sylvac

Experts in connected metrology !

DIGITAL TEST INDICATOR Ø45MM

TEST SMART



IOT READY

SWISS MADE

SIS Smart Inductive System

IP54

Discover our brand new S_Dial TEST Smart : the first digital lever indicator with Bluetooth® technology, protected against water and oil for the control of flatness and runout.

Bluetooth®

Ø45

Small diameter

Small dial diameter of 45mm with bigger display for easy reading.



Rotating display

Rotating display over 270°.



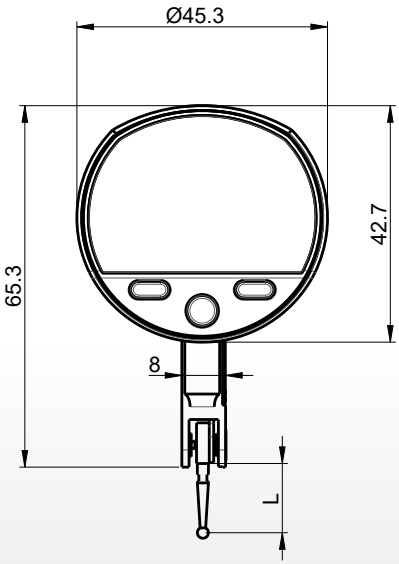
Interchangeable

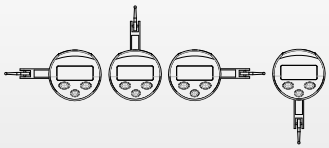
Available with interchangeable contact point 12.5mm/36.5mm.

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Tel. +41 21 637 67 57 - Email. info@sylvac.ch - Web. www.sylvac.ch

FEATURES

- Compact housing Ø 45 mm rotatable by 270°
- Data transfer via instrument button or foot pedal
- Revolutionary mechanical construction, without gears, which eliminates hysteresis error
- Digital display resolution 0.001 mm with analog scale
- M1.4 contact point with Ø 2 mm tungsten carbide ball, swivelling and interchangeable
- Available in 3 versions
- Protected against liquids IP54
- Functions : zero setting, min/max/delta, selection of resolution and preset





DATA

Bluetooth® POWER

		805.4321	805.4322	805.4323
Measuring capacity	mm	0.8	2.0	0.8 / 2.0
Contact point length L	mm	12.5	36.5	12.5 / 36.5
Accuracy fe (α=0°)	µm	3	8	3 / 8
Total accuracy fges (α=0°)	µm	4	10	4 / 10
Reversibility fu	µm	2	3	2 / 3
Repeatability fw	µm	1		
Weigth	g	70		
Analog display		✔	✔	✔
Interchangeable contact point		---	---	✔
Resolution	mm	0.001	0.001	0.001
Output data		Bluetooth® wireless Technology/USB/RS232		
Force	N	0.15	0.06	0.15 / 0.06
Protection		IP54	IP54	IP54

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Instructions - Mode d'emploi - Bedienungsanleitung - Manuele d'uso - Instrucciones de uso

Bluetooth®

Test indicator	E
Comparateur à levier	F
Fühlhebelmessgerät	D
Comparatore a leva	I
Comparador de palanca	S

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, you can access to MIN, MAX and DELTA (TIR) mode, plus 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. 6).

- 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. 7).

- **Personalising the functions**
  It is possible to activate or de-activate certain functions of the instrument via RS232 (see chap. 9).

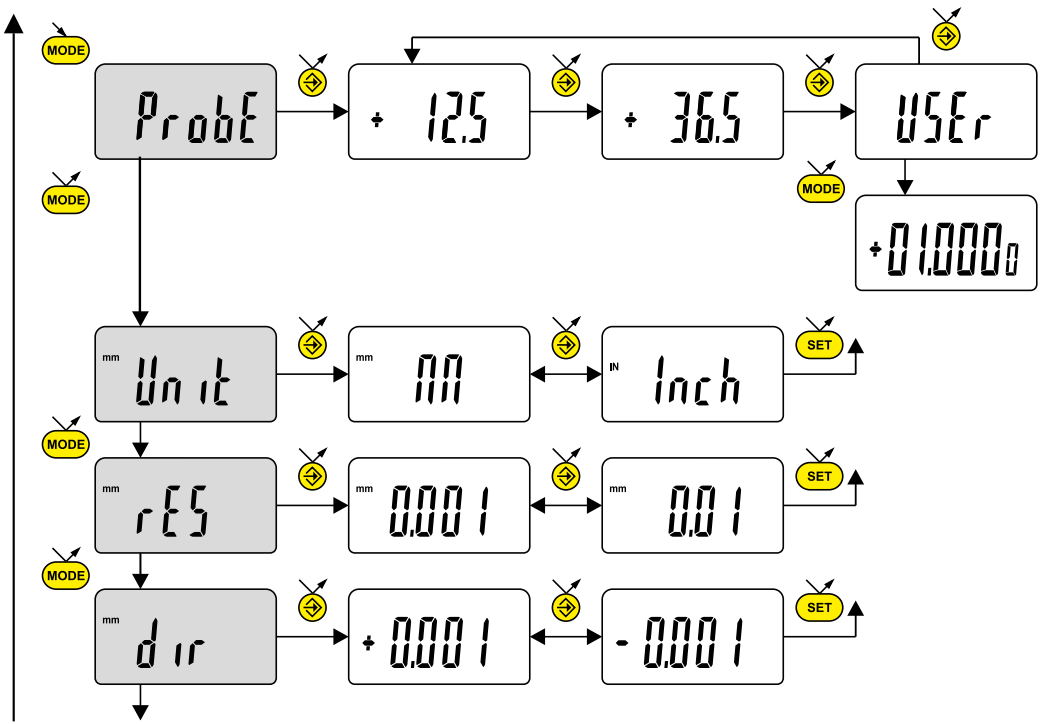
- **Data transmission parameters**
  4800Bds, 7 bits, even parity, 2 stop bits.

2. Start

Press a button.
When used for the first time, after a battery change or a complete switch OFF, it is necessary to set the reference (--rEF--). Simply press (SET) when the touch probe is free in the center position (see page 3).
For a *Bluetooth*® connection (see chap. 5).

4. Advanced functions

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



Probe length selection (depends on model)

Introduction of the length of the probe

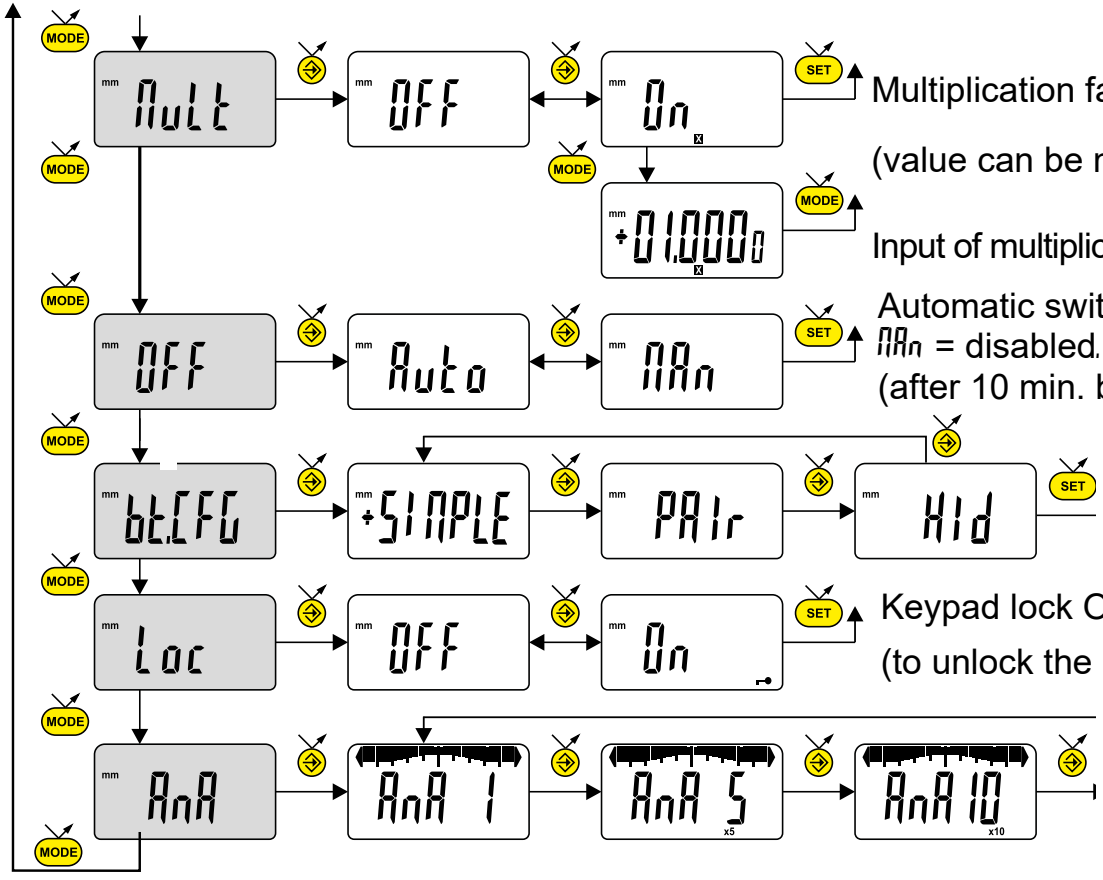
next digit 0...9 SET save PROBE MODE

Unit selection (mm or inch)

Choice of resolution 0.01 / 0.001

Choice of measurement direction
(positive or negative direction)

..... continuation



Multiplication factor, enable or disable multiplication factor

(value can be modified if On is confirmed by MODE button)

Input of multiplication factor, next digit SET 0....9 MODE save MULT

Automatic switch-off mode
nAn = disabled. Auto = active
(after 10 min. by default).

Bluetooth® profile selection.
(see chap. 5 for details)
The **+** sign indicates the currently active profile.

Keypad lock Only the favourite key remains active.

(to unlock the keypad, press SET for 5 sec).

Selection of the analog scale range :
- AnA 1 : 1 scale = 1 digit
- AnA 5 : 1 scale = 5 digits
- AnA 10 : 1 scale = 10 digits
- AnA OF : de-activate the analog scale range

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5. *Bluetooth*® configuration

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

° Symbol  off..... disconnected mode
° Symbol blinking..... advertising mode
° Symbol 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 equipment 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.)

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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.

5.1 *Bluetooth*® specifications

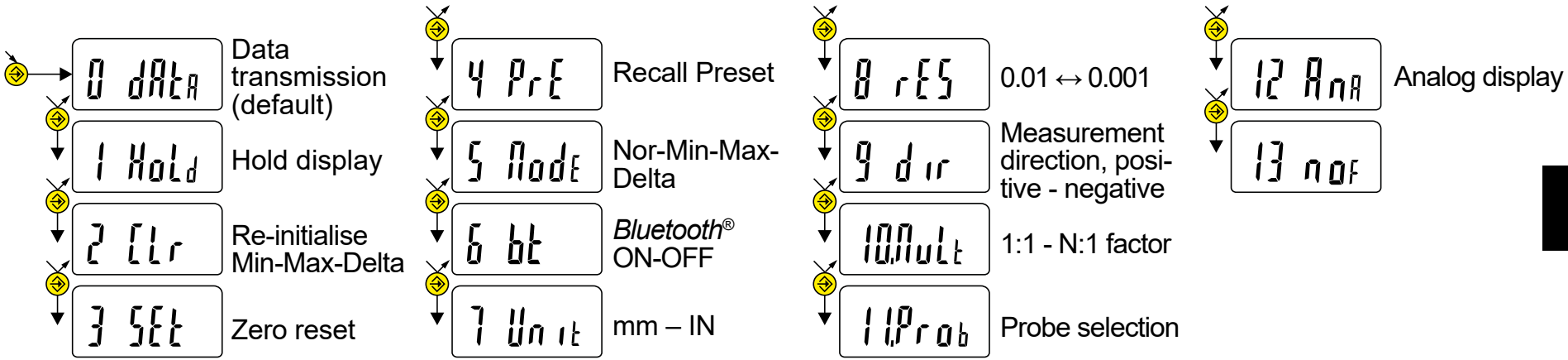
Frequency Band	2.4GHz (2.402 - 2.480GHz)
Modulation	GFSK (Gaussian Frequency Shift Keying)
Max Output Power	Class 3: 1mW (0dBm)
Range	Open space: up to 15m Industrial environment: 1-5m
Battery life	Continuous : up to 2 months - Always connected with 4 values /sec. Saver : up to 5 months - The instrument 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.

6. Favourite key

No function

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:

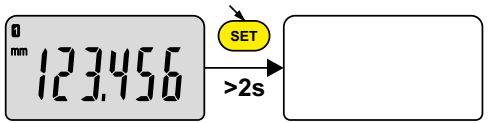
- A function can also be assigned via RS232 using the command <FCT + Function No.> (FCT 0..9 A..F)
  example: Toggle unit = **<FCT7>,** multiplication factor = **<FCTA>.**

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7. 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).

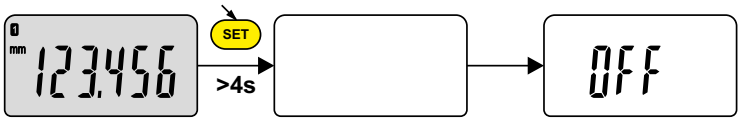
Stand-by mode can be forced by a prolonged press (> 2 sec) on SET :



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 reference setting on restart (the origin will be lost, see page 3) :

- Prolonged press (>4 sec) 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. In this case, a new reference sample is required (see page 3).

9. 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).

10. 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 3 for connecting the Power cable.

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

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 [+/-]xxx.xxxx	Modify multiplication factor
PRE [+/-]xxx.xxx	Modify preset value
STO1 / STO0	Activate / de-activate HOLD
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
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
ANA ON / ANA OFF	Activate / de-activate the analog scale
FACT1/FACT5/FACT10	Range of the analog scale
PRB 12.5/36.5/USER	Selects the probe length
CFGPRB[+]xx.xxx	User specific probe length (L see p.4)
PRE ON / PRE OFF	Activate / de-activate Preset function
PRE	Recall Preset
SET	Zero reset
RES1 / RES2	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?
STO?	Status of HOLD function?
ECO?	Current economic mode
LCAL?	Date of last calibration?
NCAL?	Date of next calibration?
NUM?	Instrument number?
MOD?	Active mode (MIN, MAX, Delta or Normal)?
SET?	Main instrument parameters?
ID?	Instrument identification code?
PRB?	Active probe length factor
CFGPRB	Active user specific probe length

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 ?

12. Specifications

Contact point length L	12.5 mm	36.5 mm	12.5 / 36.5 mm
Measurement capacity	0.8 mm	2.0 mm	0.8 / 2.0 mm
Resolution	0.001mm / .00005”		
Accuracy fe (α=0°, see p5)	3 µm	8 µm	3 / 8 µm
Total accuracy fges (α=0°, see p5)	4 µm	10 µm	4 / 10 µm
Reversibility fu	2 µm	3 µm	2 / 3 µm
Repeatability fw	1 µm	1 µm	1 µm
Weight	70g		
Measuring force (± 20%)	0.15 N	0.06 N	0.15 / 0.06 N
Friction on probe orientation (±20%)	4 N	1.6 N	4 / 1.6 N
No. of measurements / second:	up to 10 meas/s MIN/MAX mode: up to 20 meas/s		
Measurement unit:	metric/english (Inch) (direct conversion)		
Maximum Preset (0.01 resolution):	±99.999 mm / ±3.99995 IN (±999.99 mm / ±39.9995 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 5)		
Data output:	RS232 compatible / *Bluetooth®* 4.0 (see chapter 5)		
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		

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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.

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U.S./Canada Certification

Sylvac

m.n.: S_Dial TEST

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, nãotem 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.

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EU DECLARATION OF CONFORMITY (DoC)

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

Name	Test Indicator
Description	Digital test indicator
Part Numbers	905.4321, 905.4322

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 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

