BRINGING TVI, CVI, & AHD CAMERAS INTO FOCUS

By: Don McClatchie

The High Definition camera movement has definitely arrived and it brings with it a whole new generation of technology and techniques for installers to learn about. The first HD cameras to find their way into the marketplace were all digital IP cameras, because those were the only cameras to offer High Definition delivery. However the price tag was a bit high for those cameras because of the licensing fees, and high speed semiconductors required to drive the signal at such high frequencies and bandwidth. The IP cameras also required a complete change in the cabling, installation methods and even programming IP addresses for the installers.

The second wave of this movement was the introduction of Analog High Definition cameras that were lower in price, did not require address programming and most importantly could use the existing Coaxial Cable to send the signal to the DVR. These HD-TVI (High Definition Video Transport Interface), HD-CVI (High Definition Composite Video Interface) and AHD (Analog High Definition) cameras are catching on for those reasons. The simplicity of installation makes these types of cameras the right choice when networking is not required.

Regardless of the video format of High Definition camera you choose to use, one issue still stands out as a problem for installers. Setting the maximum focus on a High Definition camera is much harder than it was when sharpness of picture was limited to Standard Definition. In the old days the installer would attach a tiny monitor to the output of the camera and adjust the focus ring by eye until they thought the picture looked good. Of course when you try to do this with an HD camera there is a dead band or area of the rotation of the focus ring that does not seem to change the picture focus sharpness. This is caused by the inability of the tiny monitor to display enough picture detail to let you see that change. So the installer adjusts the focus ring to the center of the dead band on the camera and hopes for the best. Using a large screen monitor out at the camera would work well but doing that is not very feasible, imagine trying to hold on to a big monitor while you are standing on a ladder.

The second way to focus a camera is to use the end of line (larger) monitor at the head end but this requires two installers and a radio or cell phone to talk to each other, one directs the other by describing when the camera is in focus while the other adjusts the camera to the maximum focus point. This is a more costly way (using two installers time) and it is frustrating because the time lag in the communication causes the installer to overshoot the Maximum focus point and so back and forth they go.

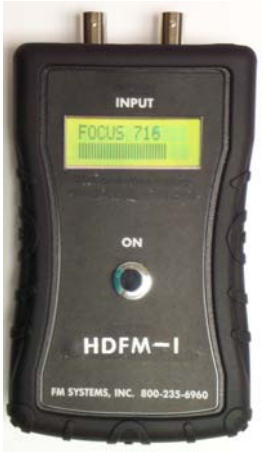
Tests have shown that despite the best efforts of the installation technicians most HD cameras are not set to the best focus or maximum focus point. The subjective nature of eyeball focus adjustment is just not accurate enough to match the HD camera image capability. Also if you have 10 installers set the focus ring of the same camera you will find the ring in ten slightly different positions, so which one is the maximum focus point?

So what is needed is some device to definitively measure the camera focus and report where the maximum focus point is when you are adjusting the HD camera. It should be light weight, portable and easy to take up a ladder. Since you would be connecting it to the camera via the coaxial cable you would be hands free to adjust the camera and hold onto the ladder at the same time.

As it happens there is such a device on the market today manufactured by FM SYSTEMS, INC. This camera focus meter is called the HDFM-1 High Definition Focus Meter. The HDFM-1 is a handheld camera focus meter you can use to set the maximum focus of any TVI, CVI High Definition cameras and any analog cameras without the need for a monitor or the subjective nature of "eyeballing" the cameras image on a small screen. Trying to see the maximum focus point of a High Definition image on a small test monitor in full sun light is all but impossible and leads to many cameras being set to less than the maximum focus point. This meter works by measuring the amount of information in the video frame as it varies with the focus adjustment. As you adjust the camera focus to make a sharper image, the information in the scene increases and so does the numeric reading on the meter. To get the maximum focus on any camera the installer connects the meter to the output of the camera and adjusts the focus ring on the camera for a maximum reading on the meter to get the maximum High Definition advantage from every camera you install. All scenes will have a different number because the information in the scene is different, but the maximum reading on the meter will always be the maximum focus point for the camera. The two line LCD displays the focus reading with a 36 point Bar Graph for course adjustment and a numeric display for the fine adjustment.

This meter will also identify the video format and number of lines of definition of any TVI, CVI, AHD or analog video signal. When connected to a video signal it first identifies the format and Lines of definition of the video signal and briefly displays that information on the LCD display, then it goes into focus mode so you can set the maximum focus on the camera. The ability to measure the video format and lines of definition can help you identify and verify any unfamiliar camera you come across in your work. With the multi-format cameras and DVRs available today it is easy to identify the output they are set to which could save you a lot of time troubleshooting miss-matched video formats on the job. It will measure the format of video signals like HD-TVI, HD-CVI, AHD, CVBS, YPbPr, RGB, and any composite analog video signal.

The HDFM-1 has a comfort grip hand-held case made of flame retardant ABS plastic with a flame rating of 94-5VA. A battery compartment door allows easy access to the 9-Volt battery that powers the device. The meter comes with an impact resistant rubber boot to protect it during daily use. This meter uses a "battery check" system to monitor the battery condition and the LCD display lets you know when the battery is low and when it’s time to replace the battery.



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