MICROTECH
Depth Gauge EE

Microtech Depth Gauge EE Instructions

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MICROTECH

Microtech Depth Gauge EE

Product Information

Specifications:

- **Battery:** lithium 3V, type CR2032
- **Frequency Band Modulation:** 2.4GHz (2.402 – 2.480GHz) 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.

Product Usage Instructions

Operating Features of the Instrument
The instrument has two operating modes: basic functions and advanced functions. You can select references, work in Automatic Reference mode, and enter a multiplication factor.

Start
Press the MODE button to start the instrument.

Basic Functions
Short press on MODE gives direct access to basic functions like selecting references and inputting preset values.

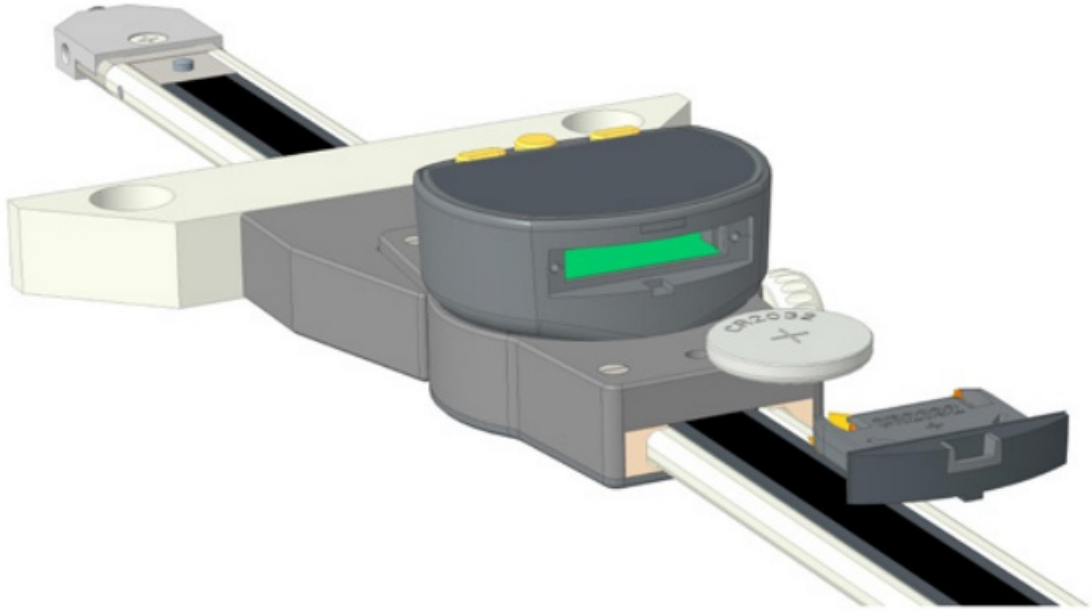
Advanced Functions
Prolonged press on MODE accesses advanced functions such as unit selection, choice of measurement direction, and multiplication factor input.

FAQ:

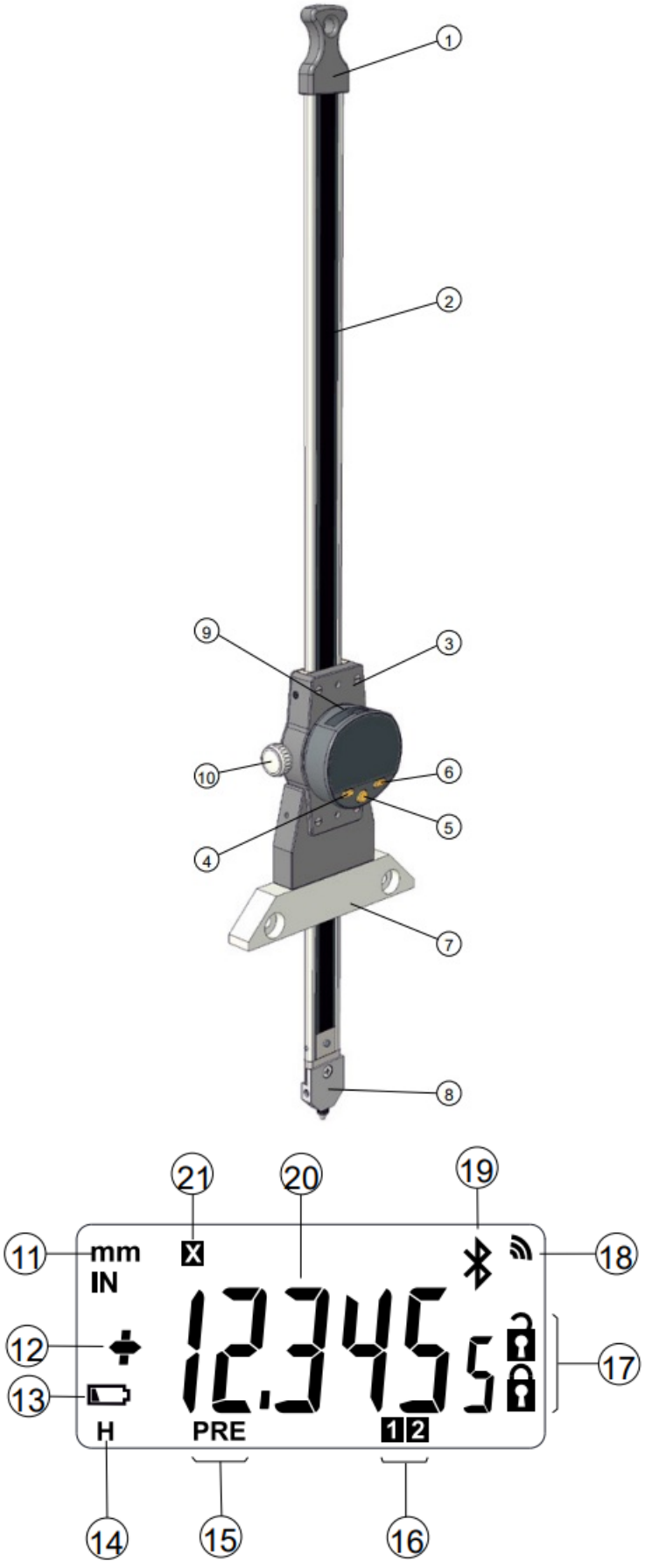
- **Q: How do I change the measuring direction?**

  A: To change the measuring direction, a displacement of more than 0.2mm in the opposite direction is required.
- **Q: How can I clear pairing information?**

  A: To clear pairing information, navigate to the rESEt menu and select the option to clear pairing information.



Description



1. Support
2. Perche
3. Movable cursor
4. MODE button

5. Favourite button
6. SET button
7. Base
8. Measuring button (interchangeable)
9. Battery compartment or power cable
10. Clamping screw
11. Unit of measurement (mm/INCH)
12. +/- indicator
13. Low battery
14. Freezing the measured value
15. Preset mode
16. Active reference
17. Locking the buttons
18. Sending data
19. Bluetooth® connection
20. Display – 6 digits
21. Multiplication factor /Ref Auto

Operating features of the instrument

-

The instrument has two operating modes: basic functions (direct access) and advanced functions. In addition to the configuration functions, you can select 2 references, or work in Automatic Reference mode (details see chapter 5). You can also enter a multiplication factor (see chapters 3 and 4).
-
The «favourite» key gives direct access to the function used most often (see chap. 7).
-

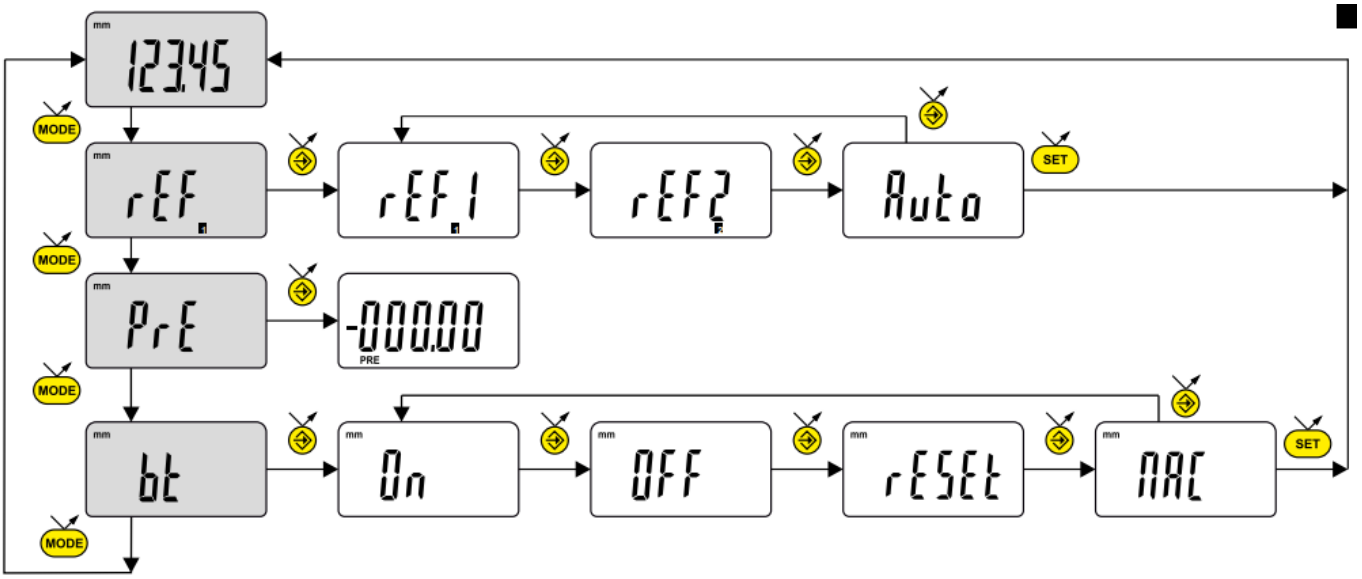
Sets a Preset value, verifies a selection, and controls switching off the instrument. By default, SIS mode enables automatic switch-off with no loss of origin (see chap. 8)
- **Personalising the functions**
  It is possible to activate or de-activate certain functions of the instrument via Power RS/USB cable, or Bluetooth® (see chap. 10).
- **Data transmission parameters** 4800Bds, 7 bits, even parity, 2 stop bits.

Start
Press a button.
For a Bluetooth® connection (see chap. 6).

Basic functions

Each short press

on gives direct access to the basic functions:

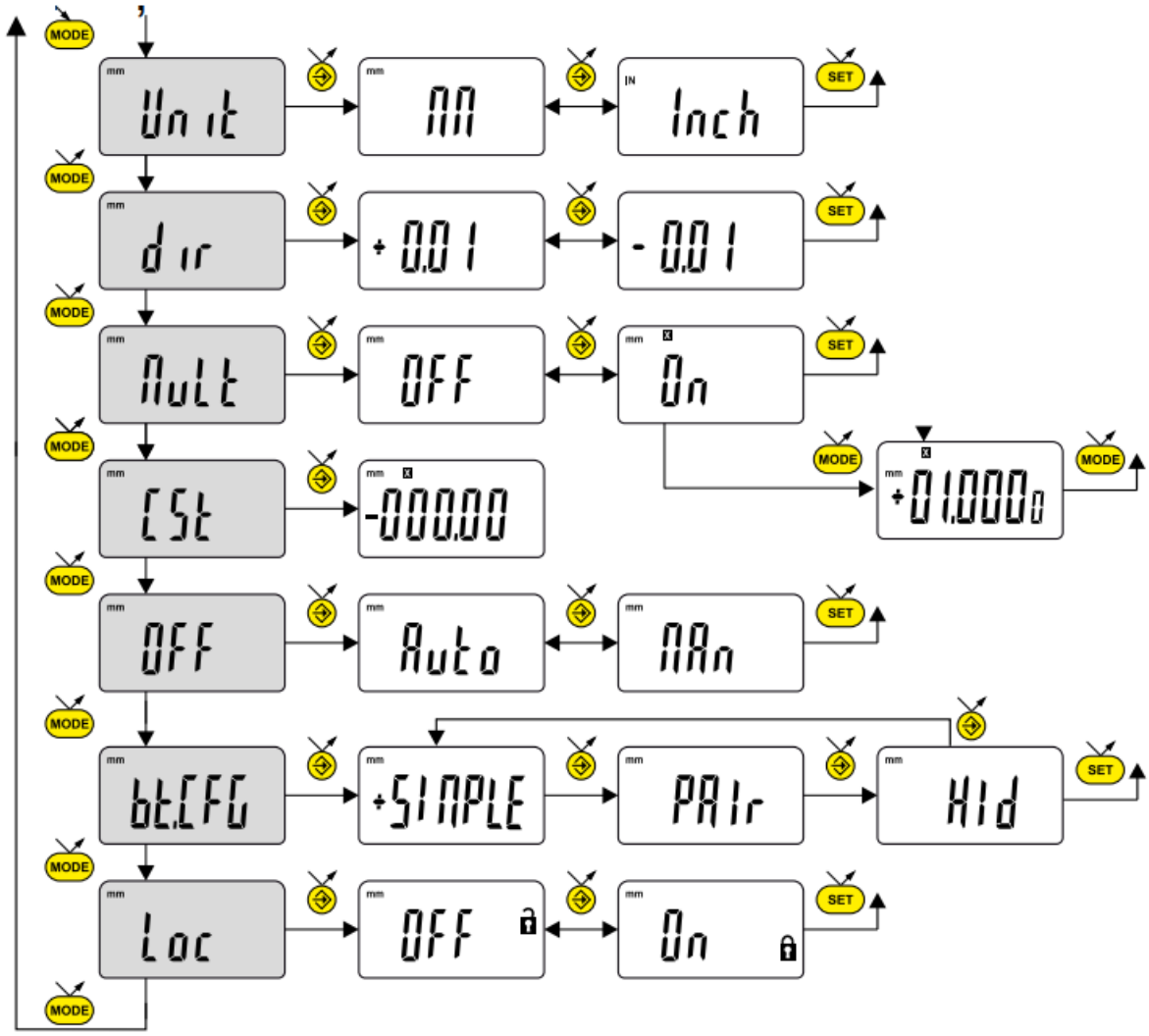


- **rEF** Selection of the reference (1 to 2), or Automatic references (see chap. 5)
- **PrE** Inputting a Preset value next digit 0…9 save PRESET
- **bt** Bluetooth® Enable / disable, reset Bluetooth® module or display its MAC address.

Advanced functions

Prolonged pressure (>2s) on gives access to the advanced functions.

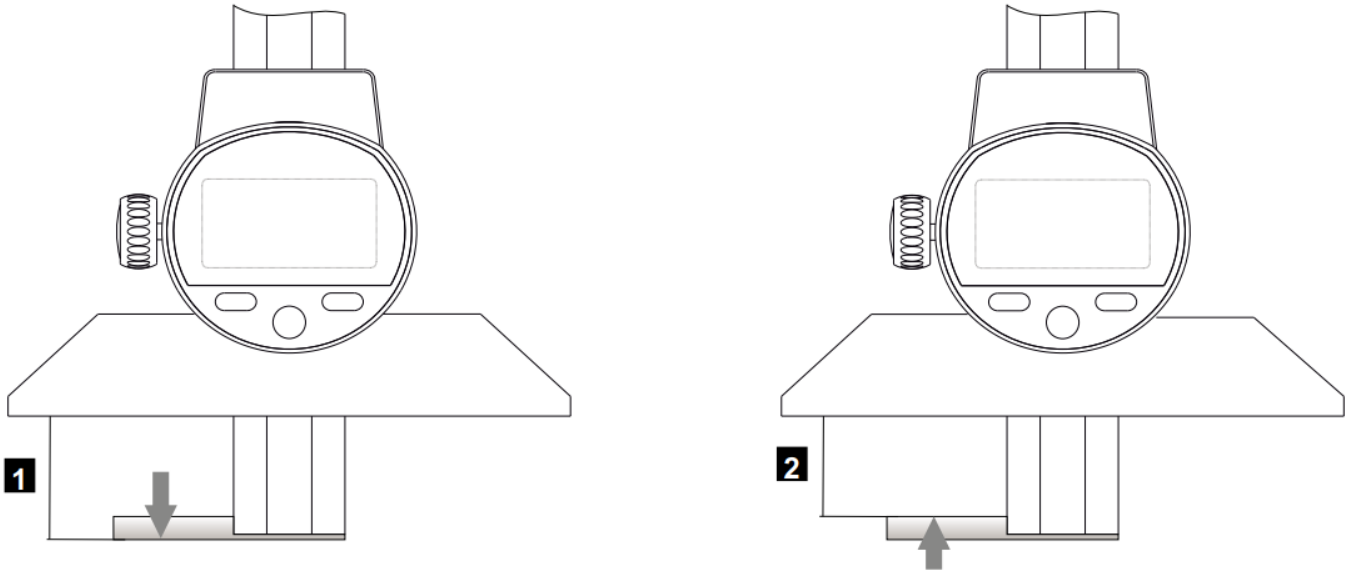
Then, each short press on accesses the required function:



- **Unit** Unit selection (mm or inch)
- **dir** Choice of measurement direction (positive or negative direction)
- **Mult** Multiplication factor, enable or disable multiplication factor (value can be modified if On is confirmed by MODE button)
- **Input** of multiplication factor, next digit SET 0….9 MODE save MULT
- **CSt** Introduction of a constant value (see chapter 5)
- **OFF** Automatic switch-off mode / MAn = disabled, Auto = active (after 10 min. by default).
- **bt.CFG** Bluetooth® profile selection. (see chap. 6 for details) The + sign indicates the currently active profile.
- **Loc** Keypad lock Only the favourite key remains active.(to unlock the keypad, press SET for 5 sec)

Automatic references

Depending on the application, when reversing the measuring direction, an offset value can be managed to compensate for the dimensions of the measuring keys.



To use this operating mode, select the rEF menu to Auto.

The value of the measuring key constant must first be entered in the CSt menu.

Note:

- In Auto Reference mode, the preset value entry is assigned to the active reference of the measuring direction:

⇧ Positive direction = ref **2**

⇩ Negative direction= ref **1**

- For the change of measuring direction to take place, a displacement >0.2mm in the opposite direction is required.

Bluetooth® configuration

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

- Symbol off …….. disconnected mode
- Symbol blinking …… advertising mode
- Symbol on …….. connected mode

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.

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 connnection is established during the advertisement period reactivate the Bluetooth® module using the bt / On menu.
4. Instrument is ready to communicate (connected mode.)

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.

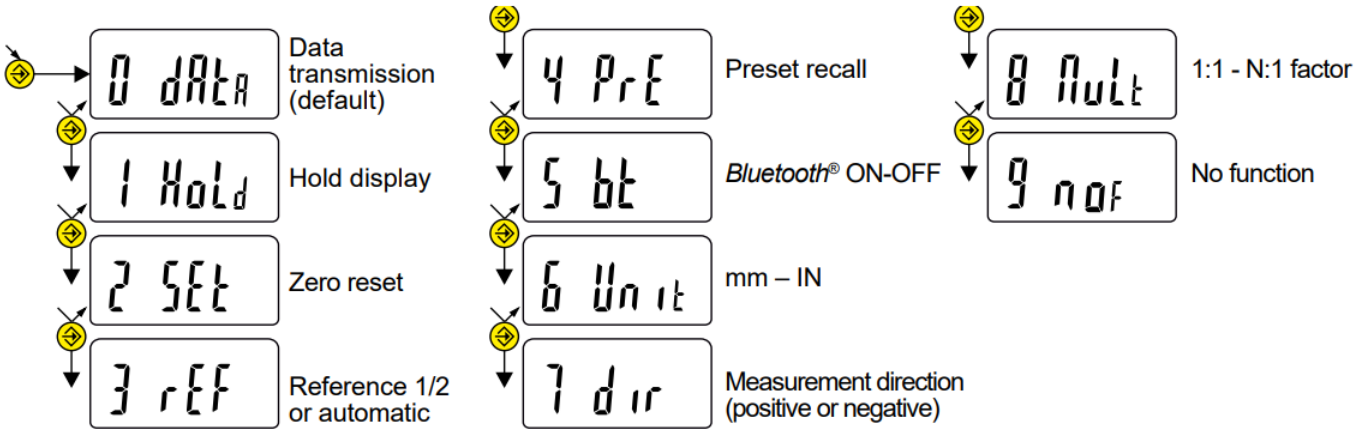
Bluetooth® specifications

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 chan ged. Blind/Push: up to 7 months – Value is sent from the instrument (button) or requested f rom the computer.

Other specifications on the manufacturer's website.

Favourite key

The «favourite» key gives direct access to a predefined function, and can be configured according to the needs of the user. In order to assign a function to the «favourite» key, give a prolonged press on , and then select the required function:



Validation of selection: By a prolonged press on or a short press on SET or MODE.

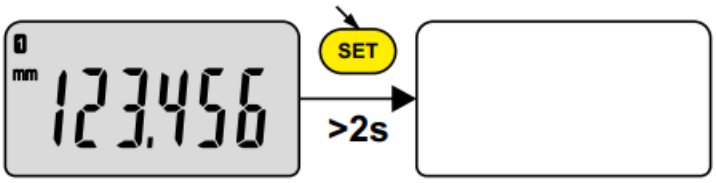
Note:

- A function can also be assigned via RS232 using the command <FCT + Function No.> (FCT 0..9 A..F)
  Example: Unit change= <FCT6>, no function =<FCT9>.

Switching off

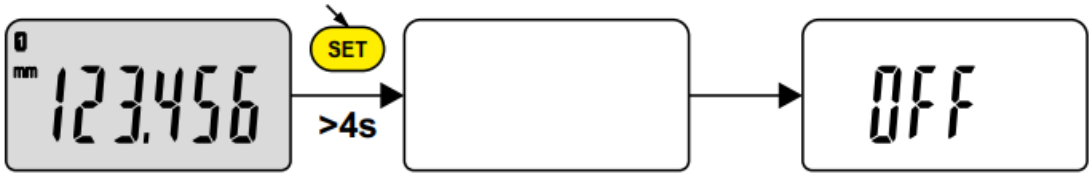
The dial gauge goes automatically into stand-by if not used for 10 minutes, unless automatic switch-off mode has been turned off (see Chap. 4, advanced functions).

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 nonuse, but this will necessitate a zero reset on restart (the origin will be lost):

Prolonged press (>4 sec) on SET:



Re-initialising the instrument

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

Personalising the instrument
Access to the functions of your instrument can be personalised, for more information see manufacturer's website (requires you to connect your instrument via Power RS / USB cable, or Bluetooth®).

- **Possibilities:**
  - Enable or disable the required functions.
  - Modify access to the advanced functions (direct access).

Connecting the instrument
The instrument can be connected to a peripheral via a Power (RS or USB) cable or Bluetooth®. See page 4 for connecting the Power cable. Measured values can be transmitted and the instrument driven using predefined commands (see chap. 12 for a list of the main commands).

List of the main command

Selection and configuration

- **CHA+** / **CHA-** Change measurement direction
- **FCT0 …9…A…F** Assign «favourite» function
- **MM** / **IN** Change measurement unit
- **KEY0** / **KEY1** Lock / unlock keypad
- **MUL [+/-]xxx.xxxx** Modify multiplication factor
- **PRE [+/-]xxx.xxx** Modify preset value
- **STO1** / **STO 0** Activate / de-activate HOLD
- **ECO1** / **ECO 0** Activate / de-activate economic mode
- **LCAL dd.mm.yy** Modify last calibration date
- **NCAL dd.mm.yy** Modify next calibration date
- **NUM x…x (up to 20chars)** Modify the number of the instrument
- **UNI1** / **UNI0** Activate / de-activate change of units
- **OUT1** /**OUT0** Activate / de-activate contin. data transmission
- **PRE ON** / **PRE OFF** Activate / de-activate Preset function battery
- **PRE** Recall Preset
- **SET** Zero reset
- **REF1**/**REF2** Change of active reference
- **CST [+/-]xxx.xxx** Introduction of the constant value
- **REFAUTO1** / **REFAUTO0** Activate / de-activate automatic reference
- **SBY xx** xx number of minutes before stand-by
- **BT0**/**BT1** Activate / de-activate Bluetooth® module
- **BTRST** Clear pairing information

Interrogation

- **?** Current value?
- **CHA?** Measurement direction?
- **FCT?** «favourite» function active?
- **UNI?** Measurement unit active?

- **KEY?** Keypad locked?
- **MUL?** Multiplication factor?
- **PRE?** Preset value?
- **STO?** Status of HOLD function?
- **ECO?** Current economic mode
- **LCAL?** Date of last calibration?
- **NCAL?** Date of next calibration?
- **NUM?** Instrument number?
- **SET?** Main instrument parameters?
- **ID?** Instrument identification code?
- **CST?** Valeur de constante ?
- **REFAUTO?** Référence automatique ?

Maintenance functions

- **BAT?** Battery status (BAT1 = OK, BAT0 = low battery)
- **OFF** Switch-off (wake up using a button or RS)
- **RST** Re-initialisation of the instrument
- **REF?** Active reference ?
- **SBY** Put instrument in stand-by (SIS)
- **VER?** Version No. and date of firmware
- **MAC?** Bluetooth® MAC address ?

Specifications

Measuring range	300 mm / 12''	600 mm / 24''
Total measuring range	335 mm / 13.2''	625 mm / 24.6''
Resolution	0.01 mm / .0005''	
Accuracy	30 µm / .0012''	40 µm / .0015''
Repeatability	10 µm / .0004'' (±1 digit)	
Max. travel speed	>2 m/s / > 80''/s	
No. of measurements per second	Up to 10 mes/s	
Units of measurement	Metric (mm) / English (Inch) (direct conversion)	
Maximum preset	±999.99mm / ±39.9995 IN	
Measuring system	Sylvac inductive system (patented)	
Power supply	1 lithium battery 3V, type CR 2032, capacity 220mAh	
Average autonomy	8'000 hours (with Bluetooth® switched on, see chapter 6.1)	
Data output	RS232 / Bluetooth® 4.0 compatible (see chapter 6)	
Working temperature (storage)	+5 à + 40°C (-10 à +60°C)	
Electromagnetic compatibility	According to EN 61326-1	
IP specification (electronic unit)	IP 54 (according to IEC60529)	
Weight	440g	550g

CERTIFICATE OF CONFORMITY
We certify that this instrument has been manufactured in accordance with our Quality Standard and tested with reference to masters of certified traceability by the Federal Institute of metrology.

Calibration certificate
Because we make our instruments in batches, you may find that the date on your calibration certificate is not current. Please be assured that your instruments are certified at point of production and then held in stock in our warehouse in accordance with our Quality Management System ISO 9001. Re-calibration cycle should start from date of receipt.

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U.S./Canada Certification

Sylvac

m.n. S_Depth PRO

This device contains
FCC ID: 2AAQS-ISP091201
IC: 11306A-ISP091201

NOTICE:
Changes or modifications made to this equipment not expressly approved by Sylvac may void the FCC authorization to operate this equipment.

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FCC

NOTICE: This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions.
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pur suant 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.

Radiofrequency radiation exposure Information:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Brazil Certification

Description:
This module is based on Nordic Semiconductor nRF8001 µBlue Bluetooth® Low Energy Platform. The nRF8001 is a single chip transceiver with an embedded baseband protocol engine, suitable for ultra-low power wireless applications conforming to the Bluetooth® Low Energy Specification contained within v4.0 of the overall Bluetooth® specification. The nRF8001, used in the current revision of ISP091201, is a production product using a RoM for the baseband protocol engine.

Changes without prior notice:

Edition: 2020.11 / 681-273-07

Documents / Resources

	Microtech Depth Gauge EE [pdf] Instructions Depth Gauge EE, Depth Gauge EE, Gauge EE, EE

References

- User Manual

Manuals+, Privacy Policy

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