



INSTRUCTIONS

MODE D'EMPLOI

GEBRAUCHSANWEISUNG

MANUALE D'USO

MODO DE EMPLEO



DIAL GAUGE

E

COMPARATEUR

F

MESSUHR

D

COMPARADOR

I

COMPARATORE

S





Installing and replacing the battery (or Power cable)

Mise en place et remplacement de la
batterie (ou câble Power)

Einbau und Austausch der Batterie (oder Power Kabel)

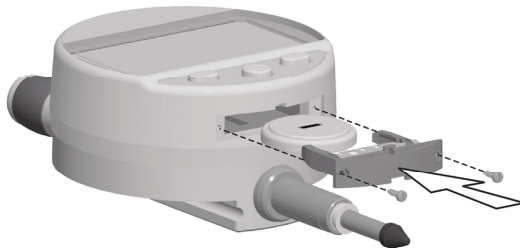
Installazione e sostituzione della batteria
(o del cavo di alimentazione)

Colocación y sustitución de la batería (o cable Power)

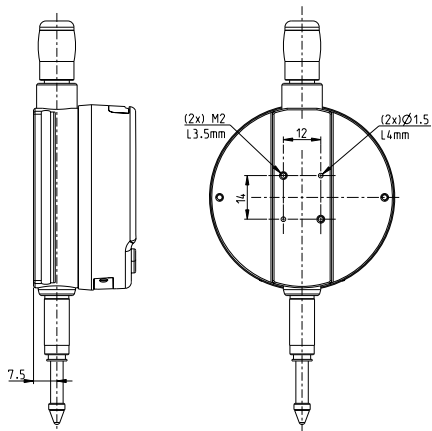


No. 0

No. 0 (0,4x2.5mm)



Lithium 3V, type CR2032



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Diagram for rear fixings

Schéma de fixation arrière

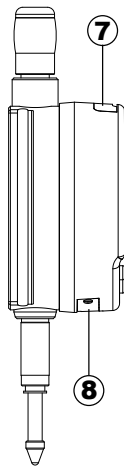
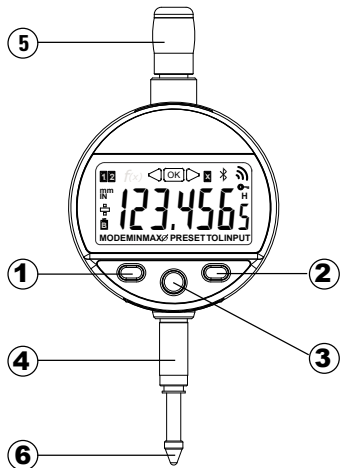
Schema für die Befestigung hinten

Schema di fissaggio posteriore

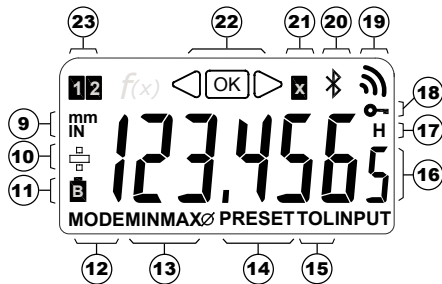
Esquema de fijación posterior



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- 1 Mode button
- 2 Set button
- 3 «Favourite» button
- 4 Clamping shaft
- 5 Lifting cap
- 6 Contact point Ø2 / M2.5
- 7 Slot for Proximity cable
- 8 Slot for battery or Power Cable
- 9 Measurement units (mm / INCH)
- 10 +/- Sign
- 11 Low battery
- 12 Mode menu display

- 13 MIN/MAX/DELTA mode
- 14 Preset mode
- 15 Tolerance mode
- 16 0.00005" display
- 17 Hold measured value
- 18 Keypad lock
- 19 Send data
- 20 Active Bluetooth *
- 21 Multiplication factor
- 22 Tolerance indicators
- 23 Active reference




* depending on version

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1 . Operating features of the instrument

-  The instrument has two operating modes: basic functions (direct access) and advanced functions. In addition to the configuration functions, 2 working reference functions can be accessed, in MIN, MAX and DELTA (TIR) mode, plus Tolerance display or input of a multiplication factor other than 1:1 (see Chaps. 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 RS232 (see Chap. 10)

- RS232 commands

Direct RS232 to 4800 Baud connection, 7 bits, even parity, 2 stop bits


2. Start

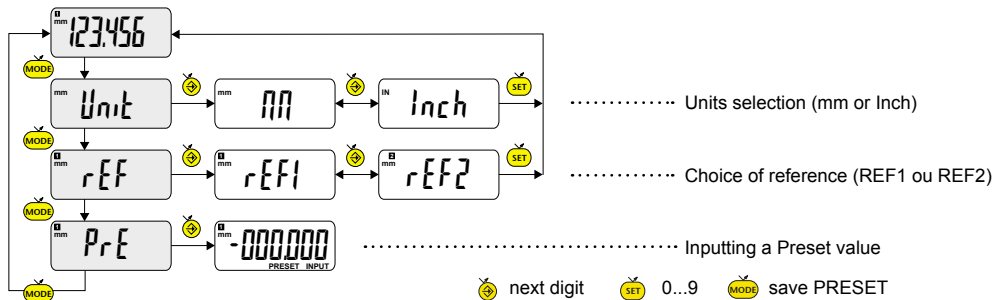
Press a button. When used for the first time, the instrument requests selection of the measurement unit required (mm or $inch$). Choose..... then measure.



3. Basic functions:

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





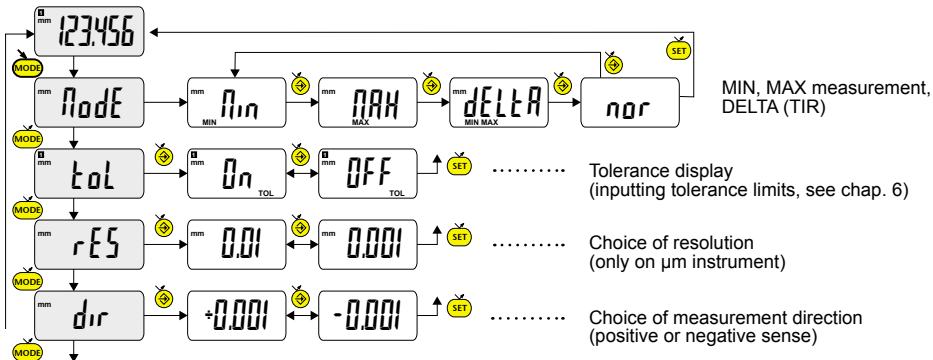
Note: It is possible to assign a different preset value to each of the 2 References. Similarly, different tolerance limits can be assigned to References 1 and 2.



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4. Advanced functions

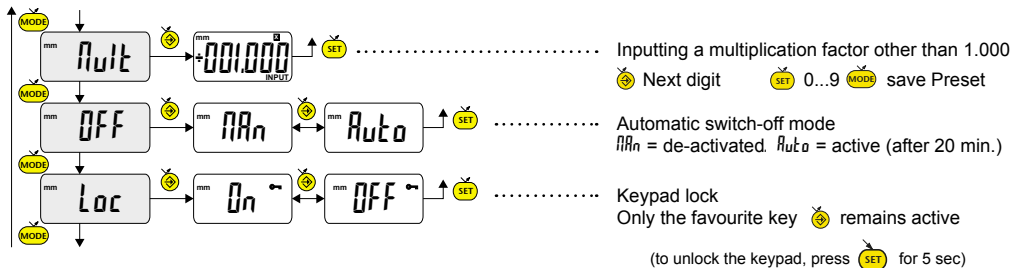
Prolonged pressure on  gives access to the advanced functions. Then, each short press on  accesses the required function:





..... Contd.

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Note:

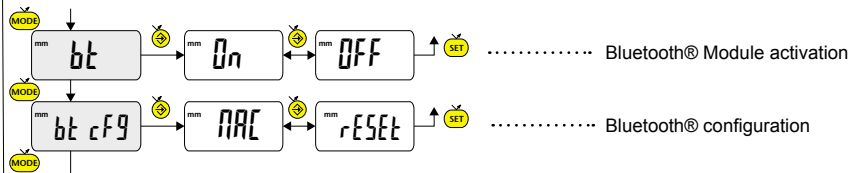
It is also possible to display the tolerance limits when the instrument is operating in MIN, MAX or DELTA (TIR) mode.

- If no tolerance limit has been defined by the user, the instrument will display the tolerance limit indicators , but will not turn on the indicator lights (red - green - yellow)





..... Contd.



5. Bluetooth configuration

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

- 1° ✂ off disconnected mode
- 2° ✂ blink advertising mode
- 3° ✂ on connected mode

Connexion :

- 1° Activate Bluetooth® 4.0 LE compatible software and hardware (PC, measuring unit)
- 2° Start instrument. By default Bluetooth® module is active and instrument is available for connection during 120s (advertising mode)



- 3° As soon as device is detected, connection is automatic. If 120s elapsed without connection, reactivate Bluetooth® module using menu BT/ON.
- 4° Instrument is ready to communicate (connected mode)

Pairing:

Pairing with master is automatically done at first connection.

To connect instrument to a new master (new pairing), it is necessary to clear pairing information on instrument using menu BT CFG/RST.


5.1 Bluetooth specifications

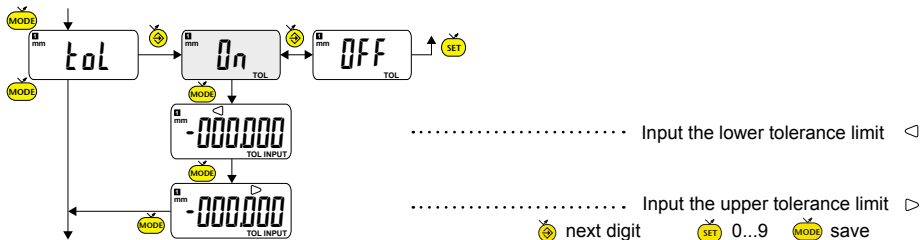
Radio frequency	2.4Ghz
Distance/Range	up to 15 m
Symbol rate	1Mbps
Security	128-bit AES
Robustness	FHSS
Latency (from not connected state to send data)	<6ms



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6. Inputting tolerance limits

To input or modify the tolerance limits, t_{ol} → $0n$ mode should be selected, followed by a short press on  :



Note:


- For measuring internal dimensions, the red and yellow indicators can be switched over by reversing the order in which the tolerance limits are input (lower limit > upper limit).
- It is possible to input different tolerances on REF1 and REF2.

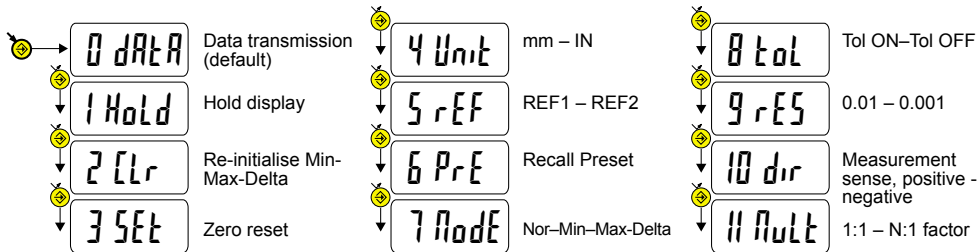







7. Favourite key

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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  or 

Note: a function can also be assigned via RS232 using the command <FCT + Function No.>
example: Change of Reference = <FCT5>




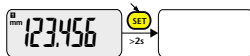


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8. Switching off


The dial gauge 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  :





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 or Bluetooth® transmission.

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  :



9. Re-initialising the instrument

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

Nevertheless the instrument retains its configuration settings (units and resolution), Bluetooth® pairing as well as the last active reference.



10. Personalising the instrument



Access to the functions of your instrument can be personalised using the free **S_Dial WORK Demo** or **Sylconnect** software, which is available on the www.sylvac.ch website (requires you to connect your instrument via a Proximity or Power RS / USB cable).

This program enables you to:

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

11. Connecting the instrument

The instrument can be connected to a peripheral via a Proximity (RS or USB), Power (RS or USB) cable or Bluetooth® smart

See page 2 for connecting the Power cable.

Measured values can be transmitted and the instrument driven using predefined retro-commands (See Chap. 12 for a list of the main retro-commands)

Note: In Tolerance mode, the tolerance limit lights remain lit only for a few seconds while the measurement stabilises. On the other hand, they will remain lit continuously if the instrument is connected to, and powered by, the Power RS (USB) cable.



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12. List of the main retro-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	Modify multiplication factor
PRE [+/-]xxx.xxx	Modify preset value
REF1 / REF2	Change 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 +/-yyy.yyy	Inputting current tolerance limits
MIN /MAX /DEL /NOR	Selecting MIN, MAX, Delta, Normal mode
CLE	Re-initialisation of MIN, MAX or Delta
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
RES2 / RES3	Change of resolution
BT0/BT1	Activate / de-activate Bluetooth® module
BTBST	Reset pairing information

Interrogation

CHA?	Measurement sense?
FCT?	«favourite» function active?
UNI?	Measurement unit active?
KEY?	Keypad locked?
MUL?	Multiplication factor?
PRE?	Preset value?
REF?	Reference active?
STO?	Status of HOLD function?
TOL?	Current tolerance limit values?
LCAL?	Date of last calibration?
NCAL?	Date of next calibration?
?	Current value (mode Tol, value followed by <=>)?
MOD?	Active mode (MIN, MAX, Delta or Normal)?
SET?	Main instrument parameters?
ID?	Instrument identification code?

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
SBY	Put instrument in stand-by (SIS)
VER?	Version No. and date of firmware
MAC?	Bluetooth® MAC address ?



13. Specifications

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Measurement range:	12.5mm	25mm	50mm	100mm	150mm	
Max error (0.01mm scale):	10µm	10µm	20µm	20µm	20µm	(±1 digit)
Max error (0.001mm scale):	3µm	4µm	5µm	6µm	10µm	
Repeatability:	2µm					
Weight:	90g	94g	175g	220g	280g	
Measurement force (standard):	0.65-0.9N	0.65-1.15N	1.25-2.7N	1.6-3.5N	2.2-5.7N	
Max. speed of travel:	1.7m/s					
No. of measurements/ sec:	measurement: 10 mes/s MIN/MAX mode: 20 mes/s					
Measurement unit:	metric/english (Inch)					
Maximum Preset (0.01mm scale):	±9999.99 mm / ±399.9995 IN					
Maximum Preset (0.001mm scale):	±999.999 mm / ±39.99995 IN					
Measurement system:	Sylvac inductive system (patented)					
Power:	1 x 3V lithium battery, type CR2032, 220mAh					
Average consumption:	73µA					
Average battery life:	8'000 hours					
Data output:	RS232 compatible					
Working temperature (storage):	+5 à +40°C (-10 à +60°C)					
Electromagnetic compatibility:	as per EN 61326-1					
IP rating (in accordance with IEC60529):	IP 51 / IP 67 (depending on model)					
Fixing and space envelope:	Ø8 h6, interchangeable M2.5 probe (as per DIN 878)					
Special accessories:	visit www.sylvac.ch					



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 National Office of Metrology.

FCC labeling

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FCC ID: Q96289

NOTICE:

This device complies with Part 15 of the FCC Rules. 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.



NOTICE:

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

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.



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Sous réserve de toute modification
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