ICENTA

Highly accurate, general-purpose PD flowmeter
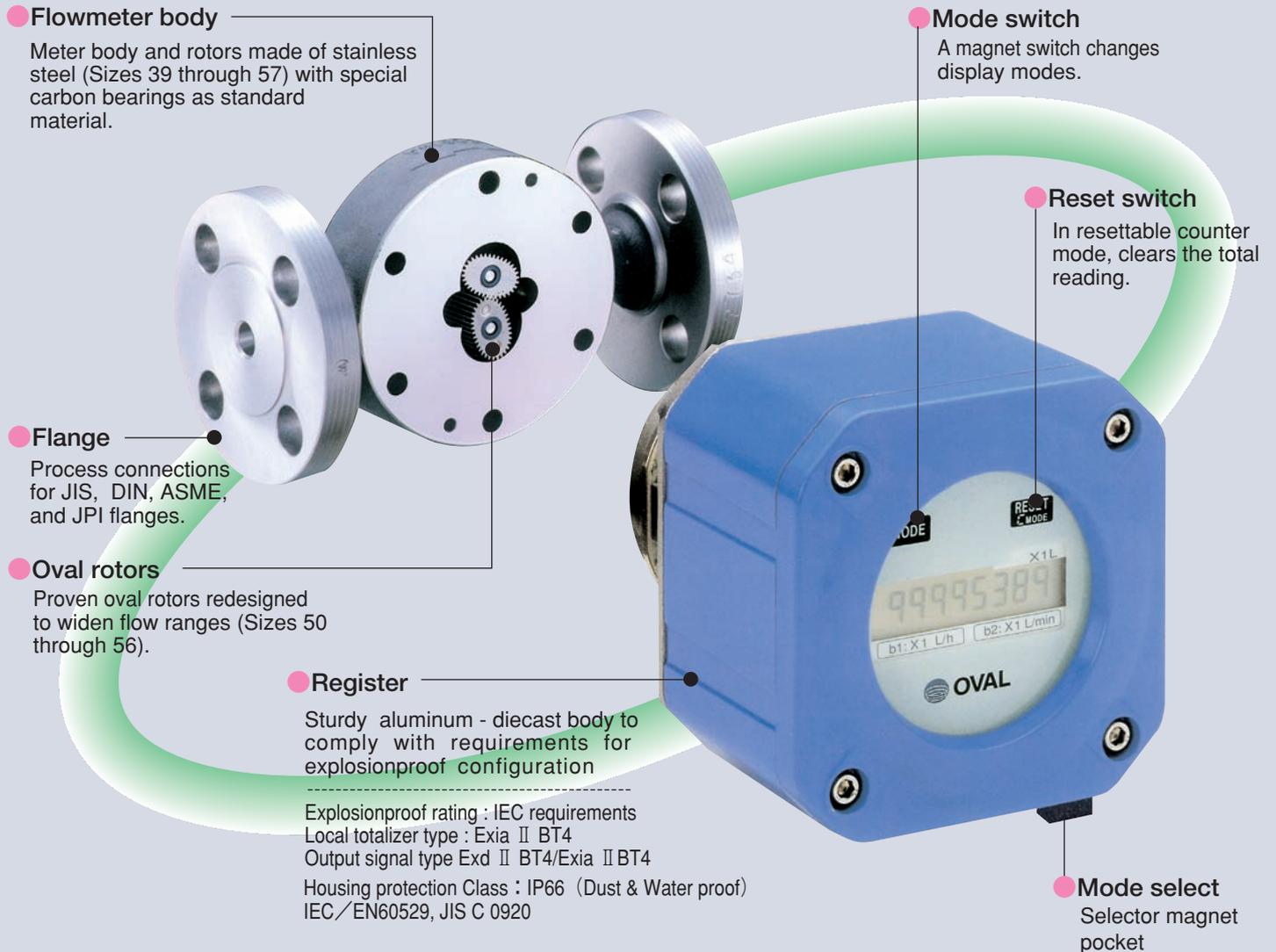
Liquid

ULTRA OVAL SERIES
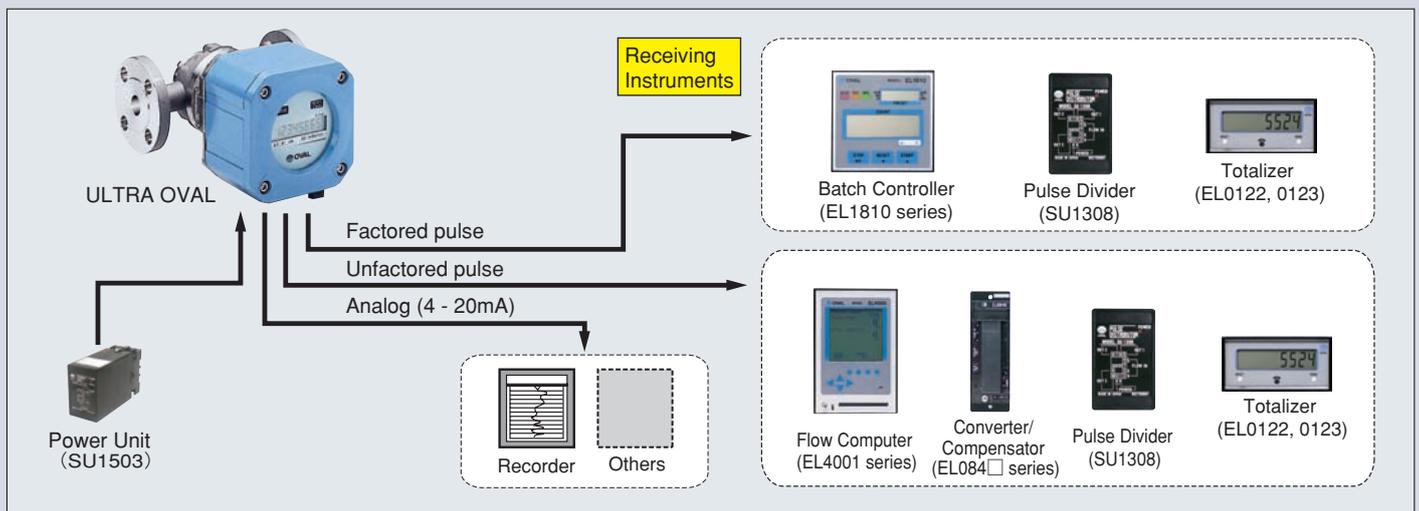

Value added to the flow

OVAL Corporation

Use the oval rotors, the heart of the OVAL flowmeters, field proven for accuracy and long life.
A total of 17 models from Sizes 39 through 65 the line.

● **Flowmeter body**
Meter body and rotors made of stainless steel (Sizes 39 through 57) with special carbon bearings as standard material.

● **Mode switch**
A magnet switch changes display modes.

● **Reset switch**
In resettable counter mode, clears the total reading.

● **Flange**
Process connections for JIS, DIN, ASME, and JPI flanges.

● **Oval rotors**
Proven oval rotors redesigned to widen flow ranges (Sizes 50 through 56).

● **Register**
Sturdy aluminum - diecast body to comply with requirements for explosionproof configuration
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Explosionproof rating : IEC requirements
Local totalizer type : Exia Ⅱ BT4
Output signal type Exd Ⅱ BT4/Exia Ⅱ BT4
Housing protection Class : IP66 (Dust & Water proof)
IEC／EN60529, JIS C 0920

● **Mode select**
Selector magnet pocket

Receiving Instruments Hookup

The ULTRA OVAL in standard configuration comes in 10 models, including battery powered LCD type (without remote output) and those with analog/pulse outputs.
The "Smart" type has two outputs-pulse and analog signal; communications are superimposed over the analog signal.

ULTRA OVAL

Receiving Instruments

Factored pulse
Unfactored pulse
Analog (4 - 20mA)

Power Unit (SU1503)

Recorder   Others

Batch Controller (EL1810 series)
Pulse Divider (SU1308)
Totalizer (EL0122, 0123)

Flow Computer (EL4001 series)
Converter/ Compensator (EL084□ series)
Pulse Divider (SU1308)
Totalizer (EL0122, 0123)

LCD Counter Displays (standard ULTRA OVAL flowmeter)

Holding a selector magnet near the label "Mode" scrolls through available variables and parameters as shown below:
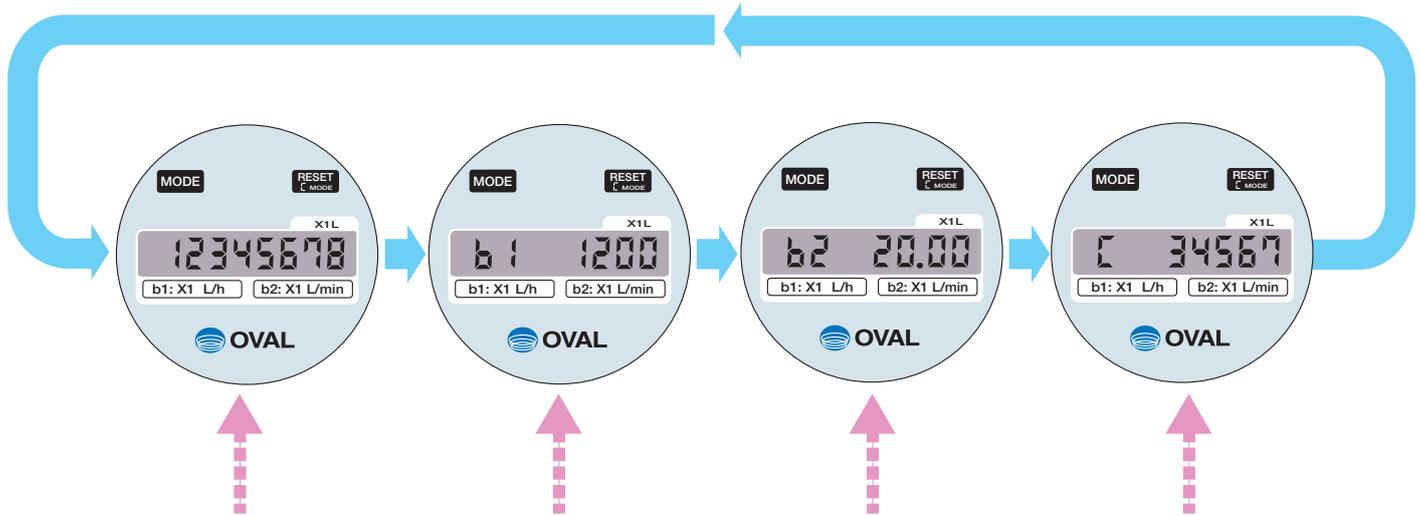
① Accumulated total flow

An accumulated total flow of 1234567.8L is shown here.

② Instantaneous flowrate (b1)

With "b1" shown at left, the hourly flowrate appears. The display shows an hourly flowrate of 12000L/h here.

③ Instantaneous flowrate (b2)

With "b2" shown at left, the flowrate per minute appears. The display shows a flowrate per minute of 200L/min here.

④ Resettable counter

With "C" shown at left, the display reads in the resettable total count mode. Holding the selector magnet near the label "RESET" resets the reading to zero, permitting the counter to restart from 0. However, irrespective of reset operation in this mode, the accumulated total count is retained. Here, the display shows, after a reset, a total flow of 3456.7L.

Meter Specifications

Item / Meter size	Nom.Size mm	Accuracy	Flow range m³/h ※1	Meter factor mL/P ※2	Material Body	Material Rotor	Material Bearing	Ccnnection	Max.operating press. ※3	Max.operating press.range
39	10	±0.5% • ±0.2% of R.D.	0.2 to 12L/h	0.09838	Stainless steel	Special carbon	Special carbon • Ceramic	JIS or ASME/JPI Flange conection	2.94MPa	St'd.： —10 to ＋120℃
41			1 to 60L/h	0.4896						
45			5 to 420L/h	1.2339						Low temp：—60 to ＋60℃
50	20		0.03 to 2	4.968		Stainless steel				St'd.：—10 to ＋120℃
52	25		0.08 to 3.8	9.664						High temp.or jacketed：120 to 260℃
53			0.15 to 6.4	17.513						
55	40		0.26 to 14	23.07						
56	50		0.6 to 24	37.33						
57			1.2 to 44	98.04						
28	50	±0.5% • ±0.2% of R.D.	2 to 50	135.16	Single case：Stainless steel Double case：Cast iron • Cast steel	Single case：Stainless steel Double case：Cast iron • Stainless steel	Single case：Carbon・Ceramic Double case：Carbon Carbon	JIS or ASME/JPI Flange conection	Single case：1.96MPa Double case：9.51MPa	Single case —10 to ＋120℃ Double case St'd.：—5 to ＋120℃ High temp.or jacketed：120 to 200℃
29	80		4 to 90	198.62						
60	100		5 to 150	338.9						
31	100		10 to 230	629.5						
	150									
32	150		15 to 320	992.7						
	200									
33	150		20 to 450	1490.7						
	200									
34	250		30 to 700	3250	Cast steel	Cast iron • Stainless steel			4.51MPa	
65	300		50 to 1000	6423					1.96MPa	
	350									

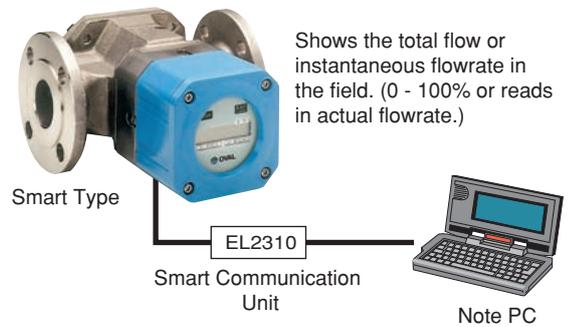※1. Accuracy of ±0.5%, at 5mPa·s or over.

※2. Standard model. For models for high and low temperature service and jacketed models, see respective General Specification sheets.

※3. Different by a flange standard.

Smart Series

● **For more sophisticated processes with communication interface**

In addition to reading the measurement information, the Smart Ultra OVAL, when combined with our Smart Communication Unit (EL2310) and a PC, simplifies access to available variables and parameters, such as instantaneous flowrate, span, and meter factor, as well as setup, diagnostics, and other operations for maintenance, from the instrument room located far from the field. What's more, using an optionally available multidrop feature, a maximum of 15 transmitters may be connected to the host computer over two-wire cables to streamline field wiring.

Shows the total flow or instantaneous flowrate in the field. (0 - 100% or reads in actual flowrate.)

Smart Type

EL2310

Smart Communication Unit

Note PC

Batch controller/register

● **Performs batch processes automatically ! The latest batch counters for liquid service at the point of measurement**

■ Features

● Top-of-the-line PD flowmeter, the ULTRA OVAL, is combined with batch control capability. When used in conjunction with an automatic ON/OFF valve, you can readily build a high price/performance local batch system.
● All pneumatic (the batch counter operates on a built-in battery.)
● You can choose between an LW74E that opens and closes the valve in a single step, or, for more precise batch processes, LW76E that opens and closes the valve in two steps.

■ Specifications

	LW74E	LW76E
Valve control	Pneumatic single-step open/shutoff	Pneumatic 2-step open/2-step shutoff (May be single-step mode by initial setup.)
Programming	Pushbuttons (6-digit LCD counter)	
Counter capacity (cum.)	8-digit total LCD counter	
Alarm	Low battery, overmeasurement, missing pulse (on LCD)	
Backup	Total flow, target batch setpoint (EEPROM retains them.)	
Configuration	Intrinsically safe explosionproof Exia II BT3, weathertight (IP65)	
Ambient temperature	-10 to $+60°C$	
Power	Dedicated lithium battery (Life 4 years approx. It depends on operating conditions.)	

Auto Temperature Compensator Equipped ULTRA Register

ULTRA Register finds extensive use in transactions of petroleum products, or elsewhere where flow measurement under given reference temperature is required.

It converts the flow information of process material at the process temperature to that at the reference temperature. Can mount on any ULTRA OVAL flowmeters.

■ Specifications

Flowmeters	ULTRA OVAL, Meter sizes: 39 to 65
Temp. Input	Platinum thermometer resistance(Pt-100 Ω)
Temp. Range for Correction	-10 to $+150°C$
Display	8-digit LCD
Output	2 outputs selectable from various pulse/analog signals
Calculation	Based on JIS K 2249 or JIS K 2240, and 3α correction
Conversion Accuracy	$±0.1\%$ or better

Principle of Operation