



Technical Characteristics

Rugged and fully enclosed design Non-wear, non-contact measurement method Linear measurement, absolute output High resolution, up to 0.1µm Easy diagnosis, LEDs real-time condition monitoring Repeatability is less than 0.001%FS Digital technology, stable and reliable Real-time induction and synchronous measurement Direct SSI signal output can directly replace encoder



C C Product Parameters - SSI Output

Input	
Measurement data	Position magnet ring
Stroke length	25~5500 mm, customized according to customer needs
Number of measurements	1

Output		Operating	conditions
Interface	SSI Synchronous Serial Interface	Magnet velocity	Arbitrary
Data Format	Binary or Gray code	Protection level	IP67RH Stainless Stell Rod/IP65RP Aluminum profile
Data length	24/25/26bit	Operating temperature	-40°C ~ +85°C
Resolution	0.1/0.5 / 1 / 2 / 5 / 10 / 20 / 40/ 50 / 100 µm	Humidity/ dew point	Humidity 90%, no condensation
Nonlinearity	$<\pm 0.01\%$ of full scale, minimum $\pm 50\mu$ m	Shock index	GB/T2423.5 100g(6ms)
Repetition accuracy	${<}\pm0.001\%$ of full scale, minimum ${\pm}1\mu m$	Vibration index	GB/T2423.10 20g/10~2000Hz
Transmission rate	50KBD~1MBD line length <3	EMC Test	GB/T17626.2/3/4/6/8, Grade4/3/4/3/3, Class A, CE Certification
Update time (High update	Stroke: 300 750 1000 2000 5000 mm		
rate)	Frequency: 3.7 3.0 2.3 1.2 0.5 kHz		
Update time (general)	1KHz (range \leq 1m) 500Hz (1m < range \leq 2m) 250Hz (2m < range \leq 3m), customizable		
Hysteresis	<10µm		
Temperature	<15ppm/ [°] C		

<15ppm/°C

coefficient

Stru	icture and N	Naterials	Electrical Connection	S
Failu	ure indication	Electronic bin coverwith LEDs display	Input voltage	+24Vdc±20%
	Electronic bin	Aluminum alloy	Operating current	<80mA (varying with range)
RH	Measuring rod	304 stainless steel	Polarity protection	Max30Vdc
Series	Outer tube pressure	35MPa (continuous)/70MPa (peak) or 350bar continuous)/700bar (peak)	Overvoltage protection	Max.36Vdc
	Position magnet	Standard magnet ring and various ring magnets	Insulation resistance	$> 10 M\Omega$
	Electronic bin	Aluminum alloy	Insulation strength	500V
Series Po	Measuring rod	Aluminum alloy		
	Position magnet	Slider magnet, square magnet, sector magnet		
Mounting thread form		M18×1.5、 M20×1.5、 3/4"-16UNF-3A (customizable)		
Installa	ation direction	Any direction		

Outgoing mode

Cable outlet or Connector



S Output Characteristics-SSI Output

• SSI output magnetostrictive displacement sensor can provide Synchronized Serial Interface (SSI), which can convert the real-time position of vernier magnet into 24-bit, 25-bit or 26-bit (binary or Gray code) serial data format, and transmit the data to the controller by serial communication after receiving the clock signal provided by the controller. The format of SSI output data is identical to absolute output encoder, and it can be directly connected with PLC function modules (such as SM338 or SM138 of Siemens), which can be conveniently used to replace absolute encoder.



LI LED Real-time State Monitoring and Diagnosis

• Red and green LEDs built into the sensor head cover provide sensor working condition and diagnostic function.

Gre	en light	ON	ON	Flash	
Re	d light	OFF	ON	ON	
Fur	nction	Normal work	The magnet leaves the Stroke length range or the magnet cannot be detected	Programming state	

B b Programming

 The TEC sensor can be programmed in the field using a USB converter. No needs to open the electronic bin, USB port power supply, standard cable connection, fully meet the needs of customers. The following parameters of the sensor can be modified by the configuration software of PC; Set sensor parameters (data length, data format, measurement direction); Graphical display of magnet position value; The user arbitrarily sets the sensor zero point and the measurement display value; Diagnose the sensor online by error code.



USB Converter (Order No. TEC612812)

dev1 × 连接传题		-	変更出厂设置
传感器信息		V -	N试传感器→ .zdjytec.com
 ·	後感器设定 割損 輸出格式 ○ 格雷码 ○ 二进制 参据长度	288款设置 连线 方向 ○ 正向 ○ 反向	庾序
诊断代码: 別新		-	设定

Sensor Programming Window



A a Installation Instructions SSI Output

SSI output magnetostrictive linear displacement sensor provides synchronous serial signal output, which can convert the real-time position of vernier magnet into 24, 25 or 26-bit (binary or Gray code) data form, and transmit the data to the controller by serial communication after receiving the clock signal provided by the controller. The data format of SSI output is identical with absolute output encoder, and it can be connected directly with the function module of PLC, so it can be conveniently used to replace absolute encoder.

• Dimensions and installation guidance of RH pressure-resistant rod sensor

RH series pressure-resistant rod shell, 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 default values of the first and last measurement non-usable areas of this product are 50.8mm and 63.5mm respectively. The value of the measurement non-usable area can be appropriately modified according to the needs of customers, please pointed out when ordering.



• 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 - SSI Output

Accessory name/ model	Dimensions	Accessory name/ model	Dimensions	Accessory name/ model	Dimensions
Standard Magnet ring Order No.: 211501	4 <u>.04.3</u> <u>Φ24</u> <u>Φ24</u> Φ24 Φ24 Φ24 Φ24 Φ	Magnetic isolation gasket	Φ <u>133</u> 4- <u>0</u> 4.3 Φ <u>24</u> Φ <u>24</u> Φ <u>24</u> Φ <u>24</u> Φ <u>24</u> Φ <u>13.5</u> 5 - - - - - - - - - - - - -	7-pinFemale Connector Order No.: 312703	SP SW W
Sector magnet Order No.: 211502	120° R12 0 033 0 013.5	Sector magnetic isolation gasket	120° R12 Q2-04.3 Q33 Q33 Q13.5	7-pin 90 Female Connector Order No.: 312704	WT W
Slider magnet Order No.: 211503	312 572 572 10 10 10 10 10 10 10 10 10 10 10 10 10	Square magnet Order No.: 211508	28 19 19 19 19 19 19 19 19 19 19 19 19 19		

Note: Please refer to "Magnet ring Selection" for details of magnet ring kit and other models.

• Wiring mode

When the sensor is connector output, refer to the pin definition in the following table for wiring mode; when the sensor is cable outlet output, refer to the line color definition in the following table for connection mode



425

	male con or head)	nector ar	rangement (facing the		n male con or head)	nector arrangement (facing the
Pin	Line color 1*	Line color 2*	Pin/wire function definition	Pin	Line color 3*	Pin/wire function definition
1	White	Grey	Data (-)	1	Yellow	Clock (+)
2	Yellow	Pink	Data (+)	2	Grey	Data (+)
3	Blue	Yellow	Clock (+)	3	Pink	Clock (-)
1	Green	Green	Clock (-)	4	-	Reservation
5	Red	Brown	+24Vdc power supply (-20%~+20%)	5	Green	Data (-)
6	Black	White	0 Vdc	6	Blue	0 Vdc (power supply circuit)
7	-	-	Do not connect	7	Brown	+24Vdc power supply (-20%~+20%)
	.			-		

Note: * Line color 1: cable PUR sheath, orange, -20~90 C * Line color 2/3: Cable PVC sheath, orange,-20~105 C

senso	or head)	
Pin	Line color 3*	Pin/wire function definition
1	Yellow	Clock (+)
2	Grey	Data (+)
3	Pink	Clock (-)
4	-	Reservation
5	Green	Data (-)
6	Blue	0 Vdc (power supply circuit)
7	Brown	+24Vdc power supply (-20%~+20%)
8	White	Reservation



C C Selection Guide-SSI Output

01 - 02	S	Sensor shell form				
RH		Pressure-resistant rod (internal or external)				
RP	A	luminum profile (external only)				
03 - 07	N	leasuring range				
		our digits, less than four digits are preceded by ero, M means metric svstem, unitmm				
08 - 09	lagnet ring Type / Mounting Thread Form					
	S 1	M 18×1.5, measuring rod diameter 10mm, 304 material				
Only for RH series	S 2	M20×1.5, measuring rod diameter 10mm, 304 material				
	S 3	3/4 "-16UNF-3A, measuring rod diameter 10mm, 304 material				
Only	C 1	Sector magnet				
for RP	C 2	Slider magnet				
series	С 3	Square magnet				
series Only for RP	S 2 S 3 C 1 C 2	304 material M20×1.5, measuring rod diameter 10mm, 304 material 3/4 "-16UNF-3A, measuring rod diameter 10mm, 304 material Sector magnet Slider magnet				

12 - 13	Cable outlet r	nod	e: cable length	i, 01~9	9 meters
10 - 13	Connector me	ode			
P H 7	0 M16 male c	onne	ector (7-pin)		
P B 8	0) M16 male c	onne	ector (8-pin)		
14 - 19	Signal output	moo	de		
15	Data length				
1	24-bit	2	25-bit	3	26-bit*
	* 26-bitis parit	y bite	s and 25-bitis s	tatus b	its
16	Data Format				
В	Binary	G	Gray code		
17	Resolution				
1	0.1mm	2	0.05mm		
3	0.02mm	4	0.01mm		
5	0.005mm	6	0.002mm		
7	0.001mm	8	0.04mm		
9	0.0005mm 0 0.0001mm				
18	Direction				
0	Forward	1	Reverse		
19	Mode				
0	Regular 1	Sync	hronization	2 Hi ra	gh update te
20 - 21	Non-usable a	rea a	at head and er	nd, cus	tomizable
S 0	50.8mm+63.5	mm			
B 0	30mm+60mm				
S 1	28mm+66mm	(us	ed in RP series	s)	

10 - 13	Connection form
10-11	Cable outlet mode
DH	PUR sheath, orange,-20~90 $^\circ\!\mathrm{C}$, end scattered, line color 1
DU	PVC sheath, orange,-20~105 $\rm C$, and one end scattered, line color 2
DB	PVC sheath, orange,-20~105 $^{\rm C}$, and one end scattered, line color 3
DI	PUR sheath, orange,-20~90 ^C , end with 6-pin connector
DV	PVC sheath, orange,-20~105 $^\circ\!\mathrm{C}$, end with 6-pin connector
DC	PVC sheath, orange,-20~105 $^\circ\!\!\!\!C$, end with 8-pin connector

Note: See SSI cable accessories selection for supporting cables

• Note: The forward output of the sensor means that when the magnet ring moves away from the electronic bin, the output value increases and decreases when the magnet ring moves in the reverse direction.

• Selection example: RH-M0500-S1-PH70-S2B700-S0

Indicates: The ordered product model is RH series displacement sensor, the measuring range is 500mm, the mounting thread form is M18×1.5, the measuring rod diameter is 10mm, 304 material, 7-pin M16 connector connection, no cable, SSI output (data bit length is 25-bit, output format is binary, resolution is 0.001mm, forward output, asynchronous mode), and the head non-usable area is 50.8mm and the end non-usable area is 63.5mm.



S S SSI Cable accessories selection Guide



01-03	Туре
S S I	SSI interface
04 07	
04 - 07	Cable length
M * * Less than 3 digits are preceded by zeros, and M means metric system, unit m	
08 - 10	Cable type, outlet mode
H 0 1	One end of 7-pin (M16) is female connector, and one end scattered
H 0 3	One end of 7-pin (M16) right angle female connector, and one end scattered
U 0 1	One end of 7-pin (M16) is female connector, and one end scattered
U 0 2	One end of 8-pin (M16) is female connector, and one end scattered
U 0 3	One end of 7-pin (M16) right angle female connector, and one end scattered
U 0 4	One end of 8-pin (M16) right angle female connector, and one end scattered
Note	H: Cable type, PURsheath, orange, -20~90 C
	U: Cable type, PVC sheath, orange,-20~105℃

Selection example: SSI-M005-H01

Indicates: SSI interface cable, cable length 5 meters, PURsheath, orange, -20~90 C, one end of the cable is 7-pin (M16) female connector, and one end scattered.

Selection example: SSI-M010-U04

Indicates: SSI interface cable, cable length 10 meters, PVC sheath, orange, -20~105 C, one end of the cable is an 8-pin (M16) right angle female connector, and one end scattered.