MCM3000 Direct Serial Communication

COM Port:

Choose COM port called MCM3000 as listed under Ports (COM & LPT) in Device Manager

COM Port Settings:

Recommended Baud Rate = 460800; Data bits = 8; Parity = none; Stop bits = 1; Flow control = none

Conversion factors:

Note: The listed conversion factors multiplied by the Encoder Count will produce stage position.

Motor Type	Conversion factor (nm)	Conversion factor (um)
LNR50S, LNR50S/M	39.0625	.0390625
PHYS24M, PHYS24M/M	39.0625	.0390625
MTM-FN1, MTME-FN1	39.0625	.0390625
DRV014	39.0625	.0390625
ZFM2020, ZFM2030	211.6667	.2116667
PLS-X, PLS-XY	211.6667	.2116667
AScope Z	1.0	.001
MMP-2XY, PMP-2XY(/M)	500.0	.5
Bergamo XY	500.0	.5
Bergamo Z	100.0	.1

Commands:

Set Encoder Counter Command

This message is used to set the encoder count in the controller

Command structure (12 bytes):

0	1	2	3	4	5	6	7	8	9	10	11
header						Data					
09	04	06	00	00	00	Chan Ident		Encoder Count			

Field	Description	Forma

		t
Chan Ident	The channel being addressed	word
Encoder count	The new value of the encoder counter as a 32-bit signed integer, encoded in the Intel little endian format. The scaling between Encoder Count and distance in um is => encoder resolution (um/count)	long

Example: Set the encoder counter for Axis 2 (stage3) to 0 counts

TX 09, 04, 06, 00, 00, 00, 02, 00, 00, 00, 00, 00

Position: 00, 00, 00, 00 (0 counts)

Stop Command

This command stops any type of motor move on the specified channel.

Command structure (6 bytes):

0	1	2	3	4	5
		header only			
65	04	Chan Ident	Stop Mode	00	00

Field	Description	Format
Chan Ident	The channel being addressed	byte
Stop Mode	This device has only one Stop Mode (abrupt). Set this byte to 0x01. Last two bits are ignored.	word

Example: Stop Axis 0 (stage1)

TX 65, 04, 00, 01, 00, 00

Query Position

Command structure (6 bytes):

0	1	2	3	4	5
		header only			
0A	04	Chan Ident	00	00	00

Field	Description	Format
Chan Ident	The channel being addressed	byte

Response structure (12 bytes)

6 byte header followed by 6 byte data packet as follows:

0	1	2	3	4	5	6	7	8	9	10	11
header						Data					
0B	04	06	00	00	00	Chan Ident		Encoder Count			

Field	Description	Format
Chan Ident	The channel being addressed	word
Encoder count	The new value of the encoder counter as a 32-bit signed integer, encoded in the Intel format. The scaling between Encoder Count and distance in um is => encoder resolution (um/count)	long

Go to Position Command

Command structure (12 bytes):

0	1	2	3	4	5	6	7	8	9	10	11
header						Data					
53	04	06	00	00	00	Chan Ident		Absolute Distance			

Field	Description	Format
Chan Ident	The channel being addressed	word
Absolut Distance	The distance to move. This is a 4 byte signed integer that specifies the absolute distance in position encoder counts.	long

Query Request Motor Status 0x0480 (busy or ready)

Note: Get Motor Status (0x0481 is not implemented)

Command structure (6 bytes):

0	1	2	3	4	5
header only					
80	04	Chan Ident	00	00	00

Field	Description	Format
Chan Ident	The channel being addressed	byte

Response:

6 byte header followed by 28 byte data packet.

Busy: true == (Byte 16) & 0x30 (ignore rest of bytes)