

MERIT SERIES ULTRASONIC FLOW METER

High Performance Signal Processing Solution



Model _ MERIT 100

Model _ MERIT 200

Model _ MERIT 300

Model _ MERIT 400

Model _ MERIT 120



A high-angle, close-up photograph of an industrial manufacturing process. Several white, mechanical ultrasonic flow meter heads are mounted on a complex assembly line. Each head is positioned over a large, circular, yellow, textured surface, likely a sensor or a component being tested. The machinery is intricate, with various pipes, valves, and structural supports visible. The lighting is bright, highlighting the metallic and plastic components.

ULTRASONIC FLOW METER MERIT SERIES

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WITH TRUST AND PASSION

WE PROVIDE ADVANCED TECHNOLOGY TO CLIENTS HIGH PERFORMANCE
SIGNAL PROCESSING SOLUTION



ELC

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MERIT SERIES

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COMPANY HISTORY

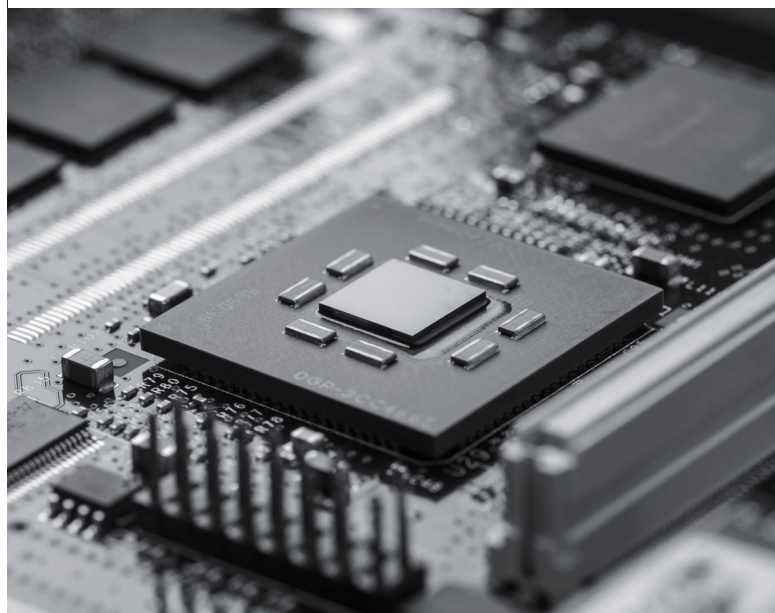
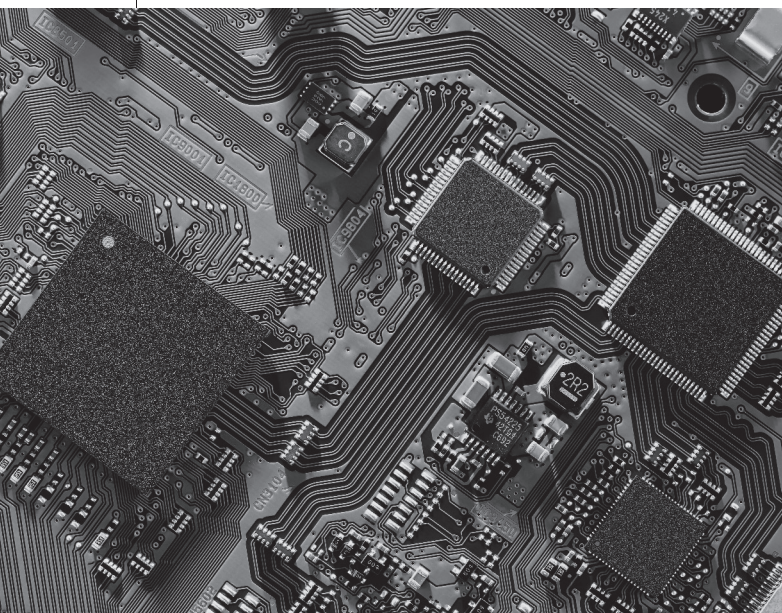
The history of ELC, which has continued to take on new challenges by turning crisis into a stepping stone,
is a record of constant change and innovation.

2001 ~ 2006

- 2001.07** Business Start (Soft Precision System)
- 2002.02** Development of spinner servo motor for semiconductor equipment
- 2002.11** Domestic No. 1 spinner motor development completed and starting sales
- 2005.08** SNC Corporation was established in Co., Ltd
- 2006.10** ISO9001 Certified

2007 ~ 2009

- 2007.10** Establishment of Control Instrumentation Laboratory
- 2007.12** Starting of ultrasonic precision flowmeter project
- 2008.04** Control and measurement technology agreement with Hyundai Heavy Industries
- 2008.11** The first Localization of Ultrasonic Flow Meter
- 2009.05** Acquired CE certification for ultrasonic flow meter
- 2009.08** Acquired INNO BIZ certification
- 2009.12** Patent applications for ultrasonic flow meters (2 cases)

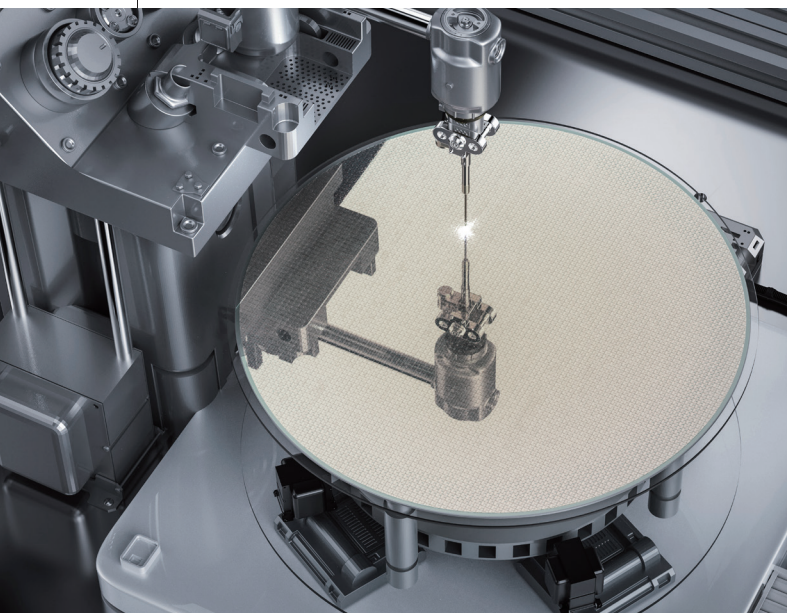


2011 ~ 2016

- 2011.01** Factory Registration (Cheonan 3rd Industrial Complex)
- 2011.12** Development of Wafer Alignment Controller
- 2012.05** Localization of UPAC (for electricity)
LFC (Liquid Flow Control)
- 2014.10** Patent applications related to LFC (3 cases)
- 2015.02** Successful commercialization of localized LFC
(over 3,000 units)
- 2015.10** ISO14001 Certified
- 2015.12** APAC (Pneumatic) LFC Localization
- 2016.10** Development of TDC (FPGA) Flowmeter
Measurement Chip

2017 ~ Present

- 2017.06** FPGA APAC Upgrade
- 2017.09** FPGA UPAC Upgrade
- 2017.12** 18 billion won in sales
- 2018.10** Smart type 6 Channel Pneumatic LFC Development
- 2018.12** Flow control for semiconductor process
(performance of government tasks)
- 2019.02** Process Laboratory Setup
- 2019.11** Flow rate device for chemical solution supply
(performance of government task)
- 2020.06** New APAC (6 channels of smart type) LFC development
- 2021.12** 21 Achieving more than 21 billion won in annual sales
- 2022.03** Application and registration of flow meter piping
structure patent
- 2022.03** New building relocation
- 2024.** Company name changed to ELC



TECHNOLOGY

For precise production, we have the largest production line in Korea at the headquarters of Asan City, and we are making high quality products that no one can match with the thorough inspection and efforts of skilled production line employees.

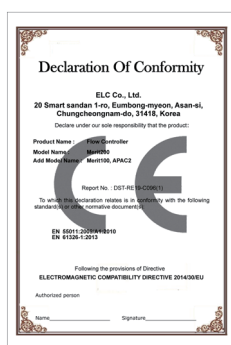
Technical Quality Management



Certification and Patent



Quality Certification



European Standards
(CE Mark)



Corporate research institute



Flowmeter Piping
Structure Patent

ELC PRODUCT MERIT SERIES

MERIT SERIES is a flow measurement/control device for semiconductor manufacturing processes.

Feature

- LFC(Liquid Flow Control) of pneumatic and electric valve type
- High-quality, high-precision semiconductor and industrial non-contact flow meter
- Measuring and controlling various chemical solutions
- Communication: Multiple flow rates can be monitored according to EtherCAT, RS-485 (MODBUS)
- RFI/EMO shielding of external power supply noise and input/output due to power separation
- Acquiring CE certification
- 7" Segment 4Digit Display
- Minimize footprint with 6-channel AMP integrated configuration



Configuring the Name

○ Name of AMP Type

C-SERISE	Number of channels	Option	Description
100C	02 (2CH) 06 (6CH)	P (Output) A (Analog Output)	Ultrasonic flowmeter
200C	06 (6CH)	-	Pneumatic LFC
300C	02 (2CH)	-	Electric LFC

○ Name of Detector Type

F-SERISE	LFC(Liquid Flow Control)	Flow range(mL)	Description
100F	FU	A20 (20~2000) A50 (100~5000) A200 (500~20000) A500 (1000~50000)	Ultrasonic flowmeter
200F	LO (L-shaped normal type) LR (L-shaped circulation type)	A02 (20~200) A06 (200~600) A10 (600~1000) A20 (600~2000)	Pneumatic LFC
300F	LO (L-shaped normal type) LR (L-shaped circulation type)	F05 (100~500)	Electric LFC

MERIT 100

ULTRASONIC FLOW METER

Comprehensive Solutions Liquid Flow Meter

ELC's ULTRASONIC FLOW METER, a comprehensive solution, is a non-contact flow meter for semiconductors and industries.



Feature

- High-quality and high-precision semiconductor and industrial non-contact flow meter
- Enables monitoring of high flow rates according to communication EtherCAT, RS-485 (Modbus)
- Protected from the external power noise by the power disconnection and RFI/EMC shielding of input/output (CE certification)
- 7-Segment 4Digit Display
- External Output Built-In - Analog Out : 4-20 mA (16 bits)
-Output for Sol Valve control
- Various chemical solutions such as DI, nitric acid, sulfuric acid, hydrogen peroxide, hydrofluoric acid, ammonia water, and SC-1 can be measured
- Minimized footprint with 6-channel AMP integrated configuration

Function

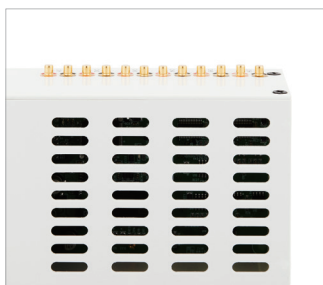
- Monitoring and Integration Flow Meter [ml/min]
- Precision flow measurement with ultrasonic wave analysis scope function
- Provides a variety of application technologies and Maintenance tools through serial communication



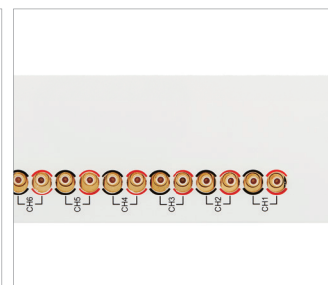
LED screen part



Aspect

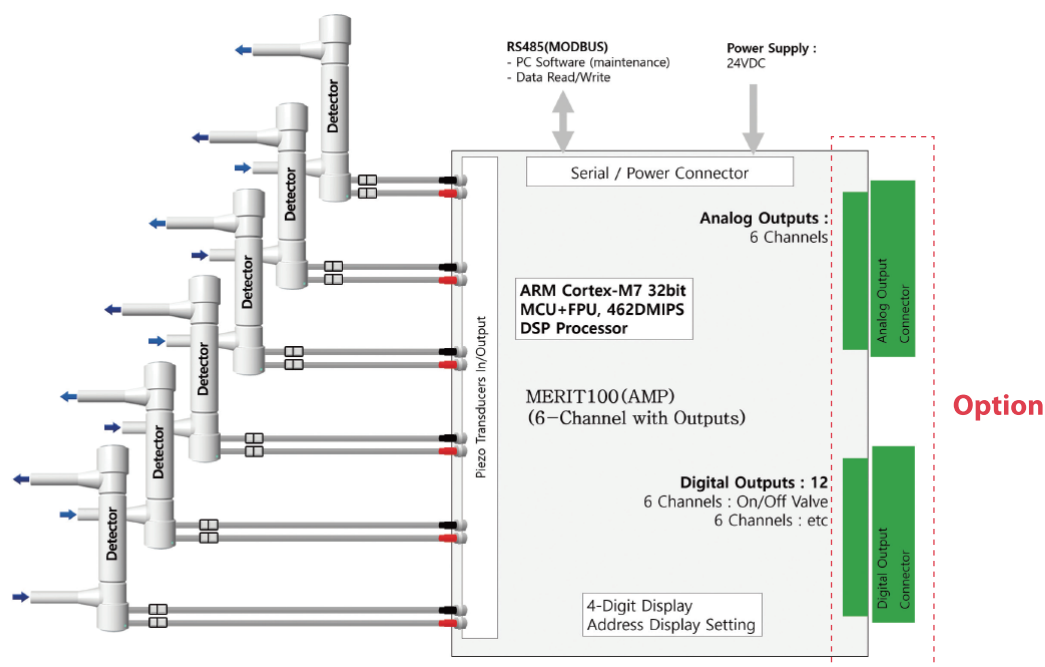


Side



Upper terminal

System Configuration Diagram



Product Specifications

○ AMP specification

Contents	Specification
Power	DC+24V (± 10%)
Temperature	0 ~ 50°C
Consumption current	Approx. 25.2W(6 Channel)
Waterproof design	IP20
Communication standard	RS-485(MODBUS), EtherCAT
Product size(mm)	50(W) X 126(L) X 79.5(H)
Weight	293g (6 Channel)
Certified	EN 61326, 55011

○ Detector specification

Contents	Specification
Measurement target	The whole liquid
Fluid temperature (°C)	10 ~ 90°C
Fluid pressure (Mpa)	0 ~ 0.35Mpa (Internal pressure 0.5Mpa)
Range of sound waves	1000 ~ 2200m/Sec
Waterproof design	IP 65
Body & Tube Material	PFA
Standard tube area	1/4 inch, 3/8 inch, 1/2 inch, 3/4 inch
Standard Cable Length	(Relay cable) : 2M, 3M, 5M

○ Flow Range and Accuracy

Contents	A20(1/4")	A50(3/8")	A200(1/2")	A500(3/4")	Note
Fluid	Chemical, Slurry, DIW				
Flow range	0.02 ~ 2.5	0.1 ~ 5.0	0.5 ~ 20	1 ~ 50	L/min
Minimum Unit	1 mL/min		10 mL/min		
Tube	6.35(3.96)	9.52(6.35)	12.7(9.53)	19(15.87)	Outer diameter (inner diameter) mm
Accuracy	0.02 ~ 0.3(±3)	0.1 ~ 0.6(±6)	0.5 ~ 2.0(±20)	1.0 ~ 5.0(±50)	L/min(mL/min)
	0.3 ~ 2.5(±1%)	0.6 ~ 5.0(±1%)	2.0 ~ 20(±1%)	5.0 ~ 50(±1%)	of RD

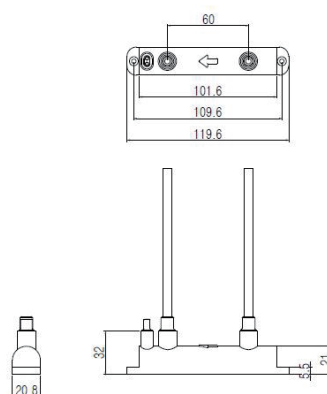
Flow part specification

○ 1/4 Inch Liquid Flow Meter (MERIT100 Series)



- Input/output piping 1/4 inch PFA piping
- The distance between the tubes and the distance between the holes may vary by ± 1 mm depending on the dimensional deviation of the injection and the depth of fusion.
- **Screw bolts:** M3 wrench bolts

1/4 Inch dimension

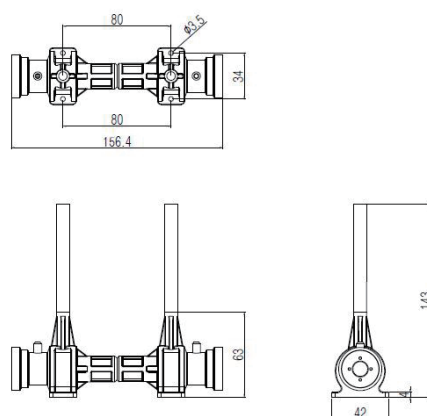


○ 3/8 Inch Liquid Flow Meter (MERIT100 Series)



- Input/output piping 3/8 inch PFA piping
- The distance between the tubes and the distance between the holes may vary by ± 1 mm depending on the dimensional deviation of the injection and the depth of fusion.
- **Screw bolts:** M3 wrench bolts

3/8 Inch dimension

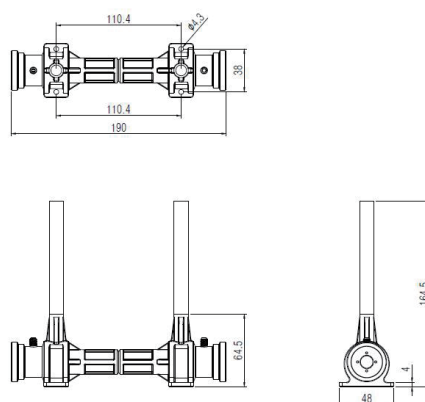


1/2 Inch Liquid Flow Meter (MERIT100 Series)



- Input/output piping 1/2 inch PFA piping
- The distance between the tubes and the distance between the holes may vary by +/- 1 mm depending on the dimensional deviation of the injection and the depth of fusion.
- **Screw bolts:** M4 wrench bolts

1/2 Inch dimension

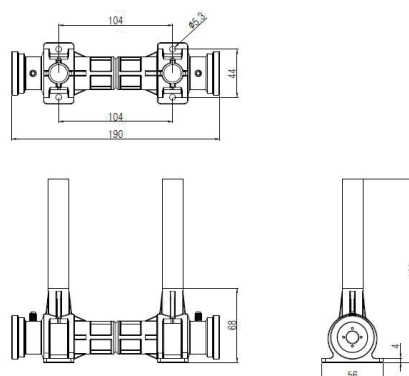


3/4 Inch Liquid Flow Meter (MERIT100 Series)



- Input/output piping 3/4 inch PFA piping
- The distance between the tubes and the distance between the holes may vary by +/- 1 mm depending on the dimensional deviation of the injection and the depth of fusion.
- **Screw bolts:** M5 wrench bolts

3/4 Inch dimension



MERIT 200

PNEUMATIC CONTROL LFC(AIR)

Comprehensive Solutions Liquid Flow Controller

The comprehensive solution AIR TYPE LFC is a high-quality, high-precision semiconductor and industrial contactless LFC with built-in control valves.



Feature

- High quality with built-in pneumatic control valves. High-precision semiconductor and industrial contactless LFC
- Various chemical solutions can be controlled (DI, nitric acid, sulfuric acid, hydrogen peroxide, hydrofluoric acid, ammonia water, SC-1, IPA)
- Protected from the external power noise and input/output RFI/EMO shielding due to power separation (CE certification)
- Easy maintenance with control power and detector integrated contact
- Built-in external output (Sol Valve On/Off and Circular Valve)
- Minimize footprint with 6-channel AMP integrated configuration

Function

- Instantaneous control for the target flow rate
- Filtering Flow rate pulsation
- Precision flow measurement with ultrasonic wave scope function
- Providing a variety of application technologies and Maintenance tools through serial communication
- Multiple flow monitoring and control functions according to communication EtherCAT, RS-485
- High speed control response (Target Flow Rate $\pm 2\%$ within 2 seconds)
- Analog input function



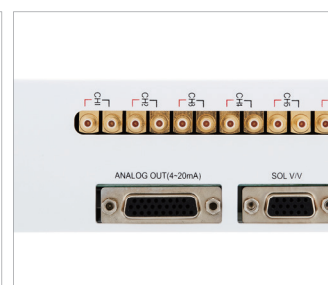
LED screen part



Aspect

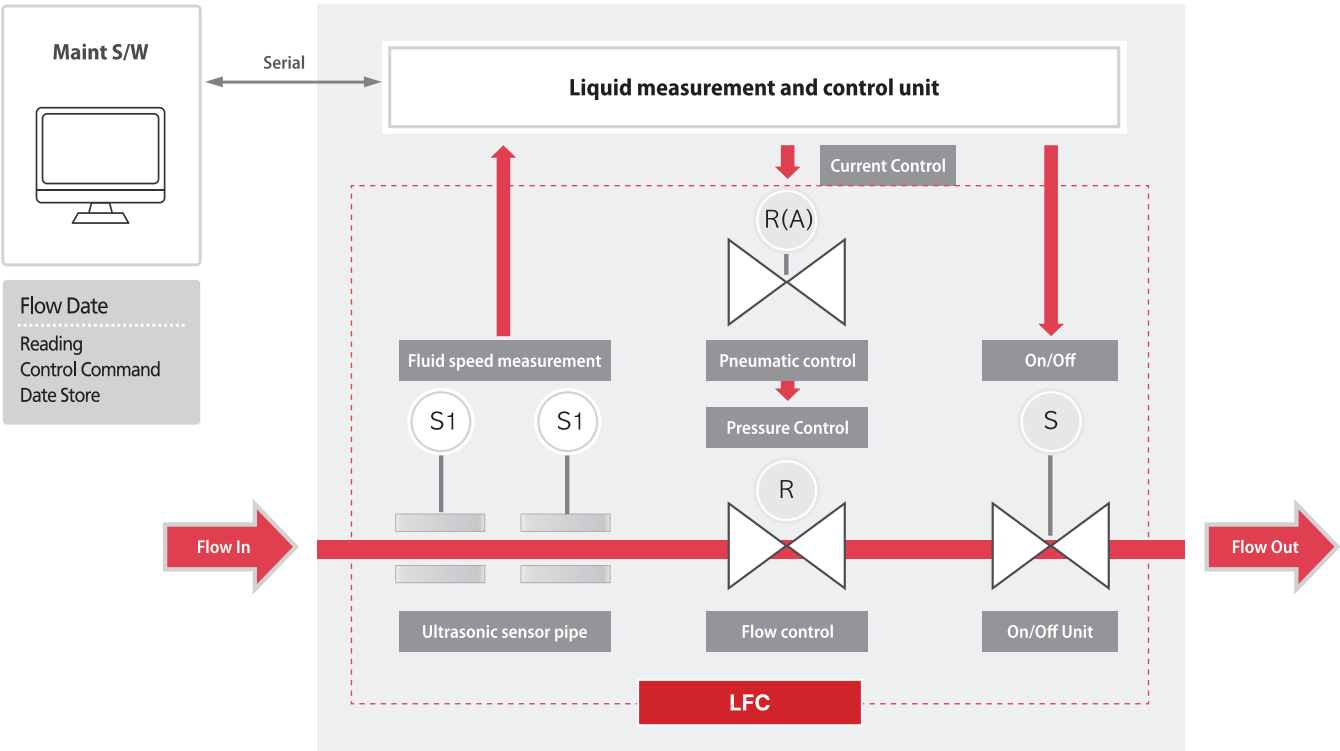


Side



Upper terminal

System Configuration Diagram



Product Specifications

AMP Specification

Contents	Specification
Power	DC+24V (±10%)
Temperature	0 ~ 50°C
Consumption current	Approx. 25.2W(6 Channel)
Waterproof design	IP20
Communication standard	RS-485(MODBUS), EtherCAT
Product size(mm)	50(W) X 126(L) X 79.5(H)
Weight	293g (6 Channel)
Certified	EN 61326, 55011

Detector Specification

Contents	Specification
Measurement target	The whole liquid
Fluid temperature (°C)	10 ~ 90°C
Fluid pressure (Mpa)	0 ~ 0.35Mpa (Internal pressure 0.5Mpa)
Range of sound waves	1000 ~ 2200m/Sec
Waterproof design	IP 65
Body & Tube Material	PFA
Standard tube area	1/4 inch
Standard Cable Length	(Relay cable) : 2M, 3M, 5M

Flow Range and Accuracy

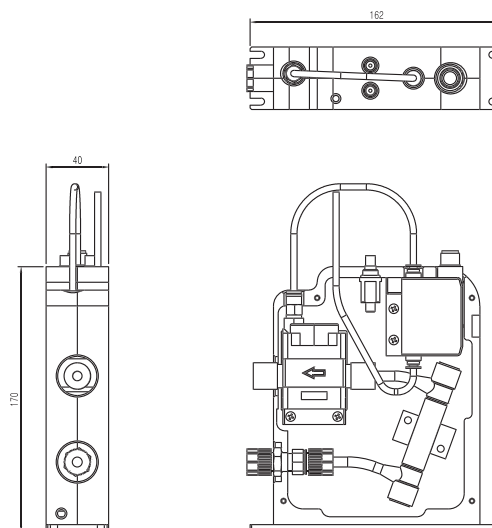
Contents	MERIT-200F		
	A02(200ml/min)	A06(600ml/min)	A20(2500ml/min)
Flow rate	20~200ml	201~600ml	601~2000ml(2500ml)
Flow control accuracy (flow stability)	- 20 ~ 300ml/min : ±3ml/min - 300 ~ 2500ml/min : Read Scale ±1%		
Response Speed	- Target Flow Rate ±2%, Within 2 seconds		

Flow part specification

○ LR Series Circular type Liquid Flow Controller (MERIT200 Series)

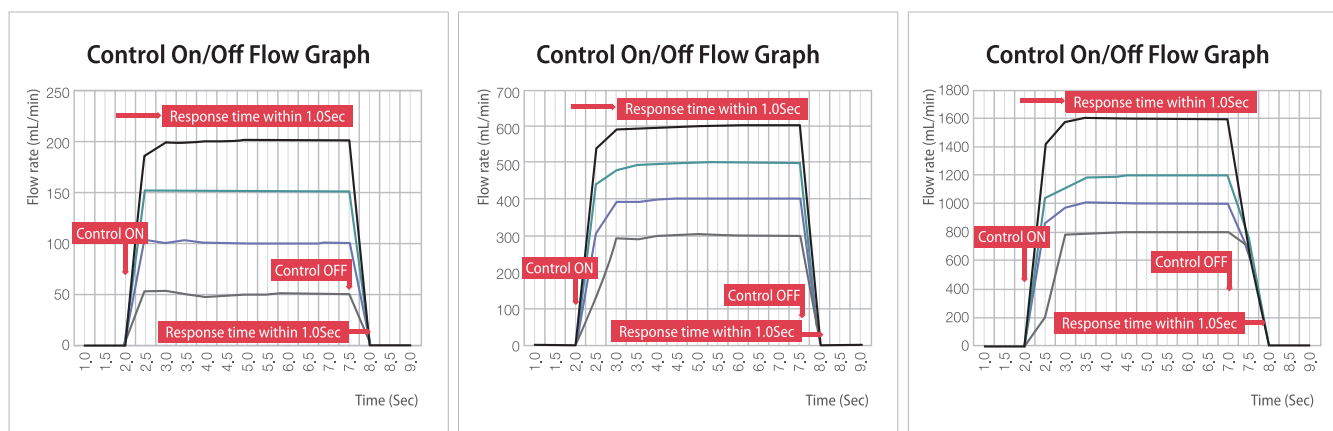


LR Series Dimension drawing



- Suitable for systems that require re-storage in the mixing tank by flowing through the bypass line to prevent high temperature, IPA, O-strips, etc., which change components when stagnant.

○ Flow Control Response Liquid Flow Controller (MERIT200 Series)

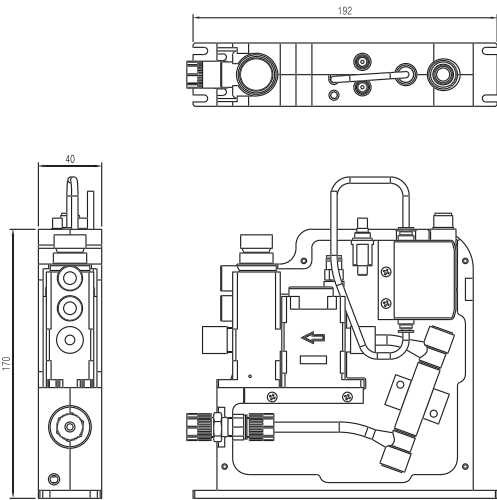


- A graph showing the flow control response characteristics at discharge on/off.
- The sampling time is 0.25 sec

LO Serise General type Liquid Flow Controller (MERIT200 Series)

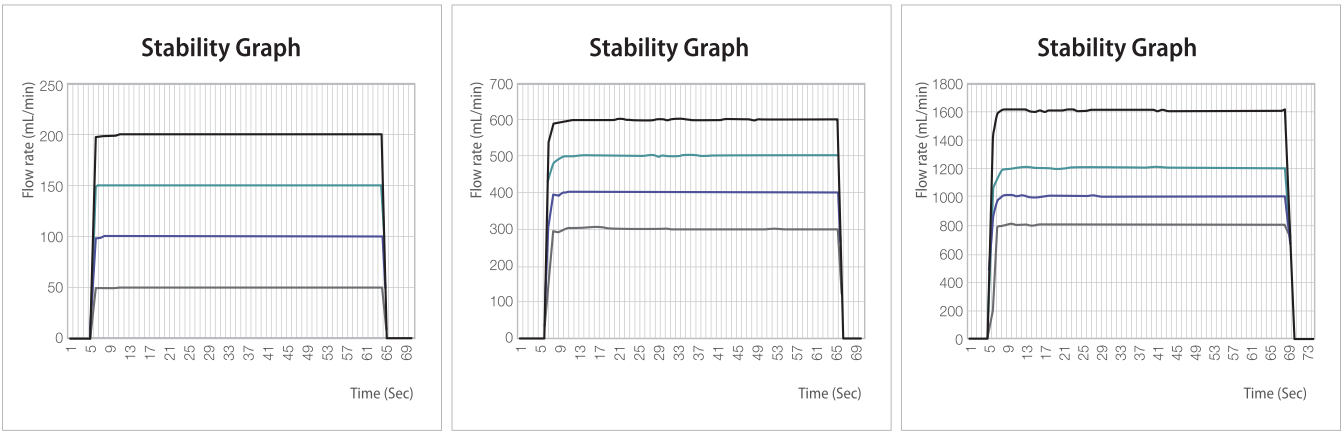


LO Serise Dimension drawing



- The Suck Back Valve ensures that residual liquid is sucked back at the end of the nozzle when the discharge is off.
- Suitable for use when the residual liquid should not drip into the material surface when the swing nozzle discharge is off.

Flow Control Response Liquid Flow Controller (MERIT200 Series)



- A graph showing the flow control response characteristics at discharge on/off.
- Data discharged for 1 minute, and the sampling time is 1 sec.

MERIT 300

ELECTRONIC CONTROL LFC

Comprehensive Solutions Liquid Flow Controller

The comprehensive solution MOTOR TYPE LFC is a high-quality, high-precision semiconductor and industrial non-contact LFC with built-in control valves.



Feature	Function
- High-quality, high-precision semiconductors with built-in control valves as the industrial contactless LFCs - Various chemical solutions can be controlled (DI, nitric acid, sulfuric acid, hydrogen peroxide, hydrofluoric acid, ammonia water, SC-1, IPA) - Protected from the external power noise and input/output RFI/EMO shielding due to power separation (CE certification) - Easy maintenance with control power and detector integrated contact - Built-in external output (Sol Valve On/Off and Circular Valve) - Stable ultra-precision flow control by using an encoder of an electric needle valve - Mechanical Damper and Sensor (High limit, Low limit, ORG) built-in for stability and precision	- Instantaneous control for the target flow rate - Filtering Flow pulsation - Precision flow measurement with ultrasonic wave scope function - Providing a variety of application technologies and Maintenance tools through serial communication - Monitoring Valve opening rate and ultra-precision flow control through encoder - High speed control response (Target Flow Rate $\pm 2\%$ within 2 seconds)



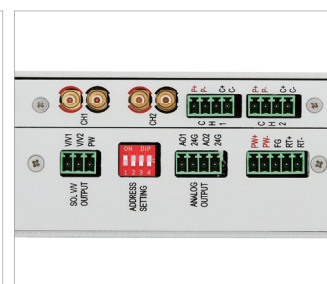
LED screen part



Aspect

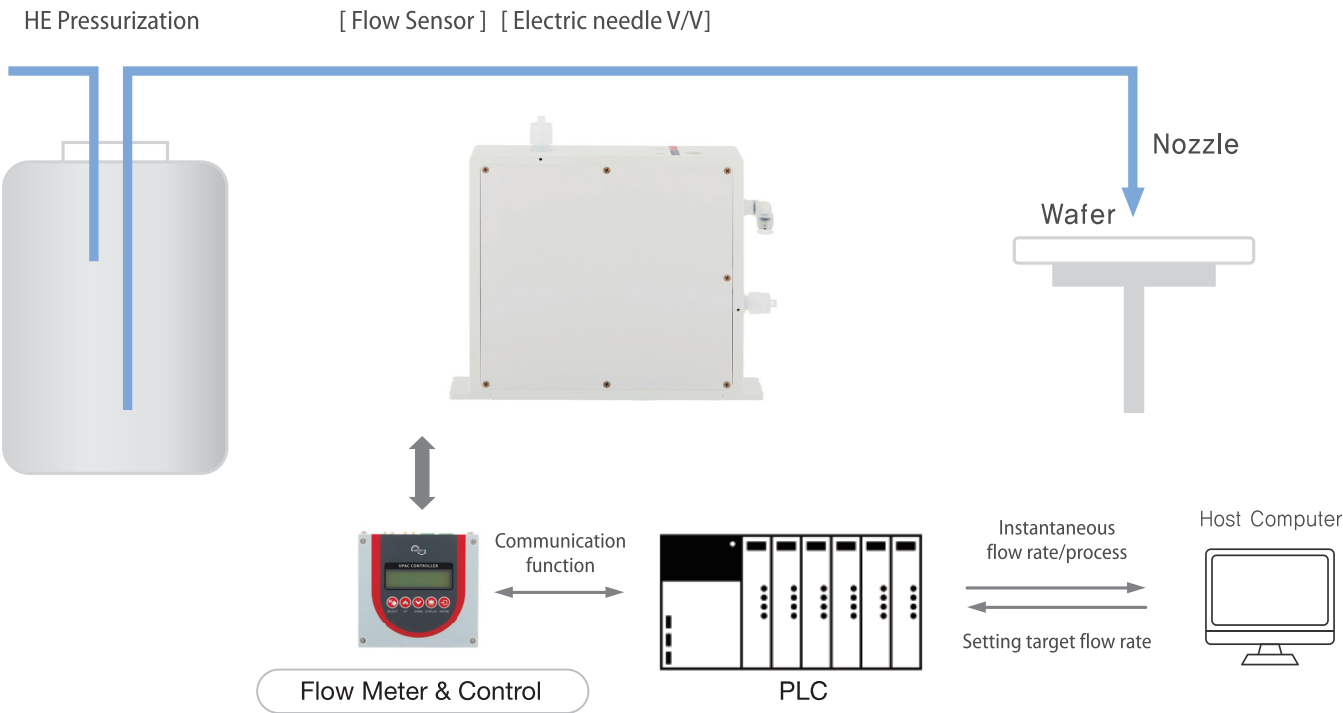


Back



Upper terminal

System Configuration Diagram



Product Specifications

○ AMP Specification

Contents	Specification
Power	DC+24V (±10%)
Temperature	0 ~ 50°C
Consumption current	Approx. 25.2W(6 Channel)
Waterproof design	IP20
Communication Address Settings	Set up to 24 units
Communication standard	RS-485(MODBUS)
Product size(mm)	50(W) X 126(L) X 79.5(H)
Weight	3.6kg (Based on 24 channels)
Certified	EN 61326, 55011, 61000

○ Detector Specification

Contents	Specification
Measurement target	The whole liquid
Electric power area	Stepping Motor
Fluid temperature (°C)	10 ~ 90°C
Fluid pressure (Mpa)	0 ~ 0.35Mpa (Internal pressure 0.5Mpa)
Range of sound waves	1000 ~ 2200m/Sec
Waterproof design	IP 65
Body & Tube Material	PFA
Standard tube area	1/4 inch
Standard Cable Length	(Relay cable) : 2M, 3M, 5M

○ Flow Range and Accuracy

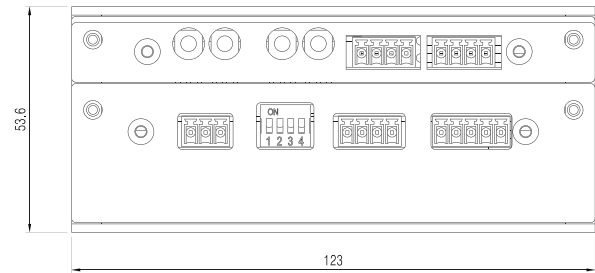
Contents	MERIT-300F		
	100ml/min	500mL/min	2500mL/min
Flow control accuracy (flow stability)	- 10 ~ 800ml/min : ±10ml/min - 800 ~ 2500ml/min : Full Scale ±1%		
Response Speed	- Target Flow Rate ±10%, Within 2 seconds		

AMP Appearance and Dimensions

AMP Liquid Flow Controller (MERIT300 Series)



AMP Dimension drawing



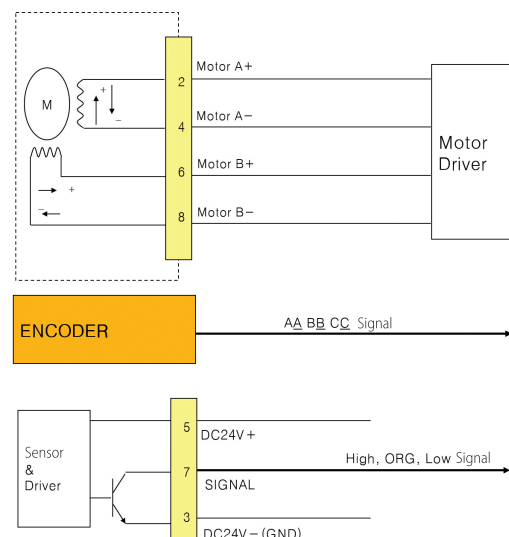
- The front of the AMP is equipped with an LCD and an input key, allowing simple operation and flow monitoring without a additional PC. Multichannel footprint is compact structure compared to the total number of channels.
- For AMP installation, use the M4 TAP on the side A. (Please select the bolt length within 8mm for the AMP tightening.) If the bolt is more than 8mm long, it may interfere with the internal PCB.)
- It is recommended to open the upper side radiator during installation.
- Slide pack structure for the installation is recommended. The contact connector for the fluid reservoir is located on the back, which can cause inconvenience when maintaining the fixture.

High Performance Electric Needle Valve

Precision flow control by the encoder Liquid Flow Controller (MERIT300 Series)



System Configuration Diagram

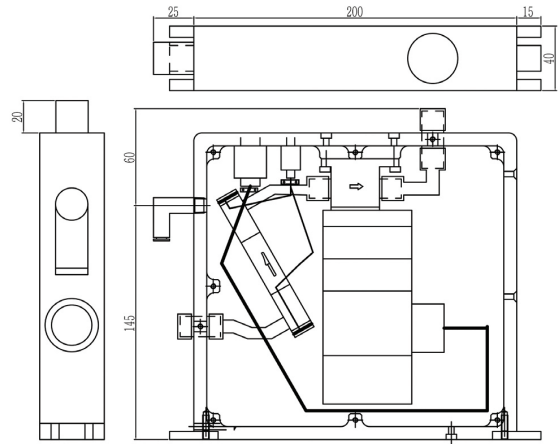


Flow part specification

○ LR Serise Circular type Liquid Flow Controller (MERIT300 Series)

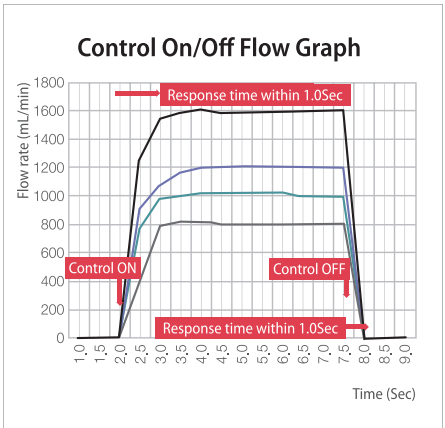
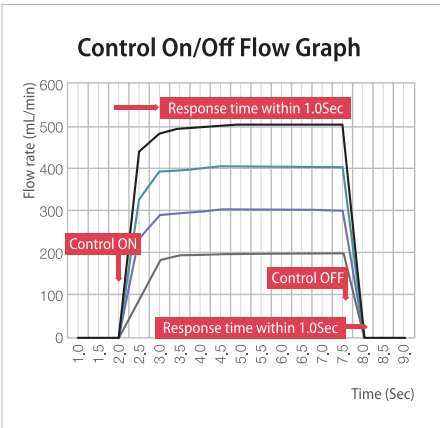
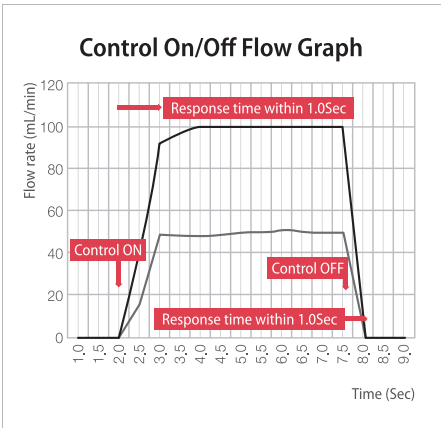


LR Series Dimension drawing



- Suitable for systems that require re-storage in the mixing tank by flowing through the bypass line to prevent high temperature, IPA, O-strips, etc., which change components when stagnant.

○ Flow Control Response Liquid Flow Controller (MERIT300 Series)



- A graph showing the flow control response characteristics at discharge on/off.
- The sampling time is 0.25 sec

MERIT 400

PINCH VALVE TYPE LFC

Comprehensive Solutions Liquid Flow Controller

The LFC for SLURRY is a high-quality, high-precision semiconductor and industrial contactless Ultrasonic Flow METER.



Feature	Function
- High-quality, high-precision semiconductors and industrial contactless Ultrasonic Flow Meter applications - Built-in pinch valve optimized for slurry control - Measurement and control of various solutions (DIW, tungsten, ceria, silica, hydrogen peroxide, hydrofluoric acid, ammonia water, etc.) - RFI/EMI shielding of external power supply noise and input/output due to power separation - Built-in alarm output (measurement & control alarm) - High speed control responsiveness: Target Flow Rate $\pm 2\%$ within 1.5 seconds (with encoder)	- Target volume fast precision instantaneous flow control - Total flow value integration - Flow rate pulsation filtering - Using Encoder to monitor the aperture ratio (up and down alarms, etc.) and precisely control it - Error prevention and precision flow measurement with ultrasonic wave scope function - Maintenance tool for PC communication for Setup and A/S - Communication RS-485 (Modbus) provides simultaneous (six) LFC control - ANALOG Input / Output Control Available (current or voltage)



LED screen part



Aspect

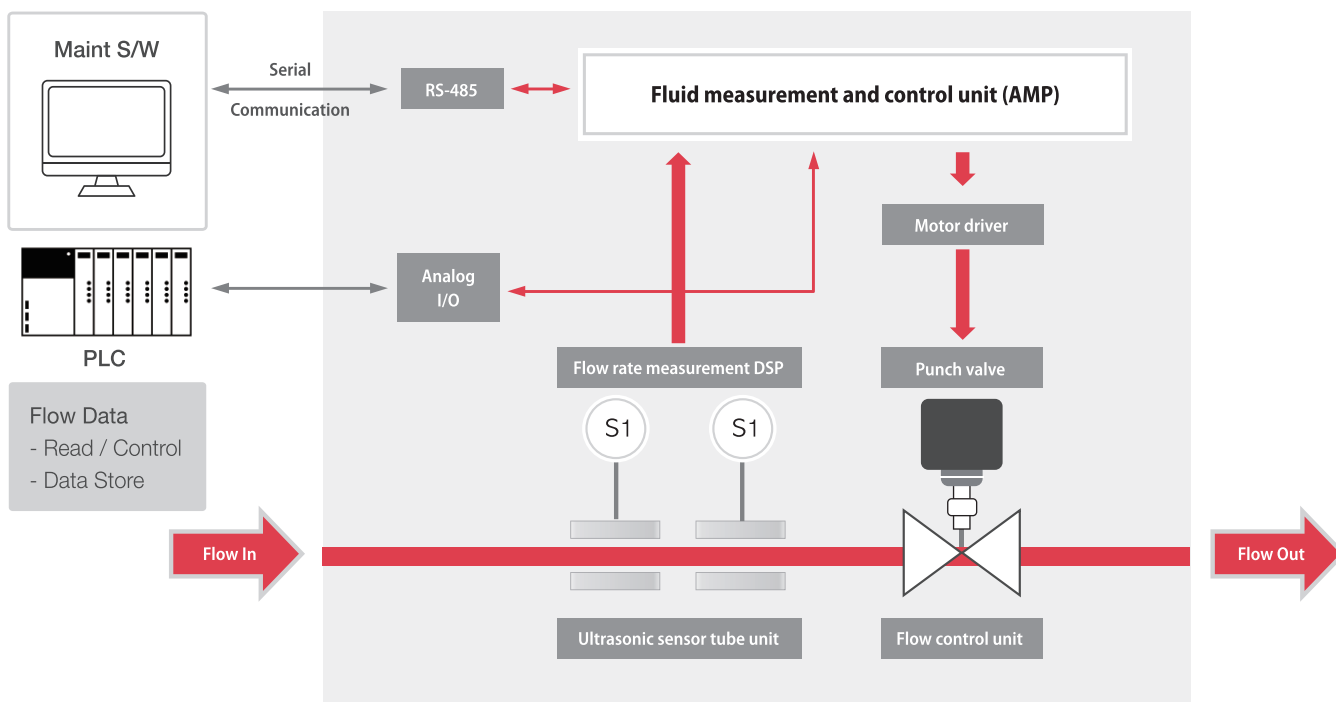


Right side



Left side

System Configuration Diagram



Product Specifications

○ LFC Specifications (Integrated)

Contents	Specification	Contents	Specification
Power	DC+24V (±10%)	Fluid temperature (°C)	10 ~ 90°C
Power consumption	4.8W (Based on consumption current of 200mA)	Fluid pressure (Mpa)	0 ~ 0.35Mpa (Internal pressure 0.5Mpa)
Communication standard	RS-485(MODBUS), Analog I/O	Internal waterproofing	IP65
Product size(mm)	70(W) X 230(D) X 114(H)	Tube Material	PFA, Gore-tex(Pinch valve)
Weight	1310g	Appearance material	FM PVC(White)

○ Flow Range and Accuracy

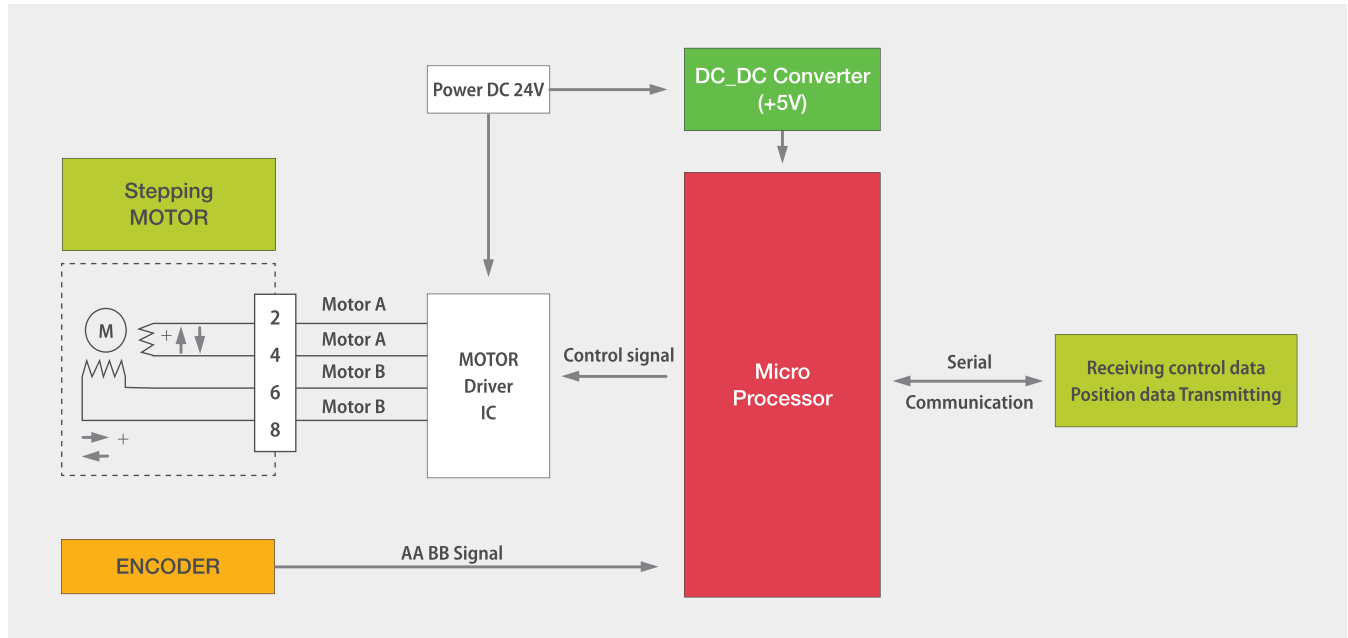
Contents	250 ml/min	500 ml/min
Fluid	Mixed abrasive solution such as DIW, Silica, Ceria, W (Tungsten)	
Flow range	25 ~ 250 mL	50 ~ 500 mL
Minimum Unit	0.1 mL/min	
Accuracy	300 mL Less than: ±3ml / 300 mL More than: ±1%	
Response Speed	Within 1.5 Sec (Target Flow Rate ±2% within 2 seconds)	

○ I/O Cable Specification

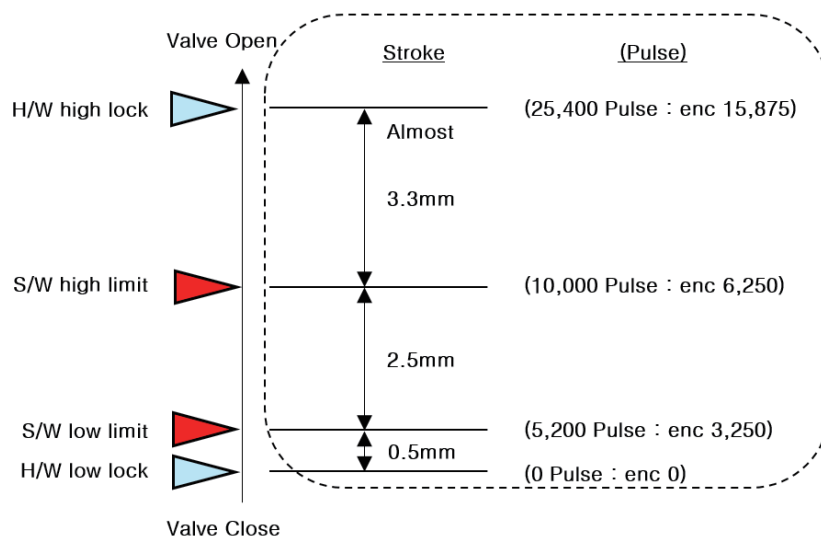
Sortation	Length(m)	Wire Spec.	Note
I/O Cable	5.0m	PVC AWG #26	

High Performance Electric Pinch Valve

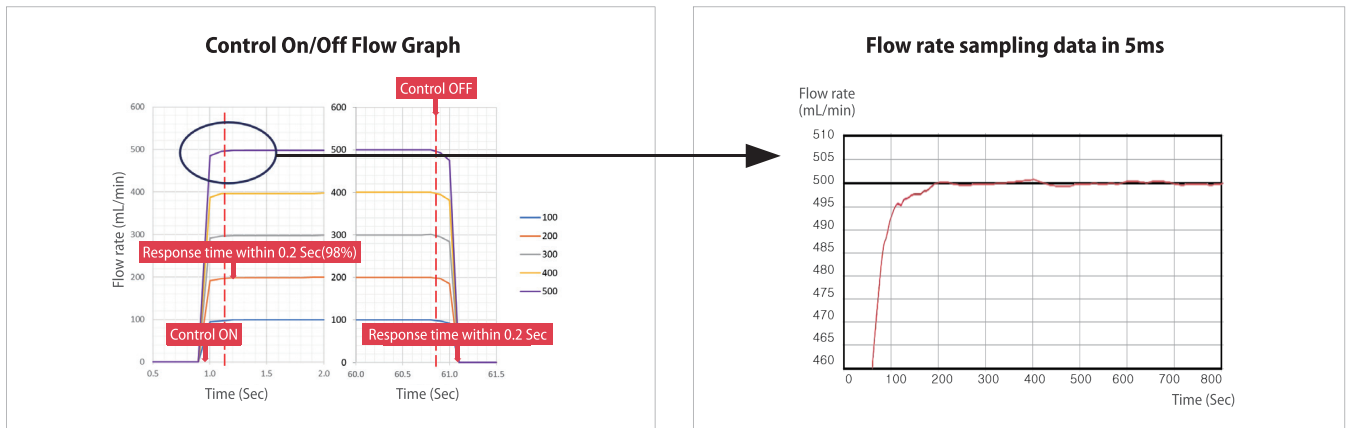
○ Precision flow control by the encoder Liquid Flow Controller (MERIT400 Series)



○ Preventing breakage with S/W Limit and H/W Lock Liquid Flow Controller (MERIT400 Series)

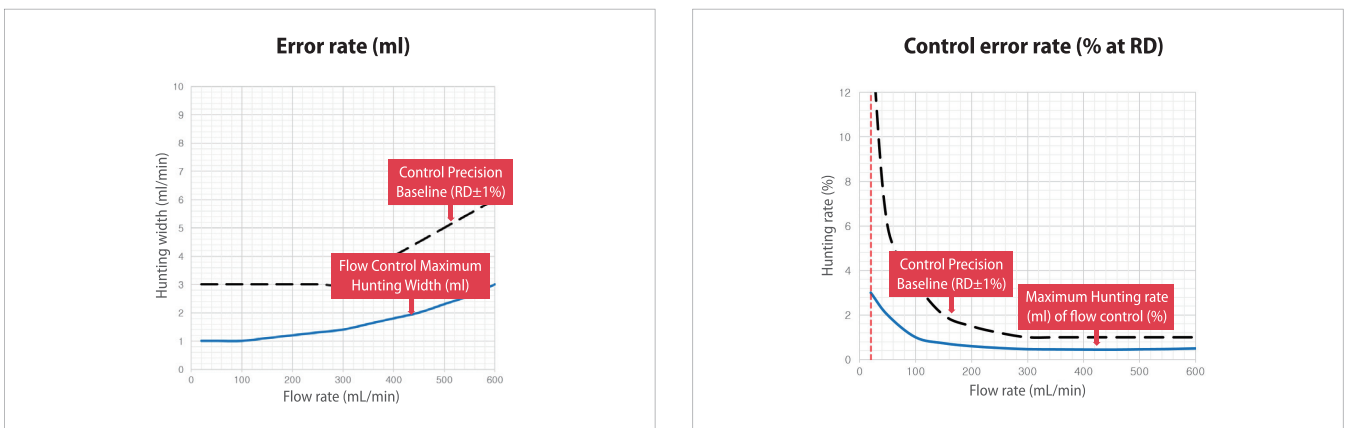


○ Characteristics of Flow Control Response at on/off discharging Liquid Flow Controller (MERIT400 Series)



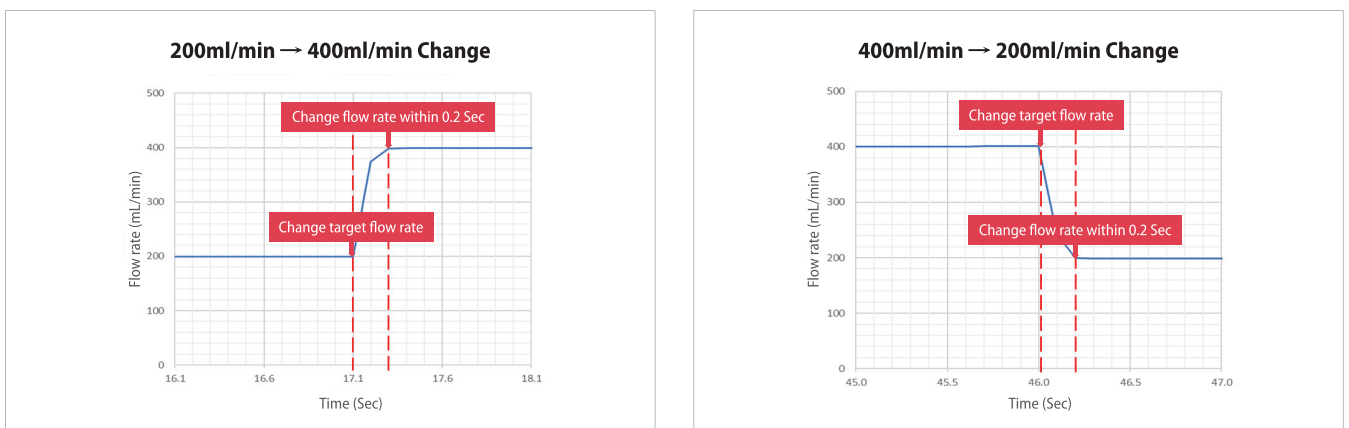
- Data discharged for 1 minute and sampling time 0.1 sec

○ Flow Control Stability Graph Liquid Flow Controller (MERIT400 Series)



- Based on the supply pressure of 0.2 MPa

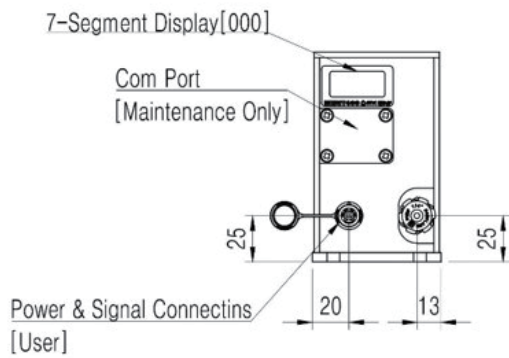
○ Graph of control response characteristics when target flow rate changes during discharging Liquid Flow Controller (MERIT400 Series)



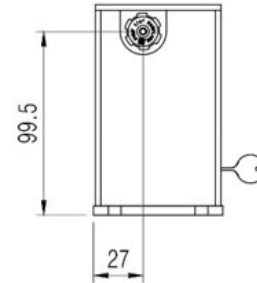
- Change target flow rate 200 ▶ 400 ▶ 200 (ml/min) during discharging
- Sampling time 0.1 sec

○ Exterior and exterior dimensions Liquid Flow Controller (MERIT400 Series)

Front



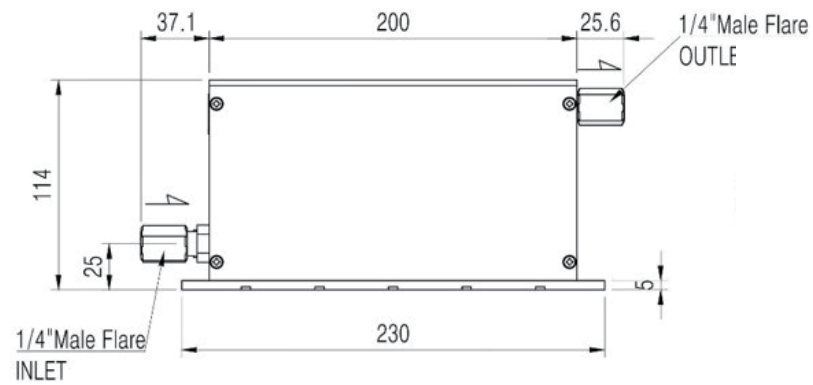
Back



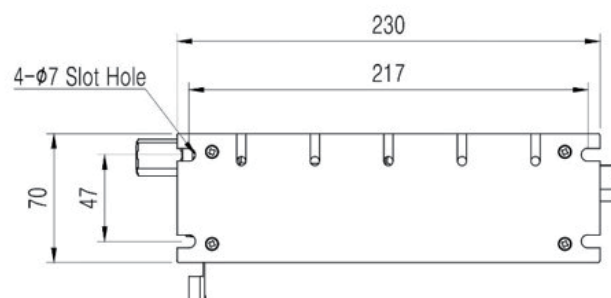
Top



Front



Bottom



MERIT 120**VORTEX FLOW METER MERIT 120****Current and pulse output type****ELC Vortex Flow meter is?**

MERIT 120 measures the flow rate by using a vortex phenomenon.

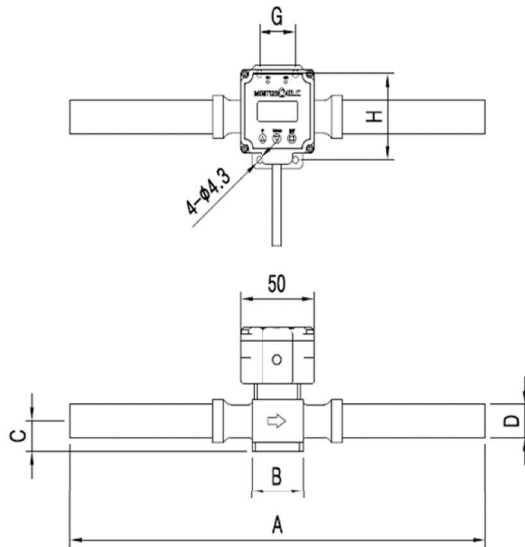
**Feature**

- Small size with high quality, high accuracy and has quick response speed.
- Vortex Flow meter with liquid flow part is made of New PFA
- Out put method support two types, analog output and pulse output.

Flow Range and Accuracy

Contents	0308 (3/8inch)	0102 (1/2inch)	0304 (3/4inch)	0101 (1inch)	Note
Applicable fluid	DIW, IPA, etc.				
Measuring flow range	0.4 ~ 3.5	2~ 20	3 ~ 40	8 ~ 90	L/min
Instantaneous maximum flow	4	25	50	100	L/min
Tube (outside/Inside)	9.53 / 6.35	12.7 / 9.53	19.5 / 15.88	25.4 / 22.2	Ø
Maximum pressure	1	1	0.6	0.5	MPa
Pulse output	0.1	1	10		mL/P
Accuracy	±2% FS				
Response speed	About 1 second				
Composition material	Fitting structure : PFA tube, liquid contact material : New PFA				
Fluid temperature (°C)	0 ~ 90°C				
Operation power	DC 12 ~ 24V				
Current consumption	100 mA below				
Ambient temperature	0 ~ 50 °C				
Humidity	95% RH below				
Analog output	Instantaneous flow rate value output 4 ~ 20 mA (0L/min ~ Maximum flow)				
Switch output	Open collector method 2 channels (Supports 1 channel when using pulse output method)				
Protection class	IP65				
Display output	Flow rate : FND 3DIGIT, Situation : Green LED & Red LED				

Vortex Flow meter

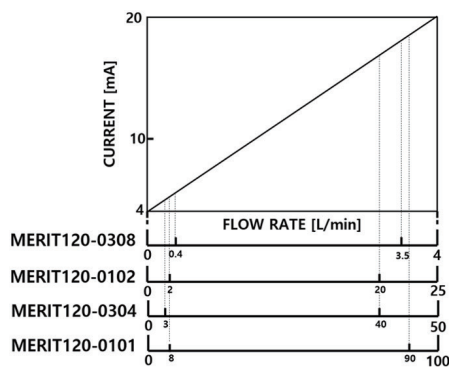


SIZE[mm]	MODEL	MERIT120			
		0308	0102	0304	0101
A		230	230	280	300
B		35	35	35	40
C		12.5	15.5	17.5	29
D		9.53(3/8")	12.7(1/2")	19.05(3/4")	25.4(1")
E		62	68	71.5	87.5
F		60	60	60	66
G		25	25	25	25
H		50	50	50	56

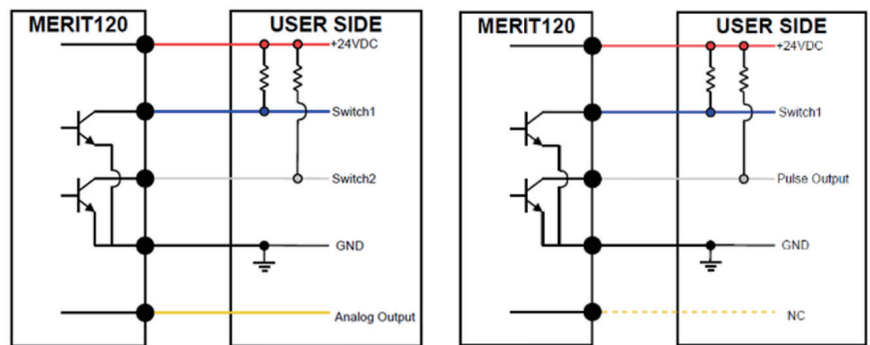
Dimensions (Unit : mm)

Product Specifications

○ Analog Output



○ Analog / Pulse type wiring method



○ Description of indicator



No	Configuration
①	Green LED is displayed when power is turned on or when function is set or operated.
②	Displays red LED during function setting and operation.
③	Displays instantaneous flow rate and setting range.
④	'UP' switch
⑤	'DOWN' switch
⑥	'ENT' switch

MERIT 010

Semiconductor equipment chemical liquid measuring jig

High Performance Signal Processing Solution

MERIT010 is a product with a wireless (Bluetooth) interface function to secure stability from dangerous chemicals, and the actual measurement jig
Designed for precise and accurate measurements by receiving the chemical in the tray



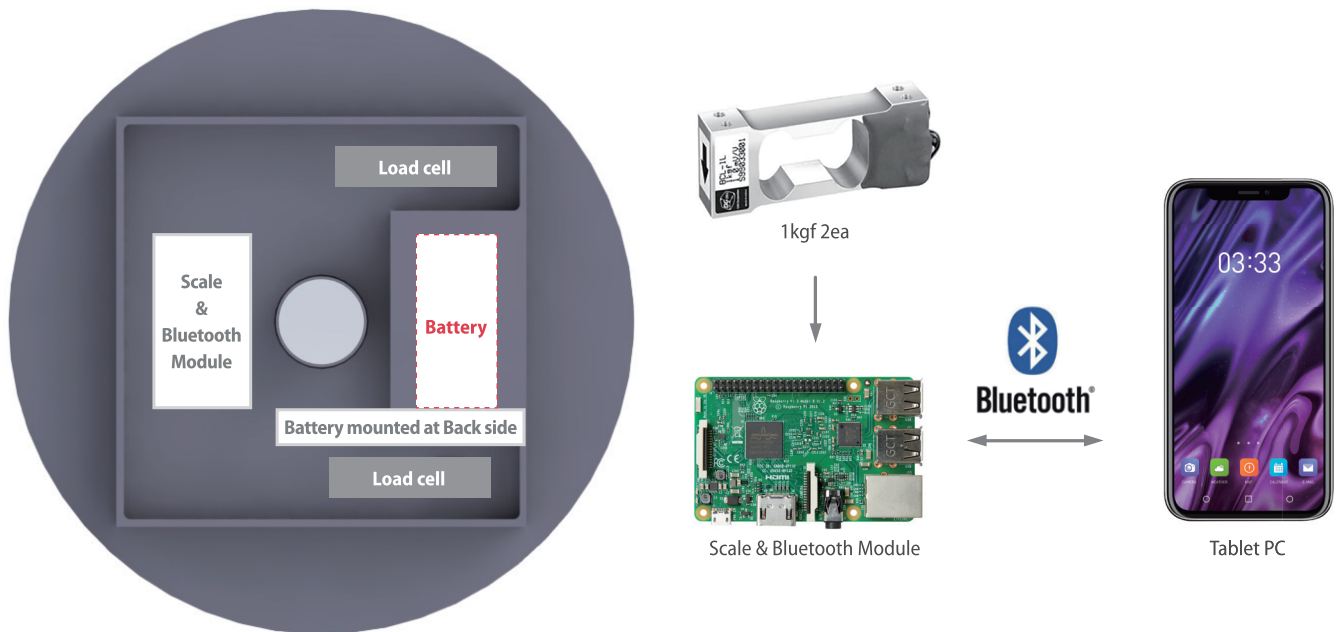
Feature

- High-quality, high-precision semiconductor and industrial non-contact chemical solution actual measurement Jig
- Measurement method using weight (load cell: 2EA)
- Precision 1/1000 or higher with 24Bit AD Converter
- Data communication using Bluetooth (provides wireless solution)
- Providing tablets and apps for sending and receiving weight data
- Providing battery and charger
- Calibration of various liquid (chemical) flow measurements
- Protected from the external power NOISE and RFI/EMI shielding by the power separation
- Automatic chemical discharge function by spinner rotation
- Hazardous chemical measurement calibration eliminates risk to workers due to lack of direct contact

No	Contents	Count	Note
1	Chemical liquid measuring jig	1	Complete product
2	Lenovo Tab E8	1	Tablet for Bluetooth Communication
3	K-9V	1	9V Battery Only Charge Dock
4	Ectaco 9V 650mAh	2	Lithium polymer rechargeable battery
5	Lenovo Chargers	1	Tablet-only
6	KP-5020MU	1	Micro 5-pin charger for battery charging
7	Case	1	Chemical liquid measuring jig exclusive bag

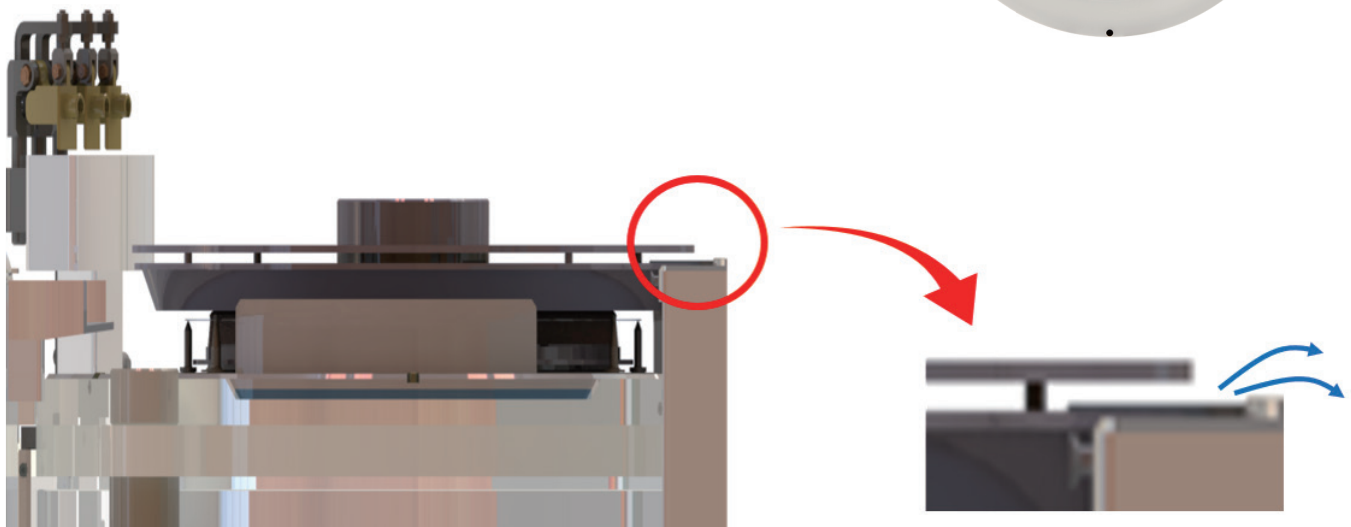


System Configuration Diagram



Measurement and Emission System

- Measure the weight after chemical collection inside the TRAY installed in the wafer chuck
- Once the measurement is complete, rotate the motor 200-300 RPM to drain the chemical into the gap between the covers



SPINNER MOTOR

LS MECAPION SIGNATURE

Hollow Type & Spinner

Flange Size	60 ~ 130
Rated power	0.1 ~ 3
Rated torque	0.32 ~ 9.55
Rated rotational speed	2,000 ~ 5,000
Encoder	Incremental type / Serial type



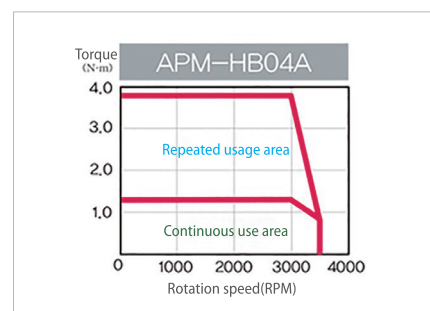
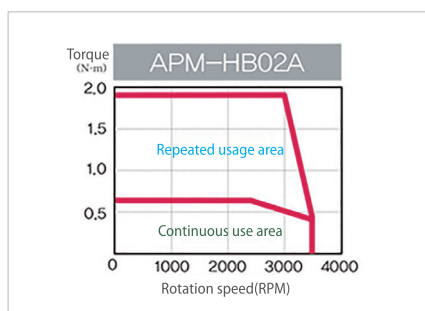
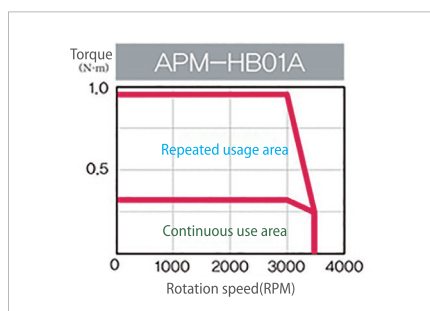
Product Specifications

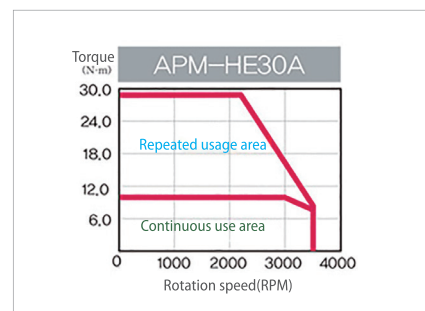
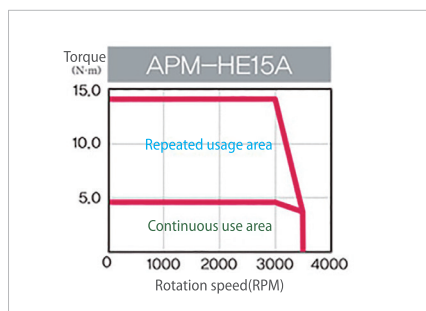
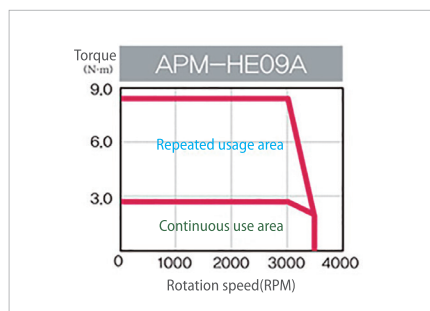
○ Motor characteristics [Rating 3000r/min]

Servo motor (APM-□ □ □ □)		HBO1A	HBO2A	HBO4A	HE09A	HE15A	HE30A
Applied drive (L7 □ A □ □)		L7 □ A002		L7 □ A004	L7 □ A008	L7 □ A020	L7 □ A050
Flange Size(□)		□ 60			□ 130		
Rated power	[kW]	0.1	0.2	0.4	0.9	1.5	3
Rated torque	(N·m)	0.32	0.64	1.27	2.86	4.77	9.55
	[kg·cm]	3.25	6.49	12.99	29.23	48.72	97.43
Maximum instantaneous torque	(N·m)	0.96	1.91	3.82	8.59	14.32	28.64
	[kg·cm]	9.74	19.48	38.96	87.69	146.15	292.29
Rated current	[A]	1.65	1.63	2.89	4.95	8.23	17.16
Maximum current	[A]	4.95	4.89	8.67	14.85	24.69	51.48
Rated rotational speed	[r/min]	3000					
Maximum rotational speed	[r/min]	3500					
Moment of inertia	[kg·m ² x 10 ⁻⁴]	0.27	0.33	0.46	19.56	22.27	31.81
	[gf·cm x s ²]	0.27	0.34	0.47	19.96	22.72	32.46
Allowable load inertia		20 times the Motor Inertia			10 times the Motor Inertia		
Rated power rate	[kW/s]	3.34	11.98	34.47	4.10	10.01	22.03
Speed, position detector	Standard Option	Quad. Type incremental 1024[P/R]			Quad. Type Incremental 2048[P/R]		
					X		
Specifications and characteristics	Protection system	HB Series IP55 (Exclude after shaft penetration)			HE Series IP65 (Exclude after shaft penetration)		
	Time rating	Continuous					
	Ambient temperature	Temperature of use : 0 □ 40[°C] Preservation temperature : -10 □ 60[°C]					
	Ambient humidity	Humidity of use : 80[%]RH. Conservation humidity : 90[%] RH Less than (The condition of being noncondensing)					
	Mood	No directions, no corrosive and flammable gases					
	Earthquake resistance	Vibration acceleration 49[m/s2](5G)					
Weight	[kg]	0.9	1.2	1.7	5.8	7.4	10.83

Note1) Excluding shaft penetration. IP rating of the reducer portion is not guaranteed when the reducer is attached. If a bend occurs beyond the specifications specified in the cable specification, the marked IP rating may not be satisfied. Only when using a dedicated cable meet its protection rating.

○ Rotation Speed – Torque Characteristics





Servo Drive

Real-time control with EtherCAT

- Equipped with high-speed, real-time communication-fixed synchronization mechanisms
- Enhanced EtherCAT communication speed (min. 250us, DC support)
- Support for non-CoE EoE and FoE
- Improved frequency response (11 kHz)

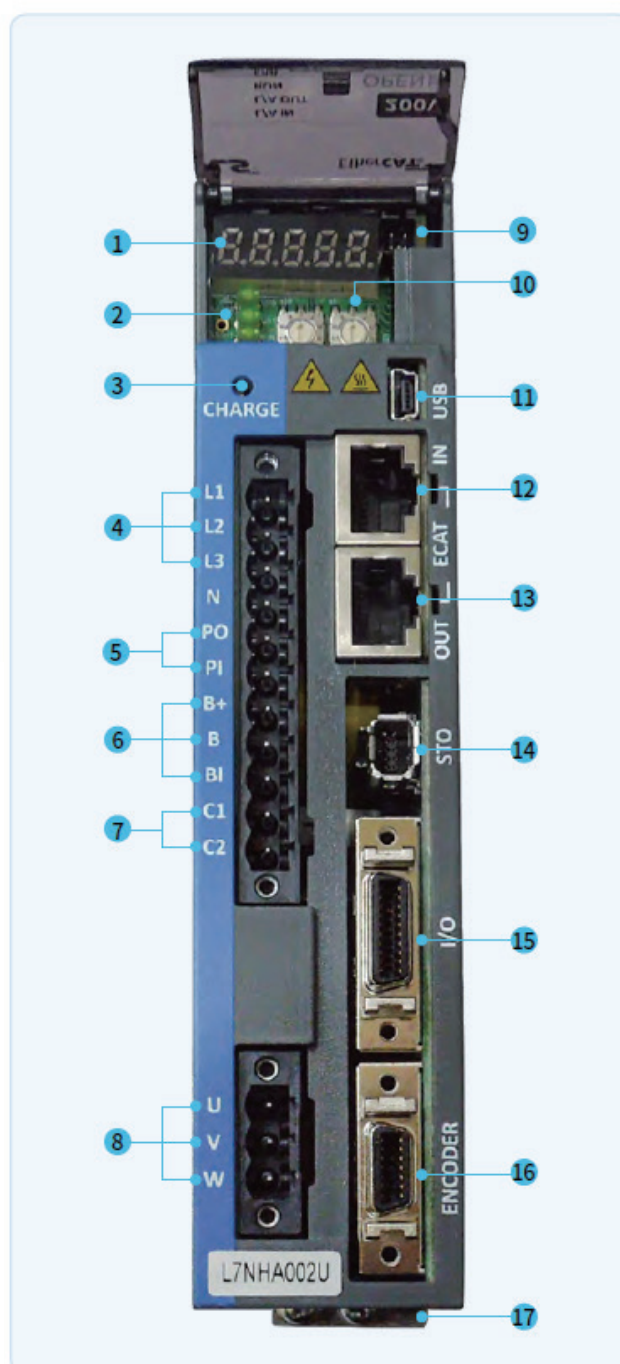
Supports different motor and encoder drives

- DD and Linear motor drive support other than Rotary (3rd party motor support)
- Quadrature, BiSS-C, Tamagawa serial abs, EnDat 2.2 Panasonic serial abs, Sinusoidal

Improved control performance

- Increased control bandwidth
- 4-speed Notch-Filter provided
- Vibration Control via Real-Time FET
- Real-time gain adjustment

- 1 Display window
- 2 Status LED
- 3 Charge Lamp
- 4 Main power connector (L1, L2, L3)
- 5 DC reactor connection connector (PO, PI) short circuit when not in use
- 6 Regenerative Resistance Connection Connector (B+, B, BI)
 - Short circuit to B, BI terminals when using basic mounting
 - Mounting to B+, B terminal when mounting external resistance
- 7 Control Power Kenerator (C1, C2)
- 8 Servo Motor Power Connector (U, V, W)
- 9 Control Power Kenerator (C1, C2)
- 10 Switch for setting node address
- 11 SB Connector (USB)
- 12 EtherCAT Communication Port (IN)
- 13 EtherCAT Communication Port (OUT)
- 14 Safety Function Connector (STO)
- 15 Control signal connector (I/O)
- 16 Encoder Connector (ENCODER)
- 17 Ground terminal



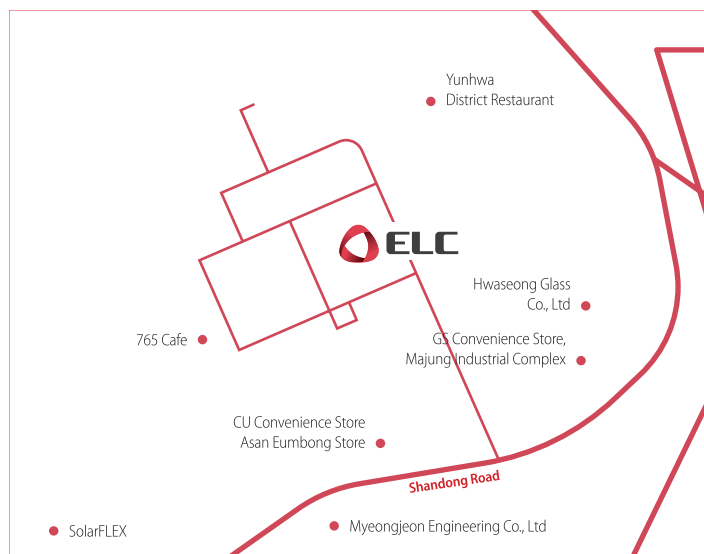
HIGH PERFORMANCE SIGNAL PROCESSING SOLUTION



CONTACT US

ELC is always open
for our customers.
We will do our best to be
ELC with our customers.

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