sylvac

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

# ULH4

E F D I S




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

## Installing and replacing the battery

Mise en place et remplacement de la batterie

## Einbau und Austausch von Batterie

Installazione e sostituzione della batteria

## Colocación y sustitución de la batería

Option to use a CR2032 battery with the adapter accommodated at the end of the main beam.

Possibilité d'utiliser une pile CR2032 avec l'adaptateur logé à l'extrémité de la perche.

Batterie CR2032 mit Adapter am Stangenende verwendbar.

Possibilità di utilizzare una pila CR2032 con l'adattatore alloggiato all'estremità dell'asta

Posibilidad de utilizar una batería CR2032 con el adaptador alojado en el extremo de la columna.

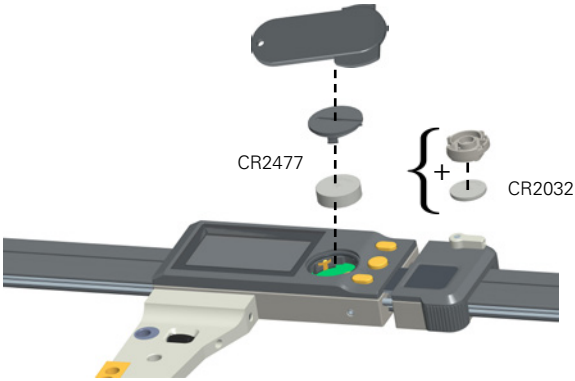


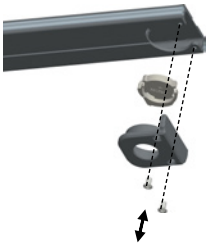
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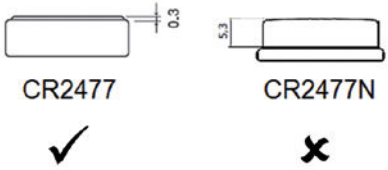
or / ou / oder / o / o



No. 1






**Battery** / batterie / **batterie** / batteria / **bateria**: lithium 3V, type CR2477 or CR2032 (with adaptater)

## 1. Operating features of the instrument

- MODE The instrument has two operating modes: basic functions (direct access) and advanced functions. In addition to the configuration functions, available access to the MIN, MAX and DELTA (TIR) mode, or display of tolerances (see chaps. 3 and 4)
- The «favourite» key gives direct access to the function used most often (see chap. 7)
- SET Sets a Preset value, reset the MIN/MAX mode, 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).

### 1.1 Personalising the functions

It is possible to activate or de-activate certain functions of the instrument via RS232 (see chap. 11)

### 1.2 Data transmission parameters

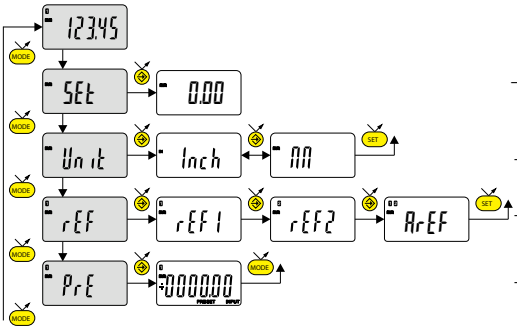
4800Bds, 7 bits, even parity, 2 stop bits

## 2. Start

Press a button.

## 3. Basic functions

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




→ Normal mode : zero reset
Min (max) Mode : diameter calibration on the measured min (max) value.

→ Units selection (mm or Inch)

→ Choice of reference (REF1, REF2 or automatic REF)

→ Inputting a Preset value

next digit SET 0...9 MODE save the Preset

### 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.

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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

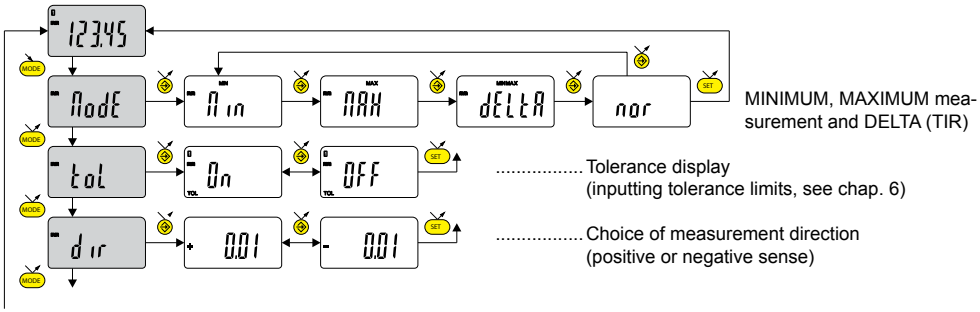
- Measure the internal measurement probes gap (with a caliper, probes included) an
- Do a preset recall at closed jaws position

Set AREF

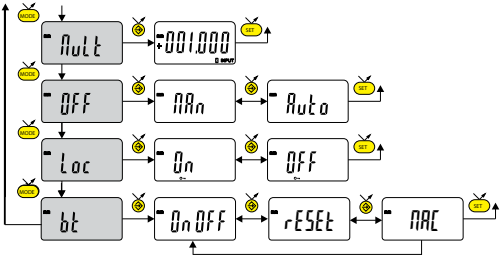
It is now possible to measure in REF1 when closing the jaws or in REF2 when opening the jaws.

## 4. Advanced functions

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



## 4. Advanced functions (continuation)




Introduction of a multiplier, other than 1.000
next digit SET 0...9 MODE save the multiplier

Automatic switch-off mode
Man = de-activated. Auto = active (after 20 min.)

Keypad lock : only the favourite key remains active
(to unlock the keypad, press SET for 5 s.)

*Bluetooth*® function

## 5. Bluetooth®

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

**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 during 120s (advertising mode)

3°As soon as the device is detected, a connection is established automatically. If no connnection is established during 120s, reactivate the *Bluetooth*® module using the bt / On menu.

4°Instrument is ready to communicate (connected mode)

### 5.1 Pairing

Pairing with master is automatically done at first connection.
To connect the instrument to a new master (new pairing), it is necessary to clear all pairing information on the instrument using the bt / rESEt menu.

## 5.2 *Bluetooth*® specification

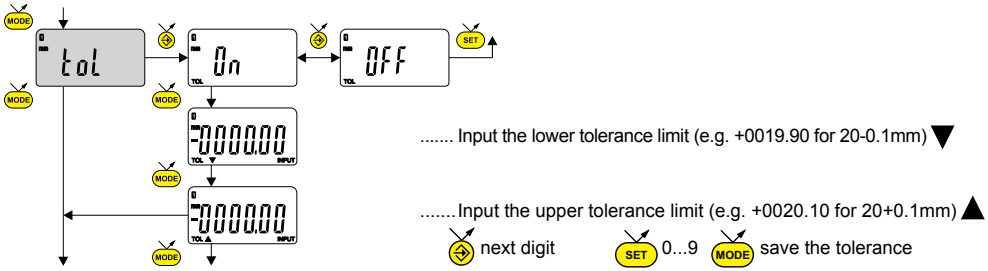
| | |
|---|---|
| Radio frequency | 2.4Ghz |
| Robustness | FHSS |
| Latency (from not connected state to send data) | <6ms |
| Range | Open space : up to 15m<br>Industrial environment : 5m |
| Autonomy with CR2477 | Saver : up to 21 months (The instrument sends value only when the position has changed)<br>Blind/Push : up to 24 months (Value is sent from the instrument (button) or requested from the computer)<br>Continuous : up to 8 months (Always connected with 4 values /sec) |

Other specifications on the manufacturer's website

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## 6. 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



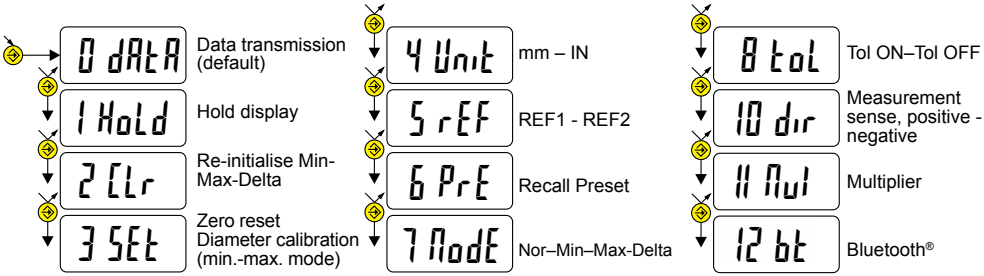

**Note :**

- In case of measuring internal ratings, 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

## 7. 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 via RS232 using the command <FCT + Function No.> / example : Change of Unit = **<FCT4>**

## 8. Adjustment of the measuring system

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

### 8.1 Adjustment of the instrument

- Enter a Preset value corresponding to the actual size of the standard (see chap. 3)
- Select the MIN mode (or MAX, depending on the application) (see chap. 4)
- Make a standard measurement (going through the turnaround point)
- Adjust the instrument by selecting the SEt mode and pressing on the button (see chap. 3)
- The instrument is adjusted and ready to measure.

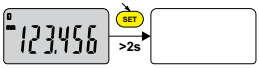
### 8.2 Measure

- Make the measurements. The digital display stores and displays the MIN (or MAX
- Before each new measurement, reset the measured value by a short press on SET

## 9. Extinction

The instrument goes automatically into stand-by if not used for 20 minutes, unless Auto 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 of a 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 (>4s) on SET




## 10. 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 (units and resolution).

## 11. 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 a Proximity RS/USB cable).

Possibilities:

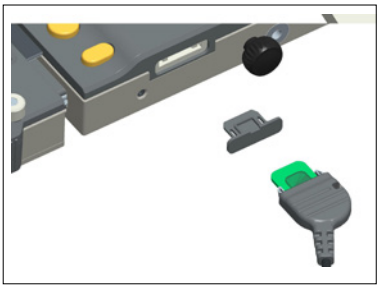
- De-activate or active the required functions
- Modify access to the advanced functions (direct access)

## 12. 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 retro-commands (see chap. 13 for a list of the main commands)



## 13. 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 [+/-] xxx.xxxx | Modification of the multiplier |
| PRE [+/-] xxx.xxx | Modify preset value |
| REF1 / REF2 / AREF | Change the active reference |
| STO1 / STO0 | Activate/de-activate HOLD |
| TOL1 / TOL0 | Activate/de-activate tolerances |
| LCAL dd.mm.yy | Modify last calibration date |
| NCAL dd.mm.yy | Modify next calibration date |
| TOL +/-xxx.xxx +/-zzz.zzz | 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 preset function |
| PRE | Recall preset |
| SET | Zero reset |
| NUM xxxxxxxxxx | Modify the serial number |

**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 Swiss Federal Office 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'office fédéral suisse de métrologie.

**QUALITÄTSZEUGNIS**
Sylvac bestätigt, dass dieses Gerät gemäss seinen internen Qualitätsnormen hergestellt wurde und mittels Normalen mit anerkannter Rückverfolgbarkeit, kalibriert durch das Schweizerische Bundesamt 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'ufficio federale svizzero 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 federal suiza 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.

**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

**Other Certifications**

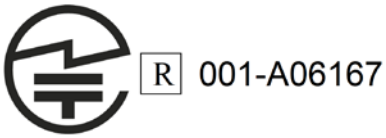
**Korea South certification**

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**




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www.sylvac.ch

# 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 |  |