

## **HRSC**

### **High Resolution Stereo Camera**

The High Resolution Stereo Camera HRSC is one of the instruments on the ESA MarsExpress mission. It is imaging the entire planet in full colour, 3D and with a resolution of about 10 meters.

The imaging electronics of the HRSC are based on the principle of a linescan (pushbroom) camera. This means, only a line is exposed to the light and not an area like in normal cameras. One CCD-line of the HRSC consists of 5184 light-sensitive pixels. The HRSC has nine of these lines. This means each read-out process creates nine independent lines. The CCDs are situated perpendicular to the flight direction and are read-out in at variable frequency, which is adjusted to the ground velocity of the spacecraft. During imaging operations this creates images in four colors and a digital elevation mode.

The SRC is the second part of the HRSC camera system and is working with an area-sensor. This means, the light intensity is measured by a matrix of 1024 X 1032 elements. The ground resolution is 2 meters.

Jena-Optronik developed and manufactured "the eyes" of MarsExpress, namely the lens systems for both the HRSC and SRC camera channels.