
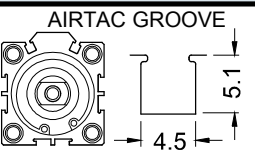

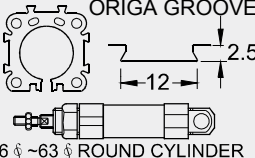
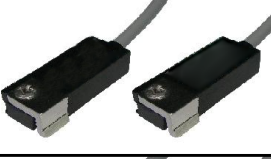
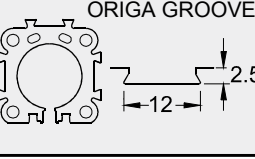

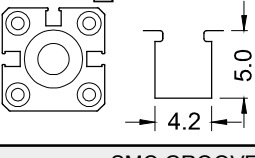

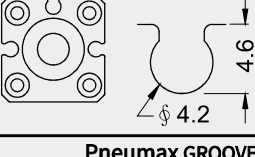
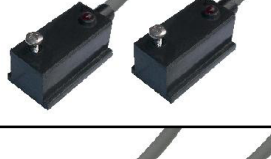
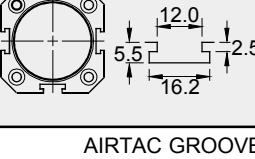
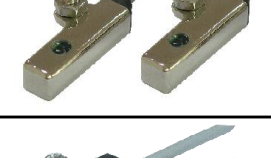
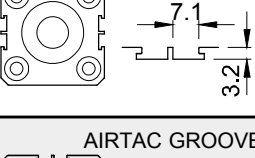
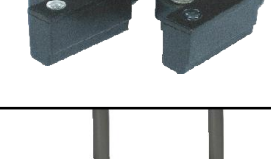

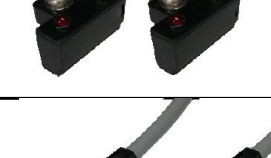
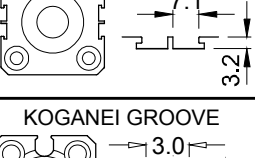
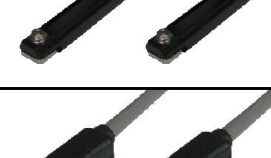
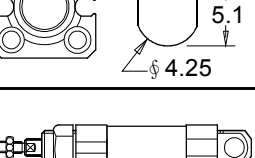
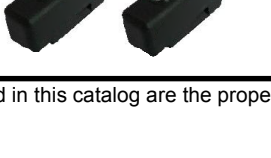
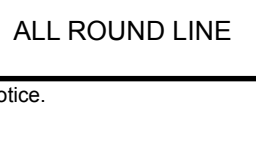



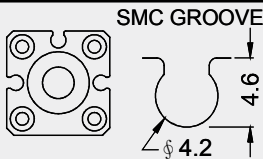

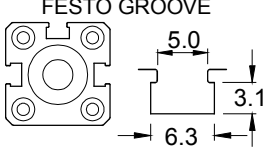

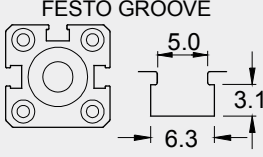

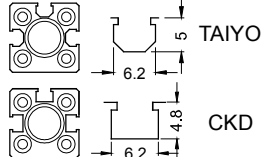

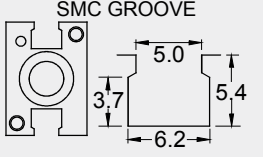

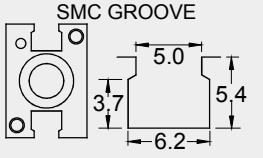

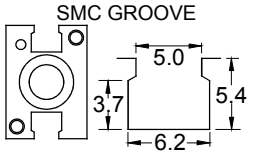
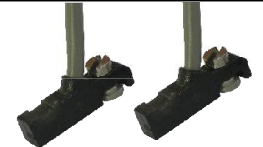
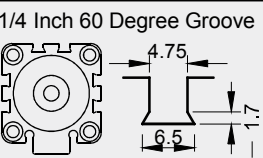

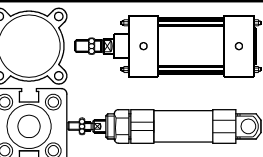
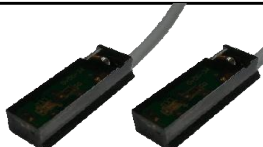
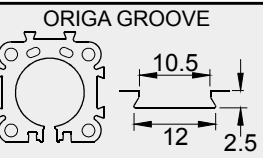

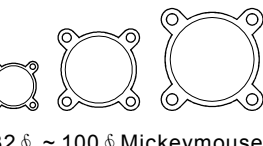



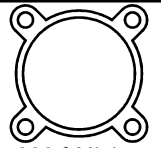


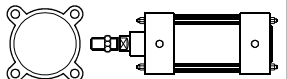

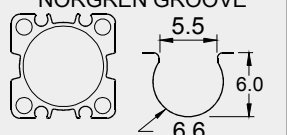

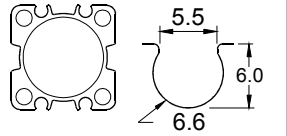

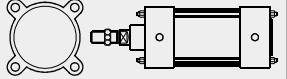

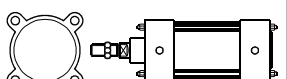

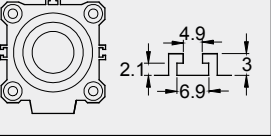

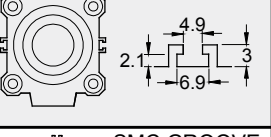

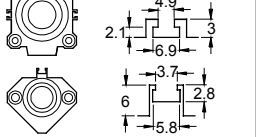
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MODEL	STYLES	TYPE	VOLTAGE RANGE	OUTPUT RATING	APPLICABLE CYLINDER
HL - 01R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 AIRTAC GROOVE 4.5, 5.1
HL - 01DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 01N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 01P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 03R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 ORIGA GROOVE 12, 2.5 6 ϕ ~63 ϕ ROUND CYLINDER
HL - 03DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 03N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 03S		SOLID STATE NPNPNP / N.O.		200mA MAX.	
HL - 05R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 ORIGA GROOVE 12, 2.5
HL - 05DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 05N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 05S		SOLID STATE NPNPNP / N.O.		200mA MAX.	
HL - 06R		REED SWITCH / N.O.	5~120V DC/AC	10W / 100mA MAX.	 4x4 GROOVE 4.2, 5.0
HL - 06DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 06N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W / 200mA MAX.	
HL - 06S		SOLID STATE NPNPNP / N.O.		3.5W / 100mA MAX.	
HL - 07R		REED SWITCH / N.O.	5~120V DC/AC	10W / 100mA MAX.	 SMC GROOVE 4.6, ϕ 4.2
HL - 07DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 07N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W / 200mA MAX.	
HL - 07S		SOLID STATE NPNPNP / N.O.		3.5W / 100mA MAX.	
HL - 08R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 Pneumax GROOVE 12.0, 16.2, 2.5, 5.5
HL - 08DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 08N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 08P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 09R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 AIRTAC GROOVE 7.1, 3.2
HL - 09DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 09N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 09S		SOLID STATE NPNPNP / N.O.		200mA MAX.	
HL - 10R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 AIRTAC GROOVE 7.1, 3.2
HL - 10DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 10N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 10S		SOLID STATE NPNPNP / N.O.		200mA MAX.	
HL - 11R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 AIRTAC GROOVE 7.1, 3.2
HL - 11DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 11N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 11S		SOLID STATE NPNPNP / N.O.		200mA MAX.	
HL - 12R		REED SWITCH / N.O.	5~120V DC/AC	10W / 100mA MAX.	 KOGANEI GROOVE 3.0, 5.1, ϕ 4.25
HL - 12DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 12N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 12P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 13R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 ALL ROUND LINE
HL - 13DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 13N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 13S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	

MODEL	STYLES	TYPE	VOLTAGE RANGE	OUTPUT RATING	APPLICABLE CYLINDER
HL - 14R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	AIRTAC GROOVE 
HL - 14DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 14N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 14P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 15R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	ORIGA GROOVE  6 \$ ~63 \$ ROUND CYLINDER
HL - 15DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 15N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 15S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 17R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 32 \$ ~125 \$ TIE-ROD
HL - 17DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 17N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 17S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 18R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 32 \$ ~125 \$ TIE-ROD
HL - 18DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 18N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 18S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 19R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 32 \$ ~125 \$ TIE-ROD
HL - 19DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 19N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 19S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 20R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 Mickeymouse, TIE-ROD, ROUND LINE
HL - 20DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 20N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 20S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 21R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 Mickeymouse, TIE-ROD, ROUND LINE
HL - 21DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 21N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 21S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 22DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	AIRTAC GROOVE 
HL - 22DF		2 WIRE SOLID STATE / N.O.			
HL - 22N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 22P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 25R		REED SWITCH / N.O.	5~120V DC/AC	3.5W / 100mA MAX.	JRT GROOVE 
HL - 25DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 25N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 25P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 26R		REED SWITCH / N.O.	5~120V DC/AC	3.5W / 100mA MAX.	SMC GROOVE 
HL - 26DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 26N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W / 200mA MAX.	
HL - 26S		SOLID STATE NPN/PNP / N.O.		3.5W / 100mA MAX.	
HL - 28R		REED SWITCH / N.O.	5~120V DC/AC	3.5W / 100mA MAX.	
HL - 28DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 28N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W / 200mA MAX.	
HL - 28S		SOLID STATE NPN/PNP / N.O.		3.5W / 100mA MAX.	

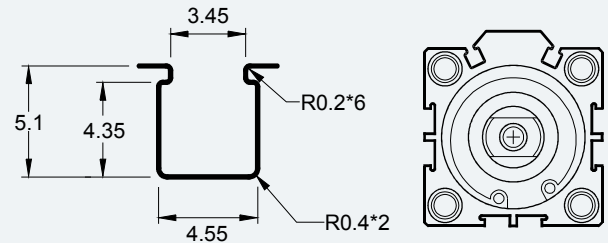
MODEL	STYLES	TYPE	VOLTAGE RANGE	OUTPUT RATING	APPLICABLE CYLINDER
HL - 29DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	 SMC GROOVE 4.6 4.2
HL - 29DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 29N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 29P		SOLID STATE PNP / N.O.			
HL - 30R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 FESTO GROOVE 5.0 3.1 6.3
HL - 30DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 30N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 30S		SOLID STATE NPN/PNP / N.O.			
HL - 31R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 FESTO GROOVE 5.0 3.1 6.3
HL - 31DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 31N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 31S		SOLID STATE NPN/PNP / N.O.			
HL - 32R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 TAIYO 5 6.2 4.3 6.2 CKD
HL - 32DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 32N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 32P		SOLID STATE PNP / N.O.			
HL - 33R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 SMC GROOVE 5.0 3.7 5.4 6.2
HL - 33DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 33N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 33S		SOLID STATE NPN/PNP / N.O.			
HL - 35R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 SMC GROOVE 5.0 3.7 5.4 6.2
HL - 35DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 35N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 35S		SOLID STATE NPN/PNP / N.O.			
HL - 36R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 SMC GROOVE 5.0 3.7 5.4 6.2
HL - 36DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 36N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 36S		SOLID STATE NPN/PNP / N.O.			
HL - 38R		REED SWITCH / N.O.	5~120V DC/AC	3.5W / 100mA MAX.	 1/4 Inch 60 Degree Groove 4.75 6.5 1.1
HL - 38DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 38N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 38P		SOLID STATE PNP / N.O.			
HL - 39R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 ORIGA GROOVE 10.5 12 2.5
HL - 39DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 39N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W / 200mA MAX. 3.5W / 100mA MAX.	
HL - 39S		SOLID STATE NPN/PNP / N.O.			
HL - 40R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 ORIGA GROOVE 10.5 12 2.5
HL - 40DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 40N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 40P		SOLID STATE PNP / N.O.			
HL - 41~44R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 32 ~ 100 Mickeymouse
HL - 41~44DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL41~44N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX. 200mA MAX.	
HL - 41~44S		SOLID STATE NPN/PNP / N.O.			

MODEL	STYLES	TYPE	VOLTAGE RANGE	OUTPUT RATING	APPLICABLE CYLINDER
HL - 45~47R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 125 ⌀ ~ 200 ⌀ Mickeymouse
HL - 45~47DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL45~47N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 45~47S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 48R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 SGC CYLINDER BIG SIZE TIE-ROD CYLINDER
HL - 48DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 48N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 48S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 49R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 NORGREN GROOVE
HL - 49DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 49N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 49S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 50R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 NORGREN GROOVE 5.5 6.0 6.6
HL - 50DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 50N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 50S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 51R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 NORGREN GROOVE 5.5 6.0 6.6
HL - 51DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 51N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 51P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 59DF		2 WIRE SOLID STATE / N.O.	10 ~ 28V DC	1.4W / 50mA MAX.	 NORGREN GROOVE
HL - 59N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 59S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 69AM		STRONG MAGNETIC NO POLARITY 2 WIRE SOLID STATE / N.O.	10~30V DC	10W / 100mA MAX. 1.4W / 50mA MAX. 6W MAX. 200mA MAX.	 NORGREN GROOVE
HL - 70R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 SMC GROOVE 4.9 2.1 6.9 3
HL - 70DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 70N		SOLID STATE NPN / N.O.	5 ~ 30V DC	6W MAX.	
HL - 70P		SOLID STATE PNP / N.O.		200mA MAX.	
HL - 71R		REED SWITCH / N.O.	5~240V DC/AC	10W / 100mA MAX.	 SMC GROOVE 4.9 2.1 6.9 3
HL - 71DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 71N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 71S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	
HL - 72R		REED SWITCH / N.O.	5~120V DC/AC	3.5W / 100mA MAX.	 SMC GROOVE 4.9 2.1 6.9 3 3.7 2.8 6 5.8
HL - 72DF		2 WIRE SOLID STATE / N.O.	10~28V DC	1.4W / 50mA MAX.	
HL - 72N(P)		SOLID STATE NPN(PNP) / N.O.	5 ~ 30V DC	6W MAX.	
HL - 72S		SOLID STATE NPN/PNP / N.O.		200mA MAX.	

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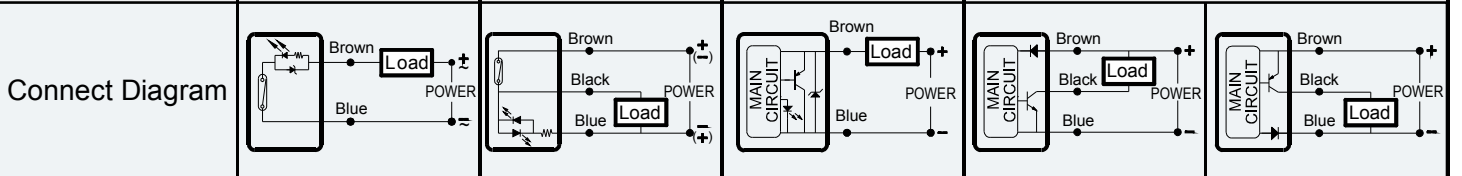


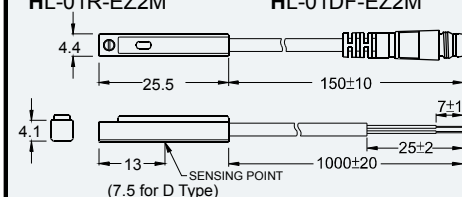
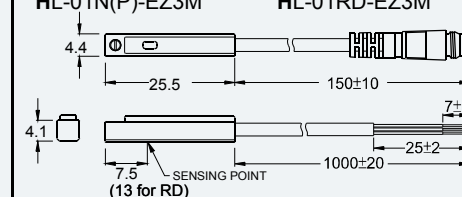
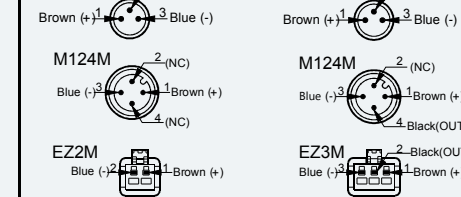

GROOVE DIMENSION (AirTAC)
HL-01 Series can be replaced by HL-14 Series



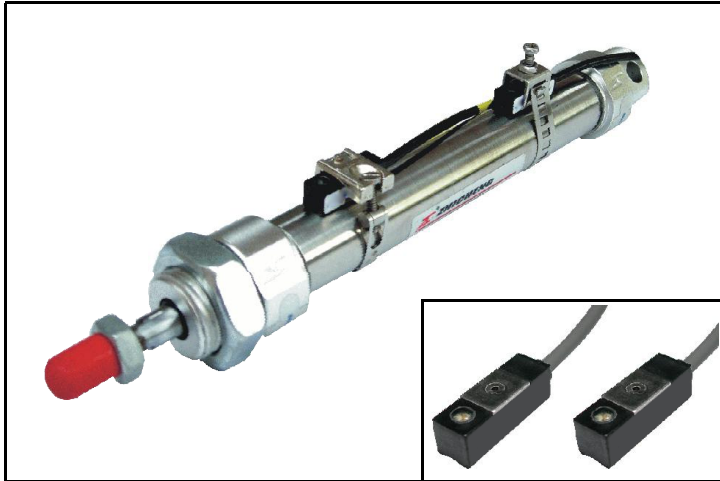
SPECIFICATION

TYPE	HL - 01R	HL - 01RD	HL - 01DF	HL - 01N	HL - 01P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	50 ~ 60 Gauss	50 ~ 60 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnC1ICT6)	CNEx11.2189X(ExnC1ICT6)	CNEx11.1436(ExI1IBT6)	CNEx11. 1323 (ExI1IBT6)	



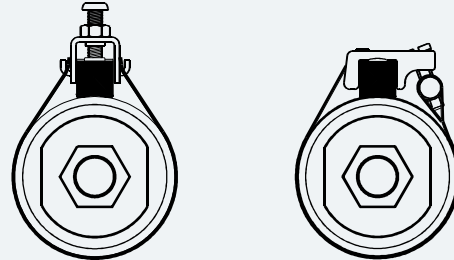
HL-01R HL-01R-QD8 HL-01R-QD12 HL-01R-EZ2M	HL-01DF HL-01DF-QD8 HL-01DF-QD12 HL-01DF-EZ2M	HL-01N(P) HL-01N(P)-QD8 HL-01N(P)-QD12 HL-01N(P)-EZ3M	HL-01RD HL-01RD-QD8 HL-01RD-QD12 HL-01RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M Brown (+) 1, Blue (-) 3 M124M Blue (-) 3, Brown (+) 1, 2 (NC), 4 (NC) EZ2M Blue (-) 2, Brown (+) 1	3 wire QD wiring M83M Brown (+) 1, Blue (-) 3, Black(OUT) 4 M124M Blue (-) 3, Brown (+) 1, 2 (NC), 4 Black(OUT) EZ3M Blue (-) 3, Brown (+) 1, Black(OUT) 2
					

- NOTE: 1. The max. operating voltage of HL-01R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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 6. We reserve the right to make changes without notice.



HL-03 Series can be replaced by HL-13 Series

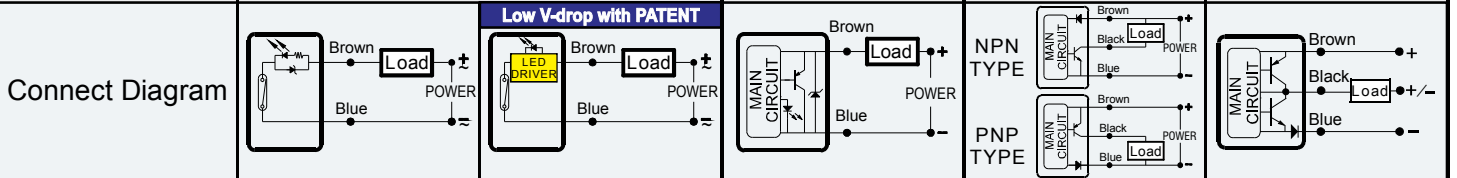
MOUNTING CLAMP & BRACKET
PBK CLAMP PBO CLAMP



Apply to: 6 φ to 63 φ round cylinder

SPECIFICATION

TYPE	HL - 03R	HL - 03RV	HL - 03DF	HL - 03N(P)	HL - 03S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 φ, 2C, Grey Oil Resistat PVC		2.9 φ, 2C, Black Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

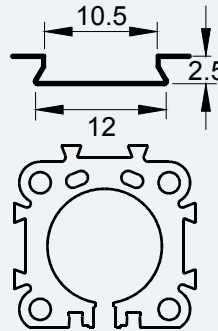


HL-03R(RV) HL-03R(RV)-QD8 HL-03R(RV)-QD12 HL-03R(RV)-EZ2M	HL-03DF HL-03DF-QD8 HL-03DF-QD12 HL-03DF-EZ2M	HL-03N(P) HL-03N(P)-QD8 HL-03N(P)-QD12 HL-03N(P)-EZ3M	HL-03RD HL-03RD-QD8 HL-03RD-QD12 HL-03RD-EZ2M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M Brown (+) 1, Blue (-) 3 M124M Blue (-) 3, Brown (+) 1, 2 (NC), 4 (NC) EZ2M Blue (-) 2, Brown (+) 1	3 wire QD wiring M83M Brown (+) 1, Blue (-) 3, Black(OUT) 4 M124M Blue (-) 3, Brown (+) 1, 2 (NC), Black(OUT) 4 EZ3M Blue (-) 3, Brown (+) 1, Black(OUT) 2

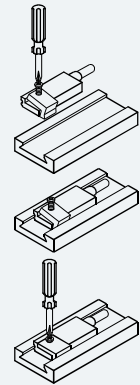
- NOTE: 1. The max. operating voltage of HL-03R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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GROOVE DIMENSION (ORIGA)



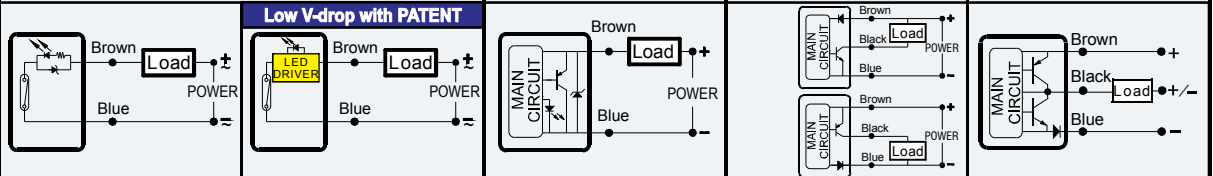
INSTALLATION



SPECIFICATION

TYPE	HL - 05R	HL - 05RV	HL - 05DF	HL - 05N(P)	HL - 05S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking(PNP Current Sourcing)	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC		2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY (NOTE 2)	35 ~ 45 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

Connect Diagram



HL-05R(RV)
HL-05R(RV)-QD8
HL-05R(RV)-QD12
HL-05R(RV)-EZ2M

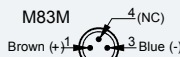
HL-05DF
HL-05DF-QD8
HL-05DF-QD12
HL-05DF-EZ2M

HL-05N(P)
HL-05N(P)-QD8
HL-05N(P)-QD12
HL-05N(P)-EZ3M

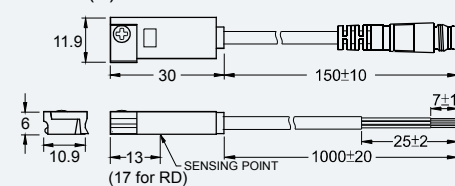
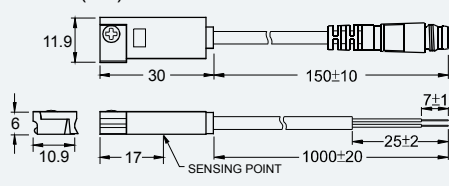
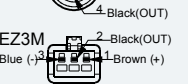
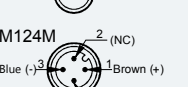
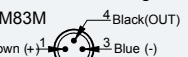
HL-05RD
HL-05RD-QD8
HL-05RD-QD12
HL-05RD-EZ3M

M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101)

2 wire QD wiring



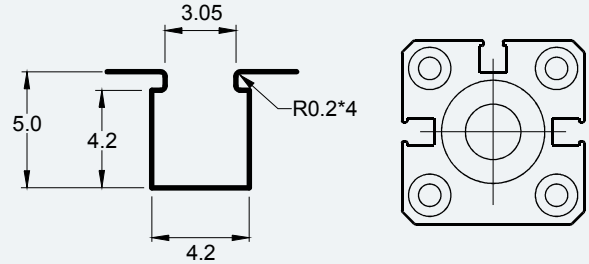
3 wire QD wiring



- NOTE: 1. The max. operating voltage of HL-05R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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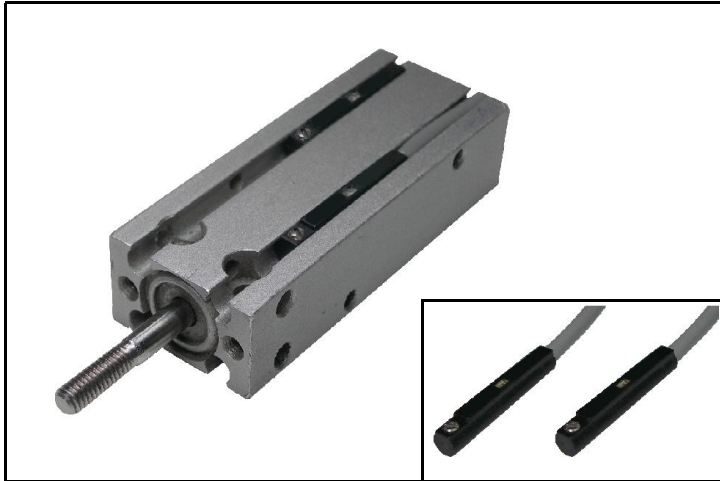
GROOVE DIMENSION (□4x4)



SPECIFICATION

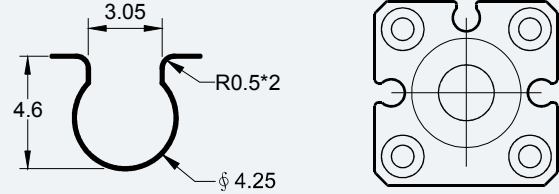
TYPE	HL - 06R	HL - 06RD	HL - 06DF	HL - 06N(P)	HL - 06S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~120V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	100 mA Max.
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	3.5 W Max.
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9φ, 2C, Grey Oil Resistat PVC	2.9φ, 3C, Black Oil Resistat PVC	2.9φ, 2C, Black Oil Resistat PVC	2.9φ, 3C, Black Oil Resistat PVC	
SENSITIVITY	45 ~ 55 Gauss	45 ~ 55 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	1000 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCICT6)	CNEx11.2189X(ExnCICT6)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-06R HL-06R-QD8 HL-06R-QD12 HL-06R-EZ2M	HL-06DF HL-06DF-QD8 HL-06DF-QD12 HL-06DF-EZ2M	HL-06N(P) HL-06N(P)-QD8 HL-06N(P)-QD12 HL-06N(P)-EZ3M	HL-06RD HL-06RD-QD8 HL-06RD-QD12 HL-06RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) 4(NC) EZ2M Blue (-) 2 1 Brown (+)	3 wire QD wiring M83M 4 Black(OUT) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) 4 Black(OUT) EZ3M Blue (-) 2 1 Black(OUT) 1 Brown (+)

- NOTE: 1. The max. operating voltage of HL-06R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



GROOVE DIMENSION (4 ⌀ SMC)

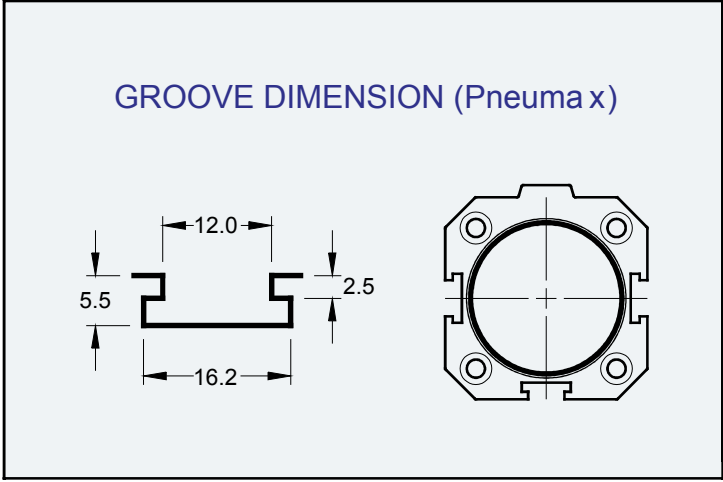
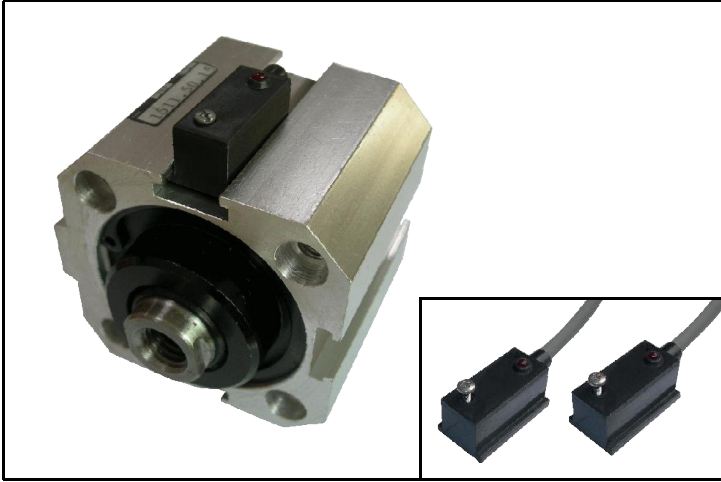
HL-07 Series can be replaced by HL-26 Series



SPECIFICATION

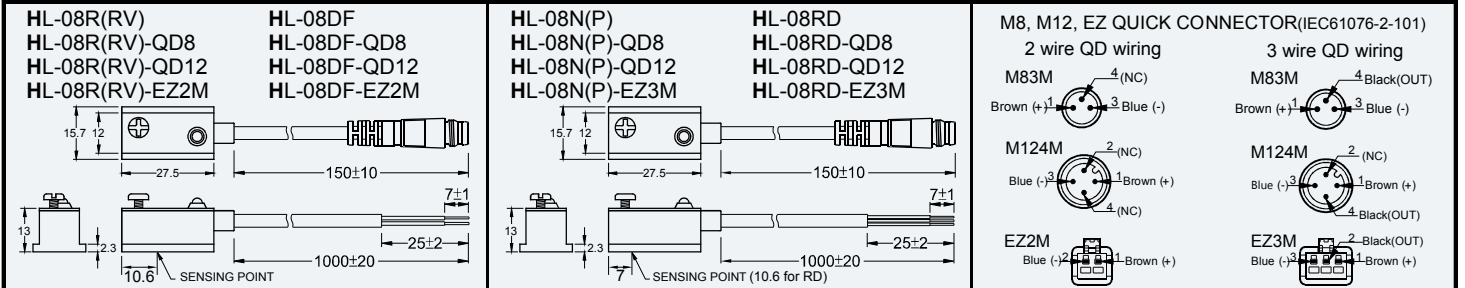
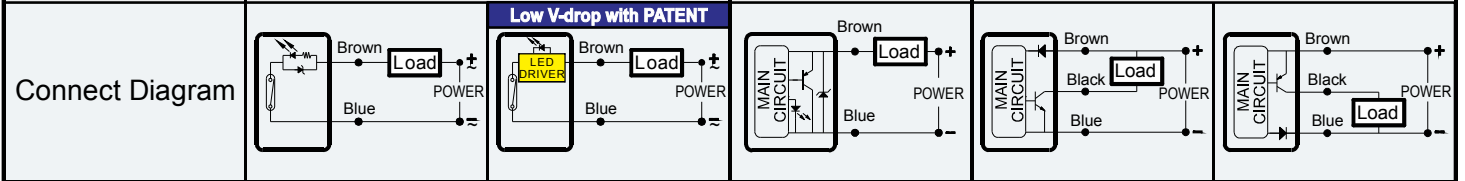
TYPE	HL - 07R	HL - 07RD	HL - 07DF	HL - 07N(P)	HL - 07S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~120V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	100 mA Max.
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	3.5 W Max.
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 ⌀, 2C, Grey Oil Resistat PVC	2.9 ⌀, 3C, Black Oil Resistat PVC	2.9 ⌀, 2C, Black Oil Resistat PVC	2.9 ⌀, 3C, Black Oil Resistat PVC	
SENSITIVITY	45~55 Gauss	45~55 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	1000 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)	CNEx11.2189X(ExnCIICT6)	CNEx11.1436(ExIIIBT6)	CNEx11. 1323 (ExIIIBT6)	Applied
Connect Diagram					
HL-07R HL-07R-QD8 HL-07R-QD12 HL-07R-EZ2M	HL-07DF HL-07DF-QD8 HL-07DF-QD12 HL-07DF-EZ2M	HL-07N(P) HL-07N(P)-QD8 HL-07N(P)-QD12 HL-07N(P)-EZ3M	HL-07RD HL-07RD-QD8 HL-07RD-QD12 HL-07RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M $\begin{matrix} 4(NC) \\ 1 \\ 2 \\ 3 \end{matrix}$ Brown (+) 1 3 Blue (-) M124M $\begin{matrix} 2(NC) \\ 1 \\ 2 \\ 3 \\ 4(NC) \end{matrix}$ Blue (-) 3 1 Brown (+) EZ2M $\begin{matrix} 1 \\ 2 \\ 3 \end{matrix}$ Blue (-) 2 1 Brown (+)	

- NOTE: 1. The max. operating voltage of HL-07R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

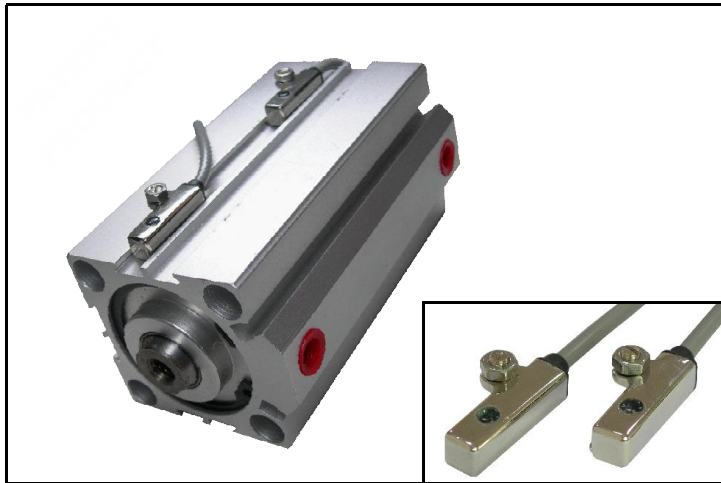


SPECIFICATION

TYPE	HL - 08R	HL - 08RV	HL - 08DF	HL - 08N	HL - 08P
CHARACTERISTIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	500 mA Max.	500 mA Max.	50 mA Max.	500 mA Max.	
SWITCHING RATING	50 W Max.		1.4 W Max.	15 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	1.0V Max. @ 1000mA DC	2.65V Max. @ 50mA DC	1.0 V Max. @ 500 mA DC	
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED	Yellow LED
CABLE	4.0 φ, 2C, OIL RESISTANT PVC		4.0 φ, 2C, OIL RESISTANT PVC	4.0 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression; O/P Short Circuit Protect	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExIIIBT6)	CNEx11. 1323 (ExIIIBT6)	

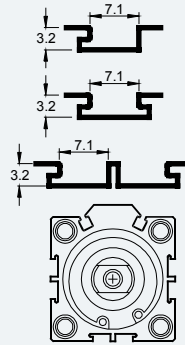


- NOTE: 1. The max. operating voltage of HL-08R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

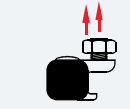


HL-09 Series can replace HL-10, 11 Series

GROOVE DIMENSION



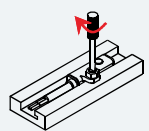
Step 1



Step 2



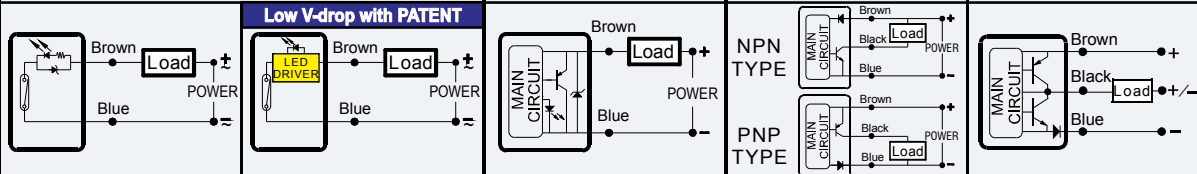
Step 3



SPECIFICATION

TYPE	HL - 09R	HL - 09RV	HL - 09DF	HL - 09N(P)	HL - 09S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	3.3 ϕ, 2C, OIL RESISTANT PVC		3.3 ϕ, 2C, OIL RESISTANT PVC	3 3, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	40 ~ 50 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

Connect Diagram



HL-09R(RV)
HL-09R(RV)-QD8
HL-09R(RV)-QD12
HL-09R(RV)-EZ2M

HL-09DF
HL-09DF-QD8
HL-09DF-QD12
HL-09DF-EZ2M

HL-09N(P)
HL-09N(P)-QD8
HL-09N(P)-QD12
HL-09N(P)-EZ3M

HL-09RD
HL-09RD-QD8
HL-09RD-QD12
HL-09RD-EZ3M

M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101)

2 wire QD wiring

M83M

Brown (+) 1 3 Blue (-)

M124M

Blue (-) 3 1 Brown (+)

EZ2M

Blue (-) 2 1 Brown (+)

3 wire QD wiring

M83M

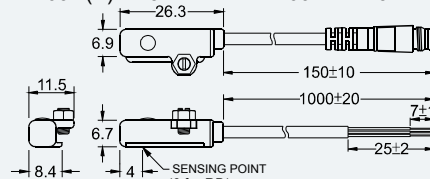
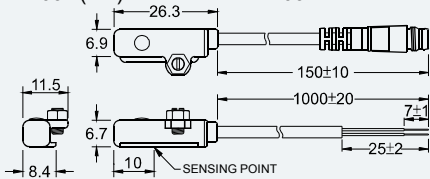
Brown (+) 1 3 Black(OUT) 4 Blue (-)

M124M

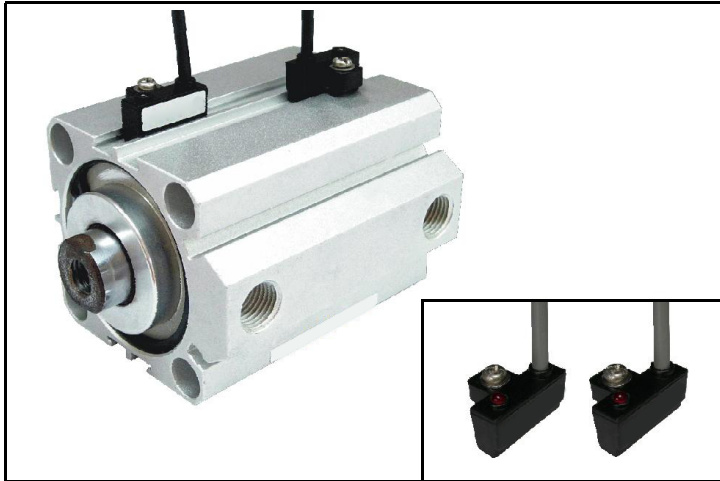
Blue (-) 3 2 (NC) 1 Brown (+)

EZ3M

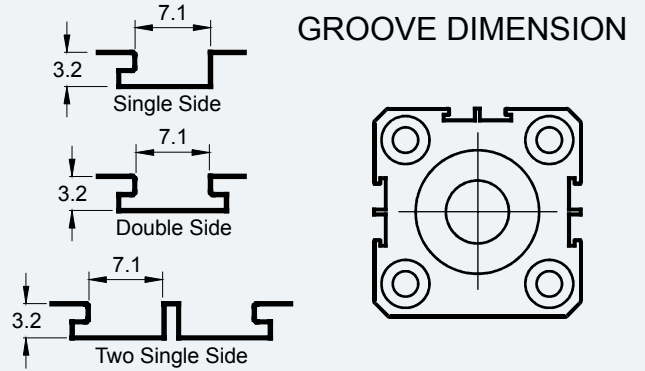
Blue (-) 3 2 Black(OUT) 4 Brown (+)



- The max. operating voltage of HL-09R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
- Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
- Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
- Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
- All trademarks used in this catalog are the property of their respective owners.
- We reserve the right to make changes without notice.

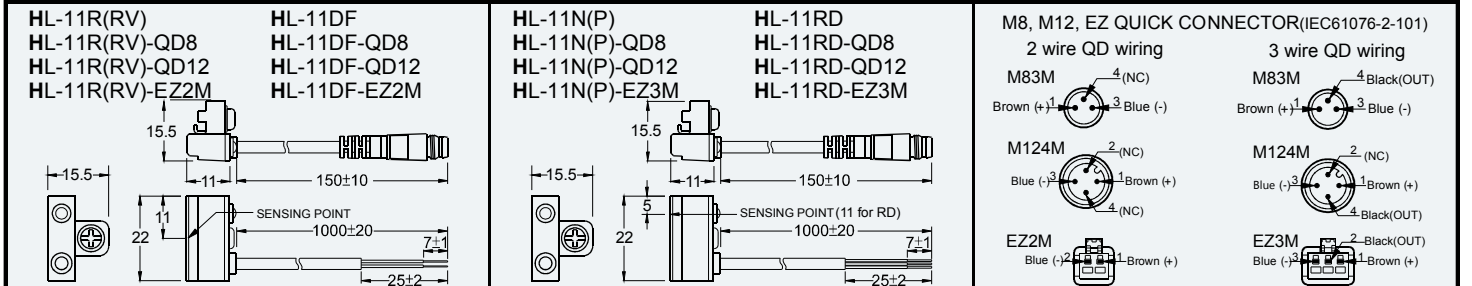
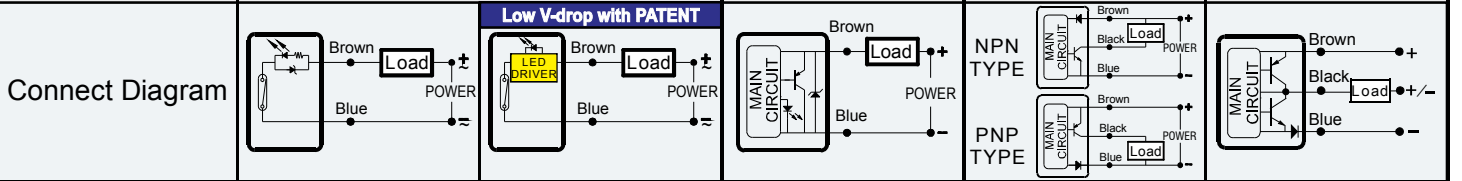


HL-11 Series can be replaced by HL-09 Series

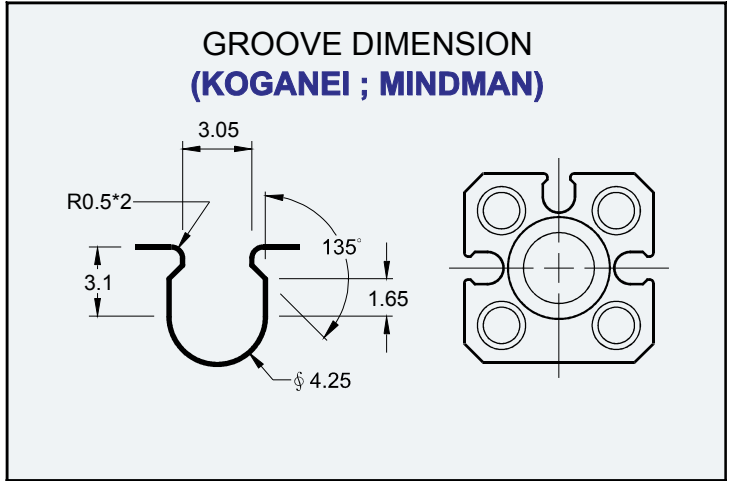


SPECIFICATION

TYPE	HL - 11R	HL - 11RV	HL - 11DF	HL - 11N(P)	HL - 11S
CHARACTERISTIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	3.3 φ, 2C, OIL RESISTANT PVC		3.3 φ, 2C, OIL RESISTANT PVC	3.3 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	40 ~ 50 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

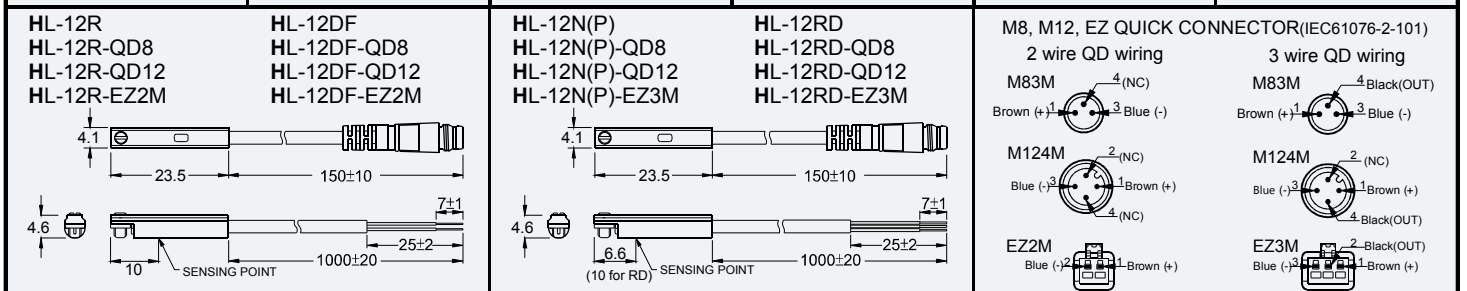
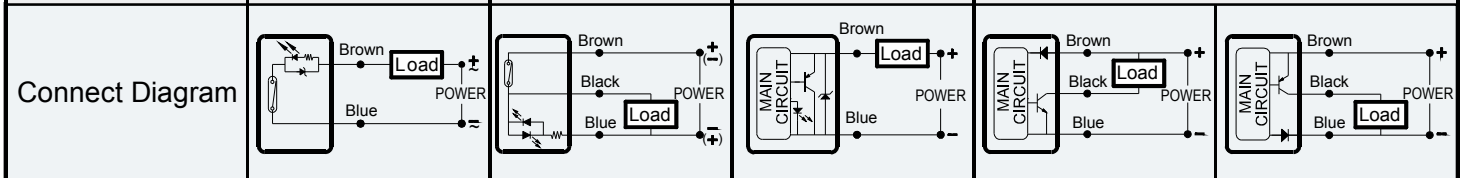


1. The max. operating voltage of HL-11R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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6. We reserve the right to make changes without notice.



SPECIFICATION

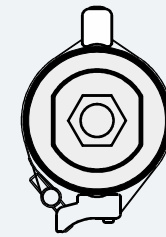
TYPE	HL - 12R	HL - 12RD	HL - 12DF	HL - 12N	HL - 12P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	5~120V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	40 ~ 50 Gauss	40 ~ 50 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	1000 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnC1ICT6)	CNEx11.2189X(ExnC1ICT6)	CNEx11.1436(ExIIIBT6)	CNEx11. 1323 (ExIIIBT6)	



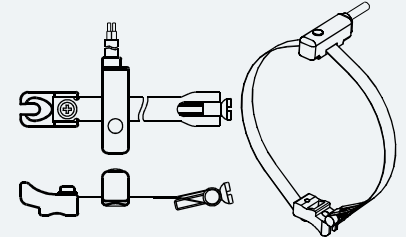
- NOTE: 1. The max. operating voltage of HL-12R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11ms Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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Apply to **ALL** Round Cylinder styles
Band does not cause stress on sensor
HL-13 Series can replace HL-03, 15 Series



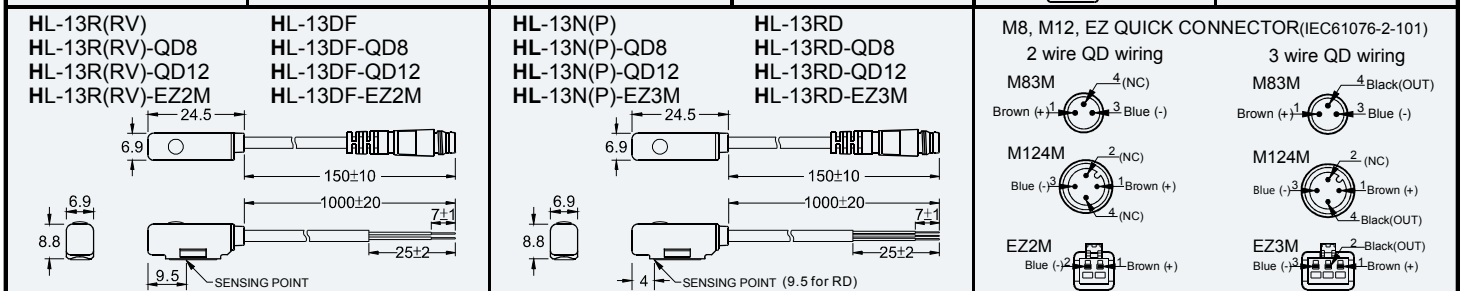
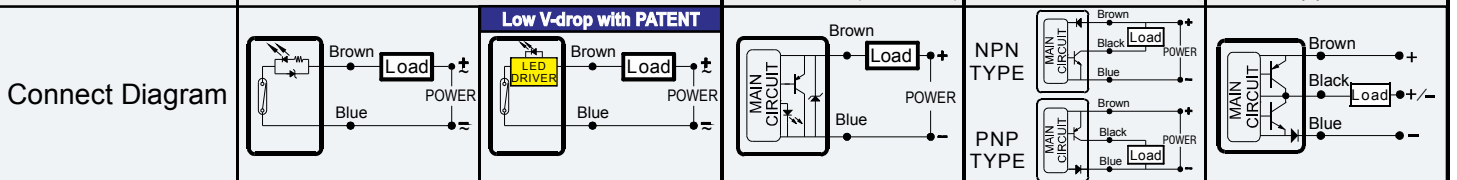
PBG CLAMP



PBJ CLAMP

SPECIFICATION

TYPE	HL - 13R	HL - 13RV	HL - 13DF	HL - 13N(P)	HL - 13S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	3.3 φ, 2C, OIL RESISTANT PVC		3.3 φ, 2C, OIL RESISTANT PVC	3.3 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIIC6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

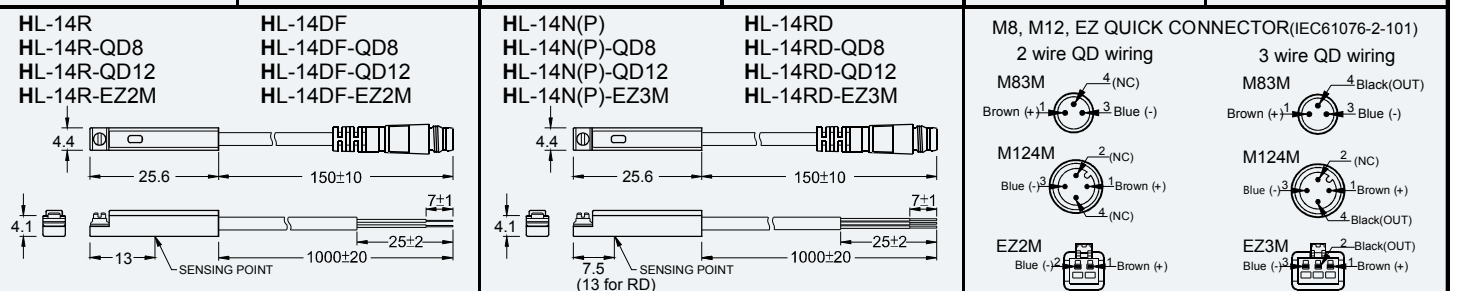
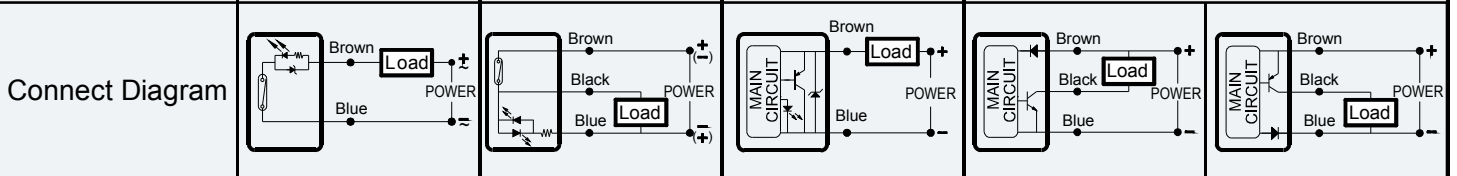


1. The max. operating voltage of HL-13R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
5. All trademarks used in this catalog are the property of their respective owners.
6. We reserve the right to make changes without notice.

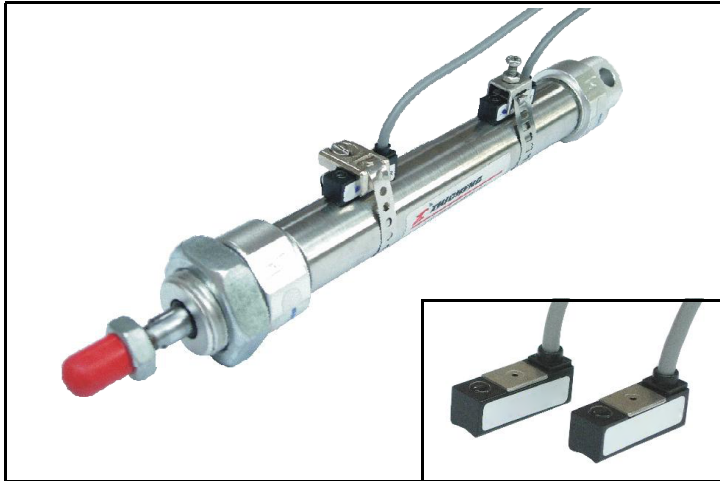


SPECIFICATION

TYPE	HL - 14R	HL - 14RD	HL - 14DF	HL - 14N	HL - 14P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	50 ~ 60 Gauss	50 ~ 60 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)	CNEx11.2189X(ExnCIICT6)	CNEx11.1436(ExIIIBT6)	CNEx11. 1323 (ExIIIBT6)	

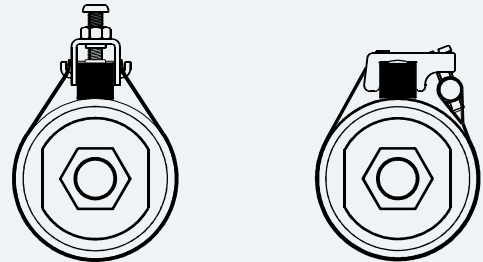


- NOTE: 1. The max. operating voltage of HL-14R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11ms Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



HL-15 Series can be replaced by HL-13 Series

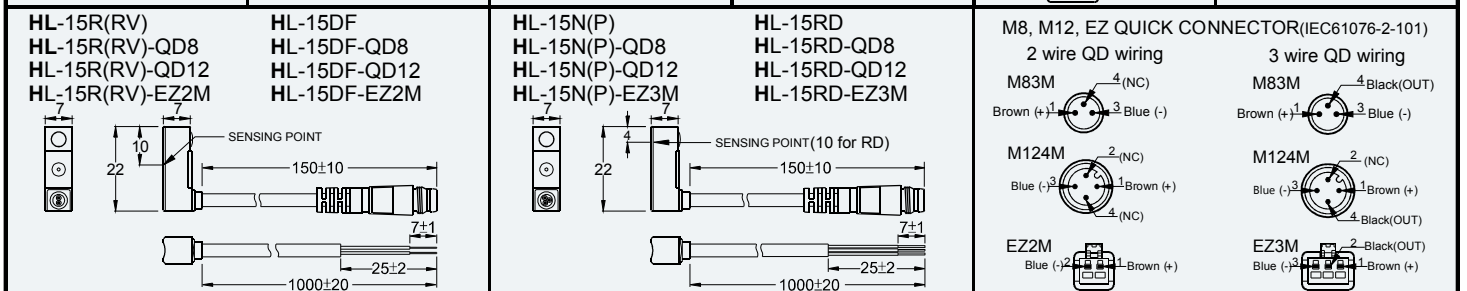
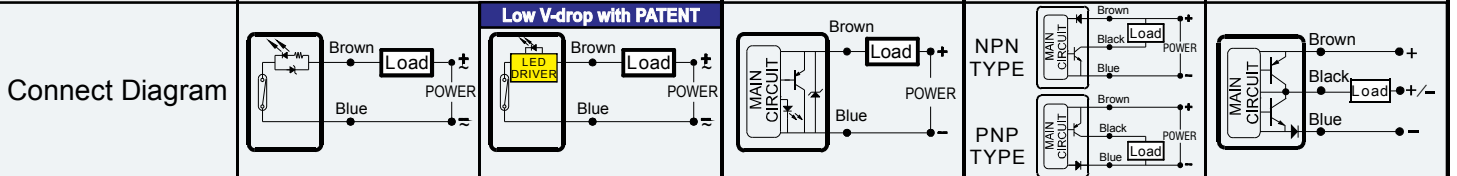
MOUNTING CLAMP & BRACKET
PBK CLAMP PBO CLAMP



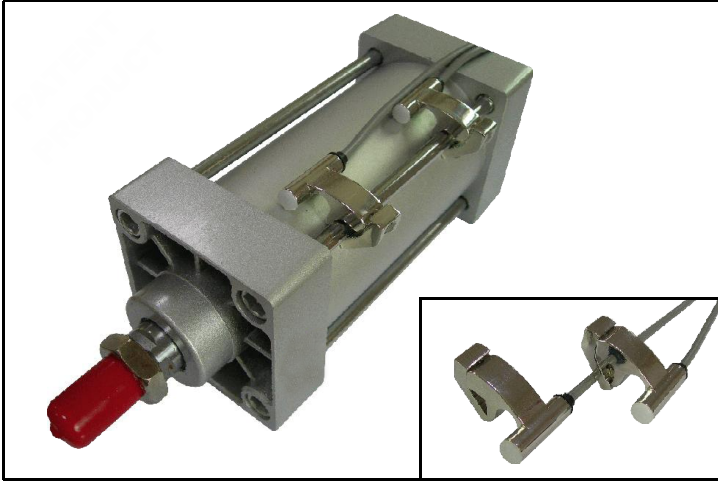
Apply to: 6 φ to 63 φ round cylinder

SPECIFICATION

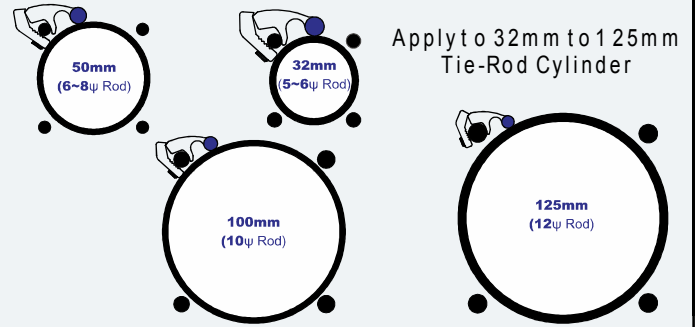
TYPE	HL - 15R	HL - 15RV	HL - 15DF	HL - 15N(P)	HL - 15S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 φ, 2C, Grey Oil Resistat PVC		2.9 φ, 2C, Black Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied



- NOTE: 1. The max. operating voltage of AL-15R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



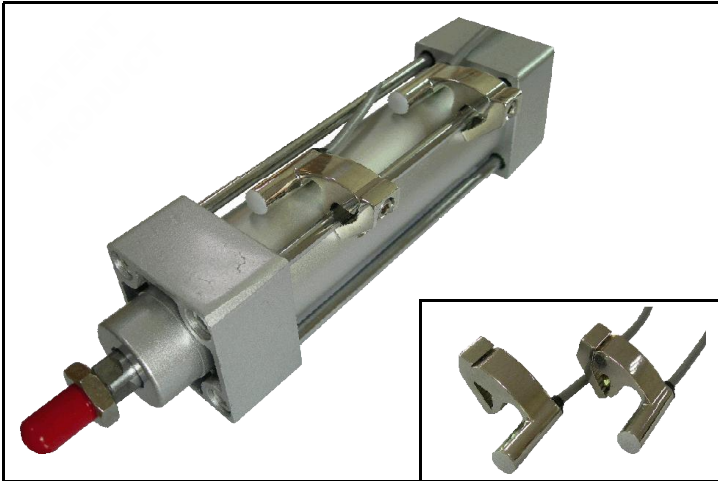
Sensor incorporated into metal bracket assembly for strength and protection
HL-17 Series can replace HL-20, 21 Series



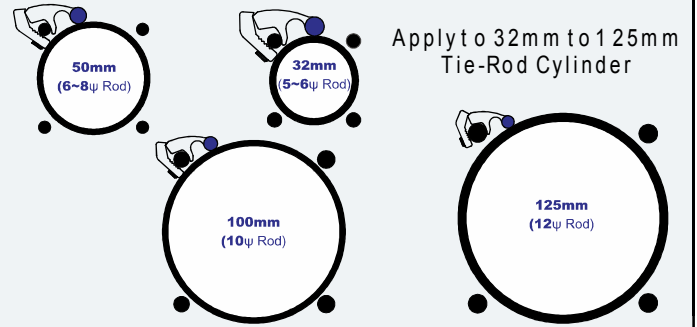
SPECIFICATION

TYPE	HL - 17R	HL - 17RV	HL - 17DF	HL - 17N(P)	HL - 17S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking(PNP Current Sourcing)	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	3.3 φ, 2C, OIL RESISTANT PVC		3.3 φ, 2C, OIL RESISTANT PVC	3.3 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEX11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11.1323 (ExialIBT6)	Applied
Connect Diagram					
HL-17R(RV) HL-17R(RV)-QD8 HL-17R(RV)-QD12 HL-17R(RV)-EZ2M	HL-17DF HL-17DF-QD8 HL-17DF-QD12 HL-17DF-EZ2M	HL-17N(P) HL-17N(P)-QD8 HL-17N(P)-QD12 HL-17N(P)-EZ3M	HL-17RD HL-17RD-QD8 HL-17RD-QD12 HL-17RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M Brown (+) 1, Blue (-) 3 M124M Blue (-) 3, Brown (+) 1, 2 (NC), 4 (NC) EZ2M Blue (-) 2, Brown (+) 1	3 wire QD wiring M83M Brown (+) 1, Black(OUT) 4, Blue (-) 3 M124M Blue (-) 3, Brown (+) 1, 2 (NC), 4 Black(OUT) EZ3M Blue (-) 3, Black(OUT) 2, Brown (+) 1

- The max. operating voltage of HL-17R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
- Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
- Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
- Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
- All trademarks used in this catalog are the property of their respective owners.
- We reserve the right to make changes without notice.

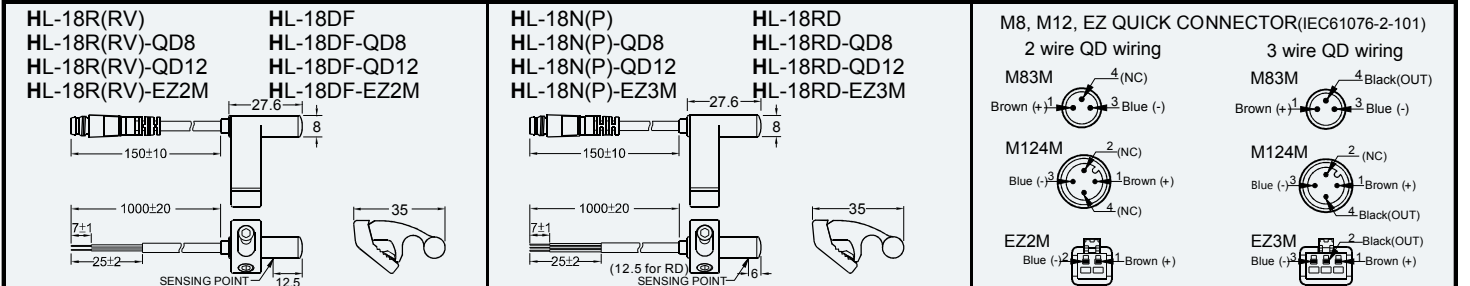
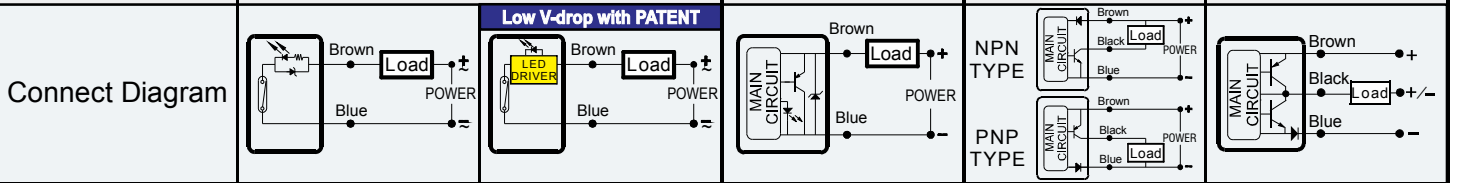


Sensor incorporated in metal bracket assembly for strength and protection
HL-18 Series can replace HL-20, 21 Series

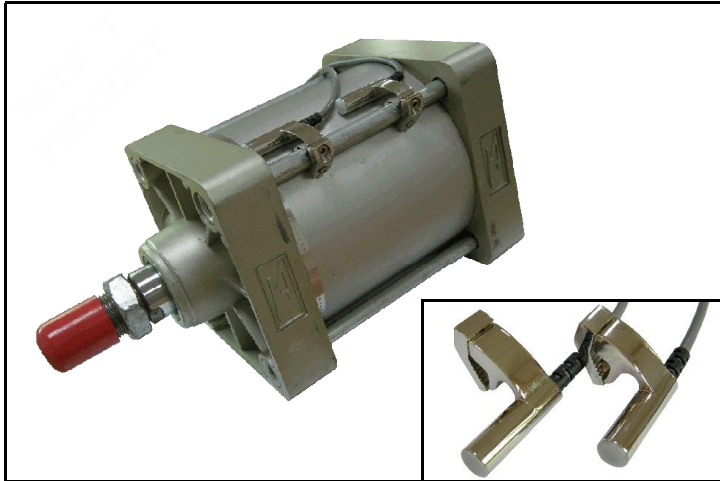


SPECIFICATION

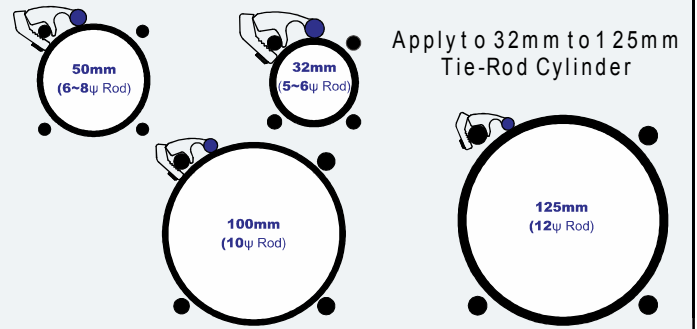
TYPE	HL - 18R	HL - 18RV	HL - 18DF	HL - 18N(P)	HL - 18S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED (Yellow LED)	Red LED
CABLE	3.3 φ, 2C, OIL RESISTANT PVC		3.3 φ, 2C, OIL RESISTANT PVC	3.3 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55~65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11.1323 (ExialIBT6)	Applied



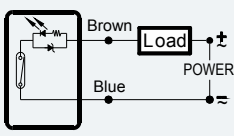
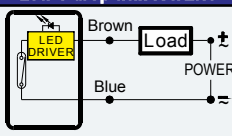
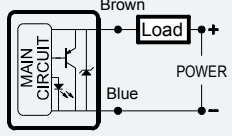
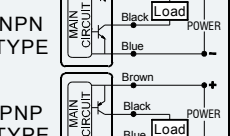
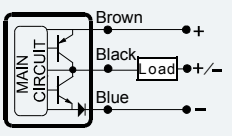
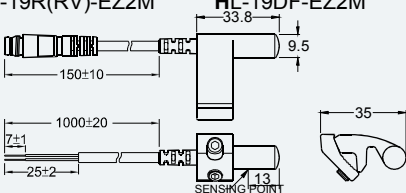
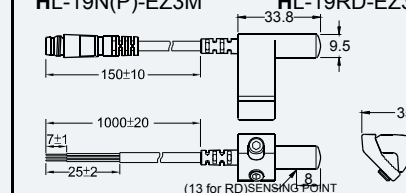
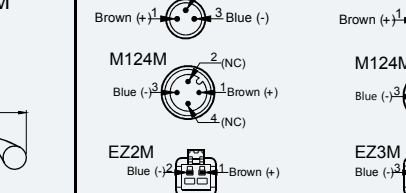
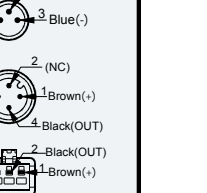
- The max. operating voltage of HL-18R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
- Measuring standard target: 15.5 * 8 * 5t (Anisotropic Plastic Magnet).
- Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
- Double Amplitude 1.5mm / 10Hz~55Hz~10Hz (Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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- We reserve the right to make changes without notice.



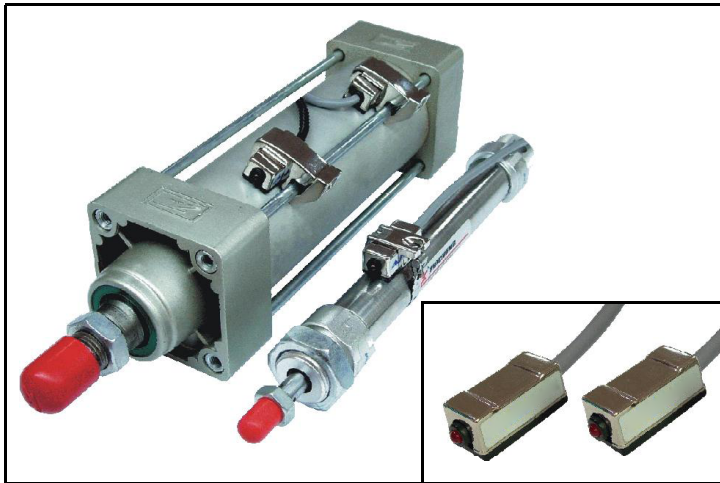
Sensor incorporated into metal bracket assembly for strength and protection
HL-19 Series can replace HL-20, 21 Series



SPECIFICATION

TYPE	HL - 19R	HL - 19RV	HL - 19DF	HL - 19N(P)	HL - 19S
CHARACTERISTIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	1000 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	50 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	1.0V Max. @ 1000mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED (Yellow LED)	Red LED
CABLE	4.0 ϕ, 2C, OIL RESISTANT PVC		4.0 ϕ, 2C, OIL RESISTANT PVC	4.0 ϕ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11.1323 (ExialIBT6)	Applied
Connect Diagram			<p>Low V-drop with PATENT</p> 		<p>NPN TYPE</p>  <p>PNP TYPE</p> 
<p>HL-19R(RV) HL-19R(RV)-QD8 HL-19R(RV)-QD12 HL-19R(RV)-EZ2M</p> 	<p>HL-19DF HL-19DF-QD8 HL-19DF-QD12 HL-19DF-EZ2M</p> 	<p>HL-19N(P) HL-19N(P)-QD8 HL-19N(P)-QD12 HL-19N(P)-EZ3M</p> 	<p>HL-19RD HL-19RD-QD8 HL-19RD-QD12 HL-19RD-EZ3M</p> 	<p>M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101)</p> <p>2 wire QD wiring</p> <p>M83M 4(NC) 3 Blue (-)</p> <p>M124M 2(NC) 1 Brown (+) 3 Blue (-) 4(NC)</p> <p>EZ2M 1 Brown (+) 2 Blue (-)</p> <p>3 wire QD wiring</p> <p>M83M 4 Black(OUT) 3 Blue (-)</p> <p>M124M 2(NC) 1 Brown (+) 3 Blue (-) 4 Black(OUT)</p> <p>EZ3M 2 Black(OUT) 1 Brown (+) 3 Blue (-)</p>	

- NOTE: 1. The max. operating voltage of HL-19R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

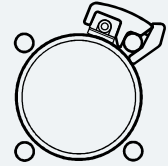


HL-20 Series can be replaced by HL-17 Series

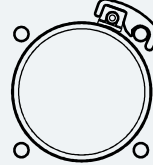
PAB CLAMP



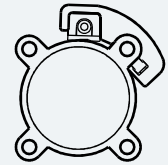
PAC BRACKET



PM BRACKET

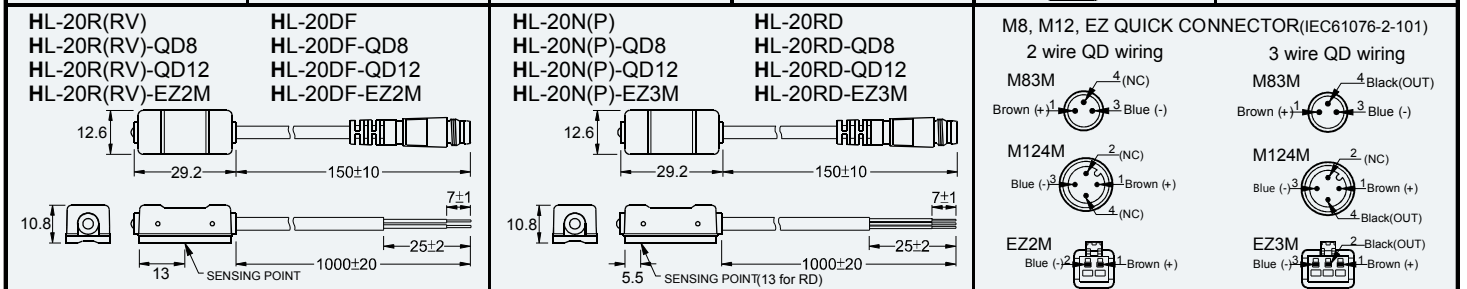
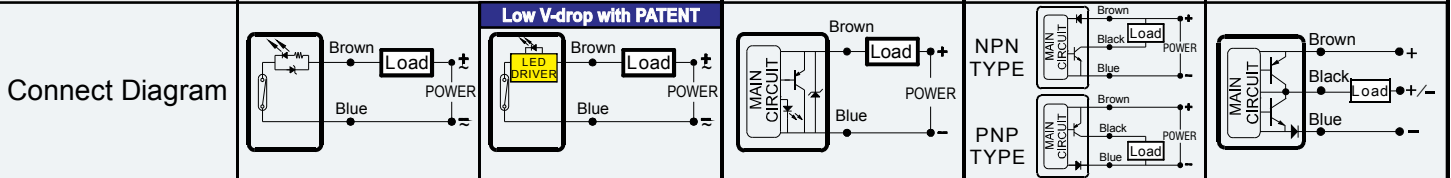


PI BRACKET

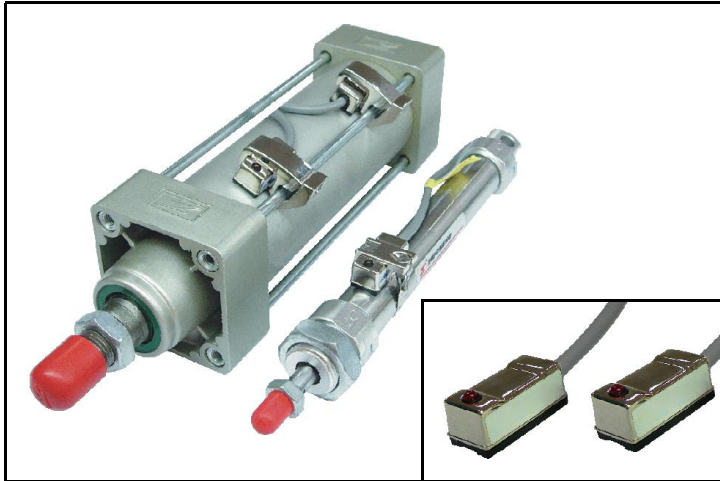


SPECIFICATION

TYPE	HL - 20R	HL - 20RV	HL - 20DF	HL - 20N(P)	HL - 20S
CHARACTERISTIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	4.0 φ, 2C, OIL RESISTANT PVC		4.0 φ, 2C, OIL RESISTANT PVC	4.0 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied



- NOTE: 1. The max. operating voltage of HL-20R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

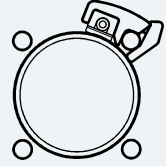


HL-21 Series can be replaced by HL-17 Series

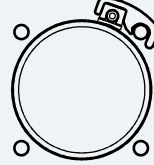
PAB CLAMP



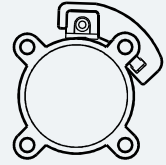
PAC BRACKET



PM BRACKET



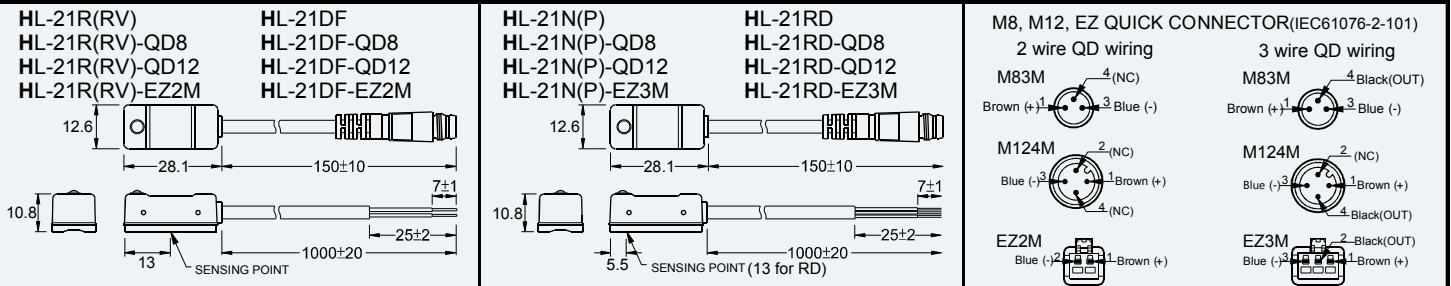
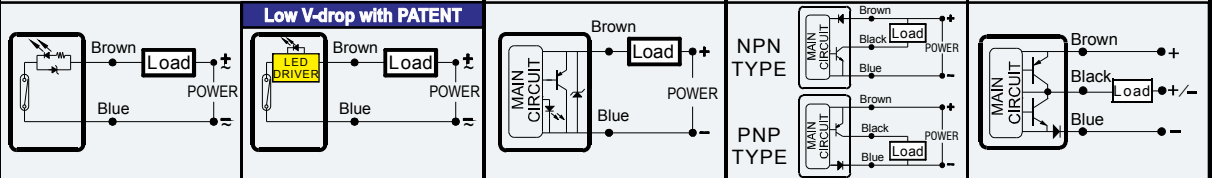
PI BRACKET



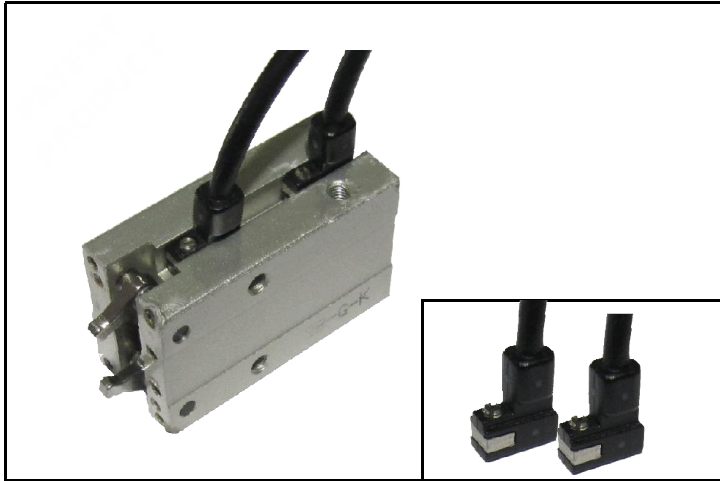
SPECIFICATION

TYPE	HL - 21R	HL - 21RV	HL - 21DF	HL - 21N(P)	HL - 21S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	4.0 ϕ, 2C, OIL RESISTANT PVC		4.0 ϕ, 2C, OIL RESISTANT PVC	4.0 ϕ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

Connect Diagram

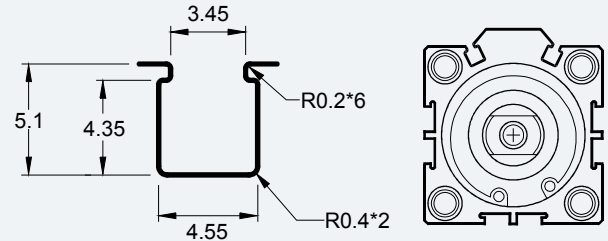


- NOTE: 1. The max. operating voltage of HL-21R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

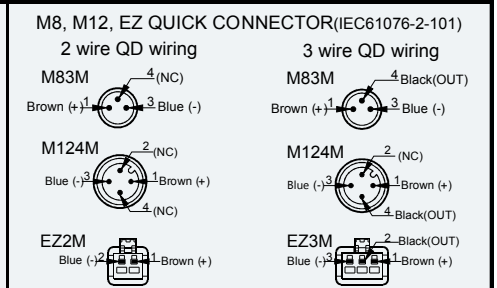
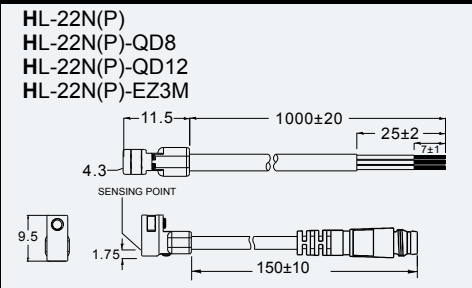
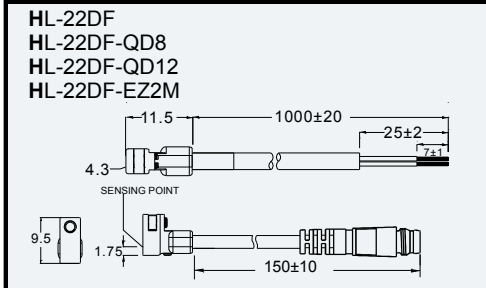
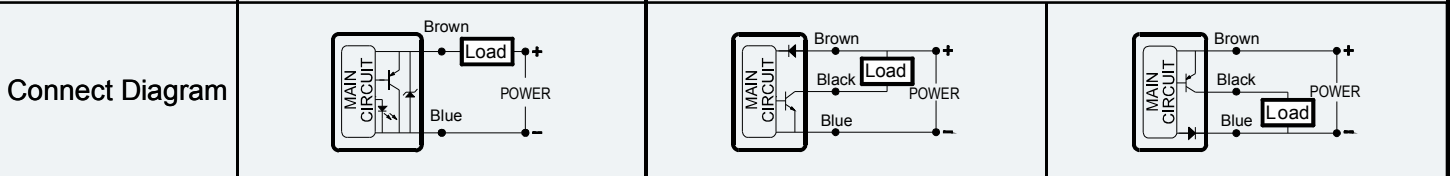


SPECIFICALLY FOR SHORT-STROK CYLINDERS
Strong fixing strength

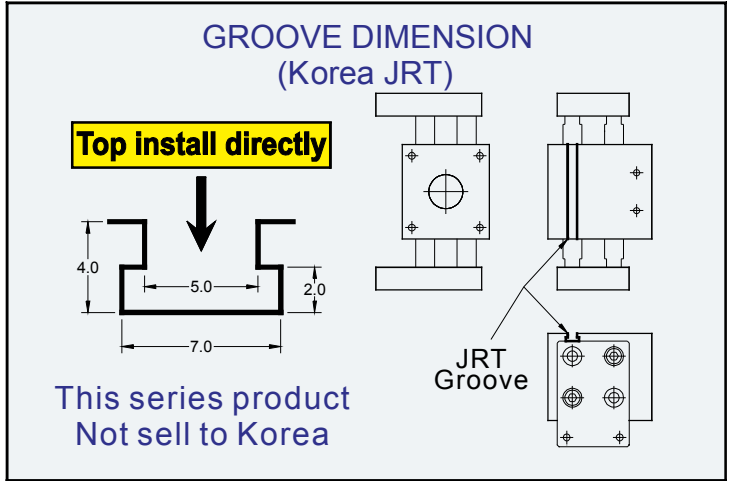
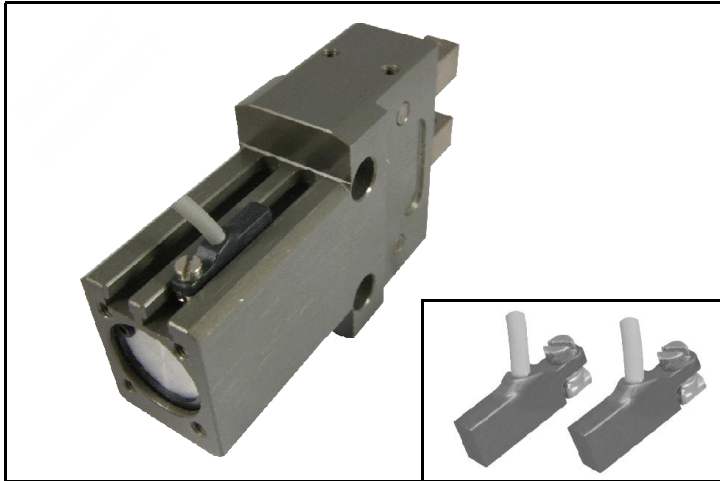
HL-22 Series can replace HL-01 Series



TYPE	HL - 22DF	HL - 22N	HL - 22P
CHARACTERISTIC			
SWITCHING LOGIC	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	10~28V DC	5~30V DC	
SWITCHING CURRENT	50 mA Max.	100 mA Max.	
SWITCHING RATING	1.4 W Max.	3 W Max.	
CURRENT CONSUMPTION	40 μ A Max. @ 24V	14 mA Max. @ 24V	11 mA Max. @ 24V
VOLTAGE DROP	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	90 μ A Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Red LED	Yellow LED
CABLE	2.9 , 2C, OIL RESISTANT PVC	2.9 , 3C, OIL RESISTANT PVC	
SENSITIVITY	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	1000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	50 G	50 G	
VIBRATION	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.			
CNEx Certificate NO.	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	

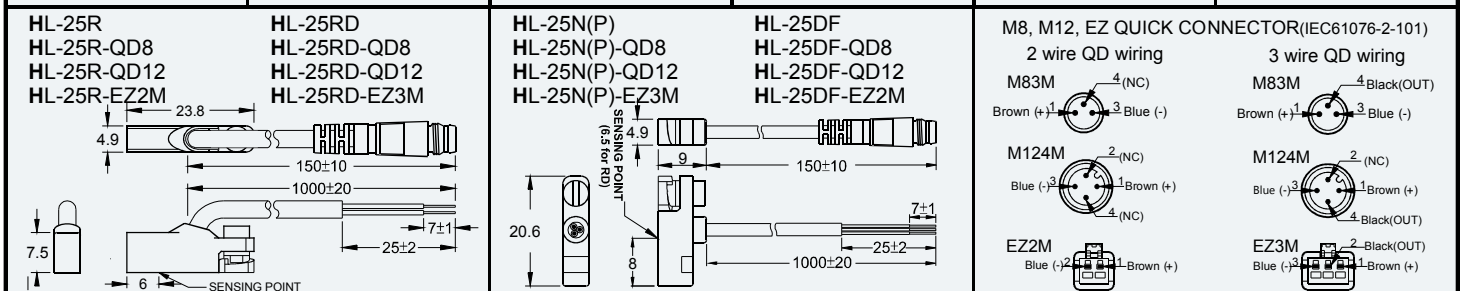
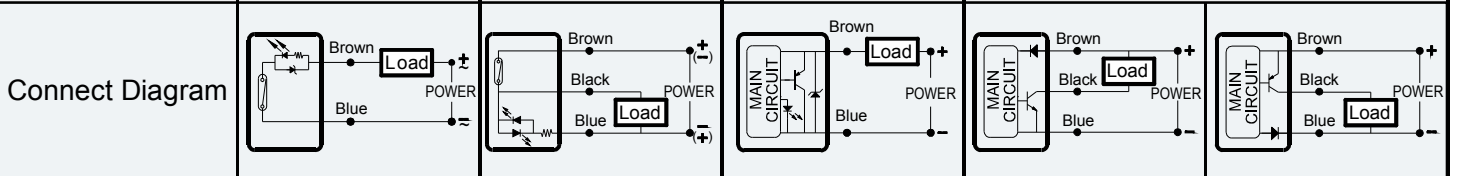


- NOTE: 1. The max. operating voltage of HL-22DF-QD8 is 28V DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

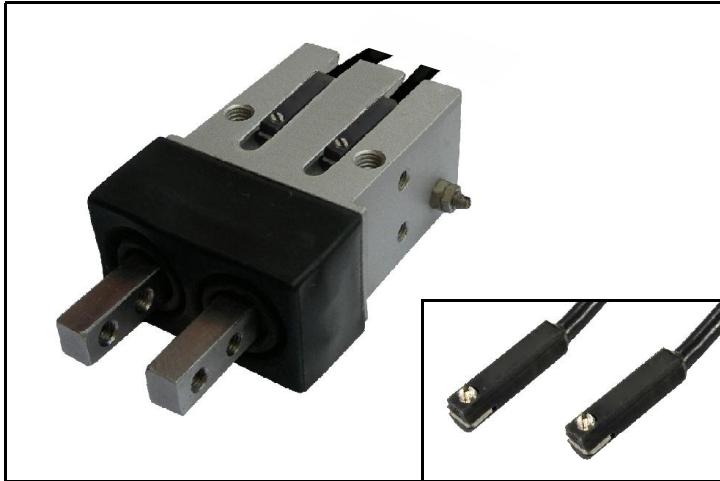


SPECIFICATION

TYPE	HL - 25R	HL - 25RD	HL - 25DF	HL - 25N	HL - 25P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	5~120V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	40 ~ 50 Gauss	40 ~ 50 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	500 Hz	500 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8 04 07 53334 001	No. E8 04 07 53334 001	No. E8N 1104 53334 004	No. E8 04 07 53334 003	No. E8 04 07 53334 002
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx05.1366X(ExnCIICt6)	CNEx05.1366X(ExnCIICt6)	CNEx11.1436(ExialIBT6)	CNEx05. 0842 (ExialIBT6)	



- NOTE: 1. The max. operating voltage of HL-25R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11ms Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

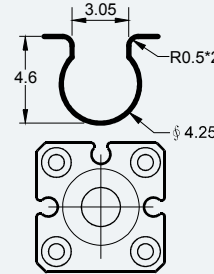


SPECIFICALLY FOR SHORT-STROK CYLINDERS
 Strong fixing strength

HL-26 Series can replace HL-07, 16 Series

GROOVE DIMENSION (SMC)

PC+PBL CLAMP



Apply to 6 φ to 63 φ Round Cylinder

SPECIFICATION

TYPE	HL - 26R	HL - 26RD	HL - 26DF	HL - 26N(P)	HL - 26S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~120V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	300 mA Max.	50 mA Max.	200 mA Max.	100 mA Max.
SWITCHING RATING	3.5 W Max.	3.5 W Max.	1.4 W Max.	6 W Max.	3.5 W Max.
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 300mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 φ, 2C, Grey Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	2.9 φ, 2C, Black Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	
SENSITIVITY	40 ~ 50 Gauss	40 ~ 50 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	1000 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCICT6)	CNEx11.2189X(ExnCICT6)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-26R HL-26R-QD8 HL-26R-QD12 HL-26R-EZ2M	HL-26DF HL-26DF-QD8 HL-26DF-QD12 HL-26DF-EZ2M	HL-26RD HL-26RD-QD8 HL-26RD-QD12 HL-26RD-EZ3M	HL-26N(P) HL-26N(P)-QD8 HL-26N(P)-QD12 HL-26N(P)-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) 4(NC) EZ2M Blue (-) 2 1 Brown (+)	3 wire QD wiring M83M 4 Black(OUT) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) 2 Black(OUT) EZ3M Blue (-) 3 1 Brown (+)

- NOTE: 1. The max. operating voltage of HL-26R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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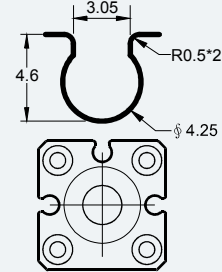
Plastic injection molding. Strong structure



SPECIFICALLY FOR SHORT-STROK CYLINDERS
Strong fixing strength

HL-28 Series can replace HL-07, 16 Series

GROOVE DIMENSION (SMC)



SPECIFICATION

TYPE	HL - 28R	HL - 28RD	HL - 28DF	HL - 28N(P)	HL - 28S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~120V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	300 mA Max.	50 mA Max.	200 mA Max.	100 mA Max.
SWITCHING RATING	3.5 W Max.	3.5 W Max.	1.4 W Max.	6 W Max.	3.5 W Max.
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 300mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	40 ~ 50 Gauss	40 ~ 50 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	1000 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-28R HL-28R-QD8 HL-28R-QD12 HL-28R-EZ2M	HL-28S HL-28S-QD8 HL-28S-QD12 HL-28S-EZ3M	HL-28DF HL-28DF-QD8 HL-28DF-QD12 HL-28DF-EZ2M	HL-28N(P) HL-28N(P)-QD8 HL-28N(P)-QD12 HL-28N(P)-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1, 3 Blue (-) M124M 2(NC) Blue (-) 3, 1 Brown (+) EZ2M Blue (-) 2, 1 Brown (+)	
				3 wire QD wiring M83M 4 Black(OUT) Brown (+) 1, 3 Blue (-) M124M 2(NC) Blue (-) 3, 1 Brown (+) EZ3M 2 Black(OUT) Blue (-) 3, 1 Brown (+)	

- NOTE: 1. The max. operating voltage of HL-28R-QD8 is 60V DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

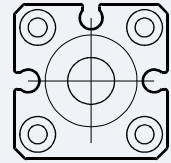
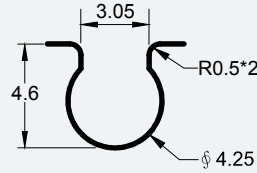
Plastic injection molding. Strong structure



SPECIFICALLY FOR SHORT-STROK CYLINDERS
Strong fixing strength

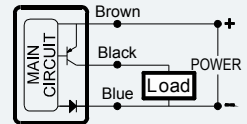
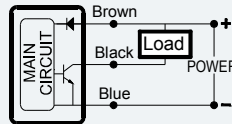
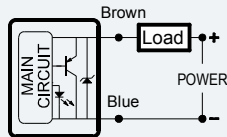
HL-29 Series can replace HL-07, 16 Series

GROOVE DIMENSION (SMC)

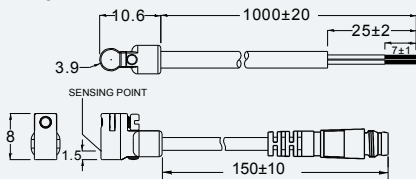


TYPE	HL - 29DF	HL - 29N	HL - 29P
CHARACTERISTIC			
SWITCHING LOGIC	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	10~28V DC	5~30V DC	
SWITCHING CURRENT	50 mA Max.	100 mA Max.	
SWITCHING RATING	1.4 W Max.	3 W Max.	
CURRENT CONSUMPTION	40 μA Max. @ 24V	14 mA Max. @ 24V	11 mA Max. @ 24V
VOLTAGE DROP	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Red LED	Yellow LED
CABLE	2.9 , 2C, OIL RESISTANT PVC	2.9 , 3C, OIL RESISTANT PVC	
SENSITIVITY	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	1000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	50 G	50 G	
VIBRATION	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.			
CNEx Certificate NO.	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	

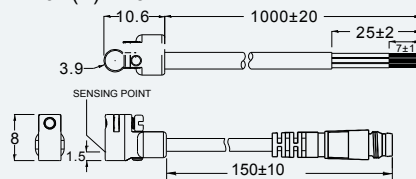
Connect Diagram



HL-29DF
HL-29DF-QD8
HL-29DF-QD12
HL-29DF-EZ2M

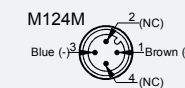
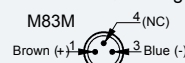


HL-29N(P)
HL-29N(P)-QD8
HL-29N(P)-QD12
HL-29N(P)-EZ3M

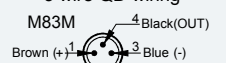


M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101)

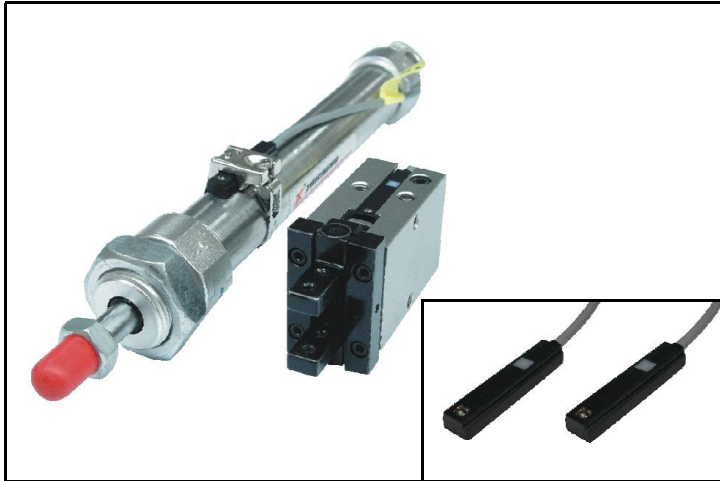
2 wire QD wiring



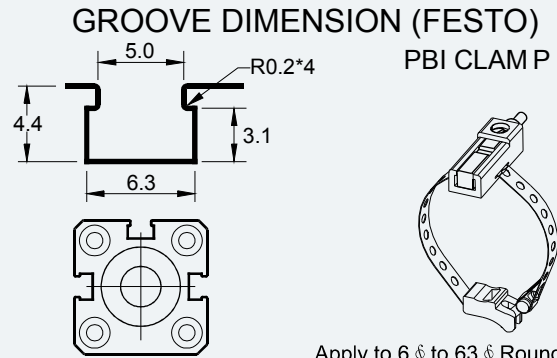
3 wire QD wiring



- NOTE: 1. The max. operating voltage of HL-29DF-QD8 is 28V DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



HL-30 Series can be replaced by HL-39 Series



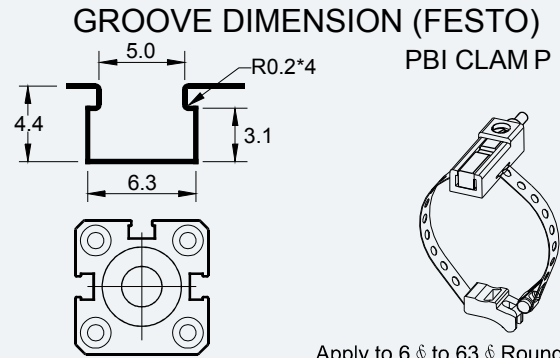
SPECIFICATION

TYPE	HL - 30R	HL - 30RD	HL - 30DF	HL - 30N(P)	HL - 30S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 φ, 2C, Grey Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	2.9 φ, 2C, Black Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	
SENSITIVITY	35 ~ 45 Gauss	35 ~ 45 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)	CNEx11.2189X(ExnCIICT6)	CNEx11.1436(ExIIIBT6)	CNEx11. 1323 (ExIIIBT6)	Applied
Connect Diagram					
HL-30R HL-30R-QD8 HL-30R-QD12 HL-30R-EZ2M	HL-30DF HL-30DF-QD8 HL-30DF-QD12 HL-30DF-EZ2M	HL-30N(P) HL-30N(P)-QD8 HL-30N(P)-QD12 HL-30N(P)-EZ3M	HL-30RD HL-30RD-QD8 HL-30RD-QD12 HL-30RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) EZ2M Blue (-) 2 1 Brown (+)	

- NOTE: 1. The max. operating voltage of HL-30R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



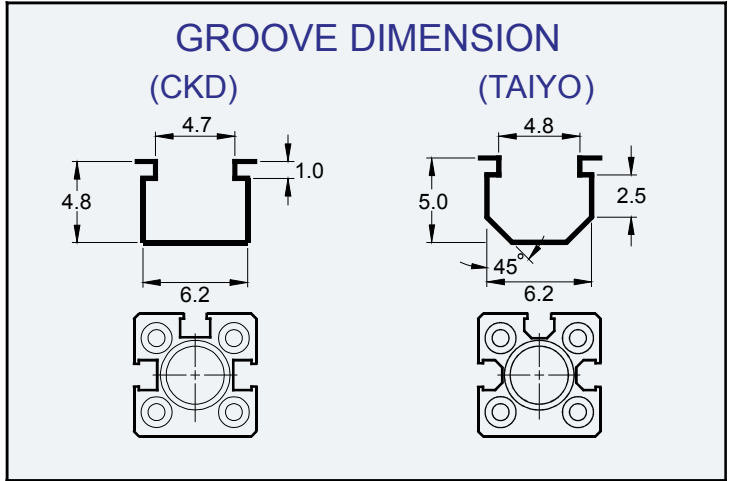
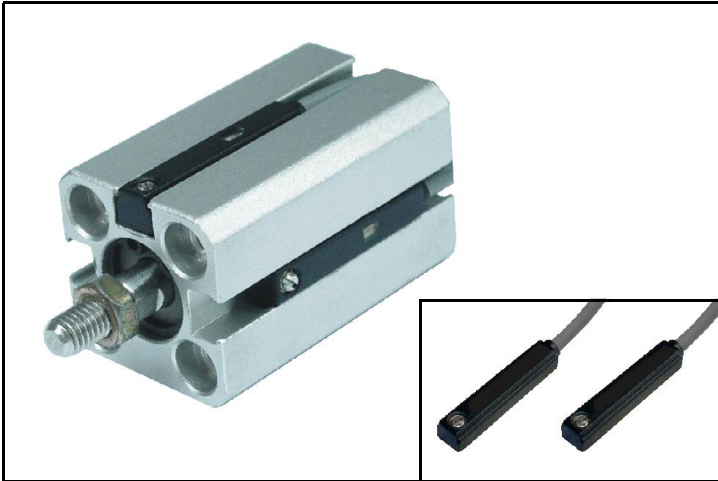
HL-31 Series can be replaced by HL-39 Series



SPECIFICATION

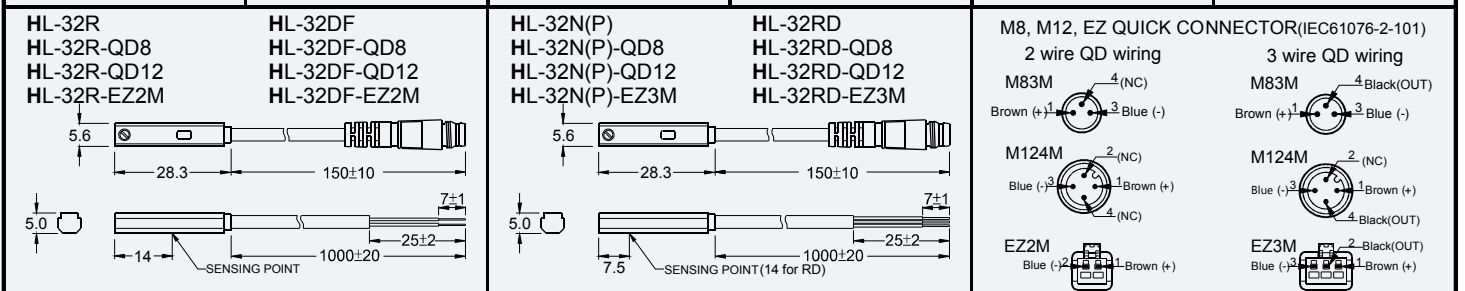
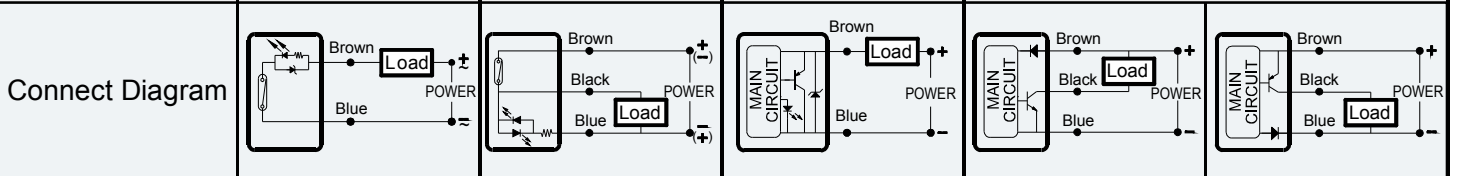
TYPE	HL - 31R	HL - 31RD	HL - 31DF	HL - 31N(P)	HL - 31S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 φ, 2C, Grey Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	2.9 φ, 2C, Black Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	
SENSITIVITY	35 ~ 45 Gauss	35 ~ 45 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnC1ICT6)	CNEx11.2189X(ExnC1ICT6)	CNEx11.1436(ExnIIBT6)	CNEx11. 1323 (ExnIIBT6)	Applied
Connect Diagram					
HL-31R HL-31R-QD8 HL-31R-QD12 HL-31R-EZ2M	HL-31DF HL-31DF-QD8 HL-31DF-QD12 HL-31DF-EZ2M	HL-31RD HL-31RD-QD8 HL-31RD-QD12 HL-31RD-EZ3M	HL-31N(P) HL-31N(P)-QD8 HL-31N(P)-QD12 HL-31N(P)-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M M124M EZ2M	3 wire QD wiring M83M M124M EZ3M

- NOTE: 1. The max. operating voltage of HL-31R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
5. All trademarks used in this catalog are the property of their respective owners.
6. We reserve the right to make changes without notice.



SPECIFICATION

TYPE	HL - 32R	HL - 32RD	HL - 32DF	HL - 32N	HL - 32P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	30 ~ 40 Gauss	30 ~ 40 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnC1ICT6)	CNEx11.2189X(ExnC1ICT6)	CNEx11.1436(ExIaIBT6)	CNEx11. 1323 (ExIaIBT6)	

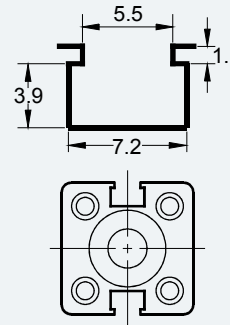


- NOTE: 1. The max. operating voltage of HL-32R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11ms Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

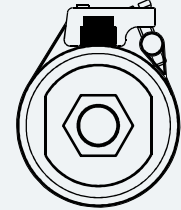


HL-33 Series can be replaced by HL-39 Series

GROOVE DIMENSION (SMC)



PBS CLAMP



Apply to 6 φ to 63 φ Round Cylinder

SPECIFICATION

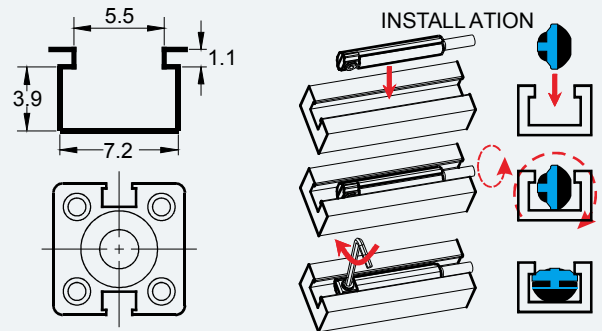
TYPE	HL - 33R	HL - 33RD	HL - 33DF	HL - 33N(P)	HL - 33S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 φ, 2C, Grey Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	2.9 φ, 2C, Black Oil Resistat PVC	2.9 φ, 3C, Black Oil Resistat PVC	
SENSITIVITY	35 ~ 45 Gauss	35 ~ 45 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIICt6)	CNEx11.2189X(ExnCIICt6)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-33R HL-33R-QD8 HL-33R-QD12 HL-33R-EZ2M	HL-33DF HL-33DF-QD8 HL-33DF-QD12 HL-33DF-EZ2M	HL-33N(P) HL-33N(P)-QD8 HL-33N(P)-QD12 HL-33N(P)-EZ3M	HL-33RD HL-33RD-QD8 HL-33RD-QD12 HL-33RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) 4(NC) EZ2M Blue (-) 2 1 Brown (+)	3 wire QD wiring M83M 4 Black(OUT) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) 4 Black(OUT) EZ3M Blue (-) 2 1 Black(OUT) 4 Brown (+)

- NOTE: 1. The max. operating voltage of HL-33R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



HL-35 Series can be replaced by HL-39 Series
(See Page 45)

GROOVE DIMENSION (SMC)



SPECIFICATION

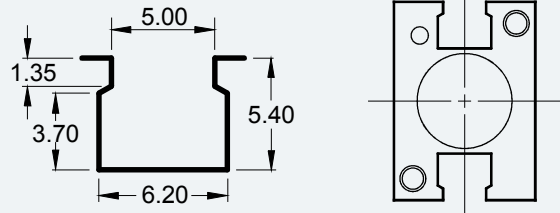
TYPE	HL - 35R	HL - 35RD	HL - 35DF	HL - 35N(P)	HL - 35S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	35 ~ 45 Gauss	35 ~ 45 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIIC16)	CNEx11.2189X(ExnCIIC16)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-35R HL-35R-QD8 HL-35R-QD12 HL-35R-EZ2M	HL-35DF HL-35DF-QD8 HL-35DF-QD12 HL-35DF-EZ2M	HL-35N(P) HL-35N(P)-QD8 HL-35N(P)-QD12 HL-35N(P)-EZ3M	HL-35RD HL-35RD-QD8 HL-35RD-QD12 HL-35RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1, 3 Blue (-) M124M 2(NC) Blue (-) 3, 1 Brown (+) EZ2M 1 Brown (+) 3 wire QD wiring M83M 4 Black(OUT) Brown (+) 1, 3 Blue (-) M124M 2(NC) Blue (-) 3, 1 Brown (+) EZ3M 2 Black(OUT) Blue (-) 3, 1 Brown (+)	

- NOTE: 1. The max. operating voltage of HL-35R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



HL-36 Series can be replaced by HL-39 Series
(See Page 45)

GROOVE DIMENSION
(SMC)



SPECIFICATION

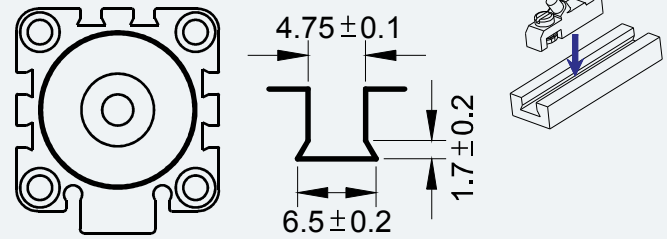
TYPE	HL - 36R	HL - 36RD	HL - 36DF	HL - 36N(P)	HL - 36S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	35 ~ 45 Gauss	35 ~ 45 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnC1ICT6)	CNEx11.2189X(ExnC1ICT6)	CNEx11.1436(ExnI1BT6)	CNEx11. 1323 (ExnI1BT6)	Applied
Connect Diagram					
HL-36R HL-36R-QD8 HL-36R-QD12 HL-36R-EZ2M	HL-36DF HL-36DF-QD8 HL-36DF-QD12 HL-36DF-EZ2M	HL-36N(P) HL-36N(P)-QD8 HL-36N(P)-QD12 HL-36N(P)-EZ3M	HL-36RD HL-36RD-QD8 HL-36RD-QD12 HL-36RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M M124M EZ2M	
				3 wire QD wiring M83M M124M EZ3M	

- NOTE: 1. The max. operating voltage of HL-36R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
5. All trademarks used in this catalog are the property of their respective owners.
6. We reserve the right to make changes without notice.

Plastic injection molding. Strong structure



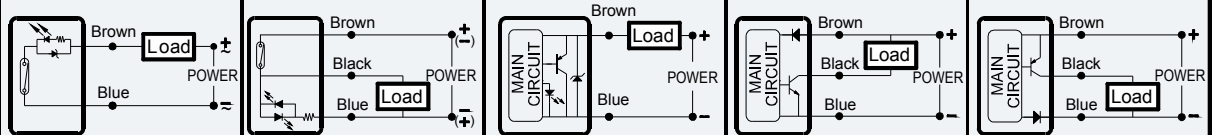
**GROOVE DIMENSION
(1/4 INCH 60 DEGREE DOVETAIL)**



SPECIFICATION

TYPE	HL - 38R	HL - 38RD	HL - 38DF	HL - 38N	HL - 38P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	5~120V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	300 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	3.5 W Max.	3.5 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 300mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PUR	2.9 ϕ, 3C, Black Oil Resistat PUR	2.9 ϕ, 2C, Black Oil Resistat PUR	2.9 ϕ, 3C, Black Oil Resistat PUR	
SENSITIVITY	30 ~ 40 Gauss	30 ~ 40 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	500 Hz	500 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCICT6)	CNEx11.2189X(ExnCICT6)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	

Connect Diagram



HL-38R
HL-38R-QD8
HL-38R-QD12
HL-38R-EZ2M

HL-38DF
HL-38DF-QD8
HL-38DF-QD12
HL-38DF-EZ2M

HL-38N(P)
HL-38N(P)-QD8
HL-38N(P)-QD12
HL-38N(P)-EZ3M

HL-38RD
HL-38RD-QD8
HL-38RD-QD12
HL-38RD-EZ3M

M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101)

2 wire QD wiring

M83M

Brown (+) 1 4 Blue (-)

M124M

Blue (-) 3 1 Brown (+)

EZ2M

Blue (-) 2 1 Brown (+)

3 wire QD wiring

M83M

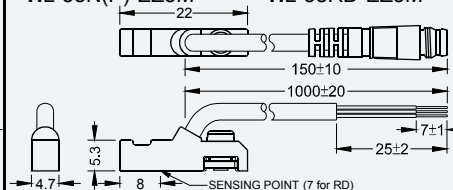
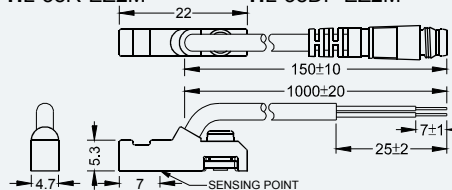
Brown (+) 1 4 Black(OUT) 3 Blue (-)

M124M

Blue (-) 3 2 (NC) 1 Brown (+)

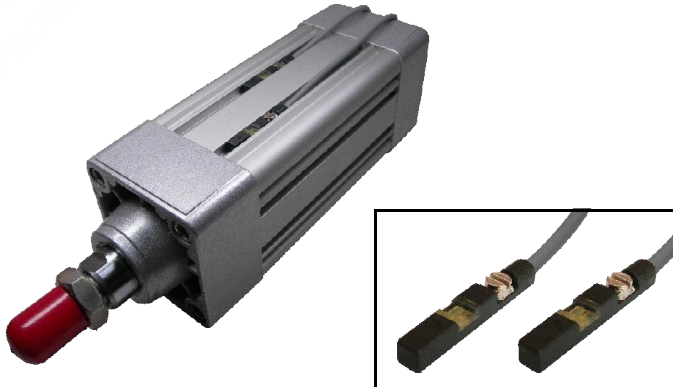
EZ3M

Blue (-) 2 Black(OUT) 1 Brown (+)



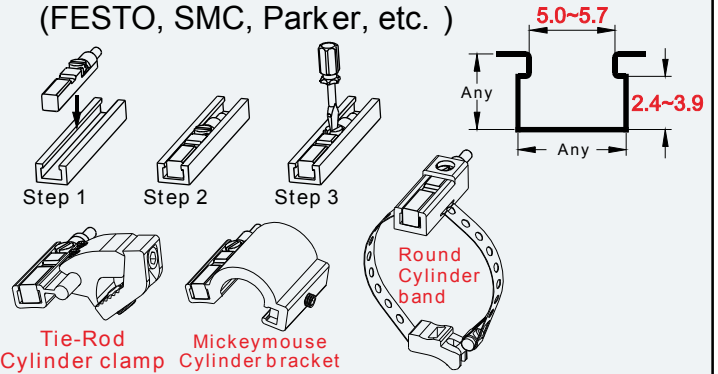
- NOTE: 1. The max. operating voltage of HL-38R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11ms Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
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Plastic injection molding. Strong structure



HL-39 Series can replace HL-30, 31, 35, 36 Series

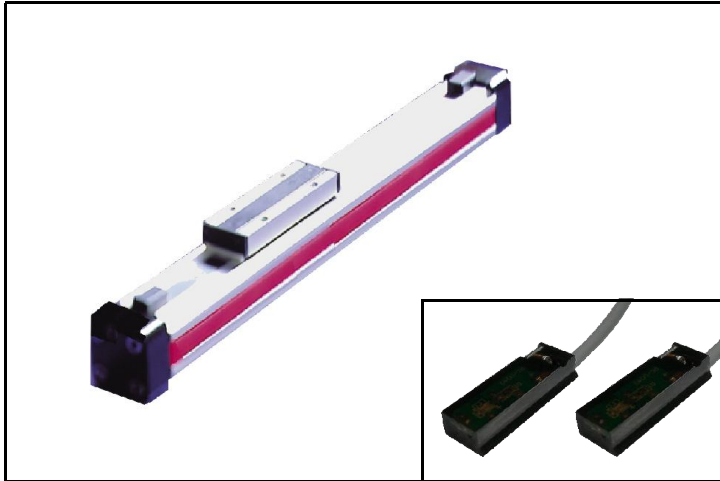
FOR ALL T SLOTS
(FESTO, SMC, Parker, etc.)



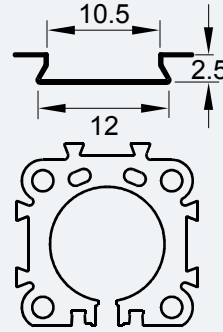
SPECIFICATION

TYPE	HL - 39R	HL - 39RD	HL - 39DF	HL - 39N(P)	HL - 39S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	100 mA Max.
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	3 W Max.
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PUR	2.9 ϕ, 3C, Black Oil Resistat PUR	2.9 ϕ, 2C, Black Oil Resistat PUR	2.9 ϕ, 3C, Black Oil Resistat PUR	
SENSITIVITY	35 ~ 45 Gauss	35 ~ 45 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIICt6)	CNEx11.2189X(ExnCIICt6)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-39R HL-39R-QD8 HL-39R-QD12 HL-39R-EZ2M	HL-39DF HL-39DF-QD8 HL-39DF-QD12 HL-39DF-EZ2M	HL-39N(P) HL-39N(P)-QD8 HL-39N(P)-QD12 HL-39N(P)-EZ3M	HL-39RD HL-39RD-QD8 HL-39RD-QD12 HL-39RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 3 wire QD wiring M124M EZ2M	

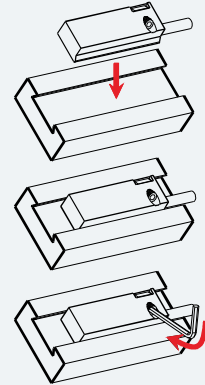
- NOTE: 1. The max. operating voltage of HL-39R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



GROOVE DIMENSION (ORIGA)

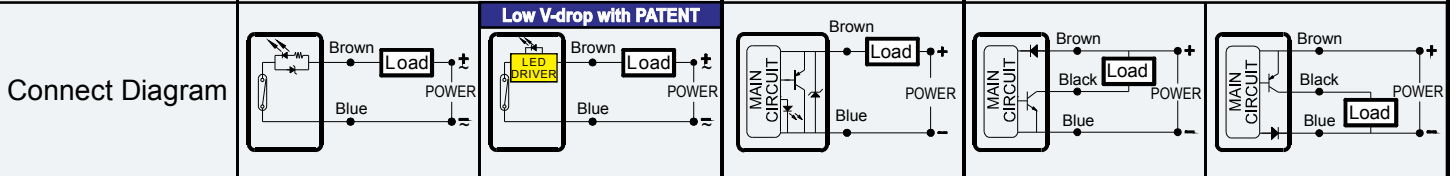


INSTALLATION



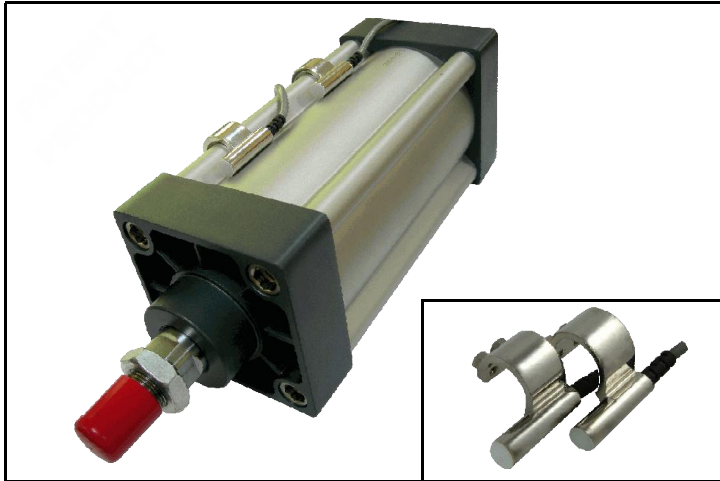
SPECIFICATION

TYPE	HL - 40R	HL - 40RV	HL - 40DF	HL - 40N	HL - 40P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	200 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	17 mA Max. @ 24V	17 mA Max. @ 24V
VOLTAGE DROP	2.5V Max. @ 200mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	1.0 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 3C, Black Oil Resistat PVC		2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY (NOTE 2)	35 ~ 45 Gauss		40 ~ 750 Gauss	35 ~ 45 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	1000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression; O/P Short Circuit Protect	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	

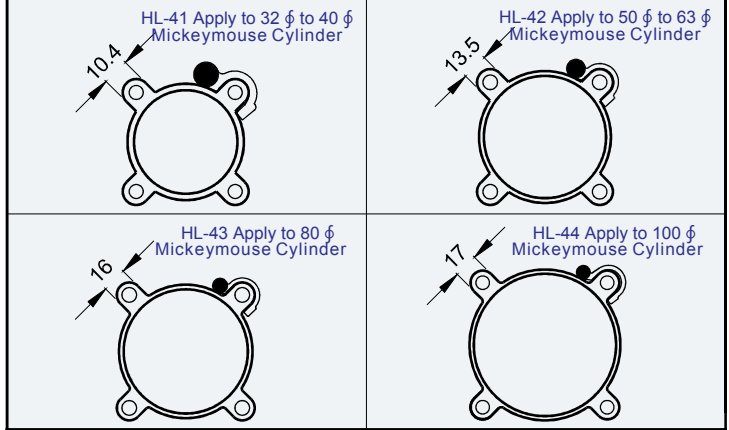


HL-40R(RV) HL-40R(RV)-QD8 HL-40R(RV)-QD12 HL-40R(RV)-EZ2M	HL-40DF HL-40DF-QD8 HL-40DF-QD12 HL-40DF-EZ2M	HL-40N(P) HL-40N(P)-QD8 HL-40N(P)-QD12 HL-40N(P)-EZ3M	HL-40RD HL-40RD-QD8 HL-40RD-QD12 HL-40RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M Brown (+) 1, 3 Blue (-) M124M Blue (-) 3, 1 Brown (+) EZ2M Blue (-) 2, 1 Brown (+)	3 wire QD wiring M83M Brown (+) 1, 3 Black(OUT) 4 Blue (-) M124M Blue (-) 3, 2 Black(OUT) 4 Brown (+) EZ3M Blue (-) 3, 2 Black(OUT) 4 Brown (+)

- NOTE: 1. The max. operating voltage of HL-40R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



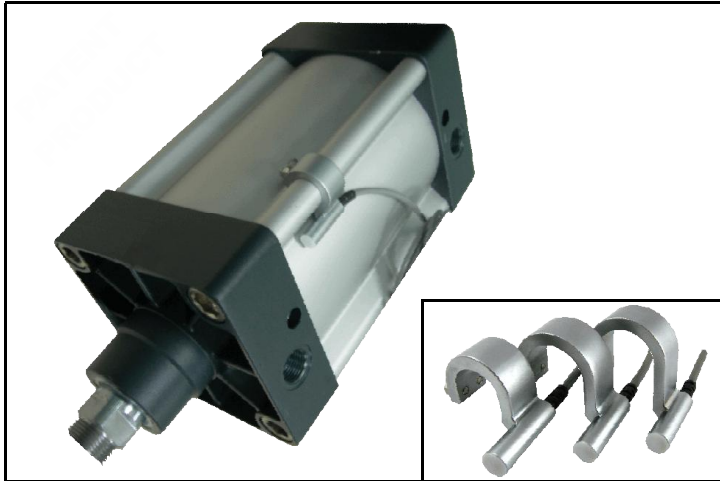
HL-41~44 Series can replace HL-20, 21 Series



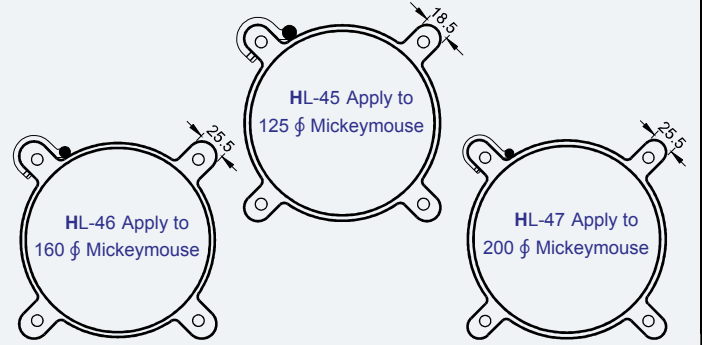
SPECIFICATION

TYPE	HL-41~44R	HL-41~44RV	HL-41~44DF	HL-41~44N(P)	HL-41~44S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking(PNP Current Sourcing)	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	1000 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	50 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	1.0V Max. @ 1000mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	4.0 ϕ, 2C, OIL RESISTANT PVC		4.0 ϕ, 2C, OIL RESISTANT PVC	4.0 ϕ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-41~44R(RV) HL-41~44R(RV)-QD8 HL-41~44R(RV)-QD12 HL-41~44R(RV)-EZ2M	HL-41~44DF HL-41~44DF-QD8 HL-41~44DF-QD12 HL-41~44DF-EZ2M	HL-41~44N(P) HL-41~44N(P)-QD8 HL-41~44N(P)-QD12 HL-41~44N(P)-EZ3M	HL-41~44RD HL-41~44RD-QD8 HL-41~44RD-QD12 HL-41~44RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M $\begin{matrix} 4-(NC) \\ 1-Brown(+), 2-Blue(-) \end{matrix}$ M124M $\begin{matrix} 2-(NC) \\ 1-Blue(-), 2-Brown(+), 3-Black(OUT), 4-(NC) \end{matrix}$ EZ2M $\begin{matrix} 1-Brown(+), 2-Blue(-) \end{matrix}$	
				3 wire QD wiring M83M $\begin{matrix} 4-Black(OUT) \\ 1-Brown(+), 2-Blue(-) \end{matrix}$ M124M $\begin{matrix} 2-(NC) \\ 1-Blue(-), 2-Brown(+), 3-Black(OUT), 4-Black(OUT) \end{matrix}$ EZ3M $\begin{matrix} 2-Black(OUT) \\ 1-Blue(-), 2-Brown(+), 3-Black(OUT) \end{matrix}$	

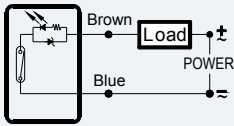
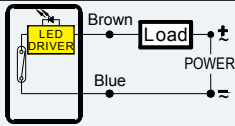
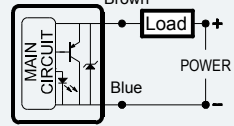
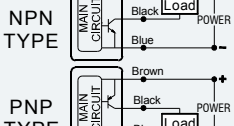
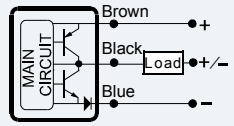
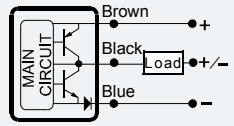






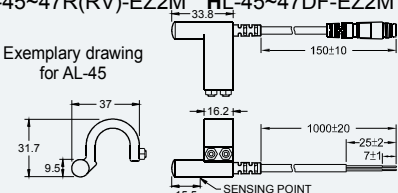
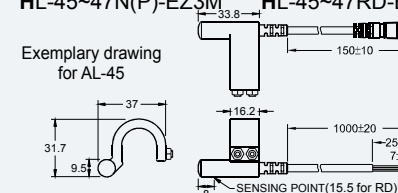
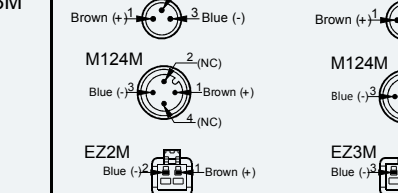
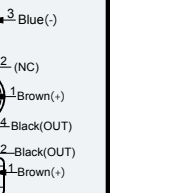
- NOTE: 1. The max. operating voltage of HL-41~44R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
5. All trademarks used in this catalog are the property of their respective owners.
6. We reserve the right to make changes without notice.



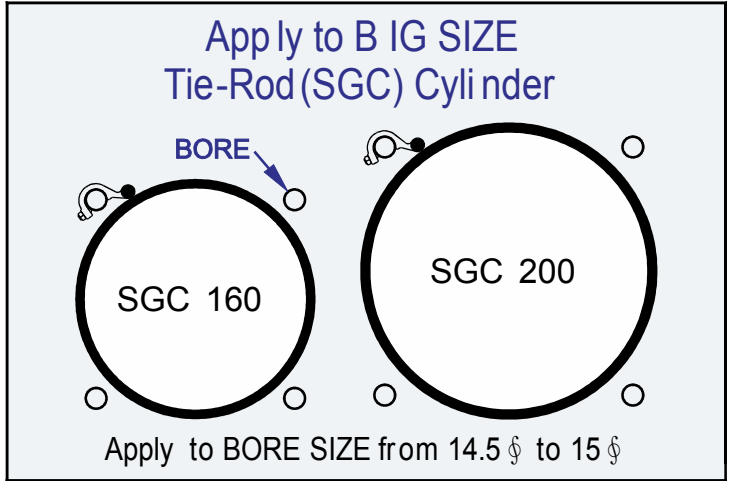
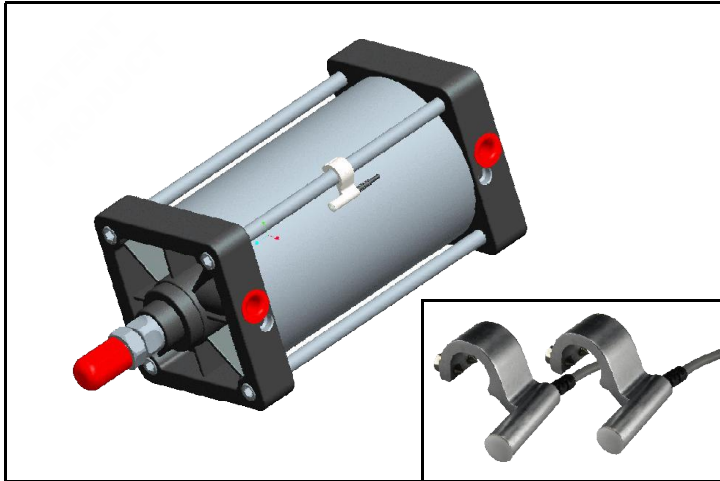
Apply to BIG SIZE Mickeymouse Cylinder
HL-45~47 Series can replace HL-20, 21 Series



SPECIFICATION

TYPE	HL-45~47R	HL-45~47RV	HL-45~47DF	HL45~47N(P)	HL - 45~47S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking(PNP Current Sourcing)	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	1000 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	50 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	1.0V Max. @ 1000mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	4.0 φ, 2C, OIL RESISTANT PVC		4.0 φ, 2C, OIL RESISTANT PVC	4.0 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	Surge Suppression	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICt6)		CNEx11.1436(ExialIBT6)		Applied
Connect Diagram		Low V-drop with PATENT 		NPN TYPE  PNP TYPE 	
HL-45~47R(RV) HL-45~47R(RV)-QD8 HL-45~47R(RV)-QD12 HL-45~47R(RV)-EZ2M	HL-45~47DF HL-45~47DF-QD8 HL-45~47DF-QD12 HL-45~47DF-EZ2M	HL-45~47N(P) HL-45~47N(P)-QD8 HL-45~47N(P)-QD12 HL-45~47N(P)-EZ3M	HL-45~47RD HL-45~47RD-QD8 HL-45~47RD-QD12 HL-45~47RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M  M124M  EZ2M  3 wire QD wiring M83M  M124M  EZ3M 	
Exemplary drawing for AL-45 	Exemplary drawing for AL-45 	Exemplary drawing for AL-45 	Exemplary drawing for AL-45 		

- NOTE: 1. The max. operating voltage of HL-45~47R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
5. All trademarks used in this catalog are the property of their respective owners.
6. We reserve the right to make changes without notice.

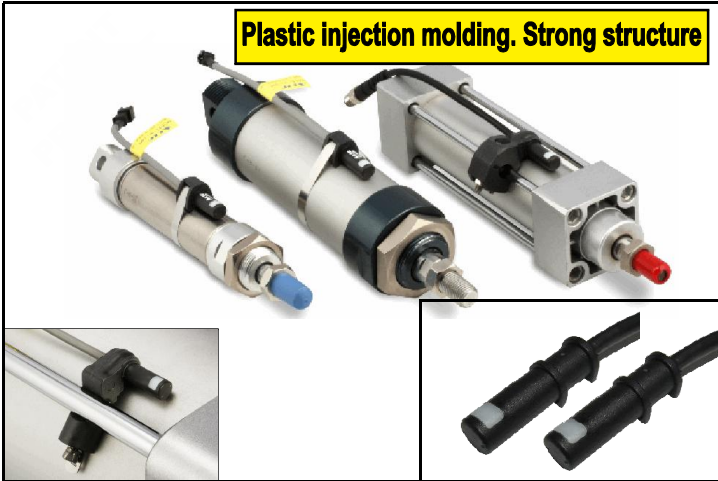


SPECIFICATION

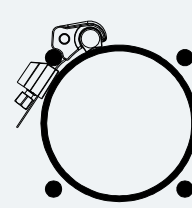
TYPE	HL - 48R	HL - 48RV	HL - 48DF	HL - 48N(P)	HL - 48S	
CHARACTERISTIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open		
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open		
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection	
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC		
SWITCHING CURRENT	100 mA Max.	1000 mA Max.	50 mA Max.	200 mA Max.		
SWITCHING RATING	10 W Max.	50 W Max.	1.4 W Max.	6 W Max.		
CURRENT CONSUMPTION	—		40 μA Max. @ 24V	7.5 mA Max. @ 24V		
VOLTAGE DROP	2.5V Max. @ 100mA DC	1.0V Max. @ 1000mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—		90 μA Max. @ 28V	0.01 mA Max.		
INDICATOR	Red LED	Yellow LED	Red LED	Red LED (Yellow LED)	Red LED	
CABLE	4.0 φ, 2C, OIL RESISTANT PVC		4.0 φ, 2C, OIL RESISTANT PVC	4.0 φ, 3C, OIL RESISTANT PVC		
SENSITIVITY (NOTE 2)	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss		
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz		
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C		
SHOCK (NOTE 3)	30 G		50 G	50 G		
VIBRATION (NOTE 4)	9 G		9 G	9 G		
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)		
PROTECTION CIRCUIT	—	Surge Suppression	Surge Suppression	Power Reverse Polarity; Surge Suppression		
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied	
3C Certificate NO.	No. : 2004010305127433					
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11.1323 (ExialIBT6)	Applied	
Connect Diagram			<p style="text-align: center;">Low V-drop with PATENT</p>			<p>NPN TYPE</p> <p>PNP TYPE</p>
HL-48R(RV) HL-48R(RV)-QD8 HL-48R(RV)-QD12 HL-48R(RV)-EZ2M	HL-48DF HL-48DF-QD8 HL-48DF-QD12 HL-48DF-EZ2M	HL-48N(P) HL-48N(P)-QD8 HL-48N(P)-QD12 HL-48N(P)-EZ3M	HL-48RD HL-48RD-QD8 HL-48RD-QD12 HL-48RD-EZ3M	M8, M12, EZ QUICK CONNECTOR (IEC61076-2-101) 2 wire QD wiring M83M Brown (+) 1, Blue (-) 3 M124M Blue (-) 3, Brown (+) 1, (NC) 2, (NC) 4 EZ2M Blue (-) 2, Brown (+) 1	3 wire QD wiring M83M Brown (+) 1, Blue (-) 3, Black (OUT) 4 M124M Blue (-) 3, Brown (+) 1, (NC) 2, Black (OUT) 4 EZ3M Blue (-) 3, Brown (+) 1, Black (OUT) 2	
<p style="text-align: center;">SENSING POINT (8 for D, DF)</p>		<p style="text-align: center;">SENSING POINT (15.5 for RD)</p>				

- NOTE: 1. The max. operating voltage of HL-48R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t (Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz (Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
5. All trademarks used in this catalog are the property of their respective owners.
6. We reserve the right to make changes without notice.

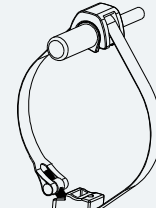
Plastic injection molding. Strong structure



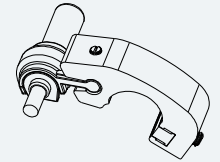
Apply to **ALL** Tie-Rod Cylinder, Round Cylinder and Mickeymouse Cylinder
HL-49 Series can replace HL-20, 21 Series



Tie-Rod Cylinder clamp

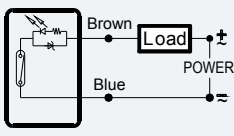
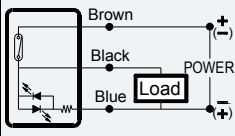
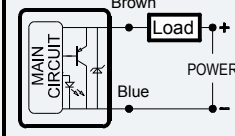
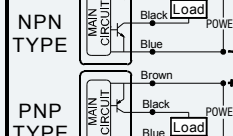
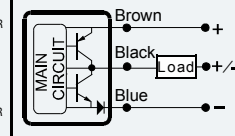
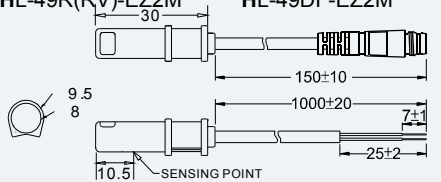
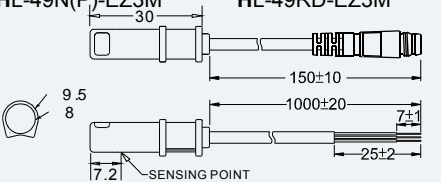


Round Cylinder band



Mickeymouse Cylinder bracket

SPECIFICATION

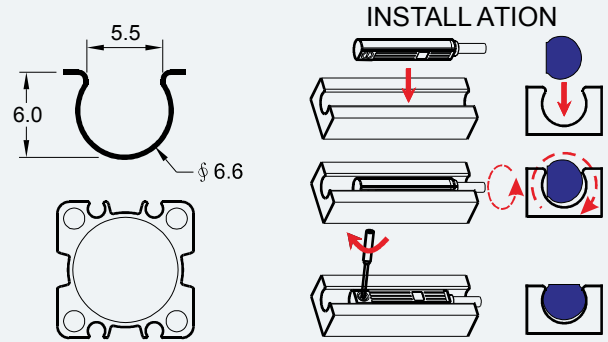
TYPE	HL - 49R	HL - 49RD	HL - 49DF	HL - 49N(P)	HL - 49S
CHARACTERISTIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Power: Green LED / Active: Red(Yellow) LED	
CABLE	4.0 , 2C, OIL RESISTANT PVC	4.0 , 3C, OIL RESISTANT PVC	4.0 , 2C, Black Oil Resistat PVC	4.0 , 3C, OIL RESISTANT PVC	
SENSITIVITY	55 ~ 65 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G		50 G	50 G	
VIBRATION	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	E8N 11 04 53334 005		E8N 11 04 53334 004	E8N 11 04 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIIT6)		CNEx11. 1436 (ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-49R(RV) HL-49R(RV)-QD8 HL-49R(RV)-QD12 HL-49R(RV)-EZ2M	HL-49DF HL-49DF-QD8 HL-49DF-QD12 HL-49DF-EZ2M	HL-49N(P) HL-49N(P)-QD8 HL-49N(P)-QD12 HL-49N(P)-EZ3M	HL-49RD HL-49RD-QD8 HL-49RD-QD12 HL-49RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) EZ2M Blue (-) 2 1 Brown (+)	3 wire QD wiring M83M 4 Black(OUT) Brown (+) 1 3 Blue (-) M124M 2(NC) Blue (-) 3 1 Brown (+) EZ3M 2 Black(OUT) Blue (-) 3 1 Brown (+)
					

- NOTE: 1. The max. operating voltage of HL-49R(RA,RV)-QD8 is 60V DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



HL-50 Series can be replaced by HL-51 Series
(See Page 52)

GROOVE DIMENSION (NORGREN)



SPECIFICATION

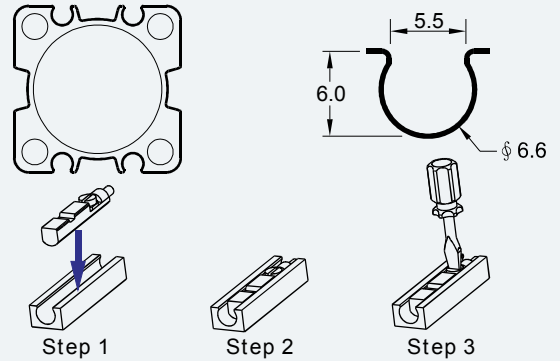
TYPE	HL - 50R	HL - 50RD	HL - 50DF	HL - 50N(P)	HL - 50S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	40 ~ 50 Gauss	40 ~ 50 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIIC16)	CNEx11.2189X(ExnCIIC16)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied
Connect Diagram					
HL-50R HL-50R-QD8 HL-50R-QD12 HL-50R-EZ2M	HL-50DF HL-50DF-QD8 HL-50DF-QD12 HL-50DF-EZ2M	HL-50N(P) HL-50N(P)-QD8 HL-50N(P)-QD12 HL-50N(P)-EZ3M	HL-50RD HL-50RD-QD8 HL-50RD-QD12 HL-50RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101)	
				<p>2 wire QD wiring</p> <p>M83M 4(NC) Brown (+) 1, Blue (-) 3</p> <p>M124M 2(NC) Blue (-) 3, Brown (+) 1, 4(NC) 2</p> <p>EZ2M 1 Brown (+), Blue (-) 2</p> <p>3 wire QD wiring</p> <p>M83M 4 Black(OUT) Brown (+) 1, Blue (-) 3</p> <p>M124M 2(NC) Blue (-) 3, Brown (+) 1, Black(OUT) 2</p> <p>EZ3M 2 Black(OUT), Blue (-) 3, Brown (+) 1</p>	

- NOTE: 1. The max. operating voltage of HL-50R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

Plastic injection molding. Strong structure

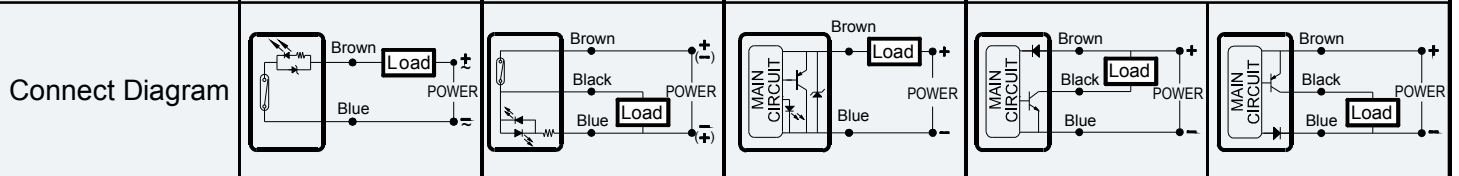


HL-51 Series can replace HL-50 Series
Apply for 6mm round groove(Norgren)



SPECIFICATION

TYPE	HL - 51R	HL - 51RD	HL - 51DF	HL - 51N	HL - 51P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open	SPST Normally Open	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch	Reed Switch	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	5~240V DC/AC	5~30V DC	10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.	10 W Max.	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—	10 mA Max. @ 24V	40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.1V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—	—	90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Dual Yellow LED	Red LED	Red LED	Yellow LED
CABLE	2.9 ϕ, 2C, Grey Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	2.9 ϕ, 2C, Black Oil Resistat PVC	2.9 ϕ, 3C, Black Oil Resistat PVC	
SENSITIVITY	40 ~ 50 Gauss	40 ~ 50 Gauss	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz	200 Hz	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK	30 G	30 G	50 G	50 G	
VIBRATION	9 G	9 G	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—	—	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005	No. E8N 1104 53334 005	No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433	No. : 2004010305127433			
CNEx Certificate NO.	CNEx11.2189X(ExnCIICt6)	CNEx11.2189X(ExnCIICt6)	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	

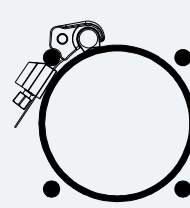


HL-51R HL-51R-QD8 HL-51R-QD12 HL-51R-EZ2M	HL-51DF HL-51DF-QD8 HL-51DF-QD12 HL-51DF-EZ2M	HL-51N(P) HL-51N(P)-QD8 HL-51N(P)-QD12 HL-51N(P)-EZ3M	HL-51RD HL-51RD-QD8 HL-51RD-QD12 HL-51RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M Brown (+) 1, Blue (-) 3 M124M Blue (-) 3, Brown (+) 1, 2 (NC), 4 (NC) EZ2M Blue (-) 3, Brown (+) 1	3 wire QD wiring M83M Brown (+) 1, Blue (-) 3, Black (OUT) 4 M124M Blue (-) 3, Brown (+) 1, 2 (NC), Black (OUT) 4 EZ3M Blue (-) 3, Brown (+) 1, Black (OUT) 2

- NOTE: 1. The max. operating voltage of HL-51R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11ms Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



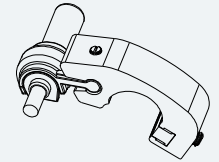
Apply to **ALL** Tie-Rod Cylinder, Round Cylinder and Mickeymouse Cylinder
HL-59 Series can replace HL-20, 21 Series



Tie-Rod Cylinder clamp



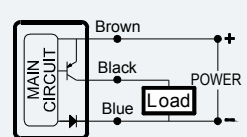
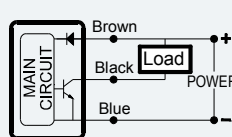
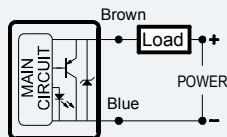
Round Cylinder band



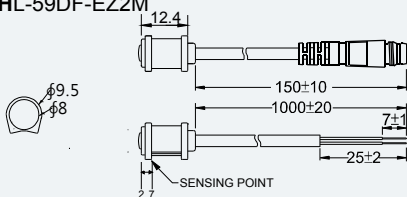
Mickeymouse Cylinder bracket

TYPE	HL - 59DF	HL - 59N(P)	HL - 59S
CHARACTERISTIC			
SWITCHING LOGIC	Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE	10~28V DC	5~30V DC	
SWITCHING CURRENT	50 mA Max.	200 mA Max.	
SWITCHING RATING	1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	40 μA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	90 μA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Power: Green LED / Active: Red(Yellow) LED	
CABLE	4.0 ϕ , 2C, Black Oil Resistant PVC	4.0 ϕ , 3C, OIL RESISTANT PVC	
SENSITIVITY	40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 $^{\circ}$ C	-10 ~ 70 $^{\circ}$ C	
SHOCK	50 G	50 G	
VIBRATION	9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.			
CNEx Certificate NO.	CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

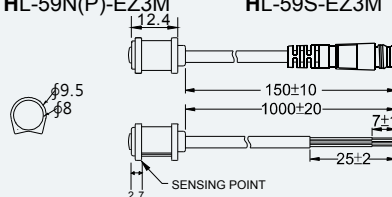
Connect Diagram



HL-59DF
 HL-59DF-QD8
 HL-59DF-QD12
 HL-59DF-EZ2M



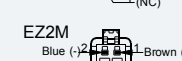
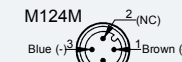
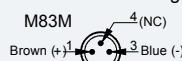
HL-59N(P)
 HL-59N(P)-QD8
 HL-59N(P)-QD12
 HL-59N(P)-EZ3M



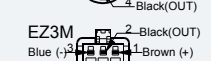
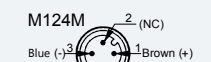
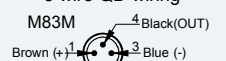
HL-59S
 HL-59S-QD8
 HL-59S-QD12
 HL-59S-EZ3M

M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101)

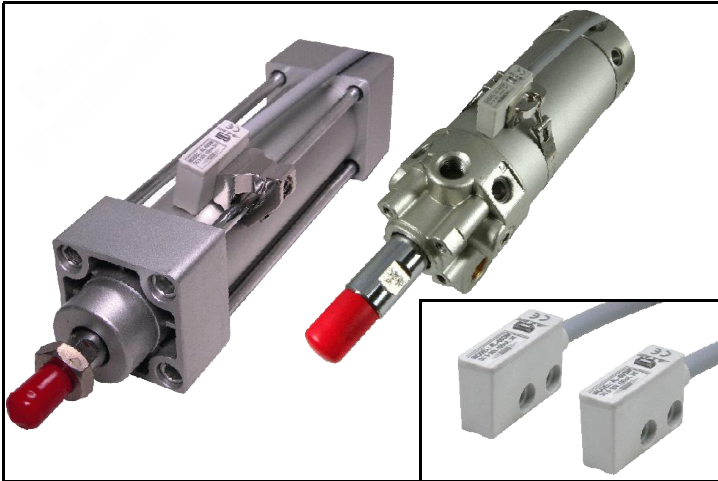
2 wire QD wiring



3 wire QD wiring



- NOTE: 1. The max. operating voltage of HL-59DF is 28V DC (Based on IEC61076-2-101).
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.



Strong Magnetic Field Resistant Sensor

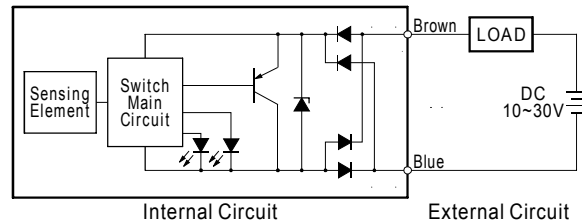
Can be used in locations subjected to disturbance by AC magnetic fields (areas near AC welders, etc.).

- NON-POLARITY Connection, Convenient
- All Solid State, Hi-Shock Resistant, Long Life
- Two Color Indicator, Easy Setting
- High Burn Rate Material, Conform to UL94-V0
- Variety Fixture, Fix on Many Kinds of Cylinders

SPECIFICATION

TYPE	HL - 69AM
CHARACTERISTIC	
SWITCHING LOGIC	Solid State Output, Normally Open
SENSOR TYPE	Transistor / Two wire / Non-Polarity
OPERATING VOLTAGE	10~30V / DC
SWITCHING CURRENT	100 mA Max.
SWITCHING RATING	3 W Max.
MAGNETIC FIELD RESISTANCE	AC 17000A (NOTE 1)
VOLTAGE DROP	4.3V Max. @ 100mA DC
LEAKAGE CURRENT	0.6 mA Max. @ 30 VDC
INDICATOR	Two Color LED (Red / Unstable ; Green / Setting)
CABLE	5.3 ϕ / 0.5SQx2Cx3M / Oil, Burning, Bend Resistant / PVC
SENSITIVITY (NOTE 2)	30 ~ 40 Gauss
SWITCHING FREQUENCY	8 Hz
TEMPERATURE RANGE	-10 ~ 70 °C
SHOCK (NOTE 3)	50 G
VIBRATION (NOTE 4)	9 G
ENCLOSURE CLASSIFICATION	IP 68 (EN60529)
PROTECTION CIRCUIT	Power Non-Polarity; Surge Suppression
BURN RATE	UL94-V0
AVAILABLE BRACKET	<p>PBH : Apply to Round Cylinder under 63 ϕ</p> <p>PCH : Apply for 32 ϕ & 125 ϕ Tie-Rod Cylinder</p> <p>PE-1 : Apply to 32 ϕ & 40 ϕ ISO Profile Cylinder</p> <p>PE-2 : Apply to 50 ϕ & 63 ϕ ISO Profile Cylinder</p> <p>PE-3 : Apply to 80 ϕ ISO Profile Cylinder</p> <p>PE-4 : Apply to 100 ϕ ISO Profile Cylinder</p>

Internal Circuit & External Connect Diagram

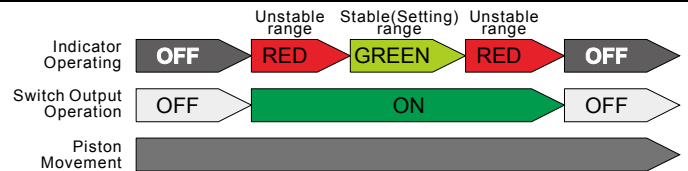


(AL-69DM is a NON-POLARITY type. Connect either the brown or the blue lead wire to the load.)

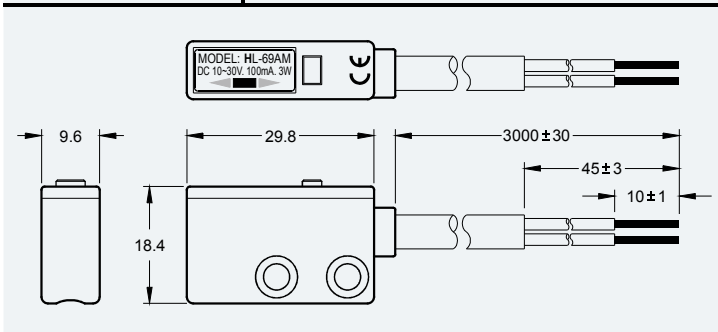
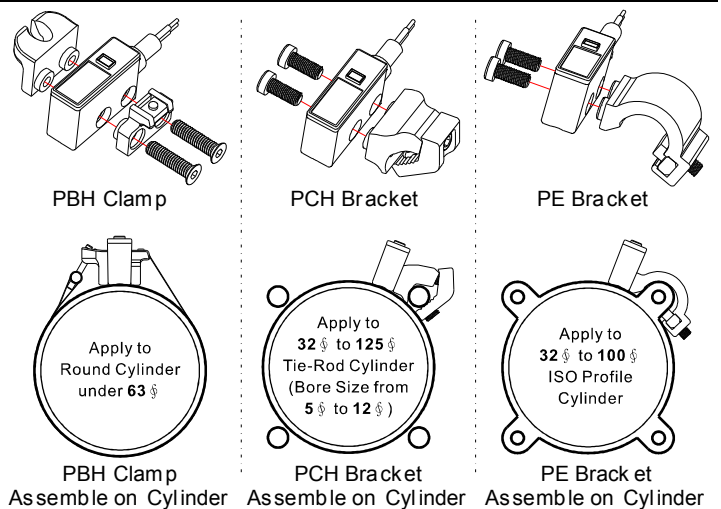
Outline of Operations

Sensor Switch	No Disturbance by an AC Magnetic Field		Disturbance by an AC Magnetic Field	
	Without Magnet	With Magnet	Without Magnet	With Magnet
Sensor Element	OFF	ON	OFF \leftrightarrow ON	OFF \leftrightarrow ON
Sensor Switch Output	OFF	ON	OFF	ON

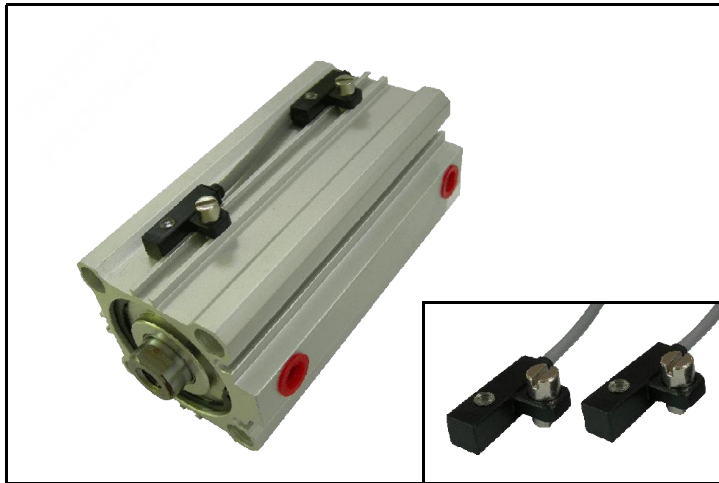
Indicators and Switch Operation



Mounting Bracket Assembly

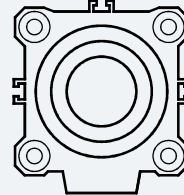
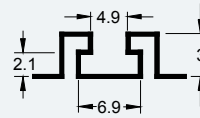


- NOTE: 1. Measured by Japanese Industrial Standards.
 2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
 3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
 4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
 5. All trademarks used in this catalog are the property of their respective owners.
 6. We reserve the right to make changes without notice.

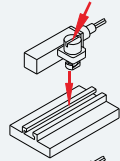


HL-70 Series can replace HL-72 Series

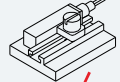
For SMC GROOVE



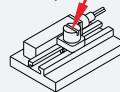
Step 1



Step 2

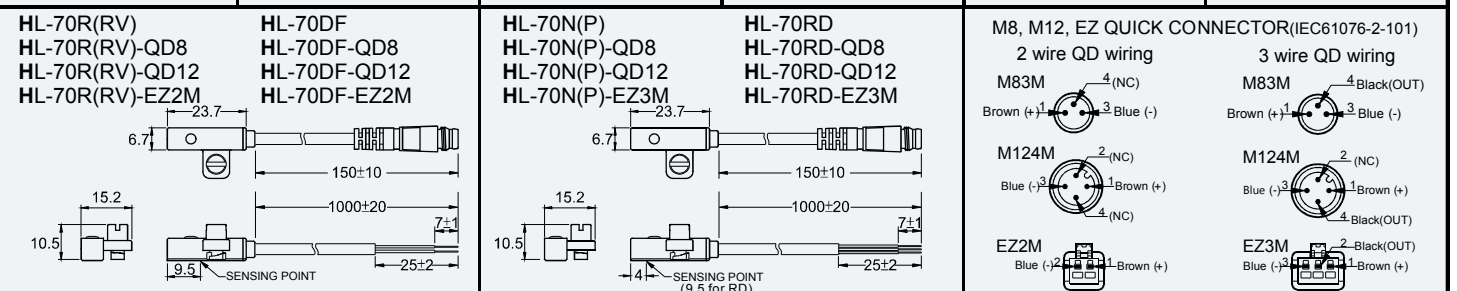
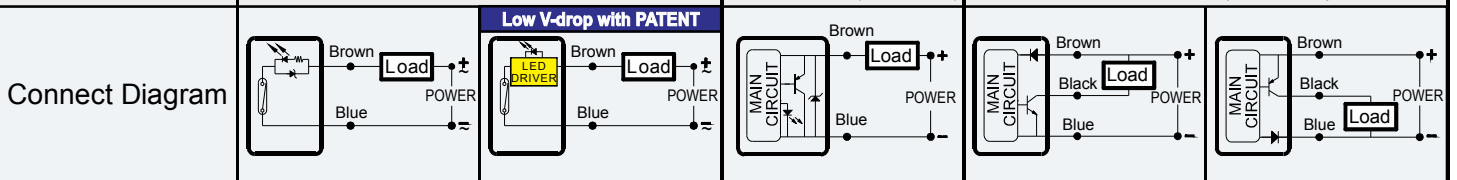


Step 3

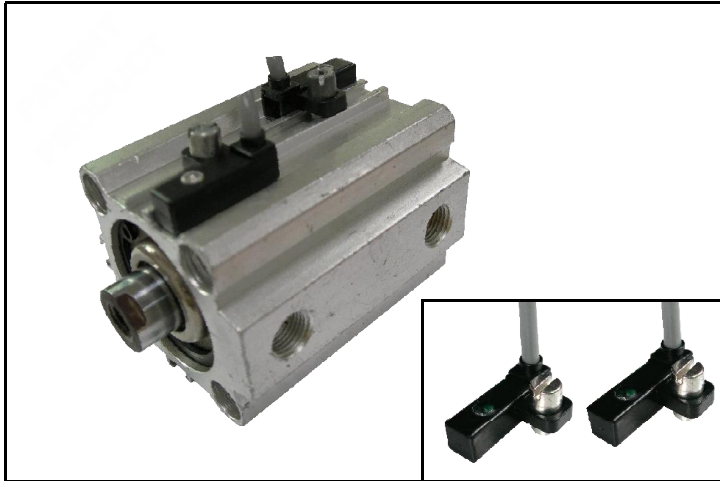


SPECIFICATION

TYPE	HL - 70R	HL - 70RV	HL - 70DF	HL - 70N	HL - 70P
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking	PNP Current Sourcing
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED	Yellow LED
CABLE	3.3 ϕ, 2C, OIL RESISTANT PVC		3.3 ϕ, 2C, OIL RESISTANT PVC	3.3 ϕ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	40 ~ 50 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	No. E8N 1104 53334 006
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	

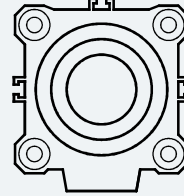
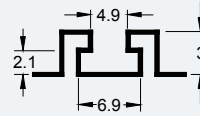


- The max. operating voltage of HL-70R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
- Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
- Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11ms Each Time.
- Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
- All trademarks used in this catalog are the property of their respective owners.
- We reserve the right to make changes without notice.

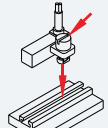


HL-71 Series can replace HL-72 Series

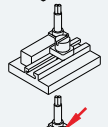
For SMC GROOVE



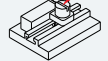
Step 1



Step 2

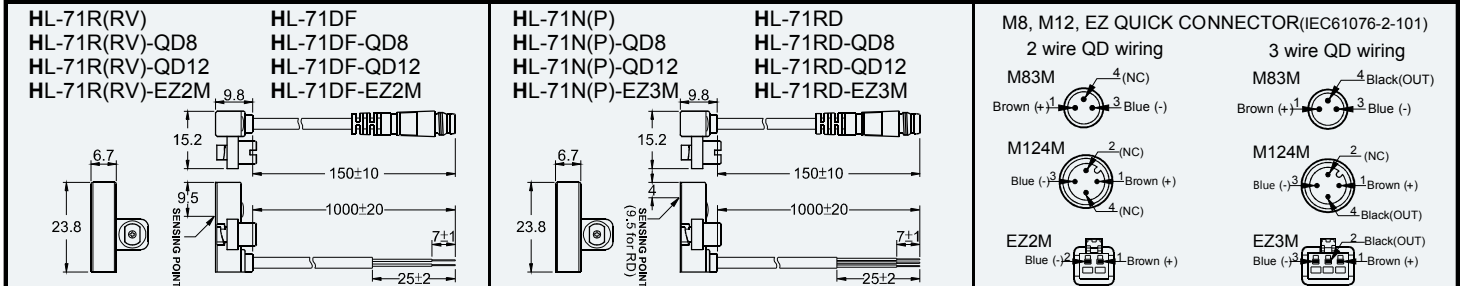
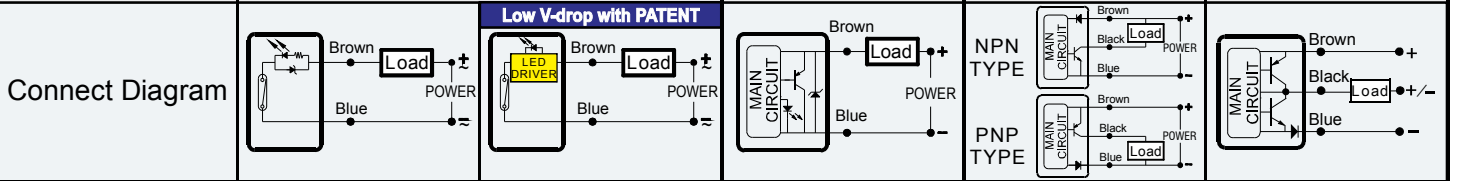


Step 3

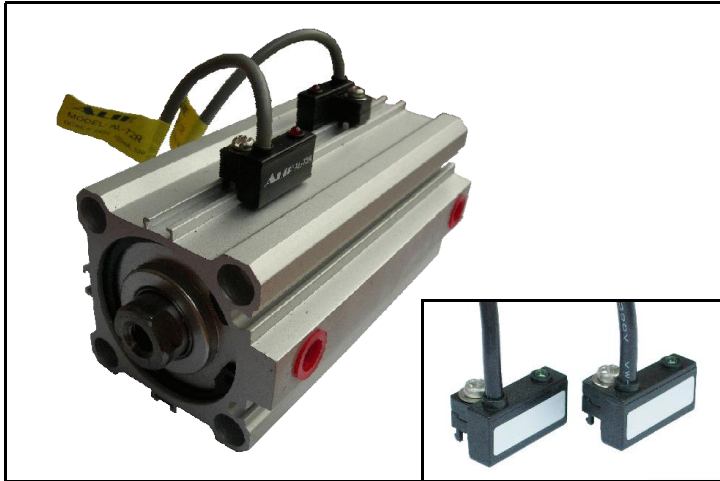


SPECIFICATION

TYPE	HL - 71R	HL - 71RV	HL - 71DF	HL - 70N(P)	HL - 71S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking/PNP Current Sourcing	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	3.3 φ, 2C, OIL RESISTANT PVC		3.3 φ, 2C, OIL RESISTANT PVC	3.3 φ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	40 ~ 50 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied

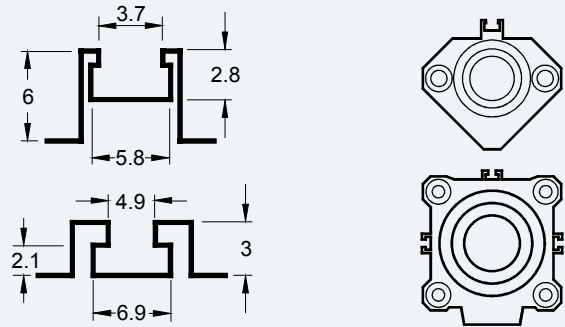


1. The max. operating voltage of HL-71R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
2. Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
3. Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
4. Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
5. All trademarks used in this catalog are the property of their respective owners.
6. We reserve the right to make changes without notice.



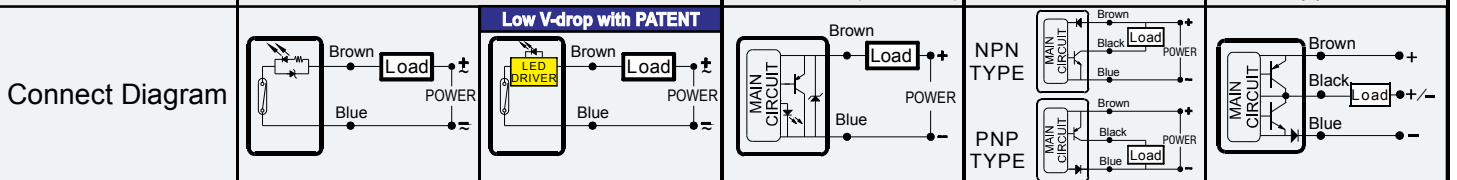
HL-72 Series can be replaced by HL-71 Series
(See Page 56)

GROOVE DIMENSION (SMC)



SPECIFICATION

TYPE	HL - 72R	HL - 72RV	HL - 72DF	HL - 72N(P)	HL - 72S
CHARACTERISTIC					
SWITCHING LOGIC	SPST Normally Open		Normally Open	Solid State Output, Normally Open	
SENSOR TYPE	Reed Switch		2 Wire Solid State	NPN Current Sinking(PNP Current Sourcing)	NPN/PNP Automatic Detection
OPERATING VOLTAGE (NOTE 1)	5~240V DC/AC		10~28V DC	5~30V DC	
SWITCHING CURRENT	100 mA Max.	500 mA Max.	50 mA Max.	200 mA Max.	
SWITCHING RATING	10 W Max.		1.4 W Max.	6 W Max.	
CURRENT CONSUMPTION	—		40 µA Max. @ 24V	7.5 mA Max. @ 24V	
VOLTAGE DROP	2.5V Max. @ 100mA DC	0.9V Max. @ 500mA DC	2.65V Max. @ 50mA DC	0.5 V Max. @ 200 mA DC	1 V Max. @ 200 mA DC
LEAKAGE CURRENT	—		90 µA Max. @ 28V	0.01 mA Max.	
INDICATOR	Red LED	Yellow LED	Red LED	Red LED(Yellow LED)	Red LED
CABLE	3.3 ϕ, 2C, OIL RESISTANT PVC		3.3 ϕ, 2C, OIL RESISTANT PVC	3 ϕ, 3C, OIL RESISTANT PVC	
SENSITIVITY (NOTE 2)	40 ~ 50 Gauss		40 ~ 750 Gauss	40 ~ 750 Gauss	
SWITCHING FREQUENCY	200 Hz		1000 Hz	5000 Hz	
TEMPERATURE RANGE	-10 ~ 70 °C		-10 ~ 70 °C	-10 ~ 70 °C	
SHOCK (NOTE 3)	30 G		50 G	50 G	
VIBRATION (NOTE 4)	9 G		9 G	9 G	
ENCLOSURE CLASSIFICATION	IP 67 (EN60529)		IP 67 (EN60529)	IP 67 (EN60529)	
PROTECTION CIRCUIT	—		Surge Suppression	Power Reverse Polarity; Surge Suppression	
CE Certificate NO.	No. E8N 1104 53334 005		No. E8N 1104 53334 004	No. E8N 1104 53334 006	Applied
3C Certificate NO.	No. : 2004010305127433				
CNEx Certificate NO.	CNEx11.2189X(ExnCIICT6)		CNEx11.1436(ExialIBT6)	CNEx11. 1323 (ExialIBT6)	Applied



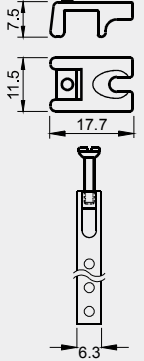



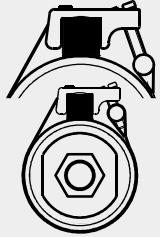
HL-72R(RV) HL-72R(RV)-QD8 HL-72R(RV)-QD12 HL-72R(RV)-EZ2M	HL-72DF HL-72DF-QD8 HL-72DF-QD12 HL-72DF-EZ2M	HL-72N(P) HL-72N(P)-QD8 HL-72N(P)-QD12 HL-72N(P)-EZ3M	HL-72RD HL-72RD-QD8 HL-72RD-QD12 HL-72RD-EZ3M	M8, M12, EZ QUICK CONNECTOR(IEC61076-2-101) 2 wire QD wiring M83M 4(NC) Brown (+) 1, 3 Blue (-)	3 wire QD wiring M83M 4 Black(OUT) Brown (+) 1, 3 Blue (-)
				M124M 2(NC) Blue (-) 3, 1 Brown (+) 4(NC)	M124M 2(NC) Blue (-) 3, 1 Brown (+) 4 Black(OUT)
				EZ2M 2(NC) Blue (-) 3, 1 Brown (+)	EZ3M 2 Black(OUT) Blue (-) 3, 1 Brown (+)

- The max. operating voltage of HL-72R-QD8 is 60V AC/DC (Based on IEC61076-2-101).
- Measuring standard target: 15.5 * 8 * 5t(Anisotropic Plastic Magnet).
- Sin Wave / X, Y, Z 3 Directions / 3 Times Each Direction / 11mS Each Time.
- Double Amplitude 1.5mm / 10Hz~55Hz~10Hz(Sweep 1min) / X, Y, Z 3 Directions / 1Hour Each Time.
- All trademarks used in this catalog are the property of their respective owners.
- We reserve the right to make changes without notice.

HPBO CLAMP

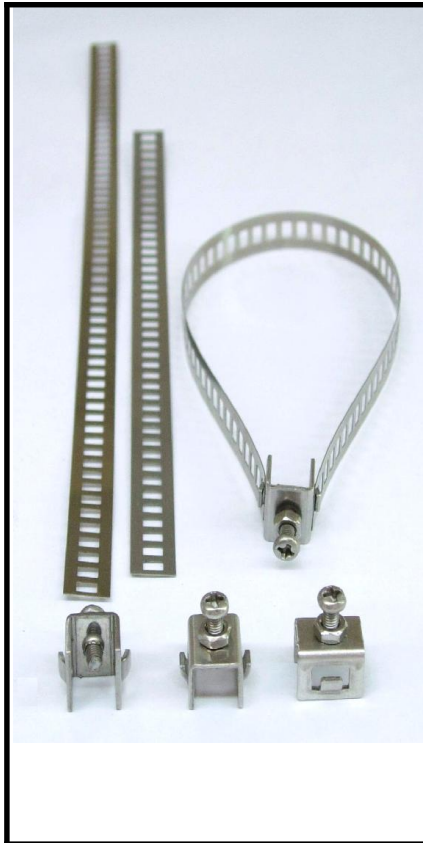
Mounting HL-03 & HL-15 series on Round Cylinder

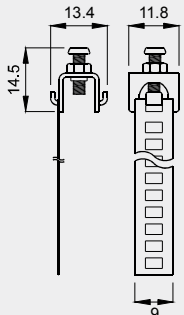
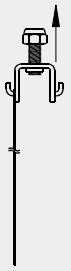
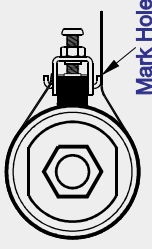
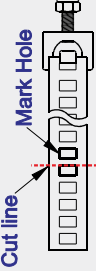
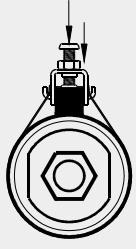


HPBO	Step 1	Step 2	Step 3	Step 4
<p>HPBO-01 For 6 φ ~ 63 φ round cylinder use</p> <p>HPBO-02 For 6 φ ~ 125 φ round cylinder use</p> 	<p>Start by keeping screw 3 to 4 turns into barrel nut on the end of the band assembly.</p> 	<p>1. Place the screw head into the clamp and wrap the band around the cylinder.</p> <p>2. Position the pin with the nearest hole on the band and mark the hole with a permanent marker.</p> 	<p>1. Remove clamp assembly.</p> <p>2. Cut the band at next 2 adjacent hole from marked hole.</p> 	<p>1. Insert cut end of the band into flat slot opposite from the clamp slot.</p> <p>2. Place the chosen hole over the pin and bend the band firmly down with thumb pressure.</p> <p>3. Wrap the band around cylinder barrel and re-insert screw Head into clamp.</p> <p>4. Position the switch and tighten.</p> <p>⚠ ATTENTION! Do not over tighten! Damage to the switch and/or cylinder may occur.</p> 

HPBK CLAMP

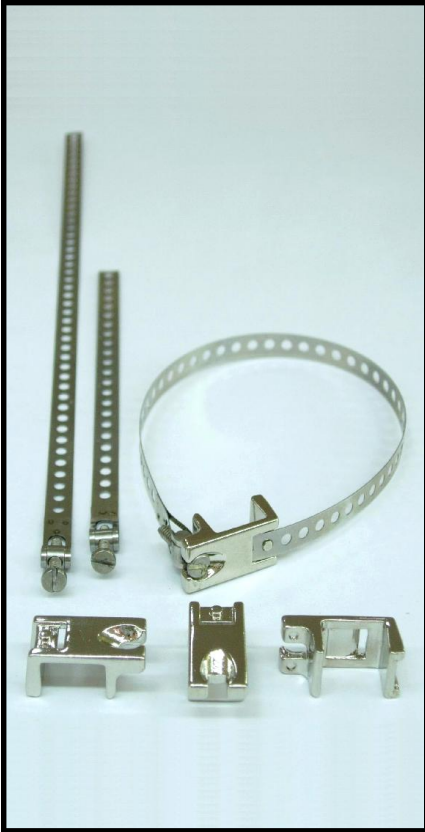
Mounting HL-03 & HL-15 series on Round Cylinder

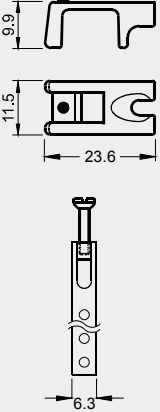
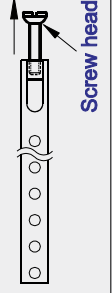

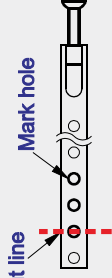
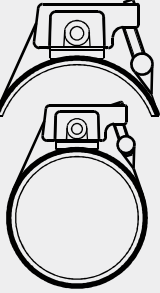


HPBK	Step 1	Step 2	Step 3	Step 4
<p>HPBK-01 For 6 φ ~ 40 φ round cylinder use</p> <p>HPBK-02 For 6 φ ~ 63 φ round cylinder use</p> 	<p>Loosen screw & nut.</p> 	<p>1. Place sensor & wrap the band around the cylinder.</p> <p>2. Position the hook with the nearest hole on the band and mark the hole with a permanent marker.</p> 	<p>1. Remove mounting assembly.</p> <p>2. Cut the band at the nearest edge of next hole.</p> 	<p>1. Re-place the sensor & mounting assembly.</p> <p>2. Wrap the band & put the chosen hole on hook.</p> <p>3. Position the switch and tighten.</p> <p>4. Finally swivel nut for steadying.</p> <p>⚠ ATTENTION! Do not over tighten! Damage to the switch and/or cylinder may occur.</p> 

HPAB CLAMP

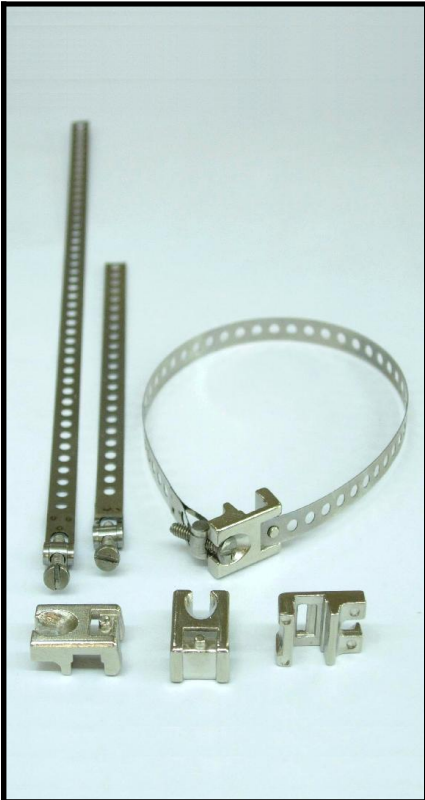
Mounting HL-20 & HL-21 series on Round Cylinder

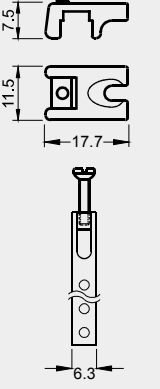
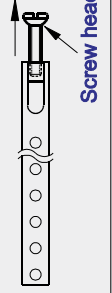
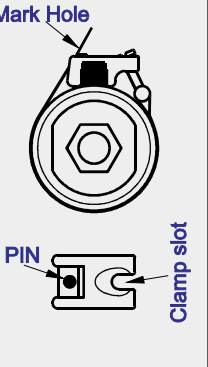
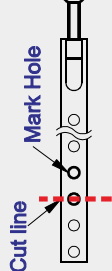
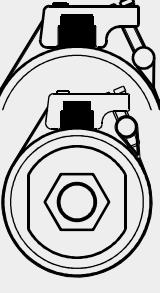


HPAB	Step 1	Step 2	Step 3	Step 4
<p>HPAB-01 For 12 ϕ ~ 63 ϕ round cylinder use</p> <p>HPAB-02 For 12 ϕ ~ 125 ϕ round cylinder use</p>	<p>Start by keeping screw 3 to 4 turns into barrel nut on the end of the band assembly.</p>	<p>1. Getting band end through the bottom hole of AL-13</p> <p>2. Place the screw head into the clamp and wrap the band around the cylinder.</p> <p>2. Position the pin with the nearest hole on the band and mark the hole with a permanent marker.</p>	<p>1. Remove clamp assembly.</p> <p>2. Cut the band at next 2 adjacent hole from marked hole.</p>	<p>1. Insert cut end of the band into flat slot opposite from the clamp slot.</p> <p>2. Place the chosen hole over the pin and bend the band firmly down with thumb pressure.</p> <p>3. Wrap the band around cylinder barrel and re-insert screw Head into clamp.</p> <p>4. Position the switch and tighten.</p>
				<p>ATTENTION! Do not over tighten! Damage to the switch and/or cylinder may occur.</p> 

HPBS CLAMP

Mounting HL-33 series on Round Cylinder



HPBS	Step 1	Step 2	Step 3	Step 4
<p>HPBS-01 HPBT-01 For 6 ϕ ~ 63 ϕ round cylinder use</p> <p>HPBS-02 HPBT-02 For 6 ϕ ~ 125 ϕ round cylinder use</p>	<p>Start by keeping screw 3 to 4 turns into barrel nut on the end of the band assembly.</p>	<p>1. Place the screw head into the clamp and wrap the band around the cylinder.</p> <p>2. Position the pin with the nearest hole on the band and mark the hole with a permanent marker.</p>	<p>1. Remove clamp assembly.</p> <p>2. Cut the band at next 1 adjacent hole from marked hole.</p>	<p>1. Insert cut end of the band into flat slot opposite from the clamp slot.</p> <p>2. Place the chosen hole over the pin and bend the band firmly down with thumb pressure.</p> <p>3. Wrap the band around cylinder barrel and re-insert screw Head into clamp.</p> <p>4. Position the switch and tighten.</p>
				<p>ATTENTION! Do not over tighten! Damage to the switch and/or cylinder may occur.</p> 

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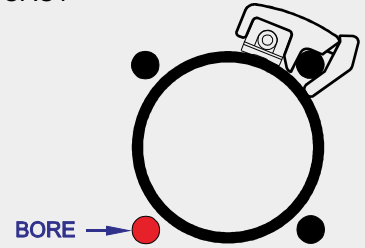
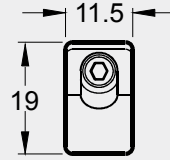
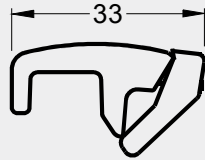
HPAC BRACKET

Mounting HL-20 & HL-21 series on Tie-Rod Cylinder



HPAC

MATERIAL: ZINC DIE-CAST



APPLY TO 32 φ TO 125 φ TIE-ROD CYLINDER (BORE SIZE FROM 5 φ TO 12 φ)

HPM BRACKET

Mounting HL-20 & HL-21 series on Tie-Rod Cylinder



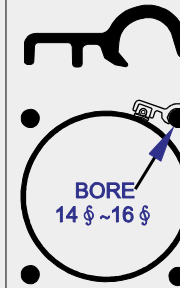
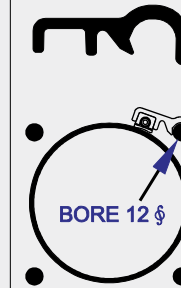
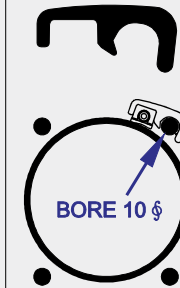
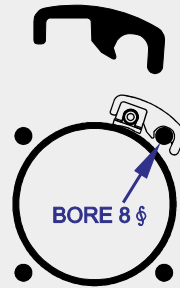
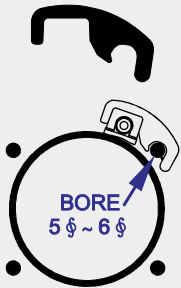
HPM - 6

HPM - 8

HPM - 10

HPM - 12

HPM - 16

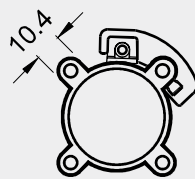
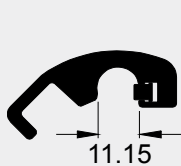


HPI BRACKET

Mounting HL-20 & HL-21 series on Mickeymouse Cylinder

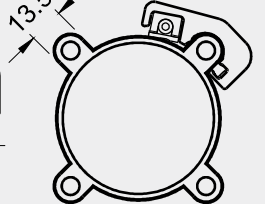
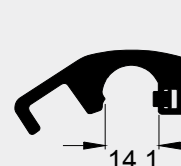


HPI-1



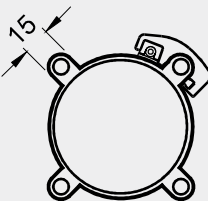
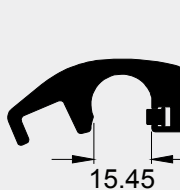
Apply to 32 φ to 40 φ Mickeymouse Cylinder

HPI-2



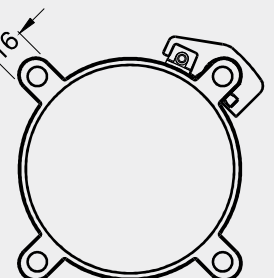
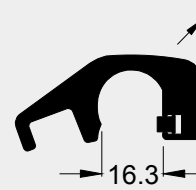
Apply to 50 φ to 63 φ Mickeymouse Cylinder

HPI-3



Apply to 80 φ Mickeymouse Cylinder

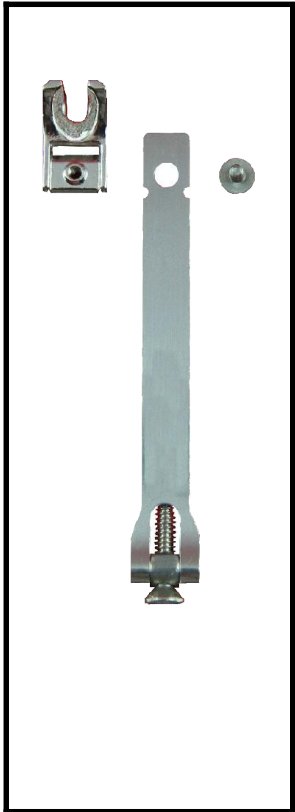
HPI-4



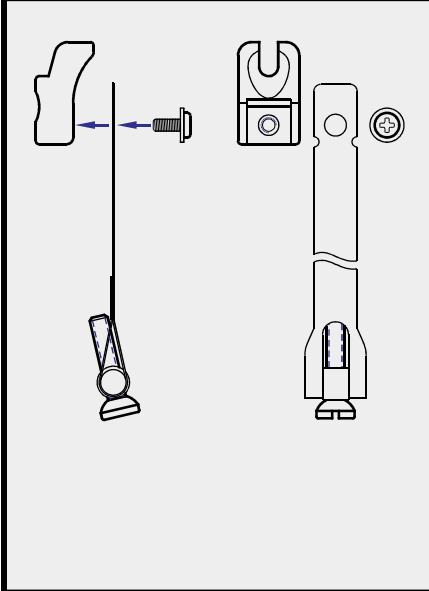
Apply to 100 φ Mickeymouse Cylinder

HPBJ CLAMP

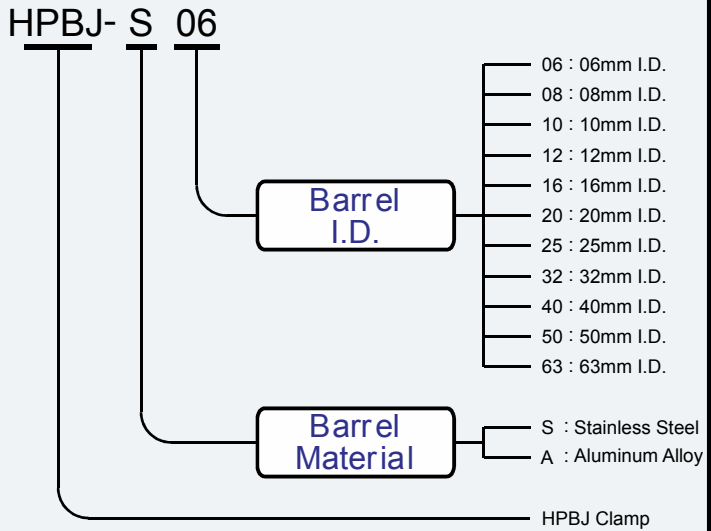
Mounting HL-13 series on ALL Size Round Cylinder



HPBJ
 HPBJ Band Apply to
 6 ϕ ~ 63 ϕ Each Size
 Stainless Steel Round Cylinder
 Aluminum Alloy



HPBJ Clamp Order Information

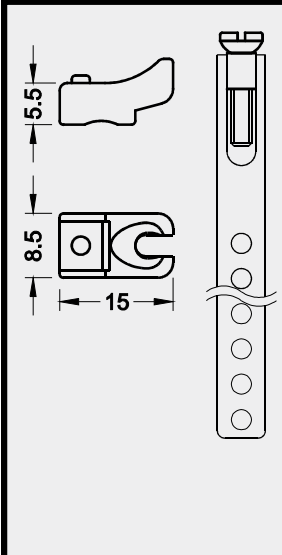


HPBG CLAMP

Mounting HL-13 Series for ABOVE 12 ϕ Round Cylinder



HPBG
 HPBG-01 Apply to
 6 ϕ ~ 63 ϕ
 HPBG-02 Apply to
 6 ϕ ~ 125 ϕ



	Step 1	Step 2	Step 3	Step 4
	Start by keeping screw 3 to 4 turns into barrel nut on the end of the band assembly.	<ol style="list-style-type: none"> 1. Get band end through bottom hole of AL-13 2. Place the screw head into the clamp and wrap the band around the cylinder. 3. Position the pin with the nearest hole on the band and mark the hole with a permanent marker. 	<ol style="list-style-type: none"> 1. Remove clamp assembly. 2. Cut the band at next 2 adjacent hole from marked hole. 	<ol style="list-style-type: none"> 1. Insert cut end of the band into flat slot opposite from the clamp slot. 2. Place the chosen hole over the pin and bend the band firmly down with thumb pressure. 3. Wrap the band around cylinder barrel and re-insert screw Head into clamp. 4. Position the switch and tighten.
				<p>⚠ ATTENTION! Do not over tighten! Damage to the switch and/or cylinder may occur.</p>

HPCD, HPCE BRACKET

Mounting HL-49 series on Tie-Rod Cylinder



HPCD

ATTENTION!
 Do not over tighten!
 Damage to the switch
 and/or cylinder may occur.

BORE

APPLY TO ALL TIE-ROD CYLINDER

HPCE

ATTENTION!
 Do not over tighten!
 Damage to the switch
 and/or cylinder may occur.

BORE

APPLY TO THE BORE SIZE UNDER 8 ϕ TIE-ROD CYLINDER

HPO BRACKET

Mounting HL-49 series on Mickeymouse Cylinder



HPO - 1

Apply to 32 ϕ to 40 ϕ Mickeymouse Cylinder

HPO - 2

Apply to 50 ϕ to 63 ϕ Mickeymouse Cylinder

HPO - 3

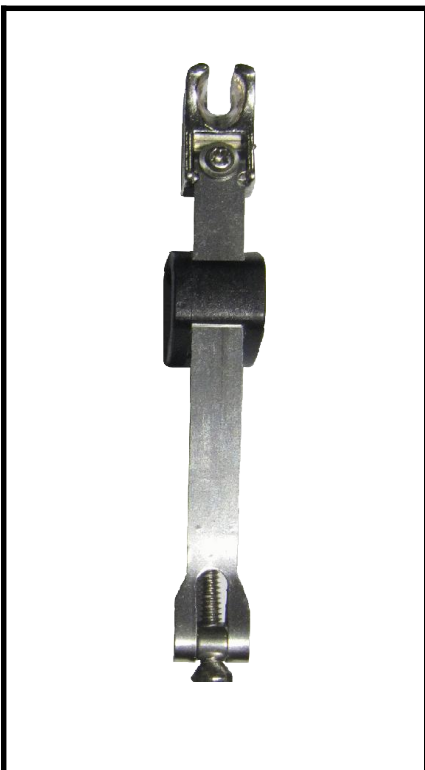
Apply to 80 ϕ Mickeymouse Cylinder

HPO - 4

Apply to 100 ϕ Mickeymouse Cylinder

HPBL BRACKET

Mounting HL-49 series on Round Cylinder



HPBL

HPBL Clamp Installation is the same as HPBJ Clamp

ATTENTION!
 Do not over tighten!
 Damage to the switch
 and/or cylinder may occur.

HPC Adaptor **With HPCD, HPCE, HPO, HPBL to apply for all types of cylinders**

Step 1	Step 2	Step 3
Hold the $\phi 4$ switch toward the PC adaptor	Slide the $\phi 4$ switch in the PC adaptor and secure the switch by turning the screw.	The PC adaptor applies to all types of cylinders.

$\phi 4$ SWITCH (HL - 07, HL - 26) ADAPTOR

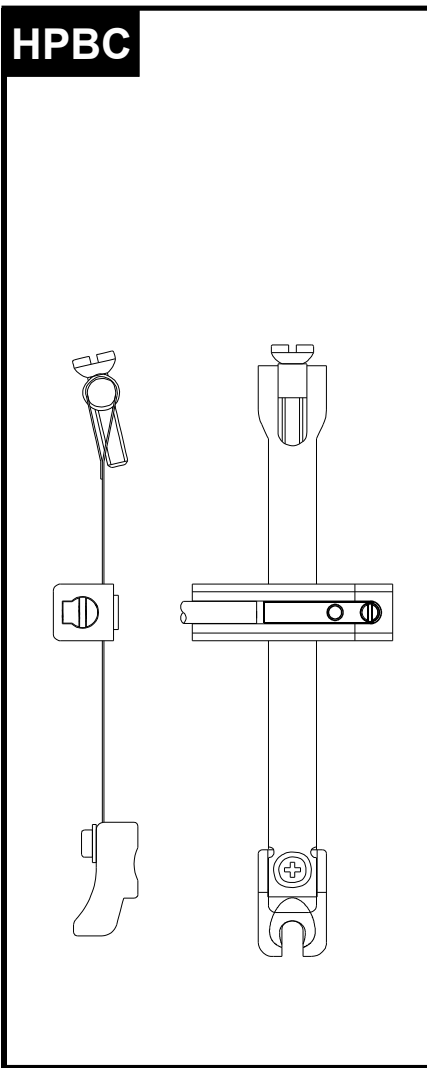
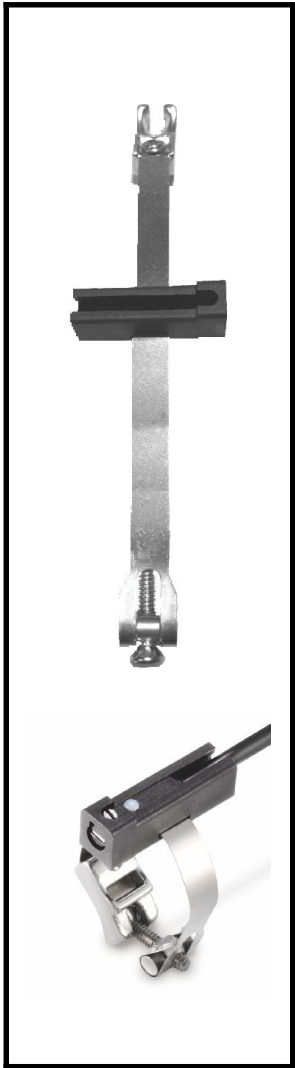


HPC+HPCD, HPC+HPCE Apply to Tie-rod Cylinder
HPC+HPO Apply to Mickeymouse Cylinder
HPC+HPBL Apply to Round Cylinder

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HPBC Adaptor

The Ø4 switch (HL-07,HL26 series) can apply to various round cylinders with the use of this adaptor

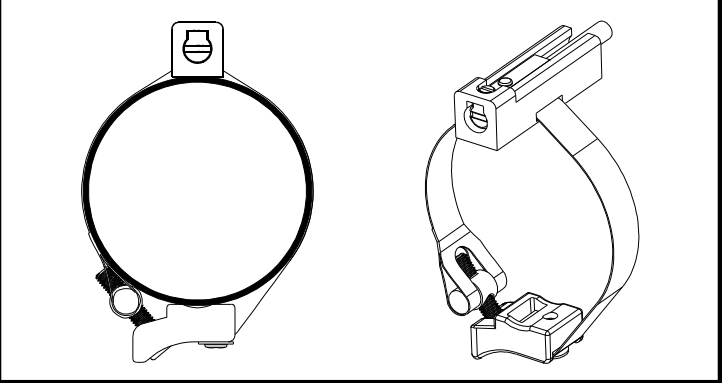


HPBC Clamp Order Information

HPBC- S 06

Barrel I.D.	06 : 06mm I.D.
	08 : 08mm I.D.
	10 : 10mm I.D.
	12 : 12mm I.D.
	16 : 16mm I.D.
	20 : 20mm I.D.
	25 : 25mm I.D.
	32 : 32mm I.D.
	40 : 40mm I.D.
	50 : 50mm I.D.
63 : 63mm I.D.	
Barrel Material	S : Stainless Steel
	A : Aluminum Alloy

PBC Clamp



HPS

HPS Adaptor

HPS

Ø4 switch applies to
SMC T SLOT

HPF

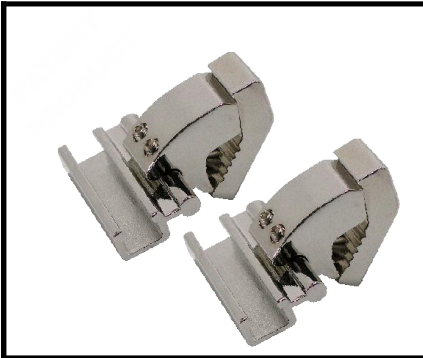
HPF Adaptor

HPF

Ø4 switch applies to
FESTO T SLOT

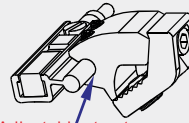
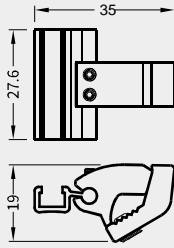
HPCC BRACKET

Mounting HL-39, HL-30, HL-31 & HL-35 series on Tie-Rod Cylinder

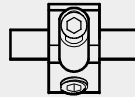


PCC

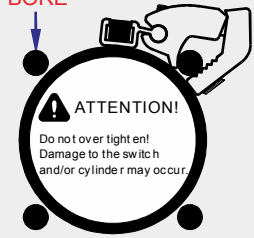
APPLY TO 32 φ TO 125 φ TIE-ROD CYLINDER (BORE SIZE FROM 5 φ TO 12 φ)



Adjustable structure can fix sensor close to the barrel surface



BORE



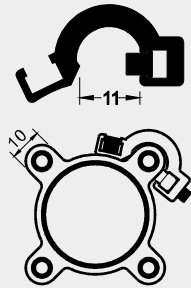
ATTENTION!
 Do not over tighten!
 Damage to the switch and/or cylinder may occur.

HPD BRACKET

Mounting HL-39, HL-30, HL-31 & HL-35 series on Mickeymouse Cylinder

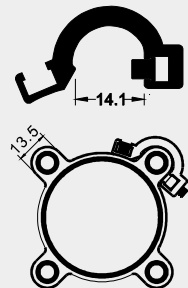


HPD - 1



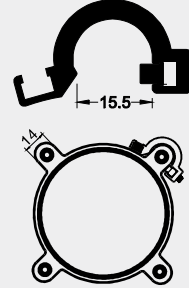
Apply to 32 φ to 40 φ Mickeymouse Cylinder

HPD - 2



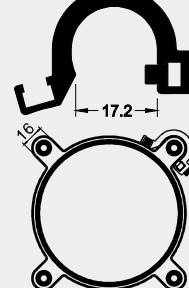
Apply to 50 φ to 63 φ Mickeymouse Cylinder

HPD - 3



Apply to 80 φ Mickeymouse Cylinder

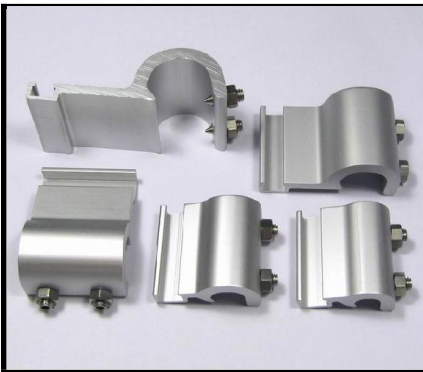
HPD - 4



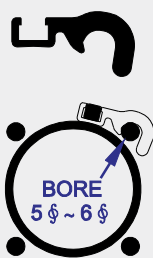
Apply to 100 φ Mickeymouse Cylinder

HPN BRACKET

Mounting HL-39, HL-30, HL-31 & HL-35 series on TIE-ROD Cylinder



HPN - 6



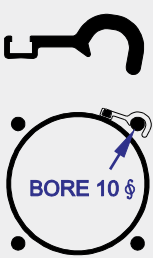
BORE 5 φ ~ 6 φ

HPN - 8



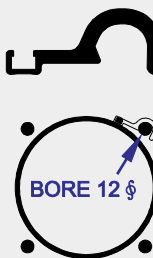
BORE 8 φ

HPN - 10



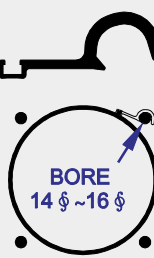
BORE 10 φ

HPN - 12



BORE 12 φ

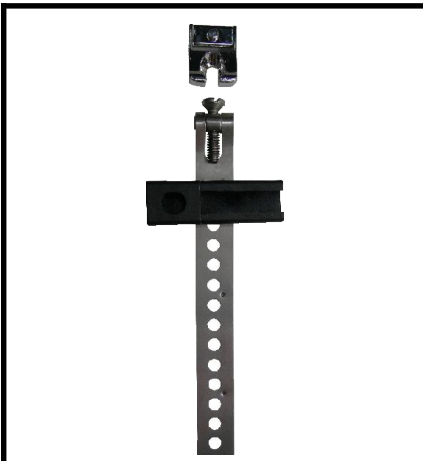
HPN - 16



BORE 14 φ ~ 16 φ

HPBI BRACKET

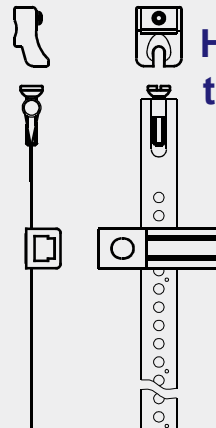
Mounting HL-39, HL-30, HL-31 & HL-35 series on Round Cylinder



HPBI



ATTENTION!
 Do not over tighten!
 Damage to the switch and/or cylinder may occur.



HPBI Clamp Installation is the same as HPBG Clamp

