Motoraxis control via RS232

The firmware can control up to 3 motoraxis via RS-232. All three axis share the same communication port which is either port1 or port 2.
The port settings are fixed to: baudrate 9600, 8 bit, no parity, 1 stop bit

Within the GUI (graphical user interface) Laser marking software you will have to set the XYZ-control port to port1 or port2, depending on the physical port of the laser you want to use.

The working principle is as following:

The laser can send at any time over RS-232 commands to the motor (or any RS-232 device that may handle these commands accordingly). The commands are structured as follows:

|Command-Byte|Axis-Byte|target-position 5-digits|CR| (8-byte frame)

Command-Byte:

ASCII '1' (Hex 0x31)

Move to home. The axis moves to its home position which is usually defined by an endswitch. The home position is also the '0' position of the axis. The <target-position> is ignored in this command and should be set to 00000.

ACII '2' (Hex 0x32)

Move to position. The axis moves to the position defined by the target-position [0...99999]. If the axis has not yet been in its home position since power-up the axis should first move to its home position (finding the homeswitch) and then proceed to the target-position.

Axis-Byte:

ASCII '1' (Hex 0x31)

Corresponds to the x-axis in the GUI.

ASCII '2' (Hex 0x32)

Corresponds to the y-axis in the GUI.

ASCII '3' (Hex 0x33)

Corresponds to the z-axis in the GUI.

Target-position:

5-bytes (digits) defining the numerical value of the target-position. The range of the target-position is thus [0000...99999].

CR: Carriage Return (Hex 0x0d)

The axis can send at any time a status response to the laser. The status response is used by the laser to determine if the target position was reached or if the axis has stopped.
For a secure working flow of the command/response mechanism it is strongly recommended that the axis sends a status response after having reached its last commanded target position or after it as stopped due to any error (when detecting the endswitch, doorswitch or homeswitch).

Running into an endswitch or homeswitch (or detecting an open door through the doorswitch) usually stops the motor but it should not prevent the motor from trying to reach its commanded target-position. e.g. the laser may command the axis to move to the home position and consequently to some target-position.
The laser may also actualize the target-position while the axis is still moving. In this case the axis should discard the previous target-position and proceed directly to the last commanded target-position.

The status response is as follows:

|Axis-Byte|actual-position 5-digits|Status-Byte|CR| (8-byte frame)

Axis-Byte:

ASCII '1' (Hex 0x31)

Corresponds to the x-axis in the GUI.

ASCII '2' (Hex 0x32)

Corresponds to the y-axis in the GUI.

ASCII '3' (Hex 0x33)

Corresponds to the z-axis in the GUI.

Actual-position:

5-bytes (digits) defining the numerical value of the actual-position. The range of the actual-position is thus [0000...99999].

Status-Byte:

ASCII '0': (Hex 0x30)

Indicates that the last commanded target-position has been reached.

ASCII '1': (Hex 0x31)

Indicates that the endswitch of the axis has been reached (the endswitch is at the opposite side of the homeswitch)

ASCII '2': (Hex 0x32)

Indicates that the homeswitch has been reached.

ASCII '3': (Hex 0x33)

Indicates that the doorswitch has been activated (door is open).

ASCII '4': (Hex 0x34)

Indicates that the doorswitch has been deactivated (door is closed).

CR: Carriage Return (Hex 0x0d)

Within the GUI's motoraxis control dialog you have the possibility of a manual control of the axis, independently of the marking process.
For automatized processes you can set the different target-positions for the axis in the properties of the marking file. Once you have defined a target-position within the properties of the marking file the firmware commands the axis to move to the target-position and waits for reaching this target-position before starting to mark. If the target-position is not reached within 60 seconds the laser emits a timeout alarm.