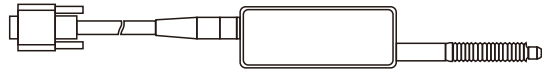


# Contact-Type Displacement Sensor Manual

## Safety Precautions

When using this instrument, please comply with the specifications, functions and precautions in the manual. Exceeding the scope of use will affect the safety performance of this instrument.

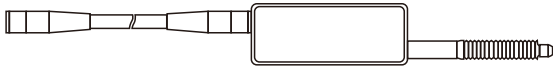
## Specification type



Plug type (0-12.7mm)



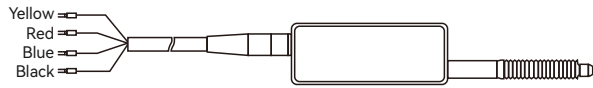
Plug type (0-25.4mm)



Aviation plug type (0-12.7mm)



Aviation plug type (0-25.4mm)

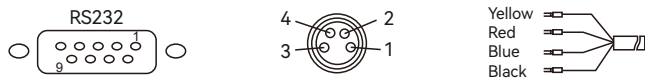


Lead type (0-12.7mm)



Lead type (0-25.4mm)

## Port Output Description



Plug Type	
Pin number	Function
2	TXD
3	RXD
4	DC 5V (power)
5	GND (ground)

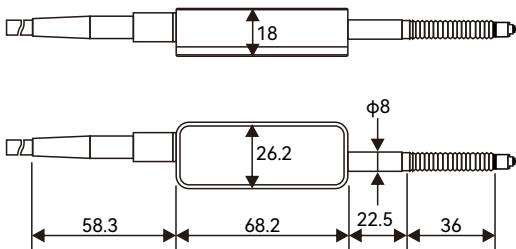
Aviation Plug Type	
Pin number	Function
1	DC 5V (power)
2	RXD
3	TXD
4	GND (ground)

RS232 Lead Type	
Pin number	Function
2	TXD
3	RXD
4	DC 5V (power)
5	GND (ground)

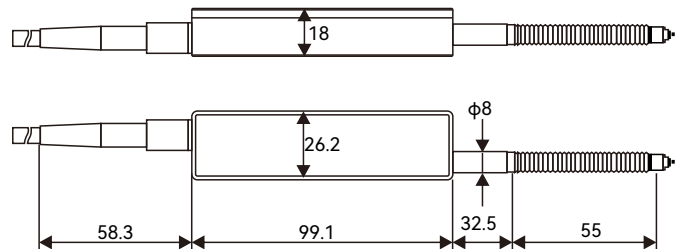
RS485 Lead Type	
Pin number	Function
1	DC 5V (power)
2	RXD
3	TXD
4	GND (ground)

## Dimensions

Unit: mm



0-12.7mm



0-25.4mm

## Technical indicators

Measuring range	0-12.7 mm				0-25.4 mm			
	5μm	1μm	0.5μm	0.2μm	5μm	1μm	0.5μm	0.2μm
Resolution	5μm	1μm	0.5μm	0.2μm	5μm	1μm	0.5μm	0.2μm
Accuracy	≤10μm	±2μm(≤4μm)	≤2μm	≤1.4μm	≤10μm	±3μm(≤6μm)	≤3μm	≤1.8μm
Waterproof grade	IP65							

Detection system	Grating measurement system, image sensor							
Response time	DC 5V							
Working current	<50mA							
Voltage	50ms							
Signal output	DB9 pin / aviation plug type / lead type							
Communication	2m							

- Note:**
- In the above example of communication between the host and the displacement sensor, the host sends an 8-byte data acquisition command, and the displacement sensor responds with 9 bytes of data, with the high bit first, and data words 1-2 are the displacement sensor measurement data.
  - The measurement data is 4 bytes, the first byte is the sign bit, representing the positive and negative signs, and the 2nd to 4th bytes are hexadecimal measurement data.
  - The measurement data in the case are converted into decimal: 4665. Since the sign bit is 01H, it is expressed as a negative number. The actual displacement length corresponding to the high-precision 10,000 displacement sensor and the 10,000 displacement sensor is -0.4665mm; the displacement length corresponding to the high-precision 1000 and 1,000 displacement sensors is -4.665mm.
  - Accessing the register first address 0000H means reading the measurement data! Accessing the register first address 1000H means reading the maximum value data; accessing the register first address 2000H means reading the minimum value data; accessing the register first address 3000H means reading the extreme value data.
  - The local CRC verification code uses a 16-bit CRC verification code, the polynomial is  $X^{16}+X^{15}+X^2+1$ , and an example of the table lookup algorithm is shown in the appendix.

## Set the displacement sensor function protocol

Host clear command 01 06 08 00 AB 56 74 A4		Displacement sensor response 01 06 08 00 AB 56 74 A4	
Address code	01H	Address code	01H
Function code	06H	Function code	06H
Access register first address	08H	Access register first address	08H
	00H		00H
Writing Data	ABH	Writing Data	ABH
	56H		56H
CRC (lower 8 bits)	74H	CRC (lower 8 bits)	74H
CRC (higher 8 bits)	A4H	CRC (higher 8 bits)	A4H

- Writing data of ABH and 56H indicates the reset function.
- Writing data of 00H and 04H indicates the restart of the extreme value measurement function.
- This command can reset the micrometer.

The CRC check code of this machine adopts a 16-bit CRC check code, and the polynomial is  $X^{16}+X^{15}+X^2+1$ . See the appendix for an example of the table lookup algorithm.

## Appendix 1: CRC algorithm example

```
unsigned short CRC(unsigned char frame[],int n)
```

```
//Array frame is the object of CRC check, n is the number of bytes to be checked
```

```
{
    int i,j;
    unsigned short crc,flag;
    crc=0xffff;
    for(i=0;i<n;i++)
    {
        crc^=frame[i];
        for(j=0;j<8;j++)
        {
            flag=crc&0x0001;
            crc>>=1;
            if(flag)
            {
                crc&=0x7fff;
                crc^=0xa001;
            }
        }
    }
    return(crc);
}
```

Note: MODBUS CRC check code transmission is low bit first, high bit last.

- Note: Please read this manual carefully before using this product.
- Our company reserves the final right of interpretation and will not notify you of any changes.