



## Images: Portrait – landscape – turning

Usually digital cameras create non-quadratic rectangular images. Therefore it is possible to make images in landscape or portrait format, depending on the position and turning of the camera. Independent from that, the images can be turned afterwards by 90, 180 or 270 degrees.

With regard to the processing of the images in LISA FOTO and in connexion with the camera definition to be made there, please pay attention to the following aspects:

The values of rows and columns in the camera definition (Pre programmes > camera definition > digital) refer always to the landscape format! Therefore, the bigger of both values must be entered first. Example: The camera chip has a resolution of 4000 x 3000 pixels, then you must enter

Columns (pixels in x) = 4000      Rows ( pixels in y) = 3000

If the images have to be turned for further processing, this must be done in LISA, for instance directly with the import. Example, LISA FOTO: Use File > Import raster images, then set the parameter "Turning by" to 90, 180 or 270 degrees.

### Background:

If the camera was calibrated, you have the co-ordinates of the image's principal point. To use them in the correct way it is not the same whether the images were turned for instance by 90 or 270 degrees – the programme needs this information. If the images are turned in LISA like demanded, a respective note is written into the image file.

Example: You have to turn all images by 90 degrees for further handling. You do this in LISA, then all created IMA files contain the note "90 degrees". Within all following processing steps now LISA will turn the data of the camera calibration automatically by 90 degrees. (Now it is also clear for which reason in any case the camera definition must be done for landscape format).

### Remark concerning the parameter „pixel size“ in the camera definition

If you don't find this value in the technical documentation of your camera, you can calculate it from the chip size in [mm], if need be also from the nominal chip diagonal (e.g. 1 / 2.7"). Sometimes you can find this value in the internet – for this, search for the keyword "pixel pitch" in addition to the name and type of your camera.