



Quick Start Guide  
HXC cameras – Release 2 (Camera Link®)

Latest software version and technical documentation are available at:

[www.baumer.com/vision/login](http://www.baumer.com/vision/login)

### Safety

Conformity:  
CE, FCC Part 15 Class B, RoHS



FCC – Class B device

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### Safety instructions

#### Notice

See User's Guide for the complete safety instructions!

- Protect the sensor from dirt and moisture.
- Never open the camera housing.
- Avoid camera contamination by foreign objects.

#### Environmental requirements:

|                 |  |
|-----------------|--|
| Storage temp.   | -10 °C ... +70 °C<br>(14 °F... 158 °F) |
| Operating temp. | +5 °C ... +60 °C<br>(41 °F... 140 °F)  |
| Housing temp.   | max. +65 °C<br>(max. 149 °F)           |
| Humidity        | 10 % ... 90 %<br>Non-condensing        |

### Further information

For further information on our products visit [www.baumer.com](http://www.baumer.com)

For technical issues, please contact our technical support:  
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### Product Specification

#### HXC cameras - Maximum Performance with CMOSIS sensors

- Camera Link® Full progressive scan CMOS camera
- Excellent image quality
- Global shutter architecture for minimized motion blur
- Low noise due to correlated double sampling (CDS)
- HDR (High Dynamic Range)
- Enhanced NIR sensitivity model available
- Binning, subsampling and true partial scan function (ROI) for increased frame rates
- External synchronization via industrial compliant process interface (trigger / flash)
- Integrated supplementary function for flexible integration
- Integrated 256 MByte RAM for temporarily image data buffering
- Two standard 26 pin Mini-CameraLink® connectors
- Support for CameraLink® Base, Medium, Full and 10 tap configurations
- Baumer GAPI: Flexible, generic software interface for Windows

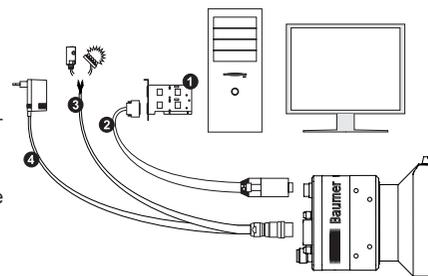
| Camera Type       | Sensor Size | Resolution  | Full Frames [max. fps] |
|-------------------|-------------|-------------|------------------------|
| <b>Monochrome</b> |             |             |                        |
| HXC20             | 2/3"        | 2048 x 1088 | 337                    |
| HXC40             | 1"          | 2048 x 2048 | 180                    |
| <b>Color</b>      |             |             |                        |
| HXC20c            | 2/3"        | 2048 x 1088 | 337                    |
| HXC40c            | 1"          | 2048 x 2048 | 180                    |



### Installation

#### Installation using Camera Link® BASE:

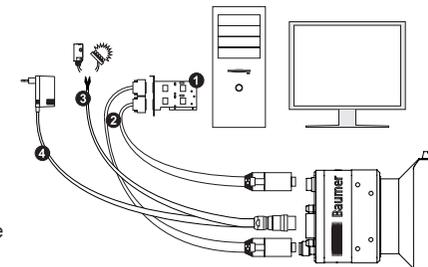
- Connect the camera using an appropriate cable to the framegrabber board on your PC using the lower sdr-26 jack on the camera side
- If required, connect a strobe to the connector
- Connect the camera to power supply



Installation sample  
1 - Framegrabber board; 2 - CameraLink® cable;  
3 - Process interface cable; 4 - Power cable

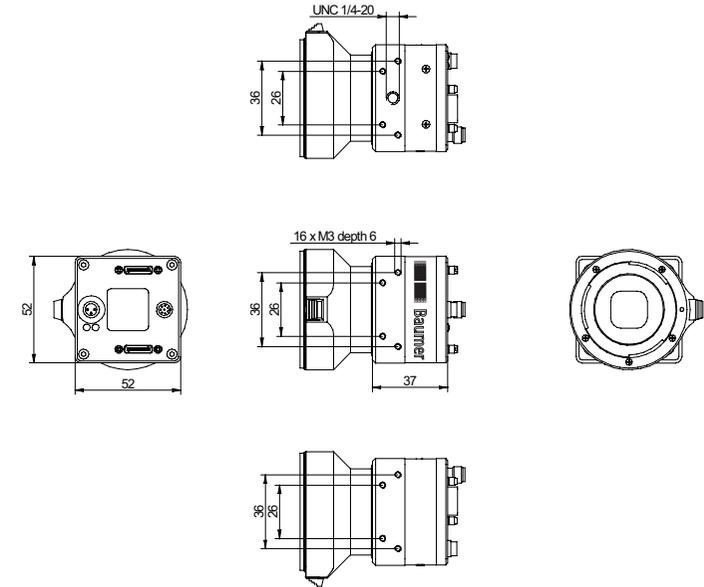
#### Installation using Camera Link® MEDIUM / FULL:

- Connect the camera using two appropriate cables to the framegrabber board on your PC (this configuration requires the BASE and the FULL Camera Link® line)
- If required, connect a strobe to the connector
- Connect the camera to power supply

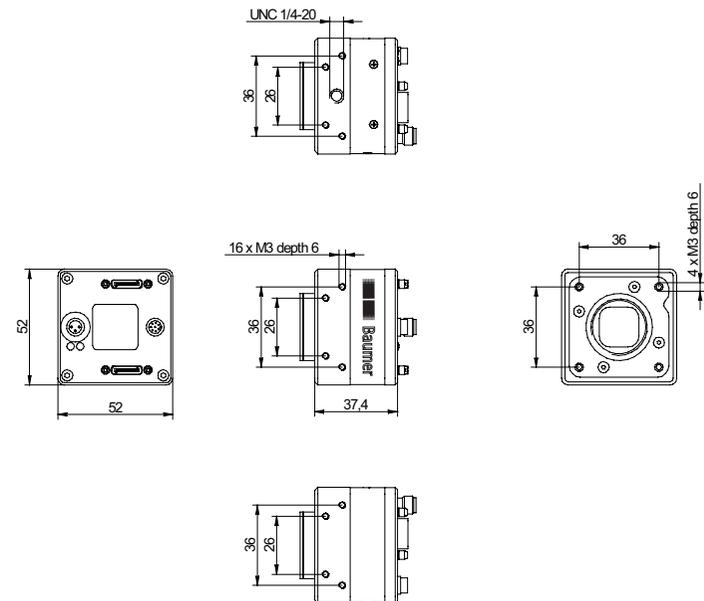


Installation sample  
1 - Framegrabber board; 2 - CameraLink® cable;  
3 - Process interface cable; 4 - Power cable

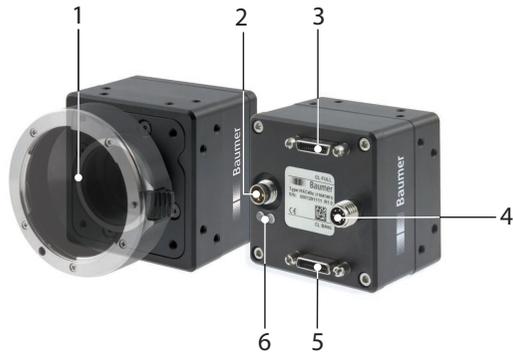
### Dimensions HXC20/40 F-Mount



### Dimensions HXC20/40 C-Mount



## General Description



| No. | Description             | No. | Description             |
|-----|-------------------------|-----|-------------------------|
| 1   | (respective) lens mount | 4   | Digital-IO supply       |
| 2   | Power supply            | 5   | CameraLink® Base socket |
| 3   | CameraLink® Full socket | 6   | Signaling-LED           |

## Camera Link® Interfaces

### Notice



The camera has two CameraLink sockets. To differentiate between CameraLink Base and CameraLink Full socket, please look at the label. You can not use the CL Full socket alone!



### Caution

When fixing the CameraLink® cable with too much force the screws might get damaged.

The maximum torque is 2.5 inch lbf [0.3 Nm].

### Base Camera Link®



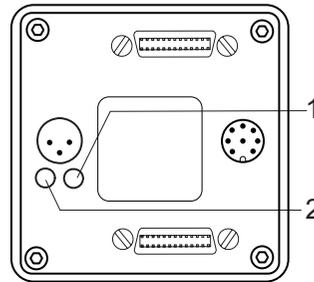
| Pin | Signal  | Pin | Signal  |
|-----|---------|-----|---------|
| 1   | GND     | 14  | GND     |
| 2   | X0-     | 15  | X0+     |
| 3   | X1-     | 16  | X1+     |
| 4   | X2-     | 17  | X2+     |
| 5   | XCLK-   | 18  | XCLK+   |
| 6   | X3-     | 19  | X3+     |
| 7   | SERTC+  | 20  | SERTC-  |
| 8   | SERTFG- | 21  | SERTFG+ |
| 9   | CC1-    | 22  | CC1+    |
| 10  | CC2+    | 23  | CC2-    |
| 11  | CC3-    | 24  | CC3+    |
| 12  | CC4+    | 25  | CC4-    |
| 13  | GND     | 26  | GND     |

### Full Camera Link®



| Pin | Signal      | Pin | Signal      |
|-----|-------------|-----|-------------|
| 1   | GND         | 14  | GND         |
| 2   | Y0-         | 15  | Y0+         |
| 3   | Y1-         | 16  | Y1+         |
| 4   | Y2-         | 17  | Y2+         |
| 5   | YCLK-       | 18  | YCLK+       |
| 6   | Y3-         | 19  | Y3+         |
| 7   | 100 Ω term. | 20  | 100 Ω term. |
| 8   | Z0-         | 21  | Z0+         |
| 9   | Z1-         | 22  | Z1+         |
| 10  | Z2-         | 23  | Z2+         |
| 11  | ZCLK-       | 24  | ZCLK+       |
| 12  | Z3-         | 25  | Z3+         |
| 13  | GND         | 26  | GND         |

## LED Signaling



| LED | Signal               | Meaning                          |
|-----|----------------------|----------------------------------|
| 1   | green                | Power on                         |
|     | yellow               | Readout active                   |
| 2   | green                | Transmitting                     |
|     | red (yellow in both) | Configuration command processing |

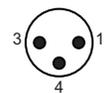
## Power Supply / IO Pin Assignment



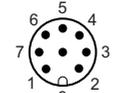
### Caution

A power supply with electrical isolation is required for proper operation of the camera. Otherwise the device may be damaged.

#### M8 / 3 pins



#### M8 / 8 pins



#### wire colors of the connecting cable

|   |         |                       |   |          |                  |
|---|---------|-----------------------|---|----------|------------------|
| 1 | (brown) | Power V <sub>CC</sub> | 1 | (white)  | Line 9           |
| 3 | (blue)  | GND                   | 2 | (brown)  | Line 1           |
| 4 | (black) | NC                    | 3 | (green)  | Line 0           |
|   |         |                       | 4 | (yellow) | GND              |
|   |         |                       | 5 | (grey)   | U <sub>ext</sub> |
|   |         |                       | 6 | (pink)   | Line 7           |
|   |         |                       | 7 | (blue)   | Line 8           |
|   |         |                       | 8 | (red)    | Line 2           |

#### Power Supply

|           |                   |
|-----------|-------------------|
| Power VCC | 9,6 VDC .. 30 VDC |
| I         | 200 mA .. 625 mA  |

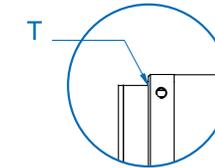
## Heat Transmission

### Caution

Provide adequate dissipation of heat, to ensure that the temperature does not exceed the specified temperature.



The surface of the camera may be hot during operation and immediately after use. Be careful when handling the camera and avoid contact over a longer period.



T: Housing temperature measurement point

It is very important to provide adequate dissipation of heat, to ensure that the housing temperature does not reach or exceed +65 °C (+149°F). As there are numerous possibilities for installation, a specific method for proper heat dissipation is not defined, but the following principles are suggested:

- Operate the cameras only in mounted condition with a good heat conductor (e.g. aluminum)
- Mounting in combination with forced convection may provide proper heat dissipation