# COMMUNICATION PROTOCOL

# of fiscal printer

## (ver. 3.4)

# CONTENTS

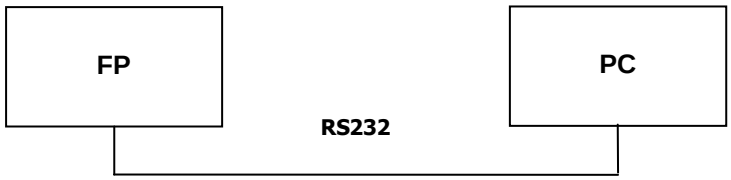
# INTRODUCTION

The purpose of this document is to explain exchange data formats and communication protocol of Eltrade fiscal printer (FP).

The fiscal printer is working and being controlled by application software. The link between fiscal printers' resources and the application software is performed by means of a driver. The communication is carried out via RS232 interface.

# SPECIFICATIONS

### System configuration




### Communication settings

- interface - RS232
- speed – 19200 bps
- Control bit - no
- Stop bit - 1

### Data format

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6+1 | .... | 6 + n | 7 + n |
|---|---|---|---|---|---|---|---|---|---|---|
| 0AAH | 055H | Address: | Frame No | Command | Length (n) | Data | Data | .... | Data | Control sum |

The complete instruction shall be correctly accepted by FP, if meeting the following conditions:

**Address[2] + Frame No[3] + Command[4] + Length[5] + Data[6] + Data[6+1] + ... + Data[6+n] + Control sum[7+n] = 0**

The word "field" here, as well as in the entire document, can be substituted by the word "byte".

The fields "Frame No" shall be different for any further instruction. If this field has the same value, as in the previous instruction, the printer will repeat its response.
The field "Length" describes the number of data fields, and thus, the position of "control sum".

### Instructions classification

There are two types of instructions, depending on the moment of execution:

- Immediately executed instructions
- Instructions with delayed execution

The immediately executed instructions are carried out in the period between instruction receipt and sending of printer response.

The instructions with delayed execution are carried out after the return of fiscal printers response. This type of instructions requires longer execution time. As they put the printer in BUSY status until the end of their execution.

# INSTRUCTIONS AND COMMANDS

The fiscal printer is a passive device. All instructions in communication protocol are of batch type. In this case, the printer status at each moment is defined by printer response to submitted commands, send by the fiscal printer to PC.

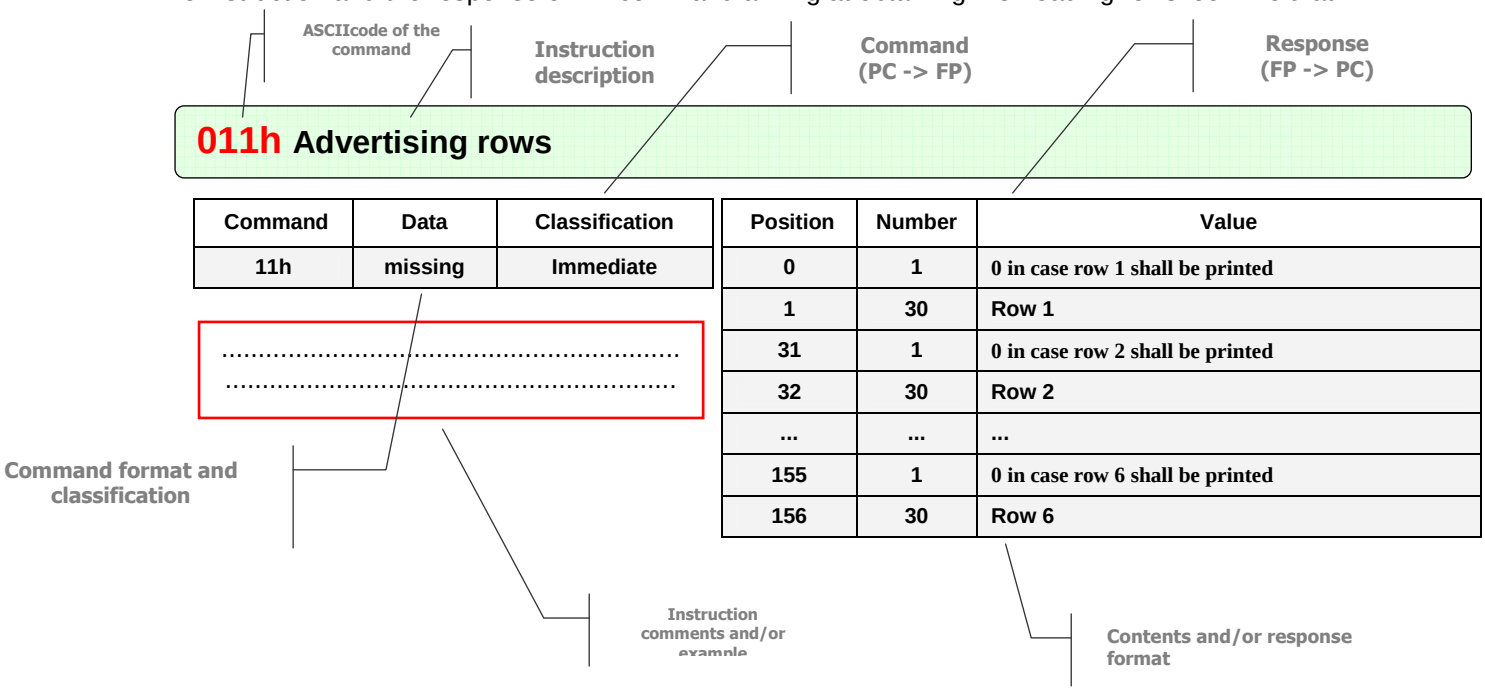
The instruction sequence is as follows:

- PC sends execution instructions to FP.
- FP executes the instruction.
- FP returns response for instruction execution to PC.

The data order is organized via Positions and Number.

- "Position" and "Number" are fields in instruction or response and are set in bytes.
- "Position" sets the location of the field "Number" The shift is considered from the first data field, even when the responses are more than one. In case the field "Position" has value of zero (0), this would mean the field "Number" is positioned into the first data field.
- "Number" sets the number of fields, reserved for fiscal printer response.
- Data are located between "Number" and "Control sum" fields.
- The data are transmitted in both directions, e.g. "Position" and "Number" are fields, that depending on the command can be located either in the left ( PC.PRN) or in the right part (PRN>PC).

**For example:**
The instruction and the response of FP command aiming at obtaining 2-8 heading rows look like that:




| Command | Data | Classification |
|---|---|---|
| 11h | missing | Immediate |

| Position | Number | Value |
|---|---|---|
| 0 | 1 | 0 in case row 1 shall be printed |
| 1 | 30 | Row 1 |
| 31 | 1 | 0 in case row 2 shall be printed |
| 32 | 30 | Row 2 |
| ... | ... | ... |
| 155 | 1 | 0 in case row 6 shall be printed |
| 156 | 30 | Row 6 |

The complete instruction looks like that:

**>>>>>>>>>>>> Get Advertisement Lines 1 to 6 - [011H]**

**INSTRUCTION**

**PC->PRN:** AA 55 00 20 11 00 CF

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 + n |
|---|---|---|---|---|---|---|---|
| 0AAH | 055H | Address: | Frame No | Command | Length (n) | Data | Control sum |
| AA | 55 | 00 | 20 | 11 | 00 | - | CF |
| Record initialization | | | Increments with one at every next instruction | Command Number | Data missing | - | 00+20+11+00+CF=0 |

## RESPONSE

**PRN->PC:** AA 55 00 20 11 BA 80 20 20 20 20 20 20 22 92 80 8D 9F 20 32 30 30 32 22 20 8E
8E 84 20 20 20 20 20 20 20 20 20 FF 41 64 76 20 4C 69 6E 65 20 32 20 20 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 FF 41 64 76 20 4C 69 6E 65 20 33 20 20 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 05 41 64 76 20 4C 69 6E 65 20 34 20 20 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 05 41 64 76 20 4C 69 6E 65 20 35 20
20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 05 41 64 76 20 4C 69 6E 65 20
36 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 8F

| 0 | 1 | 2 | 3 | 4 | 5 | |
|---|---|---|---|---|---|---|
| 0AAH | 055H | Address : | Frame No | Command | Length (n) | => ... |
| **AA** | **55** | **00** | **1E** | **11** | **BA** | |
| Record initialization | | | Increments with one at every next instruction | Command Number | Has BA(Hex) = 186 (Dec)Bytes for data | |

| => ... | 6 | 7 | 8 | 9 | 10 | 11 | 12 | => ... |
|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | |
| | **80** | **20** | **20** | **20** | **20** | **20** | **20** | |
| | < > 0 if row 1is included for printing | Contents of row 1 = “TANYA 2002” OOD | | | | | | |

| => ... | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | => ... |
|---|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | Data | |
| | **22** | **92** | **80** | **8D** | **9F** | **20** | **32** | **30** | |
| | Contents of row 1 = “TANYA 2002” OOD | | | | | | | | |

| => ... | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | => ... |
|---|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | Data | |
| | **30** | **32** | **22** | **20** | **8E** | **8E** | **84** | **20** | |
| | Contents of row 1 = “TANYA 2002” OOD | | | | | | | | |

| => ... | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | => ... |
|---|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | Data | |
| | **20** | **20** | **20** | **20** | **20** | **20** | **20** | **20** | |
| | Contents of row 1 = “TANYA 2002” OOD | | | | | | | | |

| => ... | 37 | 38 | 39 | 40 | 41 | 42 | 43 | => ... |
|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | |
| | **FF** | **41** | **64** | **76** | **20** | **4C** | **69** | |
| | < > 0 if row 2 is included for printing | Contents of ROW 2= Adv Line 2 | | | | | | |

| => ... | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | => ... |
|---|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | Data | |
| | **6E** | **65** | **20** | **32** | **20** | **20** | **20** | **20** | |
| | Contents of ROW 2= Adv Line 2 | | | | | | | | |

| => ... | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | => ... |
|---|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | Data | |
| | **20** | **20** | **20** | **20** | **20** | **20** | **20** | **20** | |
| | Contents of ROW 2= Adv Line 2 | | | | | | | | |

| => ... | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | => ... |
|---|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | Data | |
| | **20** | **20** | **20** | **20** | **20** | **20** | **20** | **20** | |
| | Contents of ROW 2= Adv Line 2 | | | | | | | | |

| => ... | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | => ... |
|---|---|---|---|---|---|---|---|---|---|
| | Data | Data | Data | Data | Data | Data | Data | Data | |
| | **...** | **...** | **...** | **...** | **...** | **...** | **...** | **8F** | |
| | Contents of the following rows ... until control sum = 8F | | | | | | | | |

## 10h Returns Serial Number

| Command | Data | Classification |
|---|---|---|
| 10h | Missing | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 8 | ASCII presentation |

## 11h Returns Advertisement Header (rows 1-6)

| Command | Data | Classification |
|---|---|---|
| 11h | Missing | Immediate |

**Printing format**:
- **00**h – the row will not be printed
- **05**h – the row will be printed
- **FF**h –the row will be printed in bold font (one row contains 16 simbols)

* Rows 2-5 willl be printed always
* **n** – number of character per line. It depend on printer model.

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Row 1 printing format |
| 1 | n | Row 1 contents |
| n+1 | 1 | Row 2 printing format |
| n+2 | n | Contents of row 2 |
| ... | ... | ... |
| 5n+5 | 1 | Row 6 printing format |
| 5n+6 | n | Contents of row 6 |

## 14h Returns Fiscal Memory Number

| Command | Data | Classification |
|---|---|---|
| 14h | Missing | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 4 | PBCD symbol representation |

## 15h Returns Tax Number

| Command | Data | Classification |
|---|---|---|
| 15h | Missing | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 13 | ASCII symbol representation |

## 17h Returns Advertisement Footer (rows 7-10)

| Command | Data | Classification |
|---|---|---|
| 17h | Missing | Immediate |

**Printing format**:
- **00**h – the row will not be printed
- **05**h – the row will be printed
- **FF**h –the row will be printed in bold font (one row contains 16 symbols)

* **n** – number of character per line. It depend on printer model.

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Row 7 printing format |
| 1 | n | Contents of row 7 |
| ... | ... | ... |
| 3n+3 | 1 | Row 10 printing format |
| 3n+4 | n/2<br>n/2 | VAT Number<br>Client (owner) number |

## 19h Returns Information for Tax Groups

| Command | Data | Classification |
|---|---|---|
| 19h | Missing | Immediate |

The tax percentage for each group is represented by 2 bytes – one for the whole and one for decimal part of the number. Example:

**A=0.00%** 00 00 **B=20.00%** 07 D0 **C=20.00%** 07 D0 **D=7.00%** 02 BC

**E=1.00%** 00 64 **F=0.00%** 00 00 **G=0.00%** 00 00 **H=0.00%** 00 00

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Percentage for tax group A |
| 2 | 2 | Percentage for tax group B |
| 4 | 2 | Percentage for tax group C |
| 6 | 2 | Percentage for tax group D |
| 8 | 2 | Percentage for tax group E |
| 10 | 2 | Percentage for tax group F |
| 12 | 2 | Percentage for tax group G |
| 14 | 2 | Percentage for tax group H |

## 1Ah Returns Information About the Operator

| Command | Data | Classification |
|---|---|---|
| 1Ah | Missing | Immediate |

**The logical number** in device system is called also **cash register location**.

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Device logical number |
| 2 | 16 | Operator's name |
| 18 | 2 | Operator's number |

## 1Bh Returns Information for Payment Types

| Command | Data | Classification |
|---|---|---|
| 1Bh | Missing | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 15 | Title of the first payment type |
| 15 | 15 | Title of the second payment type |
| 30 | 15 | Title of the third payment type |
| 45 | 15 | Title of the fourth payment type |

## 1Ch Fiscal Memory Report – detailed, by blocks

| Command | Data | Classification |
|---|---|---|
| 1Ch | | Delayed |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 4 | Number of initial block |
| 4 | 4 | Number of ending block |

Response value (**instruction status**):
- **0000**h –the instruction was rejected
- **FFFF**h – the instruction was executed

*** No of block = No of record**

## 1Dh Fiscal Memory Report – general, by blocks

| Command | Data | Classification |
|---|---|---|
| 1Dh | | Delayed |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 4 | Number of initial block |
| 4 | 4 | Number of ending block |

Response value (**instruction status**):
- **0000**h –the instruction was rejected
- **FFFF**h – the instruction was executed

*** No of block =No of record**

## 1Eh Fiscal Memory Report – detailed, by dates

| Command | Data | Classification |
|---|---|---|
| 1Eh | | Delayed |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Initial date: DAY |
| 1 | 1 | Initial date: MONTH |
| 2 | 1 | Initial date: YEAR |
| 3 | 1 | Reserved |
| 4 | 1 | Ending date: DAY |
| 5 | 1 | Ending date: MONTH |
| 6 | 1 | Ending date: YEAR |
| 7 | 1 | Reserved |

Data setting formats:
- PBCD symbolic presentation
- DD.MM.YY

For example, the date 27.07.2005r is represented as **27 07 05**

The report includes the period between the two dates. If they are identical, it will be issued report for the day set

Response value (**instruction status**):
- **0000**h –the instruction was rejected
- **FFFF**h – the instruction was executed

## 1Fh Fiscal Memory Report – general, by date

| Command | Data | Classification |
|---|---|---|
| 1Fh | | Delayed |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Initial date: DAY |
| 1 | 1 | Initial date: MONTH |
| 2 | 1 | Initial date: YEAR |
| 3 | | |
| 4 | 1 | Ending date: DAY |
| 4 | 1 | Ending date: MONTH |
| 5 | 1 | Ending date: YEAR |
| | | |

Data setting formats:
- PBCD symbolic presentation
- DD.MM.YY

For example, the date 27.07.2005r is represented as **27 07 05**

The report includes the person between the two dates. If they are identical, it will be issued report for the day set

Response value (**instruction status**):
- **0000**h –the instruction was rejected
- **FFFF**h – the instruction was executed

## 21h Programming of Advertisement Heading (rows 2-6)

| Command | Data | Classification |
|---|---|---|
| 21h | | Immediate |

| Position | Number |
|---|---|
| 21h | Missing |

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Row 2 printing format |
| 1 | n | Row 2 contents |
| ... | ... | ... |
| 4n+4 | 1 | Row 6 printing format |
| 4n+5 | n | Row 6 contents |

**Printing format**:
- **00**h – the row will not be printed
- **05**h – the row will be printed
- **FF**h –the row will be printed in bold font (one row contains 16 symbols)

* Rows 2-5 willl be printed always
* **n** – number of character per line. It depend on printer model.

## 22h Silent Report by PLU (PLU X – without printing)

| Command | Data | Classification |
|---|---|---|
| 22h | | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | № of the PLU in report |

The fields in "Value" column refer only to the selected in the report PLU.

| Position | Size | Description |
|---|---|---|
| 0 | 2 | The number of all available programmed PLUs |
| 2 | 2 | The number of the PLUs in the report |
| 4 | 6 | Barcode |
| 10 | 4 | Total turnover for certain PLU |
| 14 | 4 | Sold quantity |
| 18 | 4 | Price |
| 22 | 1 | Tax group |
| 23 | 12 | PLU name |

## 23h Silent Report (without printing)

| Command | Data | Classification |
|---|---|---|
| 23h | Missing | Immediate |

*Report status:
- **0** – there are not accumulated sales since the last report with nullifying (Z);
- **1** – there is sum overflow in sales and report with nullifying has to be performed. (Z) in order to continue sales;
- **2** – there are accumulated sales since the last report with nullifying (Z)

**Silent**

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Number of customers |
| 2 | 2 | Number of discounts |
| 4 | 2 | Number of surcharges |
| 6 | 2 | Number of refunds (return of sums) |
| 8 | 2 | Number of VOIDs |
| 10 | 2 | Report status* |
| 12 | 4 | Total sum discounts |
| 16 | 4 | Total sum surcharges |
| 20 | 4 | Total sum refunds |
| 24 | 4 | Total sum VOIDs |
| 28 | 4 | Total turn over per payment type 1 |
| 32 | 4 | Total turn over per payment type 2 |
| 36 | 4 | Total turn over per payment type 3 |
| 40 | 4 | Total turn over per payment type 4 |
| 44 | 4 | Total turn over |
| 48 | 4 | Total VAT amount |
| 52 | 4 | Total turn over per tax group A |
| 56 | 4 | Total turn over per tax group B |
| 60 | 4 | Total turn over per tax group C |
| 64 | 4 | Total turn over per tax group D |
| 68 | 4 | Total turn over per tax group E |
| 72 | 4 | Total turn over per tax group F |
| 76 | 4 | Total turn over per tax group G |
| 80 | 4 | Total turn over per tax group H |
| 84 | 2 | Number of received on |
| 86 | 2 | Number of paid out |
| 88 | 4 | Total received on payment 1 |
| 92 | 4 | Total paid out payment 1 |
| 96 | 4 | Total received on payment 2 |
| 100 | 4 | Total paid out payment 2 |
| 104 | 4 | Total received on payment 3 |
| 108 | 4 | Total paid out payment 3 |
| 112 | 4 | Total received on payment 4 |
| 116 | 4 | Total paid out payment 4 |
| 120 | 2 | Number of the last report with nullifying (Z) |

## 24h Execute Printer Test

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 24h | Missing | Immediate | 24h | Missing |

**The Printer test** prints logo, heading rows ( 1˙ 6˙), coding table,cash register document number, fiscal device number and fiscal memory, the words "SERVICE NOTE", date and hour.

## 25h Fiscal Memory Reading Test

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 25h | Missing | Immediate | 25h | Missing |

**The reading test** of the fiscal memory prints logo, heading rows (1- 6-), model of the fiscal device, software version (VER: x.xx),date and control sum of the software, number of free records in the fiscal memory and fiscal memory status notice (FISCAL MEMORY IS WORKING CORRECT),cash register document number, number of the fiscal device and fiscal memory, notice "SERVICE CASH REGISTER NOTE", date and hour.

## 26h Test of Fiscal Memory Record (up to 16 tries)

| Command | Data | Classification | Position | Size | Description |
|---|---|---|---|---|---|
| 26h | Missing | Immediate | 0 | 2 | Instruction status |

**The test of fiscal memory record** prints logo,heading rows (1- 6-), test number(PROM TEST# x), test status (successful), cash register document number, number of the fiscal device and fiscal memoryт, notice "SERVICE CASH TEHISTER NOTE", date and hour. This test writes into specially defined area of fiscal memory, especially dedicated for testing and the number of the tests is restricted to 16. Status valuea (**instruction status**):

- **0000**h - the instruction is rejected
- **FFFF**h – the instruction is executed

## 27h Programming of Advertisement Footer (rows 7-10)

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 27h | | Immediate | 27h | Missing |

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Row 7 printing format |
| 1 | n | Row 7 contents |
| ... | ... | ... |
| 3n+3 | 1 | Row 10 printing format |
| 3n+4 | n/2<br>n/2 | VAT Number<br>Client (owner) number |

**Printing format**:

- **00**h – the row will not be printed
- **05**h – the row will be printed
- **FF**h –the row will be printed in bold font (one row contains 16 symbols)

* **n** – number of character per line. It depend on printer model.

## 28h Payed Out /Received on Account

| Command | Data | Classification | Position | Size | Description |
|---|---|---|---|---|---|
| 28h | | Delayed | 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Payment (1÷4) |
| 1 | 4 | Amount (00 00h "+" / FF FFh "-" ) |

Response values (**instruction status**):

- **0000**h – the instruction has been rejected
- **FFFF**h –the instruction has been executed

## 2Ah Programming of the Current Operator

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 2Ah | | Immediate | 2Ah | Missing |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | No of cash register location |
| 2 | 16 | Operator's name |
| 18 | 2 | Operator's number |

## 2Bh Programming of Payment Types

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 2Bh | | Immediate | 2Bh | Missing |

| Position | Size | Description |
|---|---|---|
| 0 | 15 | Payment type 1 title |
| 15 | 15 | Payment type 2 title |
| 30 | 15 | Payment type 3 title |
| 45 | 15 | Payment type4 title |

## 2Ch Returns the Receipt Status of the printer

| Command | Data | Classification |
|---|---|---|
| 2Ch | Missing | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Error code (refer to table below) |
| 2 | 2 | "Begin Document" flag |
| 4 | 2 | "End Document" flag |
| 6 | 2 | Reserved |
| 8 | 2 | Last transaction (refer to command 2Eh) |
| 10 | 2 | Number of transactions in the cash register document |
| 12 | 4 | Last transaction value |
| 16 | 4 | Total value of all transactions |
| 20 | 4 | Total value of the cash register document |
| 24 | 2 | "STL Discount/Add on" flag |
| 26 | 2 | Number of last receipt |
| 28 | 4 | Invoice number (least significant 9 digits) |
| 32 | 2 | Number of programmed in the memory PLU |
| 34 | 2 | Invoice number (most significant digit) |
| 36 | 2 | Available number from the invoice range |

| Error code | Meaning |
|---|---|
| 0 | No error |
| 1 | Opening of the cash register document is not requested |
| 2 | Transaction code recognized (refer to command 2Eh) |
| 3 | Transaction buffer overflow |
| 4 | Transaction sequence error |
| 5 | Multiplication overflow |
| 6 | Cash register document overflow |
| 7 | “0” length of code name |
| 8 | Negative result |
| 9 | Cash register document surcharge |
| 10 | Out of range parameter |
| 11 | Cash register document not paid |
| 12 | “0” result |
| 13 | Memory overflow because of too many PLUs |
| 14 | Daily report overflow |

## 2Dh Begin Document (open receipt)

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 2Dh | Missing | Immediate | 2Dh | Missing |

## 2Eh ExecuteTransaction (print)

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 2Eh | | Delayed | 2Eh | Missing |

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Transaction code |
| 1 | n | Transaction data– depends on the transaction code (refer to table below) |

| Code | | Parameter(s) | | |
|---|---|---|---|---|
| **Number** | **Meaning** | **Position** | **Size** | **Description** |
| **1** | **Non fiscal line** | **0** | **40** | **Free text** |
| **2** | **Sells PLU** | **1** | **4** | **Price (up to 99 999 999)** |
| | | **5** | **4** | **Quantity (up to 99 999 999)** |
| | | **9** | **1** | **Number size (in bytes from 1 to 6)** |
| | | **10** | **6** | **Number (PBCD presentation)** |
| | | **16** | **1** | **Name size (in bytes 1 to 20)** |
| | | **17** | **20** | **Name** |
| | | **37** | **1** | **Tax group** |
| **3** | **Surcharge Amount Adjustment over previous transaction** | **1** | **4** | |
| **4** | **Discount Amount Adjustment over previous transaction** | **1** | **4** | |
| **5** | **Surcharge Percentage Adjustment over previous transaction** | **1** | **4** | |
| **6** | **Discount Percentage Adjustment over previous transaction** | **1** | **4** | |
| **7** | **Surcharge Percentage Adjustment over STL** | **1** | **4** | |
| **8** | **Discount Percentage Adjustment over STL** | **1** | **4** | |
| **9** | **Pays Amount over Payment type 1** | **1** | **4** | **Use 0 to pay the rest of the sum** |
| **10** | **Pays Amount over Payment type 2** | **1** | **4** | |
| **11** | **Pays Amount over Payment type 3** | **1** | **4** | |
| **12** | **Pays Amount over Payment type 4** | **1** | **4** | |
| **13** | **Invoice mode**<br>*This command must the first one after 2Dh* | **1** | **2** | **Flag for invoice – always FFFFh** |
| **14** | **Print STL** | **-** | **-** | |
| **15** | **Comment mode**<br>*This command must the first one after 2Dh* | **-** | **-** | |
| **16** | **VOID – cancels last transaction** | **-** | **-** | |
| **17** | **Deep VOID – cancels transaction number** | **0** | **2** | **Number of transaction** |
| **18** | **Prefix for the client in the invoice** | **0** | **29** | |
| **255** | **Non fiscal line**<br>(*Epson TM-U950 only*) | **0** | **1** | **255 = FFh** |
| | | **1** | **1** | **Number of bytes to print** |
| | | **2** | **40** | **Byte for print movement** |

## 2Fh End Document (close receipt)

| Command | Data | Classification | Position | Size | Description |
|---|---|---|---|---|---|
| **2Fh** | **Missing** | **Delayed** | **0** | **2** | **Instruction status** |

Response values (**instruction status**):

- **0000**h – the instruction has been rejected
- **FFFF**h –the instruction has been executed

## 30h Fiscal Status

| Command | Data | Classification |
|---|---|---|
| 30h | Missing | Immediate |

*FM – fiscal memory

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Flag " Fiscal device and fiscal memory programmed numbers" |
| 2 | 2 | Flag "Programmed tax number" |
| 4 | 2 | Total number of Fiscal Memory records* |
| 6 | 2 | Flag "Decimal fraction operations" |
| 8 | 2 | Number of recorded into fiscal memory changes |
| 10 | 6 | General turn over into the fiscal memory (GRAND TOTAL) |
| 16 | 6 | General value of VAT into fiscal memory |
| 22 | 1 | DAY – last record into fiscal memory (PBDC) |
| 23 | 1 | MONTH – last record into fiscal memory (PBDC) |
| 24 | 1 | YEAR – last record into fiscal memory (PBDC) |
| 25 | 1 | |

## 31h Printing of Copy

| Command | Data | Classification |
|---|---|---|
| 31h | No | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

Response values (**instruction status**):
- **0000**h – the instruction has been rejected
- **FFFF**h –the instruction has been executed

## 32h Print Report by Articles

| Command | Data | Classification |
|---|---|---|
| 32h | | Delayed |

| Response command | Response data |
|---|---|
| 32h | No |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Flag 1 – for report with nullifying (Z) |
| 2 | 2 | Flag 2 – for report printing |

Flag values:
- **Flag 1** – FFFFh report with nullifying
- **Flag 2** – FFFFh the report will be printed

## 33h Print Daily Report

| Command | Data | Classification |
|---|---|---|
| 33h | | Delayed |

| Response command | Response data |
|---|---|
| 33h | No |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Flag for report with nullifying (Z) |

At **Flag** value – **FFFF**h the report is with nullifying

## 34h Programming of Invoice Serial Number

| Command | Data | Classification |
|---|---|---|
| 34h | | Delayed |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 4 | Invoice start number (last 9 digits) |
| 4 | 2 | Invoice start number (first digit) |
| 6 | 2 | Invoice Range (number of invoices) |

Response values (**instruction status**):
- **0000**h – the instruction has been rejected
- **FFFF**h –the instruction has been executed

Invoice start number: 1 – 9 999 000 000
Invoice range is 1 – 50000.
To program the range – make fiscalization, reset RAM (and the available number is 0)

## 35h Programming of Fiscal Device and Fiscal Memory Number

| Command | Data | Classification |
|---|---|---|
| 35h | | Delayed |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 8 | Device number |
| 8 | 4 | Fiscal memory number (PBCD) |

Response values (**instruction status**):
- **0000**h – the instruction has been rejected
- **FFFF**h –the instruction has been executed

## 36h Fiscal Parameters Recording

| Command | Data | Classification |
|---|---|---|
| 36h | | Delayed |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | "Record generation in fiscal memory"flag |
| 2 | 1 | FFh |
| 3 | n | Company name |
| n+3 | 1 | Number of printed tax groups |
| n+4 | 1 | "Decimal point operation" flag |
| n+5 | 2 | VAT for group A – up to 99.99% |
| n+7 | 2 | VAT for group B – up to 99.99% |
| n+9 | 2 | VAT for group C – up to 99.99% |
| n+11 | 2 | VAT for group D – up to 99.99% |
| n+13 | 2 | VAT for group D – up to 99.99% |
| n+15 | 2 | VAT for group E – up to 99.99% |
| n+17 | 2 | VAT for group F – up to 99.99% |
| n+19 | 2 | VAT for group G – up to 99.99% |
| n+21 | 13 | Tax number (13 symbols) |

Response values (**instruction status**):
- **0000**h – the instruction has been rejected
- **FFFF**h – the instruction has been executed

**"Record generation in fiscal memory"**flag:
- **0**h – not generated record in FM. Training mode operation
- **FFFF**h – generation of record in FM

**"Number of printed tax groups"** –
- **0** – print first 4 tax (for А, Б, В, Г)
- **1** – print first 5 tax (for А, Б, В, Г, Д)
- **2** – print first 6 tax (for А, Б, В, Г, Д, Е)
- **3** – print first 7 tax (for А, Б, В, Г, Д, Е, Ж)
- **4** – print first 8 tax (for А, Б, В, Г, Д, Е, Ж, З)

## 38h Programming of Logo

| Command | Data | Classification | Response command | Response data |
|---|---|---|---|---|
| 38h | No | Delayed | 38h | No |

The graphic logo is defined in size of **192 x 60 points**, but is printed in size **192 x 120 points**. A point from the definition is printed as two points – one above the other. The number of points per row is always 192. The logo is saved in energy-independent memory (EEPROM). The mechanism of logo programming uses modified variation of comments row printing transaction. The new format of "comments printing " is**: OxFE, 27, addrL, addrH**, followed by **24 bytes**, coding one row from the logo:

- **OxFE** – transaction modificator. Without this byte the row shall be interpreted as ordinary comment row
- **27**is the number of bytes in the row (24 + 2 + 1)
- **addrH*256 + addrL = The address** of the first byte, that is currently programmed

For example: row 1 has address 0; row 2 has address 24; .... etc..

Logo programming algorithm is the following:

- Begin document (2Dh);
- Send "Comments mode" transaction (2Eh-15);
- Send logo transaction for current row;
- Repeated 60 times previous step – once per each row;
- End document (2Fh);

## 3Ah Article Number Printing

| Command | Data | Classification |
|---|---|---|
| 3Ah | No | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

Response values (**instruction status**):

- **0000**h – not printing;
- **FFFF**h – printing (by default );

## 3Bh Programming of Serial Number

| Command | Data | Classification |
|---|---|---|
| 3Bh | | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 8 | Serial number |

Response values (**instruction status**):

- **0000**h – not printing;
- **FFFF**h – printing (by default );

## 3Ch Returns Fiscal Device Type

| Command | Data | Classification |
|---|---|---|
| 3Ch | No | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

Response value (**instruction status**):

- **0121**h – EPSON 950
- **0122**h – EPSON 220
- **0123**h – EPSON 260
- **0124**h – TMT81Fa
- **0131**h – FPP800
- **0120**h – EPSON (gas stations)

## 3Dh System Date and Time programming

| Command | Data | Classification |
|---|---|---|
| 3Dh | | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Day |
| 1 | 1 | Month |
| 2 | 1 | Year |
| 3 | 1 | Day of the week |
| 4 | 1 | Minutes |
| 5 | 1 | Hours |

Response values (**instruction status**):
- **0000**h – the instruction has been rejected
- **FFFF**h – the instruction has been executed

The programming values are in PBCD format.

## 3Eh Returns System Date and Time

| Command | Data | Classification |
|---|---|---|
| 3Eh | No | Immediate |

The programmed values are in PBCD format.

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Day |
| 1 | 1 | Month |
| 2 | 1 | Year |
| 3 | 1 | Day of the week |
| 4 | 1 | Minutes |
| 5 | 1 | Hours |

## 70h Printer Status (NOP)

| Command | Data | Classification |
|---|---|---|
| 70h | No | Immediate |

| Response code | Response data |
|---|---|
| … *(see below)* | … *(see below)* |

| Respond Code | Response Data | | |
|---|---|---|---|
| | Position | Size | Description/ Value |
| 6Fh | - | - | BUSY |
| 6Fh | 1 | 1 | ERROR:<br>1. End of paper<br>2. Printing error<br>16. Fiscal error 0: Error at writing in FM<br>17. Fiscal error 1: Attempt for writing in overflowing FM<br>18. Fiscal error 2: Incorrect structure in fiscal part 1<br>19. Fiscal error 3: Control sum error<br>20. Fiscal error 4: Incorrect structure in fiscal part 2<br>21. Fiscal error5: No connection with the fiscal memory<br>22. Fiscal error 6:Incorrect record structure<br>23. Fiscal error7: Fiscal memory overflow |
| 70h | - | - | READY |
| 7Eh | 1<br>2<br>3 | 1<br>1<br>1 | FAILED RAM:<br>Day<br>Month<br>Year |
| 7Fh | - | - | WRONG COMMAND |

## 46h Request Printer Hardware Status (EPSON TMT260 only)

| Command | Data | Classification |
|---|---|---|
| 46h | | Immediate |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Instruction status |

| Position | Size | Description |
|---|---|---|
| 0 | 2 | Handle - Request ID (1 – 65535) |

Response values (**instruction status**):
- **0000**h – the instruction has been rejected
- **FFFF**h –the instruction has been executed

## 47h Return Printer Hardware Status (EPSON TMT260 only)

| Command | Data | Classification |
|---|---|---|
| 47h | No | Immediate |

**Info bytes**
This bytes are the same as results from the escape command "*DLE EOT n*", where n = 0-4. For More information see the EPSON documentation.

| Position | Size | Description |
|---|---|---|
| 0 | 1 | Info byte 0 |
| 1 | 1 | Info byte 1 |
| 2 | 1 | Info byte 2 |
| 3 | 1 | Info byte 3 |
| 4 | 1 | Info byte 4 |
| 5 | 2 | Handle – Request ID from 46h |

| Byte | Bit | Description | Values |
|---|---|---|---|
| 0 | 2 | Drawer 2 open/close signal | 1 – High<br>0 – Low |
| 1 | 2 | Drawer 1 open/close signal | 1 – High<br>0 - Low |
| 2 | 2 | Status of covers (receipt, journal or journal platen) | 1 – Open<br>0 – Closed |
| | 3 | Paper is being feed by FEED button | 1 – Yes<br>0 – No |
| | 5 | Paper-end or paper-near end | 1 – Yes (printer stopped)<br>0 – No |
| | 6 | Error | 1 – Yes<br>0 – No |
| 3 | 3 | Auto cutter error | 1 – Yes<br>0 – No |
| | 5 | Unrecoverable error | 1 – Yes<br>0 – No |
| | 6 | Auto recoverable error (due to high print head temperature or roll paper cover is open) | 1 – Yes<br>0 – No |
| 4 | 2 | Journal near end paper | 1 – Yes<br>0 – No (paper adequate) |
| | 3 | Receipt near end paper | 1 – Yes<br>0 – No (paper adequate) |
| | 5 | Journal end of paper | 1 – Yes<br>0 – No (paper present) |
| | 6 | Receipt end of paper | 1 – Yes<br>0 – No (paper present) |

# Document History

**Version 1.0** – Initial version. Bulgarian language only. Created by Ivajlo Belitov.

**Version 1.1** (23.06.2006) – Added some changes and corrections. Bulgarian language only. Edited by Ivajlo Belitov

**Version 2.0** – Added changes from “Instruction 4”. Edited by Tina Petrova.

**Version 3.0** (09.02.2009) – Added changes from “Intrstuction 18”. Some terminology changed. Some layouts changed. Edited by Ani Kirilov.

**Version 3.1** (08.04.2009) – Added the two commands for hardware status (046h, 047h). Edited by Ani Kirilov.

**Version 3.2** (09.09.2009) – Corrected command 023h. Edited by Ani Kirilov.

**Version 3.3** (18.01.2010) – Added TMT81Fa in command 03Ch. Name of 033h changed. Edited by Ani Kirilov.

**Version 3.4** (20.01.2010) – Added flags description for command 47h. Commands 2Eh redesigned. Command 2Ch now uses 2Eh as a table reference. Many terms changed according the OPOS naming convention. Corrected some spell mistakes. Edited by Ani Kirilov.