User's Manual

Bluetooth Digital Micrometer 0-30/30-66

型名 : SSM-750/850

Features

➢Resolution : 0.001mm

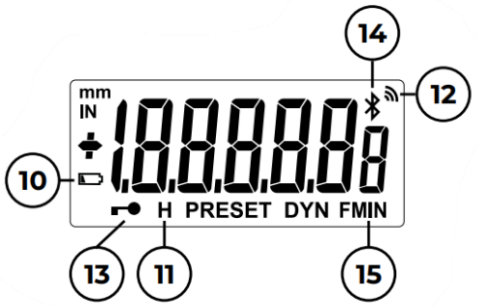
➢Protection : IP67

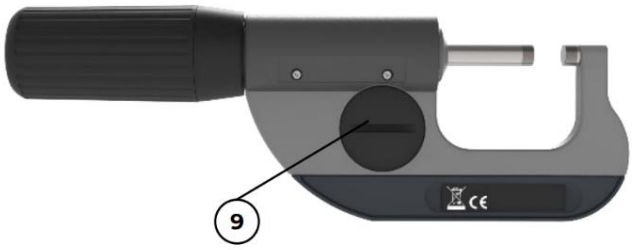
➢Wireless Communication : Bluetooth®

SSM-750(0-30mm)

SSM-850(30-66mm)

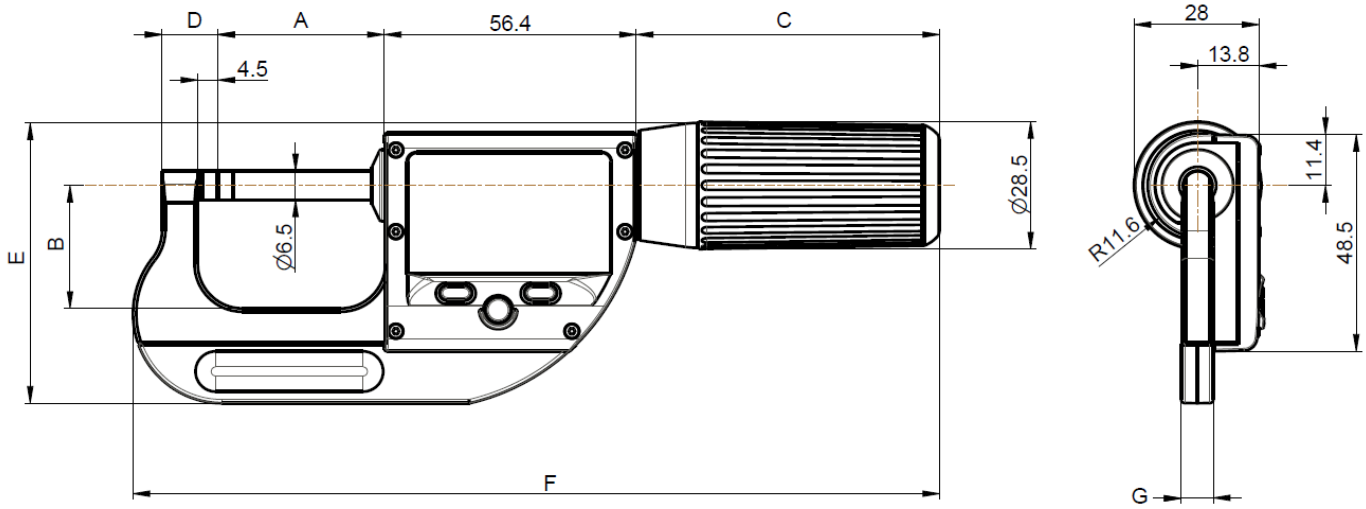
Q-140-2-E ver1.0





Description

1. Measuring spindle
2. Anvil
3. Isolate plate
4. MODE button
5. Favorite button
6. SET button
7. Rotating thimble
8. Proximity Connecter
9. Battery cover
10. Low battery Indicator
11. Value hold indicator
12. Data transfer indicator
13. Locking indicator
14. Bluetooth indicator
15. FMIN mode indicator



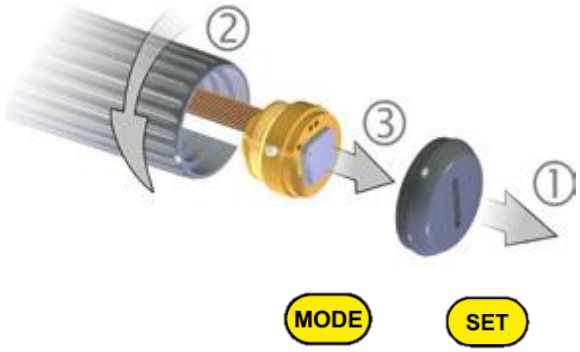
	SSM-750(0-30mm)	SSM-850(30-66mm)
A	37.3mm	73.3mm
B	27.5mm	43mm
C	68mm	74mm
D	12.5mm	13.5mm
E	63mm	86mm
F	181mm	230mm
G	7.2mm	9mm

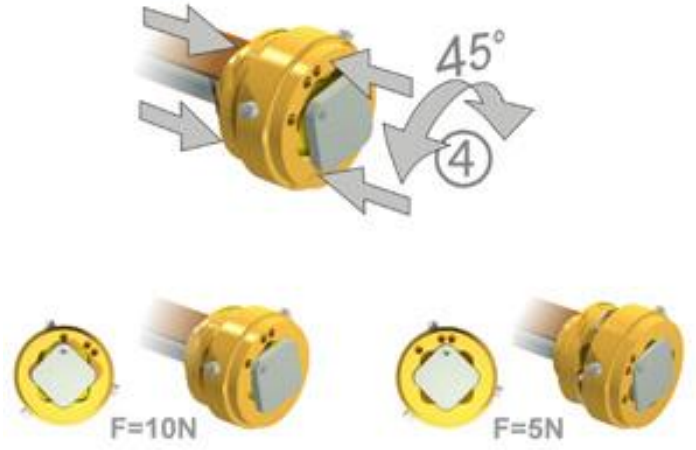
★Installing and replacing the battery

The display of the symbol ≪B≫⑩ indicates the end of the battery life. However there remain still some working hours.

1. Open the battery cover ⑨ using the accessory(opener) provided
2. Change the Battery (Lithium CR2032 type)
3. Check the rubber protection position
4. Close the battery cover ⑨

★Measuring force adjustment(SSM-750 only)





1. Operation

MODE button The instrument has 2 operating modes: basic functions (with direct access) and advanced functions. In addition to the configuration functions, you can select the HOLD function or activate the keyboard lock (LOC function). You can also activate the FMIN function.

button In the case of measuring, Data transmission. The ≪favorite≫ button assigns direct access to the most frequently used function.

SET button The ≪SET≫ button allows you to assign a preset value, quit a selection, and manage instrument switch-off. By default, SIS mode enables automatic switch-off without loss of origin.

Serial communication(Bluetooth/RS232/USB)

It is able to transmit the measuring data and set the mode data by serial communication.

Transmission specification are 4800bps, 7 bits, even parity and 2 stop bits.

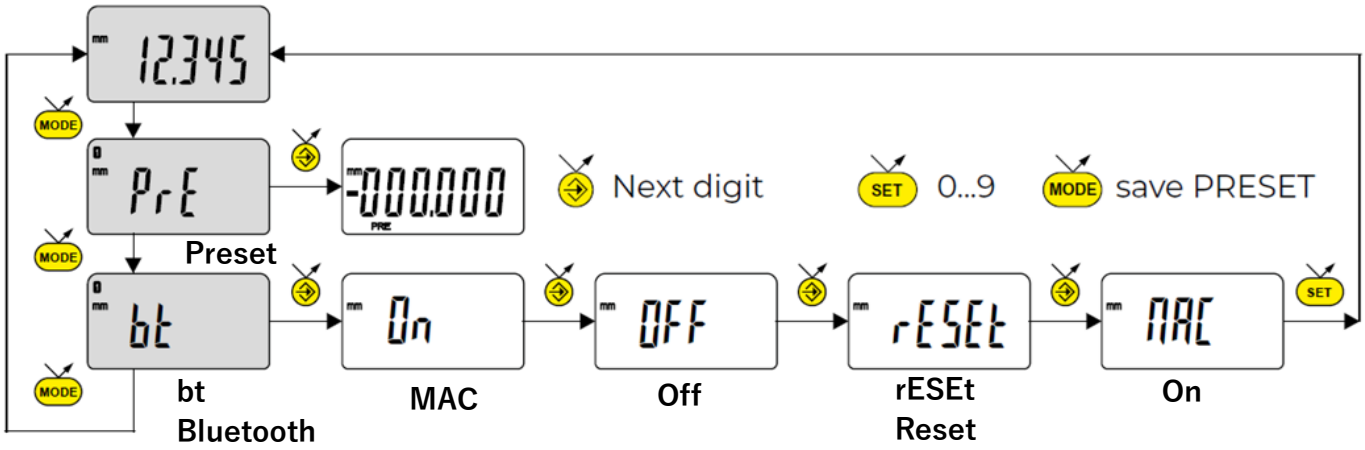
2. Start

Push any button.

The instrument displays ≪SET≫ to initialize the reference point. Return the movable key to the anvil (or to a master gauge). Then press SET .

Refer to Chap.6 about Bluetooth.

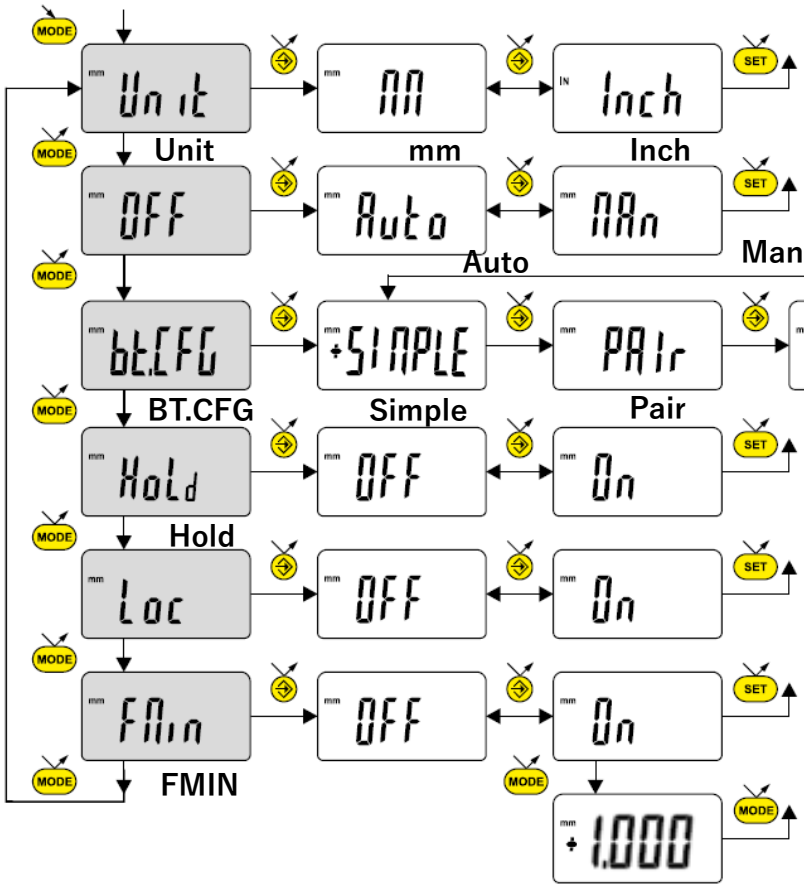
3. Basic functions : MODE button⇒Short press(< 1 sec)



4. Advanced functions : MODE button Long press(> 1 sec)

MODE Short press

MODE Long press



Unit : Unit selection (mm or inch).

OFF : Automatic switch-off mode.
MAn : disabled. Auto : active (after 10min. by default).

Bluetooth profile selection
SIMPLE/Pair/HID

HoLd : Select On to activate display freeze when briefly pressing SET .

Keypad lock On/Off
Locked Keys : MODE and SET
To deactive lock : press SET for 5 sec.

Select FMIN mode(OFF/ON)
Refer to 5. FMIN mode

next digit

SET 0～9

MODE Save FMIN

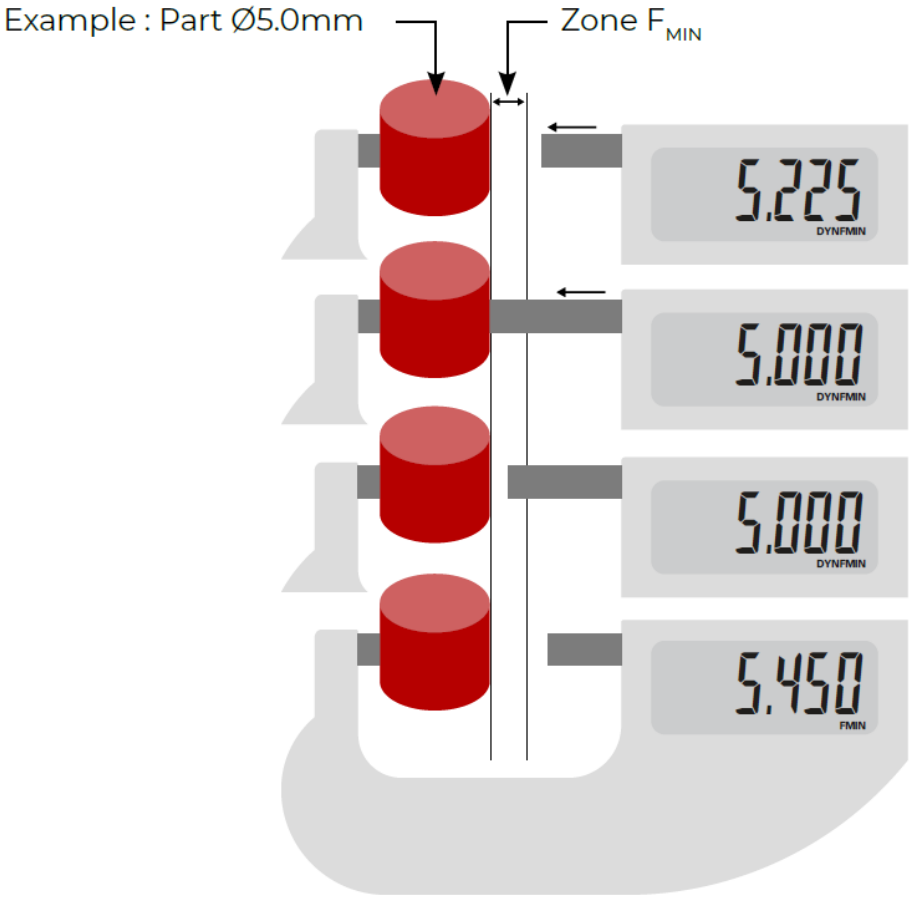
5. F_{MIN} function

The high-speed micrometer features a spring-loaded spindle. This construction ensures high repeatability, thanks to the constant force in the measuring zone.

When the FMIN mode is active, the minimum measuring value is automatically stored and displayed.

The FMIN stroke value can be set by the user according to his needs (0.010mm to 5.080mm depending on model).

Refer to chapter 6 to activate/deactivate or set the FMIN function.



Start measurement

Measurement

As long as the contact points are in the FMIN zone, the value displayed remains unchanged.

If the contact points are outside the FMIN range, the value corresponding to the actual spindle position is displayed.

6. Operation via Bluetooth

6.1. HID mode (External Key board mode)

①Set HID mode by Advanced function.
②Set BT On mode by Advanced function.
③Reset Bluetooth mode by Basic function.
④Pairing connection the instrument to the PC. (Instrument name : S_Mike PRO HID)
⑤Send the measured data by button.

6.2. Pair mode

①Set Pair mode by Advanced function.
②Set BT On mode by Advanced function.
③Reset Bluetooth mode by Basic function.
④Pairing connection the instrument to the PC. (Instrument name : SY276)
⑤Send the measured data button.

6.3. Bluetooth configuration

Display status	Operating mode
off	Bluetooth disconnected
blinking	Bluetooth advertising
on	Bluetooth connected
rESEt	reset : clear pairing information
MAC	MAC : display the MAC address
SIMPLE	Simple : profile without pairing
PAIr	Pair : paired and secured profile
HId	HID : virtual keyboard

6.4. Bluetooth Connection :

1° Activate Bluetooth compatible software and hardware (Master: PC, Display Unit).

2° Start the instrument. By default the Bluetooth® module is active and the instrument is available for connection (advertising mode).

3° If no connection is established during the advertisement period reactivate the Bluetooth® module using the bt / On menu.

4° Instrument is ready to communicate (connected mode.)

6.5. Only with paired profile:

Pairing with master is automatically done at first connection.

To connect the instrument to a new master (new pairing), pairing information on the instrument must be cleared using the bt / rESEt :t menu.

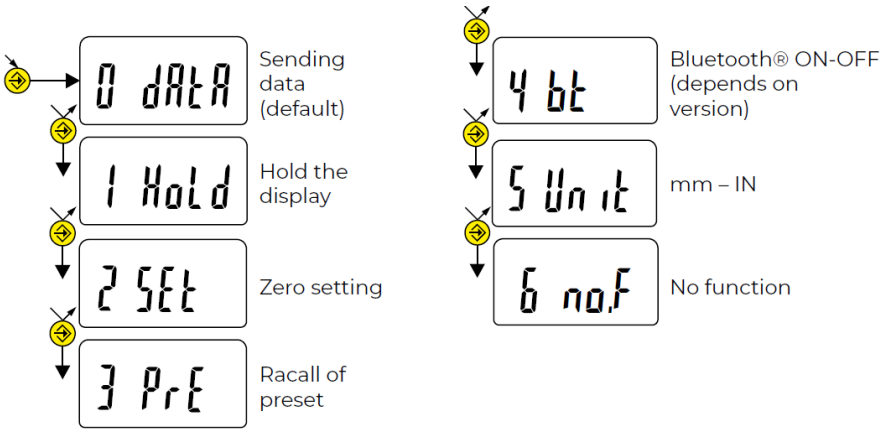
6.6. Bluetooth Specifications:

Items	Specification
Frequency band	2.4GHz
Modulation	GFSK
Max output power	Class3 : 1mW (0dBm)
Range	≦20m（Open space）, 2-6m(Industrial environment)
Version	Bluetooth 5.*

7. Favorite key

The ≪favorite≫ button provides direct access to a predefined function, and can be configured according to the user's needs.

To assign a function to the ≪favorite≫ button, press ◈ and hold (>2s), then select the desired function:



Confirm selection :

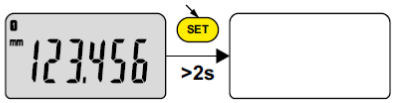
Long press on ◈ · short press on SET or MODE

Note:

The function assignment can also be made via RS 232.

8. Switching off

The dial gauge goes automatically into stand-by if not used for 10 minutes, unless automatic switch-off mode has been turned off (see Chap. 4, advanced functions).

Stand-by mode can be forced by a prolonged press (> 2 sec) on SET : 

In stand-by mode, the value of the origin is retained by the sensor (SIS mode), and the instrument automatically restarts with any movement of the measurement probe, RS command, *Bluetooth®* request or press on button.

The instrument can be switched off completely for a long period of non-use, but this will necessitate a zero reset on restart (the origin will be lost) :

– Prolonged press (>4 sec) on SET : 

9. Re-initializing the instrument

The initial instrument settings can be restored at any time by a prolonged press (>4 sec) simultaneously on SET and MODE until the message rESEt is displayed.

10. Connecting the instrument

The instrument can be connected to a peripheral via a Proximity (RS or USB), Power (RS or USB) cable or Bluetooth®. See page 3 for connecting the Power cable.

Measured values can be transmitted and the instrument driven using predefined commands (see chap. 11 for a list of the main commands).

11. Connecting the instrument

＊Some of the commands in the table are not available for this instrument, as they are implemented for other instruments.

Selection and configuration		Interrogation	
CHA+ / CHA−	Assign measurement direction CHA+:positive sense / CHA−:negative sense	CHA?	Measurement direction? Response : CHA+ / CHA−
FCT0 / FCT1 / … / FCTA / … / FCTF	Assign ≪favourite≫ function	FCT?	≪favourite≫ function ? Response : FCT0～FCTF
MM / IN	Assign measurement unit MM:mm/IN:inch	UNI?	Measurement unit active? Response : MM/IN
KEY0 / KEY1	Assign Keypad Lock KEY0:Lock/KEY1:Unlock	KEY?	Keypad locked? Response : KEY0/KEY1
MUL +/−xx.xxxx	Assign the multiplier value	MUL?	Multiplier value? Response : +/−xx.xxxx
PRE +/−xxx.xxx	Assign preset value	PRE?	Preset value? Response : +/−xxx.xxx
STO1 / STO0	Assign Hold mode STO1:ON / STO0:OFF	STO?	Status of HOLD function? Response : STO1/STO0
TOL1 / TOL0	Assign Tolerance mode TOL1:ON /TOL0:OFF	TOL?	Status of Tolerance mode? Response : TOL1/TOL0
REF1 / REF2	Change active reference Two tolerance values are REF1 or REF2	REF?	Active Reference ? Response : REF1/REF2
ECO1 / ECO 0	Assign Economic mode ECO1:ON / ECO0:OFF	ECO?	Current economic mode? Response : ECO1/ECO0
INTE1 / INTE0	Assign 2 points measurement mode INTE1:ON / INTE0:OFF	INTE ?	2 points mode ? Response : INTE1/INTE0
LCAL dd.mm.yy	Modify last calibration date	LCAL?	Date of last calibration? Response : dd.mm.yyyy
NCAL dd.mm.yy	Modify next calibration date	NCAL?	Date of next calibration? Response : dd.mm.yyyy
NUM x...x (up to 20 chars)	Modify the instrument number	NUM?	Instrument number? Response : NUM x...x
MIN /MAX /DEL /NOR	Assign MIN, MAX, Delta, Normal mode MIN:Minimum/MAX:Maximum/DEL:Delta=MAX−MIN/ NOR:Normal=Current value	MOD?	Active mode (MIN, MAX, Delta or Normal)? Response : MIN/MAX/DEL/NOR
CFGBAR NOR / CFGBAR MAX	Assign Bargraph display CFGBAR NOR:Normal bargraph/ CFGBAR MAX:Keep Bargraph on Max value	CFGBAR?	Bargraph configuration? CFGBAR NOR/CFGBAR MAX
FACT1 / FACT2 / FACT5 / FACT10	Assingn analogue scale factor FACT1:1scale=1digit/FACT2:1scale=2digits/ FACT5:1scale=5digits/FACT10:1scale=10digits	FACT?	Status of the analogue scale factor? Response : FACT1/FACT2/FACT5/FACT10
RES1 / RES2 / RES3	Change of resolution RES1:0.0001mm/RES2:0.001mm/RES3:0.01mm	RES?	Status of the current resolution? Response : RES1/RES2/RES3
TOL +/−xxx.xxx +/−yyy.yyy	Inputting current tolerance limits x:lower tolerance limit/y:upper tolerance limit	?	Current value (the displayed value)? Response : +/−zzz.zzz ⇒current value in the case of Tol mode =+/−zzz.zzz ⇒current value <+/−xxx.xxx ⇒lower tolerance limit >+/−yyy.yyy ⇒upper tolerance limit
CLE	Reset(Clear) of MIN, MAX or Delta	SET?	Main instrument parameters? Response : CHA+/CHA−,MM/IN,X1/X2/X5, RES1/RES2/RES3,MIN/MAX/DEL/NOR, STO0/STO1,KEY0/KEY1,BAT1/BAT0
UNI1 / UNI0	Activate / de−activate UNIT command(MM/IN) UNI1:ON/UNI0:OFF	ID?	Instrument identification code? Response : SYxxx
OUT1 /OUT0	Activate / de−activate continued data transmission OUT1:ON/OUT0:OFF	BAT?	Status of Battery? Response : BAT1: OK/ BAT0: low battery
PRE ON / PRE OFF	Activate / de−activate Preset function(PRE command)	VER?	Version No. and date of firmware Response : Vx.x DD.MM.YYYY
ANA ON / ANA OFF	Activate / de−activate the analogue scale	MAC?	Bluetooth® MAC address? Response :XXX…XXX(up to 12 chars)
PRE	Recall Preset value	FMIN?	Returns FMIN value
SET	Zero reset		
SBY xx	xx number of minutes before stand−by		
BT1 / BT0	Activate/de−activate Bluetooth® module BT1:ON/BT0:OFF		
BTRST	Reset Bluetooth pairing information		
OFF	Switch−off (wake up using a button or RS)		
RST	Reset the instrument		
SBY	Put instrument in stand−by mode(SIS)		
FAC RST	Reset (Restores the factory parameters)		
TOL +/−nnn.nnn +/−xxx.xxx +/−yyy.yyy (In the case of SSI−650)	Inputting current tolerance limits n :nominal value / x :lower tolerance limit/y :upper tolerance limit		
FMIN0/FMIN1	Disable/enable FMIN function		

12. Specifications

Items	Specification	
	SSM-750	SSM-850
Measuring range	0-30mm	30-66mm
Resolution	0.001mm	0.001mm
Measureing force	Ajustable 5N/10N	10N
Indication error	±2μm	±2μm
Repeatabirity	1μm	1μm
Probe/Anvil Flatness	0.6μm	0.6μm
Probe/Anvil Parallelism	2μm	2μm
Advance	10mm/rotation	10mm/rotation
Number of refreshments display	10 times/s	10 times/s
Data output	Bluetooth	Bluetooth
Data output parameter	4800bauds,7bits,parity,2stop bits	4800bauds,7bits,parity,2stop bits
Battery life	about 6 months(general using)	about 6 months(general using)
Working temperature	5～40℃	5～40℃
Storage temperature	-10～60℃	-10～60℃
Weight	270g	425g
IP specification	IP67	IP67
Battery	CR2032	CR2032

13. Maintenance

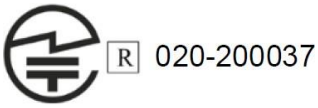
Keep the micrometer in a dry environment when not using it for a longer period of time to avoid rust formation of the metallic parts.

Do not close the measuring spindle with the anvil when not in use. Keep a distance of 1-2 mm.

Do not use aggressive products (alcohol, trichloroethylene or others) to clean the plastic parts. Do not keep the micrometer in places which are exposed to sun, heat or humidity.

Important : dry carefully all metal parts of the instrument after effect of moisture to guarantee a perfect mechanical functioning and to avoid rust formation.

14. Certification



CMIIT ID 2022DJ13685

➢U.S./Canada

TECLOCK

M/N: SSM-750/850

This device contains

FCC ID : 2AAQS-ISP1807

IC : 11306A-ISP1807

NOTICE:

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions.

(1) this device may not cause harmful interference
(2) this device must accept any interference received, including interference that may cause undesired operation

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

➢Brazil

Description:

The module ISP1807 is based on Nordic Semiconductor nRF52840 Bluetooth LE system on chip. The nRF52840 is a Bluetooth 5.x SoC that integrates a 64 MHz Arm Cortex-M4 CPU with ultra-low power consumption and Flash/ RAM memory.

ANATEL

MODELO : ISP1807

04057-23-14043

Este equipamento opera em caráter secundário, isto é, não tem direito à proteção contra interferência prejudicial, mesmo de estações do mesmo tipo e não pode causar interferência a sistemas operando em caráter primário.

➢South Korea

R-C-iNs-ISP1807

Class A Equipment (Industrial Use)

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➢Taiwan

CCAJ23Y10060T5

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低功率射頻電機之使用不得影響飛航安全及干擾合法通信;經發現有干擾現象時,應立即停用,並改善至無干擾時方得繼續使用。

前項合法通信,指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

CERTIFICATE OF CALIBRATION

We hereby certify that this product has been calibrated and found to be in accordance with the applicable NATIONAL STANDARDS and TECLOCK STANDARDS, Equipment used in this calibration has traceable accuracy to the NATIONAL LENGTH and FORCE STANDARD.

Notice for use

Be sure to conduct a routine check for this product according to the purpose of use before use. This product is precision instrument, periodically considering frequency of use, environmental conditions and method of use.
It is not guaranteed for the performance of this product, which has been repaired or disassembled by other than TECLOCK.

For appearance and other design improvement, this product subjects to change without advance notice.

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