CINEMATOGRAPHY inc.
electronics

OPERATING INSTRUCTIONS

CINETAPE MEASURE (Original)

CINETAPE MEASURE SYSTEM
The Cinematography Electronics CineTape Measure is a lightweight and versatile ultrasonic distance measuring system for any film or digital camera. It provides quick continuous distance measurements and is compatible with all camera lens configurations.
The System consists of the CineTape Measure Control and Sensor Horns. A Sensor Cable electrically connects the two units together, and a Power Cable connects the CineTape to the camera's accessory connector.

MOUNTING the CONTROL
The CineTape Measure Control has a flat back which is a good area to attach Velcro. Position the CineTape on the camera in a viewable and convenient place. 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 the SENSOR HORNS (Sensor Assembly)
The Sensor Horns have an integral pan / tilt head which includes a combo stud for attaching to the camera or matte-box. The combo stud has a 3/8-16 threaded stud, a ¼-20 threaded hole, and a stepped shaft with 5/8-inch, 15 mm, and 19 mm diameter steps. These provide numerous attachment configurations. Attaching the Horns to the camera is preferred, so that the distance to the Focal-Plane remains constant with lens changes. Always mount the sensors forward of any handles or cables and pointed towards the subject. (More information is detailed in the "Setting the Focal-Plane offset" area of these instructions.)

DISTANCE DISPLAY (Numeric Display)
The bright red LED display is located prominently on the front face of the CineTape. This four-digit readout shows the measured distance to the subject. The distance is displayed in either Feet or Meters, and is selectable with the switch to the right of the Distance Display. When in the Feet mode, the left two digits indicate "feet" and the right two digits indicate "inches". When in the Meters mode, the left two digits indicate "meters" and the right two digits indicate "centimeters". Four small squares on the display show that the subject is out of range. As a reminder, the CineTape displays the word "horn" until the Sensor Horns are connected. The display brightness is adjustable through the Power-up menu. (More information is detailed in the "Power-up menu".)

SENSE LED INDICATOR
The green Sense LED indicator (engraved SENSE) is located on the front face near the right edge. This green indicator glows when the sensor horns receive a signal from the subject. If the subject is out of range, the green sense indicator turns off. (More information is detailed in the "Adjusting the Sensitivity" area of these instructions.)

FILM-PLANE LED INDICATOR
The yellow Film-Plane LED indicator (engraved Push Hold FILM-PLANE) is located on the front face near the right edge. This indicator glows yellow when the CineTape is in the Film-Plane adjustment mode. (More information is detailed in the "Setting the Film-Plane offset" area of these instructions.)

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SENSITIVITY LED INDICATOR
The yellow Sensitivity LED indicator (engraved Push SENSITIVITY) is located on the front face near the right edge. This indicator glows yellow when the CineTape is in the Sensitivity adjustment mode. (More information is detailed in the "Adjusting the Sensitivity" area of these instructions.)

POWER CONNECTOR
The 3 pin Fischer Power connector (engraved POWER) is marked with a red ring and is located on the bottom edge of the CineTape. Power connections are through this connector. The required DC voltage range is 9 to 32 volts. A red cable strain relief identifies power cables that mate to this connector. Cinematography Electronics offers various 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 CineTape 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 Sensor connector (engraved SENSOR) is marked with a blue ring and is located on the bottom edge of the CineTape. This connector provides the necessary electrical connections for the Sensor Horns. A blue strain relief identifies cables that mate to this connector. The maximum recommended useable cable length between the CineTape and the Sensor Horns 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 KNOB (Red Knob)
The Red Select / Adjust switch has a large red knob and is located in the lower left corner of the CineTape. This multifunctional push and turn switch is the primary method for changing and selecting the various features of the CineTape.

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

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

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SETTING the FILM-PLANE OFFSET

It is necessary to calibrate the Horns in relation to the focal-plane when setting-up the CineTape.

To do this, aim the camera package, with the Sensor Horns attached, at a flat stationary object, such as a wall or clap board, that is about 5 feet (1.5 meters) from the Focal-Plane. With a standard (ordinary) tape measure, determine the exact distance between the Focal-Plane and the stationary object. Enter the Focal-Plane adjustment mode, by pushing the Red Knob for two seconds. Release the knob when the yellow Focal-Plane LED indicator glows. Then rotate the red knob to change the displayed distance reading to match the, standard tape, measured distance. Save this distance into memory by momentarily pushing (click) the red knob. This also returns the CineTape to normal operation and turns the yellow Focal-Plane LED indicator off. If the position of the Horns changes with respect to the Focal-Plane, then recalibration is required.

ADJUSTING the SENSITIVITY

The sensitivity of the CineTape 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 when measuring 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 are important when selecting 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 Knob. The yellow Sensitivity LED indicator glows. While the indicator is glowing, rotate the Red Knob to change the sensitivity in 5% increments. The Distance Display momentarily shows the sensitivity setting as a two-digit number for about one second as it is changing. The selected setting is saved into memory by pushing (click) the Red Knob. This also turns the yellow Sensitivity indicator off.

SIGNAL SHAPE & PATTERN

The CineTape uses high frequency sound to measure distance. The measurement area is not visible; therefore, it is important to understand how the shape of the measurement area is controlled by the sensitivity setting.

The 3-dimensional pattern of the measurement area is similar to an ice cream cone with a scoop of ice cream. The tip (apex) of the pattern starts at the horns. The diameter of the pattern expands as the distance increases. As the signal begins to reach its limit the cone shape diameter decreases to form a round ice cream scoop shape.

Sensitivity settings can be tricky. So, as a guide, with the Sensitivity set at 99%, the diameter of the pattern, at 10 feet, is 3 feet. This is a large area. To reduce this area, lower the sensitivity setting to 50%. The diameter of the pattern will be reduced 50%, to roughly 18 inches.

The factory setting for Sensitivity is 70%.

EXTENSION TUBES

Attaching the Cinematography Electronics Extension Tubes to the horns will reduce the overall diameter of the pattern approximately 20%.

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POWER-UP MENU
The Power-up Menu provides settings and adjustments, such as Display Brightness, Close Focus Distance, Display Resolution and Feet or Meters selection.

Simply unplug the power cable, and then plug it back into the CineTape while pushing and holding the red knob. Once in the power-up menu, rotate the red knob to the desired setting, then momentarily push (click) to save the setting into memory. This advances the menu to the next power-up item.
Following is a list of the details for each item in the power-up menu:

Display Brightness Adjustment (br)
Display Brightness is the first item to be accessed through the Power-up Menu and is adjustable in 15 steps. This is useful for comfortable viewing in different lighting conditions. The abbreviation "br" is used for brightness. The lowest setting is "br 1" and the brightest setting is "br 15". Adjust the brightness to the desired level by turning the Select / Adjust knob. The display shows the new brightness setting and varies as it is adjusted. The new setting is saved into memory by momentarily pushing (click) the red knob, which also advances the Power-up Menu to the Close Focus Distance Adjust.

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Close Focus Distance Adjustment (CL) Near Limit
The Close Focus Distance is the second item accessed through the Power-up Menu. The Close Focus Distance is also known as the Near Limit and is the minimum distance that the CineTape senses. The abbreviation "CL" is used for close. It is adjustable in 15 steps from "CL 7" to "CL 21", corresponding to about 1 foot (30 cm) to 3 feet (90 cm), respectively. This is a useful setting when it is necessary to ignore something in the foreground near the sensors, such as a Matte Box, French flag, monitor or cable. Adjust the near limit close focus to the desired distance by rotating the Select / Adjust knob. The new setting is saved into memory by momentarily pushing (click) the red knob, which also advances the Power-up Menu to the Display Resolution Adjustment.

Display Resolution Adjustment (rE) *(Starting at Version 1.06)*
The Display Resolution is the third item accessed through the Power-up Menu. The Display Resolution is the amount of distance rounding-off that is shown on the CineTape 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. *(This is the factory setting)*
- 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.

Adjust the Display Resolution to the desired level by rotating the Select / Adjust knob. The new setting is saved into memory by momentarily pushing (click) the red knob, which also returns the CineTape to normal operation.

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Checking the Software Version (Current Version is 1.07)

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

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