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FY12 XCL Series
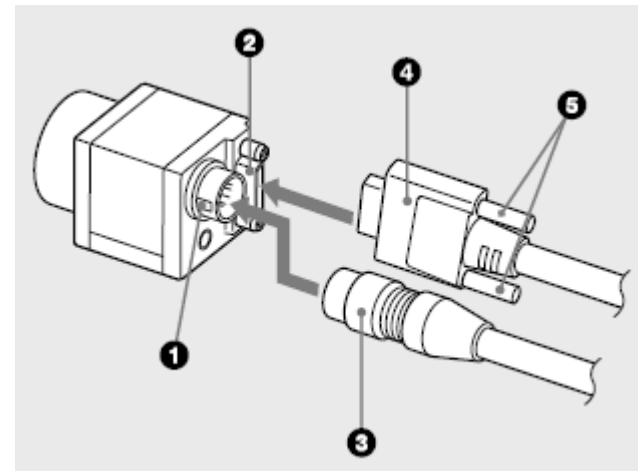
Samples Operation

Agenda

- Preparation

- XCL Control Software

- Serial Interface

- Default Camera Configurations

Preparation

- Connect the Camera Link cable to the camera and frame-grabber board

- Connect the external power supply through the 12-pin Hirose connector or enable PoCL support from the frame-grabber
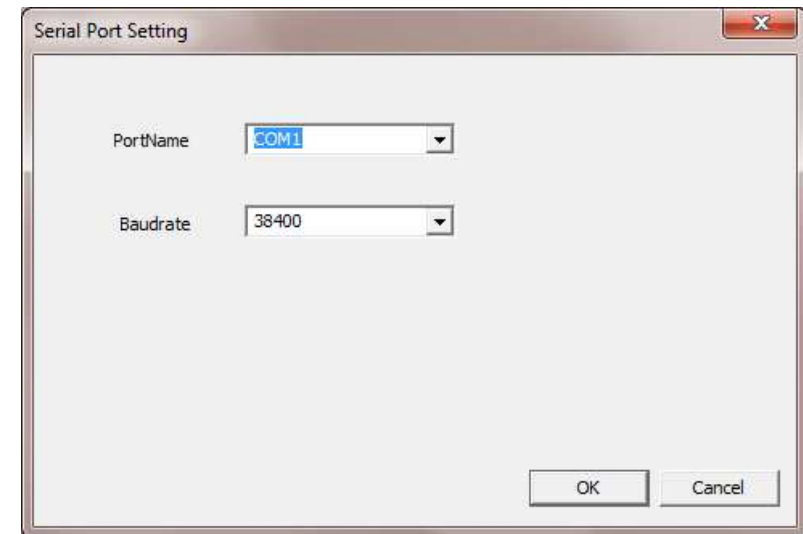 - Please refer to the frame-grabber documentation for more details

1. DC IN connector
2. Digital IF connector
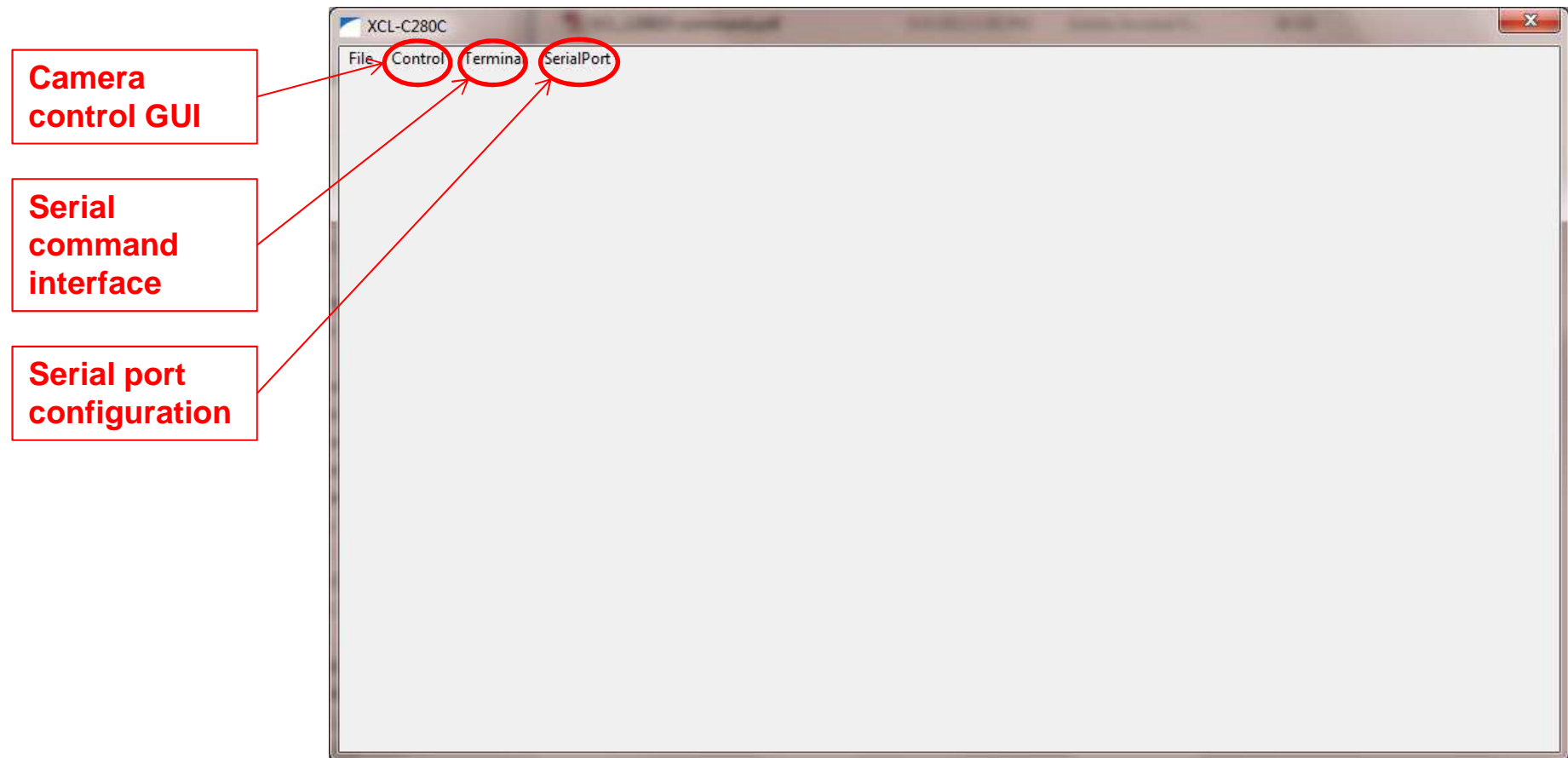3. Camera cable
4. Camera Link cable
5. Fastening screws

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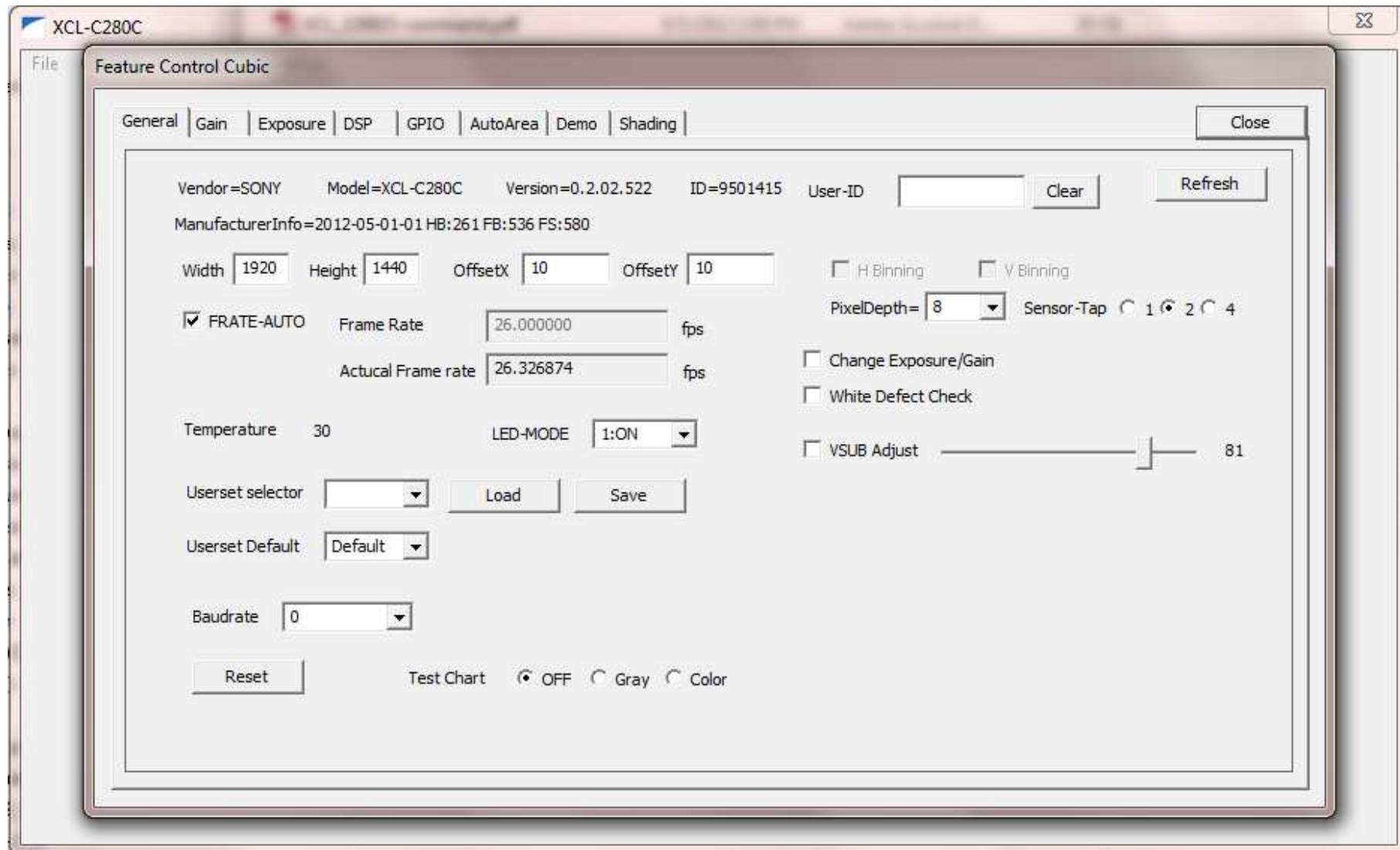# XCL Control Software

XCL Control Software – Initialization

- **Run the CLControl.exe program**
  - If initialization fails please install Visual Studio 2010 runtimes (**vcredist_x86.exe**)

- **Select the COM port associated with the frame-grabber**
  - Please refer to the frame-grabber documentation for more details

- **Select the baudrate**
  - Default baudrate: 38400 baud/s

- **Click OK**

Serial Port Setting		X
PortName	COM1 ▼	
Baudrate	38400 ▼	
	OK	Cancel

XCL Control Software – Main Window

Camera control GUI

Serial command interface

Serial port configuration

XCL-C280C

File Control Termina SerialPort

XCL Control Software – Camera Control GUI

XCL Control Software – Serial Command Interface

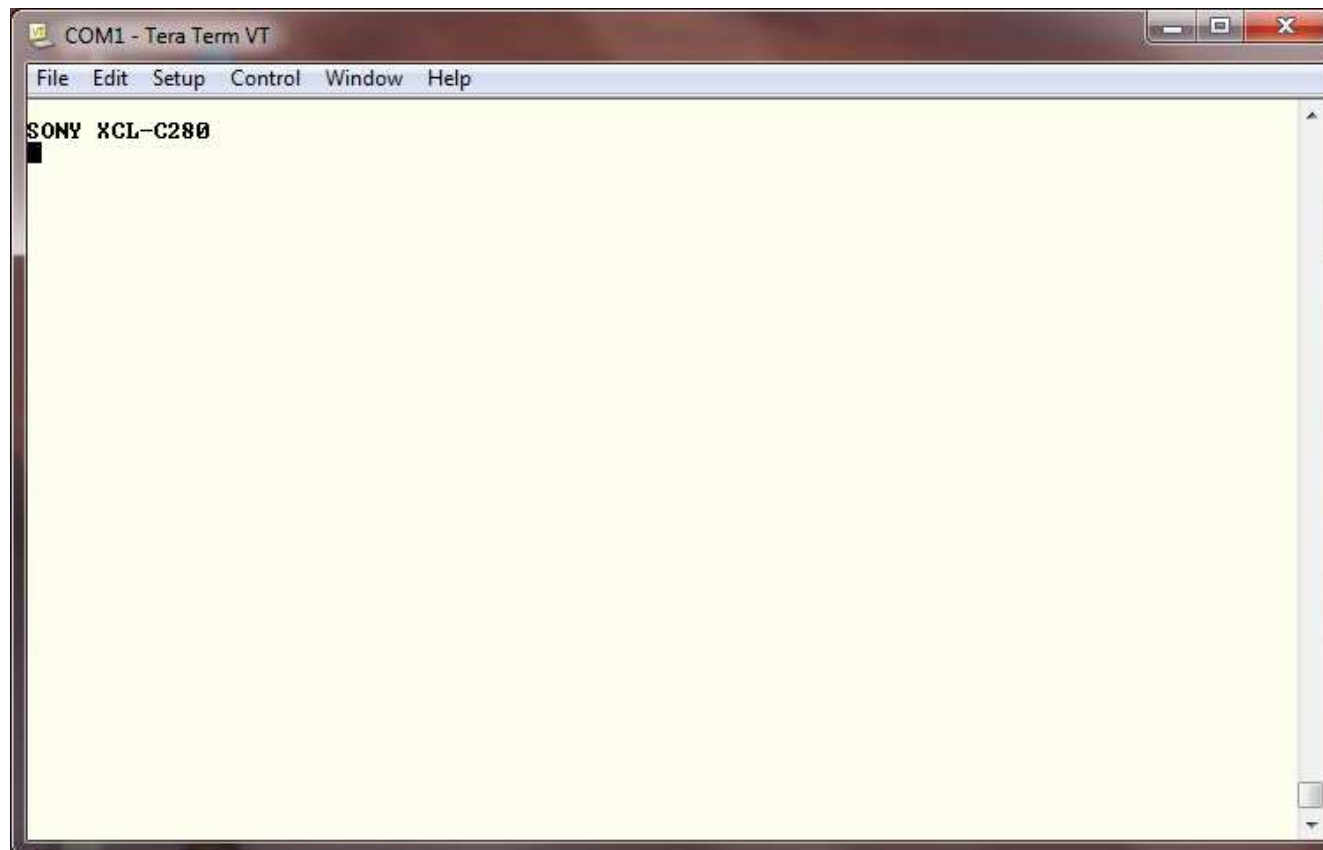# SONY
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Serial Interface

Serial Port Configuration (Default)

- **Set the serial port**
  - Baudrate : 38400
  - Data : 8bit
  - Parity : none
  - Stop bit : 1bit
  - Flow Control : none
  - Line feed code: CR

- **In case of using TeraTerm**
  - Set CR+LF into Receive: of the new line of Settings -> Terminal
  - Set CR into Transmit: : of the new line of Settings -> Terminal

Serial Interface – Initialization

- Turn the power on
  - The following message is displayed

Basic Operation

- **Load the setting value from the camera**
  - Input the command without the argument

```
exp

66666
OK
```

⟵ Command sent to the camera

⟵ Reply from the camera

  ➢ Exposure time is 66,666us

- **Send the setting value to the camera**
  - Send the setting value after the command as the argument

```
exp 66666

OK
```

Image Width

- **Set the image size (Horizontal direction)**
  - Input "width <value>"
    The unit of *Width* is pixel by 2 steps
  - Example: In case of setting Horizontal image size to 1000

```
width 1000
OK
```

- **Set the offset (Horizontal)**
  - Input "offsetx <value>"
    The unit of *OffsetX* is pixel by 2 steps
  - Example: In case of setting horizontal offset to 200

```
offsetx 200
OK
```

Image Height

- ## Set the image size (Vertical direction)
  - Input "height <value>"
    The unit of *Height* is pixel by 2 steps
  - Example: In case of setting Vertical image size to 1000

```
height 1000
OK
```

- ## Set the offset (Vertical)
  - Input "offsety <value>"
    The unit of *OffsetY* is pixel by 2 steps
  - Example: In case of setting vertical offset to 200

```
offsety 200
OK
```

Exposure Time

- ## Set Exposure Time

  - – Input "exp <value>"
    The unit of *ExposureTime* is μs

  - – Example: In case of setting Exposure Time to 10ms

```
exp 10000
OK
```

Trigger Mode

- ## Set Trigger Mode
  - Items of trigger setting
    - trg-mode : trigger mode   Off/On 0:Off, 1:On
    - trg-pol : trigger pole   0:Falling Edge, 1:Rising Edge

    - Example: In case of setting External trigger On, falling edge

```
trg-mode 1
OK
trg-pol 0
OK
```

Gain Configuration (dB)

- **Set Gain (dB setting)**
  - Input "gain GainAnalog"
    The unit of GainAnalog is dB from 0 to 18
  - Example: In case of setting Gain to 6dB

```
gain 6
OK
```

  - Command in case of setting up only the left channel
        gain-l
  - Command in case of setting up only the right channel
        gain-r

Gain Configuration (Fine)

- **Set Gain (step setting)**

  - Input "gain-fine GainAnalog"
    The unit of GainAnalog is the step of AD9970 from 0 to 502

  - Example : In case of setting Gain to 6dB
    GainAnalog[step] = GainAnalog[dB] / 0.0359
    = 6 / 0.0359 = 167

```
gain-fine 167
OK
```

  - Command in case of setting up only the left channel
    gain-fine-l

  - Command in case of setting up only the right channel
    gain-fine-r

White Balance

- ## OnePush White Balance
  - Input "awb 1" capturing a white photographic subject in all area

```
awb 1
OK
```

- ## When the white balance is not adjusted by the above procedure (When the color temperature is very low or high)
  - ### Raise G gain to 3 dB and execute AWB
    - GGain[step] = 256 * 10 ^ (GGain[dB] / 20)
      = 256 * 10 ^ (3 / 20) = 361

```
ggain-fine 361
OK
awb 1
OK
```

Camera Commands

- Full commands list available as separate file
  - XCL Command List – Aug. 2012.pdf

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Camera Link Configuration

XCL-C Series – Default Configuration

- **Camera Link specifications**
  - Camera Link taps: 2-tap, interleaved
  - Bauds Rate: 38400 baud / s

- **Image Format**
  - XCL-C30/C: 640 x 480, 8 bit @ 130 fps
  - XCL-C32/C: 640 x 480, 8 bit @ 104 fps
  - XCL-C130/C: 1280 x 960, 8 bit @ 31fps
  - XCL-C280/C: 1920 x 1440, 8 bit @ 26 fps
  - XCL-C500/C: 2448 x 2048, 8 bit @ 15fps

XCL-S Series – Default Configuration

- **Camera Link specifications**
  - Camera Link taps: 2-tap, interleaved
  - Bauds Rate: 38400 baud / s

- **Image Format**
  - XCL-S600/C: 2750 x 2200, 8 bit @ 27 fps
  - XCL-S900/C: 3380 x 2704, 8 bit @ 104 fps

- **Image Sensor**
  - Selectable readout: 4, 2 or 1 CCD channels
  - Default: 4 channels readout

Camera Configuration Files

- Camera configurations files (.ccf) are prepared for the following Camera Link frame-grabber manufacturers
  - Dalsa
  - Euresys

- Additional manufacturers support (Matrox, Cognex, NI…) underway
  - Availability of newer camera configuration files will be updated through ISS Resources Center (www.image-sensing-solutions.eu)

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Thank you