

INSTRUCTIONS

MODE D'EMPLOI

BEDIENUNGSANLEITUNG

MANUALE D'USO

INSTRUCCIONES DE USO

DIAL GAUGE **E**

COMPARATEUR **F**

MESSUHR **D**

COMPARATORE **I**

COMPARADOR **S**

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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, 2 working reference functions can be accessed, in MIN, MAX and DELTA (TIR) mode, plus tolerance dispay or input of 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).

- SET Sets a Preset value, resets 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).

- **Personalising the functions**
  It is possible to activate or de-activate certain functions of the instrument via RS232 (see chap. 10).

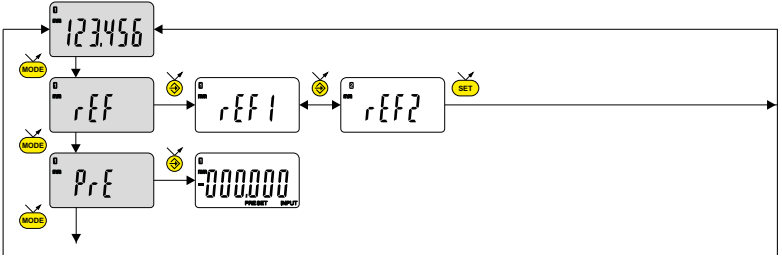
- **Data transmission parameters**
  4800Bds, 7 bits, even parity, 2 stop bits.

2. Start

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

3. Basic functions

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



– Choice of reference (REF1 or REF2)

– Inputting a Preset value

next digit SET 0...9

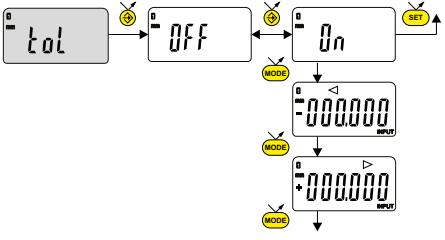
MODE save PRESET

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.

5. Inputting tolerance limits

To input or modify the tolerance limits, tol On mode should be selected, followed by a short press on MODE :



— Input the lower tolerance limit ◁

— Input the upper tolerance limit ▷

next digit SET 0...9 MODE save TOL

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.

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- It is also possible to display the tolerance limits when the instrument is operating in MIN, MAX or DELTA (TIR) mode.
- If no tolerance limits have been defined by the user, the instrument will only display the tolerance limit indicators ◁ OK ▷ but will not turn on the indicator lights (red - green - yellow).

6. *Bluetooth*® configuration (depending on model)

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

Symbol ᛒ off ..... disconnected mode
Symbol ᛒ blinking..... advertising mode
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:
- *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.

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6.1 *Bluetooth*® specifications

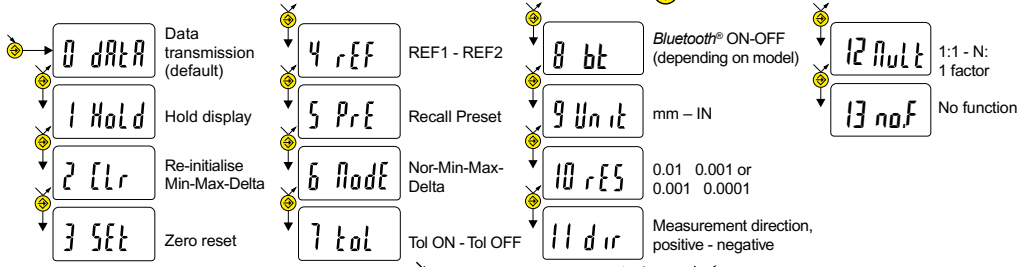
Frequency Band	2.4GHz (2.402 - 2.480GHz)
Modulation	GFSK (Gaussian Frequency Shift Keying)
Max Output Power	Class 3: 1mW (0dBm)
Range	Open space: up to 15m Industrial environment: 1-5m
Battery life	Continuous : up to 2 months - Always connected with 4 values /sec. Saver : up to 5 months - The instrument sends value only when the position has changed. Blind/Push : up to 7 months - Value is sent from the instrument (button) or requested from the computer.

Other specifications on the manufacturer's website.

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 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: Toggle unit = **<FCT9>,** reverse measurement direction = **<FCTB>.**

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8. 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 non-use, but this will necessitate a zero reset on restart (the origin will be lost) :

- Prolonged press (>4 sec) on SET :



9. 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.

10. 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 Proximity or Power RS / USB cable, or *Bluetooth*®).

Possibilities :

- Enable or disable 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*®. See page 2 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).

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 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
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 instrument number
TOL +/-xxx.xxx +/-yyy.yyy	Inputting 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
RES1 / RES2 / RES3	Change of resolution
SBY xx	xx number of minutes before stand-by
BT0/BT1	Activate / de-activate *Bluetooth*® module
BTRST	Clear pairing information

Interrogation

CHA?	Measurement direction?
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?
ECO?	Current economic mode
LCAL?	Date of last calibration?
NCAL?	Date of next calibration?
NUM?	Instrument number?
?	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

Measurement range:	12.5mm	25mm	50mm	100mm	150mm	
Max error (10µm resolution):	10µm	10µm	20µm	20µm	20µm	(±1 digit)
Max error (1µm resolution):	3µm	4µm	5µm	6µm	10µm	
Max error (0.1µm resolution):	1.2µm	1.6µm	---	---	---	
Repeatability:	2µm 0.3µm (model 0.0001mm scale)					
Weight:	119g	123g	161g	208g	265g	
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 / second:	up to 10 meas/s MIN/MAX mode: up to 20 meas/s					
Measurement unit:	metric/english (Inch)					
Maximum Preset (10µm resolution):	±9999.99 mm / ±399.9995 IN					
Maximum Preset (1µm resolution):	±999.999 mm / ±39.99995 IN					
Maximum Preset (0.1µm resolution):	±99.9999 mm / ±3.999995 IN					
Measurement system:	Sylvac inductive system (patented)					
Power:	1 x 3V lithium battery, type CR2032, 220mAh					
Average battery life:	8'000 hours (with *Bluetooth*® enabled, see chapter 6.1)					
Data output:	RS232 compatible / *Bluetooth*® 4.0 (see chapter 6)					
Working temperature (storage):	+5 to +40 C (-10 to +60 C)					
Electromagnetic compatibility:	as per EN 61326-1					
IP rating (in accordance with IEC60529):	IP 54 / IP 67 (depending on model)					
Fixing and space envelope:	Ø8h6 (3/8"), interchangable M2.5 (4-48-UNF) probe (as per DIN 878)					

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.

CERTIFICAT DE CONFORMITE
Nous certifions que cet instrument a été fabriqué et contrôlé selon nos normes de qualité et en référence avec des étalons dont la traçabilité est reconnue par l'institut fédéral de métrologie.

QUALITÄTSZEUGNIS
Wir bestätigen, dass dieses Gerät gemäss unseren 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 si 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
Certificamos 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.

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.

U.S./Canada Certification

Sylvac

m.n.: S_Dial WORK

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.

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

Contiene modulo inalámbrico
Marca: Sylvac
Modelo: ISP091201D
IFT: RCPSYIS14-0655

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.