KM003C/002C Series Protocol Trigger via Virtual Serial Port

KM003C/002C 系列使用虚拟串口触发协议说明书

1. Command List

1 指令列表

Command 指令	Description 描述
pdm open	Start the protocol trigger module. 启动协议触发模块。
pdm close	Exit the protocol trigger module. 退出协议触发模块。
pdm set type=?,em=?,sink=?	Configure customized PD protocol triggering. type: PD request type. 0 = Auto; 1 = PD 3.0; 2 = PD 3.1; 3 = proprietary PPS. Currently supported proprietary PPS types include Xiaomi PPS and VOOC PPS. The specific protocol is identified automatically. em: eMarker simulation. 0 = Off; 1 = 20V/5A; 2 = 50V/5A (EPR). LA135 6.75A simulation is also supported. When enabled, high-power chargers can be triggered without connecting a data cable. sink: Sink_Capabilities simulation. 0 = 3A PPS; 1 = 5A PPS. Some chargers check Sink_Capabilities and then rebroadcast higher-power capabilities. 定制 PD 协议触发功能。 type：PD 协议请求类型。0 = 自动；1 = PD 3.0；2 = PD 3.1；3 = 私有 PPS。目前包含小米 PPS 和 VOOC PPS，无需手动选择具体类型，设备会自动判断。 em：eMarker 模拟。0 = 关闭；1 = 20V/5A；2 = 50V/5A（EPR）。同时支持 LA135 6.75A 模拟，启用后无需插入数据线，也可触发需要高功率线缆能力的充电器。 sink：Sink_Capabilities 模拟。0 = 3A PPS；1 = 5A PPS。部分充电器会判断 Sink_Capabilities，并进行二次高功率能力广播。
entry pd	Enter PD protocol triggering. A "ready" response means the PD protocol information has been read. Send "pd pdo" afterward to view the power capability information. 进入 PD 协议触发。返回“ready”表示已读取到 PD 协议信息，此时可继续发送“pd pdo”查看功率能力信息。
entry ufcs	Enter UFCS (Universal Fast Charging Specification) triggering. 进入 UFCS 融合快充协议触发。
entry qc	Enter Qualcomm Quick Charge triggering, including QC 2.0 and QC 3.0. The protocol version is identified automatically during the request. 进入高通快充协议触发，支持 QC 2.0/3.0，请求时会自动判断协议版本。
entry fcp	Enter Huawei FCP proprietary protocol triggering. 进入华为 FCP 私有协议触发。

Command 指令	Description 描述
entry scp	Enter Huawei SCP proprietary protocol triggering. 进入华为 SCP 私有协议触发。
entry afc	Enter Samsung AFC proprietary protocol triggering. 进入三星 AFC 私有协议触发。
entry vfcp	Enter vivo VFCP proprietary protocol triggering. 进入 vivo VFCP 私有协议触发。
entry sfcp	Enter Spreadtrum SFCP proprietary protocol triggering. 进入展讯 SFCP 私有协议触发。
entry tfcp	Enter Transsion TFCP proprietary protocol triggering. 进入传音 TFCP 私有协议触发。
entry bc	Perform BC 1.2 detection. Returns true or false. 执行 BC 1.2 检测，返回 true 或 false。
entry apple	Perform Apple 2A detection. BC 1.2 is validated first; if valid, the 2.7V signal level is then checked. Returns true or false. 执行苹果 2A 检测。先判断 BC 1.2 是否有效，有效后再检测 2.7V 电平，返回 true 或 false。
entry list	Automatically detect and list all available protocols. 自动检测并列出所有可用协议。
entry list+	Extended automatic detection based on "entry list". It additionally detects VOOC and MTK PE. These protocols require a dummy load and take significantly longer to detect. 在“entry list”基础上扩展自动检测，额外加入 VOOC 和 MTK PE。此类协议需要假负载，检测耗时也会明显增加。
reset	Reset protocol triggering. After the command is sent, the module returns to the initial "pdm open" state. 复位协议触发。发送后恢复到“pdm open”的初始状态。
qc ?V	Request a fixed QC 2.0 voltage. Example: qc 5V, qc 9V, qc 12V, qc 20V 请求 QC 2.0 固定电压。 示例：qc 5V、qc 9V、qc 12V、qc 20V
qc3 volt=?	Request an arbitrary QC 3.0 voltage. Unit: mV; minimum step: 200mV. Range: 3600-20000mV Example: qc3 volt=3800, qc3 volt=19800, qc3 volt=5000 请求 QC 3.0 任意电压。单位：mV；最小步进：200mV。 范围：3600-20000mV 示例：qc3 volt=3800、qc3 volt=19800、qc3 volt=5000

Command 指令	Description 描述
qc3 inc=?	Increase the QC 3.0 voltage by the specified number of steps. Example: qc3 inc=8 按指定步数增加 QC 3.0 电压。 示例：qc3 inc=8
qc3 dec=?	Decrease the QC 3.0 voltage by the specified number of steps. Example: qc3 dec=6 按指定步数降低 QC 3.0 电压。 示例：qc3 dec=6
fcp ?V	Request a fixed FCP voltage. Example: fcp 5V, fcp 9V, fcp 12V 请求 FCP 固定电压。 示例：fcp 5V、fcp 9V、fcp 12V
scp volt=?,cur=?	Request an arbitrary SCP voltage. Voltage unit: mV; the minimum voltage step is determined by the charger. Example: scp volt=11000,cur=5000 请求 SCP 任意电压。电压单位：mV；最小电压步进由充电器决定。 示例：scp volt=11000,cur=5000
afc ?V	Request a fixed AFC voltage. Example: afc 5V, afc 9V, afc 12V 请求 AFC 固定电压。 示例：afc 5V、afc 9V、afc 12V
sfcp ?V	Request a fixed SFCP voltage. Example: sfcp 5V, sfcp 9V, sfcp 12V 请求 SFCP 固定电压。 示例：sfcp 5V、sfcp 9V、sfcp 12V
vfcp volt=?,cur=?	Request the vivo VFCP proprietary protocol. Range: voltage 7000-20000; current 0.01-6000. The actual maximum is determined by the charger. Example: vfcp volt=7100,cur=3000 请求 vivo VFCP 私有协议。 范围：电压 7000-20000；电流 0.01-6000。实际最大值由充电器决定。 示例：vfcp volt=7100,cur=3000
ufcs req=?,volt=?,cur=?	Request an arbitrary UFCS voltage. The supported range is read from the charger. Examples: ufcs req=1,volt=11000,cur=4000 ufcs req=2,volt=12000,cur=5000 请求 UFCS 任意电压，支持范围从充电器读取。 示例： ufcs req=1,volt=11000,cur=4000 ufcs req=2,volt=12000,cur=5000

Command 指令	Description 描述
ufcs pdo	Read the Output_Capabilities parameters from the UFCS charger. 获取 UFCS 充电器的 Output_Capabilities 参数。
ufcs cmd=?	Send a UFCS control command. Refer to the command number in Table 14 of the UFCS protocol manual. Example: ufcs cmd=6 发送 UFCS 控制命令，命令编号请参考 UFCS 协议手册表 14。 示例：ufcs cmd=6
ufcs data=?	Not yet implemented. 暂未实现。
tfcp volt=?,cur=?	Request the Transsion TFCP proprietary protocol. Range: voltage 5000-20000; current 0.01-10000. The actual maximum is determined by the charger. Example: tfcp volt=7100,cur=3000 请求传音 TFCP 私有协议。 范围：电压 5000-20000；电流 0.01-10000。实际最大值由充电器决定。 示例：tfcp volt=7100,cur=3000
pd pdo	Read Source_Capabilities from the PD protocol. 获取 PD 协议中的 Source_Capabilities。
pd req=?,cur=?	Request a fixed-voltage PDO without the "volt" parameter. If "cur" is omitted, the Max Current value in the PDO is used. "req" indicates ObjectPosition. Examples: req=2,cur=20000; req=3 不带“volt”参数请求固定电压 PDO。如果未使用“cur”参数，则采用 PDO 中的 Max Current。 “req”表示 ObjectPosition。 示例：req=2,cur=20000；req=3
pd req=?,volt=?,cur=?	Use the "volt" parameter when requesting PPS or AVS. If the selected PDO is fixed-voltage, the "volt" parameter is ignored. If "cur" is omitted, the Max Current value in the PDO is used. Examples: req=5,volt=12000,cur=20000; req=6,volt=20000 请求 PPS 或 AVS 时使用“volt”参数。如果指定挡位为固定电压 PDO，则忽略“volt”参数。如果未使用“cur”参数，则采用 PDO 中的 Max Current。 示例：req=5,volt=12000,cur=20000；req=6,volt=20000
pd cmd=?	Send a PD control command. Refer to Power Delivery Specification: Protocol Layer > Control Message. Examples: pd cmd=18 — Get_Status (10010b, 0x12) pd cmd=7 — Get_Source_Cap (00111b, 0x07) 发送 PD 控制命令，请参考 Power Delivery Specification 中的 Protocol Layer > Control Message。 示例： pd cmd=18 — Get_Status（10010b，0x12） pd cmd=7 — Get_Source_Cap（00111b，0x07）

Command 指令	Description 描述
pd data=?	Send a PD data command. The first byte indicates SOP, and the second and third bytes indicate the message header. CRC is not included. (00 = SOP, 01 = SOP', 02 = SOP'') Example 1 — Send a VDM command: pd data=018F1401A000FF 8F51 = Message Header; type = 15 (VDM). Use the PD protocol analyzer in the host software to inspect the contents of 01A000FF. Example 2 — Send a Request command: pd data=0082102CB10410 8210 = Message Header; type = 2 (Request). Refer to the USB PD protocol documentation for the detailed format. 发送 PD 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 VDM 命令： pd data=018F1401A000FF 8F51 = Message Header；type = 15（VDM）。01A000FF 的具体内容可使用上位机中的 PD 协议分析功能查看。 示例 2——发送 Request 命令： pd data=0082102CB10410 8210 = Message Header；type = 2（Request）。具体格式请参考 USB PD 协议文档。

PD Protocol Notes

PD 协议说明

Because USB PD relies on a state machine, not every command or data packet can be sent at any time. Internal counters are also controlled by the state machine. Therefore, the message header may differ from the bytes actually transmitted; only the data type and the number of data objects from the supplied header are used.

由于 USB PD 协议依赖状态机控制，并非所有命令或数据都能在任意状态下发送。内部计数器同样由状态机决定，因此消息头可能与实际发出的字节存在差异，系统只会采用所提供消息头中的数据类型和数据对象数量。

You may send the examples above and use the PD protocol analyzer to decode the transmitted content. For more information about USB PD, refer to the Power Delivery Specification in the USB-IF Document Library.

可发送上述示例，并使用 PD 协议分析仪的解码功能查看实际内容。更多 USB PD 相关信息，请参考 USB-IF Document Library 中的 Power Delivery Specification。

2. Setup and Demonstration

2 安装与演示

No. 序号	Instructions 说明

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1	Windows 7 requires the virtual serial port driver to be installed first. Windows 7 需要先安装虚拟串口驱动。
2	The virtual serial port does not require a baud-rate setting. 虚拟串口无需设置波特率。
3	After the driver is installed, a port marked with the POWER-Z logo will appear. 安装驱动后，会显示带有 POWER-Z 标识的端口。
4	Windows 10 and Windows 11 can use the virtual serial port without installing the driver, but the port list will not show the POWER-Z logo. Windows 10 和 Windows 11 无需安装驱动即可使用，但端口列表不会显示 POWER-Z 标识。
5	This demonstration uses the SSCOM serial-port tool from Daxia Electronics (daxia.com). 本次演示使用大虾电子网（daxia.com）的 SSCOM 串口工具。

Virtual Serial Port Driver / 虚拟串口驱动： https://power-z.oss-cn-hongkong.aliyuncs.com/driver.exe

Document note: This bilingual edition consolidates the Chinese and English source documents. Content present in only one source has been translated and included.