PMD [vision]® 19k
3D video range camera
PRELIMINARY

Characteristics

- High Speed
- High Resolution
- Distance and Grayscale Information for every Pixel
- QQVGA Standard Imager Format
- Low Cost

Application areas

- Games, Multimedia, Virtual Reality, Toys
- Man-Machine Interfaces
- Digital Photography
- Industrial Sensor Technology
- Safety, Surveillance and Security
- Robotics
- Automotive and Autonomous Vehicles

General Information

PMDTechnologies’ PMD[vision]® 19k is a high-resolution 3D camera based on a 160 x 120 pixel PMD sensor array, that enables 3D distance measurements to be made quickly and accurately. Distance data is acquired using the "time-of-flight" principle, with invisible modulated Near-Infra-Red (NIR) light. Each pixel simultaneously delivers distance information, distance resolution and grayscale information. Its high pixel resolution, combined with the capability for high frame rate readout, makes the PMD[vision]® 19k ideally suited to highly accurate position and gesture recognition applications.

For applications requiring 2D data of higher resolution (colored or grayscale), PMD[vision]® 19k can be combined with a standard RGB-consumer camera. The choice of the standard QQVGA format for the PMD[vision]® 19k and its standard chip size of ¼” makes it easy to map high-resolution 2D data on top of the 3D distance map.

Output data from the camera can be attained in two ways, depending upon the needs of the user.

- Distance information can be calculated within the camera, with only 3D data being transferred to the PC.
- Raw data can be outputted from the camera, with the PC calculating the distance map. This mode has the advantage of additional image post-processing facilities.

All camera settings can be comfortably changed from a PC, using the TCP/IP protocol and a standard Ethernet interface. Furthermore, a high-speed IEEE 1394 interface enables higher frame rates and thus makes the camera ready for real-time applications.
Mechanical Dimensions

![Diagram of 3D-camera with dimensions]

Specifications

- **Detector**: 1/2" global shutter PMD sensor
- **Pixel Dimensions**: 40 µm x 40 µm
- **Resolution**: 160 (h) x 120 (v) QQVGA
- **Optical Fill Factor**: 30 %
- **Receiver Optics**: f = 12 mm; f/# = 1.2; C-mount
- **Max. Range**: 7.5 m
- **Z-Resolution**: > 6 mm
- **Max. Field of View**: 40°
- **Illumination Power**: approximately 4W optical
- **Wavelength**: 850 nm
- **Frame Rate (3D)**: up to 10 fps
- **Digital Interface**: IEEE 1394a, Ethernet (IEEE 802.3u), RS 232
- **Data Format**: 12-bit single phase or 16-bit 3D plus 16-bit grayscale

Certain dimensions and specifications are subject to change without notice.