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# THE NEW SYLVAC BLUETOOTH® ULTRALIGHT CALIPER SERIE 4

The new ultralight caliper **UL4**, new design, new features, built-in Bluetooth transmitter: Discover our amazing new ultra-light long range calipers




Bluetooth® SMART

## UL4 Bluetooth®

- **Built-in Bluetooth® 4.0**
  - New reinforced frame
- **XXL display with 20 mm high digits**
  - Increased accuracy
- **Lengthened jaws 200 mm**
  - New system for internal measurement
- **Protected IP67**

SWISS MADE

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SWISS MADE

# UL4 Bluetooth®




App Store

Google play

## TECHNICAL SPECIFICATIONS

| Specifications | 811.1404 | 811.1406 | 811.1410 | 811.1415 | 811.1420 | 811.1425 | 811.1430 |
|---|---|---|---|---|---|---|---|
| Measuring range | 400 mm | 600 mm | 1000 mm | 1500 mm | 2000 mm | 2500 mm | 3000 mm |
| Max error [1] | 30 µm | 40 µm | 50 µm | 90 µm | 120 µm | 150 µm | 200 µm |
| Repeatability [2] | 20 µm | | | | 30 µm | | |
| Measuring force | 7.5 – 11.5 N (±20%) | | | | | | |
| Connection | Bluetooth® Smart * / Proxi.-RS232 or - USB | | | | | | |
| Protection rating | IP67 (electronic module) | | | | | | |
| Preset max. | ± 9999.99 mm / ± 399.9995 IN | | | | | | |
| Weight | 1.5 kg | 1.6 kg | 1.9 kg | 2.3 kg | 2.6 kg | 2.9 kg | 3.3 kg |

[1] According to DIN 863
[2] ± digit

*** More informations on How to use Bluetooth® leaflet SYL_1401_EN_BT**

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# Ultra-light caliper
Pied à coulisse ultra-léger
# Extra-leichter Messschieber
Calibro a corsoio ultraleggero
# Calibre ultraligero

# UL 4

E F D I S




**INSTRUCTIONS**
**MODE D'EMPLOI**
**BEDIENUNGSANLEITUNG**
**MANUALE D'USO**
**MODO DE EMPLEO**

## 1. Operating features of the instrument

- MODE The instrument has two operating modes: first level functions (direct access) and second level functions. (see chaps. 3 and 4)
- The «favourite» key gives direct access to one of the most used functions (see chap. 5)
- SET Sets a Preset value, reset the MIN/MAX mode, applies a selection and controls switching off the instrument. By default, SIS mode enables automatic switch-off without any loss of origin (see chap. 7).

### 1.1 Personalising the functions

It is possible to activate or de-activate some functions of the instrument (see chap. 9)

### 1.2 Data transmission parameters

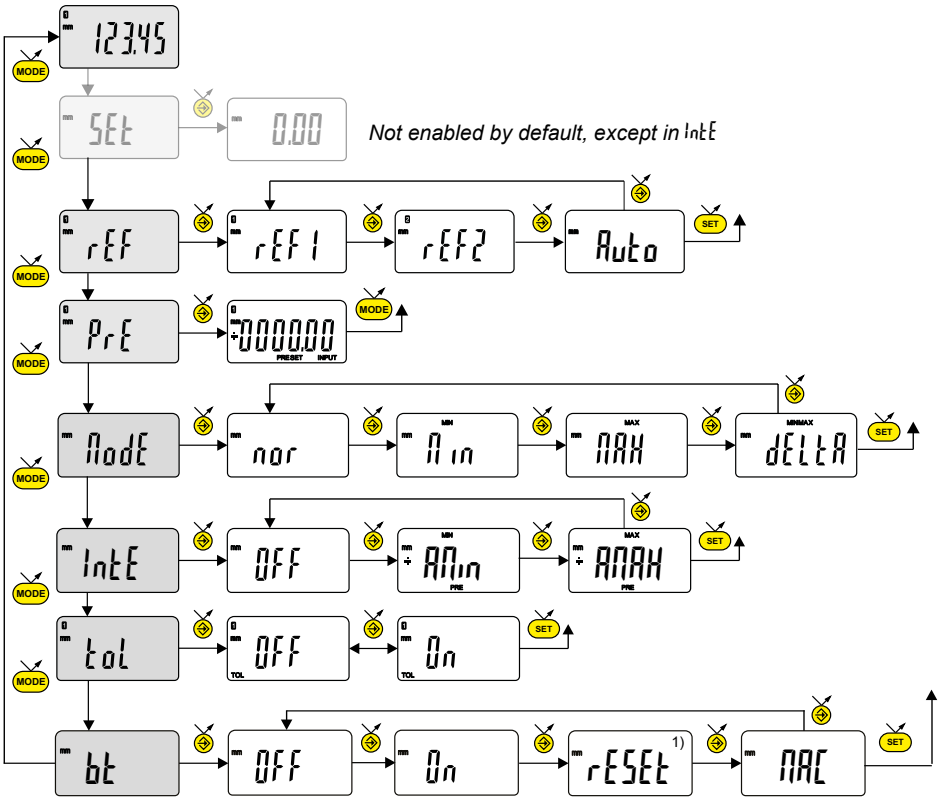
4800Bds, 7 bits, even parity, 2 stop bits

## 2. Start

Press any button.

## 3. First level functions

Each short press on MODE gives direct access to the first level functions :




1) not available with Simple profile

SEt — Normal mode : zero reset
Mode int-ext : preset on the measured min or max value

rEF — Choice of reference (REF1, REF2 or automatic REF, see chap. 3.1 Auto ref)

PrE — Introduction of a Preset value — next digit — SET 0...9 — MODE save the Preset

nodE — MINIMUM, MAXIMUM and DELTA (TIR) measurement

IntE — Dynamic preset (see chap. 6)

tol — Tolerance display (introduction of tolerance limits, see chap. 3.2)

bt — *Bluetooth*® function (see chap. 3.3)

### 3.1 Automatic references

The instrument has the ability to switch automatically between its two references.

This allows using the caliper for both internal and external measuring without going through the menu to change the reference.

Steps :

On Ref 1

- Introduce a measurement standard as preset, measure this standard and do a pres
- Or set the zero at closed jaws position

On Ref 2

- Measure the internal measurement probes gap (with a caliper, probes included) an
- Do a preset recall at closed jaws position

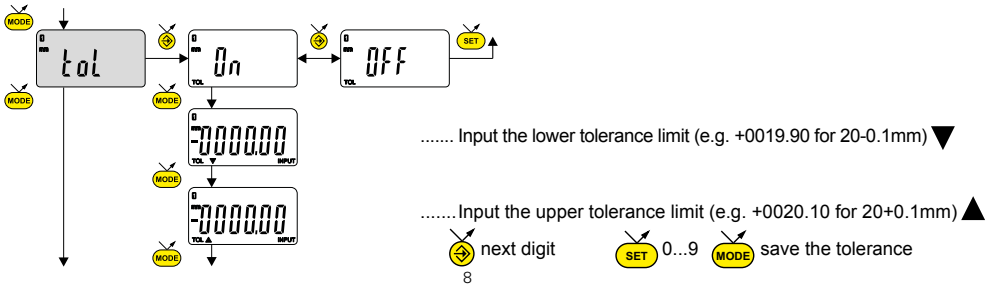
Set Auto

It is now possible to measure in REF1 when closing the jaws or in REF2 when opening the jaws.

Remark: for the reference change to work, it is necessary to make a displacement >0.2mm in the opposite direction.

### 3.2. Insert tolerance limits

In order to introduce or modify the tolerance limits, it is necessary to select tol → On , followed by a short press on MODE



**Note :**
- In case of internal measurements, you can cross the indicators by reversing the order of entering the tolerance intervals (upper interval < lower interval)
- It is possible to introduce different tolerance limits on REF1 and REF2.
- It is also possible to display the tolerance limits when the instrument is working in MIN, MAX or DELTA (TIR) mode



### 3.3. Bluetooth® configuration

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

1° Symbol ᛒ off.....disconnected mode.
2° Symbol ᛒ blinking .....advertising mode.
3° Symbol ᛒ 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 equipement without driver installation). |

**Note:**

Pairing information are erased while profile is switched.

**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.

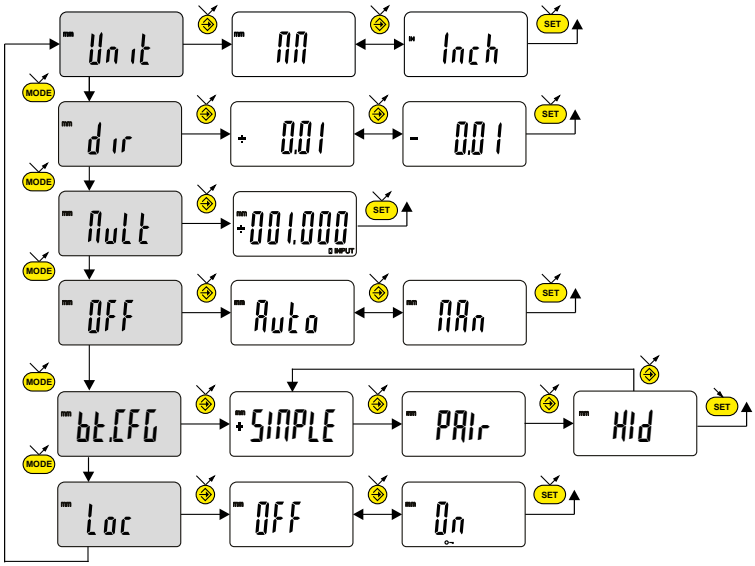
### 3.3.1 *Bluetooth*® specification

| | |
|---|---|
| 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<br>Industrial environment: 1-5m |
| Battery life with CR2477 | Continuous : up to 8 months - Always connected with 4 values /sec.<br>Saver : up to 21 months - The instrument sends value only when the position has changed.<br>Blind/Push : up to 24 months - Value is sent from the instrument (button) or requested from the computer. |

Other specifications on the manufacturer's website

## 4. Second level functions

Prolonged pressure (>2s) on MODE gives access to the second level functions.
Then, each short press on MODE accesses the required function :

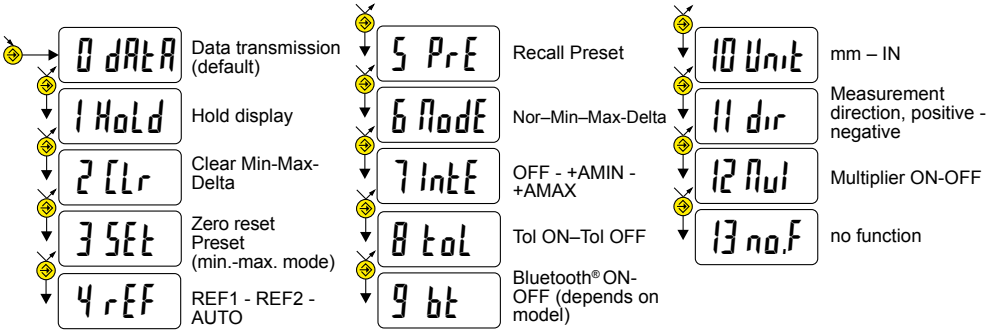



| | |
|---|---|
| Unit | Units selection (mm or Inch) |
| dir | Choice of measurement direction (positive or negative) |
| Mult | Introduction of a multiplier, other than 1.000 next digit SET 0...9 MODE save the factor |
| OFF | Automatic switch-off mode MAn = de-activated, Auto = active (after 10 min.) |
| bt.CFG | Bluetooth® profile selection (depending on model). (see chap. 3.3 for details)<br>The + sign indicates the currently active profile. |
| Loc | Keypad lock : only the favourite key remains active (to unlock the keypad, press SET for 5 s.) |

## 5. 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 press on SET or MODE

**Note :** a function can also be assigned by software. (see chap. 9)

## 6. Adjustment and use of IntE dynamic measuring mode

Certain applications need to adjust the instrument to the MIN (or MAX) measured value. In this case, proceed as follows :

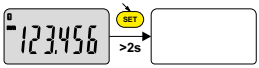
### 6.1 Adjustment of the instrument

- In REF1, enter a Preset value corresponding to the actual size of the standard.
- Within IntE menu, choose the +AMIN mode (set DIR- and MIN mode) or +AMAX mode (set DIR+ and MAX mode) depending on the measuring case. Make a standard measurement (going through the turnaround point)
- Adjust the instrument by selecting the SEt menu and pressing on the button
- The instrument is adjusted and ready to measure.

## 7. Extinction

The instrument goes automatically into stand-by if not used for 10 minutes, unless automatic switch-off mode (menu OFF) is set on manual (see Chap. 4)

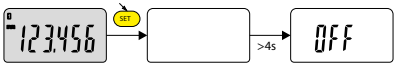
Stand-by mode can be forced by a prolonged press (> 2 sec) on SET




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 of any button.

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

Prolonged press (>4s) on SET




## 8. Re-initialising the instrument

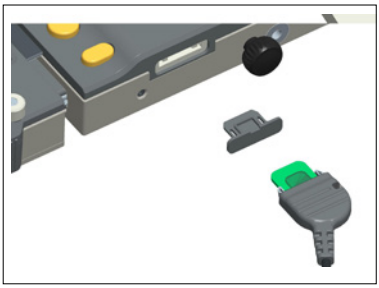
The initial instrument settings can be restored at any time by a prolonged press (>4 sec) simultaneously on MODE and SET until the message rESEt is displayed.

Nevertheless the instrument retains its configuration settings (preset, unit or multiplication factor lock)

## 9. Personalising the instrument

Access to the menus and functions of your instrument can be personalised through a configuration software provided by the manufacturer (requires a connection via Proximity cable or Bluetooth®)

## 10. Connecting the instrument



The instrument can be connected to a peripheral via a Proximity (RS or USB) or Bluetooth®. (See chap. 1)

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

E

## 11. List of the main commands

### 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 [+/-] xx.xxxx | Modify multiplication factor |
| PRE [+/-] xxxx.xx | Modify preset value |
| REF1 / REF2 / REFA | Change the active reference |
| STO1 / STO0 | Activate/de-activate HOLD |
| TOL1 / TOL0 | Activate/de-activate tolerances |
| ECO1 / ECO0 | Activate/de-activate economic mode |
| LCAL dd.mm.yy | Modify last calibration date |
| NCAL dd.mm.yy | Modify next calibration date |
| TOL +/-xxxx.xx +/-zzzz.zz | Inputting tolerance limits |
| MIN / MAX / DEL / NOR | Selecting MIN, MAX, Delta, Normal mode |
| CLE | Re-initialisation of MIN, MAX or Delta mode |
| UNI1 / UNI0 | Activate/de-activate change of units |
| OUT1 / OUT0 | Activate/de-activate contin. data transmission |
| PRE ON / PRE OFF | Activate/de-activate change of preset |
| PRE | Recall preset |
| SET | Zero reset |
| SBY xx | xx number of minutes before stand-by entry |
| NUM x...x (up to 20 chars) | Modify the instrument number |

### Interrogation

| | |
|---|---|
| ? | Current value? (mode Tol, value followed by <=>) |
| CHA? | Measurement direction? |
| FCT? | «Favorite» function active? |

**CERTIFICATE OF CONFORMITY**
Sylvac certifies 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.

**CERTIFICAT DE CONFORMITE**
Sylvac certifie que cet instrument a été fabriqué et contrôlé selon ses normes de Qualité et en référence avec des étalons dont la traçabilité est reconnue par l'institut fédéral de métrologie.

**QUALITÄTSZEUGNIS**
Sylvac bestätigt, dass dieses Gerät gemäss seinen internen Qualitätsnormen hergestellt wurde und mittels Normalen mit anerkannter Rückverfolgbarkeit, kalibriert durch das eidgenössische Institut für Metrologie, geprüft worden ist.

**CERTIFICATO DI CONFORMITÀ**
Con il presente Sylvac certifica che questo strumento è stato prodotto secondo il nostro standard sulla qualità e controllato rispetto a campioni di riferibilità riconosciuta dall'instituto federale di metrologia.

**CERTIFICADO DE CONFORMIDAD**
Sylvac certifica que este instrumento ha sido fabricado conforme a nuestras normas de calidad y ha sido controlado en relación con patrónes de trazabilidad reconocida por la oficina nacional de metrología.

**U.S./Canada certification**



FCC ID: 2AAQS-ISP091201
IC: 11306A-ISP091201

Sylvac
m.n : UL4

**NOTICE :**

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

**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, 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.

**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.

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc. and any use of such marks by Sylvac is under license. Other trademarks and trade names are those of their respective owners.

**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.




Este equipamento opera em caráter secondário, 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.

**Mexico certification**

La operación de este equipo está sujeta a las siguientes dos condiciones: (1) es posible que este equipo o dispositivo no cause interferencia perjudicial y (2) este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

IFETEL : RCPSYIS14-0655

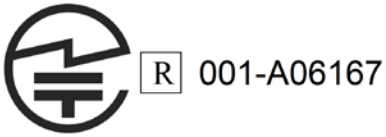
**Korea South certification**

MSIP-CRM-iNs-ISP091201

Class A Equipment (Industrial Use)

이 기기는 업무용(A급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

**Japan certification**




**Taiwan certification**




警語
經型式認證合格之低功率射頻電機,非經許可,公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。
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。

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# EU DECLARATION OF CONFORMITY (DoC)

We, Sylvac SA, hereby declare under our sole responsibility that the product

| | |
|---|---|
| Name | UL 4 BT |
| Description | Ultra light caliper family with Bluetooth® wireless technology |
| Part Numbers | 811.1404, 811.1406, 811.1410, 811.1415, 811.1420, 811.1425, 811.1430, 811.6100, 811.6150, 811.8040, 811.8060, 811.8100, 811.8150, 811.8200, 811.8250, 811.2316.99, 811.2317.99, 811.2319.99, 811.8300, 814.1506, 814.1510, 814.1515, 814.1520, 814.1525, 814.1530 |

has been submitted to a conformity assessment and fulfils the essential requirements of the following European directives

| | |
|---|---|
| 2001/95/EC | General product safety |
| 2014/30/EU | EMC |
| 2011/65/EU & 2015/863/EU | RoHS |
| 2014/53/EU | Radio Equipment Directive (RED) |

and complies with the following harmonized standards or other normative documents

| | |
|---|---|
| EN 61326-1:2013 | Electrical equipment for measurement, control and laboratory use – EMC requirements |
| EN 50581:2012 | Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances |
| EN 300 328 V1.7.1 | Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems |

Person authorized to compile the technical file and issue the declaration of conformity: Eric Schnyder

| | |
|---|---|
| Place and date of issue | Yverdon-Les-Bains, September 12, 2019 |
| Name (position) | Eric Schnyder (CEO) |
| Signature |  |