

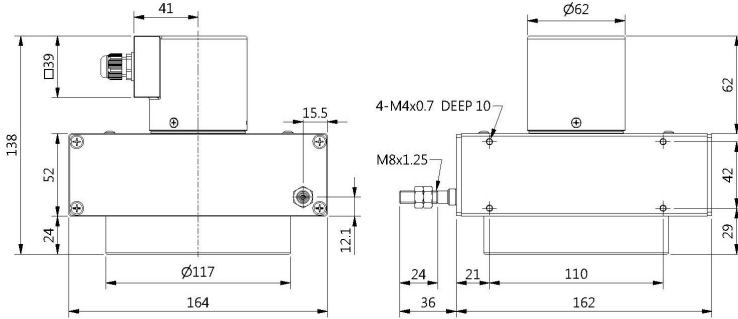
# HPS-L1-D

**DISPLACEMENT SENSOR**  
**LINEAR WIRE POTENTIOMETER**  
**RS 485**



- Stroke 行程: 6000 ~ 8000 mm
- Interface: RS485 MODBUS RTU Output

## DIMENSION



## ORDERING INFORMATION

<b>HPS-L1-</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	Measuring Range 量測行程	Signal Mode 信號模式	Pot. Life & Linearity 壽命	Signal Sequence 信號輸出序列
	60: 6000 mm 75: 7500 mm 80: 8000 mm	D: RS-485	*F: 5 X 10 <sup>6</sup> cycles, linearity 0.1% FS *OPTION	*W: Reversed *OPTION

## ELECTRICAL SPEC.

Full Stroke (mm) 量測行程	6000, 7500, 8000		
Sensor	Wire-wound and hybrid potentiometer		
Output Signal Mode 輸出信號模式	RS485 MODBUS RTU	RL	VH VL
		50Ω	> 2V < 0.2V
		27Ω	> 1.5V < 0.2V
Resolution 解析	< 0.025%(mcu AD 解析) / 12 bit (4096)		
Potentiometer Life 電位計壽命	1X10 <sup>6</sup> cycles		
Linearity 線性度	[standard class] ±0.15% FS; [precision class] ±0.1% FS		
Repeatability 重覆性	±0.10% FS		
Input Power 供應電壓	DC12-24 Vdc ± 20%		
Input Current 供應電流	20 mA max.		
Output Short Protection 輸出短路保護	Output short protection < 50mA		
Polarity Reverse Protection 極性保護	Input voltage polarity reverse protection 8~26 Vdc		

## MECHANICAL SPEC.

Wire Specification 線徑規格	Material: SUS304 with nylon coating; Diameter: 1.0 mm
Starting Torque on Spring 拉力	≤ 2,200 g
Max. Travel Speed 最大往復速度	600 mm / sec.
Vibration 震動	10-55 Hz / 1.5 mm Vpp / 10 G (max.)
Cable 電線	Ø5.4, 100 cm long
Weight 重量	< 3,500 g

## ENVIRONMENTAL SPEC.

Operating Temp. / Humidity 操作溫度/濕度	-20°C ~ 70°C, RH35% ~ 90%(No Condensation)
Storage Temp. 儲存溫度	-20°C ~ 80°C
Protection 保護等級	IP64: Dust & Dripping Proof (only for potentiometer housing)
Wire Life 壽命	Typical > 1 X 10 <sup>6</sup> cycles

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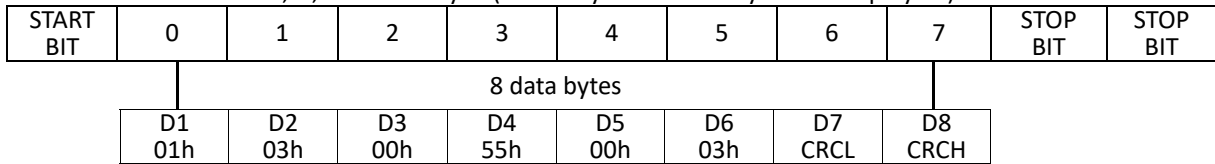


- Stroke 行程: 6000 ~ 8000 mm
- Interface: RS485 MODBUS RTU Output

## RS485 MODBUS RTU Communication Protocol

Baud Rate 傳輸速度	19200 (Programming 可修改)
Data Bit 資料位元	8 (Fix 固定)
Parity Check 極性檢查	N (Fix 固定)
Stop Bit 停止位元	2 (Fix 固定)
Device Address 產品位址	00 (Programming 可修改)

8, N, 2 RTU: 11 bytes(1 start bytes + 8 data bytes + 2 stop bytes)



8 data bytes = 6 data bytes + 2 bytes CRC

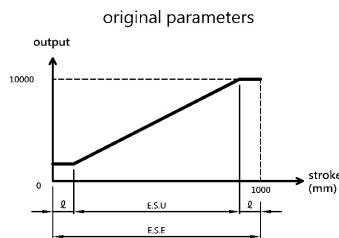
6 data bits (Readout Data): **01** **03** **0000** **0000**

D1	D2	D3 / D4	D5 / D6
<b>01</b>	<b>03</b>	<b>0005</b>	<b>0001</b>
Device Address	Readout Code	Readout Data Address	Readout Data Value(16h)
		0005	0~10000

6 data bits (Write Data): **01** **06** **0000** **0000**

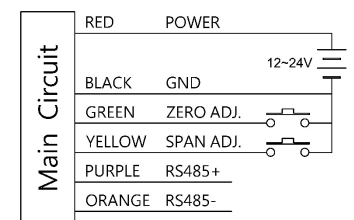
D1	D2	D3 / D4	D5 / D6
<b>01</b>	<b>06</b>	<b>0000</b>	<b>0000</b>
Device Address	Write Code	Write Data Address	Set Data Address
		0000	Write Address
		0001	Write Baud Rate
			Data Value
			0000~00FF(256)
			0001: 9600
			0002: 19200
			0003: 38400
			0004: 57600

## Factory Fault



E.S.E.有效電子行程 (mm)	6000	7500	8000
E.S.U.使用電子行程 (mm)	10~5990	10~7490	10~7990
Nonlinear Error 非線性誤差	±0.15%FS		
Repeatability Error 重複性誤差	±0.10%FS		

## Electrical Connection



## Programming of the start and end

- Pulling stainless wire according to the demand at the start position, connect signal ZERO (Green Wire) to GND (Black Wire) for a short circuit.
- Pulling stainless wire according to demand at the end position, connect signal SPAN (Yellow Wire) to GND (Black Wire) for a short circuit.
- 將鋼索拉至預計開始的行程，連接 ZERO (綠線) 和 GND (黑線) 短路至少 1 秒。
- 將鋼索拉至預計結束的行程，連接 SPAN (黃線) 和 GND (黑線) 短路至少 1 秒。