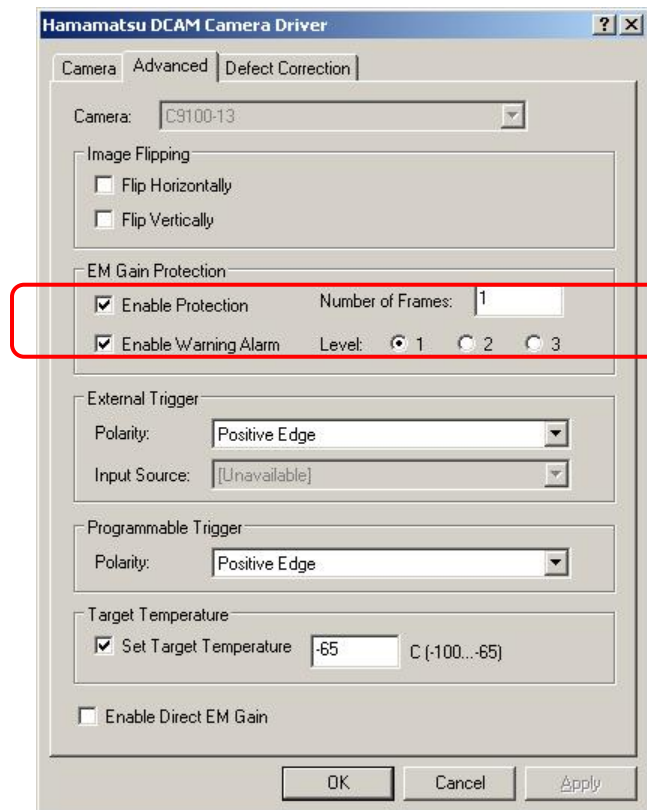


Hamamatsu C9100-13 EM Gain Protection

Instructions

In MetaMorph® Software 7.7.1 & higher, the Advanced tab for the Hamamatsu driver in the MetaMorph Administrator, there are two options for protecting the EM Gain Register of the C9100-13 camera: *Enable Protection* & *Enable Warning Alarm*.



When the Enable Protection is checked the Number of Frames field is enabled. The Enable Protection turns on the EM Protection for the camera. If the camera gets "too" saturated then the camera will only acquire the next Number of Frames specified and then all images after that will be all zeros. So, the protection essentially shuts down the imaging sensor's readout into the EM register.

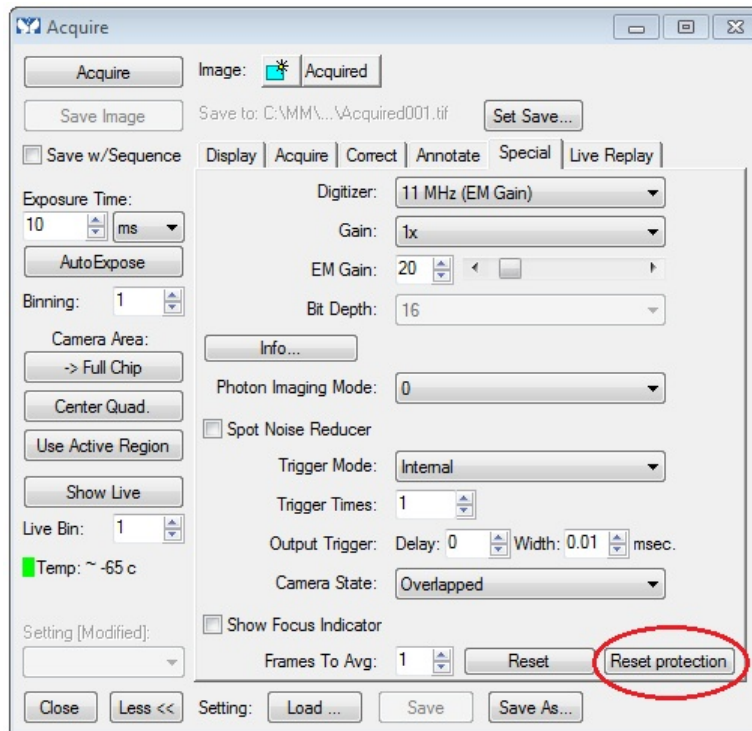
ARTICLE #
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PRODUCTS
MetaMorph®
MetaFluor®
MetaVue®

CREATED
14-May-2010

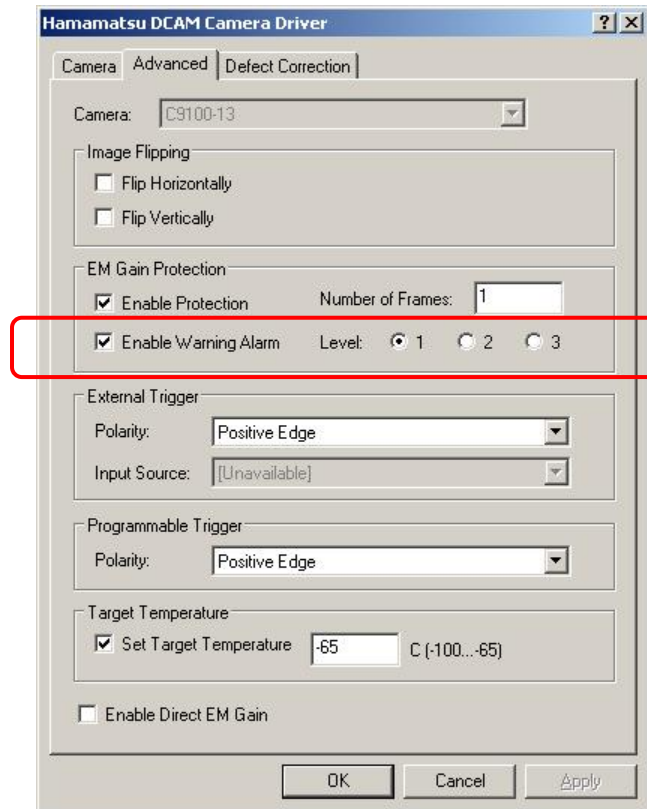
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If the Enable Protection is on, in the Special tab of Acquire, you will see a "Reset protection" button.



When the EM Protection is activated (images are all zeros) if you press the Reset Protection button, it will put the camera in the Idle state and reset the protection, essentially re-enabling the camera for imaging. You should adjust the exposure time / EM Gain to keep the camera from continuing to saturate. The EM protection mode is designed by Hamamatsu to extend the life of the EM register.

When the Enable Warning Alarm is checked the Level radio buttons are enabled. The Enable Warning Alarm is an option to make an audible alarm on the camera when the camera gets "too" saturated.



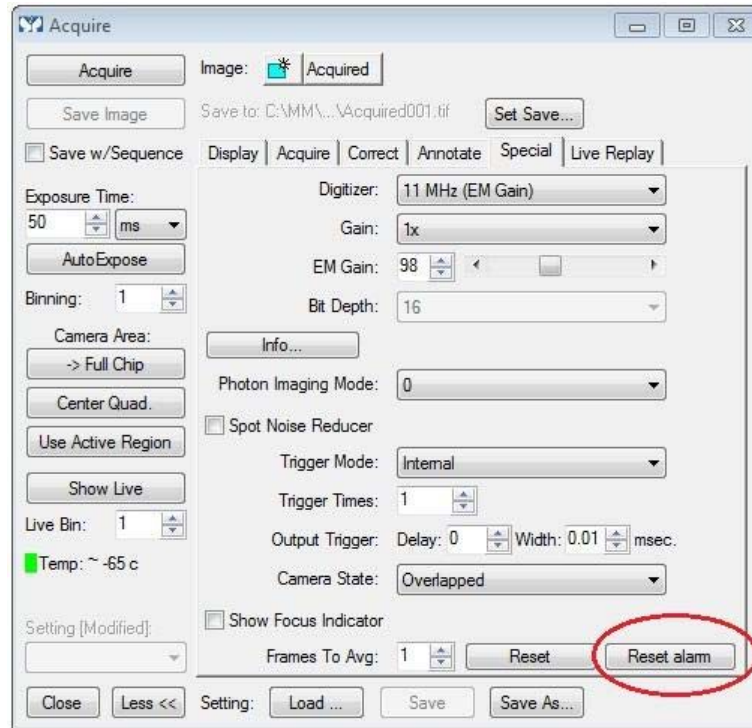
The Level radio buttons define the sensitivity of the Alarm and EM Protection features.

1 = less protection and more of the image needs to be saturated to trigger the alarm, i.e. relatively longer exposure time or Higher EM gain would typically be needed to trigger the alarm.

3 = more protection and less of the image needs to be saturated to trigger the camera alarm, i.e. relatively shorter exposure time or less EM gain would typically be needed to trigger the alarm.

NOTE: The Level defines not just the alarm level, but the EM Protection level as well.

If both the EM Protection and EM Warning Alarm are checked, then the alarm is a constant beep sound. If just the Warning Alarm is checked, then the alarm is a series of short beeps with gaps of no sound. If the EM Warning Alarm is checked, then the button in the Acquire dialog special tab is labeled Reset Alarm independent of whether the EM Protection is enabled. The Reset Alarm button turns off the Alarm and resets the EM Gain Protection, when both are checked.



The EM Gain Protection and EM Warning alarm are designed to work together to protect the EM Gain on your EMCCD, however, you do not have to have both enabled.