MARS CXP QuickGuide

Thank you for choosing DAHENG IMAGING products! This guide will help you get started as quickly as possible with our products. For more information(e.g. detailed manuals, CAD/3D drawings, driver software, etc.), please visit: www.daheng-imaging.com/en

This guide applies to the following products:

MARS CoaXPress Series

High resolution camera: MARS-6500/6501/10300/15200-X2M/C
High speed camera: MARS-2625/2626/6502/6503-X2M/C

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I. Software Installation

Users need to install the installation package provided by the frame grabber manufacturer first, and use the demonstration program and API interface corresponding to the frame grabber to control the camera. At present, Matrox and Euresys frame grabbers are mainly supported. DAHENG IMAGING also provides demonstration program (GalaxyView.exe), which used to display the camera control, image acquisition and image processing functions, the user can control the camera directly by loading the TL library of different frame grabber manufacturers through the demonstration program. Please refer to the manual for details. You can contact our support team for the demonstration program that supports the MARS CoaXPress cameras: support@daheng-imaging.com

II. Camera Power

The MARS CoaXPress camera can get power in either of two different ways: via Hirose I/O port or via PoCXP (Power over CoaXPress). When you supply power to the camera via both ways at the same time, the camera will get power via the Hirose I/O port.

■ Via the Hirose I/O port

▸ For high resolution camera, AC-DC or DC-DC typical operating voltage is +24VDC (±10%), output current is recommended above 2A.

▸ For high speed camera, AC-DC or DC-DC typical operating voltage is 12-24 VDC, output current is recommended above 2A.

▸ Hirose I/O cable Pin4 (purple) and Pin11 (white orange) must be parallel connected to the external AC-DC power supply or the positive electrode of DC-DC power supply output.

▸ If use 24V extend power cable, the American Wire Gauge of cable need greater than 24AWG (The cross section is greater than 0.2047mm^2, and the resistance value is less than 89.4Ω/km).

■ Via PoCXP (Power over CoaXPress)

▸ For high resolution MARS CoaXPress camera, the CH1, CH2, CH3 and CH4 of the CXP connector must connect to their correct channels before power on.

▸ For high speed MARS CoaXPress camera, the CH1 and CH2 of the CXP connector must connect to their correct channels before power on.

■ With Hirose I/O port connection and the frame grabber supports PoCXP)

▸ It is recommended that the camera be powered up via the Hirose I/O port before connecting the corresponding CXP cable.

III. I/O Interface

Pin	Definition	Core Color	Description
1	Line 0+	Green	Opto-isolated input +
2	GND	Blue	PWR GND & GPIO GND
3	Line 0-	Grey	Opto-isolated input -
4	POWER_IN	Purple	Camera external power 24V±10%
5	Line 2	Orange	GPIO input/output
6	RS232 Rx	Pink	RS232 receive
7	Line 1-	White Green	Opto-isolated output -
8	Line 1+	White Blue	Opto-isolated output +
9	GND	White Grey	PWR GND & GPIO GND
10	GND	White Purple	PWR GND & GPIO GND
11	POWER_IN	White Orange	Camera external power 24V±10%
12	RS232 Tx	White Pink	RS232 transmit

IV. Camera Connection

Make sure that you have installed a CoaXPress 2.0 frame grabber in your computer including related software. Then you can prepare to configure a link between a camera and CXP-12 Frame Grabber by using four coaxial-cables.

To connect the camera to your computer, follow the steps below:

1) Plug one end of a coaxial-cable into the CH1 of the CXP connector on the camera and the other end of the coax cable into the CH1 of the CXP-12 frame gabber in your computer. Then, connect the CH2, CH3 and CH4 of the CXP connector on the camera to the CH2, CH3 and CH4 of the CXP-12 Frame Grabber respectively using the other three coaxial-cables.

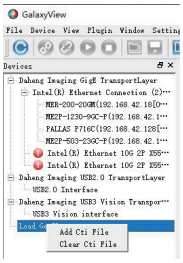
- ▸ Connect the plug of the HR10A-10R-12PB to the Hirose on the camera.
- ▸ Connect the external power pin of the HR10A-10R-12PB to the 24V DC power supply.

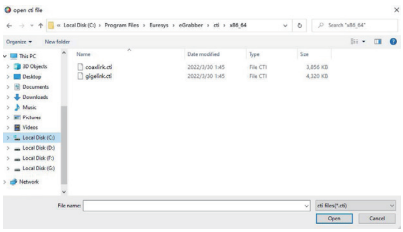
2) Verify all the cable connections are secure.

3) To power a camera via PoCXP Frame Grabber, you must connect the power interface of the frame grabber to the power supply of the computer first before the computer is powered on. When the camera is powered via PoCXP, no external power supply needed.

V. Open Third-party TL Library

GalaxyView software supports the function to open third-party TL library. Open the GalaxyView software, right click on the device list to load GenTL, choose "Add Cti File". After open the TL file, GalaxyView will automatically load the currently selected .cti file. The name of the current frame gabber will be displayed under "Load GenTL". Double-click the name of the current frame gabber to load the CXP camera connected to the frame gabber.





To use the CXP camera, user need to load the TL file corresponding to the CXP frame gabber.

VI. Precautions

Usage	
Warning	1) Do not install and operate the product in extreme environments with vibration, high temperature, humidity, dust, strong magnetic fields, explosive/corrosive smoke or gases, as it may damage the camera, cause a fire or electric shock. 2) Do not aim at the product with high intensity light sources directly, as it may damage the sensor. 3) If the device damaged, emits smoke, odor or noise, please turn off the power and unplug the power cord immediately, and contact our technical support engineer. 4) Unauthorized disassembly, repair, or modification of products is prohibited as it may damage the camera or cause a risk of electric shock. 5) In the use of the device, you must be in strict compliance with the electrical safety regulations of the nation and region. 6) Please use the power supply provided by reputable manufacturers that meets the camera power limit requirements, otherwise, it will damage the camera.
Caution	1) Check whether the device's package is in good condition, whether there is damage, deformation, etc. before unpacking. 2) After unpacking, please carefully inspect the quantity and appearance of the product and accessories for any abnormalities. 3) Please store and transport the product according to the specified storage and transportation conditions, ensure that the storage temperature and humidity meet the requirements.
Personal Safety	
Warning	1) It is strictly prohibited to perform device wiring, dismantling, maintenance and other operations while powered on, otherwise there may be a risk of electric shock. 2) It is prohibited to touch the camera directly during using, otherwise there may be a risk of burns. 3) Please install and use the camera in accordance with regulations, otherwise there may be a risk of falling and get injured. 4) The edges of the lens mount and fan are relatively sharp, so pay attention to the risk of scratches during installation or use.

Guideline for Avoiding EMI and ESD

You should consider the EMI (Electro Magnetic Interference) and ESD (Electro-Static discharge) problem in the process of using the camera, to guarantee the camera to work in a relatively good electromagnetic environment. The main measures are as follows:

■ CoaXPress cables certificated by CoaXPress IF are recommended.

■ Using shielded cable can avoid electro-magnetic interface. Shielding layer of the cable should conduct to ground nearby and not until stretched too long. When many devices need conduct to ground, using single point grounding to avoid earth loop.

■ Keep your cameras away from equipment with high voltage, or high current (such as motor, inverter, relay, etc.). If necessary, use additional shielding.

■ ESD (electro-static discharge) may damage cameras permanently, so use suitable clothing (cotton) and shoes, and touch the metal to discharge the electro-static before operating cameras.

■ If condition permit, try to ground the camera housing (e.g., the installation point’ s mounting rack conduct to ground).

Environmental Requirements

■ Housing temperature during operation: 0° C ~ 45° C, humidity during operation: 10% ~ 80%. Storage temperature: -20° C ~ 70° C.

■ To avoid collecting dust in the optical filter, always keep the plastic cap on cameras when no lens is mounted.

■ Select the CXP frame grabber that matches the camera frame rates, such as DAHENG IMAGING, Matrox, Euresys frame grabber.

■ Multi-channel cameras should use 75Ω coaxial cable certificated by CoaXPress IF.

■ Make sure that cameras are transported in the original factory packages.

Camera Mechanical Installation Precautions

■ Camera installation requirements:

▸ MARS-6500-31X2M/C-TF, MARS-6501-31X2M/C-TF, MARS-10300-24X2M/C-TF, MARS-15200-16X2M/C-TF: The front mounting

holes M4 screw and the camera should have a screwing length between 4.5mm and 5mm. The four-side mounting holes M5 screw and the camera should have a screwing length between 4.5mm and 5mm.

▸ MARS-2625-150X2M/C(-NF), MARS-2626-150X2M/C(-NF), MARS-6502-71X2M/C(-NF), MARS-6503-71X2M/C(-NF): The front mounting holes and four-side mounting holes M4 screw and the camera should have a screwing length between 3.5mm and 3.8mm.

■ The M5 screw assembly torque ≤ 6N·M, and the M4 screw assembly torque ≤ 5N·M. If the screw assembly torque is too large, it may cause the camera thread stripping.