

Instructions - Mode d'emploi - Bedienungsanleitung - Manuale d'uso - Instrucciones de uso



Digital micrometer

E

Micromètre Digital

F

Digital Mikrometer

D

Micrometro digitale

I

Micrómetro digital

S

 **Bluetooth®**  **IP67**

Installing and replacing the battery

Mise en place et remplacement de la batterie

Einbau und Austausch von Batterie

Colocación y sustitución de la batería

Posizionamento e sostituzione della batteria

The display of the symbol «B» indicates the end of the battery life. However there remain still some working hours.

L'affichage du symbole «B» indique la fin de vie de la batterie. Cependant il reste quelques heures de travail disponibles.

Die Anzeige des Buchstabens «B» zeigt das Ende der Batteriebetriebsdauer an. Es verbleiben jedoch noch einige Arbeitsstunden.

La visualizzazione del simbolo «B» indica l'esaurimento della batteria. Tuttavia è possibile utilizzare lo strumento ancora per alcune ore.

El símbolo «B» en la pantalla indica que la batería se ha descargado. Sin embargo, aún quedan unas horas de funcionamiento.

Battery / batterie / batterie / batteria / batería : lithium 3V, type CR2032

1. Open the battery cover using the accessory provided / Dévisser le bouchon de pile à l'aide de l'accessoire fourni / Batterie deckel mittels mit dem mitgelieferten Zubehör / Svitare il coperchio del vano pila mediante l'utensile in dotazione / Afloje el tapón de la batería con el accesorio suministrado
2. Change the Battery (Lithium CR2032 type) / Changer la pile (Pile lithium type CR2032) / Batterie wechseln. (Lithium Batterie, Typ CR2032) / Sostituire la pila (pila al litio del tipo CR2032) / Cambie la batería (de litio de tipo CR2032)
3. Check the rubber protection position / Contrôler la mise en place du joint / Dichtungslagerung kontrollieren / Controllare il posizionamento della guarnizione / Compruebe la colocación de la junta
4. Close the battery cover / Revisser le bouchon / Deckel wieder einschrauben / Riavvitare il coperchio / Apriete el tapón

3



4

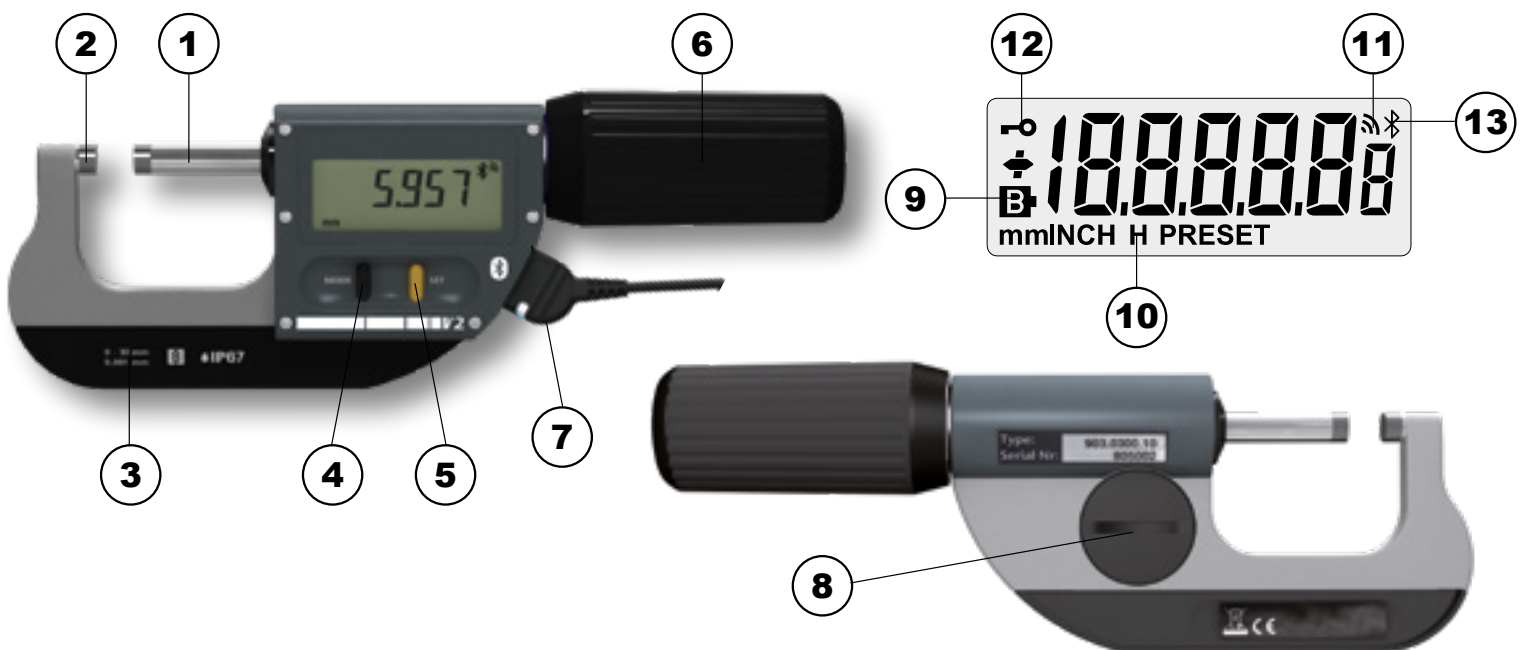
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Description / Description / Beschreibung

1. Measuring spindle	1. Touche mobile	1. Messspindel
2. Anvil	2. Enclume	2. Messamboss
3. Isolation plate	3. Plaque isolante	3. Griffschalen
4. MODE button	4. Bouton MODE	4. MODE Taste
5. SET button	5. Bouton SET	5. SET Taste
6. Rotating thimble	6. Tambour	6. Trommel
7. Proximity connector ¹⁾	7. Connecteur Proximity ¹⁾	7. Proximity Steckerverbindung ¹⁾
8. Battery cover	8. Bouchon de pile	8. Batteriedeckel
9. Battery low indicator	9. Indicateur de fin de vie de batterie	9. Anzeige - Ende der Batteriebetriebsdauer
10. Hold indicator	10. Indicateur de gel de l'affichage	10. Anzeige - Festhalten des Messwertes
11. Data send indicator	11. Indicateur d'envoi de données	11. Anzeige - Datenübertragung
12. Locking indicator	12. Indicateur de verrouillage	12. Anzeige - Blockierung
13. Bluetooth [®] indicator ²⁾	13. Indicateur Bluetooth [®] ²⁾	13. Anzeige-Bluetooth [®] ²⁾

¹⁾ Instrument without Bluetooth[®] / Instrument sans Bluetooth[®] / Instrument ohne Bluetooth[®]

²⁾ Instrument with Bluetooth[®] / Instrument avec Bluetooth[®] 5 / Instrument mit Bluetooth[®]



Descrizione / Descripción

- | | |
|---------------------------------------|--|
| 1. Asta di misurazione mobile | 1. Husillo |
| 2. Incudine | 2. Tope |
| 3. Piastrina isolante | 3. Aislante térmico |
| 4. Pulsante MODE (Modalità) | 4. Botón MODE |
| 5. Pulsante SET (Imposta) | 5. Botón SET |
| 6. Tamburo | 6. Tambor |
| 7. Connettore Proximity ¹⁾ | 7. Conector Proximity ¹⁾ |
| 8. Coperchio vano pila | 8. Tapón de la pila |
| 9. Spia esaurimento batteria | 9. Indicador de descarga de la pila |
| 10. Spia visualizzazione fissa | 10. Indicador de congelación de la visualización |
| 11. Spia invio dati | 11. Indicador de transmisión de datos |
| 12. Spia di blocco | 12. Indicador de bloqueo |
| 13. Spia Bluetooth ^{® 2)} | 13. Indicador de Bluetooth ^{® 2)} |

¹⁾ Strumento senza Bluetooth[®] / Instrumento sin Bluetooth[®]

²⁾ Strumento con Bluetooth[®] / Instrumento con Bluetooth[®] 7

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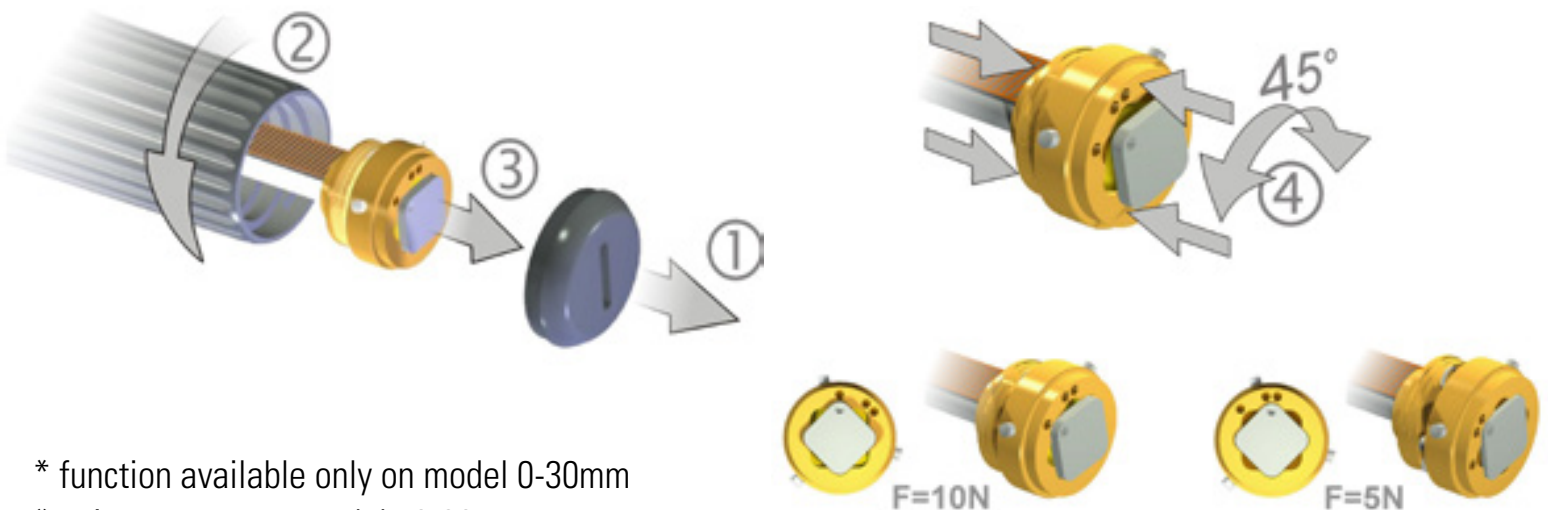
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Measuring force adjustment / Ajustage de la force de mesure / Einstellbare Messkraft / Regolazione della forza di misurazione Ajuste de la fuerza de medición / *



* function available only on model 0-30mm

* uniquement pour modèle 0-30mm

* Funktion nur für Modell 0-30mm

* solo per il modello 0-30 mm

* solo para modelos de 0-30 mm

1. General description

The external micrometer is equipped with a Bluetooth® connection and the SIS. (Smart Inductive Sensor) with maintenance of reference position, even when the instrument is in standby mode. Its principle with non-rotary spindle allows a very fast positioning.

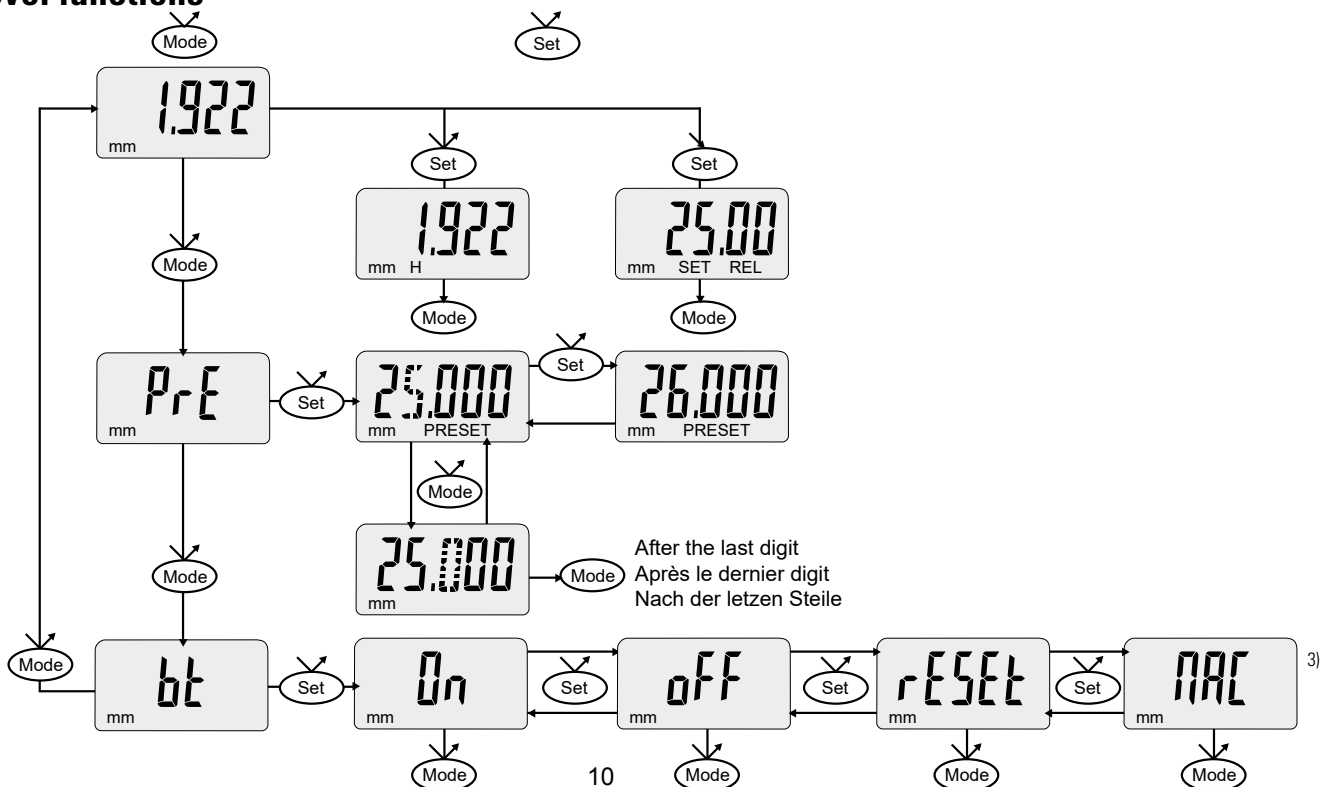
It includes the following functional features:

- Input of Preset values.
- Selection of the measuring unit (mm / INCH).
- Transfer of measuring value (Proximity or Bluetooth® connection).
- Protection against penetration of dust and splashing of liquids (oil, water), protection degree IP67 according to (IEC 60529 standard). This protection degree is also guaranteed when using the Proximity connector.

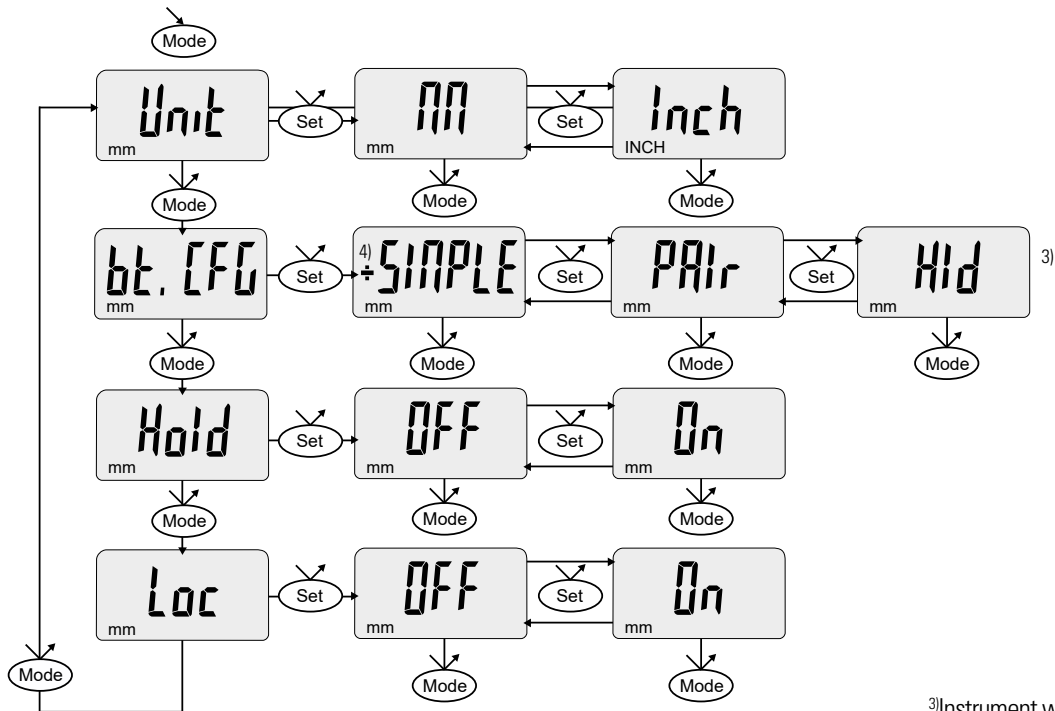
The micrometer S_Mike is extremely easy to operate because of its menu selection system.

9

2. First level functions



3. Second level functions



Without push (after 5s) : Return to measuring mode
(15s for preset input)

11

³⁾Instrument with Bluetooth®

⁴⁾The sign + indicates the currently active profile.

4. 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.

5. Switching ON, initialization

After having pressed on a button, introduced the measuring unit, the instrument shows «SET» for the initialization of the reference point. Bring back the measuring spindle on the anvil (or on a Gauge block). Press then [SET]. The instrument is now ready (Check the Preset)

12

6. Standby

Mode of reduced consumption without loss the reference position. The standby mode is activated automatically after 10 minutes of no use. It can also be activated by pressing the [SET] key until extinction of display.

The instrument awakes automatically in case of movement detection on thimble, by a pressure on a button or when requesting Data.

7. Full Switch off

In order to fully switch off the instrument (minimum power consumption), press the [SET] button until the message «OFF» appears. At this state no data is maintained and therefore the Reference position is lost. The «SET» message will be displayed again during the next use (see "Switching ON").

E

13

8. Description of the menu system

The [MODE] key enables the selection of the different menus (each key stroke activates the following menu). The [SET] key enables the activation of a function assigned to the corresponding selected menu.

To avoid a wrong action, each menu is active only during 5s. This period passed, the instrument switches automatically back to «Measuring Mode» as long as no action has been performed to the [MODE] or [SET] key.

9. Preset mode

Preset makes it possible to introduce a reference value different from zero.

Press many times the [MODE] button until menu «PRE» appears. Then press the [SET] button to activate the function Introduction of Preset. The display shows 00.000 or the last stored value of Preset. The first digit blinks.

Each push on the [SET] button modifies the value of the digit above the cursor (\pm , 0..9).

14

Each push on the [MODE] button moves the cursor to the right. A long press on the [MODE] button validates the value of Preset and leaves the Preset menu. The instrument automatically returns to «Measuring Mode» when there are no further actions regarding the buttons [MODE] or [SET] for a period of 15s.

10. Reset, recall of the preset

A push of 2s on the [SET] button assigns the Preset-value (or zero) to the current position of the measuring spindles.

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11. Changing unit (mm/inch)

Repeatedly press the [MODE] button to display the [UNIT] menu. Press then the [SET] button to change the unit «MM» or «INCH».

15

12. Locking of the instrument

Press [MODE] until the display shows « LOC». Then press [SET] to lock the instrument.

If the instrument is locked, the function send data (button [SET]) only is active. A pressure of 5s on a button, unlocks the instrument.

13. HOLD Mode

Press many times the [MODE] key until the menu «HOLD» is displayed. Then press the [SET] key to switch «ON» or switch «OFF». Press [MODE] key to validate.

During measurement , press the [SET] key to freeze the value. A «H» appears in the display. A 2nd pression on the [SET] key reactivate the dynamic value on display.

This function is useful when the display is not clearly in the field of vision.

16

14. Proximity connection (Instrument non Bluetooth® only)

The external micrometer has a contact less data output. This data output enables the direct connection to a computer or a printer using a Proximity connection cable.




A short press on the [SET] button transmits the current value to the data connection. The indicator send Data is briefly displayed.

For more information, see the instructions of the proximity cable.

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15. Bluetooth® Function (depends on model)

The connection procedure has been designed to be simple and is signalled by the following three states:

- 1° Symbol  off disconnected mode
- 2° Symbol  blinking advertising mode
- 3° Symbol  on connected mode

17

The following options can be selected to control the Bluetooth® module.

- On** Enable Bluetooth® module (start advertising mode).
- OFF** Disable Bluetooth® module (terminate active connection).
- rESEt** Clear pairing information.
- MAC** Display the MAC (Media Access Control) address.

Three Bluetooth® profiles are available.

- SIMPLE** Profile without pairing (default).
- PAIR** Paired and secured profile.
- Hid** Virtual keyboard mode (compatible with recent equipment without driver installation).

Note:

- Bluetooth® pairing information is cleared when the profile is changed.

18

15.1. 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.)

15.2. 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** menu.

15.3. Bluetooth® Specifications

Frequency Band	2.4GHz (2.402 - 2.480GHz)
Modulation	GFSK (Gaussian Frequency Shift Keying)
Max Output Power	Class 3: 1mW (0dBm)
Range	Open space: up to 15m Industrial environment: 1-5m
Battery life	Continuous : up to 2 months - Always connected with 4 values /sec. Saver : up to 5 months - The instrument sends value only when the position has changed. Blind/Push : up to 7 months - Value is sent from the instrument (button) or requested from the computer.

16. Remote commands

The data request is done by the sending of the character ASCII <?>, followed by <CR> (carriage return). The instrument also answers in the same way during the detection of an impulse pedals/automat.

The other commands are shown in the following table:

AOFF 0 / AOFF 1	Deactivates/activates the automatic switch-off
AOFF?	Forwards the state of the automatic switch-off
BAT?	Sends the status of the battery (BAT1=ok or BAT0=low)
ID ?	Sends the instrument identification (SY276)
IN	Activates the Inch unit
KEY?	Sends keyboard status (KEY0 or KEY1)
KEY 0 / KEY 1	Locks/unlocks the keyboard (except data output)
ECO 1 / ECO 0	Activate/de-activate economic mode
ECO?	Current economic mode
LCAL?	Sends the date of the last calibration (DD.MM.YYYY)
LCAL DD.MM.[YY]YY	Sets the date of the last calibration
MM	Activates the millimeter unit

21

NCAL?	Sends the date of the next calibration (DD.MM.YYYY)
NCAL DD.MM.[YY]YY	Sets the date of the next calibration
NUM ?	Sends the instrument number
NUM X..X (up to 20char)	Modifies the instrument number (up to 10 characters)
OFF	Switch instrument OFF
OUT 0 / OUT 1	Disables/enables the automatic data transmission
PRE?	Sends the Preset value (\pm xxx.yyy[yy])
PRE \pm XXX.YYYYYY	Sets the Preset value (max. 199.999mm / 7.83")
?	Sends the displayed value
RST	Reset Bluetooth® pairing
SBY xx	xx number of minutes before stand-by
SET?	Transmits the configuration of the instrument (IN or MM, ST00 or ST01, KEY0 or KEY1, BAT1 or BAT0)
STO?	Sends the display status
STO 0 / STO 1	Unlocks/locks the display
UNI?	Send the current unit of measure (IN or MM)
UNI 0 / ON 1	Locks/unlocks the Unit function
VER?	Sends the version and date of software (Vx.x DD.MM.YYYY)
BT 0 / BT 1	Desactivate/activate the Bluetooth® module

22

BTRST	Clear pairing information
MAC ?	Transmitting the Bluetooth® MAC Address

17. Error messages

In case of problems, the following error messages will be sent on the data connection and on the display :

- ERR0 : Error of the reading sensor
- ERR1 : Error of parity
- ERR2 : Error in the received remote command
- ERR3 : Overflow of the measuring range
- ERR8 : Memory error
- ERR9 : Critical error, the instrument must be revised
- No Data : Bluetooth® transmission error

The errors 0 and 3 must be confirmed by the button [MODE] or [SET], and then the instrument must be reinitialized.
The Error 'No Data' must be confirmed by button [MODE] or [SET]

23

18. Technical specifications

18.1. Common Specifications

Standard measuring range	0-30mm, 30-66mm, 66-102mm, 100-136mm, 125-161mm 0-1.2" , 1.2-2.6" , 2.6-4.0" , 4.0-5.3" , 5.0-6.3"
Resolution	1µm
Measuring force (0-25/30mm)	Ajustable 5N/10N. 5N with disk-anvils.
Measuring force (long ranges)	10N standard
Advance	10mm/rotation
Number of refreshments display	8/s
Measuring system	Inductive Sylvac System
Power supply	Battery CR2032
Average consumption	60µA (continuous)
Standby consumption	12µA
Average autonomy (automatic standby, no data loss)	10'000 hours (Bluetooth® see cap. 15.3)

Data output
 Data output parameters
 Operating temperature
 Protection
 Weight
 Other specifications

S_Connect Proximity or Bluetooth®
 4800 bauds, 7 bits, parity, 2 stop bits, no flow control
 +5° à 40°C (+41°F à +104°F)
 IP67 (CEI 60529)
 270g, 425g, 550g, 750g, 850g
 according to DIN 863-1



18.2. Anvils range specifications

(Detailed description: see manufacturer's website)

Model	Ø 6.5mm	Ø 2mm	Knife 0.75x6.5m	Ball Ø7mm	Ball-ball Ø7mm	Disk Ø25mm	Knife 0.5mm/ cone 60°/ Ø0.5mm	Point 30° / spherical radius 0.3mm
Range (mm)	0-30 30-66 66-102 100-136 125-161	0-25 25-60 60-95	0-25 25-60 60-95 95-130 120-155	0-30	0-30	0-30	0-25	0-25

Accuracy (μm)	3 4 5 7 8	3 4 5	3 4 5 6 7	3	4	4 (full) 10 (partial)	3	3
Repeatability (μm)	1 1 1 2 2	1 1 1	1 1 1 2 2	1	1	1	1	1
Flatness (μm)	0.6	0.6	1	1	-	2	-	-
Parallelism (μm)	2 2 3 3 3	2 2 3	2 2 3 3 3	-	-	5 (full) 10 (partial)	-	-

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