



CFOCAS AND CFINDER USER GUIDE

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Technical specifications are
subject to change without notice

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This user guide is based on
the Software Version cdisplay
DUS 3.8.7 & camin MCP 3.8.6

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Table of contents

1	Before Use	4
1.1	Information for your safety	4
1.1.1	Safety precautions for the use of class 1 and class 2 lasers.....	5
1.2	Using this manual	6
2	Component Description	7
2.1	Overview	7
2.1.1	<i>cfinder</i>	7
2.1.2	<i>cfocas</i>	7
2.2	Detailed Component Description	8
2.3	Technical specifications	9
3	Preparation	10
3.1	System set up	10
3.2	<i>cfinder</i> set up	10
3.2.1	Attaching the <i>cfinder</i> to the camera.....	10
3.2.2	Mount the <i>cfinder</i> to a tripod.....	11
3.2.3	Connect the <i>cfinder</i> to the <i>camin</i>	11
3.2.4	Power On <i>cfinder</i>	11
3.2.5	Mount and adjust the optical view finder.....	12
3.3	<i>cfocas</i> set up	14
3.3.1	How to open the program <i>cfocas</i>	14
4	System Operation	15
4.1	<i>cfinder</i> operation	15
4.1.1	Aligning the <i>cfinder</i> with a target.....	15
4.1.2	Working with the Laser Pointer.....	15
4.1.3	Focus a target.....	16
4.2	<i>cfocas</i> operation	16
4.2.1	<i>cfocas</i> Main screen.....	16
4.2.1.1	Focus Scale Window.....	17
4.2.1.2	Depth of Field Information Window.....	18
4.2.1.3	<i>cfinder</i> Distance Marker and Measurement Value.....	19
4.2.1.4	Lens Information window.....	20
4.2.1.5	Camera Information window.....	21
4.2.1.6	<i>cdisplay II</i> SETTINGS.....	21
4.2.2	Set Focus Assistant.....	22
4.2.3	Distance.....	23
4.2.3.1	Set distance offset.....	23
4.2.3.2	Speed of response.....	24
4.2.3.3	Distance limits.....	24
4.2.4	Autofocus mode.....	25
4.2.4.1	Autofocus off.....	26
4.2.4.2	Always.....	26
4.2.4.3	CFocas.....	26
4.2.4.4	Marker Press.....	26
4.2.4.5	Marker Toggle.....	26
4.2.4.6	Focus Set-point information.....	27
4.2.5	Additional features of <i>cfocas</i>	27
4.2.5.1	Set Markers.....	27
4.2.5.2	Set Limits.....	28
4.2.6	<i>cfocas</i> Menu.....	29

4.2.6.1	LENS SETTINGS	29
4.2.6.2	WRITE TO TRANSPONDER	30
4.2.6.3	SET FOCUS ASSISTANT.....	31
4.2.7	Function of the Buttons	32
4.2.7.1	MENU Button	32
4.2.7.2	INFO Button.....	32
4.2.7.3	RECORD Button.....	32
4.2.7.4	PLAY Button.....	33
4.2.7.5	STOP Button	33

1 Before Use

Dear Customer,

We would like to take this opportunity to thank you for choosing cmotion's LCS. Please read these Operating Instructions carefully and keep them handy for future reference.

1.1 Information for your safety

WARNING

To reduce the risk of fire, electric shock and wireless interference, use only recommended accessories, and avoid exposure of this equipment to rain or moisture. Do not remove the back cover as there are no user serviceable parts inside. Removal will void your warranty. Refer all servicing needs to qualified service personnel.

General Safety Specifications

- To ensure optimal performance, please read these instructions carefully!
- In the case of wet weather, routine safety precautions for handling electrical equipment in wet weather should be taken!
- Make sure all components (*cam*, lens motors, etc.) are securely mounted!
- Do not put your fingers near the gear of the motors while they are moving!
- Use only original cmotion replacement parts and accessories!
- Do not remove any screws that are secured with paint!
- Do not remove any warranty seals!
- Repairs should be made only by authorised service centres!
- Remove batteries from all components before transport or storage!

Important

If you have questions, or you need to order parts, please note the component's model and serial number.

When not in use, the *cfinder* should be kept in a clean and dry place.

Note: To avoid scratching the lenses, always remove dust with pressurised air before cleaning with a soft cloth.

1.1.1 Safety precautions for the use of class 1 and class 2 lasers

The *cfinder* uses an invisible class 1 laser for distance measurements, and a visible class 2 laser as a pointer.

The invisible class 1 laser used for measuring is based on the norm EN 60825-1:2003-10. Therefore, it will not cause any damage to the human eye.

The red visible class 2 laser pointer is equivalent to the norm IEC825-1/DIN EN 60825-1:2001-11 and similar to a laser class 2 based on FDA21 CFR. Damage to the human eye is possible if exposed directly for an extended period of time. Whenever the eye is exposed to this laser, the body's natural reflex is to close the eyelid as quickly as possible. However, this reflex can be affected by pharmaceuticals, alcohol or drugs. Under regular work circumstances no additional safety measures are necessary.

Warning: Always avoid direct eye contact with the red laser pointer beam. Staring into the laser may cause permanent eye damage.

1.2 Using this manual

Warning: Warnings are used to indicate important information for the user that relate to the respective section of this user's guide. They explain where something could go wrong during a particular process, or where damage could be caused to the unit.

camin, coperate, cfinder etc: All motion components are written in cursive italic throughout this manual.

Cables

When a cable is referred to in this user manual, it will be identified in reference to its connectors (e.g. FI m12p, LE m7p).

Motion cables are manufactured by W. W. Fisher, Lemo, Hirose, etc. They will be referred to as FI, LE and HI respectively.

The character m or f refer to a male or female connector.

The cable identification begins with the connector that is connected to the motion unit, followed by the connector for the non-motion unit. Each connector also takes reference to the number of pins it has. For example; the (FI m12p, LE m7p) Scorpio motor cable has 12 pins and 7 pins respectively. The FI m12p connector is connected to the camin and the LE m7p connector connects to the motor.

Cables may also be referred to by their commonly used names; e.g. CBUS (FI 7p, FI 7p) and RS (FI 3p, FI 3p) cables.

Necessary Tools

The 4mm Allen Key supplied with your motion system will be required to perform some of the securing and adjustment steps in this guide.

2 Component Description

2.1 Overview

2.1.1 *cfinder*



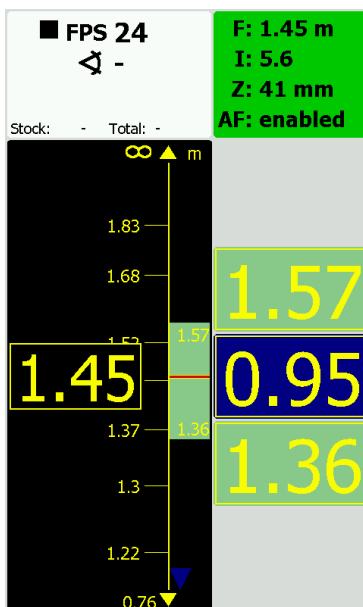
Fig. 2. 1

cfinder is an optical distance measurement tool that works with a class 1 laser. The laser has a measurement range of 0,02m – 150m (approx. 7.9 inch – 492 feet) and an accuracy range less than +/- 5 cm for every 100m (approx. 1.6 inch). A telescopic sight or a laser pointer can be easily attached to the *cfinder* by means of a quick fastener. The operator can focus on an object throughout filming because the measurement stream is invisible.

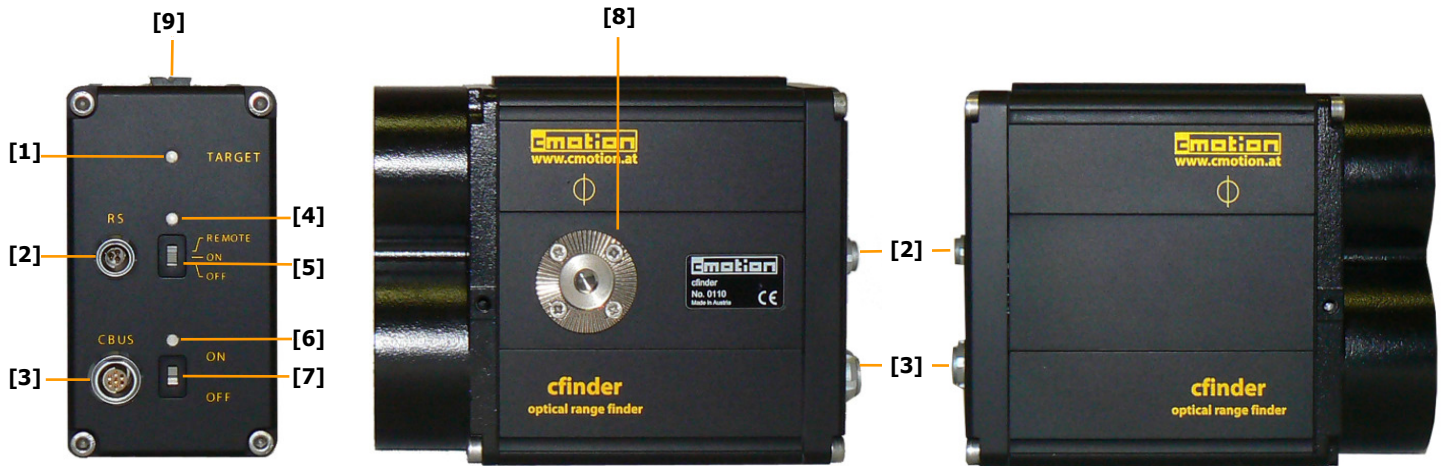
2.1.2 *cfocas*

cfocas is cmotion's focus assistance software.

cfocas illustrates a focus scale with information about depth of field and distance of a subject in an easy to read large font. As with other *cdisplay* software, all lenses can be used and displayed using *cfocas*. Camera information can also be displayed on the *cfocas* screen. *cfocas* displays the distance measurement value of the *cfinder*, and can also provide the user with an auto focus function.



2.2 Detailed Component Description



1	TARGET LED	Green blinking	Target found
		Green	Target found
		Yellow	Weak signal
		Red	Very weak signal
		Red blinking	Very weak signal
		off	No target found
2	RS Connector	Power supply interface for an external pointer	
3	CBUS Connector	cmotion intra-system 7 pin connector	
4	POINTER LED	off	no laser pointer
		Red	laser pointer active
5	POINTER Switch	Pointer power switch	
6	READY LED	Off	<i>cfinder</i> off
		Red/ Green/ Blinking	<i>cfinder</i> ready, no <i>camin</i> logged on
		Red/Green/ blinking slow	Update cable (RPC-3) is connected
		Green	<i>cfinder</i> ready, <i>camin</i> logged on
		Red	During Start-Up: <i>cfinder</i> is booting up During operation: loss of communication with <i>camin</i> Very weak supply voltage
		Red Blinking slow	Software version incompatible
		Red blinking fast	Weak supply voltage <i>cfinder</i> not initialized Second <i>cfinder</i> in network
7	ON/OFF Switch	<i>cfinder</i> power switch	
8	Rosette	Rosette for attachment of various accessories	
9	Dove tail interface	Dove tail for optical view finder	



10	ROTARY switch	Rotary switch to turn on red dot pointer inside view finder and to adjust the brightness of the red dot pointer
11		Horizontal Adjustment with protective caps
12		Vertical Adjustment with protective caps
13		screws for secure attachment to <i>cfinder</i>

2.3 Technical specifications

Temperature range:	-20°C to + 50°C
Power Supply:	10 - 35V DC
Power Consumption:	4,8W
Weight:	0,9 kg (2 lbs)
Laser Classifications:	Laser class 1: EN 60825-1:1997-03 Laser class 2: IEC825-1/DIN EN 60825-1:2001-11
Dimensions:	140mm x 72mm x 108mm (without optical view finder)
Power Consumption:	4,8W
Measurement Range:	0,02m to over 150m (dependent on object's reflectivity)
Accuracy:	+/-5cm (at -10°C)
Speed of Measurement updates:	Adjustable with <i>cfocas</i> : maximum 50x second
Laser Divergence:	0,03m stream diameter in 10m
Temperature Range:	20°C - +60°C
Interfaces:	CBUS-Interface Power supply interface for an external pointer

3 Preparation

This section will tell you how to prepare for using the *cfinder*.

To work with the *cfinder*, the following units are necessary:

- *cfinder*: measures the distance
- *cdisplay II*: shows the distance measurement value. With the software tool *cfocas* different functions can be activated.
- *coperate* and *camin* including servo motors: the *cfinder* has to be connected to the *camin*, which converts the measurement values from the *cfinder*.

Note: The program *cfocas* runs with the following devices: *cdisplay* or *cdisplayII*. In general, this manual refers to the *cdisplayII*. In case of differences between the devices, the individual device type is specified.

Note: This manual is based on the following software: *cdisplayII-DUS - 3.8.7*

3.1 System set up

For full instructions on how to set up an LCS system, please refer to the LCS user guide and the *cdisplay II* user guide.

3.2 *cfinder* set up

3.2.1 Attaching the *cfinder* to the camera



To attach the *cfinder* to the camera, there is a rosette on one side, and a $\frac{1}{4}$ " and a $\frac{3}{8}$ " tap hole on the bottom. The following attachment tools are available:

- *cfast-czoom*
- *cfast-cdisplay*

As a matter of course the *cfinder* can also be attached with other attachment tools.



Note: The *cfinder* does not have to be mounted in line with the film plane. The *cdisplay II* software *cfocas* allows an offset between the measurement line of the *cfinder* and the film plane to be activated. The consideration of the parallax error is not possible with this setting.

3.2.2 Mount the *cfinder* to a tripod

The *cfinder* can also be mounted on a tripod. In this configuration the operator can pan the *cfinder* independently from the camera to follow a moving subject.

Note: The tripod needs not to be mounted in line with the film plane. The *cdisplay II* software *cfocas* allows an offset between the measurement line of the *cfinder* and the film plane to be activated. The consideration of the parallax error is not possible with this setting.

3.2.3 Connect the *cfinder* to the *camin*

With the CBUS cable (FI m7p, FI m7p) the *cfinder* can be connected to the *camin* (CBUS connector).

Note: If the CBUS connector is occupied by another device, a CBUS-Splitter can be used to provide 3 CBUS interface connections.

3.2.4 Power On *cfinder*

The ON switch is located on the back side of the *cfinder*. If the *cfinder* is connected to the *camin* and the *camin* is supplied with power, the *cfinder* can be turned on. The READY LED shows the current status of the *cfinder*:



READY LED	Off	<i>cfinder</i> off
	Red/ Green/ Blinking	<i>cfinder</i> ready, no <i>camin</i> logged on
	Red/ Green/ blinking slow	Update cable (RPC-3) is connected
	Green	<i>cfinder</i> ready, <i>camin</i> logged on
	Red	During start-up: <i>cfinder</i> is booting During operation: loss of communication with <i>camin</i> very weak supply voltage
	Red blinking slow	Software version incompatible
	Red blinking fast	Weak supply voltage <i>cfinder</i> not initialized Second <i>cfinder</i> in network

3.2.5 Mount and adjust the optical view finder

If the *cfinder* is mounted on a Tripod, an optical view finder can be attached to the top of the *cfinder* to help focus a target.

With the rotary switch on the optical view finder, you can switch on the internal red dot pointer to shows you which target you are currently focusing on.

Activate the red target dot and adjust for desired brightness by turning the rotary knob. The lower numbers represent dimmer settings and the higher numbers represent brighter settings. The „0“ position indicates that the red target dot is off.

The optical view finder can be adjusted to a required distance by turning the vertical and the horizontal adjusting screw. This can be adjusted to minimize the parallax error.

Zeroing a target:

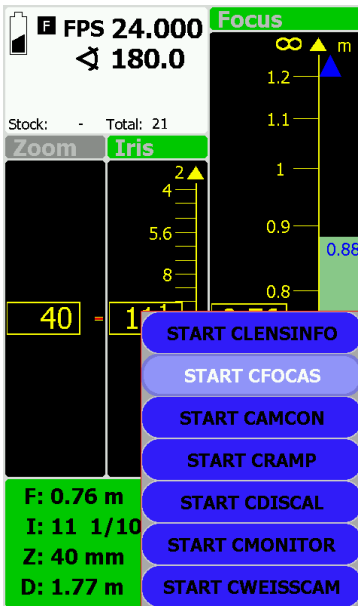
1. Before Zeroing the target, first remove the protective caps of the horizontal and the vertical adjustment screws.
2. With the scope levelled and mounted, rest the *cfinder* on a solid support.
3. Turn on the *cfinder's* internal laser pointer (see chapter 4.1.2).
4. Turn on the optical view finder's red target dot.

5. Sight along the barrel of the *cfinder* and aim the internal visible laser pointer at a target at your desired distance?
6. Sight through the optical view finder and use the horizontal and vertical adjustment screws to align the red target dot of the view finder with the red dot of the laser.
7. Check the settings on the *cdisplay II (cfocas)*, by focusing on a fixed horizontal and vertical target. If the index jumps when the border is focused, the invisible measurement laser is there.
8. Repeat the process until the red target point in the optical sight matches the angle of the target.

Battery:

The optical sight's red target dot is powered by one 3V lithium coin style battery (type 2032). If the red dot dims or does not light at all, replace the battery with a new one. To install the battery, unscrew the battery cap on the top of the rotary switch and insert the battery positive (+) side up. Replace the battery cover.

Note: Always remember to turn off the power when you have finished using the red target dot.



3.3 cfocas set up

The *cdisplay II* can be connected wireless or with a CBUS cable to the camin. To set up the *cdisplay II*, please refer to *cdisplay II*'s User guide.

3.3.1 How to open the program cfocas

1. Press the ENTER button on the *cdisplay II*.
2. Select [START CFOCAS]

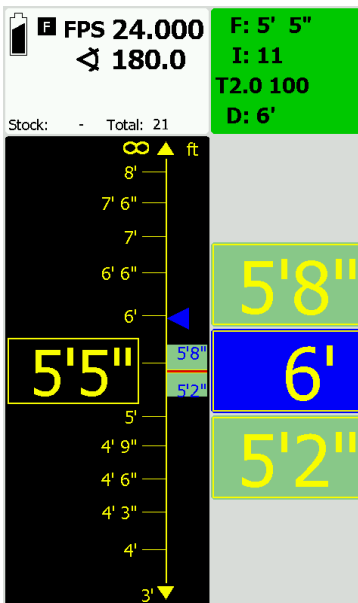
OR

Select the MENU button, go to the PROGRAMS menu and select START CFOCAS (see standard dialogues in *cdisplay II* user manual for more information).

3. Confirm by pushing the ENTER button
4. The *cfocas* screen appears

Note: To start the *cfocas* software you will need a license (credit). Usually this software is supplied when buying the *cfinder*.

Note: If the correct lens scale is not displayed, the lens will require calibrating. This is the process of defining the relationship between the physical lens scale values and the motor position. An animated depiction of the lens can then displayed. Please see the *cdiscal* user manual how to calibrate a lens scale.



4 System Operation

To operate this function of the cmotion LCS, the *cfinder* has to be assembled as described in chapter 3 “*cfinder* set up”.

4.1 *cfinder* operation

This chapter deals with focusing a target and how to make a measurement.

4.1.1 Aligning the *cfinder* with a target

The *cfinder* is equipped with an invisible class 1 laser measurement beam. (Poses not risk of damage to the human eye). The laser beam has the forma as cone and has at a distance of 10 m an aperture of 30mm. Thus the measurement laser captures in short distances a small point of the target.

To operate the *cfinder* accurately, it will require focusing on a target. If the *cfinder* is mounted on a Tripod, you can adjust the alignment through pan and tilt. When equipped with the optical sight, the internal red reference dot can be used to align with the target.

Due to the red reference dot within the optical sight being at a different angle to the measurement laser, there is a slight deviation in the parallax. Therefore it is important to make necessary adjustments before use. (Please see chapter 3.2.5).

4.1.2 Working with the Laser Pointer

The *cfinder* is equipped with a visible laser pointer which can be turned on when required.

Note: Please avoid looking into the visible red laser pointer.

The laser pointer can be turned on by the POINTER switch. There are 3 settings available:

- Off – laser pointer is off
- ON – laser pointer is on
- REMOTE – this function is reserved for future use



To work with the visible red laser pointer, the switch must be in the ON position. Now the laser pointer can be used to focus on the chosen target.

Note: The laser pointer has a small parallax deviation to the measurement laser. The laser pointer and the measurement laser will cross at a distance of 70 m.

The pointer LED indicates whether the pointer is turned on or not.

Pointer LED	Off	no laser pointer active
	Red	laser pointer is active

4.1.3 Focus a target

When a target is focused on with the measurement laser, the quality of the measurement signal is shown by the TARGET LED:

TARGET LED	Green blinking	Target found
	Green	Target found
	Yellow	Weak signal
	Red	Very weak signal
	Red blinking	Very weak signal, no target found
	off	No target found

When the target is focused on, the *finder* will send measurement data to the camin up to 50 times per second. This value will then be displayed on the *cdisplay II*.

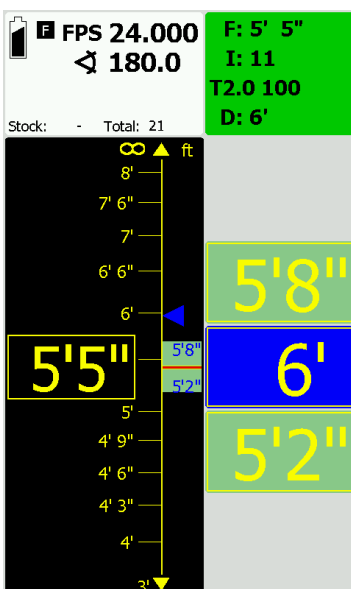
4.2 cfocas operation

cfocas is cmotion's Focus Assistant software.

Note: The features of *cfocas* can only be used in combination with a distance measurement tool e.g. cmotion's *finder*.

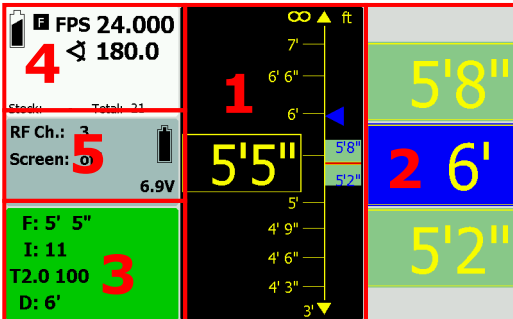
4.2.1 cfocas Main screen

The *cfocas* main screen displays important focus information in a large easy to read font. This information includes: focus near, focus far focus,



depth of field, focus markers and actual measured distance value.

The *cfocas* screen is divided into five parts:



1. Focus Scale Window
2. Depth of Field and Distance Measurement Value.
3. Lens Information Window
4. Camera Information Window
5. *cdisplay II* SETTINGS window (only available in Landscape mode)

4.2.1.1 Focus Scale Window

The Focus Scale Window is an animated depiction of the actual focus ring.

Focus Scale Window Illumination

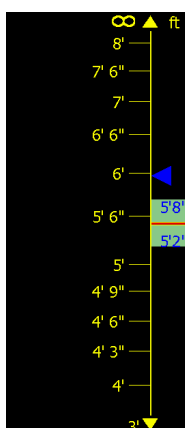
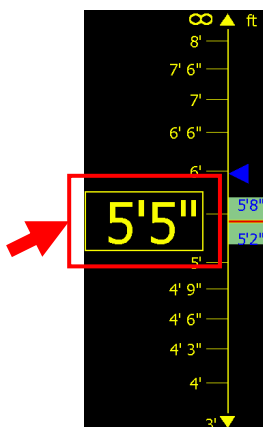
Gray	No focus motor connected
Black	Focus motor connected

Shortcut: The Focus Scale Window provides a shortcut to the LENS SETTINGS menu page. (Touch the Focus Scale Window as shown). Refer to Standard Dialogues in the *cdisplay II* user manual for more information.

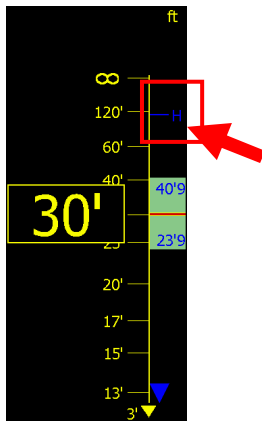
Actual Focus Value

The box in the Focus Scale Window displays the actual focus value.

The measurement unit is displayed in the top right corner of the focus scale.

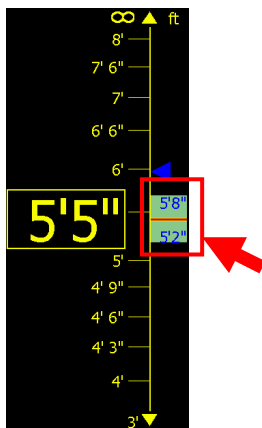


Note: The Focus Value can be turned on or off using the "Show Value" option in the LENS SETTINGS menu.



Hyperfocal

Hyperfocal is a value at which half of its own value through to infinity will be in focus.
 E.g. hyperfocal is 130', this means that from 65' to infinity will be in focus. The hyperfocal is indicated by a blue line and an "H".

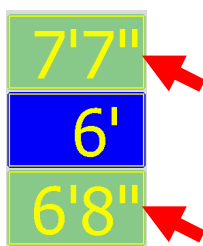


Depth of Field Information

The Depth of field information is displayed as focus near and focus far values.

Note: For accurate depth of field information the circle of confusion must be set respective to the lens in use.

4.2.1.2 Depth of Field Information Window



The depth of field information window displays focus near, focus far and the actual distance value being measured. The screen also highlights whether the focused subject is within the depth of field.

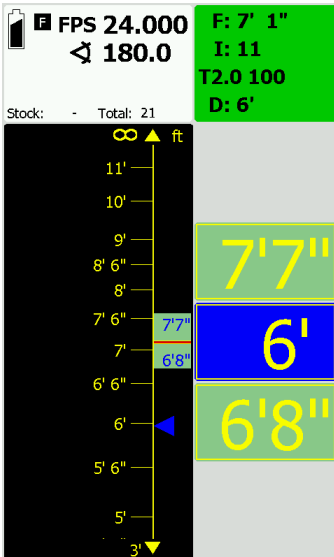
Shortcut: The Depth of Field Information Window provides a shortcut to the SET FOCUS ASSISTANT operation screen. (Touch either Depth of Field value on the screen).

Focus Far

This field displays the focus far value. This is the value at the upper limit of your depth of field.

Focus Near

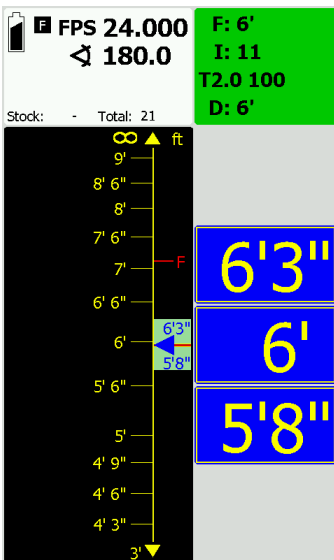
This field displays the focus near value. This is the value at the lower limit of your depth of field.



Note: The color of this field indicates whether your actual distance value is with the depth of field or not.

Focus Far/ Focus Near Illumination

Green	Actual Distance Value Outside of Depth of Field
Blue	Actual Distance Value Within Depth of Field

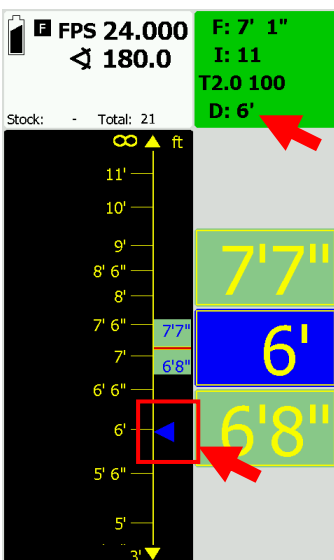


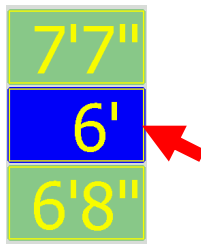
4.2.1.3 *finder* Distance Marker and Measurement Value

On the right hand side of the focus index is a blue arrow pointing to the left. This is the *finder* Distance Marker. It moves up and down along the focus scale.

Note: This marker will appear when the *finder* (or alternative distance measurement device) is connected. The position of the marker relates to the measured distance value.

Note: The Distance Marker is also displayed when using the *clensinfo* program. It is also possible to display the distance value within the LENS INFO WINDOW as shown.





Distance Measurement Value

This field displays the distance being measured by the *finder* in real time.

Shortcut: The Distance Measurement Value Window provides a shortcut to the SET FOCUS ASSISTANT operation screen. (Touch either Depth of Field value on the screen).

Note: If no distance marker or measurement value is displayed, check the power supply and connection between the *finder* and *cam*. Is the READY LED on the *finder* green?

4.2.1.4 Lens Information window

The Lens Information Window is located on the main screen of each motion software program. The Lens Information Window displays 4 lines of individually selectable lens data.



Shortcut: The Lens Information Window provides a shortcut to the SET LENS operation screen. (Touch the Lens Information Window tab on the screen to activate).

In the SET LENS operation screen the following options are possible:

- Change Lens
Each time the lens is changed on the camera, the corresponding lens data needs to be loaded on the *cdisplay II*. This will ensure the displayed lens animation will match the actual movement and value of the lens.
- Lens Settings
The display settings of the active lens can be changed to suit the operator's preferences.
- Lens Info Window
The 4 lines of data displayed in the lens information window can be adjusted to suit the operator's individual requirements.
- Start Motor Calibration
Each time a lens is attached to the camera, it is necessary to calibrate the motors. This process

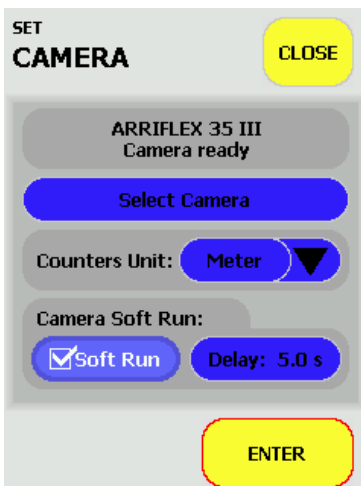
turns each axis of the lens to establish the physical end stops.

For further details about *cdisplay II*'s Lens Information Window and the SET LENS operation screen, please refer to the *cdisplay II* user manual.

4.2.1.5 Camera Information window



The Camera Information Window displays relevant camera information such as speed, shutter angle, battery status, film stock and total counter.



Shortcut: The Camera Information Window provides a shortcut to the SET CAMERA operation screen. (Touch the camera information field on the screen).

For further details about *cdisplay II*'s Camera Information Window, please refer to the *cdisplay II* user manual.

4.2.1.6 *cdisplay II* SETTINGS

cdisplay II offers an extensive list of variable settings which allow the operator to set the display up in a way that suits their needs and personal preferences.

This *cdisplay II* SETTINGS window can be accessed by pressing and holding the INFO button for one second, or touching the "RF Channel Field" when in landscape orientation.

You can also access the SETTING window through the *cdisplay II* menu:

1. Press the MENU button to open the Main Menu.
2. Select [CDisplay Menu] and press ENTER.
3. The following 'SETTINGS' menu window will open.



Note: In the 'SETTINGS' menu, touching the [Close] tab will return you to the main program software and cancel any prior changes. By touching the [Enter] tab, any changes made will be saved and applied before returning to the program.

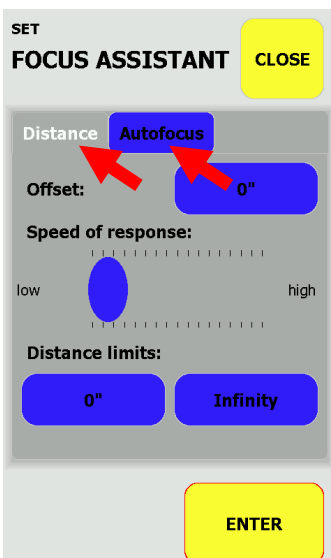
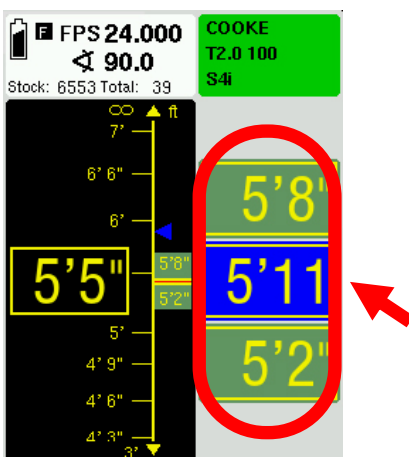
Several tabs will appear for which you can make changes to the following parameters:

- Channels
- *cdisplay II* basic settings
- Orientation
- Memory
- *cam* settings
- Versions

For further details about the *cdisplay II* SETTINGS window, please refer to the *cdisplay II* user manual.

4.2.2 Set Focus Assistant

If you touch either the Focus near, Focus far or the Distance Measurement Value, the SET FOCUS ASSISTANT window will be open.



The Set Focus Assistant Window allows you to operate and activate the Auto-Focus mode.

Two tabs will appear for which you can make changes to the following parameters:

- Distance
- Autofocus

4.2.3 Distance

Note: The [Distance] tab will only be active if a distance measurement tool e.g. *cfinder* is attached.

1. Select the [Distance] tab

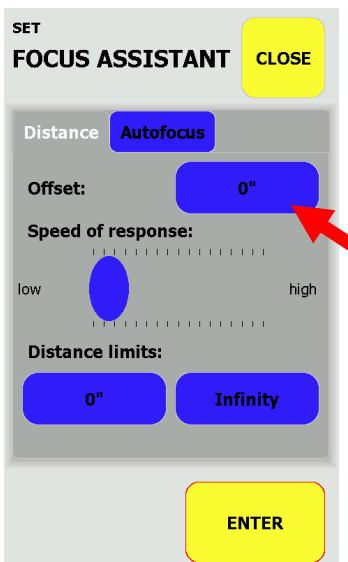
On this tab you can do the following:

- Set an offset distance
- Set a distance measurement speed of response
- Set distance limits for the Auto-Focus mode

4.2.3.1 Set distance offset

You can set an offset if the *cfinder* (or alternative distance measurement device) cannot be attached directly on the camera's film plane. The offset will automatically be incorporated into the measured value.

1. Select the [Offset] button



2. Select the [Value] field
3. Using the Numeric-Edit screen enter your offset distance (the distance between your *cfinder* and the actual film plane).

Choose a positive value "+".

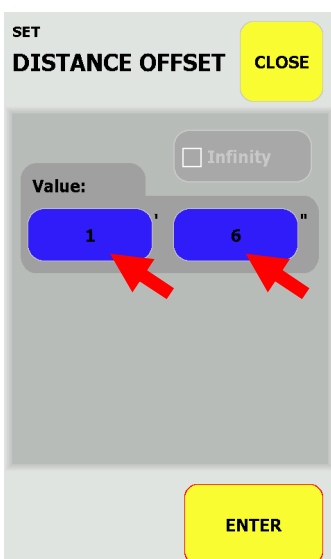
If the *cfinder* is located behind the film plane, the offset needs to be added to the measurement value.

Choose a negative value "-":

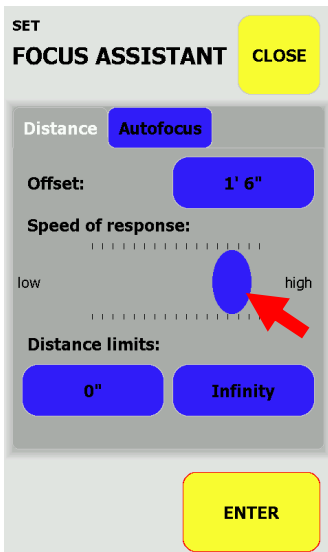
If the *cfinder* is located in front of the film plane, you have to deduct the offset from the measurement value.

4. Select [Enter]

Note: Depending on the scale settings, the value will be indicated imperial or metrical.



4.2.3.2 Speed of response



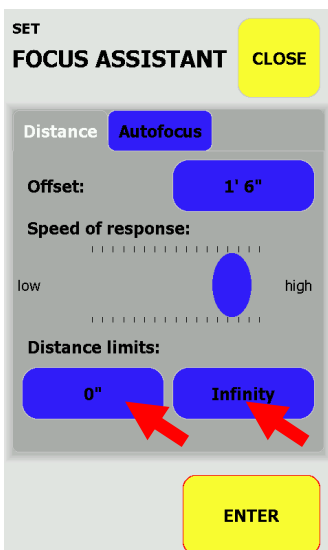
The *cfinder* is capable of sending measurement data up to 50 times per second. This can result in very abrupt motor movement to alter the focal value of the lens. Using the [SPEED OF RESPONSE] tab, you can variably adjust the speed at which the lens is focused onto the new or moving subject. The high setting follows the distance exactly, while the low setting offers a smoother change in value.

Note: A high speed of response results in a shorter delay in the lens adjusting to a new focus point.

1. Use the slider and move between the low and high response value.
2. Select [Enter]

Note: The *cfinder* can supply the camin with 50 measurement values per second when set at its highest speed of response.

4.2.3.3 Distance limits

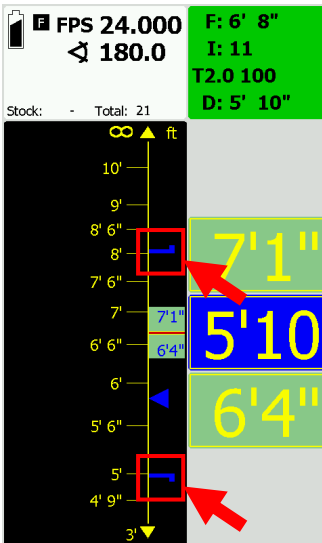


The Distance Limits field allows you to limit your Autofocus mode within a specified range.

The Autofocus function will only work between the distance limit near and distance limit far value. If the data of the distance measurement tool is beyond these two limit values, the motor will stop at the last measured value. When the target returns within the limits, the motor will once again follow the measurement value.

In order to enter the distance limit values for the Autofocus range:

1. Select the distance near field (this is the left button)
2. Using the Numeric-Edit screen enter your distance near value.
3. Select [Enter]
4. Select the distance far field (this is the right button)
5. Select the [Value] field
6. Using the Numeric-Edit screen enter your distance far value. The Infinity tab at the top of the page allows infinity to be set as the maximum limit.
7. Select [Enter]



When distance limits are set, they will be indicated on the focus scale in the *cfocas* main screen.

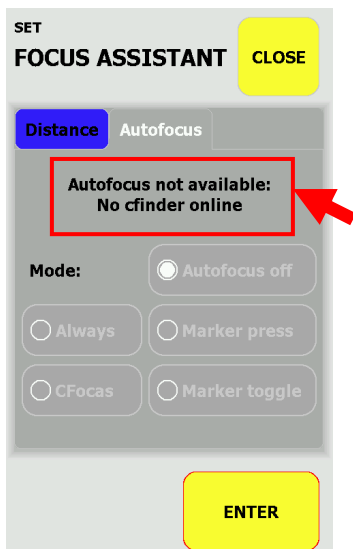
If you do not require distance limits in the Autofocus mode, set distance limit near to "0" and distance limit far to "infinity".

4.2.4 Autofocus mode

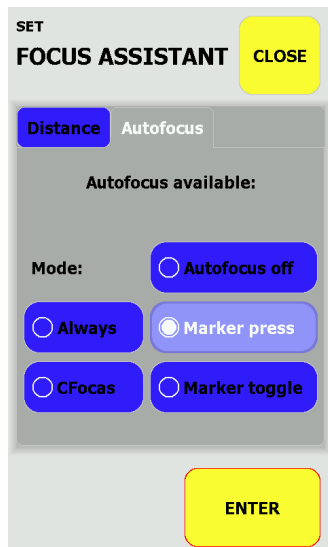
In the Autofocus mode, the focus motor will follow the measured distance value. You must make sure you have the correct lens uploaded on the *cdisplay II*. The Autofocus mode can be activated using various methods.

1. Select the [Autofocus] tab

If the Autofocus can not be activated, this can be for the following reasons:



Auto-focus state	Autofocus available	Ok
	Offline	Check the connection of the <i>cdisplay II</i> Turn the FOCUS ASSISTANT window off and on again
	Deactivated	Contact cmotion to obtain a credit file for <i>cfocas</i>
	Lens calibration necessary	Calibrate the motor. Press the CAL button on any hand unit
	No lens loaded on <i>camin</i>	Turn the <i>cdisplay II</i> off and on again
	A different lens loaded on <i>camin</i>	Load the correct lens, or turn off a second <i>cdisplay II</i> if applicable.
	No <i>cfinder</i> online	Check the status of the <i>cfinder</i>
	No focus motor connected	Connect a focus lens motor



If the Autofocus is available you can select one of the following Autofocus modes

- Autofocus off
- Always
- Marker press
- cfocas
- Marker toggle

4.2.4.1 Autofocus off

The Autofocus mode will be turned off.

4.2.4.2 Always

In this mode the Autofocus will operate as long as the system is running.

4.2.4.3 CFocas

Reserved for later use

4.2.4.4 Marker Press

In this mode the Autofocus will operate as long as you are holding down the MARKER Button on the *coperate*.

4.2.4.5 Marker Toggle

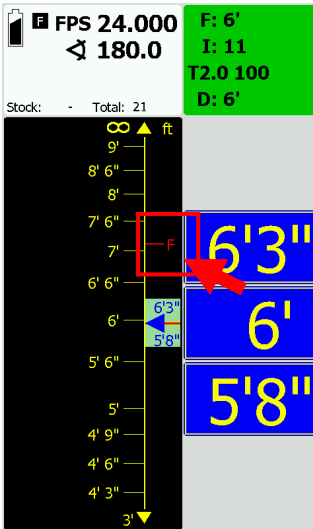
In this mode the Autofocus will be activated when the MARKER Button on the *coperate* is pressed. To deactivate Autofocus, press the MARKER Button again.



4.2.4.6 Focus Set-point information

If the Autofocus mode is activated, the focus motor follows the measurement value of the *cfinder*.

The Focus Set-point information is indicated on the focus main screen. The Set-point information is the actual position of Knob or Slider on the *coperate*.



On the *coperate* however, the difference between the *cfinder*'s Autofocus distance and the actual position of the Knob is indicated by 5 leds. The illuminated leds will change colour to show changes in the measured distance or any adjustments made to the Knob. Only when the position of the Knob is equivalent to the Autofocus measurement value, will the middle LED on the *coperate* illuminate green.

4.2.5 Additional features of *cfocas*

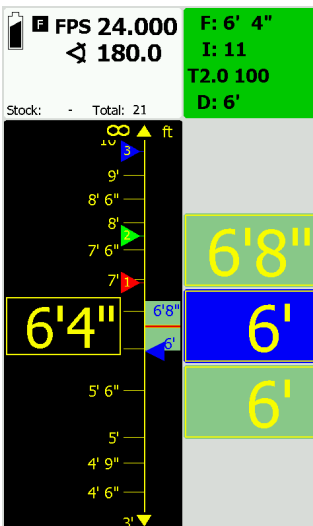
4.2.5.1 Set Markers

If the Autofocus function is deactivated, Focus markers can be set on the *cfocas* main screen.

1. Push the MARKER button (on the *coperate*) once. A red numbered marker will appear on the focus scale to display your current focal position.

Note: If the Auto-Focus Function is activate and "Marker press" or "Marker toggle" has been selected, it is not possible to set markers in this way.

2. You can change the colour of the marker by pressing the MARKER button twice, three times or more. The available colors are red, green and blue.



- To change the colour at a later time, you can move the lens scale to your selected marker position and then press the MARKER to select the required colour.

To Delete Markers

- Go to the marker you would like to delete.
- Hold down the MARKER button for 1 second. To delete all markers, hold the MARKER button for 3 seconds.

OR

- Go to CFOCAS MENU (press MENU button)
- Select REMOVE ALL MARKERS

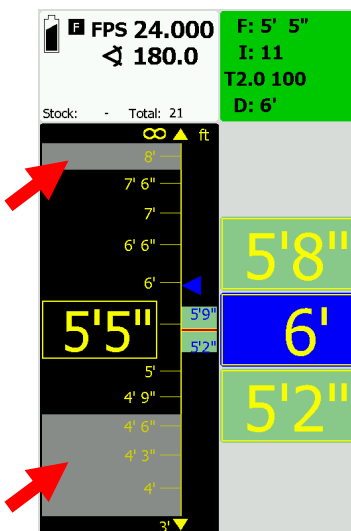
Note: This menu point will only appear if markers have been set.

4.2.5.2 Set Limits

You can set lens limits using the *operate*. These limits can be illustrated on the *cdisplay II*. The limit range will remain black, while the out of limit range will become grey.

Motor limits allow you to use the entire rotation of the knob to control only a portion of the engraved scale.

- Turn the Knob until the lens reaches on of your desired end values
- Push AND hold the Knob LENS Button
- While holding the LENS Button, turn the Knob until the second value is reached
- Release the LENS Button. The limits are now programmed



4.2.6 cfocus Menu

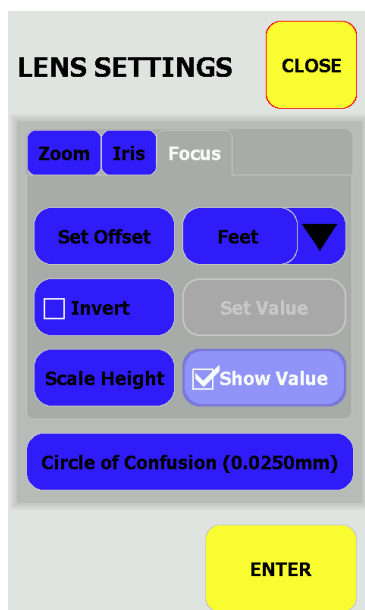
All touchscreen functions can be performed via the menu.

The *cfocus* menu only appears on the *cdisplay II* Main Menu when *cfocus* is currently running.



1. Press the MENU button, select CFOCAS MENU and press ENTER
2. The following options will appear:
 - LENS SETTINGS
 - WRITE TO TRANSPONDER
 - SET FOCUS ASSISTANT

4.2.6.1 LENS SETTINGS



The display settings of the active lens can be changed to suit the operator's preferences.

In the LENS SETTINGS dialogue the following options are possible:

- Set offset

If the animated lens value at the screen does not match the true value of the engraved lens, it is possible to set a digital offset in the scale.
- Meter / Feet selector

Changing Focus value between Feet and Meter
- Invert

If the animated lens movement represents the exact opposite to the actual lens movement (e.g. close focus on the lens = Infinity on the *cdisplay II*), the operator can invert the scale.
- Set Value

The operator can set a scale value for each lens axis that is not being controlled by a motor. This data is then used to calculate and display the correct animated depth of field on the *cdisplay II* graph.

- Scale Height
The operator can adjust the height of each animated lens scale.
- Show value
The current value of the focus lens axis can be displayed in a yellow frame in the middle of the scale. This information can be switched on and off.
- Circle of confusion
The software makes it possible for an operator to input their own 'Circle of Confusion' calculation value.

For further details about the LENS SETTINGS window please refer to *cdisplay II* user manual.

4.2.6.2 WRITE TO TRANSPONDER

Select WRITE TO TRANSPONDER if you want to write the lens data to the *ctag* transponder.

1. Select WRITE TO TRANSPONDER and press the ENTER button
2. The following warning message is displayed:
"All data on the *ctag* will be overwritten, if you copy the actual lens data to the transponder. Do you really want this?"
3. Select [YES] to continue. Select [NO] to cancel the writing process.
4. If you have selected [YES], you can start copying the data within the next 5 seconds by selecting the READER button. If you do not start the copying process, the program returns to the *cfocas* main screen. The READER button is located on the front of the *cdisplay II* and identified by a "stop" symbol.
5. Hold the *ctag* transponder near to the reader at the back side of the *cdisplay II*.





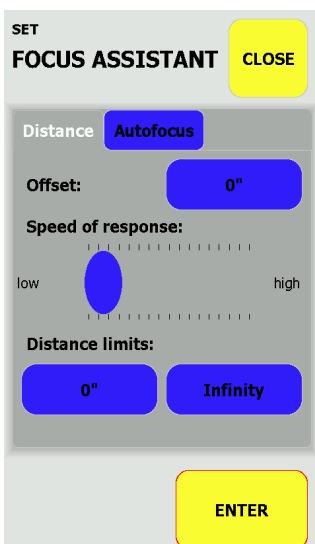
6. Select the READER button to save the data to the *ctag* transponder.

If the writing process was successfully completed, the program will return to the *cfocas* main screen. All the lens data will now be stored on the *ctag* transponder.

Note: For reading and writing to *ctags*, the *cdisplay II.ext.* is necessary.

The system might issue the following warnings and messages:

Warnings/Messages	Problem/Cause	Solution
Initializing...	The Reader is being initialized.	
Searching for Transponder	The system searches for a <i>ctag</i> transponder.	The maximum distance between <i>ctag</i> and Reader cover should be 1 cm.
Transponder found - Hold button	A <i>ctag</i> was found. Data is being copied.	
Transponder Writing Complete	The data copying process was completed successfully.	
No Transponder found	In the search process, no transponder was found.	The maximum distance between <i>ctag</i> and Reader cover should be 1 cm.
Invalid Transponder	The transponder is corrupt or the transponder type is not supported. .	Check the process with a new <i>ctag</i>
Writing Error	An error occurred during the data copying process.	The data copying process must be started again.
Missing Reader	No reader is built into the <i>cdisplay II.</i>	Contact <i>cmotion</i> for further information.



4.2.6.3 SET FOCUS ASSISTANT

The SET FOCUS ASSISTANT button opens the SET FOCUS ASSISTANT window.

4.2.7 Function of the Buttons

4.2.7.1 MENU Button



The MENU button opens the menu structure of the *cdisplay II*. Please see chapter 4.2.6 for the *cfocas* menu or the user manual of the *cdisplay II*.

4.2.7.2 INFO Button

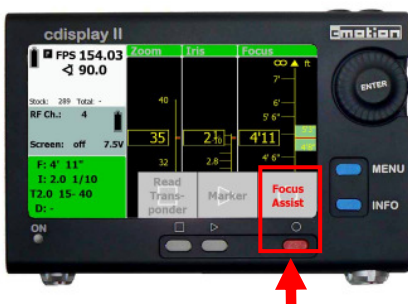


The INFO button shows you the current functions of the STOP, PLAY and RECORD buttons in a pop-up window. These functions are different depending on what program you are currently using.



Note: If you press and hold the INFO button for at least one second, the *cdisplay II* SETTINGS menu will open.

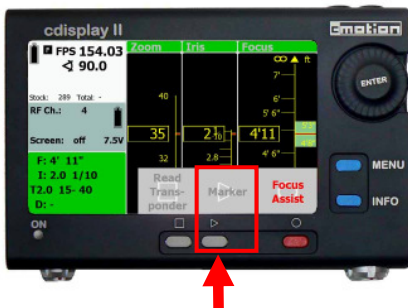
4.2.7.3 RECORD Button



The RECORD button opens the SET FOCUS ASSISTANT window.

4.2.7.4 PLAY Button

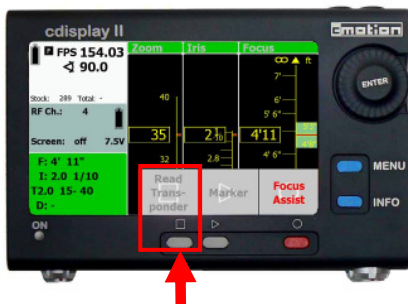
The PLAY button will place a Marker on the focus scale in the same way as the MARKER button on the *coperte*.



4.2.7.5 STOP Button

The [STOP] button activates the internal transponder for reading *ctag* lens data.

ctags are *cmotion*'s intelligent memory chips used for saving lens data. Once the lens data has been saved, the *ctag* will remain with its paired lens. Whenever that lens is used with a different *cdisplay II* without that specific lens data, it can be read from the *ctag* and uploaded within seconds.



1. Hold the *ctag* on the back of the *cdisplay II* in the centre of the back cover.
2. Press and hold the [STOP] button. The following message will appear. 'Transponder Found'.
3. Once reading is complete, this message will appear. 'Transponder reading complete'.
4. Release the [STOP] button and the new lens data will load directly into the *clensinfo* program.

Note: For reading and writing to *ctags*, the *cdisplay II.ext.* is necessary.

Notes :