



# SightLine

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APPLICATIONS

## EAN-False Color

PN: EAN-False-Color

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The following notifications are used throughout the document to help identify important safety and setup information to the user:

 **CAUTION:** Alerts to a potential hazard that may result in personal injury, or an unsafe practice that causes damage to the equipment if not avoided.

 **IMPORTANT:** Identifies crucial information that is important to setup and configuration procedures.

 *Used to emphasize points or reminds the user of something. Supplementary information that aids in the use or understanding of the equipment or subject that is not critical to system use.*



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## 1 Overview

Using false color during video processing can help visually interpret and analyze video data in different ways. With thermal imager (radiometric) hot objects are red, cold objects are blue, etc. Applying false color to grayscale video, such as from a thermal camera, can help users differentiate between similar objects of different temperature more easily.

### 1.1 Associated Documents

[EAN-Startup Guide 1500-OEM](#): Describes steps for connecting, configuring, and testing the 1500-OEM video processing board on the 1500-AB accessory board.

[EAN-Startup Guide 3000-OEM](#): Describes steps for connecting, configuring, and testing the 3000-OEM video processing board on the 3000-IO interface board.

[Interface Command and Control \(IDD\)](#): Describes the native communications protocol used by the SightLine Applications product line. The IDD is also available as a local download on the [Software Download](#) page.

Panel Plus User Guide: A complete overview of settings and dialog windows in Panel Plus. Located in The Help menu of the Panel Plus application.

### 1.2 SightLine Software Requirements

**ⓘ IMPORTANT:** The Panel Plus software version should match the firmware version running on the board.

### 1.3 Application Bit Requirements

The functions described in this EAN require Application Bits (app bits) purchased from SightLine. App bits reside on the hardware unit and are enabled with a license file provided by SightLine at initial unit purchase or during a license upgrade process. License files use a hardware ID that is applicable to a specific hardware serial number. For questions and upgrade support contact [SightLine Sales](#).

**Table 1: Application Bits Requirement Table**

| Function    | Minimum Software Version | Required Application Bit(s) |
|-------------|--------------------------|-----------------------------|
| False Color | ALL                      | Enhancement. 0x0000         |


**Note:** *False color is part of SightLine's foundation software available on any licensed board.*



## 2 False Color Guidelines

The value of false color added to thermal imagery can be subjective in certain scene situations. It is helpful to have two to three options that work best in most user case thermal imaging scenarios.

Find color patterns that allow objects of interest to be easily discerned using color.

 This will require some experimentation with different colors and imagery.

False color can also be used in Electro-Optical (EO) imaging for detecting over exposure (saturation). For example, using the user defined color palette, a pattern can be defined that turns red with pixel values at 90% of the full saturation ( $255 * 0.90 = 229$ ) allowing some flexibility to handle events that might be too bright or too dark.



Figure 1: False Color Image Example

### 2.1 Frequently Used Modes

|                           |   |
|---------------------------|---|
| White Hot / Black hot:    | Imagery produced by a thermal camera where white is hot and black is cold or white is cold and black is hot.                |
| Iron256:                  | Black is cold, violet and blue are warmer, progressing to reds and yellows, white being the hottest.                        |
| Ice / Fire:               | Used to detect saturation points at either end of the intensity scale. 0 = blue = very cold things, 255 = red = hot things. |
| Jet/HotHSV/470CLR/Color1: | Provide a continuous spectrum of color.   |

## 3 Related SightLine Commands

|   |  |
|---|--|
| Set Display Parameters (0x16):                  | Allows user to choose 1 of many predefined false color palettes.                 |
| Set User Palette (0x72):                        | Allow users to define their own Y, U, V values for a custom false color palette. |
| Set Moving Target Indication Parameters (0x2D): | Histogram detection (temperature) for moving targets.                            |
| Tracking Box Pixel Stats (0x78):                | Periodic report of pixel statistics within track boxes.                          |
| Set Video Enhancement Parameters (0x21):        | Different techniques to improve the contrast and defined edges in the video.     |



## 4 False Color Palettes

The *False Color* palette pull down menu (Figure 2), can be accessed from the *Video* tab in Panel Plus. From this menu various color palettes can be selected. An example of each color palette is shown below.

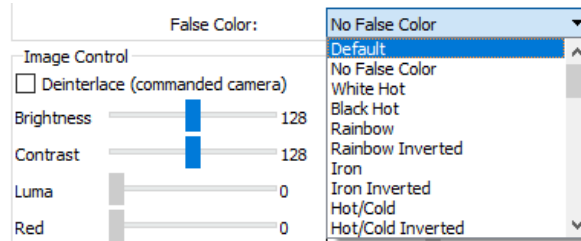


Figure 2: False Color Palette Menu

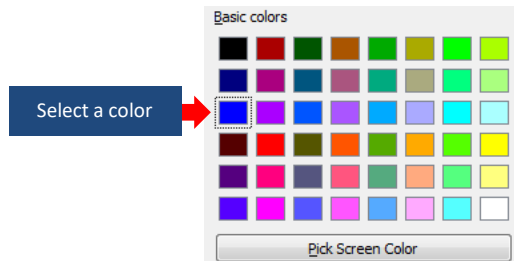
| Palette Description | Palette Color Range |
|---------------------|---------------------|
| White Hot           |                     |
| Black Hot           |                     |
| Rainbow             |                     |
| IRON                |                     |
| Hot/Cold            |                     |
| Jet                 |                     |
| Hot & HSV           |                     |
| 470CLR_S & Color 2  |                     |
| Color 1             |                     |
| Color 3 & IDDef     |                     |
| HotIron             |                     |
| IceFire             |                     |
| Iron256             |                     |
| Rain256             |                     |
| Xvolcano            |                     |
| Red                 |                     |
| Green               |                     |
| Blue                |                     |



#### 4.1 Custom Color User Palette


To create a custom false color palette:

1. From the main menu in Panel Plus go to *Configure » User Palette*.
2. Select a color. (Blue is used in this example.)

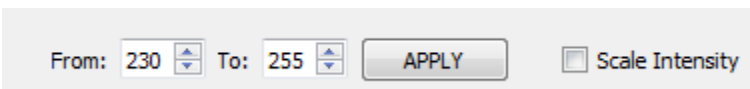


3. Set a range of grayscale values. (For this example, 0 to 40 is used). Click *Apply*. The updated color scheme is shown in the *Current Palette* window.

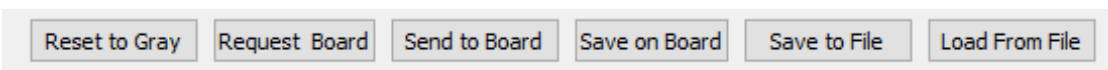


 New colors can be set anywhere along the grayscale using the grayscale values from 0 to 255 (max). 0 starts the new color at the darker side of the grayscale. In this example the blue color has a gray scale value of 0 to 40.

4. Select another color (red is used in this example). Set the grayscale value to 230 to 255. This puts the color at the lighter end on the grayscale color range. Click *Apply*.



5. If no other adjustments are needed, click *Send to Board* to upload the new user palette. To start over click *Reset to Gray*.





6. To view the custom user palette applied to the video image, select *User Palette* in the *False Color* menu.

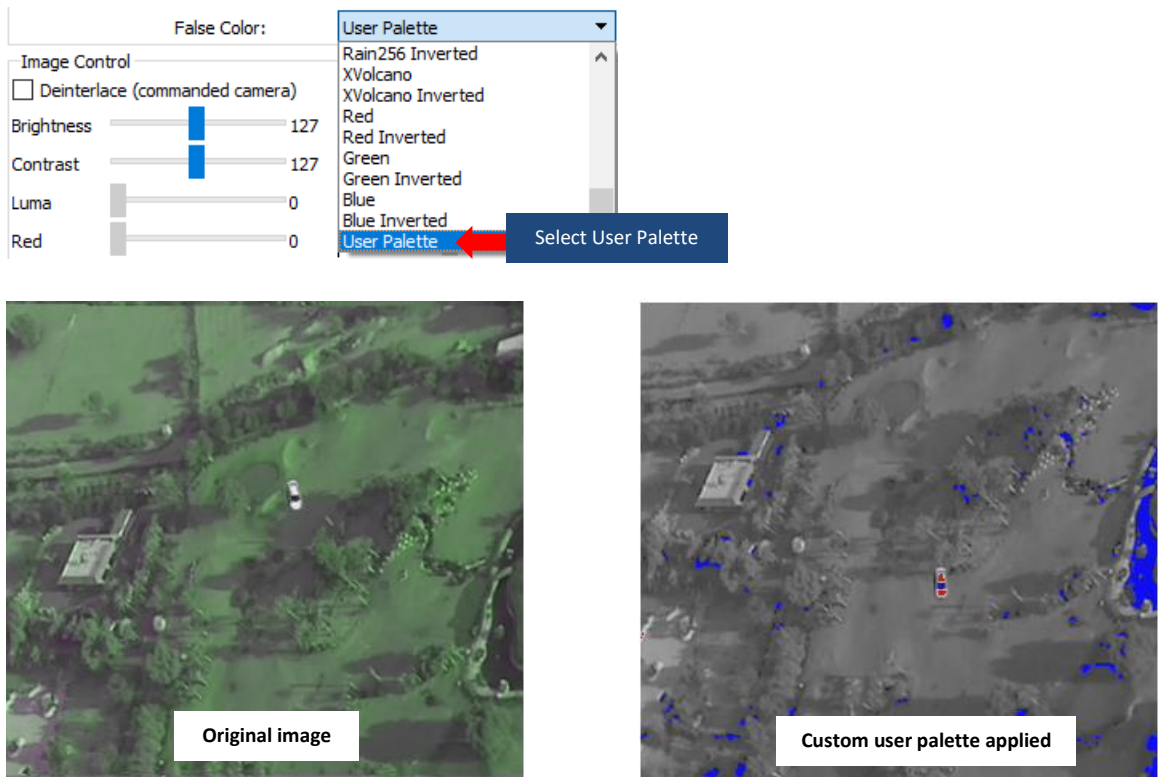


Figure 3: Custom User Palette

#### 4.2 Multiple Color Range Example

Multiple color ranges can also be defined in the user palette as shown in [Figure 4](#).

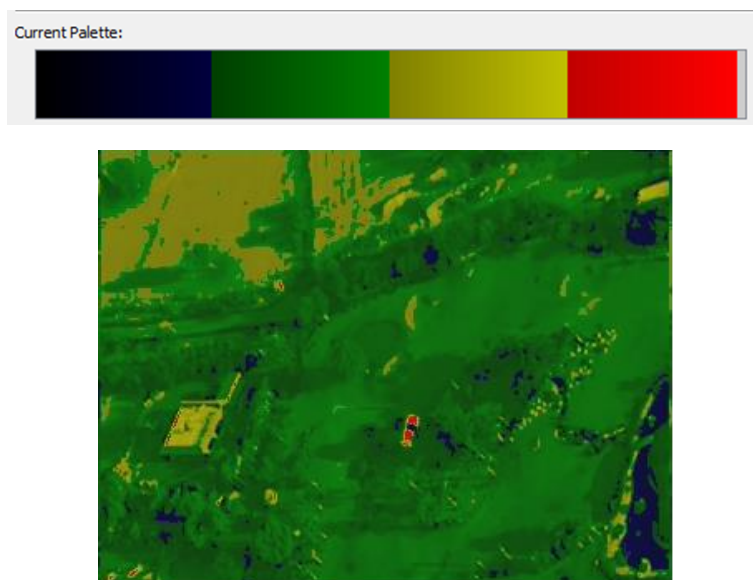


Figure 4: Custom Multiple Color User Palette





### 4.3 Sepia Tone Example

To apply a Sepia tone to an image:

1. Set the *Red*, *Green* and *Blue* values as shown.
2. Set the gray scale value to 0 to 255.
3. Check *Scale Intensity*.
4. Click *Apply*, and then *Send to Board*.

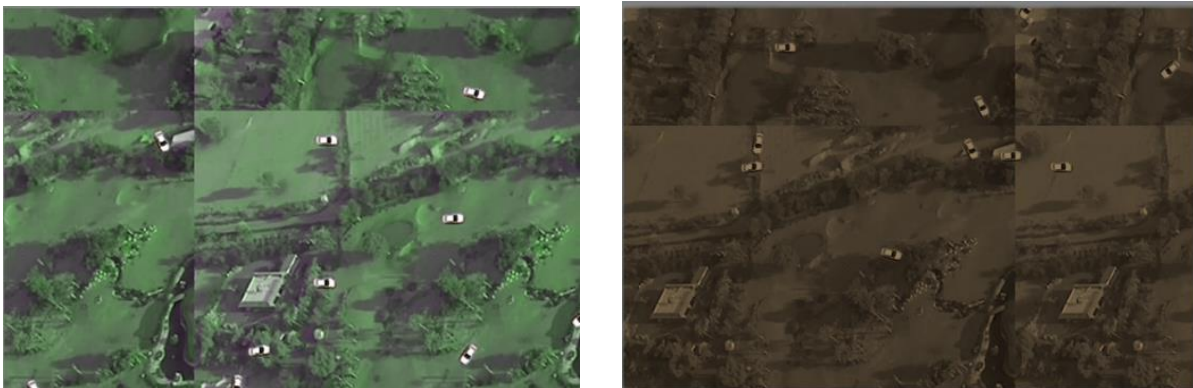
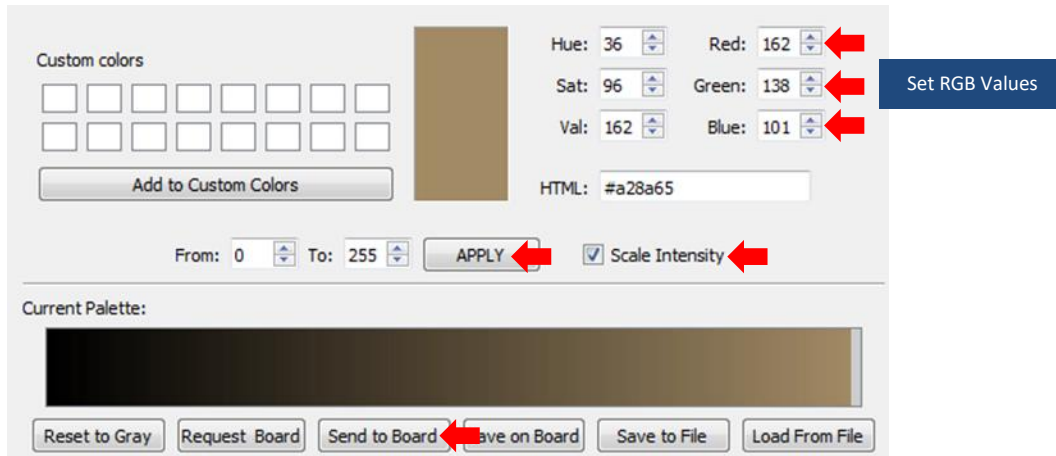


Figure 5: Sepia Tone Custom User Palette Applied

## 5 Questions and Additional Support

If you are still having issues and require additional support, please contact [Technical Support](#). Additional support, documentation and Engineering Application Notes (EANs) can be found on the Support pages of the SightLine Applications [website](#).