemble.

The Lutz flow meter can be connected to your system quickly and with no wiring needed, using socket connections that can't be confused. The new connection system is assembled like a modular design, allowing individual modules, such as the basic meter, control unit and relay module, to be easily connected and installed together.





The flexible meter system you can rely on.

- Simple installation and start-up
- External controls and data evaluation
via standard interfaces
- Modules can be installed separately by location
- Always the best technical and financial solution



Lutz Flow Meter Program

TS Series: Nutating disc principle



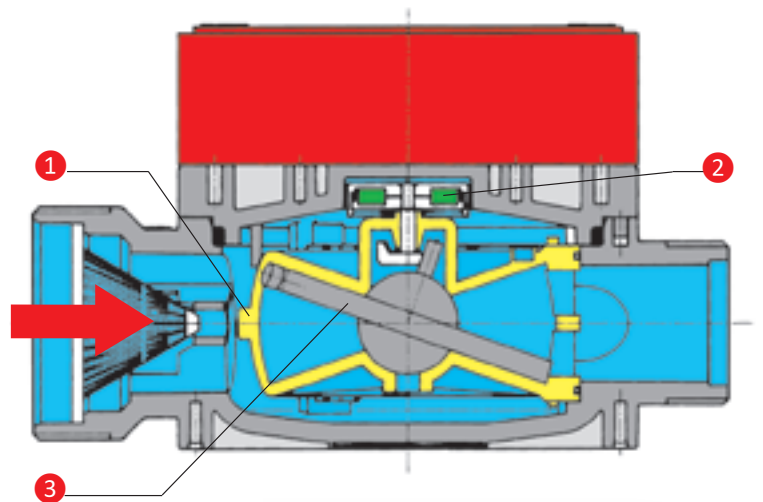
Product Features

The flow meters in plastic or metal version are nutating disc types and are suitable for the transfer of neutral, aggressive, flammable and viscous liquids.

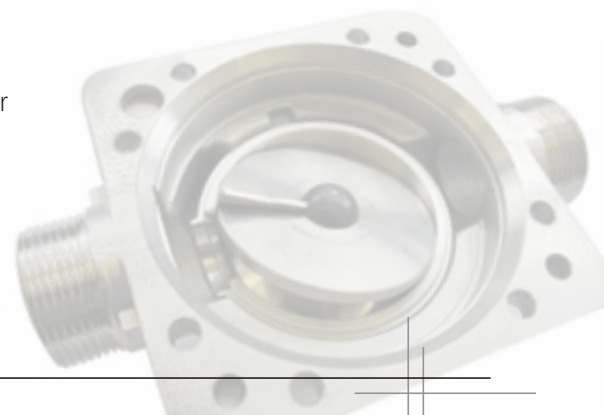
- Wide application range
- Available in PURE

Take control:

The liquid streaming causes a nutating disc to gyrate about its own axis. A multi-pole solenoid is made to rotate via a driver and switches a reed contact through the housing cover. The volume flowing through is determined from the number of pulses.



- ① Measuring chamber
- ② Magnet
- ③ Nutating disc



Flow measurement without volume preselection - TS

for non flammable liquids



Flow meters type VA10 in PURE-version are optionally available for the food, cosmetics and pharmaceutical industry.

Technical data	Type ST10	Type SL10	Type VA10
Compatibility	Consult Lutz chemical resistance table	Consult Lutz chemical resistance table	Consult Lutz chemical resistance table
Flow volume	min. 2.6 – max. 26.4** GPM	min. 2.6 – max. 26.4** GPM	min. 2.6 – max. 26.4** GPM
Temperature	140 °F	140 °F	176 °F
Viscosity	2.000 cps	2.000 cps	5.000 cps
Operating pressure	58 psi	58 psi	145 psi
Accuracy	± 1% standard < 1% with adjustment to application conditions	± 1% standard < 1% with adjustment to application conditions	± 1%
Inlet port	2" male BSP to fit connector with union nut	2" male BSP to fit connector with union nut	1 1/4" male BSP
Outlet port	1 1/4" male BSP	1 1/4" male BSP	1 1/4" male BSP
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	PPO	PPO	Stainless steel (1.4581/ 1.4571)*
Measuring chamber	PPO/PPS	PPO/PPS	Stainless steel (1.4581/1.4571) ETFE / PTFE
Seals	FPM	FPM	FEP
Magnet	BaFe / PA / Stainless steel 1.4401	PPS encapsulated	PTFE encapsulated
Protection class	IP 55	IP 55	IP 55
Weight	2.4 lbs.	2.4 lbs.	8.2 lbs.
Order No.	0231-000	0231-010	0231-049

*Special materials on request

**Short-time 31.7 GPM

Recommended Accessories: Power supply unit NG10***

Voltage	100-120 V
Frequency	50-60 Hz
Order No.	0230-231

*** Limited battery operation without power supply unit possible.

Flow measurement without volume preselection - TS

for highly flammable liquids



Flow meters type VA10 in PURE-version are optionally available for the food, cosmetics and pharmaceutical industry.

Technical data	Type LM10 Ex	Type UN10 Ex	Type VA10 Ex
Compatibility	Consult Lutz chemical resistance table	Consult Lutz chemical resistance table	Consult Lutz chemical resistance table
Flow volume	min. 2.6 – max. 26.4** GPM	min. 2.6 – max. 26.4** GPM	min. 2.6 – max. 26.4** GPM
Temperature	140 °F	140 °F	140 °F
Viscosity	2.000 cps	2.000 cps	5.000 cps
Operating pressure	58 psi	58 psi	145 psi
Accuracy	± 1% standard < 1% with adjustment to application conditions	± 1% standard < 1% with adjustment to application conditions	± 1%
Inlet port	2" male BSP to fit connector with union nut	2" male BSP to fit connector with union nut	1 1/4" male BSP
Outlet port	1 1/4" male BSP	1 1/4" male BSP	1 1/4" male BSP
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials: Housing Measuring chamber	PPS LCP	PPS LCP	Stainless steel (1.4581/1.4571)* Stainless steel (1.4581/1.4571) ETFE/PTFE
Seals Magnet	FEP BaFe / MS / Stainless steel 1.4401	FEP PPS encapsulated	FEP PTFE encapsulated
Type of protection: Operating unit Basic flow meter	II 2G Ex ib IIB T4 Gb*** II 2G T4 Gb	II 2G Ex ib IIB T4 Gb*** II 2G T4 Gb	II 2G Ex ib IIB T4 Gb*** II 2G T4 Gb
Protection class	IP 55	IP 55	IP 55
Weight	2.4 lbs.	2.4 lbs.	8.2 lbs.
Order No.	0231-020	0231-030	0231-040

*Special materials on request **Short-time 31.7 GPM ***Also available in protection class II 2G Ex ib IIC T4 Gb

Recommended Accessories: Power supply unit NG10***

Voltage	100-120 V
Frequency	50-60 Hz
Order No.	0230-231

***Limited battery operation without power supply unit possible.

Flow measurement with volume preselection - TS

for non flammable liquids



Flow meters type VA10 in PURE-version are optionally available for the food, cosmetics and pharmaceutical industry.

Technical data	Type ST10 / RM10 230 V	Type SL10 / RM10 230 V	Type VA10 / RM10 230 V
Compatibility:	Consult Lutz chemical resistance table	Consult Lutz chemical resistance table	Consult Lutz chemical resistance table
Flow volume	min. 2.6 – max. 26.4** GPM	min. 2.6 – max. 26.4** GPM	min. 2.6 – max. 26.4** GPM
Temperature	140 °F	140 °F	176 °F
Viscosity	2.000 cps	2.000 cps	5.000 cps
Operating pressure	58 psi	58 psi	145 psi
Accuracy	± 1% standard < 1% with adjustment to application conditions	± 1% standard < 1% with adjustment to application conditions	± 1%
Inlet port	2" male BSP to fit connector with union nut	2" male BSP to fit connector with union nut	1 1/4" male BSP
Outlet port	1 1/4 male BSP	1 1/4 male BSP	1 1/4 male BSP
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	PPO	PPO	Stainless steel (1.4581/1.4571)*
Measuring chamber	PPO/PPS	PPO/PPS	Stainless steel (1.4581/1.4571) ETFE/PTFE
Seals	FPM	FPM	FEP
Magnet	BaFe / PA / Stainless steel 1.4401	PPS encapsulated	PTFE encapsulated
Protection class	IP 55	IP 55	IP 55
Weight	3.5 lbs.	3.5 lbs.	8.8 lbs.
Relay module RM10			
Voltage	100-120 V		
Frequency	50-60 Hz		
Switching outputs	2 NO (potentially bound)		
Output 1 (pump)	8 A, cos > 0,7		
Output 2 (valve)	0,5 A		
Order No.	0231-002	0231-012	0231-042

*Special materials on request

**Short-time 31.7 GPM

Lutz Flow Meter Program

HDO Series: Oval gear principle



Product Features

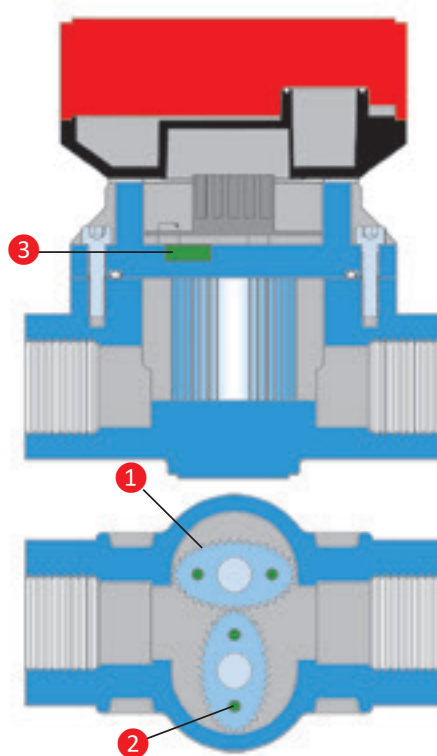
The flow meters in plastic or metal version are oval gear types and are suitable for the transfer of thin bodied to highly viscous liquids.

- For high flow volumes, temperatures and pressures
- Few components and wearing parts
- Low pressure loss in the plant

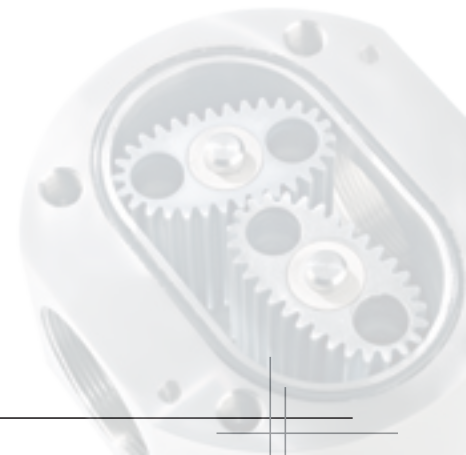
This is the way the HDO operates

Two oval gears interlocked and displaced by 90° in the meter housing are rotated by the flowing fluid. By means of the two oval gears a defined fluid volume „in portions" is transported. The magnets placed on the rotors are also rotated.

A reed contact fitted outside of the measuring chamber records the magnetic impulses produced. The volume of the flowing fluid is determined by the number of impulses recorded.



- 1 Oval gears
- 2 Permanent magnets
- 3 Reed contact



Lutz Flow Meter HDO 080 with pulse output

for very small flow volumes

- ✓ Housing material metal
- ✓ For very small flow volumes up to 2.2 GPM
- ✓ Compact basic flow meter with 1 ft connecting cable and plug for connection to external operating unit
- ✓ For neutral liquids, many acids and alkalis, mineral oils, easily inflammable hydrocarbons, solvents, paints and lacquers, etc.
- ✓ With thread connection




Technical data	Type HDO 080 SS/SS
Range of measurement: below 5 cps above 5 cps	0.12 GPM - 2.2 GPM 0.07 GPM - 2.2 GPM
Temperature	max. 176 °F
Viscosity max.	1,000 cps
Operating pressure max.	232 psi
Accuracy	below 5 cps ± 2.5% of measured quantity above 5 cps ± 1% of measured quantity
Reproducibility	0.03%
Nominal width	DN 8
Connections: thread/flange	1/4 female BSP
LCD display	Basic flow meter without operating unit (suitable operating unit: BE10/BE10 Ex see accessories)
Materials: Housing Rotors Shaft Seal	Stainless steel (1.4571) Stainless steel (1.4571) Stainless steel (1.4571) FPM (alt, FFPM, EPDM)*
Weight	1.5 lbs.
Type of protection: Basic flow meter	II 2G Ex h IIB T4 Gb
Order No.	0230-600

Optional:
 *Price Adder - Seal FFPM - Order No. 0230-316
 Price Adder - Seal EPDM - Order No. 0230-322

Lutz Flow Meter HDO 120

for non inflammable liquids and easily inflammable liquids

- ✓ Housing material metal
- ✓ For small flow volumes up to 8 GPM
- ✓ **Non Ex-Version:**
For neutral liquids, many acids and alkalis mineral oil, paints and lacquers, etc.
- ✓ **Ex-Version:** 
For inflammable mineral oil products, easily flammable hydrocarbons and other chemicals in explosion hazardous area
- ✓ With thread connection



Technical data	Type HDO 120 Alu/LCP	Type HDO 120 SS/SS
Range of measurement: below 5 cps above 5 cps	0.5 GPM - 6.6 GPM 0.3 GPM - 7.7 GPM	0.5 GPM - 6.6 GPM 0.3 GPM - 7.7 GPM
Temperature	max. 176 °F (140 °F**)	max. 248 °F (140 °F**)
Viscosity max.	1,000 cps	1,000 cps
Operating pressure max.	232 psi	232 psi
Accuracy	below 5 cps ± 2% of measured quantity above 5 cps ± 0,5% of measured quantity	below 5 cps ± 2% of measured quantity above 5 cps ± 0,5% of measured quantity
Reproducibility	0.03%	0.03%
Nominal width	DN 12	DN 12
Connections: thread/flange	1/2 female BSP	1/2 female BSP
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset	
Menu language	DE, GB, ES, FR, IT, NL, PT, RU	
Materials:		
Housing	Aluminium	Stainless steel (1.4404)
Rotors	LCP	Stainless steel (1.4404)
Shaft	Stainless steel (1.4404)	Stainless steel (1.4404)
Seal	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*
Protection class	IP 55	IP 55
Weight	4.6 lbs.	9.9 lbs.
Order No.	Thread	Thread
up to 1,000 cps	0231-101	0231-100

Technical data	Type HDO 120 Alu/LCP Ex	Type HDO 120 SS/SS Ex
Type of protection: Operating unit Basic flow meter	II 2G Ex ib IIB T4 Gb*** II 2G Ex h IIB T4 Gb 	II 2G Ex ib IIB T4 Gb*** II 2G Ex h IIB T4 Gb 
Order No.	Thread	Thread
up to 1,000 cps	0231-103	0231-102


Optional: *Price Adder - Seal FFPM - Order No. 0230-315, Price Adder - Seal EPDM - Order No. 0230-321 **in Ex-Version ***Also available in protection class II 2G Ex ib IIC T4 Gb

Recommended Accessories: Power supply unit NG10***	
Voltage	100-120 V
Frequency	50-60 Hz
Order No.	0230-231

****Limited battery operation without power supply unit possible. Installation of power supply unit outside of the explosion hazard area required.

Lutz Flow Meter HDO 200

for non inflammable liquids and easily inflammable liquids

- ✓ Housing material metal
- ✓ For small and medium flow volumes up to 16 GPM
- ✓ **Non Ex-Version:**
For neutrals liquids, many acids and alkalis mineral oil, paints and lacquers, etc.
- ✓ **Ex-Version:** 
For inflammable mineral oil products, easily flammable hydrocarbons and other chemicals in explosion hazardous area
- ✓ With thread connection



Technical data	Type HDO 200 Alu/LCP	Type HDO 200 SS/SS
Range of measurement: below 5 cps above 5 cps	1.2 GPM - 14 GPM 0.5 GPM - 15.8 GPM	1.2 GPM - 14 GPM 0.5 GPM - 15.8 GPM
Temperature	max. 176 °F (140 °F**)	max. 248 °F (140 °F**)
Viscosity max.	1,000 cps	1,000 cps
Operating pressure max.	232 psi	232 psi
Accuracy	below 5 cps ± 2% of measured quantity above 5 cps ± 0,5% of measured quantity	below 5 cps ± 2 % of measured quantity above 5 cps ± 0,5% of measured quantity
Reproducibility	0.03%	0.03%
Nominal width	DN 20	DN 20
Connections: thread/flange	3/4 female BSP	3/4 female BSP
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset	
Menu language	DE, GB, ES, FR, IT, NL, PT, RU	
Materials:		
Housing	Aluminium	Stainless steel (1.4404)
Rotors	LCP	Stainless steel (1.4404)
Shaft	Stainless steel (1.4404)	Stainless steel (1.4404)
Seal	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*
Protection class	IP 55	IP 55
Weight	4.9 lbs.	10.6 lbs.
Order No.	Thread	Thread
up to 1,000 cps	0231-105	0231-104

Technical data	Type HDO 200 Alu/LCP Ex	Type HDO 200 SS/SS Ex
Type of protection: Operating unit Basic flow meter	II 2G Ex ib IIB T4 Gb*** II 2G Ex h IIB T4 Gb 	II 2G Ex ib IIB T4 Gb*** II 2G Ex h IIB T4 Gb 
Order No.	Thread	Thread
up to 1,000 cps	0231-107	0231-106


Optional: *Price Adder - Seal FFPM - Order No. 0230-315, Price Adder - Seal EPDM - Order No. 0230-321 **in Ex-Version *** Also available in protection class II 2G Ex ib IIC T4 Gb

Recommended Accessories: Power supply unit NG10****	
Voltage	100-120 V
Frequency	50-60 Hz
Order No.	0230-231

**** Limited battery operation without power supply unit possible. Installation of power supply unit outside of the explosion hazard area required.




Lutz Flow Meter HDO 250

for non flammable liquids and easily flammable liquids

- ✓ Housing material plastic or metal
- ✓ For small and medium flow volumes up to 45 GPM
- ✓ **Non Ex-Version:**
For neutral liquids, many acids and alkalis mineral oil and cosmetic products, food, paints and lacquers, etc.
- ✓ **Ex-Version:** 
For flammable mineral oil products, easily flammable hydrocarbons and other chemicals in explosive hazardous areas
- ✓ With threaded or flanged connection



Technical data	Type HDO 250P	Type HDO 250 Alu/PPS		Type HDO 250 SS/PPS		Type HDO 250 SS/SS	
Range of measurement: below 5 cps above 5 cps	2.1 GPM - 18.5 GPM 0.8 GPM - 19.8 GPM	2.5 GPM - 40 GPM 1.5 GPM - 45 GPM		2.5 GPM - 40 GPM 1.5 GPM - 45 GPM		2.5 GPM - 40 GPM 1.5 GPM - 45 GPM	
Temperature	max. 176 °F	max. 176 °F (140 °F**)		max. 176 °F (140 °F**)		max. 248 °F (140 °F**)	
Viscosity max.	1,000 cps	500,000 cps		500,000 cps		500,000 cps	
Operating pressure max.	145 psi	232 psi		232 psi		232 psi	
Accurate quantity	below 5 cps ± 2 % of measured quantity above 5 cps ± 0.5% of measured quantity	below 5 cps ± 2% of measured quantity above 5 cps ± 0.5% of measured quantity		below 5 cps ± 2% of measured quantity above 5 cps ± 0.5% of measured quantity		below 5 cps ± 2% of measured quantity above 5 cps ± 0.5% of measured quantity	
Reproducibility	0.03%	0.03%		0.03%		0.03%	
Nominal width	DN 25	DN 25		DN 25		DN 25	
Connections: thread/ flange	1" female BSP	1" female BSP	PN 16	1" female BSP	PN 16	1" female BSP	PN 16
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset						
Menu language	DE, GB, ES, FR, IT, NL, PT, RU						
Materials:							
Housing	PPS	Aluminium		Stainless steel (1.4404)		Stainless steel (1.4404)	
Rotors	PPS	PPS		PPS		Stainless steel (1.4401)	
Shaft	Hastelloy C (2.4610)	Stainless steel (1.4404)		Stainless steel (1.4404)		Stainless steel (1.4404)	
Seal	FPM (alt. FEP, EPDM)*	FPM (alt. FFPM, EPDM)*		FPM (alt. FFPM, EPDM)*		FPM (alt. FFPM, EPDM)*	
Protection class	IP 55	IP 55		IP 55		IP 55	
Weight	2.4 lbs.	4.9 lbs.	6.6 lbs.	10.4 lbs.	13 lbs.	10.6 lbs.	13.2 lbs.
Order No.	Thread	Thread	Flange	Thread	Flange	Thread	Flange
up to 1,000 cps	0231-200	0231-209	0231-210	0231-205	0231-206	0231-201	0231-202
up to 500,000 cps	-	0231-211	0231-212	0231-207	0231-208	0231-203	0231-204

Technical data	Type HDO 250 Alu/PPS Ex		Type HDO 250 SS/PPS Ex		Type HDO 250 SS/SS Ex	
Type of protection: Operating unit Basic flow meter	II 2G Ex ib IIB T4 Gb*** II 2G Ex h IIB T4 Gb 		II 2G Ex ib IIB T4 Gb*** II 2G Ex h IIB T4 Gb 		II 2G Ex ib IIB T4 Gb*** II 2G Ex h IIB T4 Gb 	
Order No.	Thread	Flange	Thread	Flange	Thread	Flange
up to 1,000 cps	0231-221	0231-222	0231-217	0231-218	0231-213	0231-214
up to 500,000 cps	0231-223	0231-224	0231-219	0231-220	0231-215	0231-216

Optional: *Price Adder - HDO 250P - Seal FEP - Order No. 0211-350, Price Adder - HDO 250P - Seal EPDM - Order No. 0211-353, Price Adder - HDO 250 - Seal FFPM - Order No. 0230-312
Price Adder - HDO 250 - Seal EPDM - Order No. 0230-318. Drum pump connection for B70 / HD-E pump – see page 26. **in Ex-Version *** Also available in protection class II 2G Ex ib IIC T4 Gb


Recommended Accessories: Power supply unit NG10***

Voltage	100-120 V
Frequency	50-60 Hz
Order No.	0230-231

**** Limited battery operation without power supply unit possible. Installation of power supply unit outside of the explosion hazard area required.




Lutz Flow Meter HDO 400

for non flammable liquids and easily flammable liquids

- ✓ Housing material metal
- ✓ For medium flow volumes up to 65 GPM
- ✓ **Non Ex-Version:**
For neutral liquids, many acids and alkalis mineral oil and cosmetic products, foods, paints and lacquers, etc.
- ✓ **Ex-Version:** 
For flammable mineral oil products, easily flammable hydrocarbons and other chemicals in explosive hazardous areas
- ✓ With threaded or flanged connection



Technical data	Type HDO 400 Alu/PPS		Type HDO 400 SS/PPS		Type HDO 400 SS/SS	
Range of measurement: below 5 cps above 5 cps	4 GPM - 60 GPM 2.5 GPM - 65 GPM		4 GPM - 60 GPM 2.5 GPM - 65 GPM		4 GPM - 60 GPM 2.5 GPM - 65 GPM	
Temperature	max. 176 °F (140 °F**)		max. 176 °F (140 °F**)		max. 248 °F (140 °F**)	
Viscosity max.	500,000 cps		500,000 cps		500,000 cps	
Operating pressure max.	232 psi		232 psi		232 psi	
Accurate quantity	below 5 cps ± 1% of measured quantity above 5 cps ± 0.5% of measured quantity		below 5 cps ± 1% of measured quantity above 5 cps ± 0.5% of measured quantity		below 5 cps ± 1% of measured quantity above 5 cps ± 0.5% of measured quantity	
Reproducibility	0.03%		0.03%		0.03%	
Nominal width	DN 40		DN 40		DN 40	
Connections: thread/ flange	1 1/2 female thread	PN 16	1 1/2 female thread	PN 16	1 1/2 female thread	PN 16
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset					
Menu language	DE, GB, ES, FR, IT, NL, PT, RU					
Materials: Housing Rotors Shaft Seal	Aluminium PPS Stainless steel (1.4404) FPM (alt. FFPM, EPDM)*		Stainless steel (1.4404) PPS Stainless steel (1.4404) FPM (alt. FFPM, EPDM)*		(1.4404) Stainless steel (1.4401) Stainless steel (1.4404) FPM (alt. FFPM, EPDM)*	
Protection class	IP 55		IP 55		IP 55	
Weight	9.9 lbs.	12.1 lbs.	22.9 lbs.	26.5 lbs.	23.1 lbs.	26.7 lbs.
Order No.	Thread	Flange	Thread	Flange	Thread	Flange
up to 1,000 cps	0231-233	0231-234	0231-229	0231-230	0231-225	0231-226
up to 500,000 cps	0231-235	0231-236	0231-231	0231-232	0231-227	0231-228

Technical data	Type HDO 400 Alu/PPS Ex		Type HDO 400 SS/PPS Ex		Type HDO 400 SS/SS Ex	
Type of protection: Operating unit Basic flow meter	II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb		II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb		II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb	
Order No.	Thread	Flange	Thread	Flange	Thread	Flange
up to 1,000 cps	0231-245	0231-246	0231-241	0231-242	0231-237	0231-238
up to 500,000 cps	0231-247	0231-248	0231-243	0231-244	0231-239	0231-240


Optional: *Price Adder - Seal FFPM - Order No. 0230-313, Price Adder - Seal EPDM - Order No. 0230-319. Drum pump connection for B70 / HD-E pump – see page 26.
** in Ex-Version *** Also available in protection class II 2G Ex ib IIC T4 Gb

Recommended Accessories: Power supply unit NG10****	
Voltage	100-120 V
Frequency	50-60 Hz
Order No.	0230-231

**** Limited battery operation without power supply unit possible. Installation of power supply unit outside of the explosion hazard area required.




Lutz Flow Meter HDO 500

for non flammable liquids and easily flammable liquids

- ✓ Housing material metal
- ✓ For large flow volumes up to 100 GPM
- ✓ **Non Ex-Version:**
For neutral liquids, many acids and alkalis mineral oil and cosmetic products, foods, paints and lacquers, etc.
- ✓ **Ex-Version:** 
For flammable mineral oil products, easily flammable hydrocarbons and other chemicals in explosive hazardous areas
- ✓ With flange connection



Technical data	Type HDO 500 Alu/PPS	Type HDO 500 SS/PPS	Type HDO 500 SS/SS
Range of measurement: below 5 cps above 5 cps	6 GPM - 100 GPM 4 GPM - 100 GPM	6 GPM - 100 GPM 4 GPM - 100 GPM	6 GPM - 100 GPM 4 GPM - 100 GPM
Temperature	max. 176 °F (140 °F**)	max. 176 °F (140 °F**)	max. 248 °F (140 °F**)
Viscosity max.	500,000 cps	500,000 cps	500,000 cps
Operating pressure max.	232 psi	232 psi	232 psi
Accurate quantity	below 5 cps ± 1% of measured quantity above 5 cps ± 0.5% of measured quantity	below 5 cps ± 1% of measured quantity above 5 cps ± 0.5% of measured quantity	below 5 cps ± 1% of measured quantity above 5 cps ± 0.5% of measured quantity
Reproducibility	0,03%	0,03%	0,03%
Nominal width	DN 50	DN 50	DN 50
Connections: thread/ flange	PN 16	PN 16	PN 16
LCD display	Touch-Screen 2.5x2.5 inches, 128x128 pixels, Display sub-total and total volume can be reset		
Menu language	DE, GB, ES, FR, IT, NL, PT, RU		
Materials:			
Housing	Aluminium	Stainless steel (1.4404)	Stainless steel (1.4404)
Rotors	PPS	PPS	Stainless steel (1.4401)
Shaft	Stainless steel (1.4404)	Stainless steel (1.4404)	Stainless steel (1.4404)
Seal	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*	FPM (alt. FFPM, EPDM)*
Protection class	IP 55	IP 55	IP 55
Weight	14.6 lbs.	30 lbs.	30.5 lbs.
Order No.	Flange	Flange	Flange
up to 1,000 mPas	0231-253	0231-251	0231-249
up to 500,000 mPas	0231-254	0231-252	0231-250

Technical data	Type HDO 200 Alu/PPS Ex	Type HDO 200 SS/PPS Ex	Type HDO 500 SS/SS Ex
Type of protection: Operating unit Basic flow meter	II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb	II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb	II 2G Ex ib IIB T4 Gb***  II 2G Ex h IIB T4 Gb
Order No.	Flange	Flange	Flange
up to 1,000 mPas	0231-259	0231-257	0231-255
up to 500,000 mPas	0231-260	0231-258	0231-256

Optional: *Price Adder - Seal FFPM - Order No. 0230-314, Price Adder - Seal EPDM - Order No. 0230-320. ** in Ex-Version *** Also available in protection class II 2 G Ex IIC T4

Recommended Accessories: Power supply unit NG10****	
Voltage	100-120 V
Frequency	50-60 Hz
Order No.	0230-231

**** Limited battery operation without power supply unit possible. Installation of power supply unit outside of the explosion hazard area required.

Accessories Lutz Flow Meter Program

for mobile or stationary applications



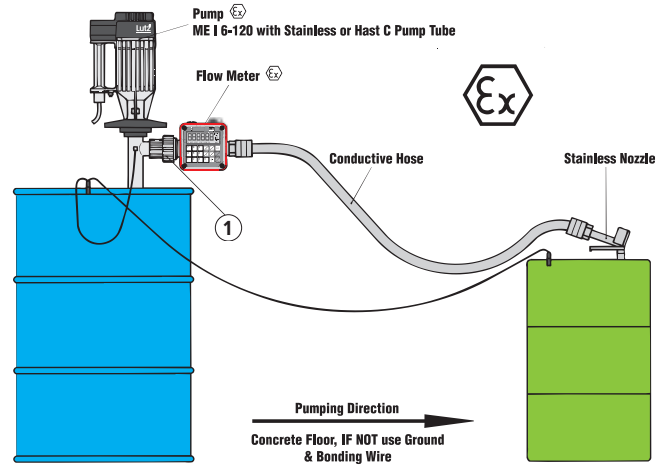
Combination made to measure

Advantages of the Lutz flow meters:

For mounting on drum and container pumps, fittings with screw thread, measuring cell protected from impurities by an integrated strainer, optional non-return valve, integrated control unit, either direct input or pre-settable delivery rate, large LCD for easy reading, even at a distance, control unit can be rotated in 90° increments in any direction, volume unit simple to set, additional operating mode display, display of the total delivery rate, flow velocity display, optional liquid level function, easy battery replacement.

Application 1 Flow meter with drum pump

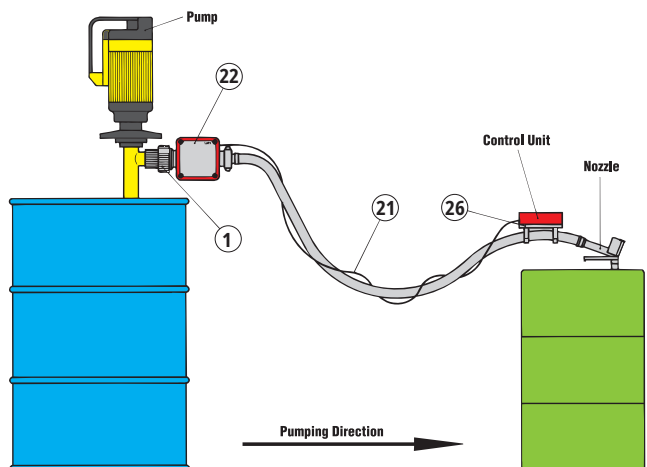
The liquid is pumped from one container to another. The explosion proof meter system is installed directly on the drum pump.



- 1 Drum pump connection
- Non return valve

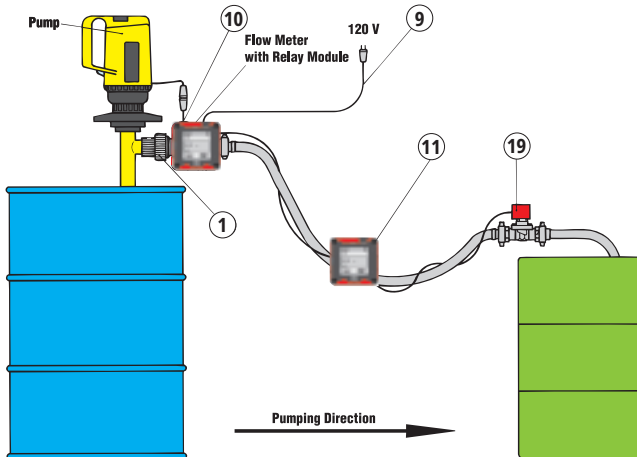
Application 2 Remote control

The liquid is pumped from one container to another. The two containers are a long distance apart or in separate rooms. The control unit is secured to the hose at the nozzle. The pulses are transmitted by means of the protective cover through data line to display unit.



- 1 Drum pump connection
- Non return valve
- 21 Data cable
- 22 Protection cover
- 26 Hose bracket for control unit

Combination made to measure



Advantages of the Lutz relay module:

Simple, reliable plug connection between the measuring element and the control unit, easily assembled, ready to use immediately, integrated in the meter assembly to save space, simultaneous control of the pump motor and the solenoid valve, system protected by fault detection function.

Application 3 Batch control system with presettable delivery rate and solenoid valve

The liquid is pumped at a preset read amount. Both the pump motor and solenoid valve are activated by the relay module integrated in the batch control system.

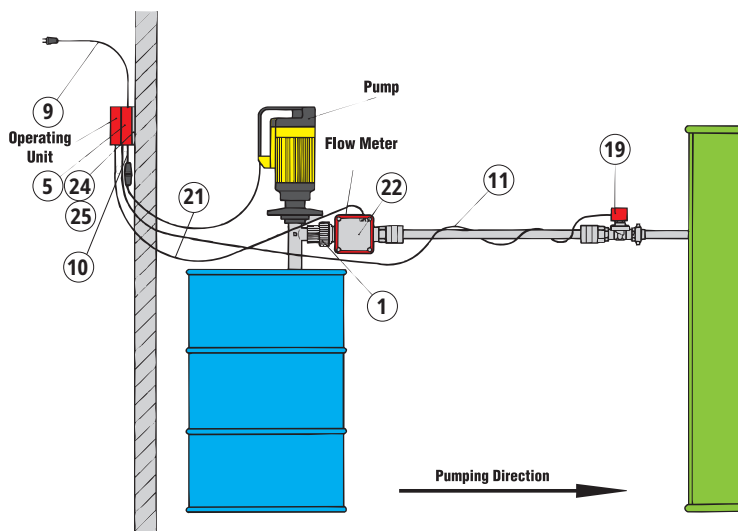
- 1 Drum pump connection
- 19 Solenoid valve
- 11 Connecting cable main valve
- 10 Connecting cable motor
- 9 Power cable relay module

Application 4 Batch control system with presettable amount for remote operation

With the relay/operating unit located away from the transfer station you are able to operate from your control room avoiding operator to be exposed to toxic fumes from liquid being transferred. Also, the most efficient way to operate 2 or more drum pumps when batching multiple liquids in mixing processes. This option will also extend the life of the electronics in the relay and operating unit when used in a corrosive environment.

For hazardous locations:

Items to the left away from hazardous area could alternatively be installed in an Ex. approved conduit.



- 1 Drum pump connection
- 5 Relay module
- 19 Solenoid valve
- 11 Connecting cable main valve
- 10 Connecting cable motor
- 9 Power cable relay module
- 21 Data cable
- 24 All-purpose plate
- 25 Wall bracket set
- 22 Protection cover

Accessories

Connection fittings








Product detail	Specification	Order-No.
	<p>1 Drum pump connection Connects the flow meter to a drum and container pump.</p> <p>PPO/FPM 1 1/4" IT for ST10, SL10 PPS/FPM-FEP 1 1/4" IT for LM10, UN10 Stainless steel/PTFE 1 1/4"- 1 1/4" IT for VA10 Stainless steel/PTFE 1 1/4"- 1 1/2" IT for VA10</p>	<p>0211-130 0211-132 ● 0211-211 ● 0211-214 ●</p>
	<p>1 Drum pump connection Connects the flow meter to an eccentric screw pump B70-V or HD-E</p> <p>PP/PTFE 1" OT x 1 1/4" IT for HDO 250 P Stainless steel/PTFE 1" OT* x 1 1/4" IT* for HDO 250 Stainless steel/PTFE 1" OT* x 1 1/2" IT* for HDO 250</p>	<p>0211-332 0211-330 ● 0211-331 ●</p>
	<p>2 Double nipple Connects the flow meter to a pipeline system</p> <p>PP 1" OT x 1 1/4"AG, for drum pump connection 1" OT x 1 1/4" IT Stainless steel 1" OT x 1 1/4" OT, for drum pump connection 1" OT x 1 1/4" IT Stainless steel 1" OT x 1 1/2" OT, for drum pump connection 1" OT x 1 1/2" IT</p> <p>*Spacer ring 0231-545 is also required</p>	<p>0373-076 5000-073* 0211-340*</p>
	<p>4 Thread connection Connects the flow meter to screw-type flanges or threaded screw connections.</p> <p>PPO/FPM 1 1/4" OT for ST10, SL10 PPS/FPM-FEP 1 1/4" OT for LM10, UN10</p>	<p>0211-135 0211-136 ●</p>
	<p>Non-return valve Prevents flow back of the liquid in the hose system.</p> <p>PTFE/FPM for ST10, SL10 PTFE/FPM-FEP for LM10, UN10 Stainless steel/PTFE for VA10 Opening pressure: 0.72 psi</p>	<p>0211-140 0211-141 ● 0372-050 ●</p>

*OT = Outer BSP / *IT = Inner BSP

● Suitable for the delivery of combustible and easily inflammable liquids (e.g. ethanol, petrol) and for pumping liquids in potentially explosive environments.

Accessories

for volume preselection

Specification	Order-No.	Product detail
<p>5 Relay module RM10 Facilitates volume preselection in combination with the appropriate connection cables. 100-120 V, 50-60 Hz</p>	<p>for ST10, SL10, VA10 HDO 250, HDO 400, HDO 500 0230-201</p>	
<p>7 Power supply unit NG10 120V Supplies the control unit with power (instead of batteries). This function is already included in relay modules. 100-120 V, 50-60 Hz</p>	<p>for ST10, SL10, VA10 HDO 250, HDO 400, HDO 500 0230-231</p>	
<p>Communication module Allows for communication with external control systems, analog output (0-20mA, 4-20mA, 0-10 V), analog output, RS485 interface, alarm output, Digital input (external start/stop)</p> <p>8 Communication module KM10K (complete version) with cable protective covering</p>	<p>for ST10, SL10, VA10, HDO 250, HDO 400, HDO 500 0230-101</p>	
<p>9 Power cable relay module 16 ft long 120 V</p>	<p>for RM10, NG10 0211-159</p>	
<p>10 Connecting cable Motor/Slow 1-way 1.6 ft long 120 V</p>	<p>for RM10 0211-158</p>	
<p>11 Connecting cable main valve 16 ft long 120 V</p>	<p>for RM10 and RM30 0211-157</p>	
<p>19 Solenoid valve (Please consult factory)</p>		

Accessories

Miscellaneous installation accessories

Product detail	Specification	Order-No.
	<p>21 Data cable Connects the modules in the case of decentralised installation.</p> <p>14-pole, 16 ft long for ST10, SL10, LM10, UN10, VA10, HDO 250, HDO 400, HDO 500</p> <p>14-pole, 32 ft long for ST10, SL10, LM10, UN10, VA10, HDO 250, HDO 400, HDO 500</p> <p>Data cable SPS for the connection of a basic flow meter with protection cap onto a PLC. 14-pole, with a free cable end, 16 ft long.</p>	<p>0230-306 ●</p> <p>0230-309 ●</p> <p>0230-317 ●</p>
	<p>22 Protection cover SH10 with 1 data socket Protects the modules in the case of decentralised installation.</p> <p>for ST10, SL10, LM10, UN10, VA10, HDO 250, HDO 400, HDO 500</p> <p>22 Protection cover SH20 with 2 data socket Protects the modules in the case of decentralised installation.</p> <p>for ST10, SL10, LM10, UN10, VA10, HDO 250, HDO 400, HDO 500</p>	<p>0230-350 ●</p> <p>0230-351 ●</p>
	<p>Pulse converter for a signal amplification, must be mounted on the basic meter if the distance to the next module is more than 16.5 ft</p> <p>23 Pulse converter IW10 with 1 data socket for ST10, SL10, VA10, HDO 250, HDO 400, HDO 500</p> <p>23 Pulse converter IW20 with 2 data socket for ST10, SL10, VA10, HDO 250, HDO 400, HDO 500</p>	<p>0230-352</p> <p>0230-353</p>

● Suitable for the delivery of combustible and easily inflammable liquids (e.g. ethanol, petrol) and for pumping liquids in potentially explosive environments.

Miscellaneous installation accessories

Specification	Order-No.	Product detail
<p>24 All-purpose plate For wall-mounting or as a heat protection plate</p>	<p>for ST10, SL10, LM10, UN10, VA10, HDO 250, HDO 400, HDO 500</p> <p>0230-304 ●</p>	
<p>25 Wall bracket set Additional clamp fixing for DIN rails (TS 35) EN 50022</p> <p>Installation together with all-purpose plate 0230-304. (all-purpose plate not included in wall bracket set)</p>	<p>for ST10, SL10, LM10, UN10, VA10, HDO 250, HDO 400, HDO 500</p> <p>0230-307 ●</p>	
<p>26 Hose bracket for control unit For decentralised installation of the modules on a hose line.</p>	<p>for ST10, SL10, LM10, UN10, VA10, HDO 250, HDO 400, HDO 500</p> <p>0230-303 ●</p>	
<p>27 Control unit BE10</p> <p>for ST10, SL10, VA10, HDO 080, HDO 120, HDO 200, HDO 250, HDO 400, HDO 500</p> <p>0230-000</p>		
<p>27 Control unit Ex-BE10B II 2G Ex ib IIB T4 Gb</p> <p>for LM10, UN10, VA10, HDO 080Ex, HDO 120Ex, HDO 200Ex, HDO 250Ex, HDO 400Ex, HDO 500Ex</p> <p>0230-010 ●</p>		

● Suitable for the delivery of combustible and easily inflammable liquids (e.g. ethanol, petrol) and for pumping liquids in potentially explosive environments.

Accessories

Basic meter for decentralised assembly and external data evaluation




Given larger distances between the measuring and control point or installation locations difficult to access in the plant, the individual modules (basic meter, operating unit, relay module, etc.) can be installed in different locations.

The data connection between the components is established by data cable and plug

connection without awkward and complicated wiring.

For data transmission to an external signal processor (e.g. SPS), a communication module is necessary.

A protective cover and a data line are required for the data network.

Product detail	Specification	Order-No.
	<p>28 Basic meter ST10 (FPM) PPO/PPS/BaFe/FPM</p> <p>Basic meter SL10 (FPM) PPO/PPS/FPM</p> <p>Basic meter LM10 (FPM-FEP) PPS/LCP/BaFe/FPM-FEP II 2G T4 Gb</p> <p>Basic meter UN10 (FPM-FEP) PPS/LCP/FPM-FEP II 2G T4 Gb</p>	<p>0230-500</p> <p>0230-510</p> <p>0230-520 ●</p> <p>0230-530 ●</p>
	<p>28 Basic meter VA10 (FPM-FEP) Stainless steel 1.4571/PTFE/FEP II 2G T4 Gb</p>	<p>0230-540 ●</p>
	<p>28 Basic meter HDO II 2G Ex h IIB T4 Gb (Stainless steel/Alu)</p>	<p>on request ●</p>

● Suitable for the delivery of combustible and easily inflammable liquids (e.g. ethanol, petrol) and for pumping liquids in potentially explosive environments.

Flow meter planning made easy

Copy – fill in – fax to your nearest Lutz Distributor



Customer No.: _____ City/State: _____
Company: _____ Zipcode/Country: _____
Name: _____ Phone/Extension: _____
Department: _____ Fax: _____
P.O.Box/Street: _____ E-Mail: _____

1. Flow meter style

- Turbine wheel meter Series TR
- Nutating disc meter Series TS
- Oval gear meter Series HDO

2. Which medium

Designation: _____
Chemical formula: _____
Concentration: _____ %
Hazardous duty: yes no
Specific gravity: _____ lb/ft³ _____ kg/dm³
Viscosity: cps mPas _____ cps _____ mPas
Fluid temperature: _____ °F _____ °C
Ambient temperature: _____ °F _____ °C
Solid content: yes no

Which materials are resistant to the medium based on your experience?

Safety data sheet available? yes no

3. Operating conditions

Flow rate: _____ GPM (US) _____ l/min.
Operating pressure: _____ ft. or _____ PSIG
_____ m or _____ bar
Filling quantities/batch sizes: _____ gal

(US) _____ Liter
Operating conditions: Without pre-selection
 With pre-selection

If pre-selection, control of:

- Pump motor _____ Volt _____ Hz
- 2/2 way solenoid valve _____ Volt _____ Hz

4. Installation of the meter

- Mounted on the pump
- Fitted in-line systems _____ DN(DIN) _____ DN(ANSI)

5. Decentral installation

- Handling by PLC
- Control unit installed separately (e.g. control cabinet or room)
_____ ft. _____ m
(Distance between control unit and basic meter)

6. Application details

Here you can describe application requirements/other pertinent information:

- Documentation
- Offer
- Please call



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