

Universal photoelectric scanning head

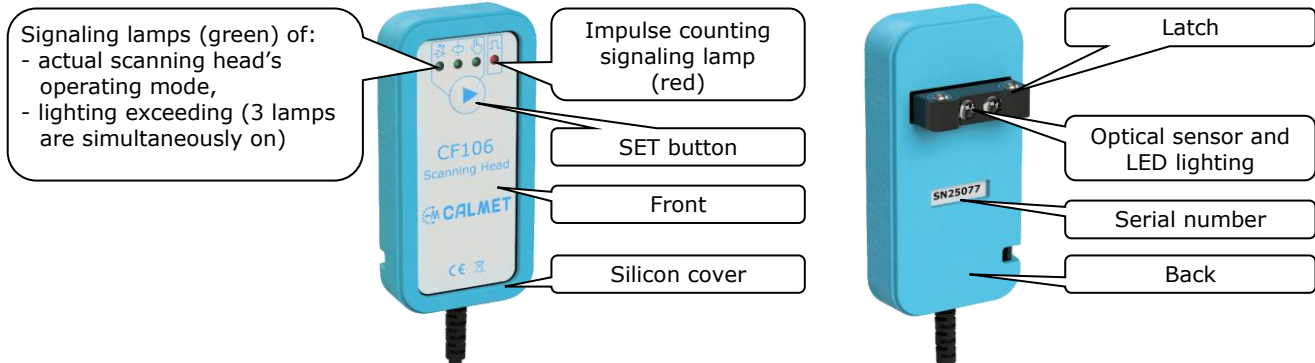
Calmet CF106 Universal photohead

- Detecting of number of rotating disc turns in inductive electricity meters
- Detecting of LED impulses from electricity meters (without and with 8kHz modulation)
- Detecting of simulated disc marks on LCD displays of electricity meters
- Function of manual impulses triggering
- High immunity to sunlight
- Adjustable sensitivity level for LED mode
- LED detecting with the wavelength 450-1050nm
- Easy mounting to meter by Velcro or magnet
- Ability to work „by hand” without mounting to meter
- Possibility of mounting the photoelectric scanning head using modular holder with bracket (**CF106H** option) or EH01 handle with Velcro (**CF106V** option) or EH02 Magnetic handle (**CF106M** option)
- Automatic teaching function
- Small dimensions and weight



Photoelectric scanning head Calmet CF106 together with electricity meter tester is designed for counting (detecting) of:

- pulses emitted by LED diodes of electronic energy meters (without and with 8kHz modulation) in typical colors: blue, green, yellow, red and infrared,
- rotor's turns of inductive energy meters with black or red mark placed on the rotor,
- simulated disc marks on LCD displays of electronic energy meters,
- manually triggered impulses.



Scanning head has 3 operating modes, which are signaled by lightning lamps:

- LED – for electronic meters with LED without and with 8kHz modulation,
- ROTOR – for inductive meters with rotor and for electronic meters with simulated disc mark on LCD display,
- MANUAL – for manually counting of impulses (Start/Stop push button function).

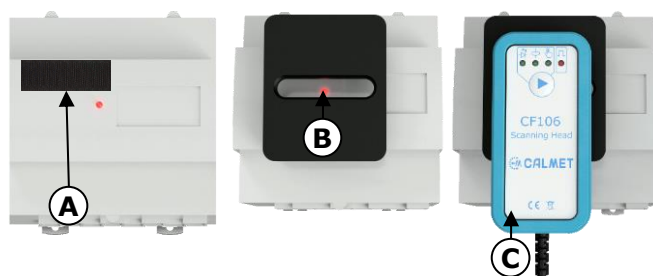
SET ► button enables:

- changing the operating mode:
 - press and hold the SET ► button (after 2 seconds begins the change of operating mode),
 - wait until the lamp of required operating mode will start to shine,
 - release the SET ► button,
- changing the sensitivity level of the photohead working in the LED mode LED:
 - press SET ► button changes the sensitivity of the photohead, in turn:
 - The brightest LED – maximum sensitivity,
 - Darker LED – medium sensitivity,
 - The darkest LED – minimal sensitivity,
 - After starting the power supply or after changing the mode, the brightest diode is automatically set, i.e. the maximum sensitivity of the photohead.

- automatic teaching for ROTOR ϕ mode:
 - mount the scanning head on the meter's case,
 - press the SET ► button,
 - wait for the full rotor's turn or LCD spot blinking,
Warning: teaching mode lasts maximum 1 minute. In this time at least 1 rotor's turn or 1 LCD spot blinking is required.
- manual triggering of pulses for MANUAL ✎ mode:
 - press the SET ► button when the impulse from meter is observed.

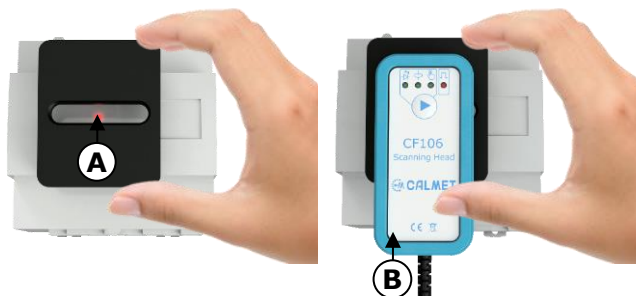
To perform a test of electricity meter (mounted to meter by self adhesive Velcro) one should:

- stick the Velcro on meter's case (A) over observed spot (LED)
- fix the EH01 mounting handle to Velcro so that the observed spot (LED) is in the middle of scanning head's mounting handle window (B)
- mount the scanning head to mounting handle by pushing the scanning head's latch into window of mounting handle (C)
- choose the operating mode (SET ► button)
- for the meter with rotor or LCD (ϕ ROTOR mode) start the automatic teaching (SET ► button).



To perform a quick test of electricity meter (work „by hand“ without mounting to meter) one should:

- place the EH01 mounting handle on meters case so that the observed spot (LED) is in the middle of scanning head's mounting handle window (A)
- by holding the mounting handle in a fixed position mount the scanning head to mounting handle by pushing the scanning head's latch into window of mounting handle (B)
- choose the operating mode (SET ► button)
- for the meter with rotor or LCD (ϕ ROTOR mode) start the automatic teaching (SET ► button).



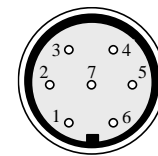
Warning: In case all 3 signaling lamps are simultaneously on (lighting exceeding), then one should move away the scanning head from the front of meter's case or place it at an angle.

Technical parameters of scanning head

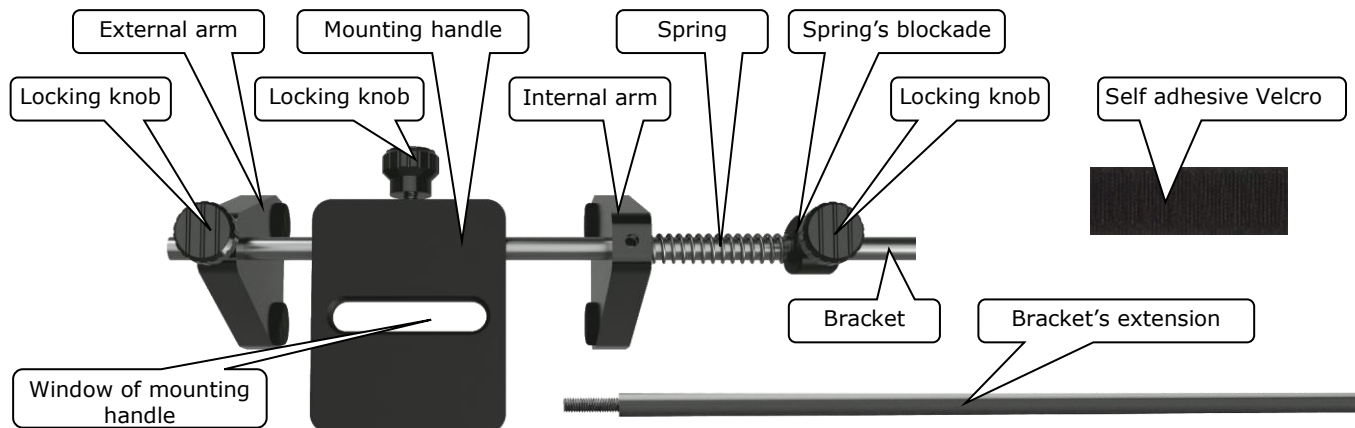
| | | |
|---------------------------|-------------------------------------|--------|
| Power Supply | 5V...12V...15V | |
| Supply current | Max 30mA | |
| Output | Open collector (NPN), max 24V/100mA | |
| Reading distance | 0...45mm | |
| Reading angle | 0...±15° | |
| Max frequency of impulses | LED | 2500Hz |
| | LED modulated 8kHz | 800Hz |
| | Inductive meter | 40Hz |
| | Simulated disc mark on LCD | 40Hz |
| | Manual triggering | 5Hz |
| LED 8kHz modulation range | 6kHz...8kHz...10kHz | |
| Connector type | Plug C091A T3475-001 Amphenol | |
| Cable length | 2.5m | |

Pins description

| Pin | Signal | Description |
|---------|-------------|---------------------------------------|
| 1, 2, 6 | NC | Not connected |
| 4 | GND, OUT LO | Ground, impulse output open collector |
| 5 | VCC | Power supply |
| 3, 7 | OUT HI | Impulse output open collector |

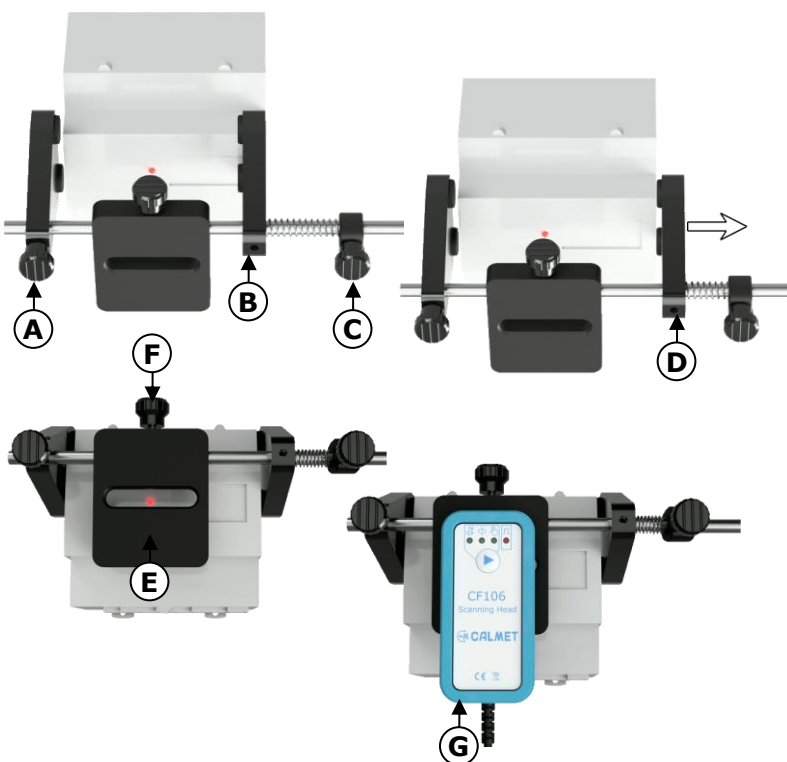


CF106H scanning head (option) includes a modular holder UCF106 which consists of:



To mount the scanning head on meter using UCF106 holder and perform a test one should:

- choose the mounting position of scanning head (vertical or horizontal)
- block with locking knob the external arm outside the meter's contour (A)
- set the internal arm inside the meter's contour (B)
- block with locking knob the spring's blockade (C)
- pull away the internal arm (D) and mount the holder on meter
- set the mounting handle so that the observed LED diode (rotor or spot) is placed in the middle of scanning head's mounting handle window (E)
- block the mounting handle with locking knob (F)
- mount the scanning head to holder by pushing of scanning head's latch into window of mounting handle (G)
- choose the operating mode (SET ► button)
- for the meter with rotor or LCD (⊕ ROTOR mode) start the automatic teaching (SET ► button).



Warning: In case all 3 signaling lamps are simultaneously on (lighting exceeding), then one should move away the scanning head from the front of meter's case or place it at an angle.

Technical parameters of holder

| | |
|--|--|
| Adjustment range of holder mounting on the meter's case | 45...190mm (single bracket) 45...420mm (double bracket) |
| Adjustment range of distance between scanning head and the front of meter's case | 0...35mm (by changing the mounting of bracket's arm on the meter's case) |

Typical applications:



Test of electricity meter with LED (scanning head mounted using EH01 Handle by self adhesive Velcro – **CF106V**)



Quick test of electricity meter with rotor (work „by hand” without mounting to meter)



Test of electricity meter with LED (scanning head mounted using UCF106 Holder – **CF106H option**)



Test of electricity meter with LED (scanning head mounted using EH02 Magnetic handle – **CF106M option**)

Calmet CF106 Universal photoelectric scanning head's equipment^{*)}

All completed Calmet CF106 Photohead's set consists of:

- Calmet CF106 Photohead,
- EH01 Velcro mounting handle,
- Self adhesive Velcro (10pcs).

Optionally for Calmet CF106 Photohead are available:

- UCF106 photo head's holder for inductive meter and meter with LED



- EH01 Mounting Handle with Velcro
- Self adhesive Velcro (10pcs).



- EH02 Magnetic mounting handle



^{*)} CF106 photo heads are available made with connectors adapted to work with devices of different manufacturers (Application Note No33 - Table of Connectors for CF106 Scanning Head).

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