

Product Datasheet - Technical Specifications



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Your contact

Technical and commercial sales, price information,
quotations, demo/test equipment, consulting:

Tel.: **+49 - (0)81 41 - 52 71-0**

FAX: **+49 - (0)81 41 - 52 71-129**

E-Mail: sales@meilhaus.com

Meilhaus Electronic GmbH
Am Sonnenlicht 2
82239 Alling/Germany

Tel. **+49 - (0)81 41 - 52 71-0**
Fax **+49 - (0)81 41 - 52 71-129**
E-Mail sales@meilhaus.com

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P/N: CM46

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Website

<http://www.flir.com>

Customer support

<http://support.flir.com>

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| General description | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| Part number | CM46 |
| Part name | Professional 400A TRMS AC/DC Clamp Meter + Type K |
| <p>The FLIR CM46 Clamp Meter is a professional and affordable true RMS meter designed for commercial and residential electricians. The FLIR CM46 offers both AC and DC measurement to meet your unique needs. The meter is equipped with a bright backlit display for ease of use inside electrical panels. Accu-Tip technology delivers amperage measurements on smaller-gauged wires more accurately—to a 10th of a digit. It offers MAX/MIN/AVG recording, frequency measurement, and electrical field detection to help you determine voltage presence and relative strength of the field. Made with an over-molded, easy-to-grip design, the FLIR CM46 clamp meter is durable enough to withstand a 2 m drop, and the slim form factor is convenient to carry in your toolbag anywhere you go.</p> | |
| <p>Professional performance at an affordable price:</p> <ul style="list-style-type: none"> Operates at -10 to 50°C (14–122°F). Built to accept up to a 30 mm conductor. True RMS measurements. | |
| <p>Features: DC voltage, AC voltage (digital low-pass filter/VFD), AC + DC voltage (digital low-pass filter/VFD), clamp-on AC current, Accu-Tip clamp-on AC current, clamp-On DC current, Accu-Tip clamp-on DC current, frequency, resistance, capacitance, diode, DC μA, temperature.</p> | |

| Electrical measurement | |
|---------------------------------------------------|------------------------------------------------------|
| True RMS voltage and current | Yes |
| Auto-ranging | Yes |
| DC V range | 600.0 V |
| DC V accuracy | $\pm 1.0\%$ + 5 digits |
| AC V range with digital low-pass filter | 600.0 V |
| AC V range with digital low-pass filter: accuracy | $\pm 1.0\%$ + 5 digits (50–60 Hz) |
| DC + AC V with digital low-pass filter | 600.0 V |
| DC + AC V with digital low-pass filter: accuracy | $\pm 1.2\%$ + 7 digits (50–60 Hz) |
| Peak RMS inrush current | |
| Response | 80 ms to >90% |
| Resistance range | 600.0 Ω , 6.000 k Ω , 60.00 k Ω |
| Resistance | $\pm 1.0\%$ + 5 digits |
| Continuity | 600.0 $\Omega \pm 1.0\%$ + 5 digits |



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| Electrical measurement | |
|--------------------------------------|----------------------------------------------------------------|
| Diode | 2.000 V \pm 1.5% + 5 digits |
| Capacitance | 200.0 μ F, 2500 μ F \pm 2.0% + 4 digits ¹ |
| DC μ A | 200.0 μ A, 2000 μ A |
| DC μ A accuracy (burden voltage) | \pm 1.0% + 5 digits (3.5 mV/ μ A) |

| Temperature | |
|--------------------------------------------|-----------------------------------|
| Range ² , accuracy ³ | -40.0 to 99.9°C, \pm 1.0% + 1°C |
| Range ⁴ , accuracy ³ | 100-400°C, \pm 1.0% + 1°C |
| Range ² , accuracy ³ | -40 to 99.9°F, \pm 1.0% + 2°F |
| Range ² , accuracy ⁵ | 100-752°F, \pm 1.0% + 2°F |

| Low-current Accu-Tip clamp-on AC A | |
|----------------------------------------|-----------------------|
| Range (50-60 Hz) | 60.00 A |
| Accuracy ^{6,7,8,9} (50-60 Hz) | \pm 1.5% + 5 digits |

| Low-current Accu-Tip clamp-on DC A | |
|-----------------------------------------|-----------------------|
| Range | 60.00 A |
| Accuracy ^{6,7,10,9} (50-60 Hz) | \pm 2.0% + 5 digits |

| Low-current Accu-Tip clamp-on DC A + AC A | |
|-------------------------------------------|-----------------------|
| Range (50-60 Hz) | 60.00 A |
| Accuracy ^{6,7,8,9} (50-60 Hz) | \pm 2.0% + 7 digits |

| Standard clamp-on AC A | |
|------------------------------------------|-----------------------|
| Range (50-60 Hz) | 60.00 A, 400.0mA |
| Accuracy 1, 2, 3 (50-60 Hz) | \pm 1.8% + 5 digits |
| Range (100-400 Hz) | 60.00 A, 400.0 A |
| Accuracy ^{6,11,12} (100-400 Hz) | \pm 2.0% + 5 digits |

1. Accuracy specified for film capacitors or better.
2. Supplied thermocouple is rated for -20 to 250°C (-4 to 482°F) only, and therefore not rated for the entire specified temperature range of the meter.
3. K-type thermocouple range and accuracy not included. Accuracies assume the meter interior has the same temperature as the ambient temperature for correct junction voltage compensation. Allow adequate time for stabilization for significant changes of ambient temperature. Up to an hour, for changes >5°C (9°F), may be required.
4. Supplied thermocouple is rated for -20 to 250°C (-4 to 482°F) only, and therefore not rated for the entire specified temperature range of the meter.
5. K-type thermocouple range and accuracy not included. Accuracies assume the meter interior has the same temperature as the ambient temperature for correct junction voltage compensation. Allow adequate time for stabilization for significant changes of ambient temperature. Up to an hour, for changes 5°C (9°F), may be required.
6. Induced error from adjacent current-carrying conductor <0.01 A/A.
7. Specified with relative/DC zero mode applied to offset non-zero residual readings.
8. Add 10 digits to the specified accuracy at <4 A.
9. Position the conductor at the center of the Accu-Tip area. Conductor size must not exceed 8.8 mm.
10. Add 10 digits to the specified accuracy @ < 4A.
11. Add 10 digits to the specified accuracy at <9 A.
12. Add 3% to the accuracy specification for a crest factor of between 1.0 and 2.0. If the crest factor is >2.0, the reading may not meet specified tolerances.



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| Standard clamp-on DC A | |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Range | 60.00 A |
| Accuracy ¹³¹⁴¹⁵ | ±2.0% + 5 digits |
| Standard clamp-on DC A + AC A | |
| Range (50–100 Hz) | 60.00 A, 400.0 A |
| Accuracy ¹³¹⁴¹⁶ (50–100 Hz) | ± (2.2% + 7 digits) |
| Range (100–400 Hz) | 60.00 A, 400.0A |
| Accuracy ¹³¹⁴¹⁶ (100–400 Hz) | ±2.7% + 7 digits |
| Line level frequency | |
| Function (5.00–999.9 Hz) | 600 V |
| Sensitivity ¹⁷ (Sine RMS) (5.00–999.9 Hz) | 50 V |
| Function (50.00–400.0 Hz) | 60 A (low-current mode) |
| Sensitivity ¹⁷ (Sine RMS) (50.00–400.0 Hz) | 40 A |
| Function (50.00–400.0 Hz) | 60 A, 400 A |
| Sensitivity ¹⁷ (Sine RMS) (50.00–400.0 Hz) | 40 A |
| Accuracy | 1% + 5 digits |
| Non-contact EF voltage detection | |
| Typical voltage (tolerance: 10–36 V) | 20 V |
| Bar graph indication | - |
| Typical voltage (tolerance: 23–83 V) | 55 V |
| Bar graph indication | -- |
| Typical Voltage (tolerance: 59–165 V) | 110 V |
| Bar graph indication | --- |
| Typical voltage (tolerance: 124–330 V) | 220 V |
| Bar graph indication | ---- |
| Typical voltage (tolerance: 250–600 V) | 440 V |
| Bar graph indication | ----- |
| Indication | Number of bar graph segments & audible beep tones proportional to the detected field strength |
| Detection frequency | 50/60 Hz |
| Detector | Located Inside the top of the stationary jaw |
| Additional measurement functions | Data hold, MIN/MAX/AVG, backlit LCD, 80 ms peak RMS inrush current mode, relative/DC zero |
| General | |
| Jaw opening | 30 mm (1.2 in.) maximum |
| Display counts | 6000 |
| Measuring rate | 5 times per second nominal |
| Calibration cycle | 1 year calibration cycle recommended |

13. Induced error from adjacent current-carrying conductor <0.01 A/A.

14. Specified with relative/DC zero mode applied to offset non-zero residual readings.

15. Add 10 digits to the specified accuracy at <9 A.

16. Add 10 digits to the specified accuracy @ < 9A.

17. DC bias, if any, not more than 50% of sine RMS.



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| General | |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Auto power off | 32 minutes of inactivity |
| Power source | 2 x 1.5 V AAA alkaline batteries |
| Environmental Data | |
| Operational temperature | -10 to +50°C (14–122°F) (non-condensing) 10–30°C (50–86°F) (≤80% relative humidity (RH)) 30–40°C (86–104°F) (≤75% RH) 40–50°C (104–122°F) (≤45% RH) |
| Storage temperature | -20 to +60°C (4–140°F) |
| Relative humidity | 80% maximum RH up to 31°C (88°F) decreasing linearly to 50% maximum RH at 50°C (122°F) |
| Temperature coefficient | 0.15 x (specified accuracy)/°C, @ 0°C (32°F) to 18°C (64.4°F) or 28°C (82.4°F) to 50°C (122°F), or as otherwise specified |
| Operating altitude | 2000 m (6562 ft.) maximum |
| Pollution degree | 2 |
| Physical data | |
| Dimensions (L x W x H) | 223 mm x 76 mm x 37 mm (8.8 in. x 3.0 in. x 1.5 in.) |
| Weight: | 243 g (8.3 oz.) |
| Warranty | |
| Warranty | https://www.flir.com/testwarranty |
| Certifications | |
| Certifications | CE, cULus |
| Safety category rating | EN 61010-1 CAT IV—300 V, CAT III—600 V, EN 61010-2-032 |
| Shipping information | |
| Packaging type | Retail color box |
| Packaging contents | CM4x, 2 x AAA batteries, premium CAT IV silicone test leads, type-K thermocouple, FLIR carrying pouch, quick start guide, warranty registration card |
| Packaging weight | 0.8 kg (1.8 lb.) |
| Packaging dimensions (H x W x L) | 33 cm x 14 cm x 10.7 cm (13 in. x 5.5 in. x 4.3 in.) |
| Master carton weight | 10.6 kg (23.4 lb.) |
| Master carton dimensions (H x W x L) | 62.3 cm x 29.3 cm x 36.1 cm (24.6 in. x 11.6 in. x 14.3 in.) |
| Master carton quantity | 12 |
| UPC | 793950370469 |
| EAN | 0793950370469 |
| Country of origin | Taiwan |
| Tariff code | 9030.31.0000 |
| Technical support | |
| Website | http://support.flir.com |

Supplies & accessories:

- TA03-KIT; NiMH Rechargeable Battery Kit



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- TA15; Universal Soft Sided Case
 - TA55; AC Current Line splitter
 - TA70; CAT IV Insulated Alligator Probes
 - TA80; CAT IV Silicone Test Leads
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