4. Commands

The device can be controlled using either **USB 2.0** or **RS-232** interface. The device will switch to the required interface upon connection of the appropriate cable.

When using the RS-232 interface, the controller communicates on the **configured baud rate** (see Command descriptions), using **8 data bits, no parity and 1 stop bit**.

4.1. Interface

When the device is connected to the PC through the USB interface, it will appear as a **Virtual Serial COM port**, so all PC side communications are interchangeable between the two interfaces.

All communications with the device are conducted by sending **literal ASCII string commands terminated with the newline character \n**. For example, the power can be set to 10% by issuing a "**LPA>PWR!_10\n**" command to which the device will respond with "**LPA>PWR_10\n**".

4.2. Description

Command	Response	Comments	Example usage	
			User command	Device response
Motion | Power - PWR, Angle - ANG, Target - TGT, Stop - STP				
LPA>PWR?	LPA>PWR_X.XXX	Command used to get the current power value in percentages.	LPA>PWR?	LPA>PWR!_45.125
LPA>PWR!_X.XXX	LPA>PWR!_X.XXX	Command used to set a new power value in percentages.	LPA>PWR!_10	LPA>PWR_10.000
			LPA>PWR!_45.1	LPA>PWR_45.100
			LPA>PWR!_0.07	LPA>PWR_0.070
LPA>ANG?	LPA>ANG_X.XXX	Command used to get the current angle value in degrees.	LPA>ANG?	LPA>ANG_22.143
LPA>ANG!_X.XXX	LPA>ANG_X.XXX	Command used to set the angle value in degrees.	LPA>ANG!_22.5	LPA>ANG_22.500
LPA>TGT!_X.XXX	LPA>TGT_X.XXX	Command used to set the target in micro-steps.	LPA>TGT!_44521	LPA>TGT_44521
LPA>TGT?	LPA>TGT_X.XXX	Command used to get the current position in micro-steps.	LPA>TGT?	LPA>TGT_44521
LPA>STP!	LPA>STP	Command used to stop motor instantly. Device could be used normally, homing is not require.	LPA>STP!	LPA>STP
Homing, Calibration & Auto-go | Homing - HOME, Auto-homing - AHOME, Calibration - DEF, Auto-go - AUTOGO				
LPA>HOME!	LPA>HOME	Command used to home the device (motor goes to home position - TGT_0).	LPA>HOME!	LPA>HOME
LPA>AHOME!	LPA>AHOME_1	Command used to turn ON auto homing after power ON.		
LPA>NOAHOME!	LPA>AHOME_0	Command used to turn OFF auto homing after power ON.		
LPA>AHOME?	LPA>AHOME_0	Command used to get auto homing state. If 1 - Auto homing is enabled, 0 - disabled.		

Command	Response	Comments	Example usage	
			User command	Device response
LPA>DEF!	LPA>DEF_offset	Command used to define current waveplate position as minimum power position. Used for calibration.	LPA>DEF!	LPA>DEF_-25432
LPA>DEF?	LPA>DEF_offset	Command used to get an offset value from zero to minimum power. Used for calibration.	LPA>DEF?	LPA>DEF_-25432
LPA>AUTOGO!_X	LPA>AHOME_X	Command used to set procedure after each homing: 0 - device remains in home position (TGT_0); 1 - device goes to MIN power position (calibrated position for minimum power); 2 - device goes to LAST position it was before homing.		
LPA>AUTOGO?	LPA>AHOME_X	Command used to get which procedure after each homing is selected: 0 - device remains in home position (TGT_0); 1 - device goes to MIN power position (calibrated position for minimum power); 2 - device goes to LAST position it was before homing.		
Settings | Baud rate - BAUD, Buttons lock - KEYLOCK, Default settings - LDF				
LPA>BAUD?	LPA>BAUD_baud rate	Command used to get baud rate.	LPA>BAUD?	LPA>BAUD_115200
LPA>BAUD!_baud rate	LPA>BAUD_baud rate	Command used to set baud rate. Available speeds: 115200, 57600, 38400, 19200, 9600, 4800. Other values are ignored.	LPA>BAUD!_57600	LPA>BAUD_57600
LPA>KEYLOCK!	LPA>KEYLOCK_X	Command used to ENABLE / DISABLE controller physical buttons: 1 - disabled, 0 - enabled.		
LPA>KEYLOCK?	LPA>KEYLOCK_X	Command used to get controller physical buttons state: 1 - disabled, 0 - enabled.		
LPA>LDF!	LPA>LDF	Command used to load default settings. Device after this command must be: 1. Homed; 2. Recalibrated.		
Ethernet settings				
LPA>NIP!_x.x.x.x	LPA>NIP_x.x.x.x	Command used to set Client (LPA) IP address in local network.	LPA>NIP!_192.168.30.140	LPA>NIP_192.168.30.140
LPA>NIP?	LPA>NIP_x.x.x.x	Command used to get Client (LPA) IP address in local network.	LPA>NIP?	LPA>NIP_192.168.30.140
LPA>NSIP!_x.x.x.x	LPA>NSIP_x.x.x.x	Command used to set Server (PC) IP address in local or public network.	LPA>NSIP!_192.168.30.153	LPA>NSIP_192.168.30.153
LPA>NSIP?	LPA>NSIP_x.x.x.x	Command used to get Server (PC) IP address in local or public network.	LPA>NSIP?	LPA>NSIP_192.168.30.153
LPA>GWIP!_x.x.x.x	LPA>GWIP_x.x.x.x	Command used to set Default Gateway IP address.	LPA>GWIP! _192.168.30.100	LPA>GWIP_192.168.30.100
LPA>GWIP?	LPA>GWIP_x.x.x.x	Command used to get Default Gateway IP address.	LPA>GWIP?	LPA>GWIP_192.168.30.100
LPA>NMSK!_x.x.x.x	LPA>NMSK_x.x.x.x	Command used to set Local network subnet mask.	LPA>NMSK! _255.255.255.0	LPA>NMSK_255.255.255.0
LPA>NMSK?	LPA>NMSK_x.x.x.x	Command used to get Local network subnet mask.	LPA>NMSK?	LPA>NMSK_255.255.255.0
LPA>NPRT!_x	LPA>NPRT_x	Command used to set Port over which both devices communicate (555 by default)	LPA>NPRT!_555	LPA>NPRT_555

Command	Response	Comments	Example usage	
			User command	Device response
LPA>NPRT?	LPA>NPRT_x	Command used to get Port over which both devices communicate (555 by default)	LPA>NPRT?	LPA>NPRT_555
Information | Device state - STATUS, Wavelength - WL, Firmware v. - FW, Serial number - ID				
LPA>STATUS?	LPA>X_Y	Command used to get the current state of the device. X signifies if motor is ON. Y signifies the error byte. X="1" motor is ON (enabled) X="0" motor is OFF (disabled) Y = 16 bits digit with following bits: bit0 -> driver error bit1 -> driver high temperature warning bit2 -> driver over temperature bit3 -> some type of error in the driver load bit4 -> load warning – open load on phase A or B bit5 -> under voltage error bit6 -> external memory error, working/ calibration data may be corrupted bit7 -> reset has occurred bit8 -> left limit switch is pressed bit9 -> right limit switch is pressed bit10 -> stall guard flag is active bit11 -> motor is stand still bit12 -> motor target velocity reached bit13 -> target position reached bit14 -> homing procedure was run after the reset bit15 -> device calibration is done	LPA>STATUS?	LPA>1_0
			LPA>STATUS?	LPA>0_0
			LPA>STATUS?	LPA>1_2
LPA>WL?	LPA>WL_XXX	Command used to get the design wavelength.	LPA>WL?	LPA>WL_355
LPA>FW?	LPA>_Firmware version	Command used to get firmware version.	LPA>FW?	LPA>_1.0.0.1
LPA>ID?	LPA>_LPAXXXXXXX	Command used to get serial number.	LPA>ID?	LPA>_LPA1901001
Other | Echo, Reset, Motor ON/OFF				
LPA>ECHO!	LPA>ECHO	Command used for troubleshooting. The device echoes sent command before sending the response.	LPA>ECHO! LPA>TGT?	LPA>ECHO LPA>TGT? LPA>TGT_45602
LPA>NOECHO!	LPA>NOECHO	Command used to disable ECHO command.		
LPA>RESET!	LPA>RESET	Command used to reinitialise device.	LPA>RESET!	LPA>RESET
LPA>OFF!	LPA>OFF	Command used to turn motor OFF.	LPA>OFF!	LPA>OFF
LPA>ON!	LPA>ON	Command used to turn motor ON.	LPA>ON!	LPA>ON

PHOTO TECHNICA www.phototechnica.co.jp
フォトテクニカ株式会社
〒336-0017 埼玉県さいたま市南区南浦和 1-2-17
TEL:048-871-0067 FAX:048-871-0068
e-mail:voc@phototechnica.co.jp