sylvac

Experts in connected metrology !



Our new Hi_Cal V2 Smart is now equipped with our very popular Bluetooth® data transmission system, better repeatability and improved construction to ensure reliability.

Bluetooth®

Lightweight

Compact and lightweight column, easy to handle, without any air cushion.

IOT ready

You can now choose between 3 Bluetooth® connection profiles, manage the battery life, the calibration and much more...

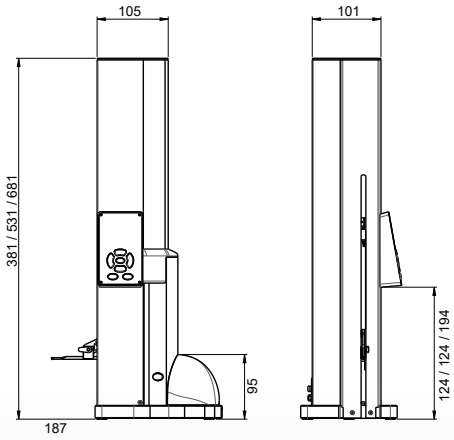
Up and down measurements

You can easily measure groove width, distance or diameter.

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FEATURES

- 1D workshop motorized measuring column with Bluetooth® wireless technology
- Intuitive functions
- Battery integrated
- 150, 300 and 450mm versions
- Display 0.001mm
- Mini-USB, RS232 and Bluetooth® data outputs
- Automatic pre-positioning of the probe by the Sylcom software

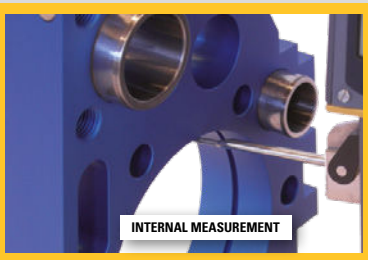


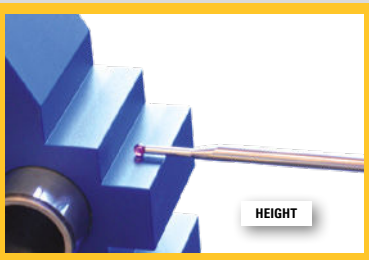
DATA

Specifications	830-0156	830-0306	830-0456
Measurement range	150mm	300mm	450mm
Resolution	0.01 / 0.001 / 0.0005 mm		
Max. error	2.0 + L(mm) / 200[1] µm		
Repeatability	1µm		
Autonomy	40h[2]		
Velocity	100mm/s		
Measuring force	0.25 - 0.35 N		
Functions	Programmable by PC, zero setting, Min/Max/Delta, Preset, 2 references, Height measurement, diameters and centerlines		
Output data	Bluetooth® wireless technology / RS232 / USB		

1) With standard probe, in laboratory conditions
2) 8h/d at 20% use, 16h/d sby

EXAMPLES







Discover the benefits of the new Hi_Cal V2 Smart, ***you will love it!***

sylvac



HEIGHT GAUGE **E**

COLONNE DE MESURE **F**

HÖHENMESSGERÄT **D**

COLONNA DI MISURA **I**

COLUMNA DE MEDICIÓN **S**

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

Description

1. Display
2. Intuitive keyboard
3. Probe measuring indicator
4. Probe
5. Probe fixing lever
6. Probe weight adjustement selector
7. Multi function key FCT
8. Ergonomic handle and battery cover
9. UP / DOWN button, progressive activation of measurement carriage speed
10. USB connector
11. Power or foot pedal input connector
12. Power or foot pedal input connector
13. RS232 connector
14. DC power and charge indicators
15. Battery cover fixing screw location

Description of intuitive keyboard and display

16. Preset | Zero
17. Min | Max measuring mode key
18. Activation of extended functions and parameters key
19. Surface | diameter measuring modes key
20. Active reference selection key
21. ON | OFF key
22. Probe constant setting key
23. Unit indicators
24. Reference active indicator
25. Probe constant setting | display indicator
26. Keyboard locked indicator
27. Displayed value frozen until probe contacts again
28. RS232 | USB | *Bluetooth®* transmission indicator
29. Diameter value indicator
30. Center value indicator in diameter/centerline mode
31. Low battery warning - charger must be connected
32. Min | Max mode active indicator
33. Min | Max mode active indicator
34. Diameter measuring mode indicator
35. Probe direction indicators
36. Deactivated corrections alert indicator
37. Preset input indicator
38. *Bluetooth®* connection indicators
39. Buffer full indicator (buffer mode)

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Introduction

The Hi_Cal height gauge has been designed to work on small flat reference surfaces such as granite or scraped cast iron plates. A number of technological innovations make this instrument very suitable for easy, fast and reliable measurements. It offers the following advantages :

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- Very low measuring force (0.3N)
- Excellent repeatability
- Fully motorized probe displacement. The movement speed is proportional to the pressure on the UP/DOWN button. The probe automatically tracks profiles and maintains a constant measuring force : measuring diameters is, therefore, fast and precise
- Reduced weight for easy handling
- Very easy to operate and versatile: can be used both in the workshop and laboratory
- Two lines display, enabling viewing of diameter and centerline simultaneously

Getting Started

Simply remove the transport fixing part by pulling it upward, then fix the probe on the support: instrument is ready for measuring. Keep the transport clamp and the locking system for any subsequent transport. (see commissioning diagram p.2)

Important: Always check the fixing of the probe and the probe constant value before measuring.

Connect the AC/DC adapter, and check the status lights:

Top light :	**ON**	●	Fast charge (2 hours)
	OFF	○	Holding charge. This is a safe charge mode to avoid battery losses in case of continuous AC/DC power connection
Bottom light :	**ON**	●	Power connected

Remark: initially, or after a long period without use of the instrument, battery loading may take a few minutes before the instrument is ready.

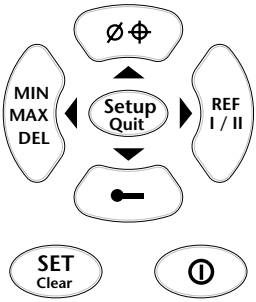
On starting, the Hi_Cal will automatically check the probe measuring detection sensor (Init), then move the probe up and down for setting the system reference.

In case of a problem during initialization, please proceed with following controls:

- Is the probe free to move ?
- Is the measuring force correctly set ? (see chapter « Selector adjustement »)
- In the event of uncontrolled movement (without using the UP/DOWN button) of the carriage, switch the instrument off by pressing >5s on ON | OFF and switch it on again by pressing >0.5s on ON | OFF.

Intuitive and interactive keypad

The Hi_Cal display electronic has been designed to make its use very easy, following the concept of «start and go». All the main functions are accessible by direct use of the corresponding button.



The Setup key enters a menu sequence which enable

access to parameters and extended functions

During the menu sequence:

- UP and DOWN keys select the next or previous menu
- LEFT and RIGHT keys select settings within the act

Keypad direct function

ON | OFF | Stand-by

SET /CLEAR

SET : Zero (long press) | preset recall (short press)
CLEAR : Initialisation of Min | Max during Min | Max measuring mode

Displays and activates the constant entry mode

REF

Selects the active the reference Ref I ↔ Ref II

Selects the active mode SURFACE ↔ DIAMETRE

MIN / MAX / DEL

Selects MIN | MAX | DELTA | SURFACE measurement modes

Setting and parameter key

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Setup sequence	Function	Settings
	Preset value entry	Enter a preset value using LEFT, RIGHT, UP and DOWN keys
	Keyboard lock. Only SET | CLEAR, FCT and FOOT pedal remain active	ON | OFF Press SETUP for 2 s. to disable keyboard lock function
	Unit changes	mm | INCH
	Resolution changes	0.005 | 0.001 | 0.01
	Activates | deactivates automatic print out of measurement	Auto | Nor
	Selects different function for FOOT Pedal Selects different function for FCT	4. Dia Surface ↔ Dia 5. Min Surface ↔ Min | Dia 6. Clear Clear Min | Max 7. Ref Ref1 ↔ Ref2 9. Diff Measure ↔ Diff
	key Activates | deactivates sound Blind mode: display is frozen until a new value is measured (probe action)	8. Preset Preset calling 2. Zero Preset 1. Print Data output 0. Unit mm ↔ inch 10. BT On ↔ Off OFF | LO | HI ON | OFF
		
	Software version. Software date	Displays the version 01.01.20 (day | month | year)
	CR or CRLF	Option to add an LF (Line feed), function needed depending on the type of printer used. (see chapter «Printer connection»)
		
		

Setup sequence	Function	Settings
	Printing the diameter or center in diameter mode.	diameter mode: Option selection for printing in • Dia, center • Dia • Center
	Bluetooth® modes	• On • Off • Reset • MAC
	*Bluetooth*® profiles	• Simple • Pair • HID
		

FCT key

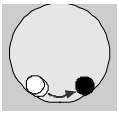
The FCT button as well as the external contact (EXT) can be set to perform different functions related to the type of measurements in progress.

The different settings are:

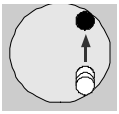
FCT0	mm ↔ INCH	: changes the unit of the active measurement
FCT1	Data output	: sends displayed value to RS232 and USB ou *Bluetooth*®
FCT2	Zero setting	: zero setting (even if a preset has been entered)
FCT3	Preset recall	: preset value recall
FCT4	Surface ↔ Dia	: toggles between surface and diameter mode
FCT5	Surface ↔ Min	: toggles between surface and Min | Max mode
FCT6	Clear Min | Max	: initializes Min and Max value to probe position
FCT7	Ref 1↔ Ref 2	: toggles ref1, ref2
FCT8	Surface ↔ Diff	: difference between the 2 last measurements
FCT9	BT ON ↔ OFF	: activates, deactivates the *Bluetooth*® module

FCT key used in diameter mode

In diameter measurement, the FCT key can be used instead of the rear paddles to drive the probe from the 1st measurement point to the 2nd measurement point. This is most useful for measuring small diameters.



1. 1st. meas. point



2. Action on FCT key



3. 2nd meas. point



4. Action on FCT key

At the end of a diameter measurement, the FCT key will release the probe from its contact point to be ready for other measurements.

As soon as the probe looses contact with the part, the FCT key recovers its former setting (for instance: data output).

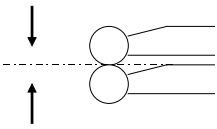
Measuring using Hi_Cal

Use the UP/DOWN button in the back of the instrument to move the motorised carriage up or down, until the probe is on contact with the first surface.

Constant setting

Before beginning new measurements, we recommand to control and enter (if necessary) the probe constant value. The probe constant value must be set correctly in case of shaft or diameter measurements, this because the Hi_Cal will take account of the probe constant, i.e. the diameter of the ball probe and its deflection when measuring reversed surfaces.

The master gauge supplied with the Hi_Cal must be used to measure the probe constant.



Press the CST key and touch one of the ground surfaces of the cylindrical gauge. Release the probe and touch the opposite surface. The probe constant value is displayed and memorized until a new constant value is taken. The value of the constant is stored and then displayed for a few seconds.

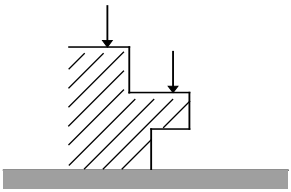
Important: The probe constant must be re-entered after change of probe or after modifying the probe's position.

The probe constant value may be checked by pressing the CST key. Press the CST key again to leave the constant setting mode if no changes are necessery.

After entering the value for the constant, inverted faces can be measured by pressing the UP button. Once the probe is in contact with the inverted surface, both a green light and an acoustic signal will be activated.

Comment : Once the constant has been recorded normal faces (heights) and inverted faces can be measured equally well.

Measuring heights



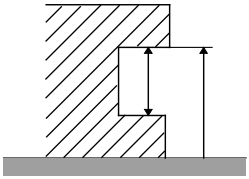
Use the UP/DOWN button on the back of the instrument to move the motorised carriage until the measurement probe is in contact with the base surface (surface table). Press the SET key to have the zero or preset origin set on this position.

Move the probe using the UP/DOWN button to the next measurement position.

Reminder :

Measuring upward

Make sure to enter the probe constant before any upward measurement.



Use UP & DOWN button on the back to move the probe UP and DOWN, until the probe is on contact with the first surface.

Press SET key to have the zero or preset origin set on this position.

Move now the probe to the next position to be measured using the Up & Down button.

Reminder :

- The green light comes ON and an accoustic signal will be heard when the probe-measurement is ready
- the UP/DOWN button on the back of the instrument controls the movement of the mot
- the effect of the UP/DOWN button is stopped as soon as the measurement probe is in con

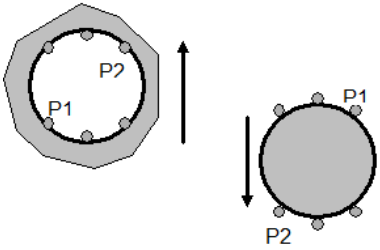
Measuring diameters and centerlines

Enter or check the probe constant value before proceeding with diameter and centerline measurements. Press Ø⊕ key to enter the diameter mode

This mode permits measurement from a reference but also measurement of the distance between two centerlines.

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How to proceed :



1. Move the probe inside of the bore (or onto one side of the shaft) using up & Down button on the back and start measuring at a point P1 which is well away from the summit of the curve

2. Move the part or the Hi_Cal sideways to the probe. The minimum/maximum point is memorized.

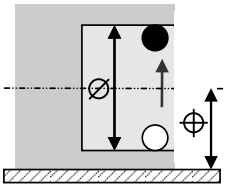
3. Move the probe from P1 to P2 using UP/ Down button (or FCT key[1]) and move the part until the display is steady. Measured diameter and centerline are displayed simultaneously.

FCT Key[1] Acting FCT key during diameter measuring moves the probe from P1 to P2 whatever the FCT key has been set for. At the end of the diameter measurement, the FCT button automatically returns to its predefined function.

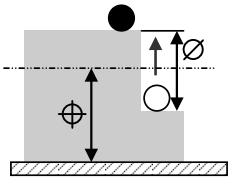
To measure from this centerline (as a reference), press the SET key : new reference is set to the centerline value.

Comment : The procedure is the same for shafts or bores (internal or external diameters) and starting can be either from top or bottom.

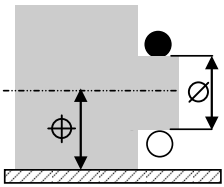
Other measurements in diameter mode:



Groove meas



Step meas



Thickness meas

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.)

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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

Other specifications on the manufacturer's website

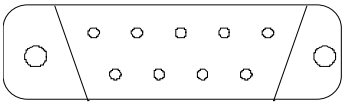
RS232 connector

The RS232-C output allows the Hi_Cal to be connected to a computer or a printer for the creation of measurement protocols.

Most of the functions of the Hi_Cal, but also the pre-positioning of the measurement key can be controlled by the PC using ASCII commands.

Important : It is not recommended to use the USB and RS232 outputs simultaneously.

Female 9 pin D-Sub connector (seen from the outside):



- Pin 1 : **9V DC** output (only with adapter connected)
- Pin 2 : **RXD** (RS232 output of the Hi_Cal)
- Pin 3 : **TXD** (RS232 input from the PC)
- Pin 5 : **SG** signal ground

Data transmission format

Data transmission format:

4800 bds, 7 data bits, even parity, 1 stop bit.

The value is sent in ASCII code :

mm :

SIGN	10^{2}	10^{1}	10^{0}	DP	10^{-1}	10^{-2}	10^{-3}	10^{-4}	CR

Example: ±123.456

Comments:
- 10^{-3} only for 0.001 mm resolution
- 10^{-4} only for 0.0005 mm resolution
- there is no space between the sign and the first numeral

Inches :

SIGN	10^{1}	10^{0}	DP	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	CR

Example: ±12.34565

Comments :
- 10^{-5} only for 0.00005 and 0.00002 inch resolution
- there is no space between the sign and the first numeral

Transmission diameter/center :

Bluetooth® / Separator	CFG SEP 0	CFG SEP 1 (default)
SIMPLE / PAIr	dIA[cr]CEm[cr]	dIA;CEm[cr]
HId	dIA[cr]CEm[cr]	dIA [tab]CEm[cr]

USB connector

The Hi_Cal can be connected to a personal computer using a mini USB cable. The USB driver must be installed in the computer (WIN XP and following compatible).



Mini USB port



Mini USB cable

The USB connection may be set as a RS232 virtual port, thus enabling use of former RS232 software, or as a real USB interface. USB drivers are provided on the CD delivered with the Hi_Cal or available on Sylvac website.

The configuration files (drivers) of the USB port are available on the website.

Important : It is not recommended to use the USB and RS232 outputs simultaneously. The USB port does not allow battery charging

Printer connection

Certain printers need the LF (Line Feed) command at the end of the data transmission. Activate Line Feed by menu or RS232.

If the values do not print after sending data, press the FCT key for 2s. (Sends a Form Feed command to the printer, which allows the buffer to be emptied and the values displayed.)

Commands

Most of the Hi_Cal functions can be controlled by a computer or a PLC by sending ASCII commands.

As a rule, the format of these commands consists of the first 3 letters of the corresponding command. Commands can be in upper or lower case, with or without spaces.

Sending the command <?> corresponds to a data request.

Important: all commands must be followed by a CR (Carriage Return)

Command	Correspond to	Function
?		Send the displayed DIA and CEN value in diameter mode
A		
AOFF0/1/ ?	Auto OFF	Automatic switch-off deactivated (SBY00) / Activated (SBYxx) / Polling
B		
BAT ?		Battery status (BAT1 = OK, BAT0 = low battery)
BT0/1	BlueTooth	*Bluetooth®* module disabled / enabled
BTRST		Resetting *Bluetooth® pairing*
C		
CEN?		Request for printout of the Center's value
CFGSEP0/1/ ?		DIACEN value separator deactivated (CR) / activated (;) / enquiry
CLE	CLEar	Resets the minimum and maximum registers
D		
DEL	DELta	Delta mode (maximum - minimum)
DIA		Diameter mode
DIA?	DIAmeter	Diameter value print request
DIF?		Sending the difference between the last 2 measurements
E		
EXT0-9	EXTernal contact	See « Button FCT »

EXT?		Transmits the current status of the external contact (0..9)
F		
FCT0-9	FCT key setting	See « Button FCT »
FCT?		Transmits the current status of the FCT button (0..9)
I		
ID?	IDentification	Answer : SY302
IN (inch)		Unit selection inch
K		
KEY0/1	KEYboard	Locking / unlocking the keypad
L		
LCALdd.mm.yy	Last CALibration	Changes last calibration date
LF0/1	Line Feed	Deactivates / activates the LF
M		
MAC?		MAC address of the *Blue-tooth®* module
MAX	MAXimum	Maximum search mode
MIN	MINimum	Minimum search mode
MM	Millimeter	Unit selection mm
MOD?	MODe	Polling the active mode: Answer: NOR, DIA, MIN, MAX, DEL
NUMx…x		Changes the instrument number
NUM?		Querying the instrument number
N		
NCALdd.mm.yy	Next CALibration	Changes next calibration date
NOR	NORmal	Surface measurement mode
O		
OFF		Switching off the instrument (alarm clock by button ON)
P		
PRE	PREset	Preset recall value
"PRE +xxx.yyy"		Introducing a new preset
PRE?		Transmits the value of the stored preset
PRI	PRInt	Sending the displayed value

"POS +xxx.yyy"	POSition	Pre-positions the motorized carriage to the transmitted value. The carriage stops as soon as the measuring key makes contact with the play
R		
REF1	REFerence	Activating reference 1
REF2		Activating reference 2
RES05		Change of resolution: 0.0005mm - 0.00002IN
RES2	RESolution	Change of resolution: 0.001mm - 0.0000
RES3		Change of resolution: 0.01mm - 0.0005IN
RST		Resetting the instrument
S		
SBY0..99		Setting the standby time in minutes (0 = no standby)
SBY?		Querying the standby time
SET		Zero setting
SET?	SETting	Transmission of instrument configuration: MM/IN RES2/3 REF1/2 KEY0/1 BAT0/1 BAT0 = low battery, BAT1 = charged battery
U		
UNI?	UNIt	Querying the active unit: MM or IN
UNI0		Unit changeover lock
UNI1		Unlocking of unit changeover
V		
VER?	VERsion	Program version and date

Changing the probe

The Hi_Cal enables the use of different probes and accessories. To change the probe, simply unscrew the lever and insert the new probe.

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Important :

- **Check if the eccentric probe is correctly positioned**
- **Clamp it firmly**
- **Make sure to use probes with weight value compatible with the weight a**

The probe constant must be checked after any probe change or modification of the probe position.

The Hi_Cal cursor has been balanced for a standard 2mm ball probe. For heavier probes such as depth measuring probes, the cursor balance must be set in the UP position.

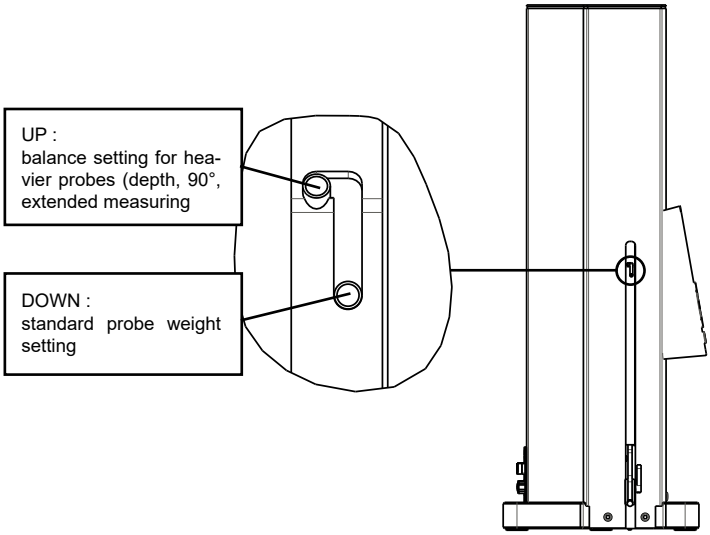
Foot pedal input

A foot pedal may be connected to act as PRINT key.

Other functions may be assigned to this external contact (see «Setting and parameter key chapter»).

Adjusting the cursor balance

The weight adjustment selector enables two different setting:



The weight adjustment selector enables with a screwdriver 00 or a pen.

Error messages

Err0	Measurement error of the main sensor. Acknowledge via SET, new reference tap.
Err0.540	Measurement error of the UP/DOWN button sensor. Release and acknowledge via SET
Err0.550	Measurement error of the relative sensor. Release the measuring key and acknowledge with SET.
Err1	Parity error in an ASCII RS232 | USB command
Err6	Error when initializing the centering of the measuring range. Check the following points and restart the instrument: - Does the measuring key move freely? - Is the selector switch for key weight compensation correctly set? ? (see chapter «Adjusting the selector switch»)»
PrObE	Measuring key blocked. Release measuring key (when initializing the instrument)

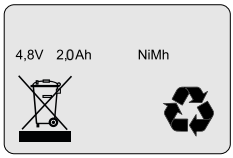
Err8	Flash memory error. Restart the instrument
Err9	Critical flash memory error. Turn off the power, if no change, contact the service department.
no.dAtA	Transmission impossible a. BT disconnected --> Connect the instrument b. Incomplete login process --> Wait for 100% login c. Buffer full --> Reconnect to empty the buffer
Err.bt2	*Bluetooth*® module setup error, restart the instrument
------	Waiting for *Bluetooth*® module initialization. Press any button to switch

Replacing the batteries

Unscrew the fixing screw at the rear of the Hi_Cal base and remove the battery cover | ergonomic handle to change batteries.

In case of 1st start after a power failure or complete discharge, it is necessary to press at least 0.5s on the ON | OFF button to start.

Important : please only use NiMH rechargeable battery pack delivered by Sylvac for battery replacement



Technical specifications Hi_Cal 150 / Hi_Cal 300 / Hi_Cal 450

Measuring range Total measuring range	150mm | 300mm | 450mm 162mm | 312mm | 462mm
Resolution	0.01 | 0.001 | 0.0005mm 0.0005 | 0.00005 | 0.00002IN
Accuracy [µm] (with standard probe, at 20 +0.5 °C)	2.0 + L [mm] / 200
Repeatability (+2s)	1 um | 0.00004 IN
Measuring sensor max speed Motor max speed (full range) Measuring force	3m/s 0.1m/s 0.25-0.35 N
Battery life (in use / standby)	13-40 / 60 heures
Automatic standby (default)	after 10 minutes
Weight Weight of standard probe	4.0 kg | 4.7 kg | 6.8 kg 7.5g, possibility of using 0-18g probe, (0-25g, with measuring force adjustment)
Data input / output	RS232-C | USB | *Bluetooth*®
Number of measurements / second In normal mode In diameter/min/max mode	 10 mes./s. 33 mes./s.
DC power supply Battery Operating temperature Storage temperature	9V DC, 1660mA 4xAA NiMH 2000 mAh +10° to +40°C -20° to +45°C
Thermal expansion coefficient (same value than steel)	$(11.5 \pm 1.5) \times 10^{-6}$ [1/°C]
Measuring system	Sylvac inductive system, patented

Standard delivery

Hi_Cal V2 150 mm	Réf. N° : 830.0156
Hi_Cal V2 300 mm	Réf N° : 830.0306
Hi_Cal V2 450 mm	Réf N° : 830.0456

E

Including:

- 1 fixed probe, with saphire ball Ø 3 mm
- 1 master gauge
- 1 charger 9 V | 1660mA (mains AC voltage according to the country)
- 1 protection cover
- 1 calibration certificat
- 1 instruction manuel
- Other accessories: see the site www.sylvac.ch

In the event of problems

It is possible to make a complete shutdown (equivalent to removing the power supply) by pressing >5s on the ON button.

The ON button must then be pressed for >0.5s to restart the instrument.

Re-initialising the instrument

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

Menu Settings

Access:
- Switch on the instrument by pressing ON + SETUP
- Wait for the «init» display and then navigate using the keys ▲ ▼.



Lin correction +/-999 µm/m

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

NOTICE:

Sylvac
m.n : Hi_Cal V2

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.

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.

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.

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

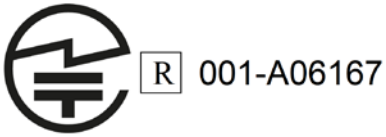
Korea South certification

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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Email admin@sylvac.ch
www.sylvac.ch

EU DECLARATION OF CONFORMITY (DoC)

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

Name	Hi_Cal
Description	Height gauge
Part Numbers	830.0150, 830.0300, 830.0450

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

and complies with the following harmonized standards or other normative documents

EN 61010-1:2010	Safety requirements for electrical equipment for measurement, control and laboratory use
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

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

