Introduction:

- Maximum display accuracy is 10μm or 0.001in
- Maximum repetition accuracy is ± 0.01mm
- 7-bit low power LCD display with multiple ICONS
- Maximum reading distance of sensor/magnetic gate ruler is 2.5mm
- Battery operation
- Optional use with RTX500 receiver module (wireless version)
- Optional RS485 Modbus-RTU interface
- Optional 0-10V analog output

❖ Display Instruction

Icon	Dispaly Instruction
MM	Shows current unit is millimeters
INCH	Shows current unit is inches
	Shows current unit is angle
	Shows current battery power
RF	Shows data is currently being sent wirelessly
	Shows it is in relative mode
1	Shows current length is of the first project
2	Shows current length is of the 2nd project

After the backlight lights up, if the data keeps changing, it keeps on lighting. If it remains stable, it will automatically shut off after 8 seconds delay, or it can be shut off manually.

Error	Content
E01	Input error or read head movement error.
E06	No read head detected.
E07	Magnetic field detection failed.
E08	No battery installed or lithium battery damaged.
E09	Reading head and magnetic stripe are too close to each other when self-correcting
E10	The reading head is too far away from the magnetic stripe when self-correcting
E11	Self-correcting timeout
E80	In wireless communication mode, communication failed and no receiver feedback was received
E81	Receiver feedback error in wireless communication mode.

❖ Mechanical Parameters

Features	Technical Data	Remarks
Shell structure	Embedded suite	
Sensor/scale reading distance	Max.2.5mm, 1.3mm recommended	
Overall dimensions	100 *52mm	
Opening size	90 *42mm	
Matching scale	MS50	
Sensor length	0.15 ... 6m	Default: 1M
Weight	240g	1M sensor length

❖ Electrical parameters

Features	Technical Data	Remarks
Working voltage	DC 2.7.. 3.3 V	2pcs AA 5 battery
	DC 24V(External input)	Optional
Current consumption	≤700μA	1.5V DC; Display operation
	20 ... 35 mA	3.3V DC; Wireless transmission operation
Display Range	-1999999 ... 1999999	
Communication Interface	wireless transmission	Wirelessly connect with RTX500 receiver
Radio frequency (channel)	434Mhz	

❖ System Parameters

Features	Technical Data	Remarks
Resolution	0.01，0.05，0.1，1mm	
System Accuracy	±(0.03+0.01*L)mm L unit:M	Under the condition： TU = 20 °C
Repeat accuracy	Max.±0.01mm	
Movement speed	2m/s ，3m/s	Can be set through menu F04

❖ Environment condition

Features	Technical Data	Remarks
Environment temperature	0 ... 60℃	
Storage temperature	-10 ... 70℃	
Protection IP	IP40 Display	
	IP67 Sensor	

❖ Button Instruction

Button	Instruction	Button	Instruction
C	Exit current mode Clear error code		Non-wireless version: Light up the LCD backlight Wireless version: send message
	Menu- Modify data		Confirmation parameters Wireless version: Light up the LCD backlight
	Menu +/ move the cursor Wireless version: Switching Project 1/ Project 2 data (zero clear)		

Quasi-absolute mode: press C + : call up the value of F01 menu，that is, the initial value reset function. (Wireless version: call up the value of F01/F01.1 according to the current project location)

In relative mode: press C : call up the value of the F01 menu, that is, the initial value reset function.(Wireless version: call up the value of F01/F01.1 according to the current project location)

Press + at the same time：	Set multi-stage compensation base point (main interface)
	Clear Data (Menu)

Long press : Quickly enter the F01 menu.(Wireless version: F01/F01.1 will be selected according to the current project location)

Long press : Quickly enter the F02 menu.

Long press : Enter menu.

❖ Menu Instruction The following menu's pd status，Input code: 7

Serial No.	parameter description	Parameter	Default	parameter description	Remarks
F01	Initial Value	-9999 ~9999	0	Sets the input value as the current initial value	Each version calls it up differently
F01.1	Initial Value	-9999 ~9999	0	Initial value of the second project position	（The wireless version has this menu）
F02	Measurement Direction	0 ~1	0	0：Forward 1：Backward	To change measurement direction
F03	Self-correction	Go	----	Run at low and constant speed until jump back to F03 Running speed less than100mm/s is recommended； The distance between read head and magnetic tape 1.2~1.5mm is recommended.	
F04	Measurement Speed	0 ~1	0.1	0： 2m/s 1：3m/s	Low sampling data is good for battery utilization.

F05	Resolution	0.01 、0.05 、0.1、1	0.1	Length model unit：mm，inch Angular mode unit：°	
F06	Length unit	0 ~6	0	0: millimeter quasi absolute mode 3: millimeter relative mode1:Inch quasi-absolute mode 4: Inch relative mode 2: quasi-absolute mode of Angle 5: relative mode of Angle 6: Specific Angle Mode	MM mode: in MM (default) Inch mode: unit INCH Angle mode: units °
F07	Proportionality Coefficient	1.00000~2.99999	1.000 00	Linear correction; Display value = measured true value * scale coefficient	
F08	parameter Restore/Backup	0 ~2	0	1: Back up all data 2: Restore all data	Perform (restore/backup) all the data of the meter
F09	Angle diameter	0~9000.00	500.0 0	In Angle mode, the diameter of the measured body	
F10	Multistage compensation interval value	1.0 ~ 5000.0	1000. 0	Set interval value according to site requirement; This must not be 0, otherwise E01 error will be reported	
F11	Multi-stage compensation mode	0 ~2	0	0: Multi-stage compensation off 1: arbitrary input mode 2: fixed interval mode	1: arbitrary input mode 2: fixed interval mode compensation can be set in a total of 5 sections, please read the setting instructions before setting, turn to the last page.
F12	Restore factory setting	YES		Confirm to restore, press  , or otherwise press 	Restore all parameters to factory values
F13	LCD Control	0~3	0	Restore all parameters to factory value 0: default does not turn off display 1: Turn off the display after 30 seconds 2: Close the display after 1 minute 3: Close the display after 1 hour	Low power consumption of the meter can be effectively reduced (about 15~25% depending on specific working conditions) when LCD is turned off at regular intervals. Press any key to relight.
F14	Dependent signal	1~255	1	Instrument ID number in wireless /RS485 communication mode (this menu is available for wireless or 485 versions)	
F15	Wireless communication retransmission time	0~9.99s	1.00s	If the time is changed to 0, the message is only sent once at a time and does not wait for the receiver to reply.See Wireless Communication Instructions for details	
F16	Radio-transmitted power	0~3	0	0 : 10db 1 : 14db 2 : 17db 3 : 20db	Low power transmission is good for battery usage, but communication distance is closer.(Wireless or 485 versions have this menu)
F17	Wireless air speed	0~5	1	300 , 1200 , 2400 , 4800 , 9600 , 19200	The lower the air speed, the longer the communication distance and the longer the transmission time, the two sides of the communication must be the same air speed
F18	Wireless Channel	410~525	434	The equipment under the same network, should be maintained under the same wireless channel.	

Attention

1. When installing this product, if the deviation is too large, it will affect the accuracy of use, and even cannot be used

2, please do not corrosion, acid and alkali, direct sunlight and other occasions exceed the environmental requirements of use, otherwise it may cause failure

3, the bending radius of the reading head wire must be greater than 25mm

4. The installation of the equipment should be at least 0.5 meters away from the circuit breaker, relay, motor capacitor, brake, clutch, frequency converter, etc

5. The direction of the cable must be separated from the power line to reduce the string noise.

❖ Multi-stage compensation setting instructions

Before setting multi-segment compensation, do the following (must do) :

1、Please first check whether the measuring direction of the reading head is correct. If not, please set the F02 well now and then set the multi-stage compensation.

2、 Please first move the reader head to the machine origin ，and press ▲ + ▶ at the same time，Please first move the reading head to the machine origin and set one base point.，At this time, LCD will display "--00--", indicating successful operation.(Note 5)

3、Set the value of F01 at this position to match the value of the reference steel ruler.

Specific operations are as follows :(When menu F11 is 1~2, the following operations will be effective)

Mode 1 (arbitrary input) : Each point is manually entered according to on-site requirements.

Step1、Input the real starting point position value of multi-stage compensation first，press ↵ to save the starting value and proceed to the next step.

Step2、Moves the read head to the position of the next point and enters the true position value of that point，

➡ Press ↵ Complete the compensation setting in the previous section and enter the next section (continue with Step 2).

➡ Long press ▲ Complete the compensation setting of the previous section and exit. The whole compensation setting is finished.

Step3、When the setting reaches the last segment, press ↵ to complete the 5-segment compensation setting and exit.

Mode 2 (fixed interval) : Each interval value is calculated with the interval value set by menu F10.

Step 1、Input the real starting point position value of multi-stage compensation first，press ↵ to save the starting value and proceed to the next step.

Step 2、Move the reading head to the position of the next point (the position is computed from F10 and displayed through the first row of digital tubes)

➡ Press ↵ Complete the compensation setting in the previous section and enter the next section (continue with Step 2).

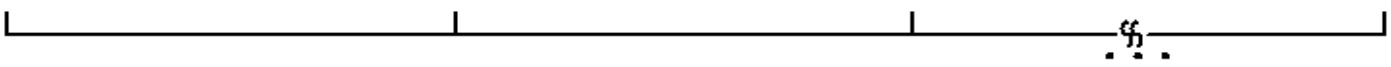
➡ Long press ▲ Complete the compensation setting of the previous section and exit. The whole compensation setting is finished.

Step 3、When the setting reaches the last segment, press ↵ to complete the 5-segment compensation setting and exit.

Summary schematic diagram of multi-stage compensation

Mode1 The value of each input point must meet the following conditions, otherwise E01 is reported

The starting point of the first segment < Start point value of the second segment (end point of the first segment) < Start point value of the third segment (end point of the second segment) <·· . End of segment 5



Current position prompt : 1 2 3 4 5

Attention :	
1	If E01 is displayed during the operation, it means that the input data is wrong or the reading head does not move or the reading head moves in the negative direction. You can press to enter it again (refer to the schematic diagram).
2	If E07 is displayed in the operation, it means that the read head has not detected the magnetic stripe.
3	If is pressed during the operation, all measured data will not be saved.
4	If you press more than once by mistake, do not move the read head, and then long press to save the last few compensation parameters and exit.
5	f the reading head is far away from the magnetic stripe after the multi-stage compensation takes effect, please be sure to move the reading head to the machine origin and press the + to recalibration the base point, so that the multi-stage compensation data will take effect again. Otherwise, the proportional coefficient of the default F07 will be used for calculation.Then reset the F01 value.

❖ Wireless Communication Instructions (M500- Wireless Version)

Introduction:

Used in conjunction with RTX500 receiver, RTX500 receiver access to the system via RS485.The radio frequency is free and public at 434 MHz.

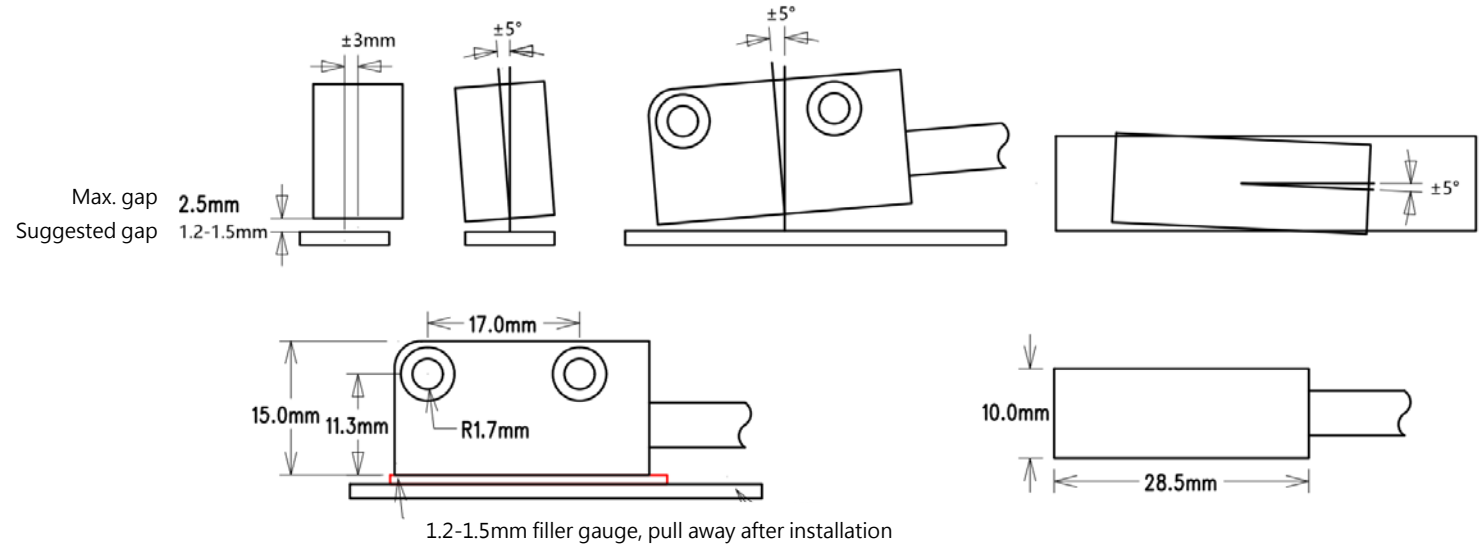
Instructions

The user can send the measured length of the meter cable and other data to the RTX500 receiver by pressing .The meter will light up RF during wireless communication to remind the user of this working state. The system can communicate with the RTX500 receiver through the Modbus-RTU protocol, and the RTX500 receiver can also upload the length and other data after receiving the data by RS485 directly through the receiver.**(See RTX500 Receiver User's Manual for the two communication mode setup methods.)**

Message retransmission mechanism

Each time the meter sends data out, it waits for the receiver feedback. If it does not receive the receiver feedback within the set time, the meter will resend. After trying to resend for 3 times and still receiving no feedback, the meter will report E80 error and the communication will fail. RF will be eliminated if the communication is successful.

❖ Mounting Dimensions and Instructions for Read Heads



❖ Meter Mounting Dimension