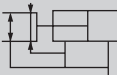


Length measurement function Linear Slide Hand Double acting

LSHM-A-HP2 Series

●Operating stroke: 4, 6, 10, 14 mm



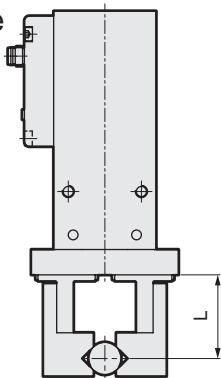
Specifications

Item		LSHM-A								
Bore size		mm	ø10		ø16		ø20		ø25	
Actuation			Double acting							
Working fluid			Compressed air							
Max. working pressure		MPa	0.7							
Min. working pressure		MPa	0.2		0.1					
Port size			M3		M5					
Operating stroke		mm	4		6		10		14	
Power supply voltage			24 VDC ±10%							
Current consumption			25 mA or less							
Indicator lamp			Green LED ON when power applied							
Analog output			1 V when finger closed - 5 V when open ¹ , Connecting load 100kΩ and over							
Analog output		Without correction adapter	±3% F.S. or less (ambient temperature 25°C)							
linearity		With correction adapter	±0.5% F.S. or less (ambient temperature 25°C)							
Repeatability of analog output			±0.02 mm or less (No deformation or wear of the actuator / jig when ambient temperature is 25 ° C)							
Valid measured range length		mm	4.5		6.5		10		14	
Shock resistance (sensor/amplifier section)			294m/s ²							
Vibration resistance (sensor / amplifier section)			10 to 55Hz Compound amplitude 1.5mm X, 2 hours each in Y, Z directions							
Degree of protection (sensor/amplifier section)			IEC Standard IP65							
Ambient temperature, humidity			10 to 60 °C, 85% RH or less (no freezing)							
Amplifier mounting position			Side	Front	Side	Front	Side	Front	Side	Front
Weight	kg	Finger OP: 1, 2, 3	0.108	0.120	0.221	0.238	0.437	0.457	0.752	0.773
		Finger OP: 4			0.226	0.243	0.442	0.462	0.782	0.803
Lubrication			Not required							

Note: Refer to page 138 for the correction adapter.
*1: There is output fluctuation of 1 mV / °C.

Unit: N

Gripping force

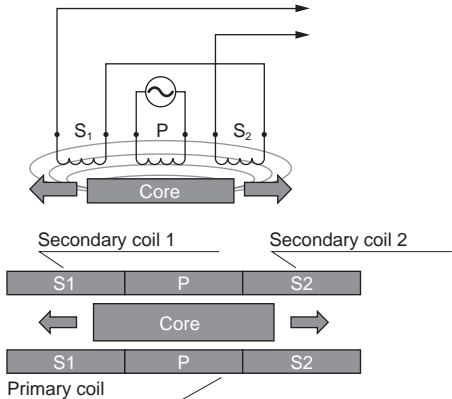


Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65

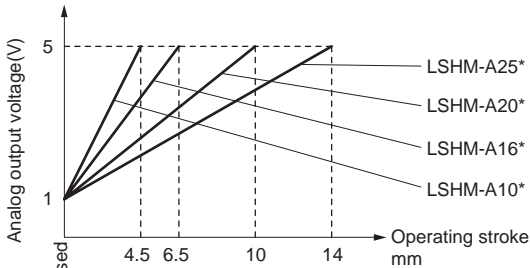
*Supply pressure: 0.5 MPa, L = 20 mm, value at stroke center

LVDT displacement sensor operation principle

When exciting the primary coil (P), induced voltage is generated in the two secondary coils (S1/S2) by electromagnetic induction. When the Hand is driven, the core position changes and a difference in induced voltage occurs between S1 and S2. This difference is used to output the position of the core as electric signals.



Analog output characteristics



*The analog output voltage at shipment is 1 V on the closed side and 5 V on the open side, with the port closed and pressurized.

Refer to the LSHM-A Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimentions.

How to order

LSHM - A 10 D 2 A - N - HP2

A Rubber cover

B Bore size

C Actuation

D Finger

E Amp mounting position/grip center reference, high precision positioning hole

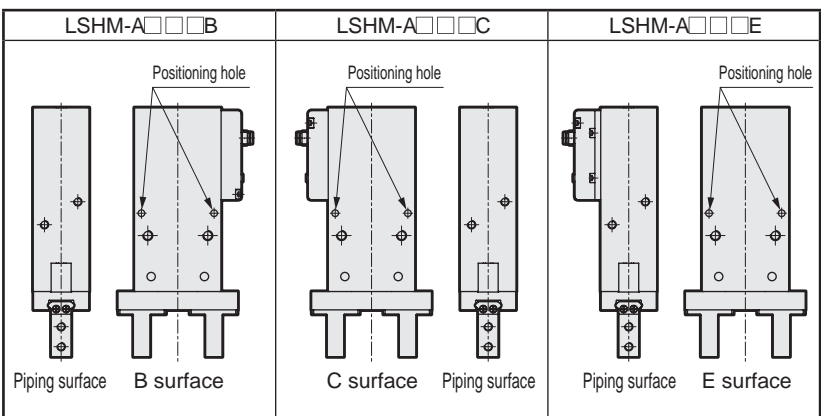
F Adaptor option

Code	Description
A Rubber cover	
A	Without rubber cover
B Bore size (mm)	
10	ø10
16	ø16
20	ø20
25	ø25
C Actuation	
D	Double acting
D Finger * Refer to the dimensions for details.	
1	Basic
2	Side tap
3	Through hole
4	Flat
E Amp mounting position / grip center reference, high precision positioning hole *1	
A	Amp side/no positioning hole
B	Amp side/rear with finger below and piping right
C	Amp side/rear with finger below and piping left
D	Amp front/no positioning hole
E	Amp front/rear with finger below and piping right
F Adaptor option *2	
N	Without adaptor
A	Correction adaptor
B	Switch output adaptor (NPN)
C	Switch output adaptor (PNP)
D	IO-Link adaptor

*2: Shipped with the product.

*1

Amp mounting position/grip center reference, high precision positioning hole position diagram



Refer to "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for details.

[Example of model No.]

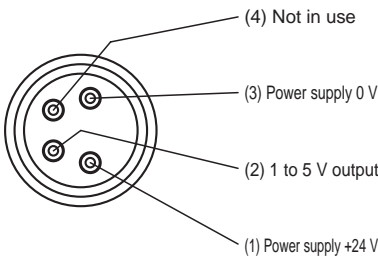
LSHM-A10D2A-N-HP2

Model: Linear Slide Hand

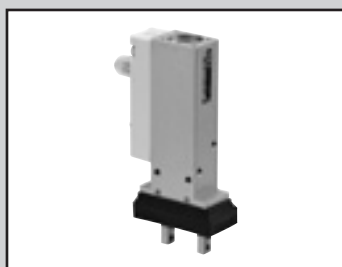
- A Rubber cover : Without rubber cover
- B Bore size : ø10
- C Actuation : Double acting
- D Finger : Side tap
- E Amp mounting position / grip center reference, high precision positioning hole : Amp side/no positioning hole
- F Adaptor option : Without adaptor

Plug contact array diagram

• Without adaptor



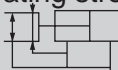
SCP3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP3	Supports tool mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	



Length measurement function Linear Slide Hand Double acting
with rubber cover

LSHM-G/LSHM-F-HP2 Series

● Operating stroke: 4, 6, 10, 14 mm



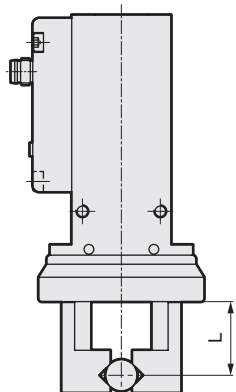
Specifications

Item		LSHM-G/LSHM-F									
Bore size		mm		ø10		ø16		ø20		ø25	
Actuation		Double acting									
Working fluid		Compressed air									
Max. working pressure		MPa		0.7							
Min. working pressure		MPa		0.2		0.1					
Port size				M3		M5					
Operating stroke		mm		4		6		10		14	
Power supply voltage		24 VDC ±10%									
Current consumption		25 mA or less									
Indicator lamp		Green LED ON when power applied									
Analog output		1 V when finger closed - 5 V when open ¹ , Connecting load 100kΩ and over									
Analog output linearity		Without correction adapter		±3% F.S. or less (ambient temperature 25°C)							
		With correction adapter		±0.5% F.S. or less (ambient temperature 25°C)							
Repeatability of analog output		±0.02 mm or less (No deformation or wear of the actuator / jig when ambient temperature is 25 ° C)									
Valid measured range length		mm		4.5		6.5		10		14	
Shock resistance (sensor/amplifier section)		294m/s ²									
Vibration resistance (sensor / amplifier section)		10 to 55Hz Compound amplitude 1.5mm X, 2 hours each in Y, Z directions									
Degree of protection (sensor/amplifier section)		IEC Standard IP65									
Ambient temperature, humidity		10 to 60 °C, 85% RH or less (no freezing)									
Amplifier mounting position				Side	Front	Side	Front	Side	Front	Side	Front
Weight		kg		0.113	0.125	0.236	0.253	0.462	0.482	0.792	0.813
Lubrication		Not required									

Note: Refer to page 138 for the correction adapter.

*1: There is output fluctuation of 1 mV/°C.

Gripping force



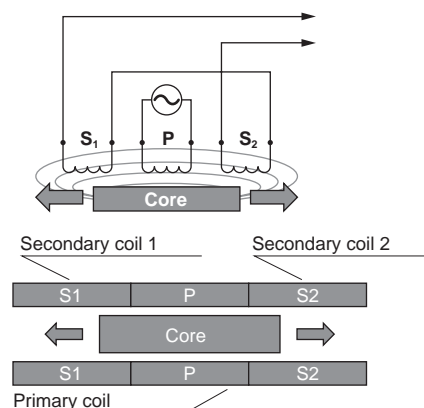
Unit: N

Bore size (mm)	Double acting	
	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65

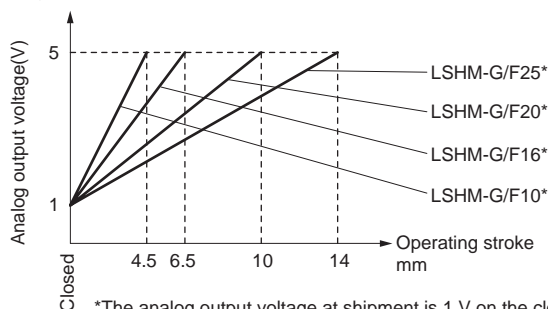
*Supply pressure: 0.5 MPa, L = 20 mm, value at stroke center

LVDT displacement sensor operation principle

When exciting the primary coil (P), induced voltage is generated in the two secondary coils (S1/S2) by electromagnetic induction. When the Hand is driven, the core position changes and a difference in induced voltage occurs between S1 and S2. This difference is used to output the position of the core as electric signals.



Analog output characteristics



*The analog output voltage at shipment is 1 V on the closed side and 5 V on the open side, with the port closed and pressurized.

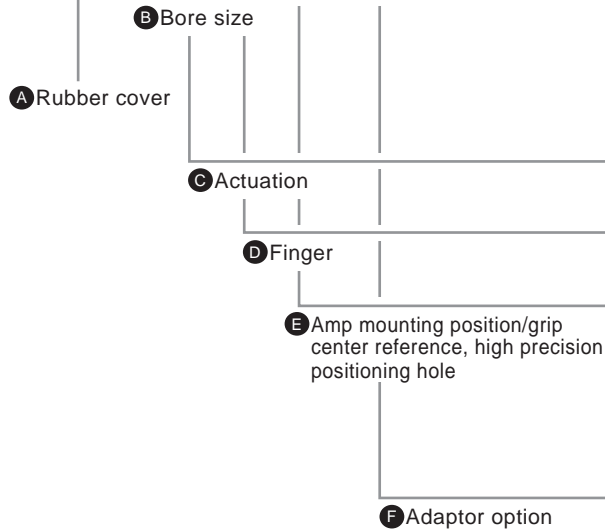
Refer to the LSHM-G/LSHM-F Series of "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for dimensions.

LSHM-G/LSHM-F-HP2 Series

How to order

How to order

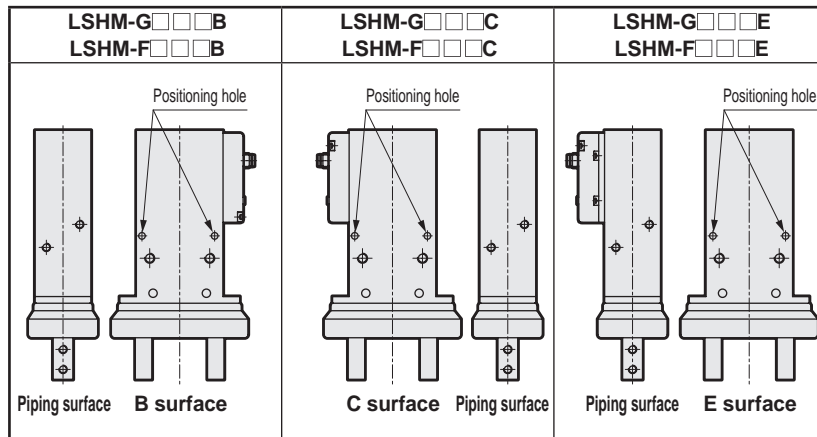
LSHM - G 10 D 1 A - N - HP2



Code	Description
A Rubber cover	
G	Chloroprene rubber
F	Fluoro rubber
B Bore size (mm)	
10	ø10
16	ø16
20	ø20
25	ø25
C Actuation	
D	Double acting
D Finger	
1	Basic
E Amp mounting position / grip center reference, high precision positioning hole *1	
A	Amp side/no positioning hole
B	Amp side/rear with finger below and piping right
C	Amp side/rear with finger below and piping left
D	Amp front/no positioning hole
E	Amp front/rear with finger below and piping right
F Adaptor option *2	
N	Without adaptor
A	Correction adapter
B	Switch output adapter (NPN)
C	Switch output adapter (PNP)
D	IO-Link adapter

*1

Amp mounting position/grip center reference, high precision positioning hole position diagram



Refer to "Linear Slide Hand LSH-HP Series (No.CC-1419A)" for details.

[Example of model No.]

LSHM-G10D1A-N-HP2

Model: Linear Slide Hand

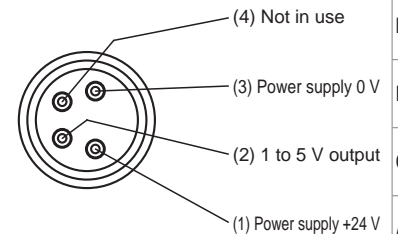
- A** Rubber cover : Chloroprene rubber
- B** Bore size : ø10
- C** Actuation : Double acting
- D** Finger : Basic
- E** Amp mounting position / grip center reference, high precision positioning hole : Amp side/no positioning hole
- F** Adaptor option : Without adaptor

Consumable parts list

Bore size (mm)	Material	Kit No.	Consumable parts No.	Bore size (mm)	Material	Kit No.	Consumable parts No.
ø10	Chloroprene rubber	LSH-G10K	Rubber cover	ø20	Chloroprene rubber	LSH-G20K	Rubber cover
	Fluoro rubber	LSH-F10K			Fluoro rubber	LSH-F20K	
ø16	Chloroprene rubber	LSH-G16K		ø25	Chloroprene rubber	LSH-G25K	
	Fluoro rubber	LSH-F16K			Fluoro rubber	LSH-F25K	

Plug contact array diagram

• Without adaptor



SCP3	Long service life cylinder
CMK2	
SCM	
SSD2	
MDC2	
MSD	
MSDG-L	
SMG	
LCR	
LCG	
STM	
STG	
STR2	
SCP3	Environment-resistant cylinder
CMK2	
SCM	
SCG	
SSD2	
SMG	
LCR	
STG	
STS	
STL	
LSH	Linear Slide Hand
LSHL	
LSHM	
LST	Low-profile long stroke hand
LSTM	
HMC	Wide Parallel Hand
CKW	Chuck
ABP2	Air Booster
SCP3	Compatible with rechargeable batteries
CMK2	
SCM	
SSD2	
MSD	
MSDG-L	
SMG	
STG	
STM	
LCR	
LCG	
STR2	
LSH	
LSHL	
SCP3	Supports food mfg. processes
CMK2	
SCM	
SCG	
SSD2	
STG	

Correction adapter

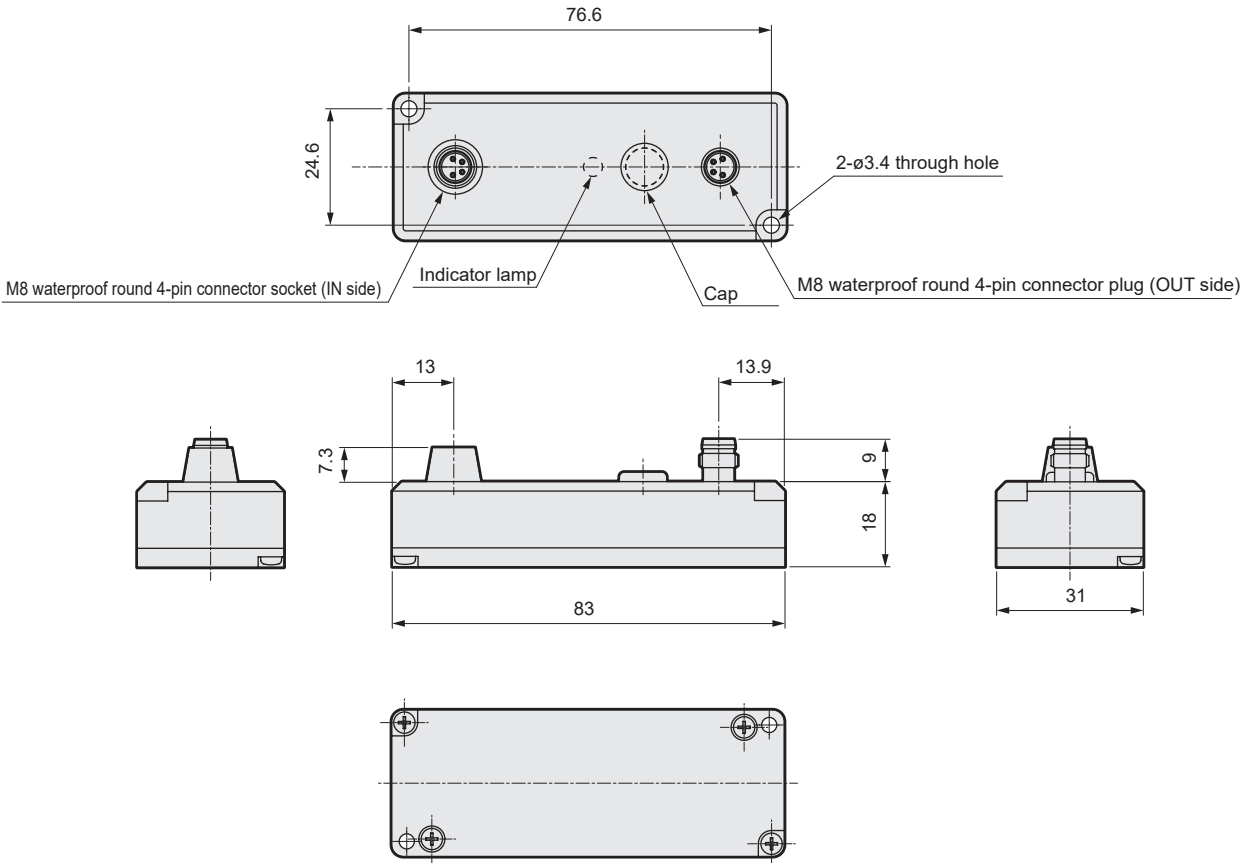
The analog output linearity will be corrected. Please use for applications where high-accuracy linearity is required.

Specifications

Item	Description
Power supply voltage	24 VDC ±10%
Current consumption	35 mA or less
Indicator lamp	Red LED lit when power applied
Analog input	1 to 5 V (LSHM Series output voltage)
Analog output	1 to 5 V, connection load 50 kΩ or more
Analog output linearity	±0.5% F.S. or less (ambient temperature 25°C, LSHM Series connection, CKD provided measuring method)
Repeatability of analog output	±0.02 mm or less (No deformation or wear of the actuator / jig when ambient temperature is 25 ° C)
Input connector	M8 waterproof round 4-pin connector socket
Output connector	M8 waterproof round 4-pin connector plug
Shock resistance	294m/s ²
Degree of protection	IEC Standard IP65
Ambient temperature, humidity	10 to 60 °C, 85% RH or less
Mounting method	Direct mounting
Weight	40g

*Use the default combination of LSHM and correction adapter.

Dimintions



Switch output adapter

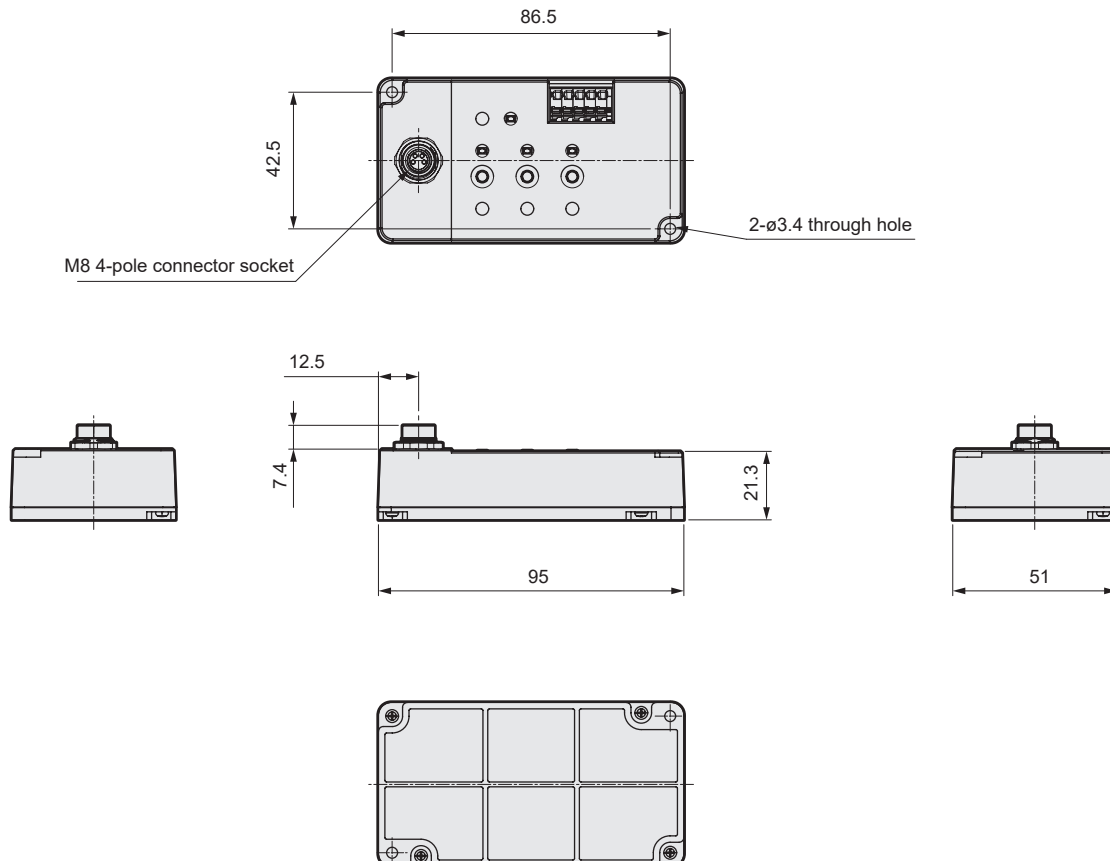
Specifications

Item	Switch output adapter (NPN) Option code: B	Switch output adapter (PNP) Option code: C
Power supply voltage	24 VDC $\pm 10\%$	
Current consumption	35 mA or less	
Power indicator lamp	Green LED ON when power applied	
Switch indicator lamp	Red Lit when LED ON	
Switch output point	3	
Switch output (per 1 ch)	NPN: Open collector Max. power supply voltage: 24 VDC Max. load current: 50 mA Internal voltage drop: 1.2V or less	PNP: Open collector Max. power supply voltage: 24 VDC Max. load current: 50mA (*1) Internal voltage drop: 1.5V or less
Operating range	0.2/0.5/1.0 mm (*2)	
Analog input	1 to 5 V (LSHM Series output voltage)	
Input connector	M8 connector 4-pin (socket)	
Shock resistance	294m/s ²	
Degree of protection	IEC Standards IP40	
Ambient temperature, humidity	10 to 60°C, 85% RH or less	
Mounting method	Direct mounting	
Insulation resistance	20 MΩ and over with 500 VDC megger	
Withstand voltage	No failure after 1 minute of 1,000 VAC application	
Vibration resistance	10 Hz-55Hz compound amplitude 1.5mm, X, Y, Z, 2 hours each in each direction	
Weight	65g	

*1: The total of all channels must be 100 mA or less.

*2: There is a hysteresis of 0.04mm on one side.

Dimentions



IO-Link adapter

Specifications

Item	Description
Power supply voltage	24 VDC ±10%
Current consumption	35 mA or less
Indicator lamp	Green LED ON when power applied
Analog input	1 to 5 V (LSHM Series output voltage)
Input connector	M8 connector 4-pin (socket)
Output connector	M12 connector 4-pin (plug)
nonlinearity	±0.5% F.S. or less (ambient temperature 25°C, LSHM Series connection, CKD provided measuring method)
Insulation resistance	20 MΩ and over with 500 VDC megger
Withstand voltage	No failure after 1 minute of 1,000 VAC application
Shock resistance	294m/s ²
Degree of protection	IEC Standards IP40
Ambient temperature, humidity	10 to 60°C, 85% RH or less
Mounting method	Direct mounting
Vibration resistance	10 Hz-55Hz compound amplitude 1.5mm, X, Y, Z, 2 hours each in each direction
Weight	70g

Dimensions

