

cases, a ‘\*’ (hex: 2A) is sent. This means, the command was not executed.

## Parameters

The numerical parameters follows the command letter. Depending of the context, the parameters have specific ranges. The command reference below mentions the following parameter types.

<i>nr</i>	0..3	haircross selection
<i>y-pos</i>	0..	line
<i>x-pos</i>	0..	column
<i>bool</i>	0,1	boolean flag
<i>height</i>	0..3	height of a line
<i>width</i>	0..1	width of a line
<i>value</i>	0..255	brightness value

## Command Reference

### Setup

“Reset” \*148↵

Reset to the factory defaults of the device.

“Brightness” bvalue↵

Setup the brightness of all unselected haircrosses to *value*. A value of 0 means black, and a value of 255 means white.

“SelectBrightness” avalue↵

Setup the brightness of all selected haircrosses to *value*. A value of 0 means black, and a value of 255 means white.

“Width” wnr; width↵

Set the width of the vertical line of haircross *nr* to *value* pixels.

“Height” lnr; height↵

Set the height of the horizontal line of haircross *nr* to *value* pixels.

“SaveSetup” s↵

Save the current settings and positions. These settings are persistent. They will be restored after each power-up.

“RestoreSetup” r↵

Restore the saved settings and positions. This will overwrite the current setup!

### Movement and Selection

“Horizontal” hnr; y-pos↵

Move the horizontal line of haircross *nr* to line *y-pos*.

“Vertical” vnr; x-pos↵

Move the vertical line of haircross *nr* to column *x-pos*.

“MoveCross” cnr; x-pos; y-pos↵

Move the whole haircross *nr* to line *y-pos* and column *x-pos*.

“Select” unr; bool↵

Depending on the value of the boolean flag *bool*, the haircross *nr* is marked as selected (*bool*=1) or unselected (*bool*=0).

“Visible” onr; bool↵

Depending on the value of the boolean flag *bool*, the haircross *nr* is made visible (*bool*=1) or invisible (*bool*=0).

### Query Settings

All commands of this group returns its result as a plain ASCII string. This string is terminated with a *linefeed* (hex: 0A). The acknowledge character follows right after the *linefeed*.

“DeviceInfo” I↵

Query the device identification. The resulting string has the the format “*name,version,no\_of\_crosses*”.

“QueryCross” Cnr↵

Query the state of the haircross *nr*. The structure of the resulting string is “*x-pos,y-pos,visible,selected*”. The entries *visible* and *selected* are boolean flags.

“QueryBrightness” B↵

Query the actual brightness of the unselected haircrosses.

“QuerySelectBrightness” A↵

Query the actual brightness of the selected haircrosses.

“QueryWidth” Wnr↵

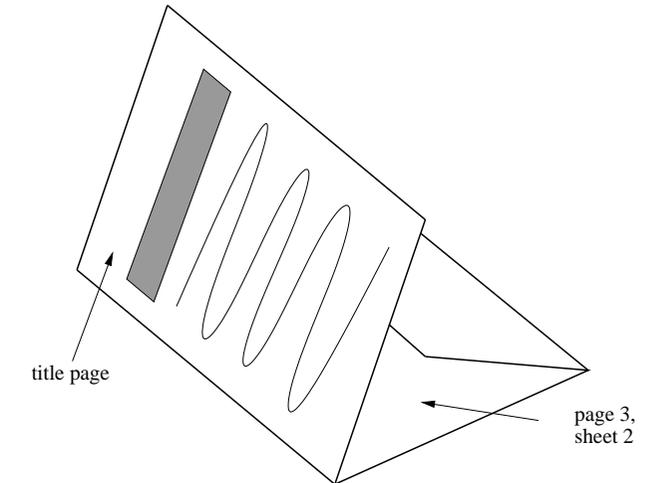
Query the width of the vertical line of haircross *nr*.

“QueryHeight” Lnr↵

Query the height of the horizontal line of haircross *nr*.

## Appendix

The figure below should help you to fold the printout! You have to print this document double-sided. If your printer has problems with the margins, use the “fit to page” option of the Acrobat Reader.



# Protocol Referenz FKG-4-S

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1.1

## Structure of the Protocol

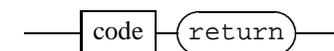
The serial protocol described below is designed to control a FKG-4-S connected to the serial port of a personal computer. The protocol is fully ASCII based. All commands starts with a letter out of the range [A-Za-z]. Optional numerical parameters must follow this *command letter*. The theoretical range of each numerical parameter is 0 to 65535. Be aware, that these numerical values are plain ASCII digits too!

Multiple parameters must be separated by semicolons. There is a maximum of four parameters allowed.

Each command must be terminated by a *return* character (hex: 0D). In the following text, the return character is shown as ↵.

Each well structured command sequence is executed by the FKG-4-S. The figure below show the general structure of a command sequence.

*command*



*command*

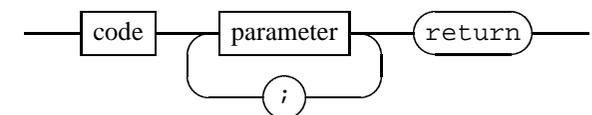


Figure 1: general structure of a command sequence.

Each recognized command is confirmed by the FKG-4-S with a *acknowledge* character. The FKG-4-S replies with a '!' (hex: 21), if the command is executed. In all other