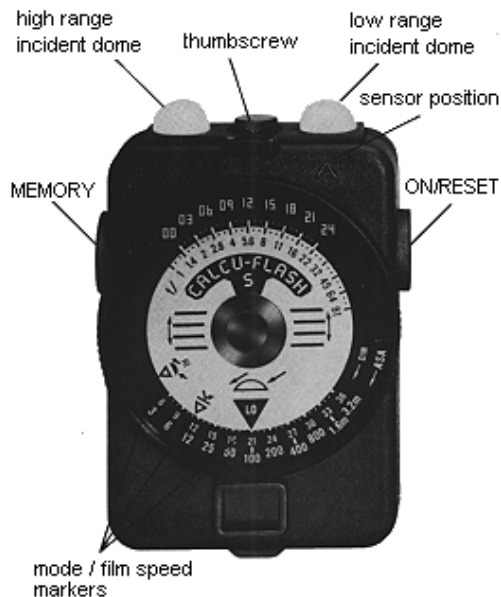


# QUANTUM CALCU-FLASH-S

## OPERATING INSTRUCTIONS

### 1. INTRODUCTION



These instructions are your guide to operating Calcu-Flash S. Please read it completely to understand the unique capabilities of your instrument.

There are two operating controls: ON/RESET, for activating and zeroing the meter; and MEMORY, for recalling in the display the current digital light value.

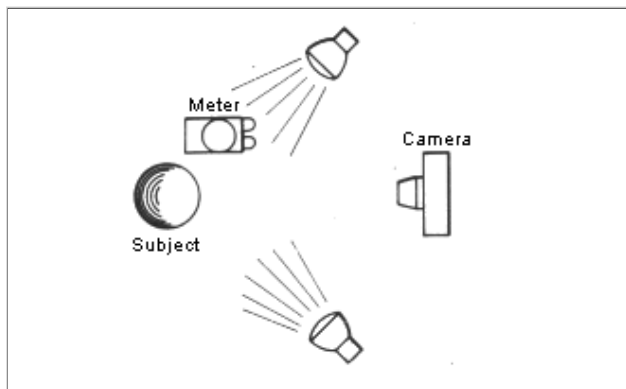
A two position "turret" can be used to measure incident light on a high (HI) or low (LO) range. An accessory turret for reflected light, as well as many other optical attachments, can be fitted to the instrument.

### 2. MODE OF LIGHT MEASUREMENT

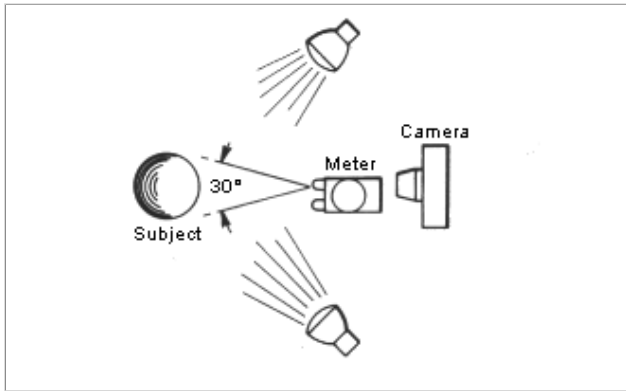
A mark  $\blacktriangle$  on the instrument indicates the photo sensor location. For low (LO) range incident light measurements, mount the translucent white diffusing dome in the  $\blacktriangle$  position. For high (HI) range incident light measurements, mount the dense white dome in the  $\blacktriangle$  position. (If you purchase the reflected light turret, mount the lens in the  $\blacktriangle$  position - the other side of the turret has a low range diffusing dome).

To remove or to rotate a turret, loosen the thumbscrew.

For incident light measurements, place Calcu-Flash S as close to the subject as possible and aim the center of the diffusing dome towards the camera. This mode measures the light received by the subject, and is the most consistent and reliable type of flash measurement.



For reflected light measurements, aim the lens of the accessory turret at the subject. The lens measures over a 30° angle. The light reflected by the subject will be measured, after it has been modified by the subject's tone, color, and reflectance. Sometimes, reflected light measurements must be modified or adjusted, according to the photographer's previous experience, to yield a good exposure.



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### 3. FILM SPEED SETTING

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Markers appear on the dials representing incident light ☀ high (HI) and low (LO) range, and reflected light ↘. Note which mode (above) you have selected and set the appropriate marker to the film speed, ASA or DIN, by rotating the small **upper** dial.

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### 4. ON / RESET CONTROL

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Only this control (right side of meter) activates the instrument and resets the meter reading to zero (display shows "00"). The instrument will automatically shut off in about one minute unless light readings are recorded. Each light reading re-starts the one minute timer. Therefore, the meter will remain on for accumulated flash readings, but will not accidentally drain the batteries.

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### 5. MEMORY CONTROL

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Press this control (left side of meter) to display the digital light reading currently stored in Calcu-Flash S. MEMORY also re-starts the one minute timer (for accumulated flash measurements).

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### 6. LIGHT MEASUREMENTS

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#### Single flash readings

Aim the meter and set the dials according to sections 2 and 3. Press ON/RESET. Fire the flash unit with its own trigger switch. A digital reading will be displayed for about one second.

To recall that reading, press MEMORY. To take a new reading, press ON/RESET and fire the flash again.

Next, locate the digital readout number on the outer dial scale. The correct camera f-number lies on the inner dial scale, corresponding to the digital readout number.

For example, set ASA=100 for incident light low (LO) range. A digital reading of '15' corresponds to f/8.

The dots between f-numbers are 1/3 stops. The digital readings of Calcu-Flash S are a sequence of 1/3 stops and represent actual light intensity. All scales on the dials are marked with lines for whole stops and dots for 1/3 stops.

For all flash and fill-flash measurements, a shutter time of 1/60 second is correct for the f-numbers obtained. When there is little continuous light, any shutter time of 1/60 or faster will also be correct.

#### Accumulated flash readings

For multiple exposures you may accumulate the total flash power of a series of flashes. Press ON/RESET. Fire the flash units repeatedly, but do not press ON/RESET between bursts. The digital reading will be the total flash power. Read the dials as described before.

Be sure to count the number of bursts and to allow the flash units to recharge completely between bursts. Repeat the same procedure when taking the exposure.

### **Multiple flash**

Any number of flash units may be measured simultaneously by Calcu-Flash S. All units must be synchronized and remain in position for taking the flash reading and exposure.

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## **7. MISCELLANEOUS**

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### **Measuring limits and speed**

Digital readings will be accurate from 01 to 24. If readings exceed 24, switch to the high (HI) range (incident light only) and repeat the measurement.

Calcu-Flash S is fast enough to capture auto-thyristor strobe bursts. However, it is useful to remember that strobe light sensors measure reflected light, and they are sometimes "fooled" by the subject's background. Incident light readings with Calcu-Flash S are more reliable and accurate.

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## **8. BATTERIES**

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When the batteries are weak, two dots appear intermittently above the digits in the display. When they appear continuously the batteries should be changed.

Loosen the battery door screw with a coin. Handle the new batteries with tissue paper to avoid corrosion of the contacts.

Cold temperatures will sometimes cause the battery voltage to drop temporarily, thereby lighting the indicators.

When the instrument will not operate, clean all batteries and battery contacts as most problems are caused by poor electrical connections.

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## **9. ACCESSORY ATTACHMENTS**

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
### **ST standard turret**

This allows for reflected light measurements or low range incident light measurements. It is the same turret as that supplied with the Calcu-Light exposure meters.

### **HC-1 Hard Case**

A convenient case in which to carry any Calcu-Light or Calcu-Flash model.

### **SX-1 spot attachment**

This attachment measures a 10° angle for reflected light, compared to 30° for the standard reflected mode. No compensations are necessary. Use the reflected  window pointer of the dial.

### **CFX-1 filter attachment**

This accessory provides for filtered light measurements with standard photographic type filters. CFX-1 contains the 80B, 85B, 25A, 8 and 4x (neutral density) filters. All common filter types are additionally available separately.

### **FOX-1 fiber optic probe**

This accessory measures reflected light values of 1/8 inch (3 mm) diameter areas on focusing screens, ground glass, light tables and other luminant objects. It serves as a densitometer for negatives and transparencies with a resolution of 0.1 density units.

### **DX-1 flat diffuser**

The purpose of the flat diffuser attachment is to make calibrated illuminance measurements and contrast measurements with studio lighting.

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## **10. SPECIFICATIONS**

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**Model:** Calcu-Flash S

**Capabilities:** Incident flash and fill-flash readings.

Reflected light, spot, fiber optic, and contrast readings with accessory attachments.

**Digital Display:** Two digit L.E.D. numerals representing light value in 1/3 Ev. Sequence from 01 to 24.

**Accuracy:** Plus or minus 1/3 Ev.

**Sensor:** Blue enhanced silicon photodiode.

**Light Acceptance Angle:** 180° with incident dome; 30° with ST turret (optional).

**Measuring Range:** ASA 100, incident light, f/1.4 to f/91

**Dial Markings:** ASA 0.8 to 50,000 DIN 0 to 48 F# 1.0 to 91

**Batteries:** Mallory MS-76, 10L14; Ray-O-Vac RS-76, RW-82,

Eveready 357, A-76, National G-13; or equivalents.

**Size:** 10 x 7 x 3 cm (4 x 2 3/4 x 1 1/4 inches).

**Weight:** Approx. 120 g (4.5 oz).

**Supplied With:** Instruction manual, incident light (HI & LO) turret, neck cord, batteries.

Specifications subject to change without notice.

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## **ADDENDUM**

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Note: Using the Memory and Automatic Shut-off Feature.

Press and release the ON/RESET button to turn the Calcu-Flash meter on or to reset it to zero.

The Calcu-Flash meter (not the display) will stay on for one minute after the ON/RESET button is pressed or for one minute after a reading is recorded.

The display light will go on for one second, then go out as each reading is recorded.

To display the last reading use the memory feature.

CFII - Turn the 1/sec control to "M" memory.

CFS - Press the "Memory" button.

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## **A NOTE ON BATTERIES**

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To insure daily trouble-free performance of your meter, proper care must be given to the batteries and the battery compartment.

1. Clean batteries - use clean tissue paper and rub gently. Handle batteries with tissue paper, not fingers, after cleaning. When meter is left unused for extended period, remove batteries (do not stack).
2. Clean battery contacts use clean tissue paper with alcohol, or pencil eraser. Clean all four contacts at the bottom

of the battery compartment.

3. Gently clean all four springs on the battery door.

The above procedures should also be followed before replacing old batteries with new ones and before you return meter to factory for repair, or if batteries appear to be weak.