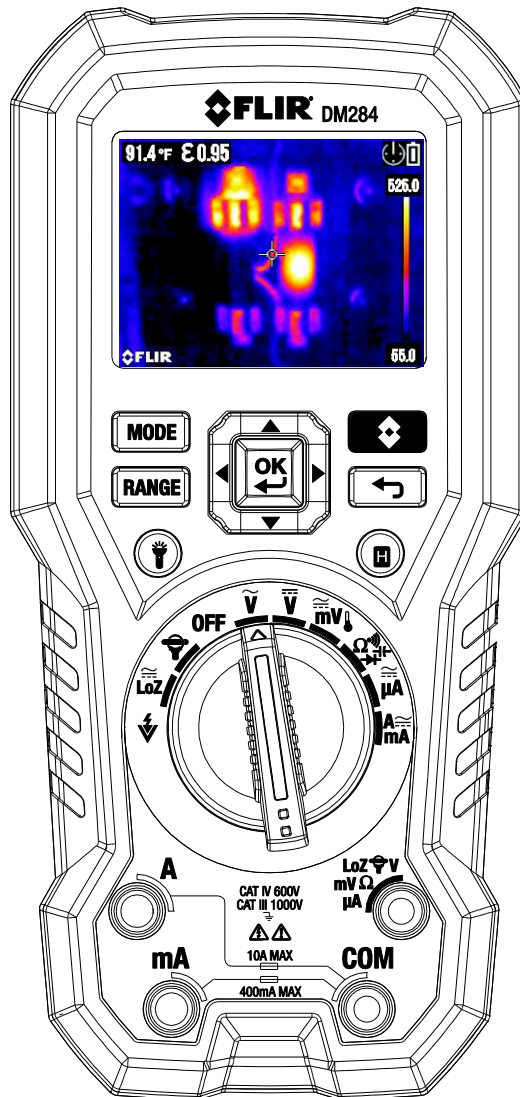# FLIR MODEL DM284

THERMAL IMAGING IGM™ MODE QUICK GUIDE

USER MANUAL LOCATION: The detailed User Manual is located on the **support.flir.com** web site (download tab). Translations of User Manuals and Quick Starts are also available at the web site. The Quick Start Guide for the Multimeter functions is a separate booklet located in the product packaging. Please read the entire User Manual to gain a thorough understanding of the meter before use. **Please Register for Extended Warranty and Product Updates at www.flir.com/testwarranty**

METER DESCRIPTION (FRONT)

1. Work Light and NCV detector area
2. LCD Display
3. Navigation/OK buttons
4. MODE Button
5. RANGE Button
6. Work light Button
7. Rotary Function Switch
8. Positive (+) Probe Input Jack for **A** (Current).
9. Positive (+) Probe Input Jack for **mA** (Current).
10. COM (-) Probe Input Jack
11. Positive (+) Probe Input Jack for all inputs except **A** and **mA**
12. Display 'Hold' (**H**) button
13. Cancel/Return Button
14. IGM™ Button
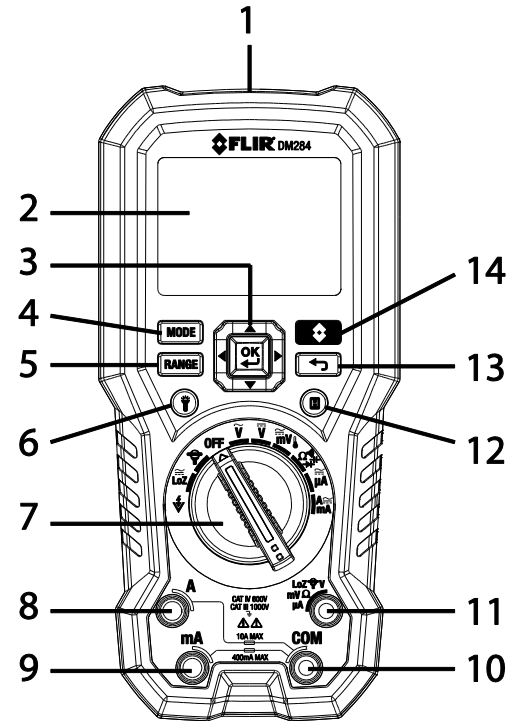
METER DESCRIPTION (BACK)

1. Test Lead holder attachment mounts
2. Thermal Imaging lens
3. Laser pointer lens
4. Lens cover slide control
5. Tripod mount (test lead holder attaches here also)
6. Tilt Stand and Battery compartment
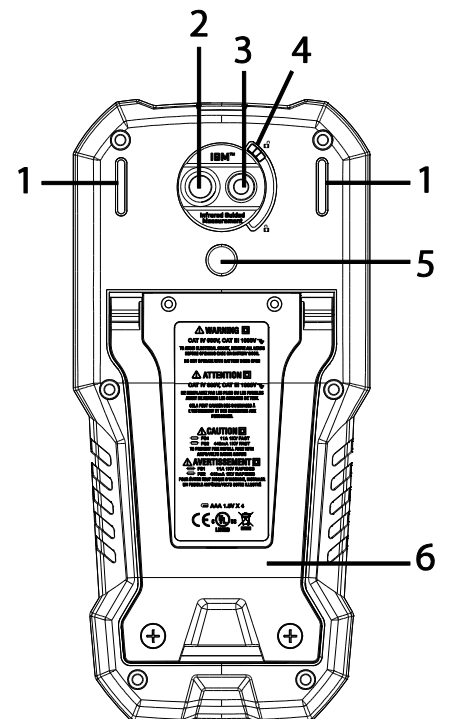
QUICK STEPS

- To power the meter, move the rotary switch to any position.
- Move the lens protector (back of meter) to the open position (up).
- Short press the IGM button to open the thermal imager.
- Point the meter lens toward the area under test.
- Use the cross hairs and laser pointer to select a target.
- View thermal image and temperature of the targeted spot.

METER POWER

Set the function switch to any position to switch the meter ON. If **LO BATT** is displayed, if one of the Low

Battery screens appear (below), if the battery icon appears low ▯, or if the meter does not power on, replace the four (4) 1.5V 'AAA' batteries in the rear compartment. **The optional TA04 Rechargeable Li-Polymer Battery system is available if battery recharging, rather than replacement, is preferred.**
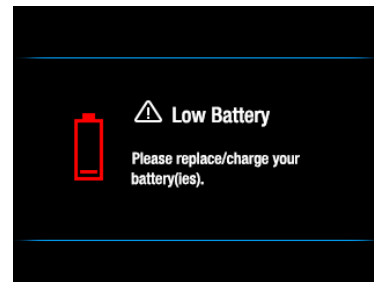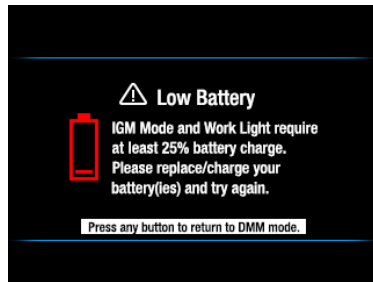
The meter enters sleep mode after 10 minutes (default). The time can be set to 1, 2, 5 or 10 minutes (or OFF) in the Multimeter Settings menu ⚙. 20 seconds prior to entering APO mode, the meter beeps; at this point, press any button or turn the Rotary Switch to reset the APO timer.

DISPLAY DESCRIPTION

1. **Temperature Measurement** of the spot sensed. Dashes are displayed while the temperature reading is stabilizing.
2. The currently selected **Emissivity (Ɛ)**. Use the Thermal Settings Menu ⊞ to change the emissivity setting.
3. **Status Bar** Icon area.
4. **Highest reading** measured in the current frame.
5. **Thermal scale** shows the range of colors for thermal images. The lighter the color, the warmer the temperature; the darker the color, the cooler the temperature.
6. **Lowest reading** measured in the current frame.
7. **Menu Bar** area.
8. **Cross hairs** for targeting.
9. **Thermal image** frame
10. **DMM measurement** is shown below the temperature measurement. Choose to have DMM readings and icons superimposed on the image using the Image Mode menu ▣.
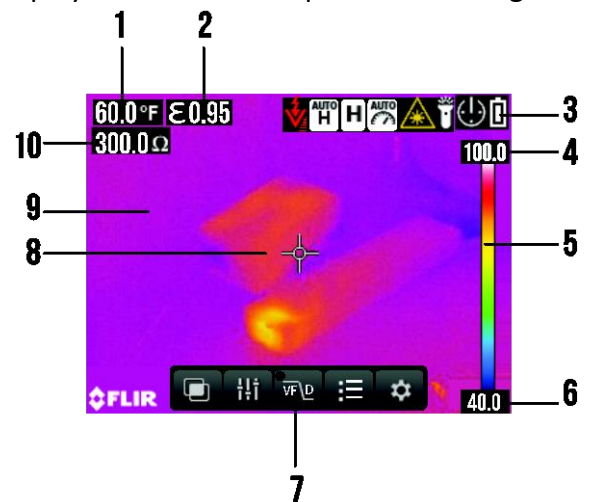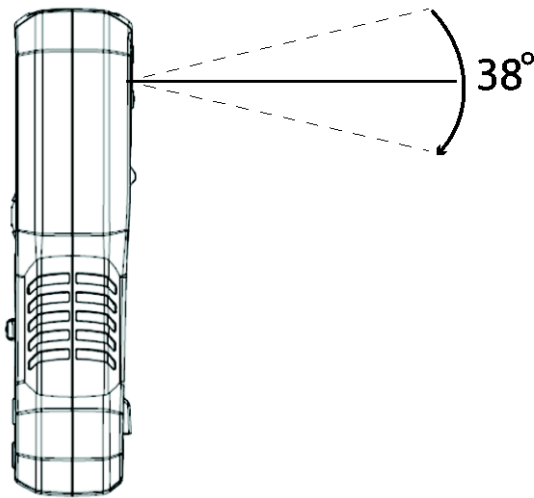

DISTANCE-TO-SPOT RATIO and FIELD OF VIEW

The Distance-to-Spot (D:S) ratio for the imager is 30:1 meaning that the measurement spot is always 30 times smaller than the meter-to-spot distance (see D:S ratio diagram below). The thermal imager's Field of View (FOV) is 50º (see top view) by 38.6º (see side view).
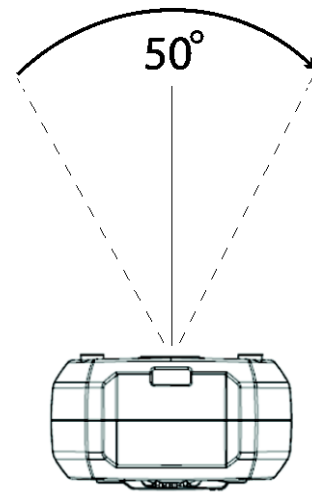
Distance-to-Spot ratio 30:1

0.3"
@ 10"

0.7"
@ 20"

1.3"
@ 40"

8.3mm
@ 250mm

16.6mm
@ 500mm

33.3mm
@ 1000mm
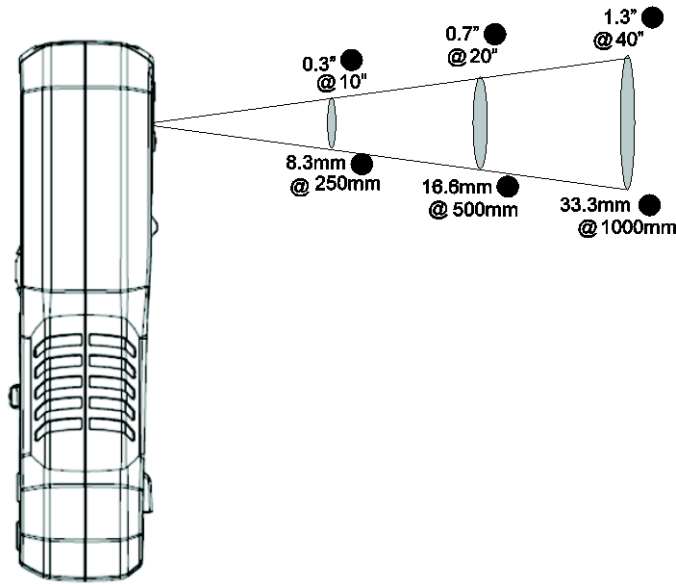
Field of View (FOV) – Side view

38°

Field of View (FOV) - Top view

50°

THERMAL SETTINGS MENU

Press **OK** to open the main menu. Press **OK** again on the icon 🎛️ .

- ▨ **IGM Color Palette selection**. Press **OK** to select one of the display color palettes (Iron, Rainbow, or Gray).

- **Ɛ Emissivity**: Press **OK**. Use the arrow pad to scroll to the desired preset (0.95, 0.85, 0.75, 0.65) and press **OK**. See diagram. To fine tune, press **OK** at the fine-tuning icon (bottom of list) and then use the arrow pad to make a selection. The available range is 0.10 to 0.99 in 0.01 steps.

- ⚠ **Laser pointer**: Press **OK** at this icon to switch the laser pointer ON (blue dot next to icon) or OFF.

- ✛ **Cross hairs**: Press **OK** at this icon to switch the cross hairs ON or OFF.
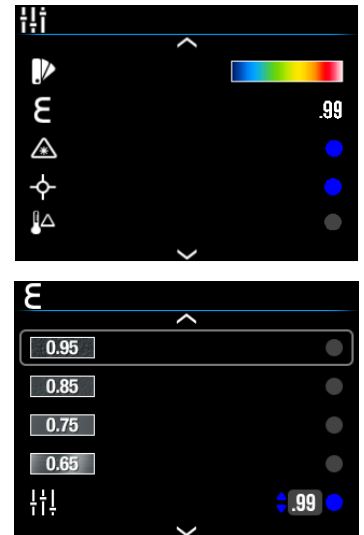
- ▮▲ **Temperature Differential**: Type-K Thermocouple temperature minus IGM^{TM} temperature. Only available when **Image + DMM** is selected in the Image Mode Menu (next section) and **mV/Temp** is selected with the rotary switch. Press **OK** to switch this mode ON or OFF.

In the diagram, the arrow points to the differential temperature (5.0ºF). The IGM^{TM} temperature is 85.0ºF (top left) next to the emissivity setting. The Type-K temperature is 80.0ºF (2nd row). For Type-K measurement instructions refer to the Multimeter 'Getting Started' guide or the complete DM284 User Manual available at the **support.flir.com** web site.

Tip: To find the emissivity of any target spot, measure the spot with the Type-K probe and the thermal imager and then adjust the emissivity until the differential temperature is zero.

Type-K / IGM^{TM} Temperature Differential Reading Example

NOTE: To change the temperature units (ºC/ºF) use the Multimeter Settings mode. Press **OK** at this icon ⚙.

IMAGE MODE MENU ▣

Press **OK** to open the Main menu and then press **OK** on the Image Mode icon. Select **Image + DMM** ▣ mode or **Image Only** mode ▣ from the Image Mode menu using the arrow buttons.
- Image + DMM (default mode): Display will show all IR data and DMM data.
- Image Only: Display will show IR data only.
- For both options, the status bar will show Battery, APO, Work Light, and Laser icons when applicable.

STATUS BAR DISPLAY ICONS

The Status Bar is located at the top-right display corner. There are 2 rows of icons as shown below. The icons are always on the right side of the display and in the same sequence. From top left to right these Status Bar icons are:

▮ **AUTO H** Auto Hold

▮ **H** Display Hold

▮ **AUTO** Auto Range

▮ Laser Pointer

▮ Work light

▮ APO (Auto Power OFF)

▮ Battery status

VF\D VFD Low Pass Filter icon

100 mV/A FLEX Clamp input range

LoZ Low Impedance mode

USE OF THE MULTIMETER IN IGM™ MODE

The Multimeter can be used normally while the IGM^{TM} mode is active with few restrictions. Multimeter readings, menus, status bar icons, and modes such as PEAK, RELATIVE, and MIN-MAX-AVG can be viewed directly on top of the thermal image when **IMAGE + DMM** mode is selected in the Image Mode menu.

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Certificate of Conformity and ISO-9001 Quality Management System

FLIR Commercial Systems, Inc., an ISO 9001 certified company, hereby certify that our instruments meet or exceed the specifications stated in the user manuals.

This instrument was produced under the stringent guidelines of FLIR Commercial System's certified ISO 9001 Quality Management System from design to delivery. All instruments are calibrated and inspected to meet the stated specifications.

FLIR Commercial Systems, Inc. inspects its incoming shipments using an approved sampling plan with an Acceptable Quality Level (AQL). All incoming inspections are performed using test equipment that is traceable to National Standards. Our ISO 9001 Quality Management System extends to aftermarket support where tested quality procedures are applied to customer support, service, calibration and repair processes.

This instrument will provide years of reliable service when used in accordance with the instructions provided in the User Manual. To have this device certified please contact your local service center.

Quality Assurance Management

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