

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 sent to the **PC** only if they are a result of the received commands.

All text data (for example PLU names, headers etc.) are sent 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 sent 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.

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.

- “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 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.

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

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

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

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)

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

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.

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:

- 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

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: IO..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 <div style="text-align: center;"> ' Заповядайте пак! ' </div> will be printed: <div style="text-align: center;"> '# Заповядайте пак! #' </div>
	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)

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”.

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 Reason	“R” → Specifies issuance of a refund fiscal receipt. 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 InvLink	“C” → Specifies issuance of credit note 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.

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 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 31 38 "1,1,DY000694-OP01-0000018"	05	30 35 3E 36	03

Received: (from FD to PC):

01 38 37 30 30 30 30 31 2C 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 31 2C 30 30 30 30 30 30 "000001,000000"	04	88 80 88 80 80 B8	05	30 36 35 3D	03

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 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 31 09 49 "1,1,DY000600-OP01-000001\tl"	05	30 36 32 3E	03

Received: (from FD to PC):

01 38 40 30 30 30 30 30 32 2C 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 31 "00002,00001"	04	88 80 88 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 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 "20,9999,DY000600-OP20-000003\tR1,203,10-04-23 21:54:02\t36940032"	05	30 3D 3E 38	03

Received: (from FD to PC):

01 38 DE 30 30 30 30 30 33 2C 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 32 "00003,00002"	04	88 80 88 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 34 30 31 "1,1,DY000600-OP01-000004\tC35,1,17102,18-04-23 01:59:59\t36999401"	05	30 3D 39 30	03

Received: (from FD to PC):

01 38 59 30 30 30 30 30 34 2C 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 32 "00004,00002"	04	88 80 88 80 80 B8	05	30 36 38 34	03

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 32 30 32 32 20 31 35 3A 35 39 "20,9999,1,TBapna\tByprac\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 35 2C 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 32 "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;

- 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.

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#**.

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.

- 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**;

- 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.

65 (41h) CURRENT NET/TOTAL SUMS INFORMATION

Data field:	[Type]
Response:	{Tax1},{Tax2},{...},{Tax#TAX_GROUPS_CNT#}, {StTax1},{StTax2},{...},{StTax#TAX_GROUPS_CNT#}
Type	Optional parameter, specifying type of the data in response: "T" → amount with VAT (total), and "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#, StTax1,StTax2,...,StTax#TAX_GROUPS_CNT#]
Operation	Optional parameter, specifying type of the report. By default is "0". "0" or "1" → executes daily financial Z report (with clearing). The reports ends with text "ФИСКАЛЕН БОИ" / "FISCAL RECEIPT" or "НЕФИСКАЛЕН БОИ" / "NON-FISCAL RECEIPT" (depends if FD is fiscalized).

	<p>"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).</p> <p>"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.</p> <p>"6" → executes daily financial Z report (with clearing) without printing on paper, but write it in EJT and FM (if FD is fiscalized).</p> <p>"8" → executes periodic financial Z report by departments. No data is returned.</p> <p>"9" → executes periodic financial X report by departments. No data is returned.</p>
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: \$BGN → service entered /derived in ЛЕВА (BGN); \$EUR → service entered /derived in ЕВРО (EURO).
Code	"P" → the command is successful. "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.

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, "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: "1" → EAH8 . The data contains only digits and is exactly 7 bytes. FD calculates and prints check sum. "2" → EAH13 . The data contains only digits and is exactly 12 bytes. FD calculates and prints check sum. "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.

	<p>"4" → UPC E The data contains only digits and is exactly 8 bytes. The first digit must be „0" (30h).</p> <p>"5" → UPC A The data contains only digits and is exactly 11 bytes. FD calculates and prints check sum.</p> <p>"6" → 2/5 Standard The data contains only digits. No more than 9 bytes.</p> <p>"7" → 2/5 Interleaved The data contains only digits. No more than 18 bytes.</p> <p>"8" → 2/5 Interleaved mod10 The data contains only digits. No more than 18 bytes.</p> <p>"9" → Code39 The data contains ASCII symbols between 20h and 7Fh included. No more than 9 bytes.</p> <p>"10" → Code39 mod43 The data contains ASCII symbols between 20h and 7Fh included. No more than 8 bytes.</p> <p>"11" → Code93 The data contains digits and/or capital letters. No more than 11 bytes.</p> <p>"12" → CODEBAR The data contains digits and/or capital letters A,B,C,D. No more than 14 bytes.</p> <p>"13" → POSTNET The data contains only digits. No more than 13 bytes.</p>
Data	Barcode data.
Pos	Optional parameter, barcode printing position: "C" (Centre) → in the middle of the paper "R" (Right) → at the right end "L" (Left) → at the left end 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. 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:
"Q", "P", "R"

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

“Q” Prints additional QR code, containing client information.
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
(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

“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}**

Answer id1,id2,id3, ...idN 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.

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

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).

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.

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.

- 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"**).

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.

111 (6Fh) PLU's REPORT

Data field:	[RepType]
Response:	Code
RepType	Specifies type of the requesting operation. Values can be: "0" →FD prints X report by PLUs. "1" →FD prints all programmed PLUs. "Z" →FD prints Z report by PLUs. By default: "0" .
Code	One byte with value: "P" → the command is successful "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, "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).
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 ','

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](#).

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

Sample data field:

```
35,00001FFFFFFFFE7FF800FF80003FE0FFFFFFFFF0FF81FFFFFF001FFFFFFFFF80000000000057
4755575757575555555400000
36,00001FFFFFFFF3FF800FF80003FE1FFFFFFFFF0FF80FFFFFFE01FFFFFFFFF800000000001FFF
EFEDFFFFFFFFFEEAAA00000
```

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

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: "0" → FD with firmware not supporting online store (e-shop) mode; "1" → FD with firmware supporting online store (e-shop) mode.
EShopActive	One byte with value: "0" → FD not authorized for working as e-shop; "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

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).

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 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 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 "P000246\t04.05.2023 08:49:12\t65\t0\t10\t1\tDY999636-OP01-1234567\t000000,SHA1:70BCE-5EAC9-4CEFE-6423173FF1-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"**.

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:

“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.

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:

```
80,808182838485868788898A8B8C8D8E8F909192939495969798999A9B9C9D9E9F
A0,A0A1A2A3A4A5A6A7A8A9AAABACADAEAFB0B1B2B3B4B5B6B7B8B9BABBBBCDBEBF
C0,C0C1C2C3C4C5C6C7C8C9CACBCCCDCECFD0D1D2D3D4D5D6D7D8D9DADBDCDDDEDF
E0,E0E1E2E3E4E5E6E7E8E9EAEBECEDEEEFF0F1F2F3F4F5F6F7F8F9FAFBFCFDFF
```

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]]

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

{F} → the command is failed

“D” Deletion.

Data field: {D}{ParkNum}

Response: **No data** → the command is successful

{F} → the command is failed

“R” Reading information.
Data field: {R}{ParkNum}
Response: {P}{ParkNum},Price,Minutes,DeptLink,Name → the command is successful
 {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:
 “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.

FiscDateEnd	“6” → returns the accumulated taxes for the specified range. Fiscal record date (end of the range) in format DDMMYY for options “4”, “5” and “6”. For Options “0”, “1”, “2” and “3” FiscDateEnd must be empty.
Code	One byte with value: “P” → valid data; “F” → invalid check sum of the record; “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:
40 up to 47 → HEADER/ FOOTER row number.
The text is limited to #CHARS_PER_LINE# symbols.
60 up to 64 → payment names.
The text is limited to #PAYNAME_LEN# symbols.
600 up to 609 → comment lines.
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 \(CURRENCIES\)](#).

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 Value	C{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 Value	System parameter's number (see „User's Manual”). 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},TagNo
Response	No data
"R"	Reading payment info.
Data field:	{R}{Number}
Response	{Number},{Name}{TAB}{Rate},{TagNo}

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. "0" → В БРОЙ <SCash> "1" → С ЧЕК <SChecks> "2" → талони "3" → по външни талони "4" → по амбалаж "5" → по вътрешно обслужване "6" → по повреди "7" → по кредитни/дебитни карти "8" → по банкови трансфери "9" → плащане НЗОК "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: "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 customer data
Data field:	{P}{EIK}{{TAB}{ZDDSN}{{TAB}{Receiver} {{TAB}{Buyer}{{TAB}{Address1}{{TAB}{Address2}}}}}}
EIK	Buyer's / customer's EIK registration number;
ZDDSN	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: "P" → the command is successful. "F" → the command is failed.

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}{ZDDNo}{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](#)

[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 .

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 " 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

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	0D	0A
					“ Адрес: “		

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);

	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}

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".

“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}**

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: "P" → the command is successful; "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 "T"	One byte with value "T", "W", "I", "S" or "C": Communication test between the FD and the terminal / GSM.
Response:	{Error}[,Level,Attached,IMSI,ICC_ID,IMEI] Error: Error communicating with the modem: "0" → no error. For further details see „User’s Manual”; Level: GSM signal level in percentage; 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; IMSI: IMSI of the SIM card ; ICC_ID: SIM card serial number; IMEI: GSM modem serial number.

"W"	Communication test between the GSM and the NRA server.
Response:	{Error}[,ErrString] Error: Error trying to connect to NRA server. "0" → no error. For further details see „User’s Manual“; 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} IMSI: IMSI of the SIM card; MSISDN: phone number of the SIM card; OPID: mobile operator number. "0" → Mtel / A1 "1" → Globul / Telenor / Yettel "2" → Vivacom
"S"	Information from the FM for the currently activated SIM card.
Response:	{IMSI,MSISDN,OPID} IMSI: IMSI of the SIM card; MSISDN: phone number of the SIM card; OPID: mobile operator number. "0" → Mtel / A1 "1" → Globul / Telenor / Yettel "2" → Vivacom
"C"	Remove SIM card protection.
Data field:	{C}{PIN} 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. СИМ 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

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

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 "SEP=\t"

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

DC1
11

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 “== 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 “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 “\тФП 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 “\тТип 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 “== End Data == ”

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

DC1
11

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 EBPO/EUR (BGN ZONE PRN) "2" → FD works with ЛЕВА/EBPO (MIX ZONE) "3" → FD works only with EBPO/EURO with print of the ОБЩА СУМА (TOTAL AMOUNT) in ЛЕВА/BGN (EUR ZONE PRN) "4" → FD works with EBPO/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.

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 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 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

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.

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](#)