

FOCUSBUG TECHNOLOGIES NEWSLETTER - No.2

cine/RT

ULTRASONIC RANGER/TRACKER

THE SUMMER ISSUE...



THE UPDATE UPDATE

YOU SPOKE, WE LISTENED!

Over the last few months, between building, calibrating and shipping orders, we have had an ear out for your feedback. As more users have joined the Cine RT family, the diversity of how the system is used has grown and your collective insight has allowed us to dive back into the firmware to refine and enhance both what is already there, and to add a few new goodies. We anticipate making all the new amendments and additions available in one big update in late July.

PLAY THE FIELD(S)

While retaining our default rangefinder (approx. 14 degree) field of view, we have re-worked WIDE FIELD into to a superior tool - If you can imagine an optimized Cinetape field of view, one that reaches to up to 40', then you have a pretty good idea of what you are in for! Additionally a brand new third option called X-WIDE FIELD literally expands that WIDE FIELD concept and offers a you an even broader net to catch subjects up close when using wide lenses and/or aspect ratios.



Fine FPO, Lock & Store

FINE-TUNE YOUR FPO, LOCK IT, BANK IT

For those wanting finer control over setting their offset, you will now be able to adjust FPOs by quarter inches or half centimetres. Lock your FPO setting remotely from the HANDSET to avoid accidental changes (while handling the BASE), and, to speed set up, store your chosen FPOs in a BANK from which you can select pre-established FPO values for camera builds with known offset distances.

ACCESS YOUR REMOTE DISPLAY SETTINGS, REMOTELY

Never touch the physical button on the HIGH-BRIGHT again (except to turn it on/off, adjust brightness or monitor battery level)! If you need to adjust internal settings you will now be able to do so in comfort and style, remotely from the HANDSET.



New Wide & X-Wide Field

NAME THAT BUG

Input names for your BUGs to help keep track of who you are tracking! The names adhere to the designated BUG and appear in BUG VIEW and DUAL VIEW. Play nice!

HEIGHTEN YOUR CINE-TAP SURVEILLANCE

To further protect against the evils of crosstalk, CINE-TAP MODE now eavesdrops even harder on your neighbouring Cinetape's ultrasonic conversations - in order to ignore them even more than before!

GENERAL HOUSE-KEEPING AND FORWARD COMPATIBILITY

In addition to these new functions we are also optimizing the existing firmware functionality and adding some architecture to help with the implementation of future system components such as the Cine PT Remote Pan & Tilt Unit and the Cine LR Laser Rangefinder add-on.



BUG Names

THE ISSUE OF THE ISSUE...

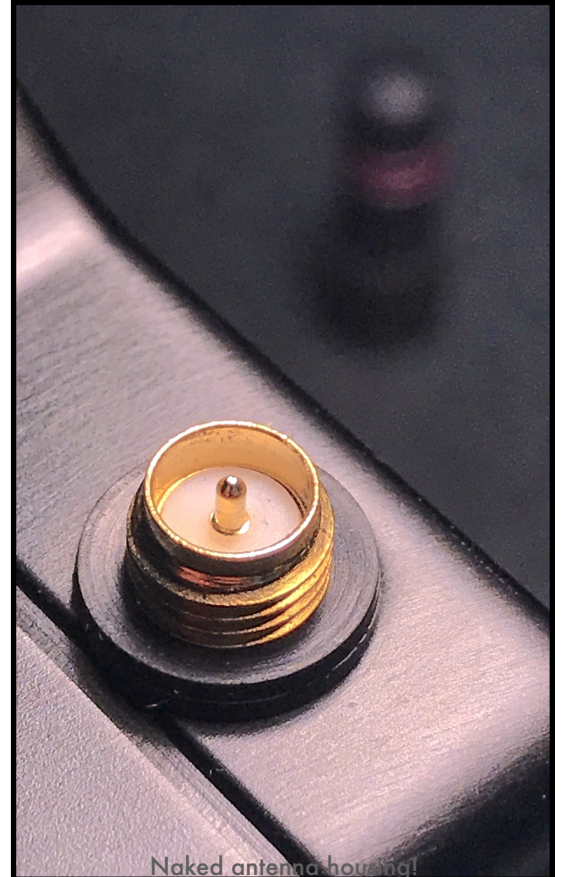
LEAVE THE ANTENNAE ON!

As more Cine RT units have come into use we have discovered that a very small handful of HANDSET, HIGH-BRIGHT or BASE UNITS have experienced some range loss and/or connectivity issues. We initially addressed the issue by immediately replacing these units under warranty and launching an investigation.

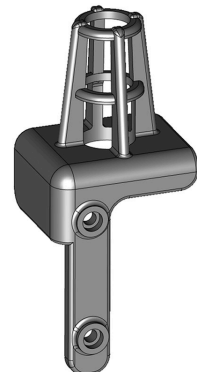
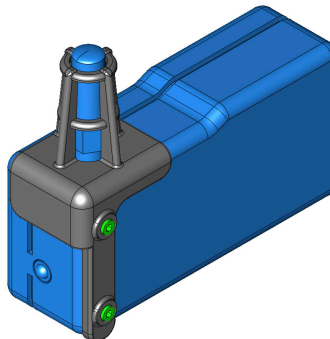
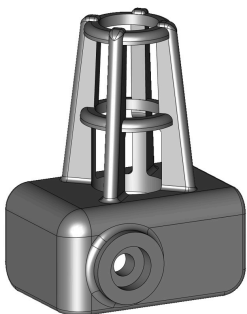
The resulting exhaustive EMC tests revealed that, if not covered, the centre pin of the antenna connector can be susceptible to static shock damage. If a user has built up a static charge on their body and happens to touch that centre antenna pin (before the shock is otherwise discharged), damage to the RF power amplifier can occur, resulting in reduced RF range and dropouts. The event was not found to occur except in instances where there was direct contact with the pin

Although a very unlikely event, a few factors likely increased the potential for contact; one of which was the way we originally packed the kits, positioning the components in such a way that increased the chance of users touching the bare connectors when they removed or replaced the units in the case.

We have worked with the manufacturer of the system's RF module to reverse how the module couples with the antenna. The resulting hardware has been implemented to new systems and a mod for existing owners will be covered by warranty and can be done at your convenience, when your system requires maintenance or when you want to take advantage of a firmware update. In the meantime, **please avoid handling or operating the components without antennae on.** Keeping the antennae attached will ensure that no static damage can occur.



While on the subject of antennae, if you want to protect yours, UK 1st AC Lewis Hume and Camera Operator Paul Edward's company Gizmo 3 D Printing offers an inexpensive, high quality light weight protector cage for the BASE, HIGH-BRIGHT and HANDSET. For details please check out their site at www.gizmo3dprinting.co.uk



FIELD NOTES

TRIALS BY FIRE

We recently conducted tests with the Cine RT to see the overall effect of smoke on the system. We found that the system coped well with studio smoke and general smoky conditions, however, we discovered that smoke combined with heat can present some challenges. If there is an intense heat source between your Cine RT and your subject, the rising hot air can create a temperature differential "wall" which does not allow all of the ultrasonic pulse to pass through. This effectively means that some of your pulses are bounced back, giving you distance readings to the heat source and not your subject. Jon offers this more scientific analysis:

"Sound is partially reflected whenever it encounters a boundary between two substances of different density. Usually this boundary is quite obvious i.e: the boundary between air and a brick wall. The flame bar, fire etc.. causes a fairly distinct layer of hot (less dense) air right above the heat source. This results in a boundary between the regular temperature air (more dense) and the hot air (less dense). Some of the outgoing ultrasound is reflected back to the unit from this boundary and causes it to register a "hit". Think of the hot air barrier as an invisible, partially reflective wall."



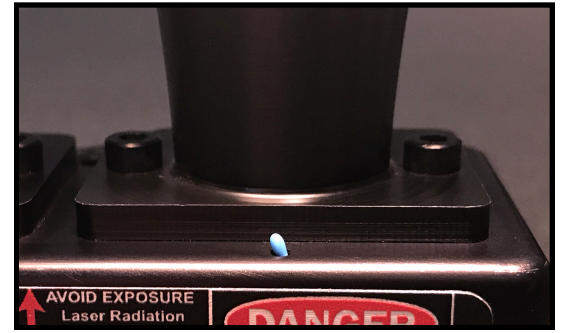
It turns out we can help the issue a bit by setting LIMITS or LOCKOUTS to the heat source and lowering sensitivity to avoid those reflections, but a fair amount of the sound energy is lost in those reflections, unavoidably reducing the range/performance of the unit. Unfortunately, this phenomenon is related to the basic physics of sound, not to a specific attribute of our system. The Cinetape performs the exact same way when in the same situation. When we release the Cine LR laser rangefinder system add-on it will help in such situations...

BLAME IT ON THE...

Working on the west coast of Canada we encounter a fairly large range of weather conditions and we've noticed that as the air temperature and humidity changes, so can the effective range of the Cine RT. Ultrasound travels a bit better in colder and dryer conditions, offering slightly greater range than in hot and humid conditions. It seems that the very far end of Cine RT range can be subtly reduced as the weather gets hotter and the moisture in the air increases - again, not an attribute of our system, but a physical product of air pressure and humidity.

WEATHER REPORTING

While we are on the subject of air temperature, we just wanted to advise users that the little blue thing under the right horn of the BASE UNIT is indeed supposed to be there. It is not a loose wire or a fugitive glue glob, but rather the system's thermometer diode, which lets the BASE know the ambient air temperature so it can adjust it's speed of sound calculations accordingly. By doing so, the Cine RT does not physically have to align with the air temperature to be accurate, it's routine samples allow the job to be done digitally.



Cine RT thermometer diode

SENSOR VRS SENSOR

While demoing the Cine RT at Panavision Woodland Hills and Sim International LA we discovered that some conditions are less than ideal... That is not to say that we met with a lack of hospitality or poor turnouts, on the contrary - the issue was that both buildings happened to have operating Ultrasonic Occupancy Sensors.



Wall detector

These sensors appear as wall or ceiling units and are used to detect the presence (or absence) of occupants in a given space. They are great for power conservation by turning on or off lights, however, they wreak havoc on certain small ultrasonic rangefinder/tracking systems.

When we turned on the Cine RT it was instantly affected by the existing ultrasonic pulses in the air, resulting in a stream of random readings. Attempting to use the Cine RT in such conditions would be like asking a DP to light a night scene in total daylight. Although this type of occupancy sensor appears to be a fairly rare in most buildings, a few assistants have encountered it... Consider yourself warned!



Ceiling detector

SENSITIVE DISPOSITIONS

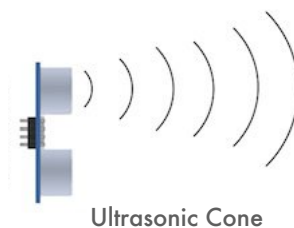
We have had many people ask us about what situations might merit changing the Cine RT's rangefinder SENSITIVITY. There is no hard rule about when to use it, however, it is important to understand that the default baseline of "50" was established as per the majority of our field tests using humans as targets - that is, we calibrated the Cine RT to pick up people, which are generally "soft" targets of a certain physical size.

In the last newsletter we touched on how the Cine RT scales it's ultrasonic volume to target distance. That scaling effect, however, is only one factor in how the system interacts with your target. To fully appreciate your distance readings is to understand that at any given distance there is a play between how loud the system is and with what degree of sensitivity it is listening to it's pulses. To use the creation of the aforementioned new WIDE FIELD modes as an example, we used lower volume outputs and adjusted sensitivity to human targets at closer distances in order to cast a larger net for wider lens work. It is through this fine tuning that the Cine RT has been honed to the human signature, a far cry from simply pumping sensitivity.

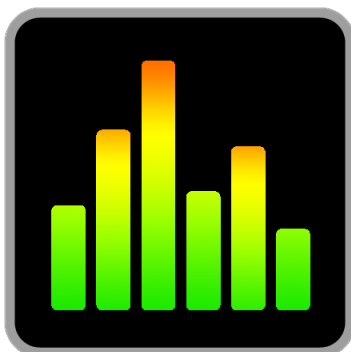
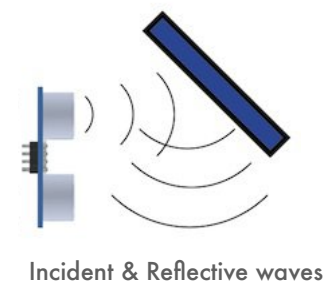
That said, the bottom line is that, despite all our optimizations, we are working with sound, which will will behave differently under a variety of conditions; from the air temperature the sound waves travel in, to how the waves react to the kind of surfaces they come in contact with. So, although for human targets you may not normally need to adjust SENSITIVITY, here are some situations (based on user feedback) where you may want to make some adjustments:

FOCUS CHARTS: Charts often have lighting apparatus in close proximity above them. Considering that the "cone" of sound emanating from the Cine RT grows vertically as well as horizontally as it moves away from the BASE UNIT, you may want to DECREASE THE SENSITIVITY to avoid catching the lighting above.

(Please note: It is also important to ensure the chart is perpendicular to your camera. If the chart is not at 90 degrees to your lens, you will likely read the uneven leading edge.)



REFLECTIVE SURFACES: Walls, mirrors, windows, metal, etc. Many surfaces you encounter are not soft human targets. Sometimes, when the Cine RT is pointed at an angle towards a reflective surface (or straight on at an angled reflective surface) you will get what appear to be random readings. This is because the sound reflects off that surface and instead of reflecting back to the BASE UNIT, is bounced to next readable target. To avoid bypassing the target in question, you may want to INCREASE THE SENSITIVITY to give the surface a chance to be detected.



SEE WHAT YOU CAN'T HEAR

If you are curious as to what the Cine RT is reading or not reading, the SONIC ANALYZER located in the LIMITS or LOCKOUT menus can show you what is being heard and what is not. It is very rare for the system to give a reading of something that doesn't physically exist, unless of course it a byproduct of ultrasonic interference from another ultrasonic device or ambient frequency. The SONIC ANALYZER will provide an active graphic representation of the degree to which objects are reflecting your pulses. In the case of the reflective surface issue illustrated above, you could visually ascertain what, if anything, the surface in question is reflecting off of and adjust SENSITIVITY to see if you can make a difference.

DISPATCHES FROM FOCUSBUG HQ

CURRENT EVENTS

The LA Cine Gear Expo 2018 was a resounding success! We received a considerable amount of interest and some praise from a number of equipment manufacturing leaders, including an invitation from Red Cinema to display the Cine RT at their booth!

In September we will head to Europe to demo the system in a number of major centres, with a focus on Cinec in Munich. The fall will see us attend Cine Gear Atlanta in October and a visit to New York thereafter. If you think there might be interest for demos in your city let us know!



PARTNERS IN CRIME

We are happy to announce that a reseller relationship with HOT ROD CAMERA in Los Angeles is in the works. Hot Rod has a technical department with whom we hope to work with to offer technical support, servicing and firmware updates. A formal announcement will be coming come soon! In the meantime please check out Hot Rod at hotrodcameras.com and/or see Illya Friedman speak about his operation at <https://vimeo.com/275658431>

We are also excited to introduce Paris based 1st Assistant Arthur Chassaing who will be representing Focusbug Technologies in France. Arthur's Moodji Film Company will, in addition to sales, offer technical support and firmware updates to locally based Cine RT System owners. Arthur can be reached at: moodjifilm@gmail.com

USER DIY INGENUITY

As owners continue to find mounting solutions for their Cine RT Systems, some are making their inventions available to others. Aurel Wanderer came up with this unique UBS-100 mount which couples with Arri motors to provide a pan option. If interested please email Aurel at: mail@aurelwunderer.com



In addition to their antenna cage protectors Lewis and Paul have been busy cooking up several 3D printed Cine RT mounting options for the Preston HU3, Arri WCU4 and beyond: www.gizmo3dprinting.co.uk

GO AHEAD AND BUG US!

Should you have any questions or concerns please contact Laird at sales@focusbug.com or Jon at support@focusbug.com. Laird can be called or texted at (011) 1-604-537-7137.

Located in Vancouver, Canada, we are usually available during Pacific Standard Time business hours (and often more).

If you are located in the UK or Europe feel free to contact Donna Robins at The Panastore, our official reseller located at Panavision London donna.robins@panavision.co.uk