KM003C 系列使用虚拟串口触发协议说明书

1 指令列表

指令	描述
pdm open	启动协议触发模块
pdm close	退出协议触发模块
pdm set type=?,em=?,sink=?	定制 PD 协议触发功能
	type:PD 协议请求类型 ， 0:自动,1:PD3.0,2:PD3.1,3:私有 PPS(目前包含两种,xiaomi PPS 和 vooc PPS),私有协议无需关心那种,会自动判断
	em:emarker 模拟, 0:关闭,1:20V5A,2:50V5A(EPR),LA135 6.75A 启用后可以免插数据线触发需要高功率的充电器
	sink: sink cap 模拟, 0:3 APPS , 1: 5A PPS 有些厂家充电器会判断 sink cap 进行二次广播高功率
entry pd	进入 PD 协议触发, 回复 ready 表示已经读取到了 PD 协议,这时再发送 **pd pdo** 可以查看功率信息
entry ufcs	融合快充
entry qc	高通快充,包含 QC2.0/3.0,请求时会自动判断
entry fcp	菊厂私有协议
entry scp	菊厂私有协议
entry afc	三丧私有协议
entry vfcp	蓝厂私有协议
entry sfcp	展讯私有协议
entry tfcp	传音私有协议
entry bc	BC1.2 返回 true 或 false
entry apple	苹果 2A 判断 BC1.2 有效再判断 2.7V 电平 返回 true 或 false
entry list	自动检测,列出所有可用的协议
entry list+	比 entry list 多了 vooc 和 mtkpe 这两类协议需要假负载,并且时间超长
reset	复位协议触发,发送后恢复到 pdm open 初始状态
qc ?V	请求 QC2.0 固定电压
	示例: qc 5V, qc 9V, qc 12V, qc 20V
qc3 volt=?	请求 QC3.0 任意电压,单位 mV,最小步进 200mV
	范围:3600-20000
	示例:qc3 volt=3800, qc3 volt=19800,
	qc3 volt=5000
qc3 inc=?	QC3.0 增加电压
	示例:qc3 inc=8
qc3 dec=?	QC3.0 减少电压
	示例: qc3 dec=6
fcp ?V	请求 FCP 固定电压
	示例: fcp 5V, fcp 9V, fcp 12V

scp volt=?,cur=?	请求 SCP 任意电压,单位 mV,最小步进由充电器决定
	示例: scp volt=11000,cur=5000
afc ?V	请求 AFC 固定电压
	示例: afc 5V, afc 9V, afc 12V
sfcp ?V	请求 SFCP 固定电压
	示例: sfcp 5V, sfcp 9V, sfcp 12V
vfcp volt=?,cur=?	请求蓝厂私有协议
	范围:5000-20000,0.01-10000 其中最大值由充电器决定
	示例: vfcp volt=7100,cur=3000
ufcs req=?,volt=?,cur=?	请求 UFCS 任意电压
	范围从充电器读取
	示例:ufcs req=1,volt=11000,cur=4000
	ufcs req=2,volt=12000,cur=5000
ufcs pdo	获取 ufcs 充电器 Output_Capabilities 参数
ufcs cmd=?	发送控制命令,请参考 UFCS 协议手册表 14 中的编号
	范围:ufcs cmd=6
ufcs data=?	暂未实现
tfcp volt=?,cur=?	tfcp volt=?,cur=? 请求传音私有协议 范围:5000-20000,0.01-10000 其中最大值由充电器决定 示例: tfcp volt=7100,cur=3000
pd pdo	获取 PD 协议中的 SourceCapabilities
pd req=?,cur=?	不带 volt 请求固定电压,如果没有使用 cur 参数则取 PDO 中的 Max current
	req 表示 ObjectPosition
	示例:**req=2,cur=20000** **req=3**
pd req=?,volt=?,cur=?	如果需要请求 PPS 或 AVS 则使用带 volt 请求固定电压,如果指定的挡位是固定电压,则忽略 volt 参数
	如果没有使用 cur 参数则取 PDO 中的 Max current
	示例:**req=5,volt=12000,cur=20000** **req=6,volt=20000**
pd cmd=?	发送控制命令,请参考判断协议文档 Protocol Layer->Control Message
	示例: **pd cmd=18** (表示 Get_Status, 10010b,12H,) **pd cmd=7** (表示 Get_Source_Cap, 00111b,07H,)
pd data=?	发送数据命令
	第 1 个字节表示 SOP,第 2/3 个字节表示消息头,不包含 CRC (00=SOP,01=SOP',02=SOP")

	示例 1:发送一条 vdm 命令 **pd data=018F1401A000FF** (8F51=Message Header, type=15 vdm) (01A000FF=具体内容请使用此上位机的 PD 协议分析查看) 示例 2: 发送一条 request 命令 **pd data=0082102CB10410** (8210=Message Header, type=2 request) 具体格式请查找 PD 协议文档
由于 PD 协议需要状态机控制,不是所有命令或数据都可以发送,内部计数器也是状态机决定的,所以消息头与实际发出去的字节有差异,也就是只选取了消息头中的数据类型和对象数 你可以将示例发送,然后用 PD 协议分析仪解码功能解读内容,更多关于 PD 协议的问题请仔细阅读 Power Delivery Specification Document Library | USB-IF	

2 演示

1 WIN7 需要安装虚拟串口驱动

https://power-z.oss-cn-hongkong.aliyuncs.com/driver.exe

虚拟串口无需设置波特率

安装驱动后会显示 带有 POWERZ 标识的端口

WIN10.WIN11 无需安装驱动也可以使用,但端口列表不会显示带有 POWER-Z 标识的端口

本次演示使用了串口工具 SSCOM

大虾电子网 (daxia.com)


SSCOM V5.13.1 串口/网络数据调试器,作者:大虾丁丁,2618058@qq.com. QQ群：52502449(最新版本)
通讯端口 串口设置 显示 发送 多字符串 小工具 帮助 联系作者 大虾论坛
pdm mode entry
ver1.0
ok
CC no Orient
CC1 Orient
PDO 7
ready:5194mV,0mA
ready:5193mV,0mA
ready:5195mV,0mA
ready:5192mV,0mA
ready:5190mV,0mA
ready:5193mV,0mA
ready:5192mV,0mA
PDO 7
ready:5195mV,0mA
PDO 7
ready:5193mV,0mA
maw power 45W
Fixed: 5.00V 3.00A
Fixed: 9.00V 3.00A
Fixed: 12.00V 3.00A
Fixed: 15.00V 3.00A
Fixed: 20.00V 2.25A
PPS: 3.30-5.90V 5.10A
PPS: 3.30-20.00V 8.00A
CC no Orient
ok
ok
timeout
timeout
timeout
ok
ok
ready
PDO 3
ready:5488mV,0mA
ready:5495mV,0mA
ready:5496mV,0mA
ready:5494mV,0mA
maw power 42.0W
Num1: 5.50 - 10.50V 4.00A
Num2: 10.50 - 12.00V 3.00A
Num3: 12.00 - 20.50V 2.00A
ready:5495mV,0mA
多条字符串发送
stm32/GD32 ISP
STC/IAP15 ISP
reset
qc 5V
qc 9V
qc 12V
qc3 volt=19800
qc3 inc=1
qc3 dec=5
fcp 9V
fcp 12V
scp volt=11000,cur=3000
afc 9V
afc 12V
vfcp volt=10000,cur=4000
sfcp 9V
sfcp 12V
ufcs req=1,volt=12000,cur=4000
ufcs req=2,volt=12000,cur=4000
pd pdo
pd req=2,cur=2000
pd req=3,cur=1000
pd req=4,cur=3000
pd req=5,cur=2250
pd req=7,volt=12000
992E00181815000000000000040400800
pd cmd=25
清除窗口
打开文件
发送文件
停止
清发送区
最前
English
保存参数
隐藏
端口号 COM3 POWER-Z Serial
关闭串口
更多串口设置
RTS DTR 波特率: 2000000
为了更好地发展SSCOM软件
请您注册嘉立创P结尾客户
发 送
HEX显示
保存数据
接收数据到文件
HEX发送
定时发送: 1000 ms/次
加回车换行
加时间戳和分包显示, 超时时间: 20 ms 第 1 字节 至 末尾
加校验 None
ufcs pdo
【升级到V5.13.1】★合宙高性价比4G模块值得一试 ★RT-Thread中国人的开源免费操作系统 ★新一代WiFi芯片兼容8266支持RT-Thread ★8KM远距
www.daxia.com
S:60
R:679
COM3 已打开 2000000bps,8,1,None,None

KM003C/002C Protocol Trigger by Virtual Serial Port (Instructions)

Command List

Command	Description
pdm open	Start protocol trigger module
pdm close	Exit protocol trigger module
pdm set type=?,em=?	Customized PD protocol trigger
	type: PD protocol trigger type, 0: automatic, 1: PD3.0, 2: PD3.1, 3: Proprietary PPS (two types for now)
	em: Emarker/Cable simulation, 0: off, 1: 20V5A, 2: 50V5A (EPR), LA1356.75A
entry pd	Enter the PD protocol trigger and some of the proprietary protocols (type=2)
entry ufcs	UFCS (Universal Fast Charging Specification)
entry qc	Qualcomm QC, including QC2.0/3.0, it'll automatically judge when triggered
entry fcp	FCP proprietary protocol
entry scp	SCP proprietary protocol
entry afc	AFC proprietary protocol
entry vfcp	VFCP proprietary protocol
entry sfcp	SFCP proprietary protocol
entry tfcp	Transsion proprietary protocol
entry bc	BC1.2 detection; Returns true or false
entry apple	Apple 2A detection Performs BC1.2 validation first; if valid, proceeds to check for a 2.7V signal level Returns true or false
entry list	Automatic detection. Lists all available protocols
entry list+	Extended version of entry list Includes additional protocols such as VOOC and MTK PE, which require a dummy load and have a significantly longer detection time
reset	Reset protocol trigger, restore to initial state: pdm open after sending
qc ?V	Request fixed voltage of QC2.0 protocol
	Example: qc 5V, qc 9V, qc 12V, qc 20V
qc3 volt=?	Request any voltage of QC3.0, the minimum step is 200mV
	Range: 3600-20000 mV
	Example: qc3 volt=3800, qc3 volt=19800, qc3 volt=5000
qc3 inc=?	QC3.0 increases voltage
	Example: qc3 inc=8
qc3 dec=?	QC3.0 reduces voltage
	Example: qc3 dec=6
fcp ?V	Request fixed voltage of FCP protocol

	Example: fcp 5V, fcp 9V, fcp 12V
scp volt=?,cur=?	Request any voltage of SCP protocol, the minimum step is determined by the charger, the unit is mV
	Example: scp volt=11000,cur=5000
afc ?V	Request fixed voltage of AFC protocol
	Example: afc 5V, afc 9V, afc 12V
sfcp ?V	Request fixed voltage of SFCP protocol
	Example: sfcp 5V, sfcp 9V, sfcp 12V
vfcp volt=?,cur=?	Request VFCP protocol
	Range: 5000-20000,0.01-10000 (the maximum value is determined by the charger)
	Example: vfcp volt=7100,cur=3000
ufcs req=?,volt=?,cur=?	Request any voltage of UFCS protocol, the range is determined by the charger
	Example: ufcs req=1, volt=11000, cur=4000
	ufcs req=2, volt=12000, cur=5000
ufcs pdo	Get Output_Capabilities value of UFCS charger
ufcs cmd=?	Send control commands, please refer to the number in Table 14 of the UFCS protocol manual
	range: ufcs cmd=6
ufcs data=?	not yet implemented
tfcp volt=?,cur=?	tfcp volt=?,cur=? Request Transsion proprietary protocol Range: 5000-20000,0.01-10000 (the maximum value is determined by the charger) Example: tfcp volt=7100,cur=3000
pd pdo	Get the SourceCapabilities in the PD protocol
pd req=?,cur=?	Request a fixed voltage without volt, if the cur value is not used, take the Max current of PDO
	req means ObjectPosition
	Example: req=2, cur=20000, req=3
pd req=?,volt=?,cur=?	If you need to request PPS or AVS, request the fixed voltage with volt. If it is a fixed voltage, ignore the volt value
	If the cur value is not used, take the Max current of PDO
	Example: req=5, volt=12000, cur=20000 req=6, volt=20000
pd cmd=?	send control command Refer to the protocol document: Protocol Layer → Control Message
	Example: pd cmd=18 — Get_Status (10010b, 0x12) pd cmd=7 — Get_Source_Cap (00111b, 0x07)
pd data=?	send data command
	The first byte represents SOP, the second/third represents the header,

	and does not contain CRC (00=SOP,01=SOP',02=SOP")
	Example 1: Sending a VDM command **pd data=018F1401A000FF** (8F51=Message Header, type=15 vdm) (01A000FF=for details, please use the PD protocol analyzer in the host software) Example 2: Sending a Request command **pd data=0082102CB10410** (8210=Message Header, type=2 request) For detailed format specification, please refer to the USB PD protocol documentation
Since the PD protocol requires state machine, not all commands or data can be sent. And the internal counter is also determined by the state machine, so there is a difference between the header and the actual sent bytes. Only the data type and number of objects in the header are selected.	

Important Notice

1. If you're using Windows 7, please install the virtual serial port driver firstly.
https://power-z.oss-cn-hongkong.aliyuncs.com/driver.exe
Virtual serial port does not need to set Baud
After the driver is installed, the port with the POWERZ logo will be displayed.
2. If you're using Windows 10/11, you can use it without driver, but the port with the POWERZ logo will not be displayed.