



Inexpensive PD for Boiler Feed Water and Oil

FLOWPET-EG

GENERAL SPECIFICATION
GS.No.GBB323E-11

■ GENERAL

FLOWPET-EG is an OVAL flowmeter primarily intended for use in boiler feed water and fuel oil metering applications.

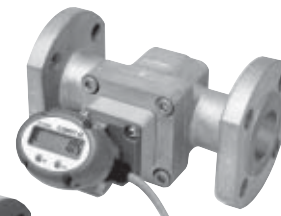
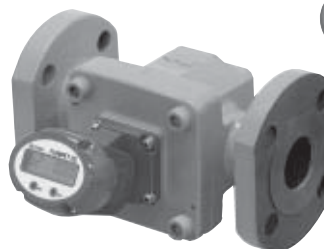
Field proven accuracy and long life along with the best price/performance and ease of use make this industrial meter ideal as a dedicated tool for heat control.

■ FEATURES

1. Available in two product families - for water service and fuel oil service.
2. Newly designed electronic register shows total flow and instantaneous flow on a digital LCD at the touch of mode select switch. Meter face can be oriented to any angle upward or downward over 180 degrees.
3. The electronic register equipped models have an internal battery (good for 8 years); eliminates the need for an external power source. (Operation on external power source is recommended for the pulse output models.)
4. Display capabilities improved over the previously offered NX register. (LCD characters 10mm high now over the former 7mm high. Units in which the register reads also indicated.)
5. Factored pulse width is variable in 1ms steps with the front-panel buttons (adjustable 1 to 999ms).
6. Simulated outputs available. (Pulse generator furnished meter only)
A 1Hz or 10Hz simulated pulse train is available for loop test.
7. Reliable engineering-unit pulses for total flow and high-pulse-rate output are available for flow indicator.



Pulse generator equipped

High temperature model
(Max. 150°C)

Less pulse generator

■ Electronic Register Specifications

Item	Description	
Menu items	1 Accumulated total flow (8-digit)	
	2 Instantaneous flowrate, L/h (mode: b1) and L/min (mode: b2)	
	3 Resettable total flow (zero start/zero resettable, mode: C) (7-digit)	
	4 Low battery alarm (A low battery indicator " █ " flickers below 3.0V.)	
	5 Factored pulse and unfactored pulse output (pulse generator equipped model)	
Display	7-segment, 8-digit LCD. Characters 10mm high. Also the units of measurement ["L" (std.) kL, m ³ or none]	
Register accuracy	Total flow : ±1 count Instantaneous flowrate : ±1% of full scale or better	
Display orientation	Top-, horizontal-, or down-directing adjustable in 15° steps over 180°	
Flow detection	A magnetic sensor detects alternating magnetic fields. Response frequency 200Hz max.	
Output pulse	Type	Open collector pulse
	Capacity	Allowable current 20mA DC, Max. voltage applied: 30VDC
	Type	Factored * Unfactored
	Pulse width	1ms, 50ms, 100ms, 250ms 2ms (fixed)
Cable	Vinyl-sheathed, 4-conductor (individual elements 0.5mm ² , ø7 O.D.) cable 1 meter long furnished (standard) (Not furnished with models less pulse generator)	
Transmission distance	1 kilometer max. (when CVVS: 1.25 to 2.0mm ² cable is used)	
Power source (See Note.)	Lithium battery or external power source	
	Lithium battery	3.6V dedicated battery pack incorporated Good for 8 years (A low battery alarm flickers below 3.0V approx.)
	External power source	12 to 50VDC±10% (Depends on operating conditions.)
Ambient temp. range	-10 to +60°C (no condensing)	
Material	Polycarbonate (blue)	
Color coded liquid kind	LCD frame: Red (oil service), Blue (water service)	
Configuration	IP53	
Installation location	Under the eaves (Avoid locations exposed to the sunshine.)	

NOTE: Dedicated battery pack is all needed for operation.

With an external power source connected, the product operates without lowering of battery power.

Interrupting the external power automatically switches the model to battery operation.

*: Adjustable with the front-panel button over a range 1 to 999ms in 1ms steps. Shown above are default settings.

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LS□□76-4□0^A_B

●Flow Ranges

Model	Nominal Size mm	Flow Range, L/h		
		Kerosene (Above 0.8mPa·s to 2mPa·s)	Gas Oil (heavy oil A) (Above 2mPa·s to 5mPa·s)	Heavy oil (Above 5mPa·s to 200mPa·s)
LS4976-4 □ 0 ^A _B	20	10 to 800	7 to 800	5 to 800
LS5076-4 □ 0 ^A _B	20	150 to 1600	80 to 2000	50 to 2000
LS5276-4 □ 0 ^A _B	25	300 to 3000	150 to 3800	80 to 3800
LS5376-4 □ 0 ^A _B	40	600 to 5000	300 to 6400	150 to 6400
LS5576-4 □ 0 ^A _B	40	1200 to 11000	600 to 14000	400 to 14000
LS5676-4 □ 0 ^A _B	50	2000 to 20000	1400 to 24000	900 to 24000

●Meter Specifications

Item		Description
Applicable fluid		Kerosene, Gas Oil, Heavy oil ※Not serviceable with gasoline
Operating temp. range (fluid temp.)		0 to 120°C
Flange rating		JIS 10K RF, ASME 150 RF
Max. operating pressure		1.18MPa
Linearity		±0.5% of RD
Material	Body	Cast iron (FC250)
	Rotors	Special resin
Flow directions *		Standard : Right → Left Option : Left → Right, Bottom → Top, Top → Bottom
Finish		Orange : Munsell 2.5 YR 6/13

⚠ Install the meter such that the pipe always remains filled with oil.
See instruction manual if changing flow direction is desired.

●Electronic Register : Units of Count and Pulse Output Units

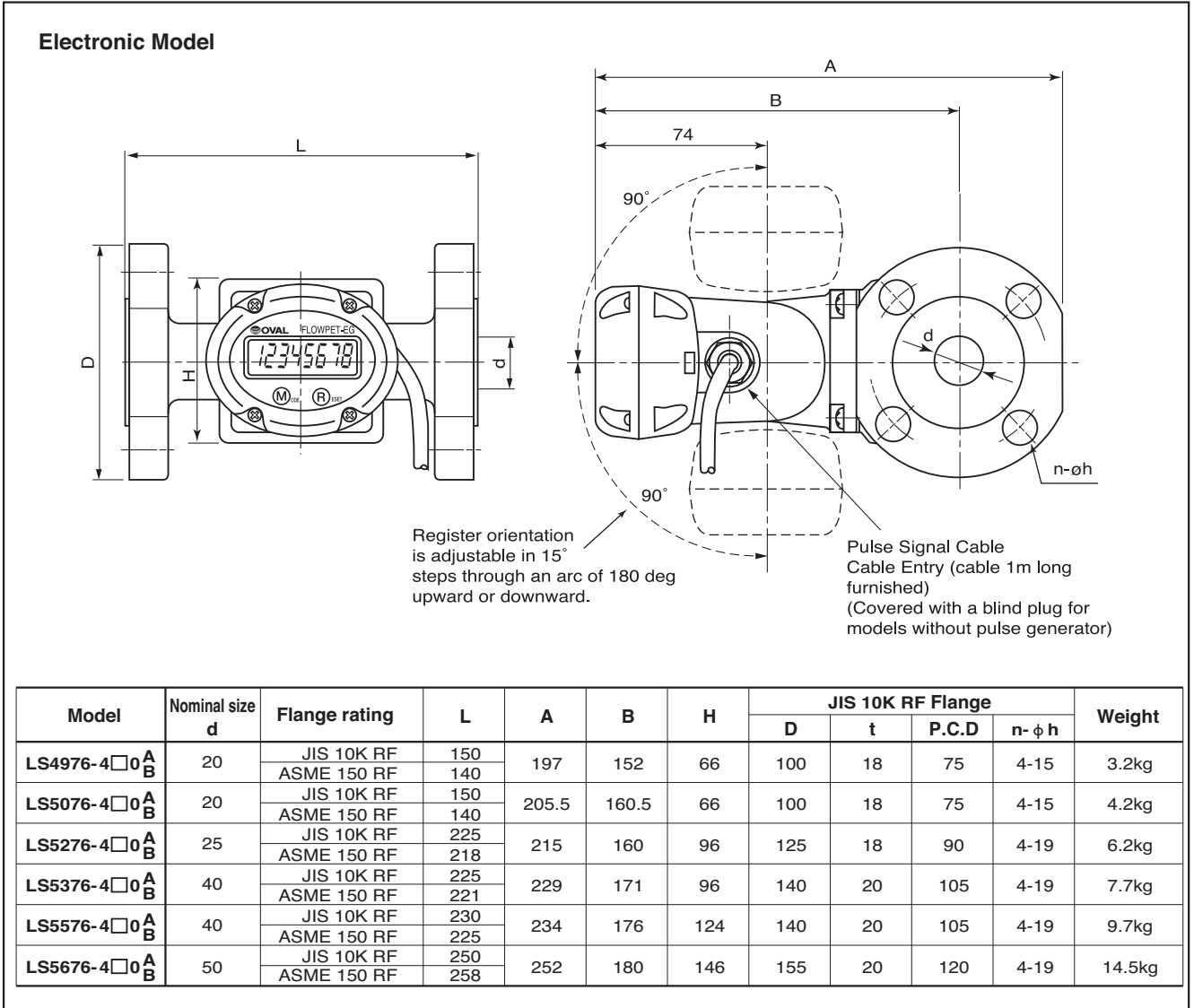
□ Option

Model	Nom. Size, mm	Totalizer Resolution	Output Pulse							Full Scales (st'd)		Max. Flowrate L/h	
			Factored Output Pulse		Factored Pulse Width				Unfactored Output Pulse		Units of Instantaneous Flowrate L		
			Pulse Units	Output Freq. at Max. Flowrate	1ms	50ms	100ms	250ms	Nom. Meter Factor	Output Freq. at Max. Flowrate	/h (mode b1)		/min. (mode b2)
LS4976-4 □ 0 ^A _B	20	999999.99	10mL/P	22.2	○	—	—	—	5.928mL/P	37.49Hz	1	0.01	800
		9999999.9	100mL/P	2.2	○	○	○	○					
		99999999	1L/P	0.22	○	○	○	○					
LS5076-4 □ 0 ^A _B	20	999999.99	10mL/P	55.6	○	—	—	—	9.912mL/P	56.0Hz	1	0.01	2000
		9999999.9	100mL/P	5.56	○	○	○	—					
		99999999	1L/P	0.56	○	○	○	○					
LS5276-4 □ 0 ^A _B	25	999999.99	10mL/P	105	○	—	—	—	9.639mL/P	109.5Hz	1	0.01	3800
		9999999.9	100mL/P	10.5	○	○	—	—					
		99999999	1L/P	1.05	○	○	○	○					
LS5376-4 □ 0 ^A _B	40	9999999.9	100mL/P	17.7	○	—	—	—	17.470mL/P	101.7Hz	1	0.01	6400
		99999999	1L/P	1.77	○	○	○	○					
		99999999	10L/P	0.17	○	○	○	○					
LS5576-4 □ 0 ^A _B	40	9999999.9	100mL/P	38.8	○	—	—	—	34.526mL/P	112.6Hz	1	0.01	14000
		99999999	1L/P	3.88	○	○	○	—					
		99999999	10L/P	0.38	○	○	○	○					
LS5676-4 □ 0 ^A _B	50	9999999.9	100mL/P	66.6	○	—	—	—	74.483mL/P	89.5Hz	1	0.01	24000
		99999999	1L/P	6.66	○	○	○	—					
		99999999	10L/P	0.66	○	○	○	○					

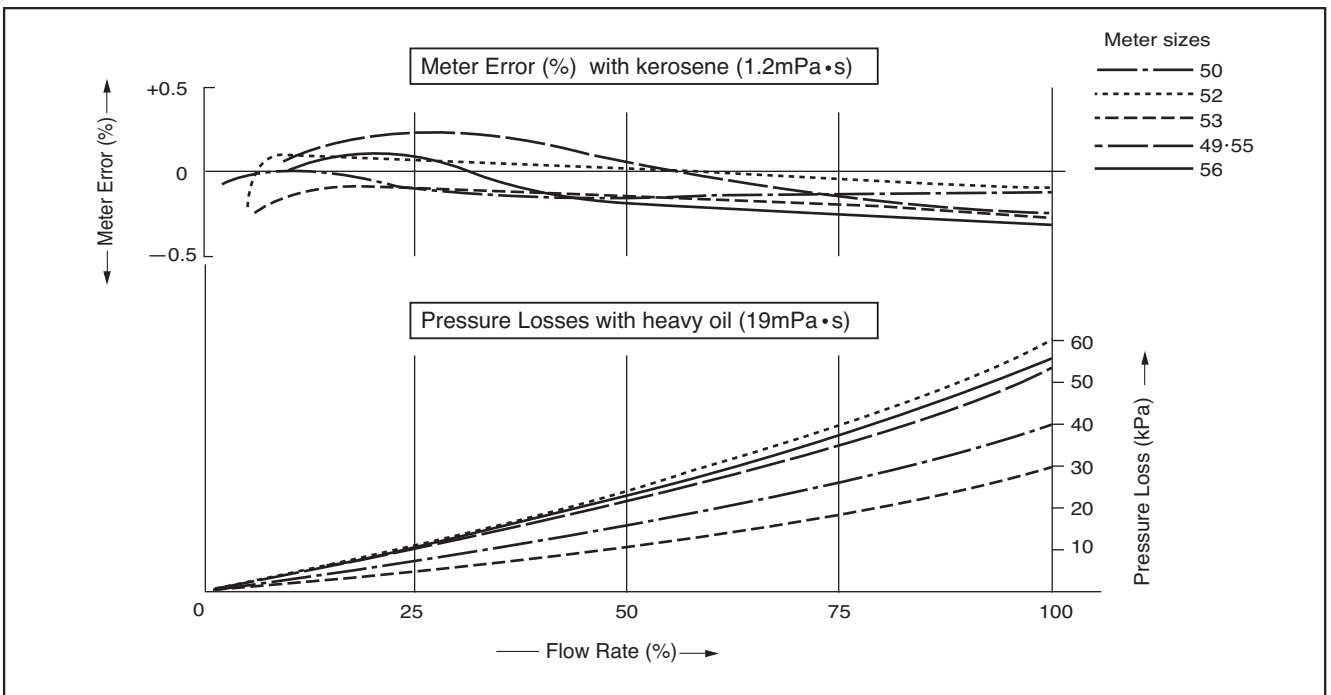
■ CONFORMITY EN DIRECTIVES

Applicable EU Directive	Electro-Magnetic Compatibility Directive : 89/336/EEC, 92/31/EEC, 93/68/EEC
Applicable EN standards, etc.	Electro-Magnetic Compatibility Directive EN55011 : 1998/A1 : 1999, Group 1, Class B EN61000-6-2 : 2001

●Outline Dimensions [Unit in mm]



●Meter Errors and Pressure Losses



●Product Code Explanation

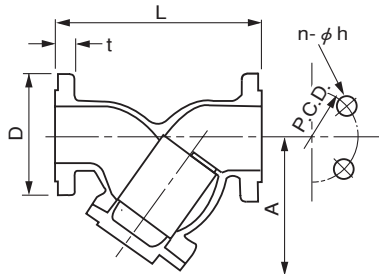
Item	Code No.										Description
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
Model	L	S									Specialized OVAL flowmeter
Meter Size	4	9									20A JIS 10K RF, ASME 150 RF (Option)
	5	0									20A JIS 10K RF, ASME 150 RF (Option)
	5	2									25A JIS 10K RF, ASME 150 RF (Option)
	5	3									40A JIS 10K RF, ASME 150 RF (Option)
	5	5									40A JIS 10K RF, ASME 150 RF (Option)
	5	6									50A JIS 10K RF, ASME 150 RF (Option)
Model Name			7								Flowpet
Application				6	-						Oil service
Register Type						4					Electronic register (EG Type)
Pulse Generator	0	0									Non pulse generator (Battery drive type)
	3	0									Open-collector pulse generator : Factored pulse (pulse width 1ms), Unfactored pulse (pulse width 2ms)
	5	0									Open-collector pulse generator : Factored pulse (pulse width 50ms), Unfactored pulse (pulse width 2ms)
	6	0									Open-collector pulse generator : Factored pulse (pulse width 100ms), Unfactored pulse (pulse width 2ms)
	7	0									Open-collector pulse generator : Factored pulse (pulse width 250ms), Unfactored pulse (pulse width 2ms)
Temperature Range and Flange rating										A	Standard model (0 to 120°C), JIS 10K RF
										B	Standard model (0 to 120°C), ASME 150 RF

□ Strainers Dedicated for Oil-Service FLOWPET-EG

●General

Do not fail to directly couple a strainer upstream of the Flowpet-EG.

A strainer safeguards the Flowpet-EG against foreign particles and other suspended matter which could cause costly downtime.



●Specifications

Item		Description
Operating Temp. Range (fluid temp.)		0 to 150°C
Max. Operating Pressure		1.18MPa
Material	Body	Cast iron (FC250)
	Net	SUS304
Finish		Orange (Munsell 2.5 YR 6/13)

●Product Code, Outline Dimensions [Unit in mm], Net Mesh, Pressure Losses

Product Code No.	Nom. Size	Flange Rating	L	A	Flange				Approx. Weight kg	Net Mesh	Pressure Loss(kPa) at Max. Flowrate		Applicable Flowpet-EG
					D	t	P.C.D	n-φh			Kerosene 1.2mPa·s	Heavy oil 19mPa·s	
SS5278A	20A	JIS 10K RF	125	82	100	18	75	4-15	3.4	80	6 (1600L/h)	50 (2000L/h)	LS4976-4□0 ^A _B LS5076-4□0 ^A _B
SS5378A	25A	JIS 10K RF	140	104	125	18	90	4-19	5.3	60	7 (3000L/h)	28 (3800L/h)	LS5276-4□0 ^A _B
SS5578A	40A	JIS 10K RF	170	129	140	20	105	4-19	7.7	60	23 (11000L/h)	26 (14000L/h)	LS5376-4□0 ^A _B LS5576-4□0 ^A _B
SS5678A	50A	JIS 10K RF	190	153	155	20	120	4-19	9.6	60	25 (20000L/h)	40 (24000L/h)	LS5676-4□0 ^A _B

LS□□76-4□0^C_D

●Flow Ranges

Model	Nominal Size mm	Flow Range, L/h		
		Kerosene (Above 0.8mPa·s to 2mPa·s)	Gas Oil (heavy oil A) (Above 2mPa·s to 5mPa·s)	Heavy oil (Above 5mPa·s to 200mPa·s)
LS4976-4□0 ^C _D	20	20 to 800	14 to 800	10 to 800
LS5076-4□0 ^C _D	20	300 to 1600	160 to 2000	100 to 2000
LS5276-4□0 ^C _D	25	600 to 3000	300 to 3800	160 to 3800
LS5376-4□0 ^C _D	40	1200 to 5000	600 to 6400	300 to 6400

●Meter Specifications

Item	Description
Applicable fluid	Kerosene, Gas Oil, Heavy oil ※Not serviceable with gasoline
Operating temp. range (fluid temp.)	0 to 150°C
Flange rating	JIS 10K RF, ASME 150 RF
Max. operating pressure	0.98MPa
Linearity	±0.5% of RD
Material	Body
	Rotors
	Cast iron (FC250) Special resin
Flow directions *	Standard : Right → Left Option : Left → Right, Bottom → Top, Top → Bottom
Finish	Silver

⚠ Install the meter so that the pipe is always filled with oil.
See instruction manual if changing flow direction is desired.

●Electronic Register : Units of Count and Pulse Output Units

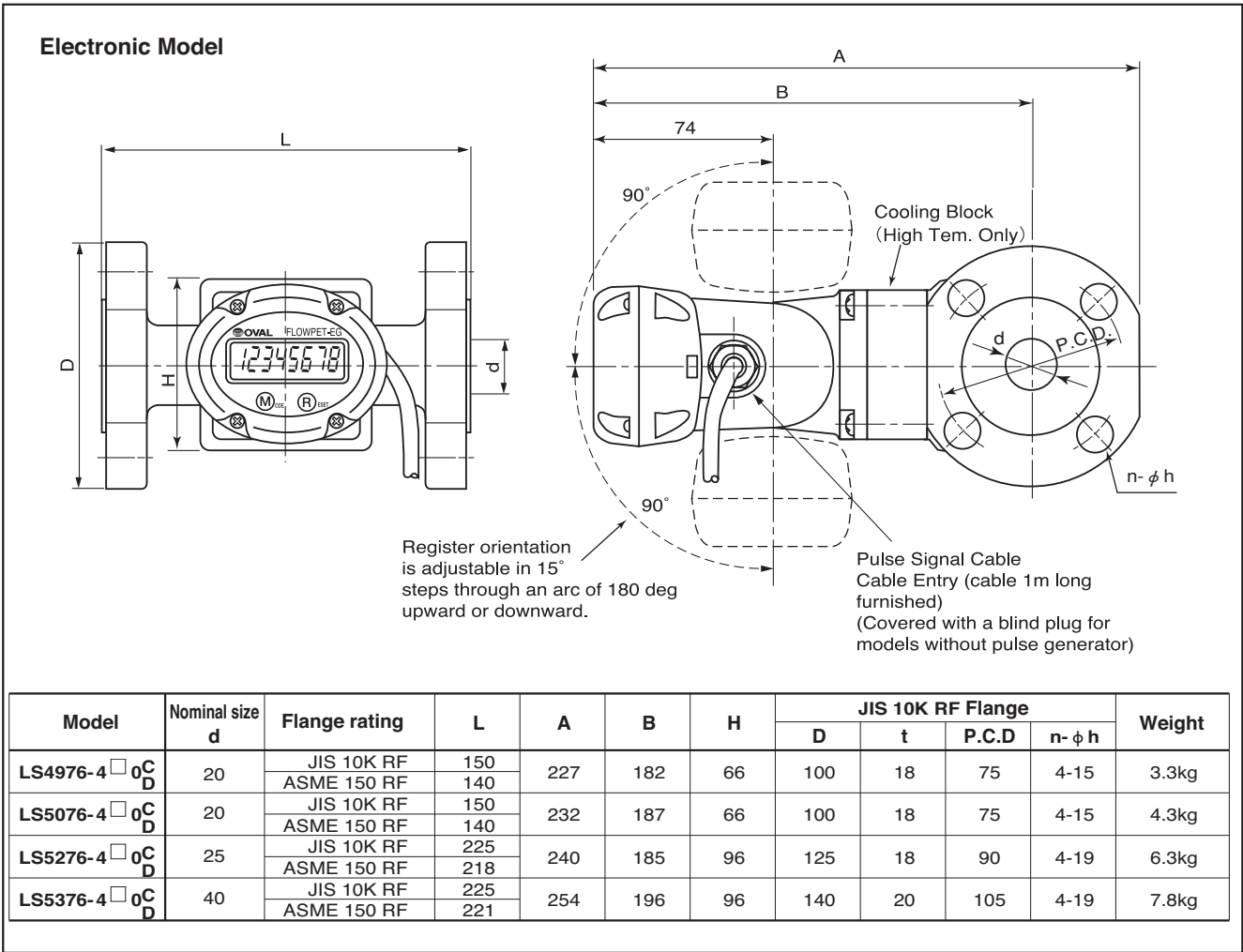
□ Option

Model	Nom. Size, mm	Totalizer Resolution	Output Pulse								Full Scales (st'd)		Max. Flowrate L/h
			Factored Output Pulse		Factored Pulse Width				Unfactored Output Pulse		Units of Instantaneous Flowrate L		
			Pulse Units	Output Freq. at Max. Flowrate	1ms	50ms	100ms	250ms	Nom. Meter Factor	Output Freq. at Max. Flowrate	/h (mode b1)	/min. (mode b2)	
LS4976-4□0 ^C _D	20	999999.99	10mL/P	22.2	○	—	—	—	5.928mL/P	37.49Hz	1	0.01	800
		9999999.9	100mL/P	2.2	○	○	○	○					
		99999999	1L/P	0.22	○	○	○	○					
LS5076-4□0 ^C _D	20	999999.99	10mL/P	55.6	○	—	—	—	9.912mL/P	56.0Hz	1	0.01	2000
		9999999.9	100mL/P	5.56	○	○	—	—					
		99999999	1L/P	0.56	○	○	○	○					
LS5276-4□0 ^C _D	25	999999.99	10mL/P	105	○	—	—	—	9.639mL/P	109.5Hz	1	0.01	3800
		9999999.9	100mL/P	10.5	○	○	—	—					
		99999999	1L/P	1.05	○	○	○	○					
LS5376-4□0 ^C _D	40	9999999.9	100mL/P	17.7	○	—	—	—	17.470mL/P	101.7Hz	1	0.01	6400
		99999999	1L/P	1.77	○	○	○	○					
		99999999	10L/P	0.17	○	○	○	○					

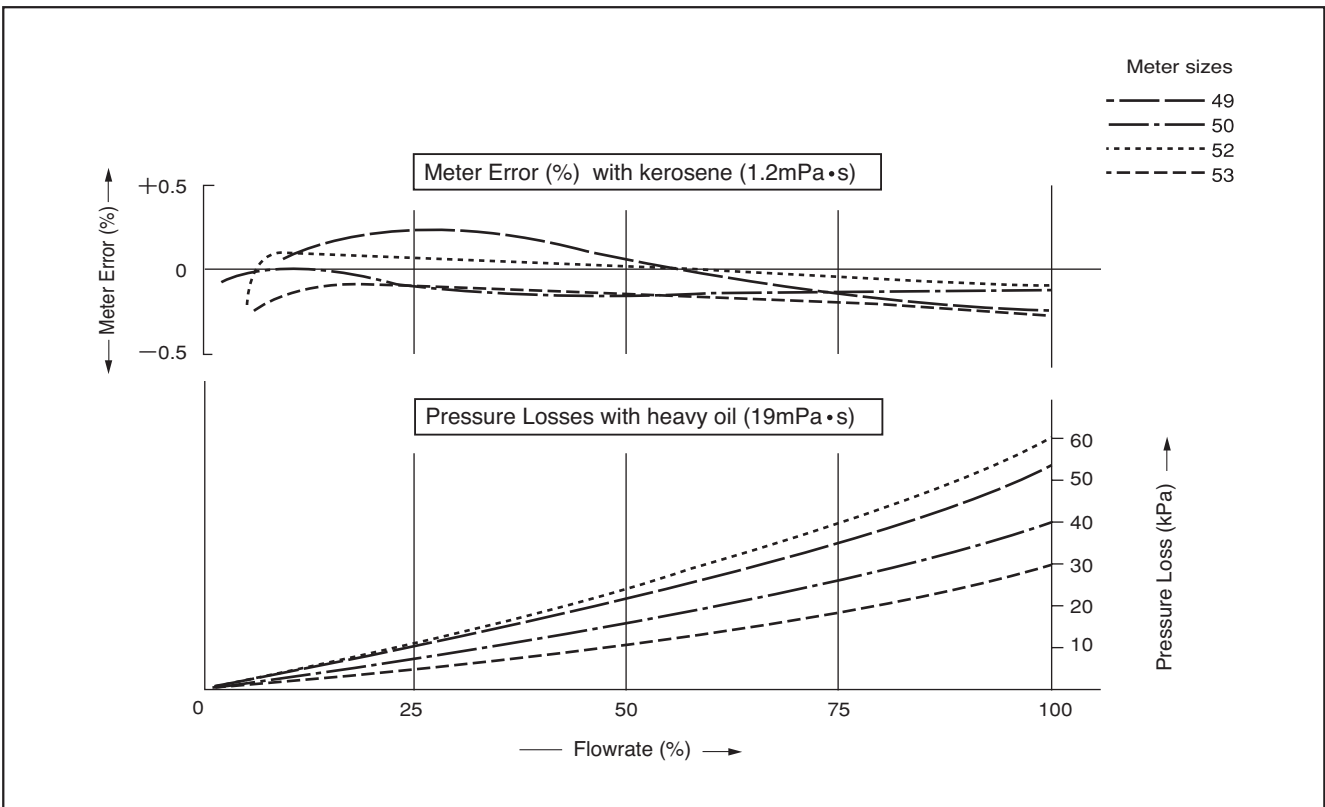
■CONFORMITY EN DIRECTIVES

Applicable EU Directive	Electro-Magnetic Compatibility Directive : 89/336/EEC, 92/31/EEC, 93/68/EEC
Applicable EN standards, etc.	Electro-Magnetic Compatibility Directive EN55011 : 1998/A1 : 1999, Group 1, Class B EN61000-6-2 : 2001

●Outline Dimensions [Unit in mm]



●Meter Errors and Pressure Losses



●Product Code Explanation

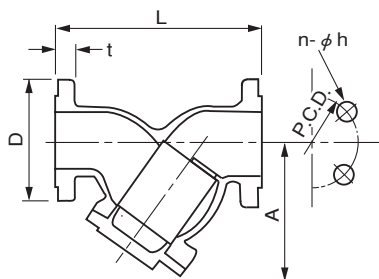
Item	Code No.										Description
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	
Model	L	S									Specialized OVAL flowmeter
Meter Size	4	9									20A JIS 10K RF, ASME 150 RF (Option)
	5	0									20A JIS 10K RF, ASME 150 RF (Option)
	5	2									25A JIS 10K RF, ASME 150 RF (Option)
	5	3									40A JIS 10K RF, ASME 150 RF (Option)
Model Name					7						Flowpet
Application						6	-				Oil service
Register Type								4			Electronic register (EG Type)
Pulse Generator									0	0	Non pulse generator
									3	0	Open-collector pulse generator : Factored pulse (pulse width 1ms), Unfactored pulse (pulse width 2ms)
									5	0	Open-collector pulse generator : Factored pulse (pulse width 50ms), Unfactored pulse (pulse width 2ms)
									6	0	Open-collector pulse generator : Factored pulse (pulse width 100ms), Unfactored pulse (pulse width 2ms)
									7	0	Open-collector pulse generator : Factored pulse (pulse width 250ms), Unfactored pulse (pulse width 2ms)
Temperature Range and Flange rating										C	High temperature model (0 to 150°C), JIS 10K RF
										D	High temperature model (0 to 150°C), ASME 150 RF

□ Strainers Dedicated for Oil-Service FLOWPET-EG

●General

Do not fail to directly couple a strainer upstream of the Flowpet-EG.

A strainer safeguards the Flowpet-EG against foreign particles and other suspended matter which could cause costly downtime.



●Specifications

Item		Description
Operating Temp. Range (fluid temp.)		0 to 150°C
Max. Operating Pressure		1.18MPa
Material	Body	Cast iron (FC250)
	Net	SUS304
Finish		Orange (Munsell 2.5 YR 6/13)

●Product Code, Outline Dimensions [Unit in mm], Net Mesh, Pressure Losses

Product Code No.	Nom. Size	Flange Rating	L	A	Flange				Approx. Weight kg	Net Mesh	Pressure Loss(kPa) at Max. Flowrate		Applicable Flowpet-EG
					D	t	P.C.D	n-φh			Kerosene 1.2mPa·s	Heavy oil 19mPa·s	
SS5278A	20A	JIS 10K RF	125	82	100	18	75	4-15	3.4	80	6 (1600L/h)	50 (2000L/h)	LS4976-4□0 ^C _D LS5076-4□0 ^C _D
SS5378A	25A	JIS 10K RF	140	104	125	18	90	4-19	5.3	60	7 (3000L/h)	28 (3800L/h)	LS5276-4□0 ^C _D
SS5578A	40A	JIS 10K RF	170	129	140	20	105	4-19	7.7	60	23 (11000L/h)	26 (14000L/h)	LS5376-4□0 ^C _D

●Flow Ranges

Model	Nominal Size mm	Flow Range L/h
LS5277-4 □0B	20	200 to 1200
LS5377-4 □0B	25	600 to 3600
LS5577-4 □0B	40	1200 to 7200
LS5677-4 □0B	50	2000 to 12000

●Meter Specifications

Item		Description
Operating Temp. Range (fluid temp.)		0 to 120°C
Flange rating		JIS 10K RF
Max. Operating Pressure		1.18MPa (with static running water)
Linearity		±1% of RD
Materials	Body	Stainless steel casting
	Rotors	Special resin
	Register Housing	Polycarbonate
Flow Directions *		Standard : Right → Left Option : Left → Right, Bottom → Top, Top → Bottom
Finish		Not painted

⚠ Install the meter such that the pipe always remains filled with water. See instruction manual if changing flow direction is desired. The meters can not be used to measure steam flow.

●Electronic Register : Units of Count and Pulse Output Units

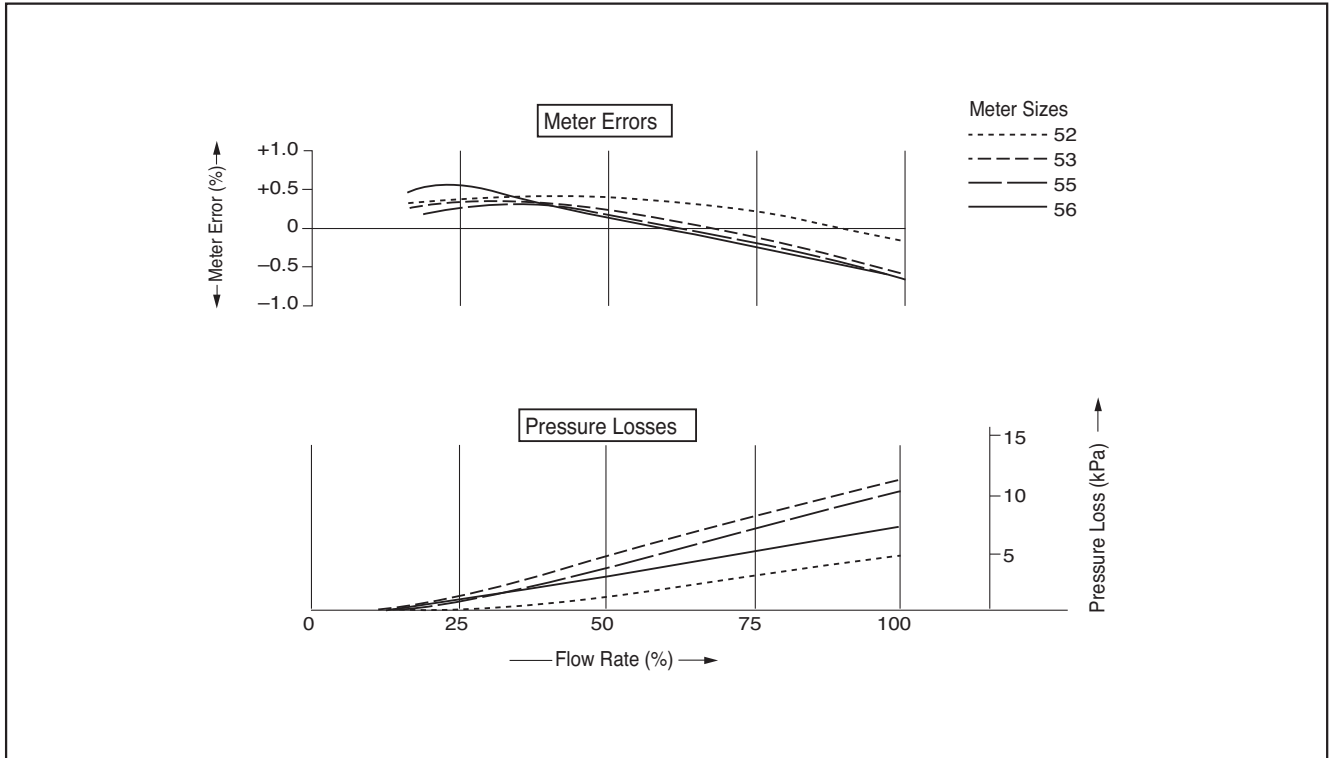
□ Option

Model	Nom. Size, mm	Totalizer Resolution	Output Pulse						Full Scales (st'd)		Max. Flowrate L/h		
			Factored Output Pulse		Unfactored Pulse Width				Unfactored Output Pulse				
			Pulse Units	Output Freq. at Max. Flowrate	1ms	50ms	100ms	250ms	Nom. Meter Factor	Output Freq. at Max. Flowrate		Units of Instantaneous Flowrate L/h (mode b1)	/min. (mode b2)
LS5277-4 □0B	20	999999.99	10mL/P	33.3	○	—	—	—	9.918mL/P	33.6Hz	1	0.01	1200
		9999999.9	100mL/P	3.33	○	○	○	—					
		99999999	1L/P	0.33	○	○	○	○					
LS5377-4 □0B	25	9999999.9	100mL/P	10.0	○	○	—	—	17.955mL/P	55.75Hz	1	0.01	3600
		99999999	1L/P	1.00	○	○	○	○					
		999999999	10L/P	0.10	○	○	○	○					
LS5577-4 □0B	40	9999999.9	100mL/P	20.0	○	—	—	—	35.496mL/P	56.3Hz	1	0.01	7200
		99999999	1L/P	2.00	○	○	○	○					
		999999999	10L/P	0.20	○	○	○	○					
LS5677-4 □0B	50	999999.99	100mL/P	33.3	○	—	—	—	76.455mL/P	43.6Hz	1	0.01	12000
		99999999	1L/P	3.33	○	○	○	—					
		999999999	10L/P	0.33	○	○	○	○					

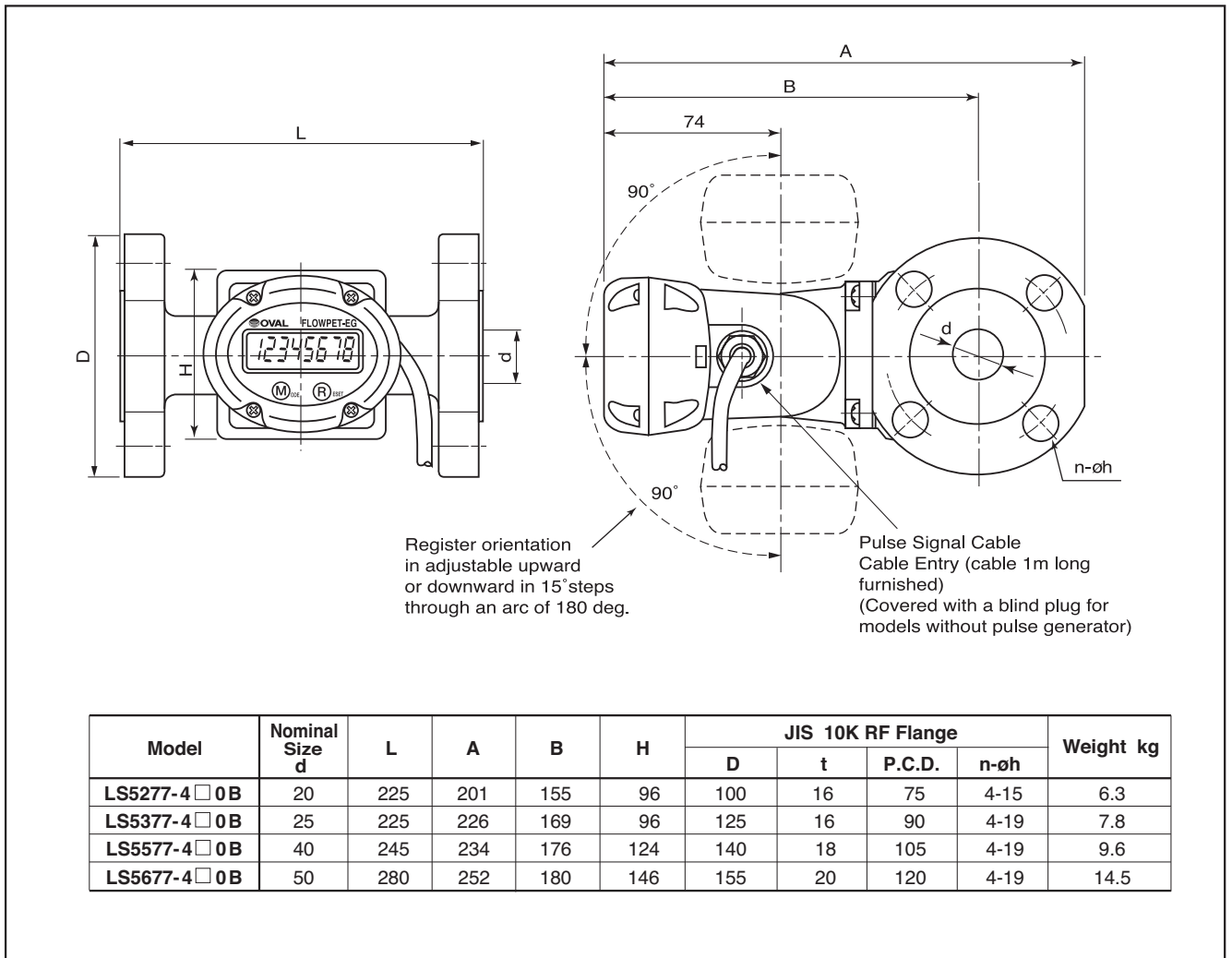
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Applicable EU Directive	Electro-Magnetic Compatibility Directive : 89/336/EEC, 92/31/EEC, 93/68/EEC
Applicable EN standards, etc.	Electro-Magnetic Compatibility Directive EN55011 : 1998/A1 : 1999, Group 1, Class B EN61000-6-2 : 2001

● Meter Errors and Pressure Losses



● Outline Dimensions [Unit in mm]



●Product Code Explanation

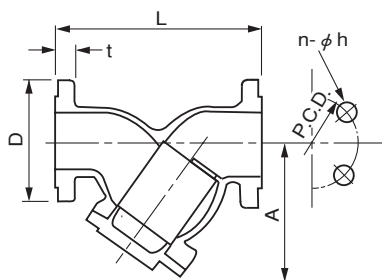
Item	Code No.										Description	
	①	②	③	④	⑤	⑥	—	⑦	⑧	⑨		⑩
Model	L	S										Specialized OVAL flowmeter
Meter Size	5	2										20A JIS 10K RF
	5	3										25A JIS 10K RF
	5	5										40A JIS 10K RF
	5	6										50A JIS 10K RF
Model Name			7									Flowpet
Application				7	—							Water service
Type of Register						4						Electronic register (EG Type)
Pulse Generator							0	0				Less pulse generator
							3	0				Open-collector pulse generator : Factored pulse (pulse width 1ms), Unfactored pulse (pulse width 2ms)
							5	0				Open-collector pulse generator : Factored pulse (pulse width 50ms), Unfactored pulse (pulse width 2ms)
							6	0				Open-collector pulse generator : Factored pulse (pulse width 100ms), Unfactored pulse (pulse width 2ms)
							7	0				Open-collector pulse generator : Factored pulse (pulse width 250ms), Unfactored pulse (pulse width 2ms)
Others										B		Always "B"

□ Strainers Dedicated for Water-Service Flowpet-EG

●General

Do not fail to directly couple a strainer upstream of the Flowpet-EG.

A strainer safeguards the Flowpet-EG against foreign particles and other suspended matter which could cause costly downtime.



●Specifications

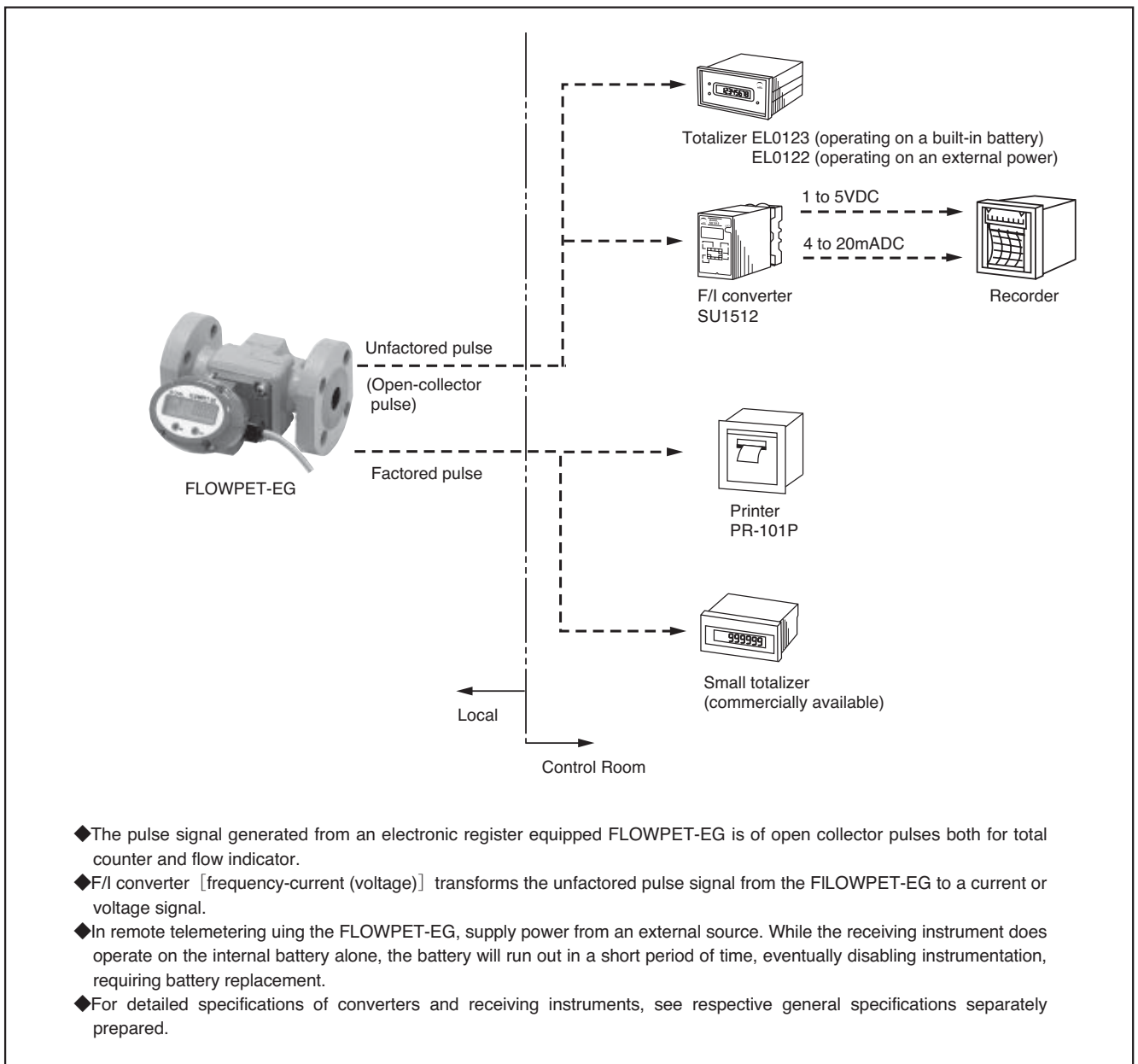
Item	Description	
Operating Temp. Range (fluid temp.)	0 to 150°C	
Max. Operating Pressure	1.18MPa	
Materials	Body	Cast iron (FC250)
	Net	SUS304
Finish	Orange (Munsell 2.5 YR 6/13)	

●Product Code, Outline Dimensions [Unit in mm], Net Mesh, Pressure Losses

Product Code No.	Nomina Size Flange Rating	L	A	Flange				Weight kg	Net Mesh	Max. Flowrate L/h	Pressure Loss at Max. Flowrate Pa	Applicable Flowpet-EG
				D	t	P.C.D.	n-φh					
SS5278A	20A JIS 10K RF	125	82	100	18	75	4-15	3.4	80	1200	2	LS5277-4□0 B
SS5378A	25A JIS 10K RF	140	104	125	18	90	4-19	5.3	60	3600	6	LS5377-4□0 B
SS5578A	40A JIS 10K RF	170	129	140	20	105	4-19	7.7	60	7200	6	LS5577-4□0 B
SS5678A	50A JIS 10K RF	190	153	155	20	120	4-19	9.6	60	12000	6	LS5677-4□0 B

■ REMOTE FLOW MEASUREMENT WITH FLOWPET-EG

Pulse generator equipped FLOWPET-EG provides the operator with a quick indication of the process for absolute control of water or oil supply at a remote location.



■ OPERATING PRECAUTIONS

To derive maximum benefit and safety of operation from the FLOWPET-EG, we recommend that the following precautions be taken:

1. From the flow ranges and operating ranges of the flowmeter, strainer and other available data, select the right pump and valve location to ensure that the required flowrate, pressure and other factors be maintained and that excessive flow rates, pressure rises or other damaging conditions be prevented.
2. In cold regions, take due precautions against freezing. If thermal insulation on meter body is desired, see the instruction manual for the meter. The meter body and strainer are not serviceable at subzero temperatures.
3. Locate the flowmeter itself and signal cable sufficiently away from sources of large magnetic fields (e.g., pumps, electric motor-driven and solenoid valves).
(For example, keep a solenoid valve 10 watts or so in power consumption at least 10 centimeters away.)
4. Acceptable fluids depend on the type of flowmeter. The FLOWPET-EG is primarily designed for boiler feed water and fuel oil. If you have any other application in mind, consult our nearest sales office or agent.
5. Not serviceable for certifying and authenticating legal transactions by the Measurement Law.
6. This register operates over a temperature range -10 to +60°C. In locations where the register is potentially exposed to elevated temperatures by direct sunshine, reflected heat, or other heat source, provide an appropriate sunshade.
7. For outdoor installation, provide a protection against dewdrops. Use within the specified temperature range.
8. Install in a location where the register assembly is free from direct exposure to rainwater, oils, chemicals, etc.
9. This meter has no subtract counter capability. If pulsation (fluctuation of flow rate due to the effect of pressure change) or reverse flow of the fluid flow occurs within the pipeline, the total flow reading may be inconsistent.

The specification as of March, 2014 is stated in this GS Sheet. Specifications and design are subject to change without notice.

Sales Representative: