

1 General

The Master (PC,POS System) polls cyclically all slaves , the slaves answer normally in 20-100ms

2 Communication Parameters

2.1 RS232

Bits/s	1200,2400,4800,9600
Databits	8
Parity	none
Stopbits	1

2.2 Ethernet

Protocol : UDP
Port : 18500 (for dosing devices)

3 Message Format

3.1 general

Messages have the following format (RS232 and UDP)

<Header> <Sync> <Bytecount> <Command> <Device> <Nx> <Data> <CKSUM> <CR>

There are -

<Header> The character "Z", ASCII-Code 90.

<Sync> the character <NUL>, ASCII-Code 0.

<Bytecount> the bytecount, one binary byte; the sum of bytes in <Command>, <Device>, <Nx>, <Data> and <Checksum> .

<Command> the commandbyte.

<SI> polling or request
<SO> answer to poll or request
<DC1> request of configuration data
<DC2> configuration data

<SI>/<SO> is used for transmission of working data (i. e. bookings, ...)

<DC1>/<DC2> uses no Nx byte and is used for transmission of configuration data

<Device> 2 character to specify the target device. One Character (Device Type) and one Number (,0' ..

Devicetypes is fpr Micro & Oscar "D" (Dosing device)

the devicenumber is character ASCII 48 + devicenumber

<Nx> message numbering to ensure data integrity

An easy way is to poll alternating with $Nx = 0x31$ and then with $Nx = 0x32$
 If there is no answer or you have to poll again with the same Nx

The master (PC) polls with $Nx = 0x31$
 the answer contains $Nx = 0x33$

The master (PC) polls with $Nx = 0x32$
 the answer contains $Nx = 0x30$

The master (PC) polls with $Nx = 0x31$
 No answer or bad Checksum

The master (PC) polls with $Nx = 0x31$
 the answer contains $Nx = 0x33$

Q The master (PC) polls with $Nx = 0x32$
 the answer contains $Nx = 0x30$

.....

<Data> the transferred data

- there can be no data
- data contains only ASCII characters 32 to 255

<Checksum> one Byte, the negativ (2s complement) sum of all Bytes in <Bytecount>, <Command>, <Device>, <Nx> und <Data> .

(the low byte of the sum of <Bytecount>, <Command>, <Device>, <Nx>, <Data> und <Checksum> is 0)

<CR> the ASCII character <CR>, ASCII-Code 0D hex is the terminator.

to simplify communication slaves can be polled without the Nx byte. The answer has also no Nx .Byte

DC1/DC2 messages use no Nx ..

4 Communication

4.1 general

Slave are polled cyclically from the master (PC) and answer almost immediatly.
 There are no special select records (ID field in all records)
 There are no special acknowledge commands (Nx Byte)

4.2 Commands for SI/SO (normal operation)

4.2.1 general

Data is composed of elements containing
 a 2 character command
 one or more arguments
 seperated by a comma ":" or a ","
 real numbers have a decimal point "."
 terminated by the delimiter ";"

If there are unknown (not yet implemented or so) commands in a message, the receiver should skip the command until the following delimiter ";" and ignore this data.

4.2.2 overview

K#	waiter number		K# 7
T#	Table number		T#41;
B>	booking (bon)	product [: quantity] [: price]	B>1:2:17.50
BE	booking (dosing)	product [: quantity]	BE17
BF	Credit	product [: quantity]	BF32:2
C>	booking (bon)	channel [: quantity]	C>1:3
CE	booking (dosing)	channel [: quantity]	CE17
CF	Credit	channel [: quantity]	CF32:2
B!	clear all credits at Device		B!

!!!! Arguments in brackets [] are optional

DD understand arguments with or without leading zeros
 DD send arguments with or without leading zeros (depending on device type and software version)

some older devices send channel numbers (1.. 160) instead of product numbers (1..9999)
 in this case the host has to translate this number to a valid product

Examples :

Debit from Dosing Device

Polling form HOST

'Z' NUL bc SI 'D' '1' NS CKS CR

```
<5A><00><..><0F><44><31><..><..><0D>
      |
      DD number
```

Answer from DD (in case of dosing and channel numbers)

'Z' NUL bc SO 'D' '1' NS 'K' '#' kkk ';' 'T' '#' ttt ';' ---->

```
<5A><00><..><0E><44><31><..><4B><23><..><3B><54><22><...><3B>
      |           |           |
      DD number   |           Table
                  |
                  waiter(1-64)
```

```
-----> 'C' 'E' ccc CKS CR
          <43><46><...><..><0D>
          |
          channel (1..128)
```

Answer form DD (in case of dosing and product number)

'Z' NUL bc SO 'D' '1' NS 'K' '#' kkk ';' 'T' '#' ttt ';' ---->

```
<5A><00><..><0E><44><31><..><4B><23><..><3B><54><23><...><3B>
      |           |           |
      DD number   |           table
                  |
                  waiter(1-64)
```

```
-----> 'B' 'E' ppp CKS CR
          <42><46><...><..><0D>
          |
          product (1..9999)
```

