

Using the TILL Photonics Polychrome V with Meta Series 6.3r3 and beyond

ABSTRACT

The TILL Photonics Polychrome V is a monochromator that provides excitation illumination to a microscope system. It can be controlled by Meta Imaging Series.

This technical note describes how to connect the Polychrome V to the Meta Imaging Series system, and the two types of shutters that are available.

REQUIREMENTS

- Meta Imaging Series 6.3r3 or later.

PHYSICAL CONNECTION

The Polychrome V can be controlled by either an analog voltage or an RS-232 communication signal.

To control the device by using the analog voltage, a DAC card must be installed in the computer. The DAC card can be configured to output a signal between -10 V to 10 V, and this signal proportionally selects the desired output wavelength. When using the device in this fashion, the input and exit slit widths cannot be controlled from Meta Series applications. Please refer to technical note **T10253** “Using the IO Tech DaqBoard/2000 Device” for information on how to install the DaqBoard 2000.

To control the device by using an RS-232 communication signal, you must attach the *Polychrome V breakout box* to the rear of the device by using an RJ45 cable. The cable goes from the RJ45 connector on the rear of the Polychrome V to the “Poly V” connector on the breakout box. Then, a standard serial cable goes from the “RS 232” DB9 connector on the breakout box to the serial port of the computer.



Rear of Polychrome V



Breakout Box



Breakout Box with Cables

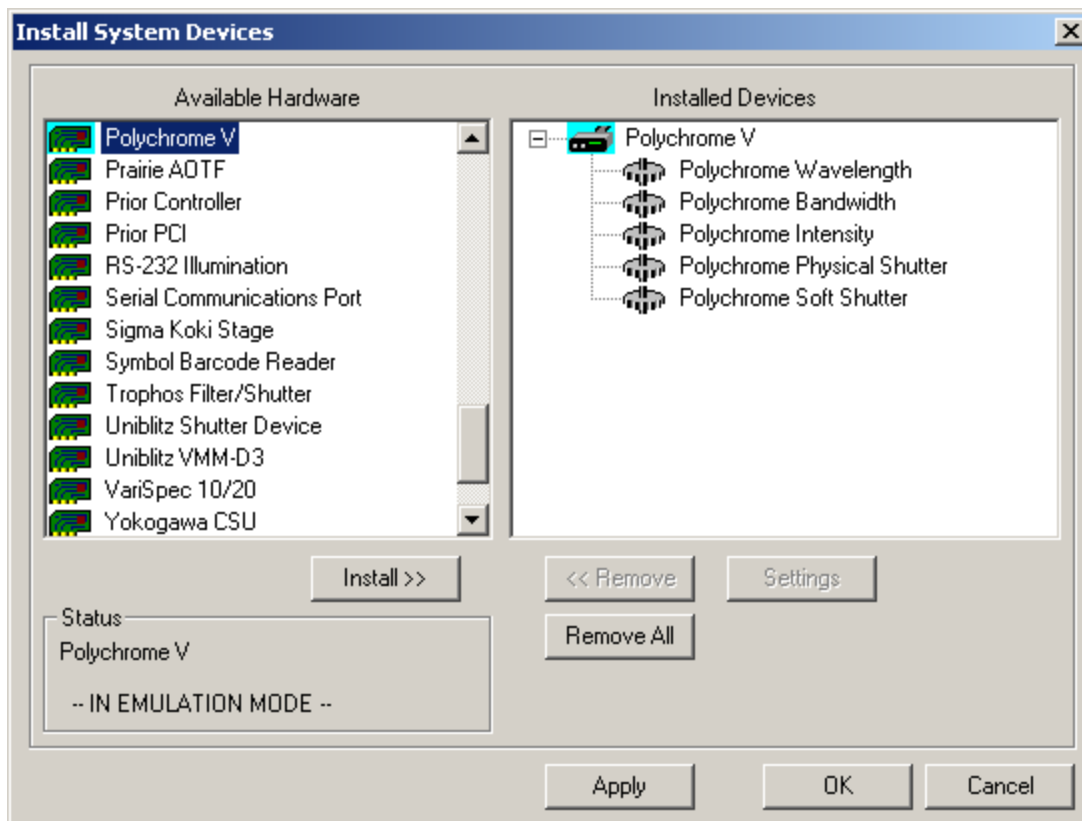
If you are controlling the device through the RS-232 serial port, the driver called “Polychrome V” needs to be installed using the Meta Imaging Series Administrator. The driver provides the following components:

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PRODUCTS
MetaMorph® 6.3r3 or later

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SHUTTERS

The Polychrome V offers two shutter components.

The component called “Polychrome Physical Shutter” is the exit slit acting as a shutter. When the shutter is closed, the exit slit will physically move to a closed position. When the shutter is opened, the exit slit will open to the previous setting. The physical shutter open or shutter close process takes approximately 100ms to 120ms. However, since the shutter movement is a synchronous operation, the “shutter delay” field for this component can be set to 0.

The component called “Polychrome Soft Shutter” does not change the exit slit or physically block off the light. Instead, when the soft shutter is closed, the galvanometer moves the grating to select the “resting wavelength”, which is typically 280nm. This wavelength typically cannot be transmitted through the microscope optics and thus won’t illuminate the specimen. When the soft shutter is opened, the grating is moved to the previous wavelength. The soft shutter open or shutter close process takes approximately 3ms. The soft shutter’s “shutter delay” field should also be set to 0.

Using Configure Illumination in the application, you can configure an illumination / wavelength setting to use either the physical shutter or the soft shutter as appropriate to your needs.