

RS232-ASCII-Commands

Optical Multiplexer



MPM-2000

1 Program file

The MPM-2000 Optical Multiplexer is interfaced via the RS232 protocol.

The settings for the serial communications are:

Baudrate:	9600
Databits:	8
Parity:	None
Stopbits:	1
Handshaking:	None

A program file which is stored in the EEPROM of the MPM-2000 contains all necessary data. These are:

1. Serial Number
2. Software Version Number (only for the windows software)
3. Calibration data (positions of all 16 channels)
4. Startup / Reference-sequence

Such a program file will look like the following samplecode except the position data.

For new devices with serialnumbers of **039180029** and above or **050460021** and above see the new data format on the next page:

Line	Command	
1	answ0	// asynchronous answers deactivated
2	jmp1	
3	SWVersion100	// version of the windows-software
4	SN03918XXXX	// serialnumber of the multiplexer
5	Ch01-400	// absolute position of channel 1: -400
6	Ch02-100	// absolute position of channel 2: -100
7	Ch03200	// ...
8	Ch04500	
9	Ch05800	
10	Ch061100	
11	Ch071400	
12	Ch081700	
13	Ch092000	
14	Ch102300	
15	Ch112700	
16	Ch123000	
17	Ch133300	
18	Ch143600	
19	Ch153900	
20	Ch164200	// absolute position of channel 16: 4200
21	A1	
22	v-60	//-----
23	delay800	// get reference position
24	gohix	//
25	delay50	//-----
26	la-400	// goto channel 1
27	m	// execute movement
28	delay10	

New data format:

Line	Command
1	answ 0
2	jmp 1
3	la 200
4	la 39180030
5	la -1095
6	la -188
7	la 711
8	la 1611
9	la 2516
10	la 3412
11	la 4312
12	la 5209
13	la 6104
14	la 6996
15	la 7887
16	la 8799
17	la 9700
18	la 10600
19	la 11508
20	la 12404
21	a 1
22	v -70
23	delay 600
24	gohix
25	delay 50
26	la -1095
27	m
28	delay 50

2 Syntax

Every command sent via RS232 to the MPM-2000 consists of two or three parts:
Command sequence, Parameter (if needed), Carriage Return [CR]

To set an absolute position you need to send:

```
LA1000[CR]    // Load absolute position 1000
M[CR]         // initiate motion
```

Command	Description		Example
M	Initiate Motion (Move)		M[CR]
LA	Load absolute target position Allows programming of the desired target position relative to the present zero or "home" position.		LA1000[CR] M[CR]
POS	Get actual position This command returns the actual position		POS[CR]
GST	Get Status This command returns motion controller status.		GST[CR]
	Bit	Description	
	0	1 Position mode 0 velocity mode	
	1	1 Speed command is analog input 0 Speed command comes via RS232	
	2	1 Speed command is PWM (SOR2) 0 Speed command is analog voltage (SOR1)	
	3	1 amplifier enabled 0 amplifier disabled	
	4	1 in position 0 not in position	
	5	1 rising edge on external switch is valid 0 falling edge on external switch is valid	
	6	1 external switch now high level 0 external switch now low level	
GFS	Get Fault Status This command returns the fault status		GFS[CR]
	Bit	Description	
	0	Over-temperature condition	
	1	Over-current condition	
	2	Under-voltage (<10VDC)	
	3	Over-voltage (>32VDC)	
ANSW	Asynchronous answer ON / OFF ANSW1 activated ANSW0 deactivated		ANSW0[CR]
GPROGSEQ	This command returns the complete program sequence stored in the EEPROM		GPROGSEQ[CR]

3 Operating/Interfacing the optical multiplexer

Mainly the user software needs to execute these steps:

1. Read the complete program out of the EEPROM in the multiplexer
2. Extract the Serialnumber of the MPM-2000
3. Extract the position for each channel out of the file and save them for example in an array
4. Set the position for any of the channels

The program can be read with the GPROGSEQ command. The program will look like the sample program. Only the softwareversion, the serialnumber and the positions will change with each device.

To check for a MPM-2000 you can check the serialnumber which is:

MPM-2000 1x16: 03918XXXX

MPM-2000 2x8: 05046XXXX

XXXX stands for a running serial number.

The positions are stored in the file like:

CH01-500 this means Channel 1, absolute position –500

CH133000 Channel 13, absolute position 3000

Once the positions are extracted and stored you can set the position of the motor with the command sequence:

LAPosition[CR]

M[CR]

To check if the MPM-2000 has reached the given position you can poll the actual position (POS[CR]) and compare it with desired position.

Note: A difference of +/-3 between desired position and real position can occur. This is no functional error.

4 Calibrating the MPM-2000

To calibrate the MPM-2000 Optical Multiplexer you need to write the complete programfile to the EEPROM in the MPM-2000.

This means that every line included in the original file must again be written to and stored in the EEPROM.

**YOU MUST NOT CHANGE ANYTHING ELSE THAN THE NUMBERS WHICH REPRESENT THE POSITIONS OF THE CHANNELS!
ANY OTHER CHANGE CAN LEAD TO MALFUNCTION OF THE SYSTEM!**

Commands to save a file to the EEPROM

Command	Description	Example
PROGSEQ	Defines the beginning of a Sequence program. All commands given after PROGSEQ will be sent directly to the EEPROM until the END command (Important: Do not cut the supply power to the motor during programming).	PROGSEQ[CR]
END	This command defines the end of the program. All commands given after the END will be immediately carried out by the motor.	END[CR]
GPROGSEQ	Get program sequence This function returns the complete program stored in the EEPROM	GPROGSEQ[CR]
ENPROG	Starts the program This Program command can also be saved with the EEPSAV command and the program will then run directly after turning the power to the motor on.	ENPROG[CR]
DIPROG	Deactivates the program	DIPROG[CR]
LR	Load relative position Loads new relative position	LA1000[CR] M[CR]