

# RH/RP Displacement Sensor -Profinet Output



# **Technical Characteristics**

Rugged and fully enclosed design Non-wear, non-contact measurement method Linear measurement, absolute output Nonlinearity less than 0.01% Easy diagnosis, LEDs real-time condition monitoring The repetition accuracy is less than 0.001% Digital technology, stable and reliable



Input

# C C Product Parameters-Profinet Output

1~9

#### Measurement data Position magnet ring

Stroke length

25~5500 mm, customized according to customer needs

Number of measurements

Output		Operating conditions		
Interface	Profinet IO RT	Magnet velocity	Arbitrary	
Data protocol	TEC Profile and Encoder Profile 4.1	Protection level	IP67RH Stainless Stell Rod/IP65RP Aluminum profile	
Transmission speed	Maximum 100Mbit/s	Operating temperature	-40 °C ~ +85 °C	
Resolution	1 / 2 / 5 / 10 / 20 / 50 / 100 µm	Humidity/dew point	Humidity 90%, no condensation	
Nonlinearity	${<}\pm0.01\%$ of full scale, minimum ${\pm}50\mu\text{m}$	Shock index	GB/T2423.5 100g(6ms)	
Repetition accuracy	$< 0.001\%$ for full-scale taxis, minimum $\pm 1 \mu m$	Vibration index	GB/T2423.10 20g/10~2000Hz	
	$1KHz \ (range \le 1m) \qquad 500Hz \ (1m < range \le 2m)$	EMC Test	GB/T17626.2/3/4/6/8, Grade 4/3/4/3/3,	
Update time	250Hz (2m <range<3m) ,="" customizable<="" td=""><td></td><td>Class A, CE Certification</td></range<3m)>		Class A, CE Certification	
Hysteresis	<10µm			
Temperature coefficient	<15ppm/ <sup>°</sup> C			

## **Structure and Material**

Failure indication		Electronic bin cover with LEDs display
	Electronic bin	Aluminum alloy
RH Series	Measuring rod	304 stainless steel
Cenes	Outer tube pressure	35MPa (continuous)/70MPa (peak) or 350bar ( continuous)/700bar (peak)
	Position magnet	Standard magnet ring and various ring magnets
RP	Electronic bin	Aluminum alloy
Series	Measuring rod	Aluminum alloy
	Position magnet	Slider magnet, square magnet, sector magnet
Mou	nting thread form	M18×1.5、 M20×1.5、 3/4"-16UNF-3A (customizable)
	nstallation direction	Any direction
Outgoing mode		Cable outlet or Connector

Electrical Connection					
Input voltage	+24Vdc±20%				
operating current	< 90mA (varying with range)				
Polarity protection	Max30Vdc				
Overvoltage protection	Max.36Vdc				
Insulation resistance	$> 10 M\Omega$				
Insulation strength	500V				



# A a Installation Instructions-Profinet Output

### • RH pressure-resistant rod mounting dimensions

RH series pressure-resistant rodshell, built-in installation design for hydraulic system, pressure-resistant 35MPa continuous, flexible and simple installation mode, mounting thread form M18×1.5 or M20×1.5 or 3/4"-16UNF-3A.

Note: The measurement Non-usable area shown in the figure indicates that the output value of the sensor in this area is zero or unreliable. The values of the head and end Non-usable areas of this product are 50.8 m and 63.5 m respectively. The value of the measurement Non-usable area can be appropriately modified according to the needs of customers, please pointed out when ordering.



Note: With standard magnet ring kit 288501, with magnetic insulation gasket and fixing screw; Plug 321723 when Connector is equipped with cable plug

#### • Dimensions and installation guidance of RP aluminum profile sensor

RP Series aluminum profile provides flexible and simple external installation mode, which is suitable for stroke or position detection of linear motion mechanism, and can also be used for external position detection of hydraulic cylinder.





# C C Common Accessories-Profinet Output



Note: Please refer to "Magnet ring Selection" and "Cable Selection" for details of cables, magnet rings and other models.

Wiring mode



		$\sim$			
Connector Connection Mode (Interface 1, 2)     Pin Line color Pin/wire function definition					
1	Yellow	Tx +			
2	White	Rx+			
3	Orange	Tx -			
4	Blue	Rx-			
<ul> <li>Single cable outlet connection mode</li> <li>Pin Line color 1* Pin/wire function definition</li> </ul>					
1	Yellow	Tx +			
2	White	Rx+			
3	Orange	Tx -			
4	Blue	Rx-			
5	Red	24Vdc			
6	Black	СОМ			
Noto: *	Line color 1	light green PLIB sheath			

			4-pin connector socket (for power supply)			
• Conr Pin	nector Con Line color		lode (Interface 3) function definition			
1	Brown	+24Vdc(	-20%~+20%)			
2	White	Do not co	nnect			
3	Blue	COM				
4 Black Do not connect			onnect			
• Dou Pin	ble cable outlet connection mode Line Line Pin/wire function definition color1* color2*					
1	Yellow	Yellow	Tx +			
2	White	White	Rx+			
3	Orange	Orange	Tx -			
4	Blue	Blue	Rx-			
5	Red	-	24Vdc			
6	Black	-	СОМ			
Note: * Line color 2: light green, PUR sheath, 4 cores,-40C~70℃						

Note: \* Line color 1: light green, PUR sheath, 6 cores,-40C~85°C

# RH/RP Displacement Sensor - Profinet Output



X X Selection	<b>Guide-Profinet</b>	Output
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01-02	Sensor shell form
R H	Pressure-resistant rod (internal or external)
R P	Aluminum profile (external only)
03-07	Measuring range

Four digits, less than four digits are preceded by zero, M means metric system, unit: mm

08-0	08-09		M	Magnet ring type/mounting thread form			
		S	1	M18×1.5, measuring rod diameter 10mm, 304 material			
Only fo RP	or	S	2	M20×1.5, measuring rod diameter 10mm, 304 material			
Series		S	3	3/4"-16UNF-3A, measuring rod diameter 10mm, 304 material			
Only for		С	1	Sector magnet			
RP		С	2	Slider magnet			
Series		С	3	Square magnet			
10-13			С	onnection form			
DA	*		* Single cable outlet, light green, PUR sheath (6 cores),-40C~85°C (** denotes cable length in meters)				
DB			*	Double cable outlet, light green, PUR sheath (one set of 6 cores,-40C~85C; one set of 4 cores,-40 C~70C)			
				(* *denotes cable length in meters)			
P D 5 6 two sets of 4-pin M12 female connectors, one set of 4-pin M8 male connector		two sets of 4-pin M12 female connectors, one set of 4-pin M8 male connector					

Note: For supporting cables, please refer to the Selection Guide of Industrial Ethernet Cable Accessories

14-16	Communication interface		
<b>14</b> N	Profinet communication interface		
15	Number of magnet rings (1~9 optional)		
16	0-General, customizable		
17-18	Non-usable area at head and end, customizable		
<b>17-18</b> S 0	Non-usable area at head and end, customizable 50.8mm+63.5mm		

• Selection example: RH-M0300-S1 -PD56-N10-S0

Indicates: RH structure series, 300mm Stroke length, M18X1.5 mounting thread, measuring rod diameter 10mm, 304 material, 2 sets of 4-pin female connectors, M12, 1 set of 4-pin male connector, M8, Profinet protocol, single magnet ring, head Non-usable area 50.8mm, end Non-usable area 63.5mm.



# **G g** Selection of Cable Accessories for Industrial Ethernet



01-03	Туре		
N E T	Industrial Ethernet		
04-07	Cable length		
M * *	$\star$ Less than 3 digits are preceded by zeros, and M means metric system, unit m		
08-10	Cable type, outlet mode		
08	Cable type		
D	PVC sheath, blue, 8-pin, shielded, CAT-5e,-40~85°C		
Α	PUR sheath, green, 4-pin, shielded, CAT-5eES,-40~70C		
09 10	Connection		
1 1	Two 4-pin connector, M12, d-code		
2 2	Two 4-pin right angle male connectors, M12, d-code		
1 3	One end 4-pin connector, M12, d-code, one end shielded RJ45 connector		
2 3	One end 4-pin right angle male connector, M12, d-code, one end shielded RJ45 connector		

#### • Selection example: NET-M010-D11

Indicates: Ethernet cable, 10m long, PVC sheath, blue, 8-pin, CAT-5e standard, shielded,-40~85C, 4-pin connector at both ends, M12, d-code.

Selection example: NET-M020-A23

Indicates: Ethernet cable, 20 meters long, PUR sheath, green, 4-pin, shielded, CAT-5eES,-40~70°C, 4-pin right angle male connector at one end of the cable, M12, d-code, and shielded RJ45 connector at one end.

# LED real-time state monitoring and diagnosis

Green light	ON	ON	ON	Flash	
Red light	OFF	ON	Flash	×	
Function	Normal work	The network cable is not connected	Configuring	Fault	