Chrosziel
...for optical excellence

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Chrosziel Qinematiq Smart Ranger 2 Product description and overview

Describe the product:
Smart Ranger 2 is a dual distance measurement tool – an All-in-One system for the film set. It merges two kind of receivers in one single housing: one for traditional ultrasonic and one for latest state-of-the-art transponders. It provides effortless distance measurements for up to three subjects regardless if they are moving or out-of-sight or the camera is moving. The resulting distance values are made available to the focus puller via the display of the Base unit.

Smart Ranger 2 is based on two different technologies. As a traditional ultrasonic measuring instrument, it measures the distance to a subject in front of the camera by ultrasonic signal. It is considerably smaller than the traditional tools. Additionally, the smart instrument is a base unit for two mobile radio reflectors (i.e. Tag, transponder). The Tag is fixed to a subject or positioned in the working area, while the base unit is mounted in front of the camera. Distance measurement between subject and film plane is performed automatically and independently.

Distance measurement has never been easier: Place the base unit and the Tag as desired. Turn on the system. View the measurement data on the display. That's it. No settings necessary.

Tag your distance
The advantage over previous measuring tools is obvious. While traditional ultrasonic tools provide good measurement results for subjects up to a distance of 13.2 ft. (4 m), for further distances the alignment with subjects becomes more difficult and reliable distance determination of actors over a distance of 19.7 ft. (6 m) is almost impossible. In contrast, the Tag can easily capture subjects that are far in distance to the camera, even when subjects are moving. Additionally, glass panes, walls of leaves or clothes are no barriers for the Tag. This applies even when the actor is walking around the corner: the subject is already measured before it comes into sight.

For measurements up to 262.5 ft. (80 m) the tool can even replace a laser measurement system. Focusing on a person or a vehicle such as a motorcycle from 164.1 ft. (50 m) until now has been difficult and in case of moving objects even impossible. Now the Tag provides the measurements, no matter how the subject is moving.

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Easy measurement
The very small and lightweight base unit is fixed in front of film cameras. A corresponding distance offset value to the film plane value can be entered. The base unit is powered by the film camera battery. After both base unit and Tag have been switched on, the distance is shown immediately and automatically.

Smart Ranger 2 allows the simultaneous measuring based on an ultrasonic signal and measures distances to two radio Tags. All three measurement results are shown on a 2.4" TFT display of the base unit. The measurement value for focusing can easily be determined in a handover feature from Tag measurement to the ultrasonic measurement: If in close range the eyes of an actor shall be in focus, the face of the actor/actress is captured by ultrasonic measurement; if the actor/actress moves away from the camera it is possible to automatically switch the Tag measurement at a certain distance (e.g. 4 m). Tags can be worn by the actor or be fixed to an object. The hand over feature between ultrasonic and Tag is fluent without disturbances. The distance for the handover is adjustable.

Of course, Smart Ranger 2 also allows using only ultrasonic signals or only the Tag system for distance measurement. It is also possible to switch between both Tags. The focus puller maintains an overview of all the distances on the film set, in particular when dealing with moving subjects or a moving camera.

All three distances are displayed on a display; all this makes the – often difficult – handling of focus adjustments for a moving camera and/or moving subject much easier. The marking or measuring of reference markers becomes redundant, and this saves time and money. Smart Ranger 2 serves as a distance reference system, in particular for sequences involving movement.

Robust distance measurement
Base unit and Tag are connected via a highly robust radio connection. With Smart Ranger 2, measurements can be performed inside and outside of buildings. The transponder can be attached to the human body. The transmission power of the system is many times smaller than those of a mobile phone, wireless lens control system or wireless video link. The Smart Ranger 2 works in parallel to these radio systems. They are not impacted or disturbed and do in turn neither impact nor disturb the distance measurement. Besides, the Smart Ranger 2 uses a special radio technology that results in a low susceptibility to failure. Measuring through glass or plastic panes, wooden walls, tree leaves or clothing is not a challenge.

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Read-out on common wireless FIZ
In order to connect a lens control system (LCS) the base station uses an industry standard Lemo 6-Pin serial interface. This makes it possible to display the distance value on the LCS hand unit. This option is available for all lens control systems supporting the ultrasonic measurement systems Cinetape or ARRI UDM, like systems by ARRI, Chrosziel, cmotion, or Preston. Additionally, two Lemo 4-Pin CAN bus interfaces are available for linking the system. The Chrosziel MagNum wireless FIZ even goes beyond and assimilates not only one ultrasonic measured distance value but displays all four values including the two Tags and the combined value between the ultrasonic device and the Tags.

The art of autofocus assist
Overall, the measuring speed and accuracy of the Smart Ranger 2 base unit and Tags makes the system predisposed for the use as an autofocus assist system. The Smart Ranger 2 provides measurement speed and accuracy of 60 ms /+-0.4” (1 cm) to +-0.8” (2 cm) in ultrasonic mode and 80 ms /+-5.9” (15 cm) for the Tags in radio mode. Manifesting the Smart Ranger 2 one of a kind, the base unit inherits programmable lens tables to store the lens meta data and corresponding motor position. Based on the lens tables, corresponding motor positions for all 4 distance values are computed and constantly transmitted to serial CANBUS motors or wireless FIZ systems.

The integration with the Chrosziel MagNum even raises the new standard further by the use of the four customizable user keys of the MagNum hand unit. The keys allow the focus puller to manually activate and de-activate focus follow for each individual motor position giving the operator an autofocus on hand. With the press of the button, the motor follows the distance value, thus controlling the focus automatically. At any time the focus operator can manually take over or switch to the other distance read-outs.

The future
With the increasing challenge of focus pulling due to 4K, 8K and beyond shooting with largest sensor sizes, focus pullers need advanced focus assisting tools to manage the narrow depth of field. The Smart Ranger 2 inherits all needs in one, it is a lightweight device with the features of ultrasonic measurement, Tag radio measurement, the calculation of a combined value, displaying the values, and computing and broadcasting the motor positions based on lens tables. It allows returning to the craft of focus pulling while focusing on the art of sharpness and softness without worrying about technology limitations.