

ProtogenSmartOS

AT Command Manual

(SAMPLE)

MangMuang's Elektronik

Rev V1.0

Revision History

Revision	Date	Description
1.0	12/08/2023	Initial release

Protogen Command Set

This command manual showed how to override your Protogen on-board program through *CommanderPort* only. This will not work from WIFI or BLE. The command is enhanced Hayes Standard AT Command Set. Connect your external controller through *CommanderPort* and set UART configuration to below table and you can start to send a command. All command must be in ASCII and ending by <CR><LF> (0x0D, 0x0A) to set a completed sentence within 5ms from last ASCII characters in or the transmission will be rejected as uncompleted command.

UART Setting	
Baudrate	115200
Data	8 bit
Parity	None
Stop bits	1 bit
Flow control	None

ProtoGen AT Command List

ME Base Command

AT Command List	Description
ATI	Query product identification information
ATE	Set command echo mode
AT+MCFG	ProtoGen configuration command
AT+ENABLEDEBUG	Set which debug to enable
AT+MCONNECT	Set connectivity mode (OFF/WIFI/BLE)
AT+MRELEASE	Release control and set back to standalone mode
AT+MCLR	Select internal storage to wipe

Display Draw Command

AT Command List	Description
AT+MDPIXEL	Draw pixel
AT+MDLINE	Draw line
AT+MDRECT	Draw rectangle
AT+MDARRAYREAD	Draw upload RGB data to input array
AT+MDARRAYSHOW	Draw input array
AT+MDCLEAR	Clear display
AT+MDMODE	Set display mode
AT+MDFILEOPEN	Open file from UFS storage

LED Strip Command

AT Command List	Description
AT+MSCOLORSETALL	Set colours to all LED on strip
AT+MSCOLORSETONE	Set colours to one LED on strip
AT+MSDRAW	Display LED Strip
AT+MSCLEAR	Clear LED Strip

On-board Sensor Command

AT Command List	Description
AT+MRNOSE	Get/Configure nose sensor status
AT+MRUSRMIC	Get/Configure user microphone level
AT+MRAMBMIC	Get/Configure ambient microphone level
AT+MACH	Get 1-8 Audio channel value
AT+MRLUX	Get light sensor lux level
AT+MRLR	Get light sensor red level
AT+MRLG	Get light sensor green level
AT+MRLB	Get light sensor blue level
AT+MRGYROCOMP	Get/Configure gyroscope and compass sensor

File System Command

AT Command List	Description
AT+MFLDS	Get the space information of the storage
AT+MFLST	List files
AT+MFDEL	Delete the file in the storage
AT+MFMOV	Move file
AT+MFOPEN	Open file
AT+MFREAD	Read file
AT+MFWRITE	Write file
AT+MFPOSITION	Get the offset of the File Pointer
AT+MFSEEK	Seek the file pointer
AT+MFCLOSE	Close file

WIFI Related Command

AT Command List	Description
AT+MWMODE	Change WIFI between AP Mode or Client Mode
AT+MWSCAN	Scan WIFI list
AT+MWCFG	Configure WIFI
AT+MWCONNECT	Connect to WIFI / Start AP WIFI Server
AT+MWDISCONNECT	Disconnect from WIFI AP / Stop AP WIFI Server

BLE Related Command

AT Command List	Description
AT+MBSCAN	Scan BLE list
AT+MBCFG	Configure BLE
AT+MBCONNECT	BLE Connect / Enable
AT+MBDISCONNECT	BLE Disconnect / Disable

Hardware Related Command

AT Command List	Description
AT+MREBOOT	Reboot Proton
AT+CBC	Get supply voltage
AT+CCLK	Get timer value
AT+MI2C	Get / Write I2C
AT+MSPI	Get / Write SPI

Summary of URC Interrupt

URC Display	Description
+MDMODE: "mode"	Mode change display
+MDBL: "blinkstate"	Eye blink state
+MDSENS: "nosestate"	Nose sensor state
+MWCTRL: "mode", "page"	Mode change from external input
+MGESTURE: "ges"	Gesture interrupt value
+MWCONNECT: "status"	WIFI Connection status
+MBINCONNECT: "status"	BLE Connection status
+MBHARDWARE: "status"	Hardware status

Summary of Error Code

General Error Code

Code of <err>	Description
0	Controller failure
1	Operation not allowed
2	Operation not support
3	Incorrect password
4	Memory full
5	Invalid index
6	Not found
7	Memory failure
8	Text string too long
9	Invalid characters in text string

Display Driver Error Code

Code of <err>	Description
100	Invalid Parameter
101	Operation not support
102	Value out of range
103	RGB Not alignment
104	RGB Wrong type
105	File not found

Audio Driver Error Code

Code of <err>	Description
200	Invalid Parameter
201	Operation not support

202	Value out of range
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Onboard Sensor Error Code

Code of <err>	Description
300	Invalid Parameter
301	Operation not support
302	Value out of range
303	Sensor not found

File System Error Code

Code of <err>	Description
400	Invalid Parameter
401	Operation not support
402	Value out of range
403	Memory full
404	Memory failure
405	File not found

WIFI Error Code

Code of <err>	Description
500	Invalid Parameter
501	Operation not support
502	Value out of range
503	WIFI Not found
504	Authentication failed
505	Server start failed
506	DNS failed

BLE Error Code

Code of <err>	Description
600	Invalid Parameter
601	Value out of range (too low)
602	Value out of range (too high)
603	BLE Not found
604	Authentication failed

SAMPLE MANUAL

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