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PKG08800- UMEC799

User Manual

Starrett®

EC799 ELECTRONIC DIGITAL CALIPER
USER MANUAL

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NOTE: The pictures shown are illustrative, the components may vary according to the model.

Obs.: Las figuras aquí presentadas son ilustrativas, los componentes pueden variar conforme el modelo del instrumento.

NOTA: Les illustrations sont fournies à titre indicatif. Les composants peuvent varier selon le modèle.
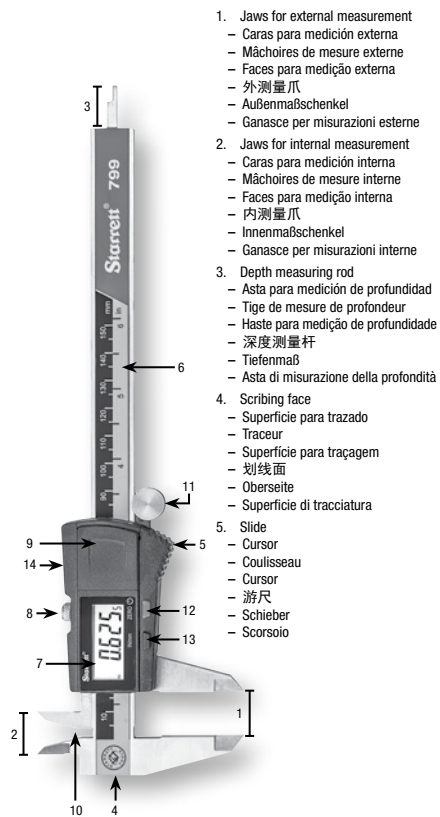
Obs.: As figuras aqui apresentadas são ilustrativas, os componentes podem variar conforme o modelo do instrumento.

注:上图仅作说明之用,组件可能随型号的不同而有所不同。

HINWEIS: Die Bilder dienen nur der Veranschaulichung; die Komponenten können von Modell zu Modell unterschiedlich aussehen.

NOTA: Le figure sono solo a scopo illustrativo, i componenti possono variare a seconda del modello.

COMPONENTS

1. Jaws for external measurement
   – Caras para medición externa
   – Mâchoires de mesure externe
   – Faces para medição externa
   – 外测量爪
   – Außenmaßschenkel
   – Ganasce per misurazioni esterne

2. Jaws for internal measurement
   – Caras para medición interna
   – Mâchoires de mesure interne
   – Faces para medição interna
   – 内测量爪
   – Innenmaßschenkel
   – Ganasce per misurazioni interne

3. Depth measuring rod
   – Asta para medición de profundidad
   – Tige de mesure de profondeur
   – Haste para medição de profundidade
   – 深度测量杆
   – Tiefenmaß
   – Asta di misurazione della profondità

4. Scribing face
   – Superficie para trazado
   – Traceur
   – Superfície para traçagem
   – 划线面
   – Oberseite
   – Superficie di tracciatura

5. Slide
   – Cursor
   – Coulisseau
   – Cursor
   – 游尺
   – Schieber
   – Scorsoio

6. Graduated scale
   – Escala graduada
   – Echelle graduée
   – Escala graduada
   – 主尺
   – Skala
   – Scala graduata

7. LCD display
   – Visualizador de cristal líquido
   – Affichage ACL
   – Mostrador de cristal líquido
   – LCD 显示屏
   – LCD-Anzeige
   – Display LCD

8. Slide locking screw
   – Tornillo de fijación del cursor
   – Vis de blocage du coulisseau
   – Parafuso de fixação do cursor
   – 游尺锁紧螺钉
   – Feststellschraube
   – Vite di bloccaggio corsoio

9. Battery cover
   – Tapa de la batería
   – Couvercle de pile
   – Tampa da bateria
   – 电池盖
   – Batteriedeckel
   – Coperchio batteria

10. Scribing reference face
    – Superficie de referencia para trazado
    – Face de référence du traceur
    – Superfície de referência para traçagem
    – 划线基准面
    – Referenzfläche
    – Superficie di tracciatura di riferimento

11. Fine adjustment thumb roll
    – Rodillo de ajuste fino
    – Molette de réglage fin
    – Roldana para ajuste fino
    – 微调滚轮
    – Feineinstellungsdaumenrad
    – Rotella per l'accostamento fine

12. "Zero" set button (red) / Power "on/off" button
    – Botón volver a cero y enciende/apaga "cero - on/off"
    – Touche de mise à zéro (rouge) / bouton M/A
    – Botão de zeragem e liga/desliga "zero - on/off"
    – 清零按钮(红色) / 通电 / 断电按钮
    – Nullungs-Taste (rot) / Ein/Aus-Taste
    – Pulsante "zero" (rosso) / pulsante di alimentazione "on/off"

13. "IN/mm" button
    – Botón de conversión pulgada/milímetro "IN/mm"
    – Touche "IN/mm" (pouce/mm)
    – Botão de conversão polegada/milímetro "IN/mm"
    – "英寸/毫米" 切换按钮
    – IN/mm-Taste
    – Pulsante "mm/IN"

14. Data output port (EC799B Series)
    – Puerta de salida de datos (Serie EC799B)
    – Port de sortie des données (Serie EC799B)
    – Porta de saída de dados (Serie EC799B)
    – 数据输出端口(EC799B 系列)
    – Datenausgabeanschluss (EC799B Serie)
    – Porta di uscita dei dati (Serie EC799B)

EC799 ELECTRONIC DIGITAL CALIPER

THIS IS A STARRETT USER GUIDE FOR THE EC799 DIGITAL CALIPER.

ALL SPECIFICATIONS IN THIS DOCUMENT ARE CORRECT AT TIME OF PRODUCTION AND ARE SUBJECT TO CHANGE. PLEASE CONTACT STARRETT FOR FURTHER INFORMATION.

CHARACTERISTICS

	INCH	MILLIMETER	RANGE (MM)
Resolution[1]	0.0005	0.01	Up to 300 (12")
Accuracy*[2]	±0.001	±0.02	Up to 100 (4)
	±0.001	±0.03	>100 (4"); Up to 300 (12")

* Meets the accuracy requirements of DIN 862.

1. Resolution: Smallest difference between indications of a displaying device that can be meaningfully distinguished. For a digital displaying device, this is the change in the indication when the least significant digit changes by one step (VIM).

2. Accuracy: Closeness of the agreement between the result of a measurement and a true value of the measurand (VIM).

P.S.: VIM - International Metrology Vocabulary.

- Set zero at any position of the slide.
- Automatic on when moving the slide.
- Auto shutdown: 6-7 minutes of non-use.
- Large LCD display with active unit system: millimeter "mm" or inch "in".
- RS232 port on EC799B Series allows data transmission thru a connected cable. The Communication Settings are; 4800 baud, 8 data bits, 1 stop bit and no parity.
- One lithium battery 3V CR2032.
- The display will blink on and off when the battery output is below 21uA at 2.75V
- ± 0.1V, indicating the battery should be changed.

PRECAUTIONS WHEN USING THE CALIPER

- Do not measure a rotating part; it is dangerous and causes the faces in contact to wear.
- Do not expose the caliper to direct sunlight or extreme temperatures.
- Do not apply any voltage on any part of the caliper. Any external voltage may damage the circuitry of the caliper.
- Do not disassemble the caliper.
- Do not move the slide too fast (over 1,5m/s or 60 inches/s), this can cause measurement errors.
- Flashing of digits shows a weak battery and that it must be replaced.
- Do not wash or immerse the caliper in any liquid.
- For care and maintenance it is important to wipe the caliper with a lint-free cloth after exposure to moisture. Apply a very light coat of lubricant on all the mechanical parts. Do not use aggressive solvents to clean the plastic components.
- Keep the caliper clean and dry.
- Avoid handling the caliper with oily hands.
- Do not store the instrument in areas of extreme temperature.

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OPERATING INSTRUCTIONS

- Install the battery that comes with the instrument. (See item "Installation / Replacement of battery").

- If the display is off, a quick push of the "zero - on/off" button (12) will activate the display. A one-second push of the same button will also zero the tool at any position of the slide. A three-second push of the button will shut the display off.

- To select the measurement unit needed, press the "IN/mm" button (13). When an RS-232 cable is installed in the output slot of the EC799B, the in/mm function is disabled and the button becomes a send button. A one-second push of this button will also active the display with no loss of position.

- To move the slide (5) loosen the slide locking screw (8). Use the thumb roll (11) to move the slide.

- Clean the measuring faces with a lint-free cloth or chamois.

External measurement: close the jaws and press the "zero" button (12) to reset the display to zero (Fig. 1A). Put the part to be measured as close as possible to the scale (6) (Fig. 1B) and adjust the measuring faces (1) to the part surface (Fig. 1C). Do not apply excessive pressure when measuring (Fig. 2).

Internal measurement: close the jaws and press the "zero" button (12) to reset the display to zero (Fig. 3A). Introduce the internal measuring jaws (2) as deep as possible inside the part and adjust the measuring faces to the part surface (Fig. 3B). To obtain the measurement of an internal diameter see Fig. 3C and to obtain the measurement value inside a slot see Fig. 3D.

Depth measurement: close the jaws and press the "zero" button (12) to reset the display to zero (Fig. 4A). Keep the depth measuring rod (3) perpendicularly to the part bottom (Fig. 4B and 4C).

Cam measurement: close the jaws and press the "zero" button (12) to reset the display to zero (Fig. 5A). Open the jaws in a little bigger dimension than the cam, place the scribing face (4) against the bottom of the cam and approach the scribing reference face (10) until the part surface. The cam value will be shown on the display (Fig. 5B).

Scribing face: close the jaws and press the "zero" button (12) to reset the display to zero (Fig. 6A). Adjust the scribing face (10) to the part reference, slide the cursor (5) to the chosen measurement, lock it using the locking screw (8) and then scribe (Fig. 6B).

Measurement for comparison: using a standard, press the "zero" button to reset the display to zero (Fig. 7A). After that, start measuring; the variation will be shown on the display. Dimensions smaller than standard will be indicated with a negative sign (Fig. 7B).

Measurement of center to center between holes or identical pins: using one of the holes or one of the pins as a reference, press the "zero" button (12) to reset the display to zero (Fig. 8A and 9A). After that, start measuring; the center to center value will be shown on the display (Fig. 8B and 9B).

Measurement of wall thickness: using a part as reference place the caliper and press the "zero" button (12) to reset the display to zero (Fig. 10A). Next, measure the depth using the depth measuring rod (3). The thickness will be shown on the display (Fig. 10B).

Measurement in places where reading is difficult to obtain: measure and press the "zero" button (12) to reset the display to zero (Fig. 11A). After that, close the jaws; the measurement will be shown on the display with a negative sign (Fig. 11B) (Do not consider the sign).

INSTALLATION / REPLACEMENT OF BATTERY

• First, remove the battery cover (9) using your thumb and a slight pressure, carefully slide the battery cover to the right. Place your finger into the small area at the top left of the battery and lift the battery from the tool (Fig. 12).

• To install a new battery (Fig.13), place a new battery plus (+) side up into the battery compartment cavity as shown, and the battery will be held in place. Line up the battery cover, and while lightly pressing down on it, push the cover to the left until you hear a click. The tool will display the main measurement display.

Fig. 12

Fig. 13
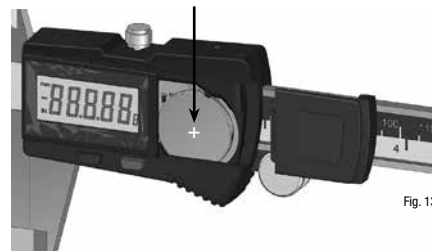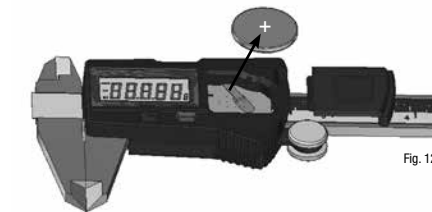
OUTPUT (EC799B ONLY)

• The EC799B Series caliper comes with an output port (14) that allows data transmission to computers or printers using the appropriate Starrett cable/ adapter or Starrett DataSure® wirelles interface.

• The output connection is at the top of the caliper pointed out in Fig.14. The output cover slides open, place your finger into the small area with the arrows and push towards the slide locking screw (8) pointed out in Fig.15. When not using an output cable remember to keep this cover closed, so that no debris collects in the output, possibly interfering with data collection from your tool.

• The output command is controlled by the "IN/mm" button (13).

Output Cover

Fig. 14

Output Connector

Open

Fig. 15
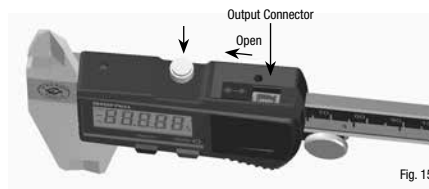
TROUBLESHOOTING

FAILURE	CAUSE	SOLUTION
Five digits flash simultaneously, about once per	Low battery	Replace the battery
Display does not change when the slide	Trouble with the electronic circuitry.	Remove the battery and reinstall after 30 seconds.
Less accurate than specified or electronic	Contamination on the sensor.	Clean the scale. If the problem
No display on LCD.	Battery in poor contact.	Remove the battery cover and reseat the battery to insure a good connection.

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