

**OPERATING INSTRUCTIONS****CINE TAPE MEASURE****CINE TAPE MEASURE SYSTEM**

The Cinematography Electronics Cine Tape Measure is a lightweight and versatile ultrasonic distance measuring system for the entertainment industry. It provides quick continuous distance measurements and is compatible with all camera lens configurations.

The System consists of the Cine Tape Measure Control and a Sensor Assembly. A Sensor Cable electrically connects the two units together, and a Power Cable connects the control unit to the camera's accessory connector.

**MOUNTING, Control**

The Cine Tape Measure Control has Velcro on its back so that it can be attached anywhere on the camera package that is viewable and convenient for the camera crew. A popular mounting area is on the rear of the matte box facing the assistant cameraman. The Velcro on the back of the control mates directly with the Velcro used on most popular matte boxes.

**MOUNTING, Sensor Assembly**

The Sensor Assembly has a pan / tilt head which includes a combination mounting (combo) stud. The combo stud has a 3/8-16 threaded stud, a 1/4-20 threaded hole, and a rod with 5/8 inch, 15 mm, and 19 mm diameter steps. This permits numerous attachment configurations including attaching the sensors to the camera package, with the horns horizontal or vertical. Mount the sensors on the camera so that the distance to the film plane remains constant with lens changes. Always mount the sensors forward of any obstructions and pointed towards the subject. See the "Setting the Film-Plane Offset" section for more information.

**DISTANCE DISPLAY (Numeric Display)**

The bright red LED display is located prominently on the front face of the Cine Tape Measure. The four-digit readout shows the measured distance to the subject. When in the FT-in mode, the left two digits indicate "feet" and the right two digits indicate "inches". When in the M-cm mode, the left two digits indicate "meters" and the right two digits indicate "centimeters". Four small squares on the display indicate that the subject is out of range. As a reminder, the Cine Tape Measure displays the word "horn" until the sensors are connected. See the "Adjusting the Display Brightness" section for more information.

**SENSE INDICATOR**

The green LED indicator (engraved SENSE) is located on the front face near the right edge. This indicator glows when the sensor receives a reflected signal from the subject. When the subject is out of range, the sense indicator turns off. See the "Adjusting the Sensitivity" section for more information.

**FILM-PLANE INDICATOR**

The yellow LED indicator (engraved Push Hold FILM-PLANE) is located on the front face near the right edge. This indicator glows when the Cine Tape Measure is in the Film-Plane adjustment mode. See the "Setting the Film-Plane offset" section for more information.

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#### **SENSITIVITY INDICATOR**

The yellow LED indicator (engraved Push SENSITIVITY) is located on the front face near the right edge. This indicator glows when the Cine Tape Measure is in the Sensitivity adjustment mode. See the "Adjusting the Sensitivity" section for more information.

#### **POWER CONNECTOR**

The 3 pin Fischer power connector that is marked with a red ring (engraved POWER) is located on the bottom edge of the Cine Tape Measure. All power connections are through this connector. The required DC voltage ranges from 9 to 32 volts. A red strain relief identifies power cables that mate to this connector. Cinematography Electronics offers different power cables. Choose the proper cable for your camera.

#### **REMOTE CONNECTOR**

The 6 pin Lemo connector that is marked with an orange ring (engraved REMOTE) is located on the bottom edge of the Cine Tape Measure. This connector provides the necessary electrical connections for a remote display. An orange strain relief identifies cables that mate to this connector.

#### **SENSOR CONNECTOR**

The 5 pin Fischer connector that is marked with a blue ring (engraved SENSOR) is located on the bottom edge of the Cine Tape Measure. This connector provides the necessary electrical connections for the Sensor Assembly. A blue strain relief identifies cables that mate to this connector. The maximum useable cable length between the Cine Tape Measure and the Sensor Assembly is 4 Feet.

#### **FT-in / M-cm SELECTION SWITCH**

The Feet / Meter switch (engraved FT-in M-cm) is located on the right of the Distance Display. Set the switch in the desired position. All of the distance readings and film-plane calculations convert automatically to the selected units. When in the FT-in mode, the left two digits display "feet" and the right two digits display "inches". When in the M-cm mode, the left two digits display "meters" and the right two digits display "centimeters".

#### **SELECT / ADJUST SWITCH**

The Select / Adjust switch with a large red knob (engraved Push to SELECT, ADJUST) is located in the lower left corner of the Cine Tape Measure. This is a multifunctional push and turn switch and is the primary method used for programming and setting up the various features of the Cine Tape Measure.

Momentarily pushing (click) the knob, or pushing and holding (hold) the knob selects a mode or locks in a selected value. Rotating the knob adjusts the selected function. Clockwise rotation increases the adjustment and counter clockwise rotation decreases the adjustment.

		Power-up Menu	PUSH (Click)	PUSH (Hold)
Film-Plane Offset Adjust	SELECT			X
	SET		X	
Sensitivity Adjust	SELECT		X	
	SET		X	
Display Brightness Adjust	SELECT	X		X
	SET	X	X	
Close Focus Distance Adjust	SELECT	X	X	
	SET	X	X	
Display Resolution Adjust	SELECT	X	X	
	SET	X	X	

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#### **Setting the Film-Plane offset**

It is necessary to calibrate the sensors in relation to the film-plane when setting-up the Cine Tape Measure. To do this, aim the camera package, with the Sensor Assembly attached, at a flat stationary object, such as a wall or clap board, that is about 5 feet (1.5 meters) from the film plane. With a tape measure, determine the exact distance between the film plane and the stationary object.

To enter the Film-Plane adjustment mode, push in and hold the red Select / Adjust knob for about two seconds. Release the switch when the yellow Film-Plane indicator glows. Then turn the Select / Adjust knob to change the displayed distance reading to the exact distance measured above. Lock this distance into memory and complete the Film-Plane calibration by momentarily pushing (click) the Select / Adjust knob. This also returns the Cine Tape Measure to normal operation and turns the yellow Film-Plane indicator off. If the position of the sensors changes with respect to the film-plane, then recalibration will be required.

#### **Adjusting the Sensitivity**

The sensitivity of the Cine Tape Measure is adjustable in 5% steps from 0% (off) to 99% (maximum). Lower sensitivity settings are useful in small areas that have hard surfaces, such as kitchens or bathrooms. Low settings are also practical for filming through doorways or open windows, so that the doorframe does not affect the sense signal. Higher sensitivity settings are better when the subject is farther away from the sensors. The reflectivity of the subject is important when setting the sensitivity. For example, a subject with a fuzzy sweater may absorb more of the signal and therefore require a higher setting. In addition, the size of the subject, the curvature and angle of the subject with respect to the sensors, and the distance, are important when setting the sensitivity. The green Sense LED indicator is a good guide as to the strength of the signal with respect to the subject. For best operation, the green Sense LED should glow steadily, without blinking.

To enter the sensitivity adjustment mode momentarily push (click) the red Select / Adjust knob. The yellow Sensitivity indicator glows. While the indicator is glowing, turning the Select / Adjust knob changes the sensitivity in 5% increments. The Distance Display shows the sensitivity setting as a two-digit number for about one second after it has changed. The setting is locked into memory by pushing the Select / Adjust knob. This also turns the yellow Sensitivity indicator off.

#### **Accessing the Power-up Menu**

The Power-up Menu provides additional setup and reference items, such as Display Brightness, Close Focus Distance, Display Resolution and Software Version. To access the Power-up Menu, unplug the power cable, then plug it back into the Cine Tape Measure while pushing in and holding the red Select / Adjust knob. Momentarily push (click) the Select / Adjust knob to advance the menu.

#### **Adjusting the Display Brightness**

The Display Brightness control is the first item to be accessed through the Power-up Menu and is adjustable in 15 steps from "br 1" to "br15". This is useful for comfortable viewing in different lighting conditions.

To access the brightness adjustment, unplug the power cable, then plug it back into the Cine Tape Measure while pushing in and holding the red Select / Adjust knob. The brightness setting shows as "br xx" where "xx" is the level from 1 to 15. The lowest setting is "br 1" and the brightest setting is "br15". Adjust the brightness to the desired level by turning the Select / Adjust knob. The display shows the new brightness setting and varies in brightness as it adjusted. The new setting is locked into memory by momentarily pushing (click) the Select / Adjust knob, which also advances the Power-up Menu to the Close Focus Distance Adjust. Push (click) the Select / Adjust knob twice to return to normal operation.

#### **Adjusting the Close Focus Distance**

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The Close Focus distance is the minimum distance that the Cine Tape Measure senses. This minimum distance is the second item accessed through the Power-up Menu and is adjustable in 15 steps from "CL 7" to "CL21", which corresponds to about 1 foot (30 cm) to 3 feet (90 cm), respectively. This is useful when it is necessary to ignore something in the foreground near the sensors, such as a French flag, a monitor or a zoom cable.

To access the close focus adjustment, unplug the power cable, then plug it back into the Cine Tape Measure while pushing and holding the red Select / Adjust knob. The brightness setting shows initially. Momentarily push (click) the Select / Adjust knob again to advance to the close focus adjustment. Adjust the close focus to the desired step (distance) by turning the Select / Adjust knob. Then lock the setting into memory and return to normal operation by momentarily pushing (click) the Select / Adjust knob twice.

#### **Adjusting the Display Resolution (Starting at Version 1.06)**

The Display Resolution is the amount of distance rounding-off that is shown on the Cine Tape Measure display. Reducing the resolution (Increasing the rounding-off) is useful when a more stable display is desired. The resolution setting is the third item accessed through the Power-up Menu. This setting shows as "rE x" or "rE -x" where "rE" is the abbreviation for resolution and "x" is the amount of rounding-off. The displayed minus sign (-) is the graphical representation for plus or minus (+/-). The four resolution settings are; 1, 2, -1 & -2.

- ⊕ The '1' setting is the normal (maximum) setting and maintains the displayed distance until the actual (physical) distance change is **greater** than 1 unit.
- ⊕ The '2' setting maintains the displayed distance until the actual (physical) distance change is **greater** than 2 units. Only even numbers are displayed.
- ⊕ The '-1' setting maintains the displayed distance until the actual (physical) distance change is **plus or minus** (+/-) 1 unit.
- ⊕ The '-2' setting maintains the displayed distance until the actual (physical) distance change is **plus or minus** (+/-) 2 units. Only even numbers are displayed.

To access the display resolution adjustment, unplug the power cable, then plug it back into the Cine Tape Measure while pushing and holding the Select / Adjust knob. The brightness setting shows initially. Momentarily push (click) the Select / Adjust knob twice to advance past the close focus adjustment to the display resolution adjustment. Adjust the resolution to the desired level by turning the Select / Adjust knob. Then lock the setting into memory and return to normal operation by momentarily pushing (click) the Select / Adjust knob.

#### **Checking the Software Version**

The Cine Tape Measure has program software identified with a numeric version number. As new features become available, it may be necessary to update the software. This version number is accessible from the Power-up Menu. Contact Cinematography Electronics for the most current version.

To access the version number, unplug the power cable, then plug it back into the Cine Tape Measure while pushing and holding the Select / Adjust knob. The brightness setting shows initially. Momentarily push (click) the Select / Adjust knob twice to advance the menu past the close focus setting to the display resolution setting. Now push and hold the Select / Adjust knob until the version code is displayed. The software version code appears after two seconds and remains visible until the knob is released. The Cine Tape Measure returns to normal operation after the knob is released.