# PROTOCOL FOR COMMUNICATION BETWEEN FISCAL DEVICES AND PERSONAL COMPUTER


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# 1. Introduction

**Used abbreviations:**

| | |
|---|---|
| **FD** | Fiscal device |
| **FPr.** | Fiscal device – fiscal printer |
| **FM** | Fiscal memory |
| **PC** | Personal computer. Meaning not only the computer itself but the program that carries out the communication with the FD |
| **EJT** | Electronic journal tape |
| **EJ** | Electronic journal |
| **NRA** | National Revenue Agency |

**FD** executes the commands, sent from **PC** and returns a message, which depends on the command. Messages are send to the **PC** only if they are a result of the received commands.

All text data (for example PLU names, headers etc.) are send to **FD** and received from it, according to code page CP1251. For example tax group letters – А,Б,В,Г,Д,Е,Ж,З are Cyrillic capital letters with codes C0,…,C7 on CP1251 code table.

# 2. Sequence of messages

The packed message containing the command to the **FD**, is sent from **PC**. The **FD** replies after the operation concerning packed or unpacked message is fulfilled. **PC** must wait and analyze the answer from the **FD** before sending another message.

**FD** replies to all messages from **PC** with a packed message or one byte code not later than 100 ms. **PC** must have at least 500 ms timeout in order to receive an answer from **FD**. The message must be sent with the same sequential number and command if no answer is received. After several unsuccessful attempts, **PC** reports communication problem with the **FD**.

Messages send by **PC** and/or **FD** can be of two types:

# 3. Non packed messages

Non packed messages consist of one byte:

**NAK 15h**

If **FD** finds an error in received packet, it sends code **NAK**. When **PC** receives this code, it must repeat last packet without changing its sequential number.

**SYN 16h**

If **FD** receives command, that needs longer time for executing, it sends code **SYN** every 100 ms, until packet messages is ready for an answer.


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# 4. Packed messages

**From PC to FD**

| Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Name | STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
| Length in bytes | 1 | 1 | 1 | 1 | 0–200 | 1 | 4 | 1 |
| Value | 01h | 20h–FFh | 20h–FFh | 20h–FFh | 20h–FFh | 05h | 30h–3Fh | 03h |

where:

**"STX"** packet message start.

**"LEN"** **total number of bytes from position 2 included to position 6 included plus a fixed offset of 20h. If the total number of bytes exceeds 224, use FFh for "LEN".**

**"SEQ"** **packet sequential number plus fixed offset of 20h. FD uses the same "SEQ" in its response. In case FD receives valid message with the same "SEQ" and "CMD" as the previous one, it not perform any action (ignore the command), but repeats its last response to the PC.**

**"CMD"** **code of the command.**

**"DATA"** **data, according to the command. If there is no data, this field length is zero.**

**"BCC"** **check sum (0000h–FFFFh). The sum of the bytes from positions 2 included to position 6 included. The check sum is transferred in ASCII type (12AB is transferred as 31h 32h 3A 3B).**

**"ETX"** packed message end.

**From FD to PC**

| Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Name | STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
| Length in bytes | 1 | 1 | 1 | 1 | 0–200 | 1 | 6 | 1 | 4 | 1 |
| Value | 01h | 20h–FFh | 20h–FFh | 20h–FFh | 20h–FFh | 04h | 80h–FFh | 05h | 30h–3Fh | 03h |

where:

**"STX"** packet message start.

**"LEN"** **total number of bytes from position 2 included to position 6 included plus a fixed offset of 20h (length 0x01 is transferred as 21h for example). If the total number of bytes exceeds 224, use FFh for "LEN".**

**"SEQ"** **packet sequential number send by the PC.**

**"CMD"** **code of the command send by the PC. In case of invalid command or syntax error, the corresponding status byte will be set in the response and zero data length will be returned.**


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**"DATA"** **data, according to the command. If there is no data, this field length is zero. In case of invalid command or syntax error, the corresponding status byte will be set in the response and zero data length will be returned.**

**"STATUS"** **current FD status flags** (see FD status flags section)**.**

**"BCC"** **check sum (0000h–FFFFh). The sum of the bytes from positions 2 included to position 8 included. The check sum is transferred in ASCII type (12AB is transferred as 31h 32h 3A 3B).**

**"ETX"** packed message end.

The command 74 (4Ah) FD CURRENT STATUS for example, looks like that (all data is in hexadecimal format - Hex):

**Sent: (from PC to FD):**

**01 24 50 4A 05 30 30 3C 33 03**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 24 | 50 | 4A | | 05 | 30 30 3C 33 | 03 |

**Received: (from FD to PC):**

**01 31 50 4A 88 80 80 80 80 B8 04 88 80 80 80 80 B8 05 30 37 35 34 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 31 | 50 | 4A | 88 80 80 80 80 B8 | 04 | 88 80 80 80 80 B8 | 05 | 30 37 35 34 | 03 |

Note: When using commands:

153 (99h) SEND REPROTS IN TEXT TYPE and

195 (C3h) EJT REPLACEMENT AND REPORTS

there is additional data packets from FD to PC and vice versa. See corresponding commands detailed description for further information.


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# 5. FD status flags

FD current status is transferred in every packed message to the PC. The status consists of 6 bytes. The description of every bit (0-7) in bytes (0-5) of the FD status flags is shown in tables from 1 to 6.

| Byte 0 – General function | |
|---|---|
| 0.7 → 1 | Reserved |
| 0.6 → 1 | Not used |
| 0.5 → 1 | General error - OR of all errors with * from bytes 0, 1, 2 |
| 0.4 → 1* | Printing mechanism error |
| 0.3 → 1 | No external display |
| 0.2 → 1 | Date and time are not set |
| 0.1 → 1* | Invalid command |
| 0.0 → 1* | Syntax error |

| Byte 1 - General function | |
|---|---|
| 1.7 → =1 | Reserved |
| 1.6 → 1 | Wrong password |
| 1.5 → 1 | Cutter error |
| 1.4 → 1 | Not used |
| 1.3 → 1* | Changed EJT |
| 1.2 → 1* | Zeroed memory |
| 1.1 → 1* | Command not allowed in current mode |
| 1.0 → 1 | Sums overflow |

| Byte 2 - General function | |
|---|---|
| 2.7 → 1 | Reserved |
| 2.6 → 1 | Printing is enabled |
| 2.5 → 1 | Opened non-fiscal receipt |
| 2.4 → 1 | Running out of paper (JT) |
| 2.3 → 1 | Opened fiscal receipt |
| 2.2 → 1 | Out of paper (JT) |
| 2.1 → 1 | Running out of paper |
| 2.0 → 1* | Out of paper |


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| Byte 3 - FD error number | |
|---|---|
| 3.7 | Reserved |
| 3.0–3.6 | FD error code or overflow<br>(see the specific model's "User manual") |

| Description of errors in byte 3 of the FD | | |
|---|---|---|
| № | Error text | Additional description |
| 1 | Недостатъчна наличност / Препълване<br>OVERFLOW | The given operation will result in an overflow |
| 3 | ПРЕПЪЛНЕН БОН<br>OFL RECEIPT | You are not allowed any further sales on this receipt |
| 4 | ПРЕПЪЛНЕН БРОЙ ПЛАЩАНИЯ<br>OFL.NUM PAYM. | You are not entitled to any further payments on this receipt |
| 5 | НУЛЕВА СУМА<br>ZERO SUM | Attempt to perform a zero-value transaction |
| 6 | ЗАПОЧНАТО ПЛАЩАНЕ<br>BEGIN PAYMENT. | Attempting to make a sale after a payment has already started |
| 7 | ЗАБРАНЕНА ОПЕРАЦИЯ<br>OPER.FORBIDDEN | You are not authorized to perform such an operation |
| 8 | ЗАБРАНЕНА ДАНЪЧНА ГРУПА<br>TAX GR. FORBIDDEN | Sales prohibited tax group |
| 9 | ГРЕШЕН ДИАПАЗОН<br>WRONG RANGE | Attempt to issue an extended customer receipt (invoice) without an invoice number range entered in the FD. |
| 10 | Некоректна дата<br>INCORRECT DATE | |
| 11 | МНОГО ТОЧКИ<br>TOO MANY DOTS | Entering more than one decimal point |
| 12 | Грешка<br>Error | Entering more than one '+' or '-' symbol |
| 13 | Грешка<br>Error | The '+' or '-' symbol is not in the first position |
| 14 | ГРЕШЕН СИМВОЛ<br>WRONG SYMBOL | An invalid character—for example, a barcode containing characters other than digits |
| 15 | МНОГО ДЕСЕТИЧНИ ЗНАЦИ<br>MANY DOTSYMBOLS | More than the allowed number of digits after the decimal point |
| 16 | МНОГО ЗНАЦИ<br>MANY SYMBOLS | More than the permitted number of characters have been entered |
| 17 | LOW BATTERY | Low battery |
| 19 | ОТВОРЕН БОН<br>OPEN RECEIPT | There is an open receipt |
| 20 | ГРЕШЕН КЛАВИШ<br>INCORRECT KEY | In the current situation, the key you pressed is not being handled, or the command you selected is not being processed by the PC |


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| | | |
|---|---|---|
| 21 | ГРЕШНА СТОЙНОСТ<br>INCORRECT VALUE | The value is outside the permissible limits |
| 22 | ЗАБРАНЕНА ОПЕРАЦИЯ<br>FORBIDDEN OPER. | |
| 23 | ЗАБРАНЕН ВОЙД<br>FORBIDDEN VOID | Attempt at a "deep" void following a discount/surcharge on a subtotal |
| 24 | ГРЕШНА ОПЕРАЦИЯ<br>WRONG OPERATION | Attempted "deep" void of a non-existent transaction |
| 25 | ГРЕШНА ОПЕРАЦИЯ<br>WRONG OPERATION | Attempt to make a payment without any sales |
| 26 | НЯМА ЗАПАС<br>LOW STOCK | Attempt to sell an item with a quantity exceeding its stock |
| 27 | ГРЕШЕН ОТГОВОР ВЕЗНА<br>ERROR SCALES | Incorrect communication with electronic scale |
| 28 | НЯМА НАЛИЧНОСТ<br>NO STOCK | Attempt to sell without stock |
| 30 | Пълна ФП<br>FULL FM | The fiscal memory is full |
| 37 | Грешка терминал<br>ERR TERMINAL | Payment terminal error – payment declined |
| 38 | Грешка терминал<br>ERR TERMINAL | Payment terminal error – the user cancelled the operation |
| 41 | ГРЕШЕН БАРКОД<br>INCORR.BARCODE | Invalid barcode (incorrect barcode checksum) |
| 42 | НУЛЕВ БАРКОД / НЕ Е В МАРШРУТА<br>ZERO BARCODE / NOT IN ROUTE | Attempt to sell with a zero barcode |
| 43 | ЗАБРАНЕН БАРКОД<br>BARC.FORBIDEN | Attempt at programming with a weight barcode |
| 44 | НЕНАМЕРЕН БК / НЯМА СТАНЦИЯ<br>BC NOT FOUND / MISSING STATION | Attempt to sell with an unprogrammed barcode |
| 45 | ДУБЛИРАН БК<br>BC DUPLICATED | Attempt to program an already existing barcode |
| 48 | ВЪЗМОЖЕН ОТРИЦАТЕЛЕН ОБОРОТ | Attempt to apply a discount to a zero subtotal |
| 49 | НЕДОСТАТЪЧНО МЯСТО<br>INSUFF.SPACE | |
| 58 | BLE connection already authenticated | No connection to BLE |
| 59 | BLE wrong stamp | |
| 61 | ПОВРЕДЕН КЛЕН<br>ERR EJT | |
| 66 | ГРЕШНА ПАРОЛА<br>WRONG PASSWORD | Incorrect password |
| 67 | СВЕРИ ЧАСОВНИК<br>SET DATE | |
| 70 | НЯМА ФИСКАЛНА<br>FM NOT EXIST | |
| 71 | ПОДМЯНА ФП<br>SUBSTITUTION FM | |


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| | | |
|---|---|---|
| 72 | ГРЕШЕН ЗАПИС ФП<br>ERR RECORD FM | |
| 76 | ИНФОРМАЦИЯ НАП | Information from the NRA server is required |
| 78 | ПРОМЯНА НАП<br>NRA CHANGE | A change is required on the NRA server |
| 81 | ПРЕПЪЛВАНЕ ДНЕВЕН ОТЧЕТ<br>OFL.DAILY REP. | The daily financial report with zeroing and recording in the fiscal memory is overflowed |
| 82 | ПРЕПЪЛВАНЕ 24h<br>OVERFLOW 24h | More than 24 hours without a daily financial report with zeroing – no daily financial report has been issued |
| 83 | ПРЕПЪЛВАНЕ ОТЧЕТ ПО ОПЕРАТОРИ<br>OFL.OPER.REP. | The report by operator is overflowed |
| 84 | ПРЕПЪЛВАНЕ ОТЧЕТ ПО АРТИКУЛИ<br>OFL.PLU REP | The report by PLU is overflowed |
| 85 | ПРЕПЪЛВАНЕ ПЕРИОДИЧЕН ОТЧЕТ<br>OFL.PURC.REP. | The periodic report is overflowed |
| 88 | Грешка<br>Error | EJT is overflowed |
| 90 | ПЕРИОДИЧЕН ОТЧЕТ<br>PURC.REP.NEED | The periodic report has not been zeroed |
| 91 | ДНЕВЕН ОТЧЕТ<br>NEED DAILY REP. | The daily financial report with zeroing and recording in the fiscal memory has not been zeroed |
| 92 | ОТЧЕТ ПО ОПЕРАТОРИ<br>NEED OPER. REP. | The report by operator has not been zeroed |
| 93 | ОТЧЕТ ПО АРТИКУЛИ<br>NEED PLU REPORT | The report by PLU has not been zeroed |
| 94 | ОТЧЕТ ПО МАРШРУТИ<br>NEED ROUTE REPORT | This field cannot be reprogrammed / The route report has not been zeroed |
| 97 | ЗАБРАНЕНА ПРОМЯНА<br>CHANGE FORBIDDEN | The given field cannot be changed/reprogrammed |
| 98 | НЕИЗПРАТЕН ФИСКАЛЕН БОН | Inability to send data from the fiscal device to the NRA server |
| 102 | НЯМА МОДЕМ<br>NO MODEM | No communication between the FD and the tax terminal/modem |
| 104 | Грешка<br>Error | Faulty communication between the fiscal device and the tax terminal/modem |
| 107 | ЗАКЛЮЧЕНА SIM КАРТА<br>SIM CARD LOCKED | The modem's SIM card is locked |
| 108 | ГРЕШНА ПАРОЛА<br>WRONG PASSWORD | Attempt to enter an incorrect password |
| 110 | НОВА SIM КАРТА<br>NEW SIM CARD | Replaced SIM card |
| 111 | КОМУНИКАЦИОННА ГРЕШКА НАП<br>NRA ERROR | Communication error between the tax terminal and the NRA server |
| 113 | ОТКАЗ ОТ НАП<br>NRA REFUSAL | The NRA server is not accepting the data submitted to it |
| 117 | МОБИЛЕН ОПЕРАТОР ГРЕШКА<br>GPRS NET ERROR | Unsuccessful attempt to register the tax terminal/modem on the mobile operator's network |


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| | | |
|---|---|---|
| 118 | ЗАБРАНЕНА ОПЕРАЦИЯ<br>FORB.OPERATION | The operation is forbidden |
| 119 | Препълване на ОП<br>OFL RAM | RAM overflow |
| 120 | НЕВЪВЕДЕНО ПОЛЕ<br>MISSING FIELD | Value not entered in a mandatory field |
| 124 | ПОДМЕНЕН КЛЕН<br>CHANGED EJT | The fiscal device does not recognize the inserted EJT (the EJT is activated on another device) |
| 125 | НЯМА КЛЕН<br>NO EJT | If the fiscal device is registered, it cannot operate without a EJT |
| 126 | ПЪЛЕН КЛЕН<br>FULL EJT | The EJT is full or nearly full. It needs to be replaced |
| 127 | КЛЕН<br>EJT | The EJT is not initialized correctly |

| Byte 4 – Fiscal memory | |
|---|---|
| 4.7 → 1 | Reserved |
| 4.6 → 1 | Temporary deregistration |
| 4.5 → 1 | General error - OR of all errors with * from bytes 4, 5 |
| 4.4 → 1* | FM is full |
| 4.3 → 1 | Space for less than 50 records left in FM |
| 4.2 → 1 | Invalid record in FM |
| 4.1 → 1 | Tax terminal problem – communication error |
| 4.0 → 1* | Error while writing data to FM |

| Byte 5 – Fiscal memory | |
|---|---|
| 5.7 → 1 | Reserved |
| 5.6 → 1 | Opened data transfer session |
| 5.5 → 1 | FD identification number and FM number are programmed |
| 5.4 → 1 | Tax rates are set |
| 5.3 → 1 | FD is activated |
| 5.2 → 1 | Not used |
| 5.1 → 1 | Not used |
| 5.0 → 1* | FM overflowed |


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# 6. List of commands by type

**Note**: commands are sorted alphabetically.

| INITIAL SETTINGS | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 43 | 2Bh | Cliché and printing option |
| 195 | C3h | EJT replacement and reports |
| 115 | 73h | Loading graphic logo |
| 102 | 66h | Operator name |
| 101 | 65h | Operator password |
| 43/150 | 2Bh/96h | Printing graphic logo (enable/disable) |
| 131 | 83h | Programming and information about departments |
| 150 | 96h | Programming and information about FD system parameters |
| 149 | 95h | Programming and information about text field |
| 107 | 6Bh | Programming, erasing and information about PLU |
| 151 | 97h | Programming and information about payments |
| 61 | 3Dh | Set date and time |
| 96 | 60h | Tax rates programming |

| SALES | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 130* | 82h | Cancel receipt |
| 85 | 55h | Customer QR barcode |
| 56* | 38h | End of fiscal receipt |
| 39* | 27h | End of non-fiscal receipt |
| 109* | 6Dh | Print a duplicate receipt |
| 84 | 54h | Print barcode |
| 57* | 39h | Print customer information |
| 54* | 36h | Print fiscal text |
| 42* | 2Ah | Print non-fiscal text |
| 49* | 31h | Sale |
| 52* | 34h | Sale and display |
| 138* | 8Ah | Sale by department |
| 58* | 3Ah | Sale by PLU |
| 48* | 30h | Start of fiscal receipt |
| 55* | 37h | Start of fiscal receipt without printing |
| 38* | 26h | Start of non-fiscal receipt |
| 51* | 33h | Subtotal |
| 53* | 35h | Total sum (TOTAL) |


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| REPORTS | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 79* | 4Fh | Brief FM report by date |
| 95* | 5Fh | Brief FM report by number |
| 165* | A5h | Departments Report |
| 195 | C3h | EJT replacement and reports |
| 94* | 5Eh | FM report by date |
| 73* | 49h | FM report by number |
| 105* | 69h | Operators report |
| 111* | 6Fh | PLU's report |
| 166* | A6h | Print system parameters |
| 153 | 99h | Send reports in text type |
| 50* | 32h | Tax rates information |

| BALANCE AT THE END OF THE DAY | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 69* | 45h | Daily financial report with or without clearing |
| 108* | 6Ch | Detailed daily financial report with PLUs printing |
| 104 | 68h | Reset sales by operators |

| EXTERNAL DISPLAY CONTROL | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 33 | 21h | Clear external display |
| 47 | 2Fh | Display text on row 1 on the external display |
| 35 | 23h | Display text on row 2 on the external display |
| 46 | 2Eh | Display text on specified row on the external display |
| 133 | 85h | External display description and commands |
| 132 | 84h | Load converting table for external display |
| 100 | 64h | Send data to external display |

| PRINTER | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 45* | 2Dh | Paper cut |
| 44* | 2Ch | Paper feed |


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| INFORMATION | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 66 | 42h | Additional data from the FP |
| 99 | 63h | BULSTAT / EIK registration number information |
| 128 | 80h | Constants information |
| 65 | 41h | Current net/total sums information |
| 97 | 61h | Current tax rates information |
| 62 | 3Eh | Date and time information |
| 90 | 5Ah | Diagnostic information |
| 74 | 4Ah | FD current status |
| 118 | 76h | Firmware information |
| 76 | 4Ch | Fiscal receipt current status |
| 117 | 75h | Fiscal receipt first not sent number |
| 146 | 92h | FM information by date |
| 114 | 72h | FM information by number |
| 68 | 44h | Free fiscal records |
| 201 | C9h | Information about currency parameter transition dates |
| 110 | 6Eh | Information about current day |
| 119 | 77h | Issued document information |
| 116 | 74h | Issued document QR data information |
| 113 | 71h | Last document number |
| 64 | 40h | Last fiscal record information |
| 112 | 70h | Operator information |
| 71* | 47h | Print diagnostic information |
| 149/42 | 95h/2Bh | Programming and information about text field |
| 131 | 83h | Programming and information about departments |
| 152 | 98h | Programming, erasing and information about customers data |
| 107 | 6Bh | Programming, erasing and information about PLU |
| 103 | 67h | Receipt information |
| 50 | 32h | Tax rates information |
| 194 | C2h | Data from terminal test and information |

| OTHER | | |
|---|---|---|
| **Code** | **Code (Hex)** | **Command function** |
| 63 | 3Fh | Display date and time |
| 106* | 6Ah | Open till |
| 70* | 46h | Service input sum (R/A) and service output (P/O) sum |

**Warning:** All commands, marked with asterisk (*) and orange background could be executed only in fiscal printer mode –pay attention to “2.6 – Printing is enabled” status bit.


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# 7. Detailed commands description.

**Used abbreviations:**

**{}** – mandatory fields
**[]** – optional fields
**|** – alternative parameters
**#XXX#** - FD constants - see 128 (80h) CONSTANTS INFORMATION description.

## 33 (21h) CLEAR EXTERNAL DISPLAY

**Data field:** **No data**
**Response:** **No data**

Command to clear the external display.

**Note:** If there is an open fiscal receipt, the data FD sends to display depends on the value of the relevant system parameter – for further details see „User's Manual".

## 35 (23h) DISPLAY TEXT ON ROW 2 ON THE EXTERNAL DISPLAY

**Data field:** **Text**
**Response:** **No data**

**Text** Text to be displayed on row 2 of the display.

**Note 1:** The text will be "trimmed" on the right side, if longer than the value of the system parameter – for further details see „User's Manual".

**Note 2:** The command will not be completed if the value of the system parameter is less than 2 – for further details see „User's Manual".

**Note 3:** If there is an open fiscal receipt, the data FD sends to display depends on the value of the relevant system parameter – for further details see „User's Manual".

## 38 (26h) START OF NON-FISCAL RECEIPT

**Data field:** **{Luggage}{TicketNo}**
**Response:** **All Receipt**

**Luggage** **"L"** → Specifies a baggage receipt stamp. Can be used only with intercity and international ticketing features enabled devices - **"Daisy FX1200B1" and "Perfect SA".** For further details see „User's Manual".

**TicketNo** Specifies ticket number of the passenger, for whom this baggage receipt is.

**All Receipt** Number of all issued receipts (fiscal and non-fiscal) since the last balance at the end of the day until now (6 bytes).

FD performs the following actions:


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- Prints HEADER;
- If baggage receipt was specified, prints "БАГАЖНА РАЗПИСКА" and "Към билет N#" with the specified **TicketNo**. Note that in the baggage receipt you must enter the name of the passenger with a single or multiple execution of the command 42 (2Ah) PRINT NON-FISCAL TEXT.

The command won't be executed by FD if:

- There is already an open non-fiscal receipt;
- There is already an open fiscal receipt;
- Date and time are not set;
- Overflowed, missing or damaged EJT.

## 39 (27h) END OF NON-FISCAL RECEIPT

**Data field:** **No data**
**Response:** **All Receipt**

**All Receipt** Number of all issued receipts (fiscal and non-fiscal) since the last balance at the end of the day until now (6 bytes).

FD performs the following actions:

- Prints FOOTER;
- Prints document serial number, date and time of issuing;
- Prints "СЛУЖЕБЕН БОН" ("SERVICE BON") text, if FD has been fiscalized, otherwise prints "НЕФИСКАЛЕН БОН" ("NON-FISCAL RECEIPT").

The command won't be executed by FD if:

- There is no opened non-fiscal receipt;
- There is an open fiscal receipt.

## 42 (2Ah) PRINT NON-FISCAL TEXT

**Data field:** **Text**
**Response:** **No data**

**Text** Text to be printed.

The command won't be executed by FD if there is no open non-fiscal receipt.
**Note 1:** The text will be "trimmed" on the right side if longer than **#COMMENT_LEN#**.
**Note 2:** The **Text** field is interpreted like a comment and will be printed with "#" symbols at the beginning and at the end**.**

## 43 (2Bh) CLICHE AND PRINTING OPTIONS

**Data field:** **{Option}{Text}**
**Response:** **According to the data field**


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**Option** One symbol that can be:

- **"0" to "7"** line number for which parameters are set (HEADER rows are from "0" to "5", FOOTER rows – "6" and "7").
- **"A"** detailed print of customer receipt.
- **"C"** automatic paper cutting at the end of the receipt, if FD has a cutter.
- **"I"** gives the opportunity to read the data, previously set by this command. After letter **"I"** there must be exactly one more option symbol. Example: I0..I7, IP, IL, IC, IA.
- **"L"** prints graphical logo before printing HEADER.
- **"P"** sets printing options.

**Text** Text: If {Option} is "0" to "7" digit – the text, text of which the corresponding line will consist.

If {Option} is "0" to "5" digit – the text, text of which the corresponding line will consist. The text will be "trimmed" on the right side if longer than **#CHARS_PER_LINE#**.

If {Option} is "6" to "7" digit – the text, text of which the corresponding line will consist. The text will be "trimmed" on the right side if longer than **#CHARS_PER_LINE#-4**, because when printed, the entered text is surrounded by '# ' ' #'. For example the text

' Заповядайте пак! '

will be printed:

'# Заповядайте пак! #'

If {Option} is **"A",** one symbol with value:

**"0"**→ disables

**"1"** → enables detailed print of the customer receipt.

If {Option} is **"C",** one symbol with value:

**"0"**→ disables automatic cutting

**"1"** → allows full cutting at the end of the receipt

**"2"** → allows partial cutting at the end of the receipt.

If {Option} is **"L",** one symbol with value:

**"0"** → disables or

**"1"**→ allows printing graphical logo.

If {Option} is **"P",** four symbols with value:

**"0"** → disables or

**"1"** → enables corresponding option.

Options according to symbols:

[1] A blank line will be printed after HEADER

[2] A blank line will be printed after EIK / BULSTAT

[3] A blank line will be printed after FOOTER

[4] A delimiter line will be printed before total sum (TOTAL)


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## 44 (2Ch) PAPER FEED

**Data field:** **[Lines]**
**Response:** **No data**

**Lines** Number of lines to move the paper.

## 45 (2Dh) PAPER CUT

**Data field:** **[Mode]**
**Response:** **Code**

**Mode** Optional parameter, specifies cutting type. 1 → full cut, 2 → partial cut.
**Code** One symbol indicating the result:
**"P"** → the command is successful.
**"F"** → the command is failed.

## 46 (2Eh) DISPLAY TEXT ON SPECIFIED ROW ON THE EXTERNAL DISPLAY

**Data field:** **LineNo,Text**
**Response:** **No data**

**LineNo** Number of display line. The lines are counted from top to bottom. The top line is 1.
**Text** Text to be displayed on the row.

**Note 1:** The text will be "trimmed" on the right side, if longer than the value of the system parameter – for further details see „User's Manual"**.**

**Note 2:** If specified **LineNo** is greater than value of the corresponding system parameter, FD won't execute the command – for further details see „User's Manual"**.**

**Note 3:** If there is an open fiscal receipt, the data FD sends to display depends on the value of the relevant system parameter – for further details see „User's Manual"**.**

## 47 (2Fh) DISPLAY TEXT ON ROW 1 ON THE EXTERNAL DISPLAY

**Data field:** **Text**
**Response:** **No data**

**Text** Text to be displayed on row 1 of the display.

**Note 1:** The text will be "trimmed" on the right side, if longer than the value of the system parameter – for further details see „User's Manual"**.**

**Note 2:** If there is an open fiscal receipt, the data FD sends to display depends on the value of the relevant system parameter – for further details see „User's Manual"**.**


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## 48 (30h) START OF FISCAL RECEIPT

**Data field:** **{OperatorNum},{Password},{UNP}**
**[{Tab}**
**{Invoice}**
**|{{Refund}{Reason},{DocLinkNum},{DocLinkDT}{Tab}{FiskMem}}**
**|{{Credit}{InvLink},{Reason},{DocLinkNum},{DocLinkDT}{Tab}{DocLinkFMNo}}]**
**|,Ticket{TicketStationName1{Tab}StationName2{Tab}PlaceNo{Tab}Departure}**

**Response:** **AllReceipt, FiscReceipt**

**OperatorNum** Operator number – 1 to **#OPER_MAX_CNT#**.

**Password** Operator password – up to 6 digits

**UNP** Mandatory parameter specifying unique sale number.
Format: "FD identification number" (2 capital Latin letters+6 digits)
**"-"**
"Operator Code" four capital Latin letters or digits
**"-"**
Sale serial number (exactly seven digits)
Example UNP: **DY000600-OP01-0000001**
For **Ticket** variant, instead UNP, use "1".

**Invoice** **"I"**→ Specifies issuing invoice receipt.

**Refund** **"R"** → Specifies issuance of a refund fiscal receipt.

**Reason** Reason for issuance of a refund fiscal receipt
**"0"**→ ВРЪЩАНЕ / РЕКЛАМАЦИЯ (RETURN / COMPLAINT)
**"1"**→ ОПЕРАТОРСКА ГРЕШКА (OPERATOR ERROR)
**"2"**→ НАМАЛЯВАНЕ НА ДАН. ОСНОВА (REDUCTION OF TAX BASE)

**DocLinkNum** Number of the original fiscal receipt that is issued

**DocLinkDT** Date and time of issuing the original fiscal receipt, in format **{DD–MM–YY}{space}{HH:mm[:SS]}**

**Tab** One byte with value **09h** (delimiter).

**DocLinkFMNo** Device FM number, from which the original fiscal receipt was issued

**Credit** **"C"** → Specifies issuance of credit note

**InvLink** Tax invoice number, basis for issuing the credit note.

**Ticket** **"T"** → Specifies data for issuing ticket. Can be used only with intercity and international ticketing features enabled devices - **"Daisy FX1200B1" и "Perfect SA".** For further details see „User's Manual".

**StationName1** Name of the starting station.

**StationName2** Name of the final station.

**PlaceNo** Passenger seat.

**Departure** Date and time of departure in format DD-MM-YYYY HH:mm.


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**AllReceipt** Number of all issued receipts (non-fiscal and fiscal) since the last balance at the end of the day until now (4 bytes).

**FiscReceipt** Number of all issued fiscal receipts since the last balance at the end of the day till now (4 bytes).

FD performs the following actions:

- Prints HEADER and БУЛСТАТ;
- Prints operator's name and number;
- If {Invoice} is **"I"**, prints invoice number and the text „ОРИГИНАЛ" ("ORIGINAL");
- Prints text „БИЛЕТ ЗА ПЪТУВАНЕ" ("TRAVEL TICKET"), if FD is set for issuing tickets.

The command won't be executed by FD if:

- There is an opened non-fiscal or fiscal receipt;
- FM is overflowed;
- Overflowed or missing or invalid EJT;
- Missing operator's number or/and password;
- Wrong password;
- There is a communication problem between the FD and the tax terminal;
- The range of numbers for the invoices is spent or not set, while trying to open a new invoice;
- The built-in RTC is not set to the correct time;
- Missing or incorrectly specified UNP;
- Invalid specified data for issuance of refund fiscal receipt or credit note;
- If FD is set for issuing tickets and not specified on the following ticket parameters: StationName1, StationName2, PlaceNo, Departure.

**Warning**: If FD has not been fiscalized, the FD will open fiscal receipt, will allow to make sale and payment and close it, but at the end of the receipt text "НЕФИСКАЛЕН БОН" ("NON-FISCAL RECEIPT") will be printed.

**Example** (data is in hexadecimal format- Hex)**:**

**Sent (from PC to FD)** standard variant, operator → "1", password → "1":

**01 3D 37 30 31 2C 31 2C 44 59 30 30 30 36 39 34 2D 4F 50 30 31 2D 30 30 30 30 30 31 38 05 30 35 3E 36 03**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 3D | 37 | 30 | 31 2C 31 2C 44 59 30 30 30 36 39 34 2D 4F 50 30 31 2D 30 30 30 30 30 31 38<br>"1,1,DY000694-OP01-0000018" | 05 | 30 35<br>3E 36 | 03 |

**Received: (from FD to PC):**

**01 38 37 30 30 30 30 30 30 31 2C 30 30 30 30 30 30 04 88 80 88 80 80 B8 05 30 36 35 3D 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 38 | 37 | 30 | 30 30 30 30 30 31 2C 30 30 30 30 30 30<br>**"000001,000000"** | 04 | **88 80 88<br>80 80 B8** | 05 | 30 36 35 3D | 03 |


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**Sent (from PC to FD) Invoice** variant, operator → "1", password → "1":

**01 3F 40 30 31 2C 31 2C 44 59 30 30 30 36 30 30 2D 4F 50 30 31 2D 30 30 30 30 30 30 31 09 49 05 30 36 32 3E 03**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 3F | 40 | 30 | 31 2C 31 2C 44 59 30 30 30 36 30 30 2D 4F 50 30 31 2D 30 30 30 30 30 30 31 09 49<br>"1,1,DY000600-OP01-0000001\tI" | 05 | 30 36<br>32 3E | 03 |

**Received: (from FD to PC):**

**01 38 40 30 30 30 30 30 30 32 2C 30 30 30 30 30 31 04 88 80 88 80 80 B8 05 30 36 36 38 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 38 | 40 | 30 | 30 30 30 30 30 32 2C 30 30 30 30 30 31<br>**"000002,000001"** | 04 | **88 80 88<br>80 80 B8** | 05 | 30 36 36 38 | 03 |

**Sent (from PC to FD) Refund** variant, operator → "20", password → "9999", reason → "ОПЕРАТОРСКА ГРЕШКА", number of the original fiscal receipt issued → "203", date and time of issuing original fiscal receipt → "10-04-23 21:54:02", device FM number, from which the original fiscal receipt was issued → "36940032":

**01 63 DE 30 32 30 2C 39 39 39 39 2C 44 59 30 30 30 36 30 30 2D 4F 50 32 30 2D 30 30 30 30 30 30 33 09 52 31 2C 32 30 33 2C 31 30 2D 30 34 2D 32 33 20 32 31 3A 35 34 3A 30 32 09 33 36 39 34 30 30 33 32 05 30 3D 3E 38 03**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 63 | DE | 30 | 32 30 2C 39 39 39 39 2C 44 59 30 30 30 36 30 30 2D 4F 50 32 30 2D 30 30 30 30 30 30 33 0952 31 2C 32 30 33 2C 31 30 2D 30 34 2D 32 33 20 32 31 3A 35 34 3A 30 32 09 33 36 39 34 30 30 33 32<br>"20,9999,DY000600-OP20-0000003\tR1,203,10-04-23 21:54:02\t36940032" | 05 | 30 3D<br>3E 38 | 03 |

**Received: (from FD to PC):**

**01 38 DE 30 30 30 30 30 30 33 2C 30 30 30 30 30 32 04 88 80 88 80 80 B8 05 30 37 30 38 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 38 | DE | 30 | 30 30 30 30 30 33 2C 30 30 30 30 30 32<br>**"000003,000002"** | 04 | **88 80 88<br>80 80 B8** | 05 | 30 37 30 38 | 03 |

**Sent (from PC to FD) Credit** variant, operator → "1", password → "1":

**01 64 59 30 31 2C 31 2C 44 59 30 30 30 36 30 30 2D 4F 50 30 31 2D 30 30 30 30 30 30 34 09 43 33 35 2C 31 2C 31 37 31 30 32 2C 31 38 2D 30 34 2D 32 33 20 30 31 3A 35 39 3A 35 39 09 33 36 39 39 39 34 30 31 05 30 3D 39 30 03**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 64 | 59 | 30 | 31 2C 31 2C 44 59 30 30 30 36 30 30 2D 4F 50 30 31 2D 30 30 30 30 30 30 34 09 43 33 35 2C 31 2C 31 37 31 30 32 2C 31 38 2D 30 34 2D 32 33 20 30 31 3A 35 39 3A 35 39 09 33 36 39 39 39 34 30 31<br>"1,1,DY000600-OP01-0000004\tC35,1,17102,18-04-23 01:59:59\t36999401" | 05 | 30 3D<br>39 30 | 03 |

**Received: (from FD to PC):**

**01 38 59 30 30 30 30 30 30 34 2C 30 30 30 30 30 32 04 88 80 88 80 80 B8 05 30 36 38 34 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 38 | 59 | 30 | 30 30 30 30 30 34 2C 30 30 30 30 30 32<br>**"000004,000002"** | 04 | **88 80 88<br>80 80 B8** | 05 | 30 36 38 34 | 03 |


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**Sent (from PC to FD) Ticket** variant, operator → "20", password → "9999", from station "Варна" to station "Бургас", passenger seat → "10", date and time of departure → "31-12-2022 15:59":

**01 4F C0 30 32 30 2C 39 39 39 39 2C 31 2C 54 C2 E0 F0 ED E0 09 C1 F3 F0 E3 E0 F1 09 31 30 09 33 31 2D 31 32 2D 32 30 32 32 20 31 35 3A 35 39 05 31 30 3D 3B 03**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 4F | C0 | 30 | 32 30 2C 39 39 39 39 2C 31 2C 54 C2 E0 F0 ED E0 09 C1 F3 F0 E3 E0 F1 09 31 30 09 33 31 2D 31 32 2D 32 30 32 32 20 31 35 3A 35 39<br>"20,9999,1,ТВарна\tБургас\t10\t31-12-2022 15:59" | 05 | 31 30 3D 3B | 03 |

**Received: (from FD to PC):**

**01 38 59 30 30 30 30 30 30 35 2C 30 30 30 30 30 32 04 88 80 88 80 80 B8 05 30 36 3E 3C 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 38 | C0 | 30 | 30 30 30 30 30 35 2C 30 30 30 30 30 32<br>**"000005,000002"** | 04 | **88 80 88 80 80 B8** | 05 | 30 36 3E 3C | 03 |

## 49 (31h) SALE

**Data field:** **[{Text1}][{LF}{Text2}]{Tab}{TaxGr}{[Sign]Price}[*{QTY}][,Percent][$Netto]**

**Response:** **No data**

**Text 1** Text describing the sale.

**LF** One byte with value **0Ah** (delimiter).

**Text 2** Additional text, describing the sale.

**Tab** One byte with value **09h** (delimiter).

**TaxGr** 1 letter, specifies tax group (Cyrillic capital letter **А, Б, В, Г, Д, Е, Ж, З**).

**Sign** One byte with value **"+"** or **"–"**. If → **"–"**,then a correction (void) of the last sale in the receipt with identical price, quantity and tax group is made. Parameters **Percent** and **Netto** will be ignored in this case.

**Price** Single price: up to 8 meaning digits.

**QTY** Optional parameter, up to 8 meaning digits (3 or less decimal places) – specifies the quantity of sale. 1.000 by default.

**Percent** Optional parameter that specifies the discount/surcharge percent over current sale. Acceptable values – from 100.00 % up to 99.99 %. 2 or less decimal places are accepted.

**Netto** Optional parameter that specifies the value of discount/surcharge over current sale (depending on the **Netto** sign).

FD prints the name of the sale with the price, tax group code (and quantity if specified). If discount or surcharge is specified, it will be printed on a separate line.

The command won't be executed by FD if:

- There is no opened fiscal receipt;
- Maximum number of sales for one receipt has been reached;


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- The payment already started on the current receipt;
- Overflowed or missing or invalid EJT;
- Percent and Netto parameters used simultaneously;
- The execution of the command will lead to overflowing of any of the reports;
- Specified tax group is forbidden for sale;
- The department associated with the specified tax group (51st to 58th) has a maximum number of digits set for a price that is less than the number entered in **Price** (Error 16 - MANY SYMBOLS)**.**
- Possible negative turnover for the sale or sums in the receipt;
- If there isn't enough amount in the FD (in case issuance of a refund fiscal receipt or credit note was made and the reason is not due to operator error). See command 70 (46h) SERVICE INPUT SUM (R/A) AND SERVICE OUTPUT(P/O) SUM note.

**Note 1:** The text will be "trimmed" on the right side if longer than **#COMMENT_LEN#**.
**Note 2:** If **Text1** and **Text2** are used simultaneously, parameter **Text1** is interpreted as comment line and will be printed surrounded by **"#"** symbol.

## 50 (32h) TAX RATES INFORMATION

**Data field:** **[{StartDate}[,{EndDate}]]**
**Response:** **{Code}[,{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#},{Date}]**

**StartDate** Start date of the period (DDMMYY) – 6 bytes.
**EndDate** End date of the period (DDMMYY) – 6 bytes.

**Code** One byte with value **"F"** → failed or **"P"** → passed (found data in FM)
**Tax1…Tax8** VAT rate by tax group "A"…"3".
**Date** Date when rate was recorded DDMMYY

FD prints a report for service records in FM for the specified period.

## 51 (33h) SUBTOTAL

**Data field:** **{Print}{Display}[[,Percent]|[$Netto]]**
**Response:** **{SubTotal},{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#}**

**Print** Value **"0"** → to not print, or **"1"** → to print subtotal value.
**Display** Value **"0"** or **"1"**. Indicates **FD** to show subtotal sum on the external display.
**Percent** Optional parameter that specifies the discount/surcharge percent over the accumulated sum at the moment.
**Netto** Optional parameter that specifies the value of discount/surcharge over the accumulated sum at the moment.
**SubTotal** Amount at the moment (for the current fiscal receipt) – 10 symbols.


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**Tax1…Tax8** Total sum of tax group “A”…”3” – 10 bytes.

This command calculates the sum of all sales made for current fiscal receipt at the moment of execution. If discount / surcharge was entered, it will be printed on a separate line. The calculated current sum (subtotal), and all accumulated sums of tax groups for the moment are transmitted to the PC.

## 52 (34h) SALE AND DISPLAY

**Data field:** **[Text1]{Tab}{TaxGroup}{[Sign]Price}[*QTY][,Percent][$Netto]**
**Response:** **No data**

Information about the command parameters, their purpose, and the conditions under which FD will successfully execute the command - see 49 (31h) SALE command.

## 53 (35h) TOTAL SUM (TOTAL)

**Data field:** **[{Text1}][{LF}{Text2}]{Tab}[[{Payment}]{Amount}]**
**Response:** **{PaidCode}{Amount}**

**Text1** Text to be printed on the first line.
**LF** One byte with value **0Ah** (delimiter).
**Text2** Text to be printed on the second line.
**Tab** One byte with value **09h** (delimiter).
**Payment** Optional parameter, specifying payment method. If not specified either Payment, neither Amount, FD will made entire amount payment "В БРОЙ" (“CASH”).
Payment types:
**“P”** → "В БРОЙ" / “CASH”;
**“N”** → Payment 1;
**“C”** → Payment 2;
**“D”** or **"U"** → Payment 3;
**“B”** or **"E"** → Payment 4.
**Amount** The amount paid (up to 8 significant digits).
**PaidCode** One byte - command result.
**“F”** → failed;
**“D”** → if the amount paid is less than the total amount of the receipt;
**“R”** → if the amount paid is greater than the total amount of the receipt;
**Amount** Change amount (depends of PaidCode).

The command won’t be executed by FD if:

- There is no opened fiscal receipt;

**Note 1:** Specified texts are "trimmed" on the right side if longer than **#COMMENT_LEN#**.


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**Note 2:** Parameters **Text1** and **Text 2** are interpreted as comments and will be printed surrounded by **"#"** symbol.

**Note 3:** If command was used in issuance of a refund fiscal receipt, only „В БРОЙ" ("CASH") payment is possible.

**Warning:** If the command is completed successfully, **FD** will not allow further sales within current receipt.

## 54 (36h) PRINT FISCAL TEXT

**Data field:** **Text**
**Response:** **No data**

**Text** Text to be printed.

The command won't be executed by FD if there is no opened fiscal receipt.

**Note 1:** Specified text is "trimmed" on the right side if longer than **#COMMENT_LEN#**.

**Note 2:** Parameter **Text** is interpreted as comment and will be printed surrounded by **"#"** symbol.

## 55 (37h) START OF FISCAL RECEIPT WITHOUT PRINTING

The command is analogous to command 48 (30h) START OF FISCAL RECEIPT, but the fiscal receipt to be opened won't be printed on paper. It will be saved into EJT and FM though.

**Note 1:** This command is allowed only for FD with firmware supporting online store (e-shop) mode.

**Note 2: FD** must be authorized for working as e-shop. If not, even if FD firmware supporting e-shop, the fiscal receipt will be printed on paper.

For both notes, see command 118 (76h) FIRMWARE INFORMATION.

## 56 (38h) END OF FISCAL RECEIPT

**Data field:** **No data**
**Response:** **AllReceipt, FiscReceipt**

**AllReceipt** Number of all issued receipts since the last balance at the end of the day until now.

**FiscReceipt** Number of all issued fiscal receipts since the last balance at the end of the day until now.

The command won't be executed by FD if:

- There is no opened fiscal receipt.;
- Command 53 (35h) TOTAL SUM (TOTAL) not executed;
- The paid amount of 53 (35h) TOTAL SUM (TOTAL) is less than total sum of the receipt.


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- If an invoice receipt (**I**) is opened and command 57 (39h) PRINT CLIENT INFORMATION not executed.

## 57 (39h) PRINT CUSTOMER INFORMATION

**Data field:** **IdentNo[<Tab>RegNo[<Tab>Seller[<Tab>Receiver [<Tab>Client[<Tab>Address]]]]**
**Response:** **No data**

**IdentNo** Client identification number.
**Tab** One byte with value **09h** (delimiter).
**RegNo** Optional parameter, client VAT N#.
**Seller** Optional parameter, seller's name.
**Receiver** Optional parameter, receiver's name.
**Client** Optional parameter, client's name.
**Address** Optional parameter, client's address. The address can span multiple lines. They must be separated by tabulation (**09h**).
**Warning:** The command is allowed and mandatory only if an invoice receipt or credit note is opened and all the sum is paid. If there is an opened invoice or credit note, even if the sum is paid, FD will reject executing 56 (38h) END OF FISCAL RECEIPT, before executing this command.

**Note 1:** Specified **IdentNo, RegNo** are "trimmed" on the right side if longer than **#STATNO_LEN#.**

**Note 2:** Specified **Seller, Receiver, Client, Address** are "trimmed" on the right side if longer than **#CHARS_PER_LINE#.**

## 58 (3Ah) SALE BY PLU

**Data field:** **{[Sign]PLU_NO}[*{QTY}][,Percent][@Price][$Netto]**
**Response:** **No data**

**Sign** One byte with value **"+"** or **"–"**. If Sign is **"–"**, then a correction (void) of the last sale in the receipt with identical price, quantity and PLU number is made. Parameters **Percent** and **Netto** will be ignored in this case.
**PLU_NO** PLU's serial number or nomenclature number/barcode.
**QTY** See command 49 (31h) SALE.
**Percent** See command 49 (31h) SALE.
**Netto** See command 49 (31h) SALE.
**Price** Optional parameter, indicating custom PLU price during the sale.

The command won't be executed by FD if:

- If PLU with specified PLU_NO is not programmed to **FD**;


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- If Price parameter is specified and PLU_NO is less or equal to 100;
- See command 49 (31h) SALE.

## 61 (3Dh) SET DATE AND TIME

**Data field:** **{DD–MM–YY}{space}{HH:mm[:SS]}**
**Response:** **No data**

**Note:** This command is a must for fiscal printers after „НУЛИРАН RAM" event.
**Warning:** You cannot specify a date that is earlier than the date of the last FM entry or last EJT document entry.

## 62 (3Eh) DATE AND TIME INFORMATION

**Data field:** **No data.**
**Response:** **{DD.MM.YY}{Space}{HH:mm:SS}**

FD returns its current date and time.

## 63 (3Fh) DISPLAY DATE AND TIME

**Data field:** **No data**
**Response:** **No data**

Display FD current date and time. If FD is a FPr., date and time will be displayed on the external display, if there is one.

## 64 (40h) LAST FISCAL RECORD INFORMATION

**Data field:** **[Type]**
**Response:** **{Number}, {Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#}, {StTax1},{StTax2},{...},{StTax#TAX_GROUPS_CNT#},{Date}**

| | |
|---|---|
| **Type** | Optional parameter, specifying type of the data in response: **"T"** → amount with VAT (total), and **"N"** → amount without (net). By default is **"N"**. |
| **Number** | Last fiscal record number. |
| **Tax1…Tax8** | Sales total/net amount by tax group "A"…"3". |
| **StTax1…StTax8** | Refund total/net amount by tax group "A"…"3". |
| **Date** | Last fiscal record number date (6 symbols DDMMYY). |

FD return information for the last daily financial report, written in FM.


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## 65 (41h) CURRENT NET/TOTAL SUMS INFORMATION

| | |
|---|---|
| **Data field:** | **[Type]** |
| **Response:** | **{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#},**<br>**{StTax1},{StTax2},{...},{StTax#TAX_GROUPS_CNT#}** |
| **Type** | Optional parameter, specifying type of the data in response: **"T"** → amount with VAT (total), and<br>**"N"** → amount without (net). By default is **"N"**. |
| **Tax1…Tax8** | Sales total/net amount by tax group "A"…"3". |
| **StTax1…StTax8** | Refund total/net amount by tax group "A"…"3". |

FD returns current net/total sums information by all tax groups from the last daily financial report until now.

## 66 (42h) ADDITIONAL DATA FROM THE FM

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **Date,NumberBGN,NumberAll** |
| **Date** | Fiscalization date of the fiscal device – 6 digits (DDMMYY). |
| **NumberBGN** | Number of the last daily report in BGN. |
| **NumberAll** | Number of the last daily report. |

## 68 (44h) FREE FISCAL RECORDS

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **Logical,Physical** |
| **Logical** | Number of remaining free blocks for daily report records in the FM. |
| **Physical** | Same as **Logical** parameter. |

Returns number of remaining free blocks for daily report records in the FM.

## 69 (45h) DAILY FINANCIAL REPORT WITH OR WITHOUT CLEARING

| | |
|---|---|
| **Data field:** | **[[Operation]Option]** |
| **Response:** | **[Closure,Tax1,Tax2,...,Tax#TAX_GROUPS_CNT#,**<br>**StTax1,StTax2,...,StTax#TAX_GROUPS_CNT#]** |
| **Operation** | Optional parameter, specifying type of the report. By default is **"0"**.<br>**"0"** or **"1"** → executes daily financial Z report (with clearing). The reports ends with text "ФИСКАЛЕН БОН" / "FISCAL RECEIPT" or "НЕФИСКАЛЕН БОН" / "NON-FISCAL RECEIPT" (depends if FD is fiscalized). |


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| | |
|---|---|
| | **"2"** or **"3"** → executes daily financial X report (without clearing). The reports ends with text "СЛУЖЕБЕН БОН" / "SERVICE BON" or "НЕФИСКАЛЕН БОН" / "NON-FISCAL RECEIPT" (depends if FD is fiscalized).<br>**"5"** → In case of full FD's EJ, FD prints EJ content. Returns number of remaining free lines in EJ. If FD uses EJT, returns number of remaining free lines and total records in EJT.<br>**"6"** → executes daily financial Z report (with clearing) without printing on paper, but write it in EJT and FM (if FD is fiscalized).<br>**"8"** → executes periodic financial Z report by departments. No data is returned.<br>**"9"** → executes periodic financial X report by departments. No data is returned. |
| **Option** | Optional parameter. If "N" is specified, operators data won't be cleared when issuing daily financial Z report. |
| **Closure** | Fiscal record number (4 digits). |
| **Tax1…Tax8** | Sales total/net amount by tax group "A"…"3". |
| **StTax1…StTax8** | Refund total/net amount by tax group "A"…"3". |

## 70 (46h) SERVICE ENTERED SUM (R/A) AND SERVICE DERIVED (P/O) SUM

| | |
|---|---|
| **Data field:** | **{Amount}[,{Текст1}[{LF}{Текст2}{TAB}][CurrencyName]]** |
| **Response:** | **Code,CashSum,ServInput,ServOutput [,CashSum2,ServInput2,ServOutPut2]** |
| **Amount** | Amount to be registered (up to 9 symbols). Entered or derived amount is executed according to the amount sign. |
| **Text1** | Comment text. |
| **LF** | One byte with value **0Ah** (delimiter). |
| **Text2** | Another comment text. |
| **TAB** | One byte with value **09h** (delimiter). |
| **CurrencyName** | Optional parameter indicating the name of the currency in field **Amount** - 4 symbols. Allowed values:<br>**$BGN** → service entered /derived in ЛЕВА (BGN);<br>**$EUR** → service entered /derived in ЕВРО (EURO). |
| **Code** | **"P"** → the command is successful.<br>**"F"** → the command is failed. This can happen if the cash balance is less than the requested derived amount or there is an open receipt. |
| **CashSum** | Cash balance in the drawer. The balance is changing when using this command and after every cash payment. |
| **ServInput** | Sum of all registered entered amounts for the day. |
| **ServOutput** | Sum of all registered derived amounts for the day. |
| **CashSum2** | Cash balance in the drawer in the second currency. The balance is changing when using this command and after every cash payment. |


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| | |
|---|---|
| **ServInput2** | Sum of all registered entered amounts for the day in the second currency. |
| **ServOutput2** | Sum of all registered derived amounts for the day in the second currency. |

**Note 1:** Specified texts are "trimmed" on the right side if longer than **#COMMENT_LEN#**.
**Note 2:** Parameters **Text1** and **Text2** are interpreted as comment and will be printed surrounded by **"#"** symbol.

**Note 3:** If not specified any data, or **Amount "0"** is specified, FD won't print document and won't make any changes, but will respond as described above. Thus PC application may track the cash balance (for example: before issuing refund fiscal receipt).

## 71 (47h) PRINT DIAGNOSTIC INFORMATION

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **No data** |

FD prints service receipt with diagnostic information. It includes:

- Firmware date and version;
- Firmware check sum (CS);
- Switches / jumper positions;
- Other information

## 73 (49h) FM REPORT BY NUMBER

| | |
|---|---|
| **Data field:** | **{StartNum},{EndNum}[,PAY]** |
| **Response:** | **No data** |

| | |
|---|---|
| **StartNum** | Fiscal record start number (up to 4 digits). |
| **EndNum** | Fiscal record end number (up to 4 digits). |
| **PAY** | Optional parameter with value PAY (capital Latin letters). If specified, FD prints summary data by types of payments for the specified StartNum … EndNum. |

FD prints FM detailed report from number to number.

## 74 (4Ah) FD CURRENT STATUS

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **{S0}{S1}{S2}{S3}{S4}{S5}** |

| | |
|---|---|
| **Sn** | Status byte N – see FD status flags for more information. |


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## 76 (4Ch) FISCAL RECEIPT CURRENT STATUS

**Data field:** **[Option]**
**Response:** **Open,Items,Amount[,Tender,Remainder]**

| | |
|---|---|
| **Option** | **"T"** → The command returns information for the last made payment. |
| **Open** | **"1"** → there is opened fiscal or non-fiscal receipt,<br>**"0"** → there is no opened receipt. |
| **Items** | Number of registered sales made in the current or the last fiscal receipt. |
| **Amount** | Last fiscal receipt total sum (10 digits). |
| **Tender** | Last payment amount in the current or the last receipt (10 digits). |
| **Remainder** | Due amount to be paid in the current or the last receipt. |

This command enables PC application to determine the status of FD and if it is necessary, to restore and complete a fiscal operation, interrupted by emergency (for example: in case of power supply failure).

## 79 (4Fh) BRIEF FM REPORT BY DATE

**Data field:** **{StartDate},{EndDate}[,PAY]**
**Response:** **No data**

| | |
|---|---|
| **StartDate** | Fiscal record start date. Exactly 6 digits (DDMMYY). |
| **EndDate** | Fiscal record end date. Exactly 6 digits (DDMMYY). |
| **PAY** | Optional parameter with value PAY (capital Latin letters). If specified, FD prints summary data by types of payments for the specified StartDate … EndDate. |

FD prints FM summary report from date to date.

## 84 (54h) PRINT BARCODE

**Data field:** **Type,Data[<TAB>Pos[,Scale[,Height[,PrnText]]]]**
**Response:** **No data**

| | |
|---|---|
| **Type** | Barcode type, as described:<br>"**1**" → **EAH8**. The data contains only digits and is exactly 7 bytes. FD calculates and prints check sum.<br>"**2**" → **EAH13**. The data contains only digits and is exactly 12 bytes. FD calculates and prints check sum.<br>"**3**" → **Code128**. The data contains ASCII symbols between 20h and 7Fh included. The maximum allowed data length depends on the data itself. If only digits are specified, is 18. |


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| | |
|---|---|
| | "**4"** → **UPC E** The data contains only digits and is exactly 8 bytes. The first digit must be „0"(30h).<br>"**5"** → **UPC A** The data contains only digits and is exactly 11 bytes. FD calculates and prints check sum.<br>"**6**" → **2/5 Standard** The data contains only digits. No more than 9 bytes.<br>"**7"** → **2/5 Interleaved** The data contains only digits. No more than 18 bytes.<br>"**8"** → **2/5 Interleaved mod10** The data contains only digits. No more than 18 bytes.<br>"**9"** → **Code39** The data contains ASCII symbols between 20h and 7Fh included. No more than 9 bytes.<br>"**10"** → **Code39 mod43** The data contains ASCII symbols between 20h and 7Fh included. No more than 8 bytes.<br>"**11"** → **Code93** The data contains digits and/or capital letters. No more than 11 bytes.<br>"**12"** → **CODEBAR** The data contains digits and/or capital letters A,B,C,D. No more than 14 bytes.<br>"**13"** → **POSTNET** The data contains only digits. No more than 13 bytes. |
| **Data** | Barcode data. |
| **Pos** | Optional parameter, barcode printing position:<br>**"C"** (Centre) → in the middle of the paper<br>**"R"** (Right) → at the right end<br>**"L"** (Left) → at the left end<br>By default: **"C"** |
| **Scale** | Optional parameter, width of the narrowest line of the barcode (in pixels). If specified "0", the default width will be used.<br>Greater values means wider barcode (if fits on the paper), and less characters allowed for variable length barcodes and vice versa. |
| **Height** | Optional parameter, barcode height in mm. If specified "0", the default height of 10 mm will be used. |
| **PrnText** | Optional parameter with value **"0"** or **"1"**. If specified **"1"**, specified barcode **Data** will be printed after printing the barcode itself. If specified **"0"** – only barcode will be printed. Text will be positioned according to **Pos** parameter. By default: **"1"**. |

## 85 (55h) CUSTOMER QR BARCODE

| | |
|---|---|
| **Data field:** | **Type[,Data]** |
| **Response:** | **[AnswerData]** |

| | |
|---|---|
| **Type** | Specifies type of the requesting operation. Values can be:<br>**"Q","P", "R"** |

**Data** and **AnswerData** depends of **Type**


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| | |
|---|---|
| "**Q**" | Prints additional QR code, containing client information.<br>Data field:**{Q},{Data}** |
| **Data** | Data to be printed. |
| **Answer** | **No data** |

**Note 1**: Customer QR code printing from a PC can be executed if opened fiscal or non-fiscal receipt, an unlimited number of times. PC application is responsible for the correctness of the data and the QR code position.

**Note 2**: The customer QR code is informative, it is not saved to the EJT, it is not printed in a copy of the document and can't be read on EJT reading.

**Note 3**: QR code scaling is automatic and depend of the data. Usually it is bigger than the QR code for NRA.

If specified data cannot be printed / fit on paper, FD will return error in status byte 3:
16 → ERR_TOO_MANY_SYMBOLS (there is not enough space on the paper) or
119 → ERR_NOT_ENOUGH_HEAP (not enough memory).

| | |
|---|---|
| **"P"** | programming template. Data field: **{P},{id1[,id2[…]]}** |
| id1,id2,…idN | Template field identifier<br>(see column 1 in the table). |

**Note 4**: If the corresponding device supports this functionality, there is a programmed template, and in the system parameter "Detailed printing" in position three is set to "1", it will be possible to print a customer QR barcode when pressing certain keys on the keyboard. For further details see „User's Manual".

| | |
|---|---|
| **Answer** | **"P"** → the command is successful<br>**"F"Index** (F → the command is failed, Index–invalid Identifier number) |

| Abbreviation | Meaning |
|---|---|
| CLB | Comment line start |
| DNO | Document number |
| DPT | Department number |
| DT | Document date and time of issuing |
| PLU | Number of the PLU |
| PRC | Unit price |
| QTY | Quantity |
| SAL | Number of sales |
| SN | FD identification number |
| SUM | Sum (Quantity x Unit price) |
| TAM | Total amount |
| TAX | Tax group |
| TDS | Total discount |
| TMU | Total surcharge |
| TXT | Text / name of the sale |
| CLE | Comment line end |

| | |
|---|---|
| **"R"** | reading template information. Data field: **{R}** |


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| | |
|---|---|
| **Answer** | id1,id2,id3, …idNт of the template field. |

## 90 (5Ah) DIAGNOSTIC INFORMATION

| | |
|---|---|
| **Data field:** | **{Calculate}** |
| **Response:** | **{FirmwareRev}{Space}{FirmwareDate}{Space} {FirmwareTime},{CheckSum},{Sw},{Country},{SerNum},{FMNo}** |
| **Calculate** | If specified some data (**"1"** for example**)** , the check sum (**CheckSum**) of EPROM will be calculated and returned in response. |
| **FirmwareRev** | Firmware version (between 6 and 30 symbols). |
| **Space** | One byte with value 20h (1 symbol). |
| **FirmwareDate** | Firmware date DD-MM-YYYY (10 symbols). |
| **Space** | One byte with value 20h (1 symbol). |
| **FirmwareTime** | Firmware hour HH:MM (5 symbols). |
| **CheckSum** | EPROM check sum (4 bytes in hexadecimal format). |
| **Sw** | **FD** switches (jumpers) status (4 digits). |
| **Country** | Country number. For Bulgaria is **"6"**. |
| **SerNum** | FD identification number (**#MACHNO_LEN#** symbols). |
| **FMNo** | The fiscal module number (**#FMNO_LEN#** symbols). |

## 94 (5Eh) FM REPORT BY DATE

| | |
|---|---|
| **Data field:** | **{StartDate},{EndDate}[,PAY]** |
| **Response:** | **No data** |
| **StartDate** | Fiscal record start date. Exactly 6 digits (DDMMYY). |
| **EndDate** | Fiscal record end date. Exactly 6 digits (DDMMYY). |
| **PAY** | Optional parameter with value PAY (capital Latin letters). If specified, FD prints summary data by types of payments for the specified StartDate … EndDate. Not supported for 'eXpert' и 'Micro C'devices. |

FD prints FM detailed report from date to date.

## 95 (5Fh) BRIEF FM REPORT BY NUMBER

| | |
|---|---|
| **Data field:** | **{StartNum},{EndNum}[,PAY]** |
| **Response:** | **No data** |
| **StartNum** | Fiscal record start number (up to 4 digits). |
| **EndNum** | Fiscal record end number (up to 4 digits). |
| **PAY** | Optional parameter with value PAY (capital Latin letters). If specified, FD prints summary data by types of payments for the specified StartNum … EndNum. Not supported for 'eXpert' и 'Micro C'devices. |

FD prints FM summary report from number to number.


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## 96 (60h) TAX RATES PROGRAMMING

**Data field:** **{Tax1}[,{Tax2}[,{Tax3}[,{Tax4} [,{Tax5} [,{Tax6} [,{Tax7} [,{Tax8}]]]]]]]**
**Response:** **Code**

**Tax1…Tax8** Tax rate by tax group “A”…”3” (number with up to two decimal places).
**Code** One byte with value:
**”P”**→ the command is successful
**“F”**→ the command is failed

This command sets the tax rate values.

**Warning**: Tax rate values must be between 0.00 and 99.99. However, it is allowed to set negative value of -1 or -1.00, to specify forbidden sales by that tax group. If not all 8 tax rate are specified, the rest tax group rates will remain unchanged.

## 97 (61h) CURRENT TAX RATES INFORMATION

**Data field:** **No data**
**Response:** **{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#}**

**Tax1…Tax8** Tax rate for tax group “A”…”3”.

Use this command to receive the tax rate values.

## 99 (63h) BULSTAT / EIK REGISTRATION NUMBER INFORMATION

**Data field:** **No data**
**Response:** **IdentNo**

**IdentNo** Identification number. **#STATNO_LEN#** symbols in ASCII format.
If FD is fiscalized, returns written in FM BULSTAT / EIK registration number.
If FD is not fiscalized, returns **#STATNO_LEN#** symbols with value "-".

## 100 (64h) SEND DATA TO EXTERNAL DISPLAY

**Data field:** **Text**
**Response:** **No data**

**Text** Data for the display. If there are control characters (less than 20h) among them, they are incremented by 40h and preceded by 10h.
**Example**: In order to send data 1Bh,4Bh,00h in **Text** we specify 10h,5Bh,4Bh,10h,40h


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## 101 (65h) OPERATOR PASSWORD

**Data field:** **{OperatorNum},{OldPass},{NewPass}**
**[,RefClaim[,RefError[,RepOther]]]**
**Response:** **No data**

**OperatorNum** Operator number: from 1 up to **#OPER_MAX_CNT#**.
**OldPass** Old password
**NewPass** New password
**RefClaim** **"1"**→ Enable,
**"0"**→ Disable issuing refund fiscal receipt on ВРЪЩАНЕ / РЕКЛАМАЦИЯ (RETURN / COMPLAINT);
**RefError** **"1"**→ Enable,
**"0"**→ Disable issuing refund fiscal receipt on ОПЕРАТОРСКА ГРЕШКА (OPERATOR ERROR);
**RefOther** **"1"**→ Enable,
**"0"**→ Disable issuing refund fiscal receipt on НАМАЛЯВАНЕ НА ДАН. ОСНОВА (REDUCTION OF TAX BASE).

Can be entered passwords for a maximum **#OPER_MAX_CNT#** operators. The password must be used when using command 48 (30h) START OF FISCAL RECEIPT.

**Warning:** If specified password "0", the operator issuing fiscal receipts will be disabled. It is forbidden to enter the same non "0" passwords of two or more different operators.
For default passwords: see „User's Manual".

## 102 (66h) OPERATOR NAME

**Data field:** **{OperatorNum},{Password},{Name}**
**[<Tab>RepClaim[,RefError[,RefOther]]]**
**Response:** **No data**

**OperatorNum** Operator number: from 1 up to **#OPER_MAX_CNT#**.
**Password** Password
**Name** Operator's name. It is "trimmed" on the right side if longer than **#NAME_LEN#** symbols.
**Tab** One byte with value **09h** (delimiter).
**RefClaim** **"1"**→ Enable,
**"0"**→ Disable issuing refund fiscal receipt on ВРЪЩАНЕ / РЕКЛАМАЦИЯ (RETURN / COMPLAINT);
**RefError** **"1"**→ Enable,
**"0"**→ Disable issuing refund fiscal receipt on ОПЕРАТОРСКА ГРЕШКА (OPERATOR ERROR);
**RefOther** **"1"**→ Enable,
**"0"**→ Disable issuing refund fiscal receipt on НАМАЛЯВАНЕ НА ДАН. ОСНОВА (REDUCTION OF TAX BASE).


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Use this command to specify operators name. Operator's name and number will be printed at the beginning of the each fiscal receipt.

**Warning:** If the operator has made operations (has issued at least one document), his name can't be changed until the sales by this operator are cleared (using command 104 (68h) RESET SALES BY OPERATORS for example).

## 103 (67h) RECEIPT INFORMATION

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **{CanVoid},{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#}, {InvoiceFlag},{InvoiceNo}** |

| | |
|---|---|
| **CanVoid** | Indicates whether corrections can be made "0"/ "1". |
| **Tax1…Tax8** | Amount by tax group "A"…"3". |
| **InvoiceFlag** | Flag if opened detailed fiscal receipt (invoice receipt / credit note). **"0"**→ not opened, **"1"**→ opened. |
| **InvoiceNo** | If InvoiceFlag is **"1"**→ next invoice receipt / credit note number. 10 digits. |

This command gives information whether is possible to void registered sales and provides information on the accumulated amounts by tax groups.

## 104 (68h) RESET SALES BY OPERATORS

| | |
|---|---|
| **Data field:** | **Operator,Password** |
| **Response:** | **No data** |

| | |
|---|---|
| **Operator:** | Operator number: from **0** up to **#OPER_MAX_CNT#**; |
| **Password:** | Operator password. |

If operator number and password are correctly entered, FD clears the accumulated sales data for the particular operator. If specified "0" for **Operator** and 'Operator 20''s password for **Password**, FD will reset sales for all operators and issue Z report for all operators.

## 105 (69h) OPERATORS REPORT

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **No data** |

FD executes X report by operators.


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## 106 (6Ah) OPEN TILL

**Data field:** **[{ms}]**
**Response:** **No data**

**ms** The duration of the pulse in milliseconds (50 or more).

A pulse with specified duration is sent for till opening. The parameter sets new value for pulse duration. It is stored in FD. If not specified, the last valid duration value will be used. By default: 100 ms.

## 107 (6Bh) PROGRAMMING, ERASING AND INFORMATION ABOUT PLU

**Data field:** **{Operation}[Data]**
**Response:** **Code[,Data]**

**Code** One byte with value:
**"P"** →the command is successful.
**"F"** →the command is failed.

**Operation** Specifies type of the requesting operation. Values can be:
**"P"**, **"D"**, **"R"**, **"F"**, **"N"**.

**"P"** **Programming PLU.**
**Data field:** **{P}{TaxGroup}{PLUNum},{Price},{Name}[{LF}{BARCODE}[,Dept[,FracQty[,StockQty]]]]**

**TaxGroup** Tax group ("A"…"3" Cyrillic capital letter).
**PLUNum** PLU's serial number.
**Price** Unit price per PLU (up to 8 digits and decimal symbol).
**Name** PLU's name. Will be "trimmed" on the right side if longer than **#NAME_LEN#** symbols.
**LF** One byte with value **0Ah** (delimiter).
**BARCODE** PLU's nomenclature number / barcode. Up to 13 bytes in ASCII format (33h 38h 30h 30h 30h 30h 31h 31h 30h 31h 38h 31h 35h for example).
**Dept** Department number PLU is a part of.
**FracQty** Not used. Use "1" for compatibility.
**StockQty** PLUs on stock. Parameters is used if **#PLU_STOCK_QTY#** has value of 1.

After **Code** the remaining number of not programmed PLUs is returned.

**Warning:** The PLU's tax group is not stored in the PLU itself, but is taken from the linked department. This imposes the following restrictions:

- If PC specifies tax group and department simultaneously, FD will ignore specified tax group.


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- If during programming a new PLU, PC specifies a tax group bit not specifies department, FD will “attach" PLU to a service department, and will disable sales of this PLU by keyboard.
- If department tax group is changed, the tax group of all PLUs, that are a part of that department, will be changed too.

| | |
|---|---|
| **“D”** | **Erasing PLU.** |
| **Data field:** | **{D}{A\|PLUNum\|PLUNum1,PLUNum2}** |
| **A** | All PLUs with accumulated sums of “0” will be deleted. |
| **PLUNum** | Erases the PLU with the specified serial number, if accumulated sums are “0”. |
| **PLUNum1,PLUNum2** | Erases all the PLUs in specified range if their accumulated sums are “0”. |

On success return “**P”** and number of not programmed PLUs.

| | |
|---|---|
| **“R”** | **Reading information about PLU.** |
| **Data field:** | **{R}{PLUNum}** |
| **Response:** | **{P},{PLUNum},{Time},{TaxGroup},{UnitPrice},{Amount},{Total}, {Name}{LF}{BARCODE},Dept,FracQty,StockQty** |

| | |
|---|---|
| **PLUNum** | PLU’s serial number. |
| **Time** | Date and time of last change of PLU’s data. |
| **TaxGroup** | Tax group. 1 byte “A”…”3” Cyrillic capital letter. |
| **UnitPrice** | Unit price per PLU. |
| **Amount** | Accumulated quantity of sales. A number with 3 decimal places. |
| **Total** | Accumulated sale sum. |
| **Name** | PLU’s name. |
| **LF** | One byte with value **0Ah** (delimiter). |
| **BARCODE** | ASCII text up to 13 bytes. |
| **Dept** | Department number PLU is a part of. |
| **FracQty** | Not used. Always “1”. |
| **StockQty** | PLUs on stock. |

If specified **PLUNum** is outside the valid range (from 1 up to **#PLU_MAX_CNT#**), one byte with value **“F”** will be returned.

| | |
|---|---|
| **“F”** | **Returns the data for the first programmed or sold PLU found** (depends of the specified **Type**)**.** |
| **Data field:** | **{F}[Type]** |
| | **Type** - Search type. Values can be: |
| | **0** (by default) → searches the first programmed PLU. It affects subsequent operations **“N”.** |
| | **1**→ searches the first sold PLU. It affects subsequent operations **“N”.** |
| **“N”** | **Returns the data for the next programmed or sold PLU found** (depends of the specified **Type** in operation **“F”**)**.** |


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**Data field:** **{F}**

The answers to operations **"F"** and **"N"** are identical to operation **"R"**.

The last two operations are used to retrieve the data for all programmed/sold PLUs. Operation **"F"** is used first and then operation **"N"** until an answer **"F"** is received. This means that the last PLU has been read.

## 108 (6Ch) DETAILED DAILY FINANCIAL REPORT WITH PLUs PRINTING

**Data field:** **{Option}**
**Response:** **[Closure,Tax1,Tax2,...,Tax#TAX_GROUPS_CNT#, StTax1,StTax2,...,StTax#TAX_GROUPS_CNT#]**

The command is analogous to command 69 (45h) DAILY FINANCIAL REPORT WITH OR WITHOUT CLEARING, but sales by PLU's will be printed at the beginning of the daily report.

**Warning:** If the count of the different PLUs sold is greater than 12 000, only the first 12 000 sales data will be printed, and then the printing will be aborted.

## 109 (6Dh) PRINT A DUPLICATE RECEIPT

**Data field:** **{Count}**
**Response:** **No data**

**Count** Number of duplicates. Must be "1".

## 110 (6Eh) INFORMATION ABOUT CURRENT DAY

**Data field:** **[All]**
**Response:** **Cash,Pay1,...PayX,ZRepNo,DocNo,InvoiceNo**

**All** Optional parameter (1 byte). If specified **"A"**, FD returns information on all payments (**#PAY_MAX_CNT#**), if not – returns first 4 payments info.
**Cash** Cash payment sum.
**Pay1,…,X** Payment 1,…,X sum.
**ZRepNo** Number of the last daily financial report, written in FM.
**DocNo** Next document number.
**InvoiceNo** Next invoice / credit note number (10 digits).

FD returns information about the distribution of the amount for the day among the different payment methods.


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## 111 (6Fh) PLU's REPORT

**Data field:** **[RepType]**
**Response:** **Code**

| | |
|---|---|
| **RepType** | Specifies type of the requesting operation. Values can be:<br>**"0"** →FD prints X report by PLUs.<br>**"1"** →FD prints all programmed PLUs.<br>**"Z"** →FD prints Z report by PLUs.<br>By default: **"0"**. |
| **Code** | One byte with value:<br>"**P"**→ the command is successful<br>"**F"**→ the command is failed |

## 112 (70h) OPERATOR INFORMATION

**Data field:** **Operator**
**Response:** **Receipts,Total,Discount,Surcharge,Void,Name**
**<Tab>RefClaim,RefError,RefOther,RepClaim,RepError, RepOther**

| | |
|---|---|
| **Operator** | Operator number: from 1 up to **#OPER_MAX_CNT#**. |
| **Receipts** | Number of fiscal receipts issued by the operator. |
| **Total** | Number of sales and total sum, separated by ';' |
| **Discount** | Number of discounts and total amount of discounts, separated by ';' |
| **Surcharge** | Number of surcharges and total amount of surcharges, separated by ';' |
| **Void** | Number of corrections/voids and total amount, separated by ';' |
| **Name** | Operator's name. |
| **Tab** | One byte with value **09h** (delimiter). |
| **RefClaim** | **"1"**→ Enable,<br>**"0"**→ Disable issuing refund fiscal receipt on ВРЪЩАНЕ / РЕКЛАМАЦИЯ (RETURN / COMPLAINT); |
| **RefError** | **"1"**→ Enable,<br>**"0"**→ Disable issuing refund fiscal receipt on ОПЕРАТОРСКА ГРЕШКА (OPERATOR ERROR); |
| **RefOther** | **"1"**→ Enable,<br>**"0"**→ Disable issuing refund fiscal receipt on НАМАЛЯВАНЕ НА ДАН. ОСНОВА (REDUCTION OF TAX BASE). |
| **RepClaim** | Number of receipts and refund amount on claim 'ВРЪЩАНЕ / РЕКЛАМАЦИЯ' ('RETURN / COMPLAINT'), separated by ';' |
| **RepError** | Number of receipts and refund amount on claim 'ОПЕРАТОРСКА ГРЕШКА' ('OPERATOR ERROR'), separated by ';' |
| **RepOther** | Number of receipts and refund amount on claim 'НАМАЛЯВАНЕ НА ДАН. ОСНОВА' ('REDUCTION OF TAX BASE'), separated by ';' |


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## 113 (71h) LAST DOCUMENT NUMBER

**Data field:** **No data**
**Response:** **DocNumber**

**DocNumber** Number of the last issued document.

## 114 (72h) FM INFORMATION BY NUMBER

**Data field:** **{FiskNum},{Options}[,FiskNum1]**
**Response:** **{Code},{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#}**
**[,StTax1,StTax2,...,StTax#TAX_GROUPS_CNT#]**

**FiskNum** Fiscal record number (start of the range).
**Options** Specifies type of the requesting operation. Values can be:
**"0"**→returns the sums by tax groups;
**"1"**→ returns the net sums by tax groups;
**"2"**→ returns the accumulated taxes by tax groups;
**"3"**→returns tax rates;
**"4"**→ returns the sums by tax groups for the specified range;
**"5"**→ returns the net sums by tax groups for the specified range;
**"6"**→ returns the accumulated taxes for the specified range.
**FiscNum1** Fiscal record number (end of the range) for **Options** "4", "5" и "6". For **Options** "0", "1", "2" и "3" **FiscNum1** must be empty.
**Code** One byte with value:
**"P"** →valid data;
**"F"** →invalid check sum of the record;
**"E"** →no data for record **FiskNum** written in FM.
**Tax1,…,Tax8** Sum or percentage according to **Options**.
**StTax1,…,StTax8** Sum or percentage of refund operations (if **Options** is not "3").

## 115 (73h) LOADING GRAPHIC LOGO

**Data field:** **{Number},{Data}**
**Response:** **No data**

**Number** Specifies logo row number to be programmed. Values from 0 up to (**#BITMAP_Y#** - 1).
**Data** Graphic data for the logo in pixels. They must be specified in hexadecimal format, two symbols for every data byte (B8h → 42h 38h). The maximum number of pixels to set is **#BITMAP_X#**. This command programs a graphic logo (BMP format) set by the user. The logo will be printed before HEADER lines of every receipt.

Printing graphic logo must be enabled with command 150 (96h) PROGRAMMING AND INFORMATION ABOUT FD SYSTEM PARAMETERS , system parameter with name "Печат лого", or with command 43 (2Bh) CLICHE AND PRINTING OPTIONS.


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**Warning:** The command must be executed **#BITMAP_Y#** times (once for each row), to specify whole graphic logo.

**Sample data field**:

35,00001FFFFFFE7FF800FF80003FE0FFFFFFFF0FF81FFFFF001FFFFFFF80000000000057475557575757555555400000

36,00001FFFFFFF3FF800FF80003FE1FFFFFFFF0FF80FFFFFE01FFFFFFF800000000001FFFEFEDFFFFFFFFFFEEAAA00000

## 116 (74h) ISSUED DOCUMENT QR DATA INFORMATION

**Data field:** **[DocNo]**
**Response:** **{Result}[DocOverallType,Data]**

**DocNo** Optional parameter specifying document number, decremented by one, which information to be returned (for first document specify 1, for 10 → 9 etc.).
**Result** One byte with value “P”(Pass) or “F”(Fail);
**DocOverallType** One byte with value “F”(Fiscal) or “S”(Service);
**Data** - If the document doesn’t include a QR barcode print, FD returns “XXXXX”
- If the document include a QR barcode print, FD returns:
**DocType,QRData**
**DocType** – see command
119 (77h) ISSUED DOCUMENT INFORMATION
**QRData** –QR barcode data

**Example** (data is in hexadecimal format- Hex)**:**

**Sent: (from PC to FD):**

01 24 3A 74 05 30 30 3D 37 03

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 24 | 3A | 74 | | 05 | 30 30 3D 37 | 03 |

**Received: (from FD to PC):**

**01 59 3A 74 50 53 2C 31 34 2C 33 36 39 34 30 30 39 39 2A 30 30 30 31 32 33 2A 32 30 32 33 2D 30 34 2D 31 39 2A 30 39 3A 31 39 3A 30 32 2A 30 2E 30 30 04 88 80 C0 80 80 B8 05 30 3D 3B 3C 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 59 | 3A | 74 | 50 53 2C 31 34 2C 33 36 39 34 30 30 39 39 2A 30 30 30 31 32 33 2A 32 30 32 33 2D 30 34 2D 31 39 2A 30 39 3A 31 39 3A 30 32 2A 30 2E 30 30 “PS,14,36940099*000123*2023-04-19*09:19:02*0.00” | 04 | 88 80 C0 80 80 B8 | 05 | 30 3D 3B 3C | 03 |


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## 117 (75h) FISCAL RECEIPT FIRST NOT SENT NUMBER

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **Minus\|DocNo\|Error** |
| **Minus** | FD isn't fiscalized or already sent all documents, returns "---" (3 minus symbols). |
| **DocNo** | The first not sent to NRA server fiscal receipt number. |
| **Error** | In case of error while reading EJT, FD returns text errorXX, where XX e is the error number. |

## 118 (76h) FIRMWARE INFORMATION

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **{EShopEn}{EShopActive},{FDCertCurr},{FDCertFM}** |
| **EShopEn** | One byte with value:<br>**"0"** → FD with firmware not supporting online store (e-shop) mode;<br>**"1"** → FD with firmware supporting online store (e-shop) mode. |
| **EShopActive** | One byte with value:<br>**"0"** → FD not authorized for working as e-shop;<br>**"1"** → FD authorized for working as e-shop. |
| **FDCertCurr** | FD current firmware version (BIM certificate). |
| **FDCertFM** | Last confirmed by NRA server firmware version (BIM certificate). |

## 119 (77h) ISSUED DOCUMENT INFORMATION

| | |
|---|---|
| **Data field:** | **[DocNum][,S]** |
| **Response:** | **{Res}[No<Tab>DD.MM.YYYY<Space>HH.mm.ss<Tab>DocDesc<Tab> DocType<Tab>TransNum<Tab>Mult<Tab>UNP<Tab> <InvoiceNo>[<Tab>DocLinkFMNo<Tab>DocLinkNum<Tab> DocLinkInvoiceNum ,SHA1:ShaData]]** |
| **DocNum** | Optional parameter specifying document number which information to be returned. If not specified information for the last saved document will be returned; |
| **S** | Optional parameter specifying whether additional SHA1 data will be return in response. |
| **Res** | Result: one byte with value **"P"** (Pass) or **"F"** (Fail) |
| **No** | Document number |
| **Tab** | One byte with value **09h** (delimiter). |
| **DD.MM.YY** | Date of issue of the document |
| **Space** | One byte delimiter with value **20h** |
| **HH.mm.ss** | Time of issue of the document |


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| DocDesc | Document description |
|---|---|
| 1 | Sale document |
| 2 | X report |
| 3 | Z report |
| 4 | FM report |
| 5 | Zeroed memory (RAM) |
| 8 | Service bon |
| 11 | A document in sales mode but not sales operation |
| 12 | Document duplicate |

**Warning:**
The most significant 2 bits are reserved for flags:
40h → fiscal receipt and
80h → written in EJT.
For example: Z report
will have DocDesc = 80h | 40h | 03h = C3h (195).

| DocType | Additional information about the document |
|---|---|
| 0 | Sale document |
| 1 | “ВРЪЩАНЕ / РЕКЛАМАЦИЯ” (“RETURN / COMPLAINT’) refund |
| 2 | "ОПЕРАТОРСКА ГРЕШКА" ("OPERATOR ERROR") refund |
| 3 | "НАМАЛЯВАНЕ НА ДАН. ОСНОВА" ("REDUCTION OF TAX BASE") refund |
| 11 | Service entered sum “ServInput ” in primary currency |
| 12 | Service derived sum “ServOutput” in primary currency |
| 15 | Daily X report |
| 16 | Other service documents |
| 21 | Service entered sum “ServInput ” in secondary currency |
| 22 | Service derived sum “ServOutput” in secondary currency |
| 30 | Service document with information about changing the current zone |
| 31 | Service document for changing a currency parameter |
| 255 | Fiscalization document / commissioning |

**TransNum** Data – number of transactions (possibly plus one) – total number of analytics records for the document – see below
**Mult** “0” → multiplier (not used in document)
“1” → multiplier 100
**UNP** Unique sale number (if there is one).
**InvoiceNo** Invoice / credit note number (may be “0”).
**DocLinkFMNo** Device FM number, from which the original fiscal receipt was issued (if current receipt is refund).
**DocLinkNum** Number of the original fiscal receipt that is issued (if current receipt is refund).


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| | |
|---|---|
| **DocLinkInvoiceNum** | Number of the original invoice / credit note (if current receipt is refund, may be "0"). |
| **,SHA1** | Text **",SHA1"** |
| **ShaData** | Document SHA1 data in format XXXXX-XXXXX-XXXXX-XXXXX **0Ah** XXXXX-XXXXX-XXXXX-XXXXX, where X is hexadecimal symbol. |

**Example** (data is in hexadecimal format- Hex)**:**

**Sent: (from PC to FD):**

**01 29 84 77 32 34 36 2C 53 05 30 32 34 34 03**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 29 | 84 | 77 | 32 34 36 2C 53 | 05 | 30 32 34 34 | 03 |

**Received: (from FD to PC):**

**01 A2 84 77 50 30 30 30 32 34 36 09 30 34 2E 30 35 2E 32 30 32 33 20 30 38 3A 34 39 3A 31 32 09 36 35 09 30 09 31 30 09 31 09 44 59 39 39 39 36 33 36 2D 4F 50 30 31 2D 31 32 33 34 35 36 37 09 30 30 30 30 30 30 2C 53 48 41 31 3A 37 30 42 43 45 2D 35 45 41 43 39 2D 34 43 45 46 45 2D 36 34 32 33 31 0A 37 33 46 46 31 2D 41 38 44 35 34 2D 42 31 39 33 43 2D 38 38 35 45 38 04 88 80 80 80 80 B8 05 31 3D 31 3E 03**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | A2 | 84 | 77 | 50 30 30 30 32 34 36 09 30 34 2E 30 35 2E 32 30 32 33 20 30 38 3A 34 39 3A 31 32 09 36 35 09 30 09 31 30 09 31 09 44 59 39 39 39 36 33 36 2D 4F 50 30 31 2D 31 32 33 34 35 36 37 09 30 30 30 30 30 30 2C 53 48 41 31 3A 37 30 42 43 45 2D 35 45 41 43 39 2D 34 43 45 46 45 2D 36 34 32 33 31 0A 37 33 46 46 31 2D 41 38 44 35 34 2D 42 31 39 33 43 2D 38 38 35 45 38 "P000246\t04.05.2023 08:49:12\t 65\t0\t10\t1\tDY999636-OP01-1234567\t000000,SHA1:70BCE-5EAC9-4CEFE-64231 73FF1-A8D54-B193C-885E8" | 04 | 88 80 80 80 80 B8 | 05 | 31 3D 31 3E | 03 |

## 128 (80h) CONSTANTS INFORMATION

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **{P1},{P2},{...},{P26}** |

| | |
|---|---|
| **P1** | Horizontal size (width) of graphic logo in pixels **#BITMAP_X#**. |
| **P2** | Vertical size (height) of graphic logo in pixels **#BITMAP_Y#**. |
| **P3** | Number of payment types **#PAY_MAX_CNT#**. |
| **P4** | Number of tax groups **#TAX_GROUPS_CNT#** → for Bulgaria is **"8"**. |
| **P5** | Not used for Bulgaria → **""**. |
| **P6** | Not used for Bulgaria → **""**. |
| **P7** | First tax group symbol → **"A" C0h**. |
| **P8** | Dimensionality of internal arithmetic → **"8"**. |


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| | |
|---|---|
| **P9** | Maximum number of characters that can be printed on a single line **#CHARS_PER_LINE#**. |
| **P10** | Comment line length **#COMMENT_LEN#**. |
| **P11** | Length (number of symbols) of operators / PLUs / departments names **#NAME_LEN#**. |
| **P12** | FD identification number length (number of symbols) **MACHNO_LEN#**. |
| **P13** | FM (fiscal module) number length (number of symbols) **#FMNO_LEN#**. |
| **P14** | Tax registry number (number of symbols) → for Bulgaria is **"0"**. |
| **P15** | BULSTAT / EIK registration number length (number of symbols) - **#STATNO_LEN#**. |
| **P16** | Number of departments **#DEPT_MAX_CNT#**. |
| **P17** | Number of PLUs **#PLU_MAX_CNT#**. |
| **P18** | Flag **#PLU_STOCK_QTY#** for stock availability in PLU data (command 107 (6Bh) PROGRAMMING, ERASING AND INFORMATION ABOUT PLU). **#PLU_STOCK_QTY#** may be **"0"** or **"1"**. |
| **P19** | Flag for barcode in PLU data → **"0"** or **"1"**. |
| **P20** | Number of stock groups. Not used → "0". |
| **P21** | Number of operators **#OPER_MAX_CNT#**. |
| **P22** | Payment names length (number of symbols) **#PAYNAME_LEN#**. |
| **P23** | Not used → "0". |
| **P24** | Not used → "0". |
| **P25** | Not used → "0". |
| **P26** | Not used → "0". |

## 130 (82h) CANCEL RECEIPT

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **AllReceipt, FiscReceipt** |

| | |
|---|---|
| **AllReceipt** | Number of all issued receipts since the last balance at the end of the day until now. |
| **FiscReceipt** | Number of all issued fiscal receipts since the last balance at the end of the day until now. |

On receiving this command FD will perform the following actions:

1. Makes correction of all sales in the fiscal receipt;
2. Performs a cash payment operation for BGN 0.00;
3. Closes the opened fiscal receipt.

## 131 (83h) PROGRAMMING AND INFORMATION ABOUT DEPARTMENTS

| | |
|---|---|
| **Data field:** | **{Operation}[Data]** |
| **Response:** | **Code[,Data]** |

| | |
|---|---|
| **Operation Code** | Specifies type of the requesting operation. Values can be: **"P"** и **"R"**. One byte with value: |


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**"P"** → the command is successful.
**"F"** → the command is failed.

| | |
|---|---|
| **"P"** | **Programming department.** |
| **Data field:** | **{P}{DeptNum},{Name}{LF}{TaxGroup},{Price}[,{MaxDigits}] [,{PaymentType}]** |
| **DeptNum** | Department number (from 1 up to **#DEPT_MAX_CNT#**). |
| **Name** | Department name. It is "trimmed" on the right side if longer than **#NAME_LEN#** symbols. |
| **LF** | One byte with value **0Ah** (delimiter). |
| **TaxGroup** | Tax group ("A"…"3" Cyrillic capital letter). |
| **Price** | Unit price per department (up to 8 digits and decimal symbol). Used only for ticket fiscal devices. Use "0" for the rest devices. |
| **MaxDigits** | Maximum number of digits when using custom price sale in this department. If this parameter not specified (or specified "0"), making sales in this department won't be possible (command 138 (8Ah) SALE BY DEPARTMENT). |
| **PaymentType** | Payment type for the department. Used only for ticket fiscal devices. Digit from 0 – payment by choice, up to **#PAY_MAX_CNT# -** pre-set payments with command 151 (97H) PROGRAMMING AND INFORMATION ABOUT PAYMENTS (CURRENCIES). **PaymentType** value is 1 greater than the number used with command 151 (97H) PROGRAMMING AND INFORMATION ABOUT PAYMENTS (CURRENCIES). So if you want to set 'В БРОЙ' / 'CASH' payment for PaymentType, you need to use 1 instead of 0; |

**Warning:** It is not possible to change the name or tax group of a department, if there is already sales in it, without the corresponding Z reports being executed. Check the error code (status byte 3), and execute the necessary "Z" report.

| | |
|---|---|
| **"R"** | **Reading information about department.** |
| **Data field:** | **{R}{DeptNum}** |
| **Response:** | **{P},{DeptNum},{Name}{LF}{TaxGroup},{Price},{Amount}, {Total},{PerAmount},{PerTotal},{MaxDigits},{PaymentType}** |

The information is analogous to the department programming operation.

| | |
|---|---|
| **Amount** | Accumulated number of sales for this department in the daily report. A number with 3 decimal places. |
| **Total** | Accumulated totals of sales for this department in the daily report. |
| **PerAmount** | Accumulated number of sales for this department in the periodical report. A number with 3 decimal places. |
| **PerTotal** | Accumulated totals of sales for this department in the periodical daily report. |

If specified department number can't be found, FD will return Code **"F"** in response.


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## 132 (84h) LOAD CONVERTING TABLE FOR EXTERNAL DISPLAY

**Data field:** **Address,Data**
**Response:** **No data**

**Address** Converting table start address in hexadecimal format, two symbols for every byte. Allowed values are 80h → 38h 30h, A0h → 41h 30h, C0h → 43h 30h, E0h → 45h 30h.

**Data** Data for converting (32 bytes) in hexadecimal format, two symbols for every byte (B8h → 3Bh 38h).

After successfully executing this command 4 times (in order to transfer the whole table from address 80h to FFh) it is possible for the FD and the external display to work together even with different code tables. Any text that the FD passes to the display (except when using command 100 (64h) SEND DATA TO EXTERNAL DISPLAY), is converted according to the loaded table and then sent to the display.

**Sample data field**:
80,8081828384858687888 98A8B8C8D8E8F909192939495969798999A9B9C9D9E9F
A0,A0A1A2A3A4A5A6A7A8A9AAABACADAEAFB0B1B2B3B4B5B6B7B8B9BABBBCBDBEBF
C0,C0C1C2C3C4C5C6C7C8C9CACBCCCDCECFD0D1D2D3D4D5D6D7D8D9DADBDCDDDEDF
E0,E0E1E2E3E4E5E6E7E8E9EAEBECEDEEEFF0F1F2F3F4F5F6F7F8F9FAFBFCFDFEFF

## 133 (85h) EXTERNAL DISPLAY DESCRIPTION AND COMMANDS

**Data field:** **Type,Data**
**Response:** **No data**

**Type:** Specifies type of the requesting operation. Values can be:
**“R”** Specifies external display rows (and the corresponding system parameter) For further details see „User’s Manual”);
**“C”** Specifies number of symbols on a external display row (and the corresponding system parameter). For further details see „User’s Manual”);
**“S”** Specifies communication speed with the display (and the corresponding system parameter). For further details see „User’s Manual”);
**“0” - “9”** Command number to be sent to the external display.

**Data:** If “**R”, “C”** or **“S”** is specified in **Type**, then in **Data** the new values must be specified.
If command index is specified in **Type**, then in **Data** the description of the command itself must be specified in the following format:
**Letter[CmdBody[,ms]]**


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**Letter:** Command type. One of the following letters:
- **"D"** → delete the command. The rest of the data (if there any) will be ignored;
- **"I"** → 'initialization' command. It is sent to the display every time the FD is switched on;
- **"B"** → command 'beginning of the data'. It is sent to the display before any other data;
- **"N"** → command „new row". It is sent to the display at the beginning of every new row;
- **"E"** → command 'end of the data'. It is sent to the display after all data is sent;
- **"O"** → command 'turn off'. It is sent to the display when the FD switched off.

**CmdBody:** Command body – 10 bytes in hexadecimal format, two symbols for every byte.
**ms:** Time in milliseconds FD to wait after sending the command.

This command allows to configure the operation of FD with different types of displays. If there is more than one command of a given type in the command list, they will be executed according to their index.

## 134 (86h) PROGRAMMING, ERASING AND INFORMATION ABOUT PARKING

| | |
|---|---|
| **Data field:** | **{Operation}{ParkNum}[,Data]** |
| **Response:** | **Depends of Operation** |
| | |
| **Operation** | Specifies type of the requesting operation. Values can be: **"P", "D", "R".** |
| | |
| **"P"** | Programming. |
| **Data field:** | **{P}{ParkNum}[,Price,Minutes,DeptLink,Name]** |
| **ParkNum** | Parking number (from 1 up to 8). |
| **Price** | Unit price (up to 8 digits and decimal symbol). |
| **Minutes** | Stay in minutes (from 1 up to 1440). |
| **DeptLink** | Department number parking is a part of (from 1 up to **#DEPT_MAX_CNT#**). |
| **Name** | Parking name. It is "trimmed" on the right side if longer than **#NAME_LEN#** symbols. |
| | |
| **Response:** | **No data** → the command is successful<br>**{F}** → the command is failed |
| | |
| **"D"** | Deletion. |
| **Data field:** | **{D}{ParkNum}** |
| **Response:** | **No data** → the command is successful |


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**{F}** → the command is failed

| | |
|---|---|
| **"R"** | Reading information. |
| **Data field:** | **{R}{ParkNum}** |
| **Response:** | **{P}{ParkNum},Price,Minutes,DeptLink,Name** → the command is successful<br>**{F}** → the command is failed |

**Note:** This command is enabled only for devices that support parking operation. The parking function must be enabled through the corresponding system parameter. See „User's Manual".

## 138 (8Ah) SALE BY DEPARTMENT

| | |
|---|---|
| **Data field:** | **{[Sign]Dept}{@Price} [*{QTY}][,Percent] [$Netto]** |
| **Response:** | **No data** |

| | |
|---|---|
| **Sign** | One byte with value **"+"** or **"–"**. If Sign is **"–"**, then a correction (void) of the last sale in the receipt with identical price, quantity and department number is made. Parameters **Percent** and **Netto** will be ignored in this case; |
| **Dept** | Department number (up to 2 digits); |
| **QTY** | See command 49 (31h) SALE; |
| **Percent** | See command 49 (31h) SALE; |
| **Price** | See command 49 (31h) SALE; |
| **Netto** | See command 49 (31h) SALE. |

FD prints the name of the department and department tax group, as well as price and the sold quantity.

The command won't be executed by FD if:

- See command 49 (31h) SALE.

## 146 (92h) FM INFORMATION BY DATE

| | |
|---|---|
| **Data field:** | **{FiskDateBgn},{Options}[,FiskDateEnd]** |
| **Response:** | **{Code},{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#} [,StTax1,StTax2,...,StTax#TAX_GROUPS_CNT#]** |

| | |
|---|---|
| **FiskDateBgn** | Fiscal record date (begin of the range) in format DDMMYY. |
| **Options** | Specifies type of the requesting operation. Values can be:<br>**"0"** → returns the sums by tax groups.<br>**"1"** → returns the net sums by tax groups.<br>**"2"** → returns the accumulated taxes by tax groups.<br>**"3"** → returns tax rates.<br>**"4"** → returns the sums by tax groups for the specified range.<br>**"5"** → returns the net sums by tax groups for the specified range. |


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| | |
|---|---|
| | **"6"** → returns the accumulated taxes for the specified range. |
| **FiscDateEnd** | Fiscal record date (end of the range) in format DDMMYY for options **"4"**, **"5"** and **"6"**. For Options **"0"**, **"1"**, **"2"** and **"3" FiskDateEnd** must be empty. |
| **Code** | One byte with value:<br>**"P"** → valid data;<br>**"F"** → invalid check sum of the record;<br>**"E"** → no data for the specified period was written in FM. |
| **Tax1,…,Tax8** | Sum or percentage according to **Options**. |
| **StTax1,…,StTax8** | Sum or percentage of refund operations (if Options is not **"3"**).. |

## 149 (95h) PROGRAMMING AND INFORMATION ABOUT TEXT FIELD

| | |
|---|---|
| **Data field:** | **{Operation}{Data}** |
| **Response:** | **{Data}** |

| | |
|---|---|
| **Operation** | Specifies type of the requesting operation. Values can be: **"P"** и **"R"**. |

The command is used for programming and reading text field.

| | |
|---|---|
| **"P"** | **Programming text.** |
| **Data field:** | **{P}{Number},{Text}** |
| **"R"** | **Reading text.** |
| **Data field:** | **{R}{Number}** |
| **Отговор** | **{Text}** |

| | |
|---|---|
| **Number** | Number with values:<br>**40 up to 47** → HEADER/ FOOTER row number.<br>The text is limited to **#CHARS_PER_LINE#** symbols.<br>**60 up to 64** → payment names.<br>The text is limited to **#PAYNAME_LEN#** symbols.<br>**600 up to 609** → comment lines.<br>The text is limited to **#COMMENT_LEN#** symbols. |
| **Text** | Text |

**Warning:** The first comment line (Number **"600"**), is printed as a comment before the FD owner's BULSTAT (on the 3rd line of the HEADER).

**Warning:** When changing payment names, the correct TAG (corresponding to payment name) token for communication with the NRA server must be specified. For further details see command 151 (97h) PROGRAMMING AND INFORMATION ABOUT PAYMENTS (CURRENCIES)**.**


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## 150 (96h) PROGRAMMING AND INFORMATION ABOUT FD SYSTEM PARAMETERS

**Data field:** **{Operation}{Data}**
**Response:** **{Data}**

**Operation** Specifies type of the requesting operation. Values can be: **“C”, “P”, “R” , “N”**.

**“C”** **Reading system parameters count.**
**Data field:** **{C}**

**Response** **C{Value}**
**Value** Number of system parameters.

**“P”** **Programming parameter value.**
**Data field:** **{P}{Number},{Value }**
**Response** **No data**

**“R”** **Reading parameter’s value.**
**Data field:** **{R}{Number}**
**Response** **{Number},{Value }**

**“N”** **Reading parameter’s value and name.**
**Data field:** **{N}{Number}**
**Response** **{Number},{Value }{TAB}{Name}**

**Number** System parameter’s number (see „User’s Manual”).
**Value** System parameter’s value. The specific meaning depends on the type of the parameter.
**Name** System parameter’s name.

## 151 (97h) PROGRAMMING AND INFORMATION ABOUT PAYMENTS (CURRENCIES)

**Data field:** **{Operation}{Data}**
**Response:** **{Data}**

**Operation** Specifies type of the requesting operation. Values can be: **“P”** и **“R”**.

**“P”** **Programming payments name and exchange rate.**
**Data field:** **{P}{Number},{Name}[{TAB}{Rate}{TAB}{TagNo}]**
**Response** **No data**

**“R”** **Reading payment info.**
**Data field:** **{R}{Number}**
**Response** **{Number},{Name}{TAB}{Rate}{TAB}{TagNo}**


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| | |
|---|---|
| **Number** | Payment number (from **0** up to **#PAY_MAX_CNT#-1**). 0→ 'В БРОЙ' / 'CASH' can't be changed. |
| **Name** | Payment name. It is "trimmed" on the right side if longer than **#NAME_LEN#** symbols. |
| **TAB** | One byte delimiter with value (ASCII **09h**) |
| **Rate** | Exchange rate against BGN. For FD's with support for switching to EURO, it is not used (for compatibility, use 1.000). |
| **TagNo** | TAG / token number for sending X and Z tasks data to the NRA server.<br>**"0"** → В БРОЙ <SCash><br>**"1"** → С ЧЕК <SChecks><br>**"2"** → талони<br>**"3"** → по външни талони<br>**"4"** → по амбалаж<br>**"5"** → по вътрешно обслужване<br>**"6"** → по повреди<br>**"7"** → по кредитни/дебитни карти<br>**"8"** → по банкови трансфери<br>**"9"** → плащане НЗОК<br>**"10"** → резерв 2 <SR2> |

## 152 (98h) PROGRAMMING, ERASING AND INFORMATION ABOUT CUSTOMERS DATA

| | |
|---|---|
| **Data field:** | **{Operation}{Data}** |
| **Response:** | **Code[,Data]** |
| **Code** | One byte with value:<br>**"P"** → the command is successful.<br>**"F"** → the command is failed. |
| **Operation** | Specifies type of the requesting operation. Values can be:<br>**"P"**, **"D"**, **"R"**, **"F"**, **"N"**. |
| | |
| **"P"** | **Programming customer data** |
| **Data field:** | **{P}{EIK}[{TAB}{ZDDSNo}[{TAB}{Receiver}[{TAB}{Buyer}[{TAB}{Address1}[{TAB}{Address2}]]]]]** |
| **EIK** | Buyer's / customer's EIK registration number; |
| **ZDDSNo** | Buyer's / customer's ЗДДС N#; |
| **Receiver** | Receiver's / recipient's data; |
| **Buyer** | Buyer's / customer's data; |
| **Address1** | Address data – row 1; |
| **Address2** | Address data – row 2; |
| **TAB** | One byte with value **09h** (delimiter). |
| **Отговор** | **Code** One byte with value:<br>**"P"** → the command is successful.<br>**"F"** → the command is failed. |


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**Note:** If there is already a customer with the specified **EIK**, the data for this customer will be changed. If not, a new customers data will be added. No more than 2000 customers data can be written.

| | |
|---|---|
| **"D"** | **Delete customer's data.** |
| **Data field:** | **{D}{A\|EIK}** |
| **A** | Erases all programmed customers; |
| **EIK** | Erases a customer with the specified **EIK**. |

| | |
|---|---|
| **"R"** | **Read customer's data.** |
| **Data field:** | **{R}{EIK}** |
| **Response:** | **Code[,Data]** |

If **Code** is **"P"**, FD returns also:

| | |
|---|---|
| **Data :** | **{P}{EIK}{TAB}{ZDDSNo}{TAB}{Receiver}** |
| | **{TAB}{Buyer}{TAB}{Address1}{TAB}{Address2}** |

| | |
|---|---|
| **"F"** | **Returns the data for the first programmed customer's data.** |
| **Data field:** | **{F}** |

| | |
|---|---|
| **"N"** | **Returns the data for the next programmed customer's data.** |
| **Data field:** | **{N}** |

The answers to operations **"F"** and **"N"** are identical to operation **"R"**.

The last two operations are used to retrieve the data for all programmed customer's data. Operation **"F"** is used first and then operation **"N"** until an answer **"F"** is received. This means that the last customer's data has been read.

**Note:** This command is used to facilitate issuing an invoice / credit note using the cash register keyboard. It is not supported by ticket devices. If **FD** works in 'FISCAL PRINTER' mode (or FD is a FPr. itself), customers data will be printed using command 57 (39h) PRINT CLIENT INFORMATION.

## 153 (99h) SEND REPROTS IN TEXT TYPE

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **No data** |

After receiving this command, if within 5 seconds the FD receives a new command related to a report, then the specified report is executed, but instead of printing the data, the **FD** sends it over the communication channel line by line, waiting after each line for an acknowledgment from PC for accepting it.

List of commands allowed for use after a command 99h:

**50 (32h) TAX RATES INFORMATION**


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73 (49h) FM REPORT BY NUMBER
79 (4Fh) BRIEF FM REPORT BY DATE
94 (5Eh) FM REPORT BY DATE
95 (5Fh) BRIEF FM REPORT BY NUMBER
105 (69h) OPERATORS REPORT
111 (6Fh) PLU's REPORT

**Note:** FD will return an error, if specified **RepType "Z",** i.e., cannot execute Z report by PLUs.

165 (A5h) DEPARTMENTS REPORT

**Note:** FD will return an error, if specified **RepType "Z",** i.e., cannot execute Z report by departments.

166 (A6h) PRINT SYSTEM PARAMETERS

**Text rows format (from FD to PC):**

**{Sub}LineNo{Tab}Font{Tab}Text{CR}{LF}**

| Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Name | Sub | LineNo | Tab | Font | Tab | Text | CR | LF |
| Length in bytes | 1 | 6 | 1 | 1 | 1 | #CHARS_PER_LINE# or #CHARS_PER_LINE# / 2 | 1 | 1 |
| Value | 1Ah | 30h–39h | 09h | "N"(4Eh) or "B"(42h) | 09h | 20h–FFh | 0Dh | 0Ah |

or

**{Sub}{Tab}Font{CR}{LF}**

| Position | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Name | Sub | Tab | Font | CR | LF |
| Length in bytes | 1 | 1 | 1 | 1 | 1 |
| Value | 1Ah | 09h | "E"(45h) | 0Dh | 0Ah |

where:

**Sub** Start of the packed message.
**LineNo** **Sequential line number in the report.**
**Tab** One byte with value **09h** (delimiter).
**Font** **Data print type.**
**"N" (Normal) - normal printing. Text contains #CHARS_PER_LINE# symbols.**
**"B" (Bold) – print with double letters width. Text contains #CHARS_PER_LINE# / 2 symbols.**
**"E" (End) - end of data transfer. No LineNo and Text.**
**Text** **The text of the corresponding line.**
**CR** One byte with value **0Dh.**
**LF** One byte with value **0Ah.**


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After sending each line, the **FD** waits for acknowledge from the PC that it has been received. The acknowledgment from the PC consists of an unpacked single-byte message with value **11h.**

**From PC to FD**

| Position | 1 |
|---|---|
| Name | DC1 |
| Length in bytes | 1 |
| Value | 11h |

If not receive confirmation, or if the power is cut off, the FD will stop sending data to the PC. After sending all report's lines, the FD responds to the PC with the corresponding to the provided command response.

**Examples** (data is in hexadecimal format- Hex)**:**

Example for brief FM report by date from 1 January 2018 to 31 December 2019.

**Sent** command **99h: (from PC to FD):**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 24 | CB | 99 | | 05 | 30 31 38 3D | 03 |

**Received data: (from FD to PC):**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 2B | CB | 99 | | 04 | 80 80 C0 80 80 B8 | 05 | 30 35 31 30 | 03 |

**Sent** command **4Fh** with data 010118,311219**: (from PC to FD):**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 31 | CC | 4F | 30 31 30 31 31 38 2C 33 31 31 32 31 39 | 05 | 30 33 3D 39 | 03 |

**Received data: (from FD to PC):**

| Sub | LineNo | Tab | Font | Tab | TEXT | CR | LF |
|---|---|---|---|---|---|---|---|
| 1A | 30 30 30 30 30 31 | 09 | 42 | 09 | 20 20 20 20 20 20 D4 C8 D0 CC C0 3A 20 20 20 20 20 20<br>“ ФИРМА: “ | 0D | 0A |

**Sent acknowledge for the line: (from PC to FD):**

| DC1 |
|---|
| 11 |

**Received data: (from FD to PC):**

| Sub | LineNo | Tab | Font | Tab | TEXT | CR | LF |
|---|---|---|---|---|---|---|---|


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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1A | 30 30 30 30 30 32 | 09 | 42 | 09 | 20 20 20 20 20 20 C0 E4 F0 E5 F1 3A 20 20 20 20 20 20 “ Адрес: “ | 0D | 0A |

**Sent acknowledge for the line: (from PC to FD):**

| |
|---|
| DC1 |
| 11 |

**…repeat that, until received the following data from the FD:**

| Sub | Tab | Font | CR | LF |
|---|---|---|---|---|
| 1A | 09 | 45 | 0D | 0A |

**Sent acknowledge: (from PC to FD):**

| |
|---|
| DC1 |
| 11 |

**Received data: (from FD to PC):**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 2B | CC | 4F | | 04 | 80 80 C0 80 80 B8 | 05 | 30 34 3C 37 | 03 |

To get system parameters over the communication channel, we need to send a command **99h**,

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 24 | 6D | 99 | | 05 | 30 31 32 3F | 03 |

followed by command **A6h**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 24 | AE | A6 | | 05 | 30 31 37 3D | 03 |

the rest of the communication is analogous to the first example.

## 154 (9Ah) PROGRAMMING, ERASING AND INFORMATION ABOUT ROUTE

**Data field:** **{Operation}[Data]**
**Response:** **Code[,Data]**

**Code** One byte with value:
**“P”** → the command is successful.
**“F”** → the command is failed.

**Operation** Specifies type of the requesting operation. Values can be:
**“P”, “D”, “R”,”T”**

**“P”** Programming routes.
**Data field:** **{P}{RouteIdx},{Pass},{StationCode1},...{StationCode40}**
**RouteIdx** Route consecutive number (index) (from 1 up to 1000);


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**Pass** Always use **"0"**;
**StationCode1** Station code (up to 6 digits);
**StationCodeX** Station code (up to 6 digits).

**"D", "T"** Erasing routes.
**Data field:** **{D|T}{A|RouteIdx|RouteIdx1,RouteIdx2}**
**A** Erases all programmed routes;
**RouteIdx** Erases a route with the specified index;
**RouteIdx1,RouteIdx2** Erases all routes in the specified range.

**Note 1**: If operation **"D"** specified, only the route data will be erased. If operation **"T"** specified, the route data and corresponding prices will be erased.

**"R"** Reading information about the route.
**Data field**: **{R}{RouteIdx}**
**Response:** **{RouteIdx},{Pass},{StationCode1},...{StationCode40}**

**Note 2**: A route is a series of stations/stops in the order they are traversed. This command can only be used with tickets features enabled **FD** - **"Perfect SA".** See FD „User's Manual". No more than 40 stations/stops can be programmed for the given route.

## 155 (9Bh) PROGRAMMING, ERASING AND INFORMATION ABOUT STATION

**Data field:** **{Operation}[Data]**
**Response:** **Code[,Data]**

**Code** One byte with value:
**"P"** → the command is successful.
**"F"** → the command is failed.
**Operation** Specifies type of the requesting operation. Values can be:
**"P", "D", "R"**

**"P"** Programming station.
**Data field:** **{P}{StationCode},{StationName}**
**StationCode** Station code (up to 6 digits). For example: 4000;
**StationName** Station name (up to **#COMMENT_LEN#** symbols).
For example: "гр. Пловдив" / "Plovdiv City".

**"D"** Erasing station.
**Data field:** **{D}{A|StationCode|StationCode1,StationCode2}**
**A** Erases all programmed stations;
**StationCode** Erases a station with the specified **StationCode**;
**StationCode1, StationCode2** Erases all stations in the specified range.

**"R"** Reading information about the station.
**Data field:** **{R}{StationCode}**


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**Response:** **{StationCode},{StationName}** If there isn't previously programmed data for the specified station number, FD will return an error "44" ("НЯМА СТАНЦИЯ!" / "NO STATION") in status byte 3.

**Note**: A station/stop is a place on the route where passengers get off or get on. This command can only be used with tickets features enabled **FD** - **"Perfect SA".** See FD „User's Manual". Up to 10 000 stations can be programmed.

## 156 (9Ch) PROGRAMMING AND INFORMATION ABOUT ROUTE PRICE

**Data field:** **{Operation}[Data]**
**Response:** **Code[,Data]**

**Code** One byte with value:
**"P"** → the command is successful.
**"F"** → the command is failed.

**Operation** Specifies type of the requesting operation. Values can be:
**"P" и "R"**.

**"P"** Programming price.
**Data field:** **{P}{RouteIdx},{StationCode1},{StationCode2},{Price}**
**RouteIdx** Route consecutive number (index) (from 1 up to 1000);
**StationCode1** Starting station code already programmed for the given route;
**StationCode2** Final station code already programmed for the given route;
**Price** Transportation price.

**"R"** Reading information about the price.
**Data field:** **{R}{RouteIdx},{StationCode1},{StationCode2}**
**Response:** **{Price}**

**Note**: Route price means the price of the travel ticket for each route, for each pair of stations/stops. This command can only be used with tickets features enabled **FD** - **"Perfect SA".** See FD „User's Manual".

## 157 (9Dh) PROGRAMMING AND INFORMATION ABOUT TICKET DISCOUNTS

**Data field:** **{Operation}[Data]**
**Response:** **Code[,Data]**

**Code** One byte with value:
**"P"** → the command is successful.
**"F"** → the command is failed.

**Operation** Specifies type of the requesting operation. Values can be:
**"P" и "R"**.


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**"P"** Programming discount.
**Data field:** **{P}{DiscountIdx},{DiscountName}<TAB>{DiscountPercent}**
**DiscountIdx** Discount consecutive number (index) (from 1 up to 20). Discount 1 cannot be changed (read only);
**DiscountName** Discount name / reason (normative act) for the discount;
**DiscountPercent** Discount value in percentage (from 0 up to 100).

**"R"** Reading information about discount.
**Data field:** **{R}{DiscountIdx}**
**Response:** **{DiscountName}<TAB>{DiscountPercent}**

**Note**: This command can only be used with tickets features enabled **FD - "Perfect SA".** See FD „User's Manual".

## 165 (A5h) DEPARTMENTS REPORT

**Data field:** **[RepType]**
**Response:** **Code**

**RepType** Specifies type of the requesting operation. Values can be:
**"0"** → FD prints X report by departments;
**"1"** → FD prints all programmed departments data;
**"X"** → FD prints periodical X report by departments;
**"Z"** → FD prints periodical Z report by departments.
By default: **"0"**.
**Code** One byte with value:
"**P"** → the command is successful;
"**F"** → the command is failed.

## 166 (A6h) PRINT SYSTEM PARAMETERS

**Data field:** **No data**
**Response:** **Code**

**Code** One byte with value:
**"P"** → the command is successful;
"**F"** → the command is failed.

FD prints the number, name and system parameters values.

## 173 (ADh) FD BATTERY – VOLTAGE AND CAPACITY

**Data field:** **15**
**Response:** **{Voltage}{Space}{Cap}**


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| | |
|---|---|
| **Voltage** | Battery voltage in mV (from 0 up to 4000); |
| **Space** | **20h**; |
| **Cap** | Battery capacity in percentage (from 0 up to 100). |

This command is only supported for low-voltage devices –
Compact M, Compact S, FX21.

## 174 (AEh) FD STATUS BYTE 3 ERROR DESCRIPTION

| | |
|---|---|
| **Data field:** | **{ErrNo}** |
| **Response:** | **{ErrNo},{Data}** |

| | |
|---|---|
| **ErrNo** | Error number in status byte 3 (from 1 to 127). |
| **Data** | Error description text. |

## 176 (B0h) PRINT TAX RATES

| | |
|---|---|
| **Data field:** | **No data** |
| **Response:** | **Code** |

| | |
|---|---|
| **Code** | One byte with value:<br>**”P”** → the command is successful;<br>“**F”** → the command is failed. |

FD prints current tax rates.

## 194 (C2h) DATA FROM TERMINAL TEST AND INFORMATION

| | |
|---|---|
| **Data field:** | **{Operation}[PIN]** |
| **Response:** | **Data** |

| | |
|---|---|
| **Data** | Depends of **Operation** |

| | |
|---|---|
| **Operation** | One byte with value **“T”**, **“W”**, **“I”**, **“S”** or **“C”:** |
| **“T”** | Communication test between the FD and the terminal / GSM. |
| **Response:** | **{Error}[,Level,Attached,IMSI,ICC_ID,IMEI]**<br>**Error:** Error communicating with the modem: “0” → no error. For further details see „User’s Manual”;<br>**Level:** GSM signal level in percentage;<br>**Attached:** One byte with value “1” in case of successful registration of the SIM card in the cell of the mobile operator. If “0”, if **Level** is good, check if the SIM card is paid for;<br>**IMSI:** IMSI of the SIM card ;<br>**ICC_ID:** SIM card serial number;<br>**IMEI:** GSM modem serial number. |


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| | |
|---|---|
| **"W"** | Communication test between the GSM and the NRA server. |
| **Response:** | **{Error}[,ErrString]**<br>**Error:** Error trying to connect to NRA server. "0" → no error. For further details see „User's Manual";<br>**ErrString:** Text field (up to 40 symbols), with error description. |
| **"I"** | Prints information from the FM for the currently activated SIM card. |
| **Response:** | **{IMSI,MSISDN,OPID}**<br>**IMSI:** IMSI of the SIM card;<br>**MSISDN:** phone number of the SIM card;<br>**OPID:** mobile operator number**.**<br>**"0" → Mtel / A1**<br>**"1" → Globul / Telenor / Yettel**<br>**"2" → Vivacom** |
| **"S"** | Information from the FM for the currently activated SIM card. |
| **Response:** | **{IMSI,MSISDN,OPID}**<br>**IMSI:** IMSI of the SIM card;<br>**MSISDN:** phone number of the SIM card;<br>**OPID:** mobile operator number.<br>**"0" → Mtel / A1**<br>**"1" → Globul / Telenor / Yettel**<br>**"2" → Vivacom** |
| **"C"** | Remove SIM card protection. |
| **Data field:** | **{C}{PIN}**<br>**PIN:** PIN code of the SIM card |
| **Response:** | **No data** |

If the SIM card is locked with a PIN code, the modem cannot work correctly with it. Therefore, when an error "107" (ЗАКЛ. SIM КАРТА" / "LOCKED SIM CARD") occurs in status byte 3, a PIN code must be entered to remove SIM card protection.

**Warning:** Be careful when entering the PIN code!!! After 3 consecutive wrong attempts, the SIM card will be blocked.

**Note:** Successful unlocking of the SIM card will take place only after you restart the fiscal device.

## 195 (C3h) EJT REPLACEMENT AND REPORTS

| | |
|---|---|
| **Data field:** | **{Operation}[,Data]** |
| **Response:** | Depends of **Operation** |
| **Data** | Depends of **Operation** |


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**Operation** Specifies type of the requesting operation. Values can be: **"I"**, **"S"** or **"R":**

**"I"** EJT changing
**Data field:** **{I}[Reason]**
**Reason:** Optional parameter. If the reason for the EJT change is damage of the previous one, use "1", otherwise leave it empty.
**Response:** **No data**

**"S"** Prints EJT summary data
**Data field:** **{S}**
**Response:** **No data**

**"R"** Prints/reading EJT data
**Data field:** **{R}{MarginType}{PrnType},{Bgn},{End}[,Send]**
**MarginType:** Specifies report type. Values can be:
- **"1"** → Prints all documents by documents number;
- **"2"** → Prints all documents by documents Z reports;
- **"3"** → Prints all documents by documents date;

**PrnType:** Specifies report type. Values can be:
- **"1"** → Fiscal receipts;
- **"2"** → Refund receipts (standard refund receipt and credit notes);
- **"3"** → All fiscal receipts;
- **"4"** → Z reports (daily financial reports with clearing);
- **"5"** → Service entered/delivered receipts;
- **"6"** → X reports (daily financial reports without clearing);
- **"7"** → All other reports, beyond those listed above;
- **"8"** → All documents.

**Bgn:** Start of the range (document number, Z report number, or date according **MarginType**).
**End:** End of the range (document number, Z report number, or date according **MarginType**).
**Send:** Optional parameter with value **"1"**. If specified, instead of printing the data, the FD sends it over the communication channel line by line, waiting after each line for an acknowledgment from PC for accepting it. The acknowledgment from the PC consists of an unpacked single-byte message with value **11h**.
If not receive confirmation, or if the power is cut off, the FD will stop sending data to the PC.
**Response:** **Depending on data field. See the examples in** **153 (99h) SEND REPROTS IN TEXT TYPE**

**"C"** Reading EJT data in structured form


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**Data field:** **{R}{MarginType}{PrnType},{Bgn},{End},{Send}**

**MarginType:** Specifies report type. Values can be:

**"1"** → Prints all documents by documents number;

**"2"** → Prints all documents by documents Z reports;

**"3"** → Prints all documents by documents date;

**PrnType:** Specifies report type. Values can be:

**"3"** → All fiscal receipts.

**Bgn:** Start of the range (document number, Z report number, or date according **MarginType**).

**End:** End of the range (document number, Z report number, or date according **MarginType**).

**Send:** Optional parameter with value **"1"**. If specified, instead of printing the data, the FD sends it over the communication channel line by line, waiting after each line for an acknowledgment from PC for accepting it. The acknowledgment from the PC consists of an unpacked single-byte message with value **11h**.

If not receive confirmation, or if the power is cut off, the FD will stop sending data to the PC.

**Response:** **{Esc}{Len}Text**

| **Position** | **1** | **2** | **3** |
|---|---|---|---|
| Name | Esc | **LEN** | **TEXT** |
| Length in bytes | 1 | 1 | **1-FF** |
| Value | 1B | 1–FF | **"DY940349 36940349 ФБ 000004 01.07.2025 09:00:10"** |

**Examples** (data is in hexadecimal format- Hex)**:**

Example for reading EJT data in structured form by documents number (1 to 1000) for all fiscal receipts.

**Sent** command **C3h** with data C13,1,1000,1**: (from PC to FD):**

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 30 | C2 | C3 | **43 31 33 2C 31 2C 31 30 30 30 2C 31** | 05 | 30 34 30 38 | 03 |

**Received data: (from FD to PC):**

| Esc | LEN | TEXT |
|---|---|---|
| 1B | 07 | 73 65 70 3D 09 0D 0A<br>**"SEP=\t"** |

**Sent acknowledge for the line: (from PC to FD):**

| DC1 |
|---|
| 11 |


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**Received data: (from FD to PC):**

| Esc | LEN | TEXT |
|---|---|---|
| 1B | 14 | 3D 3D 3D 20 42 65 67 69 6E 20 44 61 74 61 20 3D 3D 3D 0D 0A<br>**“== Begin Data ===“** |

**Sent acknowledge for the line: (from PC to FD):**

| DC1 |
|---|
| 11 |

**Received data: (from FD to PC):**

| Esc | LEN | TEXT |
|---|---|---|
| 1B | 07 | C7 E0 E2 2E 20 4E 23<br>**“Зав. N#“** |

**Sent acknowledge for the line: (from PC to FD):**

| DC1 |
|---|
| 11 |

**Received data: (from FD to PC):**

| Esc | LEN | TEXT |
|---|---|---|
| 1B | 06 | 09 D4 CF 20 4E 23<br>**“\tФП N#“** |

**Sent acknowledge for the line: (from PC to FD):**

| DC1 |
|---|
| 11 |

**Received data: (from FD to PC):**

| Esc | LEN | TEXT |
|---|---|---|
| 1B | 0A | 09 D2 E8 EF 20 ED E0 20 D4 C1<br>**“\tТип на ФБ“** |

**Sent acknowledge for the line: (from PC to FD):**

| DC1 |
|---|
| 11 |

**…and so on, until receiving data from the FD:**

| Sub | LEN | TEXT |
|---|---|---|
| 1B | 12 | 3D 3D 3D 20 45 6E 64 20 44 61 74 61 20 3D 3D 3D 0D 0A<br>**“== End Data === “** |

**Sent acknowledge for the line: (from PC to FD):**

| DC1 |
|---|
| 11 |


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**Received data: (from FD to PC):**

| STX | LEN | SEQ | CMD | DATA | Postamble2 | STATUS | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|---|---|
| 01 | 2B | C2 | C3 | | 04 | 88 80 80 80 80 B8 | 05 | 30 34 3F 39 | 03 |

To read EJT data in structured form by documents date (from 1 September 2025 to 31 December 2025) for all fiscal receipts, must send command **C3h** with the data C33,010925,311225,1,

| STX | LEN | SEQ | CMD | DATA | Postamble1 | BCC | ETX |
|---|---|---|---|---|---|---|---|
| 01 | 37 | A5 | C3 | 43 33 33 2C 30 31 30 39 32 35 2C 33 31 31 32 32 35 2C 31 | 05 | 30 35 36 31 | 03 |

the rest of the communication is analogous to the first example.

## 201 (C9h) INFORMATION ABOUT CURRENCY PARAMETER TRANSITION DATES

**Data field:** **{Operation}[No]**
**Response:** **Data**

**Operation** Specifies type of the requesting operation. Values can be: **“R”** и **“I”.**

**“I”** Information about all transition dates.
**Data field:** **I**
**Response:** **ZoneNo,NeedDR,Date1,Date2,Date3,Date4,CurrencyRate,FmDate**

**ZoneNo** Current zone number. Values can be:
**“0”** → FD works only with ЛЕВА/BGN (BGN ZONE))
**“1”** → FD works only with ЛЕВА/BGN with print of the ОБЩА СУМА (TOTAL AMOUNT) in ЕВРО/EUR (BGN ZONE PRN)
**“2”** → FD works with ЛЕВА/ЕВРО (MIX ZONE)
**“3”** → FD works only with ЕВРО/EURO with print of the ОБЩА СУМА (TOTAL AMOUNT) in ЛЕВА/BGN (EUR ZONE PRN)
**“4”** → FD works with ЕВРО/EURO (EUR ZONE)

**NeedDR** Need for a daily Z report. Values can be:
**“0”** → NO
**“1”** → YES

**Date1** Date of transition from parameter 0 to 1. If not set, FD returns XXXXXX.

**Date2** Date of transition from parameter 1 to 2. If not set, FD returns XXXXXX.

**Date3** Date of transition from parameter 2 to 3. If not set, FD returns XXXXXX.

**Date4** Date of transition from parameter 3 to 4. If not set, FD returns XXXXXX.


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| | |
|---|---|
| **CurrencyRate** | Exchange rate of the primary currency (**1 EUR = Currency Rate BGN**), fractional number with 5 decimal places. |
| **FmDate** | Date of the last daily financial report with clearing in the FM<br>**If** FD is not fiscalized, FD returns XXXXXX. |

| | |
|---|---|
| **"R"** | Information about a specific transition date. |
| **Data field:** | **R[No]** |
| **Response:** | **Date[,CurrencyRate]** |

| | |
|---|---|
| **No:** | Number of the transition date for which we want to get data<br>Values can be 1, 2, 3 or 4. |
| **Date** | Transition date. If not set, FD returns XXXXXX. |
| **Currency Rate** | Returns only if **No= 2** |

**Detailed description of the differences in the operation of the FD in different zones**

| | **BGN ZONE** | **BGN ZONE PRN** | **MIX ZONE** | **EUR ZONE PRN** | **EUR ZONE** |
|---|---|---|---|---|---|
| Value of the currency parameter according to Regulation N18 | **0** | **1** | **2** | **2** | **3** |
| Primary currency | **BGN** | **BGN** | **EUR** | **EUR** | **EUR** |
| Secondary currency | **N/A** | **N/A** | **BGN** | **N/A** | **N/A** |
| Cash payment | **BGN** | **BGN** | **EUR** and/or **BGN** | **EUR** | **EUR** |
| Print of the ОБЩА СУМА (TOTAL AMOUNT) in fiscal receipt | **BGN** | **BGN +EUR** | **EUR +BGN** | **EUR +BGN** | **EUR** |
| Service entered / delivered | **BGN** | **BGN** or **EUR** | **EUR** or **BGN** | **EUR** or **BGN** | **EUR** |
| Change on a fiscal receipt | **BGN** | **BGN** | **EUR** | **EUR** | **EUR** |
| Payment of a refund receipt | **BGN** | **BGN** | **EUR** | **EUR** | **EUR** |
| Print of the service entered / delivered amount in daily report | **BGN** | **BGN** | **EUR +BGN** | **EUR** | **EUR** |
| Print drawer inventory in daily report * | **BGN** | **BGN +EUR** | **EUR +BGN** | **EUR +BGN** | **EUR** |
| Data on amounts from receipts/reports to the NRA server | **BGN** | **BGN** | **EUR** | **EUR** | **EUR** |

* Note: The availability in both currencies is printed only if it is different from 0


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# 8. Changes to the protocol compared to the previous version V.1.8.1 2023

## 5. FD status flags

Byte 1 – General function
1.3 → 1 Not used
changed to
1.3 → 1* Changed EJT

Byte 5 – Fiscal memory
5.6 → 1 FM ready
changed to
5.6 → 1 Opened data transfer session

## 49 (31h) SALE

Added additional reason for the command not to be executed.

Added command:
66 (42h) ADDITIONAL DATA FROM THE FM

## 70 (46h) SERVICE ENTERED SUM (R/A) AND SERVICE DERIVED (P/O) SUM

Added optional parameter CurrencyName
Added CashSum2,ServInput2,ServOutPut2 in response from the FD.

## 94 (5Eh) FM REPORT BY DATE

Added description for the optional parameter PAY.

## 95 (5Fh) BRIEF FM REPORT BY NUMBER

Added description for the optional parameter PAY.

## 119 (77h) ISSUED DOCUMENT INFORMATION

Changed description of the Mult field.
Added new DocType.

## 151 (97h) PROGRAMMING AND INFORMATION ABOUT PAYMENTS (CURRENCIES)

Stop using the Rate parameter – Payment exchange rate against BGN.
Fixed separator between Rate and TagNo.


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## 195 (C3h) EJT REPLACEMENT AND REPORTS

Changed parameters for “R” Prints/reading EJT data.
Added operation “C” Reading EJT data in structured form.

Added command:

## 201 (C9h) INFORMATION ABOUT CURRENCY PARAMETER TRANSITION DATES


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