



# Camera Data Protocol documentation

## CAMERA DATA TYPES

### BRAINSTORM CAMERA DATA PROTOCOL

The following document explains the Brainstorm Camera Data Protocol:  
The protocol consists of a sequence of floats containing the information listed in this enumeration:

```
enum {  
    eVersion = 0,  
    eMatrix,  
    eInnerFOV = eMatrix + 16,  
    eOuterFOV,  
    eInnerAspect,  
    eOuterAspect,  
    eLensOffsetX,  
    eLensOffsetY,  
    eK1,  
    eK2,  
    eAperture,  
    eFocusDistance,  
    eFrame,  
    eClock,  
    eKU,  
}
```

All fields are expressed as **32 bits floating point numbers** and are received sequentially.  
Here is an explanation of each field:

- **eVersion:**  
Specifies the type of protocol.  
Currently **tt** should be the number **2**
- **eMatrix:**  
**16** numbers specifying the **Camera Matrix** Transformation.
- **eInnerFOV, eOuterFOV:**  
The **Vertical Fields of View** of the camera.  
They are provided as **two values, Inner** and **Outer**, to account for possible camera distortion where the provided image has a bigger field of view (Outer) than the needed one for output (Inner)  
The InnerFOV can be left as zero to discard this option.

- **eInnerAspect, eOuterAspect:**  
The correspondent camera **Aspect Ratios** for both field of views.
- **eLensOffsetX, eLensOffsetY:**  
Lens camera offsets as a normalized factor from **-0.5** to **0.5** of the image.  
Zero if not used.
- **eK1, eK2:**  
K1,K2 camera **distortion polynomial coefficients**  
Zero if not used.
- **eAperture:**  
Camera **aperture**.  
Zero if not used.
- **eFocusDistance:**  
Camera focus **distance**.
- **eFrame:**  
Frame number **counter**.
- **eClock:**  
Time stamp of the frame in **milliseconds**.
- **eKU:**  
Distortion Unit **Radius**.  
One if not used



 [brainstormmultimedia](#)

 [contact@brainstorm3d.com](mailto:contact@brainstorm3d.com)

 [@brainstorm3d](#)

   [brainstorm3d](#)