POSPLUS CONTROL UNIT

API Documentation

Table of Contents

1. Introduction

The document describes the control unit, its physical structure, and the communication protocol for it.

2. Version History

Date	Version	Comment
2009-03-30	1.1	New simulator
2009-04-03	1.2	Adjustment of API for port4, command code
2009-04-06	1.3	Adjustment of action in case of unwanted lineending
2009-04-07	1.4	Updating the document
2009-04-20	1.5	Adding references to Swedish Tax Agency documentation
2009-06-12	1.6	Added more return codes to command kd
2009-12-14	1.7	Changes in commando ver.
2009-12-16	1.8	Updating the version and revision. Removing parts that describe Port 4
2009-12-21	1.9	Updating version and revision
2010-05-04	2.0	Update return codes
2010-05-26	2.1	Updates

3. General description

The control unit consists of 1 port with USB connections and a port with dock for connecting a memory of the SD card type.
USB connector is connected to the control unit and creates a virtual communication port on your computer.
The dock for the SD card belongs to the Swedish¬ Tax Agency to remove control files from the control unit.

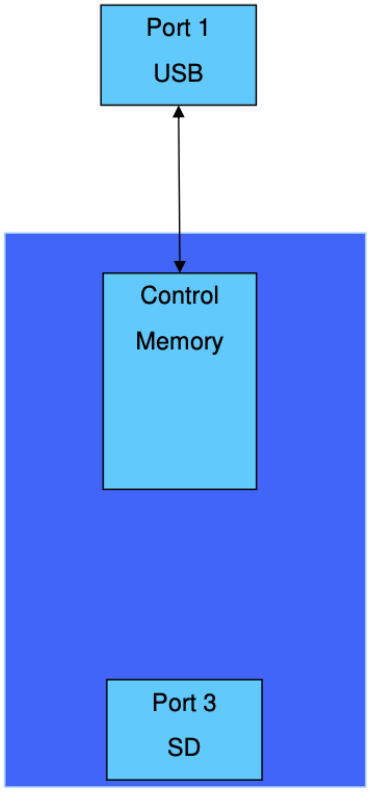
4. Version and Revision

Version and revision in this document is for PosPlus used for testing and developing. A certified PosPlus can have a different revision and versions number.

Version 0.18
Revision 1/1.4

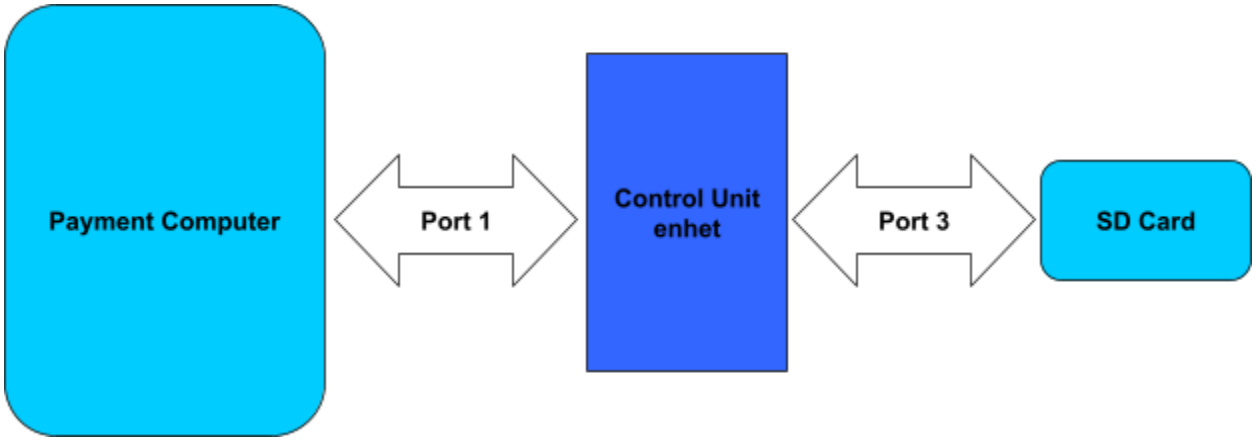
Version 0.19
Revision 1/1.4 5. Diagrams

5.1 Block diagram



Port 1 — Port for writing to the control memory
Port 3 — Port to the Swedish Tax Agency
Control Memory — Memory that stores the receipt control data in encrypted form

5.2 Connection Diagram



6. Ports

Port 1 is connected to the payment system via the USB connector.

6.1 Driver Routine

Driver routine: CDM 2.04.06 WHQL Certified

6.2 Communication

Settings for communication port:
Speed: 57600
Parity: None
Data bits: 8
Stop bits: 1
2010-05-28

7. API

7.1 General description

Communication with the controller consists of text strings.
A command string sent to the controller with a command and a return string sent from the control unit with a response to the command.

7.2 Command string to the control unit

A command string to the control unit is built up of a command, for example, "kd".
The command will need a set of arguments, such as receipt control data.
After the argument comes a CRC code of 4 characters.
The command string ends with a carriage return and a linefeed.
Space is used as a separator sign.
The text string receives the following appearance,
"Kd argument_1 argument_2 ... argument_x 0000/cr/lf"

7.3 Return string from the control unit

The return string from the control unit consists of a return code, a response and a calculated CRC code for the return string.
The return code describes how the command went. If the command was successful return code 0 will be returned.
If you receive return code 0 there will also be a response.
Space is used as a separator sign.
The return string ends with a carriage return and a linefeed The return string receives the following appearance, "0 answer 0x5291/cr/lf".
If the control unit returns a return code other than 0 the return string will look like this, "1 0x5291/cr/lf".

7.4 CRC-code

The control unit has features to use CRC-code control of the communication.
The CRC code is sent as the last field in the command string.
If a CRC code containing only zeros is sent to the controller, it will ignore the CRC code.

The CRC code may be preceded by a 16-base prefix "0x".
The CRC code from the control unit is always preceded by 16-base prefix "0x"

Version	CRC-16-CCITT
Format to the control	Without prefix: 5689 unit With prefix: 0x5689 Will be ignored: 0000
Format from the control	With prefix: 0x6789 unit

7.5 Separator/Ending

Separator	**Description**	**Ascii**
Space	Separator between command and argument Separator between arguments	32
Carriage Return	Ends a command string / return string	13
Line Feed	Ends a command string / return string	10

7.6 API – port 1

The command

ver: Sends a request to the control unit. Sends a response back, with the version of software and production number of the control unit.
kd: Sends receipt data to the control unit. Provides a control code as response.

Description

ver

Argument	**Description**
CRC code	Calculated CRC-code 0000 – If CRC-code is not used

Reply	**Description**
Return code	0 – OK -1 – wrong length -2 – CRC error -3 – Unknown command
Name	Name of the control unit
Port	Port1
Software	Software version
Hardware	Hardware revision
Manufacturing number	Manufacturing number for the control unit
CRC code	CRC code from the control unit

Example
ver 0000
0 POSPlus Port1 0.1 0.0 PPlus000000000001 0x151B

kd

Argument	Description
Date and time	Date and time of the sale transaction as per Section 28c, SKVFS 2008:x Format: YYYYMMDDttmm
Organization number	The company's organisation's number or personal number as per Section 28a, SKVFS 2008:x Format: Max 10 digits
Cash Register ID	Cash register marking as per Section 10 SKVFS 2008:z Format: Max 16 alphanumeric digits
Serial Number	Serial number as per Section 28d, SKVFS 2008:x Format: Max 12 digits
Type	Type of receipt Format: normal(normal), kopia(copy), ovning(practice) or profo(profo).
Return amount	Absolute Amount of returned items on the receipt Format: 10,25 Max 14 characters including 2 decimal places and decimal comma
Sales amount	Amount for the customer to pay, as

	per Section 28h, SKVFS 2008:x Format: 10,25 Max 14 characters including 2 decimal places and decimal comma
VAT rate1;VAT amount1	First VAT rate in percentage and amount as per Section 28j, SKVFS 2008:x <Percentage rate>;<Amount> Format <Percentage rate>: Max 5 digits including 2 decimals and decimal comma Format < Amount >: Max 14 digits including 2 decimals and decimal comma Example: 12,00;0,00
VAT rate2;VAT amount2	Second VAT rate in percentage and amount as per Section 28j, SKVFS 2008:x <Percentage rate>;<Amount> Format <Percentage rate>: Max 5 digits including 2 decimals and decimal comma Format < Amount >: Max 14 digits including 2 decimals and decimal comma Example: 12,00;0,00
VAT rate3;VAT amount3	Third VAT rate in percentage and amount as per

	Section 28j, SKVFS 2008:x <Percentage rate>;<Amount> Format <Percentage rate>: Max 5 digits including 2 decimals and decimal comma Format < Amount >: Max 14 digits including 2 decimals and decimal comma Example: 12,00;0,00
VAT rate4;VAT amount4	Fourth VAT rate in percentage and amount as per Section 28j, SKVFS 2008:x <Percentage rate>;<Amount> Format <Percentage rate>: Max 5 digits including 2 decimals and decimal comma Format < Amount >: Max 14 digits including 2 decimals and decimal comma Example: 12,00;0,00
CRC code	Calculated (0000 – If CRC code is not used)

Reply	**Description**
Return code	24 – Internal log is full 23 – Error in an internal counter 22 – Field is present after field CRC

	21 – Relationship between sales amount and return amount is wrong 20 – Power fail abort 15,16,17,18,19 Internal error in the control unit 10,11,12,13 – Wrong format of vat 9 – Wrong format of sales amount 8 – Wrong format of return amount 6,7 – Type of receipt not defined 5 – Wrong format of serial number 4 – Wrong format of cash register id 3 – Wrong format of organisation number 2 – Wrong date/time range 1 – Wrong number of arguments 0 – OK -1 – Wrong length -2 – CRC error -3 – Unknown command
Control code	Control code from the control unit in case of return code 0, otherwise nothing Note: control code is only given for receipt of type normal and copy
CRC code	Calculated CRC code from the control unit

Control code
Control code is only given for receipt normal and copy. No control code is given for receipt profo and practice.

Examples

Example of receipt of type copy or normal.
kd 200903171752 5566775566 Pos01 1325 normal 0,00 1,00 0,00;0,00 25,00;0,20 12,00;0,00 6,00;0,00 0000
0 K34P72NUH7A3HST7HY7EF6RUWJLLWVOC;MKFXCN7ENWYJS4KRP3JJ3KG64M 0x1ACB

Example of receipt of type practice or proof.
kd 200903171752 5566775566 Pos01 1325 ovning 0,00 1,00 0,00;0,00 25,00;0,20 12,00;0,00 6,00;0,00
0000
0 0xE721

Example of receipt of type normal and copy.
kd 200903171752 5566775566 Pos01 1325 normal 0,00 1,00 0,00;0,00 25,00;0,20 12,00;0,00 6,00;0,00 0000
0 K34P72NUH7A3HST7HY7EF6RUWJLLWVOC;MKFXCN7ENWYJS4KRP3JJ3KG64M 0x1ACB

kd 200903171752 5566775566 Pos01 1325 kopia 0,00 1,00 0,00;0,00 25,00;0,20 12,00;0,00 6,00;0,00 0000
0 K34P72NUH7A3HST7HY7EF6RUWJLLWVOC;MKFXCN7ENWYJS4KRP3JJ3KG64M 0x1ACB

Example of receipt of type normal with return amount.
kd 200903171752 5566775566 Pos01 1325 normal 1,00 0,00 0,00;0,00 25,00;0,00 12,00;0,00 6,00;0,00 0000

8. Advices

Control Code
It is forbidden to write the Control Code, given from the Control Unit PosPlus, on the receipt.
If that is done, a patent will be violated.
The same is for a Copy of a receipt. If the Control Code comes with the copy, the patent will be violated.