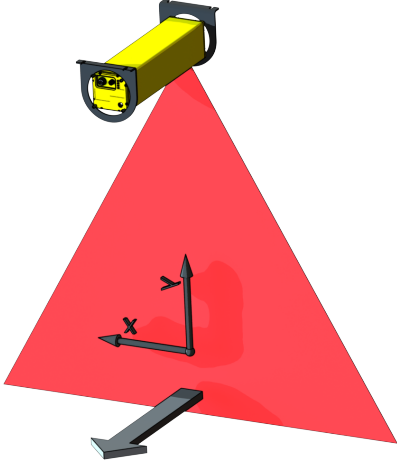
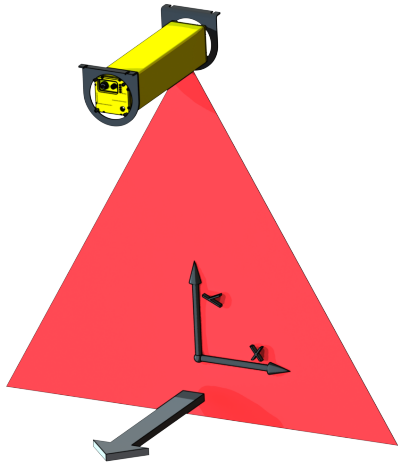


Coordinate Systems

All measured points from a scan head are returned in a cartesian coordinate system and represent a two-dimensional point cloud in a plane (the laser line plane). Together with the direction of travel (as measured by the encoder), a sequence of profiles form a point cloud in a three-dimensional coordinate system. The **handedness** of this system is determined by the LaserUpstream parameter.

| | LaserUpstream = true (default) | LaserUpstream = false |
|-------------------|---|--|
| Laser Orientation |  <p style="text-align: center;">flow of material</p> |  <p style="text-align: center;">flow of material</p> |

The origin of the coordinate system as well as the rotation is determined by the calibration process in JSDiag. The software API provides access to the three parameters (two shift values, one rotation) as well:

| | C# | C/C++ |
|---------------------|---|--------------------------------------|
| retrieve parameters | GetOldCalibrationValues() | jsReadCalibrationN() |
| set parameters | SetOrientation() | jsSendCalibrationN() |

Please note that these API calls require values in inches for the linear units, independently of the settings in param.dat.

i There is no direct correspondence between the physical scanner housing and the coordinate system. When all three parameters are set to 0 (zero), the coordinate systems of all heads are roughly identical (for heads of the same model), but this is not guaranteed. As shipped, the orientation parameters are set to arbitrary values.