

# APG EMEA USB Interface

## Raw Integration Guidelines

REVISION 1.0

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## Hardware Interface

APG EME USB Drawer is connected to the terminal via a USB port. The interface is equipped with an FTDI chip hence communication can be established using either a VCP (Virtual COM Port) or D2XX driver. Drivers and further details about how to use them can be found at FTDI website: <https://www.ftdichip.com>. The serial port must be configured at 9600 bauds, 8 data bits, no parity, 1 stop bit. USB String Descriptor/Product Description used to identify this model when using D2XX driver is "USB CDI".

## Basic Commands & Responses

### Fire Open

This command fires the drawer open. If there is a change of status open / closed the drawer responds sending back the new status response either open or closed (see drawer status request).

Command: **0x07**

### Drawer Status Request

Request the current drawer open / closed status.

Command: **0x1D 0x61**

The drawer responds with a four-byte message that indicates the current status as follows:

- **0x14 0x00 0x00 0x0F**                  Closed
- **0x10 0x00 0x00 0x0F**                  Open

### NAK – No Acknowledge

If the USB firmware does not recognize the requested command a NAK respond is sent back as follows:

Response: **0x15 0x15 0x15 0x15** — {NAK}{NAK}{NAK}{NAK}

## Advanced Commands & Responses

These commands are supported from firmware rev B. Responses for advanced commands are ended with a new line feed and carriage return characters: 0x0D 0x0A -> {CR}{LF}. Please see specific command for details.

### Acknowledge

Advance commands supported in the firmware are acknowledge by the drawer sending an "OK" response. This OK respond could be either after or before the drawer's request respond. Please see specific command for details.

Response: **0x4F 0x4B** 0x0D 0x0A — **OK**{CR}{LF}

### Get Drawer Counters

The drawer has three counters to keep the number of: open, override and failed openings. This command requests the counters.

Command: **0x40 0x43** — @C

The response is as follows:

Response: **0x4F 0x4B** 0x0D 0x0A **0x4F 0x50 0x45 0x4E** 0x0D 0x0A **B1 B2 B3 B4** 0x0D 0x0A **0x4F 0x52 0x49 0x44 0x4E** 0x0D 0x0A **B1 B2 B3 B4** 0x0D 0x0A **0x46 0x41 0x49 0x4C 0x45 0x44** 0x0D 0x0A **B1 B2 B3 B4** 0x0D 0x0A — **OK** {CR}{FL} **OPEN** {CR}{FL} **VALUE** {CR}{FL} **ORIDN** {CR}{FL} **VALUE** {CR}{FL} **FAILED** {CR}{FL} **VALUE** {CR}{FL}

#### Break down:

**0x4F 0x4B** 0x0D 0x0A — **OK**{CR}{LF} - Acknowledge

**0x4F 0x50 0x45 0x4E** 0x0D 0x0A -> **OPEN**{CR}{LF} - Open counter head.

**B1 B2 B3 B4** 0x0D 0x0A -> **4-bytes**{CR}{LF} - 4 bytes with the open count using a LSBF (Least Significant Byte First) codification, i.e. **0x14 0x00 0x00 0x00** = 20.

**0x4F 0x52 0x49 0x44 0x4E** 0x0D 0x0A -> **ORIDN**{CR}{LF} - Override counter head.

**B1 B2 B3 B4** 0x0D 0x0A -> **4-bytes**{CR}{LF} - 4 bytes with the override count using a LSBF (Least Significant Byte First) codification, i.e. **0x02 0x00 0x00 0x00** = 2.

**0x46 0x41 0x49 0x4C 0x45 0x44** 0x0D 0x0A -> **FAILED**{CR}{LF} - Failed counter head.

**B1 B2 B3 B4** 0x0D 0x0A -> **4-bytes**{CR}{LF} - 4 bytes with the failed count using a LSBF (Least Significant Byte First) codification, i.e. **0x21 0x00 0x00 0x00** = 33.

## Get Serial Number and Date Made

This command requests the Serial Number and date made of the connected USB drawer.

Command: **0x40 0x53** — @S

The respond is as follows:

Response: **B1 B2 B3 B4 B5 B6 B7 B8** 0x0D 0x0A **0x4F 0x4B** 0x0D 0x0A — **SN**DATE\_MADE{CR}{FL}**OK**{CR}{FL}

**B1 B2 B3 B4 B5 B6 B7 B8** 0x0D 0x0A – 8 bytes data being the first 4 bytes an integer that represents the drawer Serial Number using a LSBF codification. Current APG EMEA Serial Number is a 7-digit number. The next 4 bytes, from 5 to 8, are the date the drawer was made. They are an integer, LSBF codification, which represents the number of days pass from the 1<sup>st</sup> of January 2014.

i.e. **0x87 0xD6 0x12 0x00 0xC8 0x06 0x00 0x00** 0x0D 0x0A = **12345671736**{CR}{FL} -> SN: 1234567; Date Made: 1/1/2014 + 1736 days = 3/10/2018

## Get Firmware Revision

This command requests the Firmware Version of the connected USB drawer.

Command: **0x40 0x46** — @F

The response is as follows:

Response: **B1 B2 ... BN** 0x0D 0x0A **0x4F 0x4B** 0x0D 0x0A — **FIRMWARE\_VER**{CR}{FL}**OK**{CR}{FL}

**B1 B2 ... BN** 0x0D 0x0A - A variable length string with the firmware version in ASCII format followed by the carriage return and new line characters i.e. **0x52 0x45 0x56 0x20 0x42** 0x0D 0x0A = **REV B**{CR}{FL}