

PROTOCOL DESCRIPTION OF THE FISCAL PRINTER DATECS FP-700 VERSION 1.00BA

INTRODUCTION

The fiscal device operates under the control of an application program, with which communicates via the RS232 serial connection. The device executes a previously set of wrapped commands, arranged according to the type of the operations which have to be executed. The application program does not have a direct access to the resources of the fiscal device although it can detect data connected with the status of the fiscal device and the fiscal memory.

The fiscal device performs the following types of operations:

- Saves the serial number of the fiscal device and the number of the fiscal memory;
- Saves fiscal parameters, like the VAT numbers, IOSA number, the date of entering into exploitation, etc.;
- Saves information on the owner - name and address, etc.;
- Saves the daily turnover in the fiscal memory and generates a daily report;
- Saves the text from the fiscal receipts and daily reports in electronic journal;
- Generating reports on concluded sales and the content of the fiscal memory;
- Dispatching data to the application program.

TAXATION CATEGORIES AND CALCULATION OF VAT

Each concluded sale can be related to a certain taxation category (VAT) defining a tax rate, applicable to the base price used for the formation of the sale price. The fiscal printer can operate with a maximum of 5 taxation categories, which are most often indicated with the first letters of the language of the country, where the fiscal printer is used. *The Latin letters ('A', 'E', 'J', 'K', 'M').*

Each of the taxation groups has a set tax rate (in percent) which is expressed by a number not greater than 99.00 and by no more than two digits after the decimal point.

Part of the four standard categories may be forbidden by using *Enabled_taxes* in the **83(53H)** command. The commands for registering sales read the said four letters as a parameter.

The tax charged on the sale is calculated as follows:

$$\text{tax_amount} = \text{ROUND}(\text{sale_amount} * \text{tax_rate} / (1 + \text{tax_rate}))$$

ROUND function performs standard rounding to the smallest unit used currency (BGN cents or when working with integers).

Rounding is performed for each value that comes out of print. For example, the sale of allowance and basic rate allowance is rounded separately and summed to get the final price.

Net sales amount is calculated as follows:

$$\text{net_amount} = \text{sale_amount} - \text{tax_amount}$$

STATUS OF THE FISCAL DEVICE

The status of the fiscal device can differ. Shifting from one to another condition is not always possible. The control of the printer and the shifting between the different functions - when this is possible - is executed by the application program Host (PC), which must relate to the included protocol. If this protocol is not applied correctly the printer might enter into an undesirable status or to skip a given functional status, leading to an ERROR.

A) INITIAL STATUS

This is the functional status in which the date and the hour are set, the number of the fiscal memory is entered as well as the serial number and the code of the country where the device will be operated.

THE ABOVE-DESCRIBED OPERATIONS ARE PERFORMED PRIOR TO SELLING THE DEVICE TO THE CLIENT ONLY BY AN AUTHORISED SERVICE SPECIALIST!

The following commands must be performed in the order in which they are presented: 61 (3DH) and 91 (5BH).

B) STATUS WHEN PRESENTING THE DEVICE TO THE CLIENT

In this functional state the header and the footer are set - the beginning and the end of each receipt. The header contains information on the owner (name of the company, address etc.) while the footer is usually a short advertisement text.

The command **43 (2BH)** is performed as many times as is the number of printed lines.

C) TUTORIAL MODE

The fiscal printer is in this status prior to fiscalization. Receipts can be issued but it must be born in mind that they will bear the mark "non-fiscal". The generation of a daily turnover report with clear but it will not be saved into

the fiscal memory. A tax registration number is also entered but not into the fiscal memory and is subject to change. The clearing of the memory does not cause an entry in the fiscal memory. The clock may be set arbitrarily.

D) FISCALIZED PRINTER

In this functional status fiscal receipts may be issued and they will be marked “fiscal”. The daily report and clear is registered in the fiscal memory and the setting of the date is possible only ahead in relation to the last entry in the fiscal memory. The tax registration number is registered in the FM and cannot be changed from this point on. It is **IMPOSSIBLE** for the printer to exit the fiscal mode without changing the fiscal memory.

The IOSA number of the owner of the device must be known prior to fiscalization. Command **98 (62H)** after which the command **72 (48H)** must be executed.

E) IRRECOVERABLE ERROR IN THE FISCAL PRINTER

This is the status of the printer when a serious technical or logical mistake has occurred as well as in case of fiscal memory failure. After switching ON the device in this mode a bold sign „**FATAL ERROR: 4**” appears. The printer does not perform commands for opening fiscal receipts as well as documents, which save data entries into the fiscal memory. Only diagnostic commands and periodic reports can be executed. Clearing the RAM and placing a new fiscal memory module must be performed because the module used before the error is now switched to the **READ ONLY** mode. **ALL THESE OPERATIONS MUST BE PERFORMED BY AN AUTHORIZED SERVICE SPECIALIST.**

The events, which can bring the printer to this state, are:

- Impossibility to make a correct entry in the fiscal memory;
- Invalid control sum, TAX number, serial number, registration number of the fiscal memory or some of the entries which contain the tax rates.
- Unidentified format of the fiscal memory module;
- If during the fiscal memory check up (immediately after switch ON) more than three invalid control sums from a daily report fiscal entry are found.
- No communication with the tax terminal or another one is connected.
- No communication with electronic journal or locked one.
- Filled up electronic journal. It is unlikely to come given its size.

SWITCHES

The change of the “switches” is can be done with command **41 (29H)**

Switch	Turned off	Turned on
1	Normal mode of the display	Mode “Transparent display”
2	Not used	
3	Whole cutting	Semi-cutting
4	No automatic cutting	Automatic cutting off after a receipt
5	Work with 80 mm Paper roll	Work with 58 mm Paper roll
6	Sets the speed of the serial port	
7	Sets the speed of the serial port	
8	Sets the speed of the serial port	

Serial port communication speed

Switch 6	Switch 7	Switch 8	Speed (bps)
OFF	OFF	OFF	1200
ON	OFF	OFF	2400
OFF	ON	OFF	4800
ON	ON	OFF	9600
OFF	OFF	ON	19200
ON	OFF	ON	38400

OFF	ON	ON	57600
ON	ON	ON	115200

STATUS BITS OF THE FISCAL PRINTER

The current status of the device is coded in field 6 bytes long which is sent within each message of the fiscal printer. Description of each byte in this field::

Byte 0: General purpose

- 0.7 Reserved.
- 0.6 = 1 IOSA number is set.
- 0.5 = 1 General error - OR of all errors marked with ‘#’
- 0.4 = 1# Failure in printing mechanism
- 0.3 = 1 Customer display is not connected
- 0.2 = 1 The clock needs setting
- 0.1 = 1# Code of incoming command is invalid
- 0.0 = 1# Incoming data has syntax error

Byte 1: General purpose

- 1.7 Reserved.
- 1.6 = 1 Service in progress
- 1.5 = 1 Paper cover is open
- 1.4 = 1# Ram reset after power ON
- 1.3 = 1 Low battery level
- 1.2 = 1# RAM reset was performed
- 1.1 = 1# If command cannot be performed in the current fiscal mode
- 1.0 = 1 If during command some of the fields for the sums overflow. Status 1.1 will also be set and the command will not cause changes to the data in the printer.

Byte 2: General purpose

- 2.7 Reserved.
- 2.6 = 1 Reclamation receipt is open.
- 2.5 = 1 Non-fiscal receipt is open.
- 2.4 = 1 Coming end of electronic journal (2 MB free) (NEAR END OF EJ).
- 2.3 = 1 Fiscal receipt is open
- 2.2 = 1 There are less than 1 MB free in electronic journal (END OF EJ).
- 2.1 = 1 Paper near end.
- 2.0 = 1# No paper - valid for both paper rolls. If the flag is raised during a print-related command it will be rejected and the status of the printer will remain unchanged.

Byte 3: General purpose

- 3.7 Com port speed switch
- 3.6 Com port speed switch
- 3.5 Com port speed switch
- 3.4 Narrow paper
- 3.3 Autocutter
- 3.2 Half cut
- 3.1 Not used
- 3.0 Transparent display

Byte 4: The fiscal memory

- 4.7 Reserved.
- 4.6 = 1 Error in reading the fiscal memory
- 4.5 = 1 OR of all mistakes marked by ‘*’ from bytes 4 and 5.
- 4.4 = 1* Fiscal memory is fully engaged. Fiscal memory is fully engaged.
- 4.3 = 1 If there is space for not more than 50 entries in the FM.
- 4.2 = 1 No fiscal memory
- 4.1 = 1 Serial number is set
- 4.0 = 1* Error in writing in the fiscal memory

Byte 5: The fiscal memory

- 5.7 Reserved.
- 5.6 = 1 VAT number is set
- 5.5 = 1 Fiscal memory number is set
- 5.4 = 1 VAT rates are set at least once
- 5.3 = 1 Printer is fiscalized
- 5.2 = 1* The last fiscal memory record is not successful
- 5.1 = 1 Fiscal memory is formatted
- 5.0 = 1* Fiscal memory is in read only state

POWER SUPPLY CUT-OFF

The status of the printer at each particular moment is reflected in the so-called "status bytes". The application program must get information on the status of the printer when switched ON after a power cut-off. This is performed by the commands **76 (4AH)** and **103 (67H)**.

The application program must make a decision on the future behavior of the printer depending on its current status. It is guaranteed that the fiscal memory will not be affected by the power failure as well as that all accumulated sums in the operational memory of the device will be valid. If the power cut-off has occurred during a printing session, when switched ON, again the printer will print a line containing the text **"* POWER DROP *"** in an expanded bold type and will then complete the print.

PROGRAMMING AND READING OF ITEMS

The printer is working only with programmed items. For information regarding reading and writing of items check: command **107 (6Bh)**.

FISCAL RECEIPTS

First a fiscal receipt have to be opened, then a registration of sale should be performed. Next step is payment and after that the receipt have to be closed. Command flow: **48 (30H)**, **51 (33H)**, **52 (34H)**, **53 (35H)**, **55 (37H)** and **56 (38H)**.

At the end of the day a Z report have to be performed: Command **69 (45H)**.

GENERATING REPORTS

Reports are generated singularly by the fiscal printer upon receiving the respective command from the PC. In these reports the user's program will not add any changes to the appearance and content of the reports, i.e., they appear exactly as they have been defined in the fiscal printer. The following commands are used for the generation of reports:

50	(32H)	Report on changes in tax rates and decimal points
69	(45H)	Daily financial report with or without clear
79	(4FH)	Short financial report from date to date / from number to number of the respective fiscal entries.
73	(49H)	Detailed fiscal memory report by closure number / by date of entry.
105	(69H)	Operators report
111	(6Fh)	Programmed and sold items report

LOW LEVEL PROTOCOL

A) PROTOCOL TYPE - MASTER (HOST) / SLAVE

The fiscal printer performs the commands sent by the Host and returns messages, which depend on the result.

The fiscal printer cannot instigate asynchronous communications itself. Only responses to commands from the Host are sent to the Host. These messages are either wrapped or single byte control codes. The fiscal printer maintains the communication via the RS232 serial connection at baud rates of 1200, 2400, 4800, 9600, 19200, 38400, 57600 and 115200 b/s, 8N1. The baud rate is set by adjusting the configuration bits 1,2 and 3. Supported is and a USB connection which is activated automatically after connecting the printer to the PC through USB cable.

B) SEQUENCE OF THE MESSAGES

Host sends a wrapped message, containing a command for the printer.

FP executes the requested operation and response with a wrapped message.

Host has to wait for a response from the printer before to send another message.

The protocol uses non-wrapped messages with a length one byte for processing of the necessary pauses and error conditions.

C) NON-WRAPPED MESSAGES - TIME-OUT

When the transmitting of messages from the Host is normal, Slave answers not later than 60 ms either with a wrapped message or with a 1 byte code. Host must have 500 ms of time-out for receiving a message from Slave. If there is no message during this period of time the Host will transmit the message again with the same sequence number and the same command. After several unsuccessful attempts Host must indicate that there is either no connection to the fiscal printer or there is a hardware fault.

Non-wrapped messages consist of one byte and they are:

A) NAK 15H

This code is sent by Slave when an error in the control sum or the form of the received message is found. When Host receives a NAK it must again send a message with the same sequence number.

B) SYN 16H

This code is sent by Slave upon receiving a command which needs longer processing time. SYN is sent every 60 ms until the wrapped message is not ready for transmitting.

D) WRAPPED MESSAGES

a) Host to printer (Send)

<01><LEN><SEQ><CMD><DATA><05><BCC><03>

b) Printer to Host (Receive)

<01><LEN><SEQ><CMD><DATA><04><STATUS><05><BCC><03>

Where:

- <01> Preamble.
1 byte long. Value: 01H.
- <LEN> Number of bytes from <01> preamble (excluded) to <05> (included) plus the fixed offset of 20H.
Length: 1 byte. Value: 20H - 7FH.
- <SEQ> Sequence number of the frame.
Length : 1 byte. Value: 20H – FFH.
The fiscal printer saves the same <SEQ> in the return message. If the FP gets a message with the same <SEQ> as the last message received it will not perform any operation, but will repeat the last sent message.
- <CMD> The code of the command.
Length: 1 byte. Value: 20H - 7FH.
The fiscal printer saves the same <CMD> in the return message. If the printer receives a non-existing code it returns a wrapped message with zero length in the data field and sets the respective status bit.
- <DATA> Data.
Length: 0-213bytes for Host to printer, 0-218 bytes for Printer to Host. Value: 20H – FFH ; .
The format and length of the field for storing data depends on the command. If the command has no data the length of this field is zero. If there is a syntax error the respective status bit is established in the data and a wrapped message is returned with zero field length.
- <04> Separator (only for printer-to-Host messages)
Length: 1 byte. Value: 04H.
- <STATUS> The field with the current status of the fiscal device.
Length: 6 bytes. Value: 80H-FFH.
- <05> Postamble
Length: 1 byte. Value:05H.
- <BCC> Control sum (0000H-FFFFH)
Length: 4 bytes. Value of each byte: 30H-3FH.
The sum includes between <01> preamble (excluded) to <05>. Each digit from the two bytes is sent after 30H is added to it. For example the sum 1AE3H is presented as 31H, 3AH, 3EH, 33H.
- <03> Terminator

Length: 1 byte. Value: 03H.

MESSAGE COMPOSITION, SYNTAX, AND MEANINGS

- a) The data field depends on the command.
- b) The parameters sent to the printer may be separated with a comma and/or may have a fixed length.
- c) The comma between the parameters shows that it is mandatory.
- d) When the parameters are closed by <> they are mandatory although the brackets themselves are not present in the message. When a given parameter is closed in [] it is not mandatory - the bracket themselves are also not present in the message. When parameters are separated by ‘|’ symbol, only one of them may present in the input data.

The symbols with ASCII codes under 32 (20H) have special meanings and their use is explained whenever necessary. If such a symbol has to be sent for some reason (for example in an ESCAPE-command to the display) it must be preceded by 16 (10H) with an added offset 40H.

Example: when we write **2500, 100, Text** for the data field then in that field there will be **2D 32 35 30 2C 31 30 30 2C 54 65 78 74** where each hexadecimal digit is an ASCII value.

LIST OF FISCAL COMMANDS - FUNCTIONAL ARRANGEMENT

This section contains a list of the fiscal printer commands arranged in groups depending on their functions:

INITIALIZATION

22H	(34)	Registering of service contract
29H	(41)	Saving the settings of the configuration switches in the flash memory
2BH	(43)	Setting the HEADER and the FOOTER and printing options
3CH	(60)	Summer / Winter time setting
3DH	(61)	Date and hour
48H	(72)	Fiscalization
53H	(83)	Setting the multiplier, decimal points, name of currency and tax rates.
57H	(87)	Service RAM reset .
58H	(88)	Registering of service intervention
5BH	(91)	Programming the manufacturer's serial number
5BH	(92)	Programming the Fiscal memory serial number
60H	(96)	Programming IOSA number
62H	(98)	Setting of TAX numbers
65H	(101)	Programming operators passwords
66H	(102)	Programming operators name
68H	(104)	Clearing the data for the operators
6BH	(107)	Programming and reading of items
73H	(115)	Loading graphic logo
7EH	(126)	SD card formatting

SALES

30H	(48)	Opening a fiscal receipt
33H	(51)	Sub total
34H	(52)	Registering a sale and showing it on the display
35H	(53)	Sum calculation (tender).
37H	(55)	Entering customer information.
38H	(56)	Closing a fiscal receipt

DAILY CLOSURE

45H	(69)	Daily financial report (fiscal closure)
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REPORTS

32H	(50)	Report on changed tax rates and decimal points through the period
49H	(73)	Detailed report of the fiscal memory (from number to number)
4FH	(79)	Short report of the fiscal memory (from number to number)
69H	(105)	Operators report
6FH	(111)	Items report

INFORMATION TO HOST

3EH	(62)	Turns back the date and the hour
40H	(64)	Information on the last fiscal entry
41H	(65)	Information on daily taxation
44H	(68)	Number of the free entries in the fiscal memory
4AH	(74)	Receiving the status bytes
4CH	(76)	Status of the fiscal transaction
51H	(81)	Returning the count of the sold items for the current receipt.
5AH	(90)	Return diagnostic information
61H	(97)	Receiving the tax rates
63H	(99)	Tax registration number
67H	(103)	Information on the current receipt
6EH	(110)	Receiving information on the sums arranged according to the type of payments
70H	(112)	Receiving information on the operator
71H	(113)	Returning the date and time for the send data or report.
72H	(114)	Receiving information on a fiscal entry or selected period.
74H	(116)	Reading a fiscal memory block.
75H	(117)	Reading operating memory block
76H	(118)	Firmware reading
77H	(119)	Returning the SD card (electronic journal) information
7AH	(122)	Reading documents from the SD card (electronic journal)
7BH	(123)	Checking documents of electronic journal

OTHER

26H	(38)	Opening a non-fiscal receipt
27H	(39)	Closing a non-fiscal receipt
2AH	(42)	Printing of a non fiscal text
2CH	(44)	Paper feeding
2DH	(45)	Paper cutting

DISPLAY

21H	(33)	Clearing of the display
23H	(35)	Showing test (lower row).
2FH	(47)	Showing test (upper row).
3FH	(63)	Displaying date and time.
64H	(100)	Display – full control

OTHERS

46h	(70)	Internal debiting and crediting (serve in and serve out)
47H	(71)	Print diagnostic information
50H	(80)	Sound signal
59H	(89)	Programming the manufacturing test area
6AH	(106)	Drawer kick-out
6DH	(109)	Printing a copy of a receipt

DETAILED DESCRIPTION OF THE COMMANDS

Note: All examples involve working with fiscal printer configured for Bosnia and Herzegovina.

20h (32) INFORMATION ABOUT LAST REGISTERED ERROR

Data fields: No data
Response: <Cmd>,<ErrCode>,<ErrTime>

Cmd – command number

ErrCode – error code

ErrTime – date and time of the last registered error in format: DD-MM-YYYY hh:mm:ss

Returns information for the error in last non successful command.

If there is no error after last RAM reset <Cmd> and <ErrCode> have value 0.

Information about last error is stored till RAM reset or new error occur.

Description of corresponding error codes can be found in Appendix 3.

21h (33) CLEARING OF THE DISPLAY

Data fields: No data
Response: No data

Sends a command to clear the display. If it is open fiscal receipt and Sw4 is OFF, will be cleared only the bottom row.

22h (34) REGISTERING OF A SERVICE CONTRACT

Data fields: [*<EndDate>* | *<Print>*]
Response: *Resp*

EndDate End date of the service contract in format **DD-MM-YY**. Set new end date of maintenance. Response is **RecLeft,DateTime,EndDate**.

Print One byte with value 'P'. Causes printing a report asked so far expiry dates of maintenance. Response is 'P' or 'F'.

RecLeft Count of free fields for service contracts in FM. Total capacity is for 20 such records.

DateTime Date and time of the record (command execution) in format:
“**DD-MM YY hh:mm:ss**”

EndDate Expire date of maintenance in format: „**DD-MM-YY**”.

Without arguments the command returns: **RecLeft,DateTime,EndDate**.

Command sets expiry date of service support. If the current date matches or is later than the last set after the printer is switched on and before X and Z-report is printed message: „**POTREBE SERVISIRANJA**”.

23h (35) DISPLAYING TEXT ON LOWER ROW OF THE DISPLAY

Data fields: *Text*
Response: *No data*

Text Text up to 20 characters that is sent directly to the display. Before it sends a command to position and clear the bottom line.

24h (36) LAN SETTINGS

Data fields: [*Option*, [*fpIP, fpSubnetMask, fpPort*], *Gateway*], *DNS*]]] |
[fpPort] | [*servIP,servPort*]] [*MACAddr*]]

Response: *[...]*

Option ‘0’: Without DHCP static settings *fpIP, fpSubnetMask, fpPort*], *Gateway*], *DNS*]].

‘1’: With DHCP and **fpPort**.

‘3’: *MACAddr*.

fpIP, fpSubnetMask, Gateway, DNS, servIP

4 digits from 0 to 255 separated with point, representing IP.

fpPort,servPort Digit from 1 to 65535 representing TCP port.

MACAddr Till 12 hexadecimal symbols representing MAC address of the device. This sub command is working only when service jumper is present!!!

If there are no additional parameters, the command will return current settings.

26h (38) OPENING OF NON-FISCAL RECEIPT

Data fields: *No data*
Response: *No data*

Fiscal Printer performs the following actions:

- Prints beginning of non-fiscal receipt.

The command can not be executed if:

- Fiscal memory is not formatted.
- There is open fiscal receipt.
- Non-fiscal receipt is already open.
- Clock is not set.

27h (39) CLOSING NON-FISCAL RECEIPT

Data fields: *No data*
Response: *No data*

Fiscal Printer performs the following actions:

- Prints END of non-fiscal receipt.

If raised S1.1 command is executed because is not currently open non-fiscal receipt.

29h (41) SAVE THE CURRENT SETTINGS IN FLASH MEMORY

Data fields: *No data*
Response: *ExitCode*

ExitCode One byte with value: 'P' – success; 'F' – error.

Printer saves the following data:

- Print options
- Print density
- Pulse length to open the drawer
- Graphical logo
- Header and Footer

When RAM reset occurs these data will be restored from flash memory.

2Ah (42) PRINTING OF FREE TEXT IN NON-FISCAL RECEIPT

Data fields: *Text*
Response: *No data*

Text Text up to 36 characters. Characters after the 36th are cut.
Text will be rejected if there are more than 5 '-' or more than 5 '='.

If raised S1.1, then is not currently open non-fiscal receipt and the text is not printed

2Bh (43) SETTING OF THE HEADER AND FOOTER AND PRINT OPTIONS

Data fields: *<Item><Text>*
Response: Depends on field data

HEADER consists of up to six lines of text to be printed at the beginning of each fiscal or non-fiscal receipt.

FOOTER consists of up to four lines of text to be printed at the end of each receipt.

HEADER and **FOOTER** are centered automatically.

This command must be executed 8 times to set all lines **HEADER** and **FOOTER**.

Item One symbol with the following meaning:

'0' till '9' is the number of the line that is set. As **HEADER** lines are numbered from 0 to 5, and those of **FOOTER** - 6 to 7.

'A' Sets the current Items name length in characters. Two bytes with possible values between 22 and 36. Default value is 27.

Command can be executed only if no programed items in the printer.

Name characters	Items count
22	151900
23	146800
24	141800
25	136800
26	132700
27	128700
28	124700
29	120700
30	117700
31	113600
32	110600
33	107600
34	105600
35	102600
36	099500

- 'C' Enable / disable automatic cut off paper after each document.
- 'D' Sets the current print density. One byte with value '1' till '5'. The default value is "3" (normal print) values "0" and "1" are lighter and '4' and '5' darker. Higher density can lead to slower printing.
- 'L' Enables or disables printing of graphic logo. The logo is defined with command **115**.
- 'X' Enables or disables opening the drawer in payment or service serve in / serve out.
- 'I' Makes it possible to read the values set earlier by command 43 after the letter **I** is just another symbol that matches any of the above.

Text Text up to 36 characters as:
 If <Item> is a number from "0" to "9" - the text of which consists the line.
 If <Item> = 'C' - one character "0" or "1", as "0" prohibits and "1" allows the automatic cutting after receipt.
 If <Item> = 'D' - a symbol of '1' to '5' - the current print density.
 If <Item> = 'L' - A symbol values "0" or "1", which enables or disables the graphic logo.
 If <Item> = 'X' - a symbol "0" or "1", as "0" prohibits a "1" allows the automatic opening of the drawer.

2Ch (44) **ADVANCING THE PAPER**

Data fields: *[Lines[,Option]]*
Response: *No data*

Lines The number of rows that can be advanced paper. It must be a positive number not greater than 99 /1 or 2 bytes/. If the parameter is missing, it is understood 1 row.

Option Determines which paper to move:
 '0' No effect.
 '1' Moves only receipt paper.
 '2' Moves only journal paper.
 '3' Moves both paper rolls.

If the second parameter is missing, it is understood "1" (only receipt paper).

Note!!! The Command is left in this type of compatibility.

2Dh (45) **PAPER CUT OFF**

Data fields: *No data*
Response: *Result*

Result The result of executing the command:

- 'P' Cutting successful.
- 'F' The cutting mechanism is blocked.

Causing the cutting of the paper. It should be borne in mind that the program should take care of the movement of paper with at least two rows, otherwise it is possible to cut the end of the receipt. If the printer is in "automatic cutting" it positions the paper before cutting, and the command is redundant.

By blocking of the cutting mechanism must be removed the paper (if any) of the cutter, and to execute the command. This will retract the knife down completely.

2F (47) DISPLAYING TEXT ON UPPER ROW OF THE DISPLAY

Data fields: *Text*
Response: *No data*

Text Text up to 20 characters that is sent directly to the display. Before it sends a command to position and clear the upper line.

30h (48) OPENING THE FISCAL (CLIENTS) RECEIPT

Data fields: *<IOSA>,<OpCode>,<OpPwd>,<TillNmb>[,RecNo]*
Response: *TotRec,FiscRec,ReklRec*

IOSA IOSA number /16 digits/
OpCode Operator's number /1 till 32/
OpPwd Operator's password /4 till 8 digits/
TillNmb Number of the point of sale (integer of 5 digits)
RecNo Integer of 6 digits. If you have it, the open receipt type is "Return" and it is the number of the receipt of which is returned goods.
TotRec Total number of issued receipts from the last end of the day till now. / 4 bytes /
FiscRec Total number of issued receipts till now. / 4 bytes /
ReklRec Number of all issued receipts of type "Return" till now. / 4 bytes /

Fiscal Printer performs the following actions:

- Prints **HEADER**.
- Prints TAX numbers.
- Returns the number issued daily bills of different types.

Command will not be successful if:

- Is open fiscal or non-fiscal receipt.
- Already issued the maximum number of receipts per day.
- Fiscal memory is full.
- Fiscal memory is damaged.
- No operator's code or operator's password or number of the point of sale.
- Tax numbers are not set.
- The operator's password is wrong.
- The clock is not set.
- Not connected display.

After entering of three wrong operator's passwords the printer will block and must be switched off and on for the continuation of work.

32h (50) TAX RATES ENTERED DURING THE ACCOUNTED PERIOD

Data fields: *[<Start>,<End>]*
Response: *Data*

F – if no tax rates for the period have been found or in case of error.
PAA,EE,JJ,KK,MM,DDMMYY if are found rates. The active rates are listed out as well as the date of their entry. If there are unused groups (closed with Rates_fewer) for them instead of a rate in percent a 'DT' is returned (Disabled tax).

Start The starting date for the period – DDMMYY[hhmm] /6 or 10 bytes/.
End The end date for the period – DDMMYY[hhmm] /6 or 10 bytes/.

When **Start** and **End** are entered the comma is mandatory. In case the data field is empty only information on the last entered rates is returned.

If not set hours and minutes are accepted starting 00:00 and end 23:59.

The command prints a report on the changes made in the decimal points and tax rates during the selected period.

33h (51) SUBTOTAL

Data fields: *<Display>*
Response: *SubTotal,TaxA,TaxE,TaxJ,TaxK,TaxM*

Display One byte that if '1' value of subtotal will be displayed.

SubTotal Amount for the current fiscal receipt / 10 bytes /

<i>TaxA</i>	Amount in tax category A / 10 bytes /
<i>TaxE</i>	Amount in tax category E / 10 bytes /
<i>TaxJ</i>	Amount in tax category J / 10 bytes /
<i>TaxK</i>	Amount in tax category K / 10 bytes /
<i>TaxM</i>	Amount in tax category M / 10 bytes /

Calculates the sum of all sales recorded in the fiscal receipt. Optionally, the amount can be shown on the display. Returns to the PC calculated amount and accumulated so far amounts for each tax category.

34h (52) REGISTRATION OF SALE AND DISPLAY

Data fields:	<S>[Sign]<PLU>[*<Qwan>][,Perc]
	or
	<VF/VL>
Response:	<i>No data</i>
<i>S</i>	Letter 'S'.
<i>VF</i>	Returns (void) the first sold in the receipt item.
<i>VL</i>	Returns (void) the last sold in the receipt item.
<i>Sign</i>	One byte with value '+' or '-'.
<i>PLU</i>	Product Code.
<i>Qwan</i>	Optional parameter that specifies the amount of goods. The default is 1.000 . Up to 8 significant digits.
<i>Perc</i>	This is an optional parameter that indicates the value of the surcharge or discount (depending on the sign) in percent over the current sale. Possible values are -99.00% to 99.00% . Accepted to 2 decimal places.

Fiscal Printer performs the following actions:

- Prints the name of the item along with the price and the tax group code.
- The price of the item is added to the accumulated amounts in the registers in RAM. In case of overflow are setted the relevant bits of the status byte.
- If there is a discount or surcharge, it is printed on a separate line and add in selected registries printer.
- Price of the goods is shown on the top, and the description and the bottom line of the display.

Command will not be successful if:

- Is not open fiscal receipt.
- Indicated item is not defined.
- Already made the maximum number of sales for a single receipt (1024).
- Command "**Total**" is executed successfully.
- Amount under any tax groups is negative.
- The amount of surcharges or discounts in the receipt is negative.
- Not connected display.

35h (53) CALCULATION OF A TOTAL

Data fields:	[<PaidMode>][<Sign>Amount]
Response:	<PaidCode><Amount>
<i>PaidMode</i>	Optional code indicating the mode of payment. Can have the following values: 'P' - Payment in cash (the default); 'D' - Payment with card; 'C' - Payment with cheque; 'V' - Payment with "Virman" Depending on the code amounts are accumulated in the various registers and can be obtained in the daily report.
<i>Sign</i>	One byte with value '+' indicating the sign of Amount (the amount paid).
<i>Amount</i>	The amount to be paid / 8 significant digits /.
<i>PaidCode</i>	One byte - the result of the command. 'F' Error. 'E' Calculated sum is negative. Payment can not be made and Amount will contain negative in amount. 'D' If the amount paid is less than the amount the receipt. The residue of payment is returned to Amount . 'R' If the amount paid is greater than the sum of the receipt. Will print the message " CHANGE " and change will be returned in Amount . 'I' Amount in any tax group was negative and therefore an error has occurred. In Amount returns the current amount.
<i>Amount</i>	Up to 9 digits with sign. Depends on PaidCode .

This command causes the calculation of the amount of the fiscal receipt, amount printing with special font and displaying it on the display. Upon successful execution of the command is generated the pulse to open drawer. If there is no input, the printer automatically pays the entire amount available in cash.

Command will not be successful if:

- Is not open fiscal receipt.
- Cumulative amount is negative.
- If any of the amounts accumulated on tax groups is negative.

After successful execution of the command, fiscal printer will not perform command **52** within the open receipt, however can perform more commands **53**.

Note: Error codes 'E' and 'T' will never get in this version of the printer, because the command **52** (Registration of sale) will not allow negative amounts.

37h (55) INSERTING OF INFORMATION FOR CUSTOMER IN INVOICE

Data fields: <IBK>,<Ln1><Tb><Ln2><Tb><Ln3>[<Tb><Ln4><Tb><Ln5><Tb><Ln6>]
Response: *No data*

IBK Customer ID (13 characters)
LnX Line with textual information (up to 36 characters per line, or 200 total).
Tb A character with ASCII code 09h (tab).

Command is used for entering customer information in an invoice. Must be set **at least 3** and **no more than 6** lines of text to be printed centered in the receipt.

Command can be executed after command **53** in which causes printing of customer information, otherwise print a blank line.

38h (56) CLOSING OF A FISCL RECEIPT

Data fields: *No data*
Response: *TotRec,FiscRec,ReklRec*

TotRec Total number of issued receipts from the last end of the day till now. / 4 bytes /
FiscRec Number of all issued fiscal receipts from the last end of the day till now. / 4 bytes /
ReklRec Number of all issued fiscal receipts of type "Return" from the last end of the day till now. / 4 bytes /

Accumulated amount of the fiscal receipt is added to the daily amounts on the RAM registers.

Command will not be successful if:

- Is not open fiscal receipt.
- Command **53 (35h)** is not executed successfully.
- Not paid the full amount of the receipt.

3Ch (60) CORRECTION SUMMER / WINTER TIME

Data fields: <Sign>
Response: *No data*

Sign One byte with value '0' or '1'.
1 Transition to daylight saving time (one hour ahead)
0 Transition to winter time (one hour back)

Command can be executed only once a year with each value of the argument.

3Dh (61) SETTING DATE AND TIME

Data fields: <DD-MM-YY><space><HH:MM[:SS]>
Response: *No data*

Can not establish a date earlier than the date of the last entry in the fiscal memory. It is planned to work until 2099 inclusive. After RAM RESET command must be executed in order to continue normal operation. Arbitrary clock adjustment is possible only after RAM reset or in Service mode. During normal operation, the update can be done only once after a daily report with clearing and within +/- an hour from the current value.

Because of the clock specifics when adjusting will be ignored seconds - you can check the nearest minute!

3Eh (62) READING OF CURRENT DATE AND TIME

Data fields: *No data*
Response: <DD-MM-YY><Space><HH:MM:SS>

3Fh (63) DISPLAYING OF DATE AND TIME

Data fields: *No data*
Response: *No data*

On the bottom line of the display shows the printer's current date and time in format

DD.MM.YYYY. HH:MM:SS

40h (64) INFORMATION FOR THE LAST FISCAL RECORD

Data fields: *No data*
Response: *N, TaxX, ..., Date or ErrCode*

N The number of the last fiscal record - to 4 digits.
TaxX The amounts for each tax group for different types of receipts in the following order:
TaxA, TaxE, TaxJ, TaxK, TaxM from fiscal receipts and
TaxA, TaxE, TaxJ, TaxK, TaxM from return receipts.
Date The date of the fiscal record - 12 bytes /DDMMYYhhmmss/.
ErrCode One byte with value 'F' if there are no fiscal records.

Command leads to the transmission of information from the last record in the fiscal memory to the computer.

41h (65) INFORMATION ON THE AMOUNTS OF THE DAY

Data fields: *No data*
Response: *N, TaxX...*

N The number of the next fiscal record - to 4 digits.
TaxX The amounts for each tax group for different types of receipts in the following order:
TaxA, TaxE, TaxJ, TaxK, TaxK from fiscal receipts;
TaxA, TaxE, TaxJ, TaxK, TaxK from return receipts;
 A total of 11 integers.

Return amounts for each tax group from the end of the day to the moment of receiving the command.

44h (68) COUNT OF FREE FIELDS IN FISCAL MEMORY

Data fields: *No data*
Response: *Logical, Physical*

Logical The count of logical fields for fiscal records / 4 bytes /.
Physical Not used. Repeat the previous record.

Returns the count of free fields in the fiscal memory provided for recording information on a daily report with clearing.

45h (69) DAILY CLOSURE (WITH AND WITHOUT CLEARING)

Data fields: *[<Option>][N][A]*
Response: *Closure, Total, Reclaim Total, TaxX...*

Option Optional parameter driving the type of generated report:
 '0' Do not print the contents of the registers of serve in and serve out. Prints a daily report with clearing (Z-report). Accumulated on tax groups are recorded in the fiscal memory, then reset.
 '2' Make a daily report without clearing (I.e. Recording is not performed in the fiscal memory and registers is not reset).
N The presence of this symbol prohibits clearing the accumulated data for operators during daily closure with clearing.
A The presence of this symbol at the end of the data clears the accumulated amounts of sales items (not deleted items themselves).

Closure Number of the fiscal record - to 4 bytes.
Total Total for the day from fiscal receipts.
ReclaimTotal Total for the day from return receipts.
TaxX The amounts for each tax group for different types of receipts in the following order:
TaxA, TaxE, TaxJ, TaxK, TaxK from fiscal receipts;
TaxA, TaxE, TaxJ, TaxK, TaxK from return receipts;
 A total of 10 integers.

46h (70) SERVE IN AND SERVE OUT

Data fields: *[<Amount>]*
Response: *ExitCode, CashSum, ServIn, ServOut*

Amount	The amount of registration (up to 9 bytes). Depending on the sign of the number is interpreted as an serve in or serve out.
ExitCode	<p>'P' Query is executed. If the amount requested is non-zero, the printer prints the official receipt for the registration of the operation.</p> <p>'F' Query is refused. This happens if:</p> <ul style="list-style-type: none"> • Cash available is less than the requested serve out. • There is open fiscal or non-fiscal receipt.
CashSum	Cash availability. Apart from this command increases the amount and in any cash payment.
ServIn	The sum of all the commands "serve in".
ServOut	The sum of all the commands "serve out".

Change the content of the register of cash available. Depending on the sign of the sum it accumulates in the register as serve in or serve out. The information is not recorded in the fiscal memory and is available until the daily closure with clearing. Upon successful execution of the command is generated the pulse to open drawer.

47h (71) PRINT DIAGNOSTIC INFORMATION

Data fields: *No data*
Response: *No data*

This command prints the service receipt of diagnostic information.

Command will not be executed in an open receipt and when no paper. Can be caused by pressing the <FEED> button when the printer switch on.

48h (72) FISCALIZATION

Data fields: *<Serial>*
Response: *ErrCode*

Serial The serial number of the device. Must match the specified in command **5Bh**. Status **5.3** is used to determine whether the command has been successful.
ErrCode Error code or 'P' on success.

Command will not be successful if:

- The serial number is not valid.
- Fiscal printer is already fiscalised.
- Not programmed serial number.
- The serial number is not the same as the set.
- Has opened receipt.
- Not set tax rates.
- Not set the clock.
- Not set IOSA number.
- When trying to fiscalize printer without SD card.

Performs device fiscalization. After successful execution of the command is not possible to return the device in not fiscal condition.

Tax numbers are recorded in the fiscal memory with the current date and time. All registers are cleared. Reset the articles and data for operators. If the printer has an SD card, it is deleted and formatted.

49h (73) PRINTING THE FISCAL MEMORY BY RECORD NUMBER

Data fields: *<Start>,<End>,<Option>*
Response: *No data*

Start Start number of the fiscal record. /4 bytes/
End End number of the fiscal record. /4 bytes/
Option What to include in the report.
'0' Print only number, date and time of each daily report.
'1' Print the count of issued receipts for each daily report.

This command leads to print a detailed report of the fiscal memory by number in the specified range.

4Ah (74) STATUSES

Data fields: *[Option]*
Response: *<S0><S1><S2><S3><S4><S5>*

Option One byte with the following meanings:
W: First waiting to print all printer 's buffers.
X: No wait for the printer.

4Ch (76) STATUS OF FISCAL TRANSACTION

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

Option = 'T'. If this parameter is specified the command will return information about the current state of the sum due for payment by the customer.
Open One byte, which is "1" if it is open fiscal or non-fiscal receipt (which it can be understood from the status bits) and "0" if no open receipt.
Items The number of sales recorded on the the current or last fiscal receipt. /4 bytes/
Amount The sum of the last fiscal receipt. 9 bytes with a sign.
Tender The sum or the last receipt. 9 bytes with a sign.

This command allows the PC application to determine the status of the printer, and if necessary to recover and finish the fiscal operation interrupted and untimely emergency, such as when off power supply.

4Fh (79) CUMULATIVE AMOUNTS OF FISCAL MEMORY FOR A PERIOD

Data fields: *<Start>,<End>*
Response: *No data*

Start Start date - 6 or 12 bytes (DDMMYY[h:mm:ss])
End End date - 6 or 12 bytes (DDMMYY[h:mm:ss])

Command leads to the printing of periodic condensed financial statements by date.
 If not set hour and minute Start taken 0:00:00 hours for End 23:59:59 hours.

50h (80) MAKING THE SOUND SIGNALS

Data fields: *[<SoundData>]*
Response: *No data*

Command is used to issue a series of tones with frequency and duration. Data is in a format similar to the recording of notes and can have any length (not more than that required by the protocol - 218 bytes). The first invalid character interrupt the command. If no input issue sounds with a frequency of 2 kHz and duration of 300 ms. If there is input data, they need to have a sequence of the following subcommands:

- Note: Latin capital letter A with a value of 'A' till 'G'.

'C'	do
'D'	re
'E'	mi
'F'	fa
'G'	sol
'A'	la
'B'	si

If immediately after the note follows the symbol '#', it increases by one semitone (hash). If after the note follows the symbol '&', it is lowered by a half step (B flat).

- Pause: The symbol interval (ASCII 20h).

After note or rest may have one or more bytes indicating the length. Valid characters are "0" to "5", they have the following meaning:

'0'	base duration
'1'	base duration * 2
'2'	base duration * 4
'3'	base duration * 8
'4'	base duration * 16
'5'	base duration * 32

If there are several durations one after another, they are together.

- Switching to a higher range: the symbol '+'.
 - Switching to a lower range: the symbol '-'.
 - Setting the tempo: The symbol '^' followed by a number. The figure defines the percentage duration of notes and intervals compared to the base. Allowable:

'1'	200 %
'2'	175 %
'3'	140 %
'4'	120 %
'5'	100 %
'6'	80 %
'7'	60 %
'8'	50 %
'9'	40 %

- Return to the 1 range (it is by default). The symbol '@'. Tone 'la' for it is 440 Hz.

Playing of the sent sequence is background and the printer can execute commands at the same time.

51h (81) SALES INFORMATION IN RECEIPT

Data fields: *No data*
Response: *Sales, Voids*

Sales Number of sales so far in the receipt.
Voids Number of reversals (void) so far in the receipt.

53h (83) ESTABLISHMENT OF DECIMALS NAME FOR THE CURRENCY AND PROHIBITED TAX GROUPS

Data fields: *[Decimals, TaxFlags, TaxA, TaxE, TaxJ, TaxK, TaxM]*
Response: *Decimals, TaxFlags, TaxA, TaxE, TaxJ, TaxK, TaxM*

Decimals This is a byte with a value between 0 and 2 and shows the place where to put the decimal point.
TaxFlags 5 bytes with value "0" or "1" - set a tax groups. "1" corresponds to an authorized group '0' forbidden.
TaxX The tax rate in % for each tax group - float from 0.00 to 99.00 with no more than two decimal places. Must assign values to all rates, even prohibited. Values are not used banned and irrelevant, but for definiteness to 0%.

If you do not set anything in the data FP returned currently valid values.
 If one of the parameters must be specified, then the other must be set.

56H (86) RETURNING OF THE DATE OF LAST ENTRY IN THE FISCAL MEMORY

Data fields: *[Time]*
Response: *Date*

Date The date of the last (the late) entry into the fiscal memory in format:
DD-MM-YYYY

Time One byte with value "T". If is specified **Date** will be in format:
DD-MM-YYYY<Space> HH:MM:SS

57h (87) SERVICE RAM RESET

Data fields: *No data*
Response: *No data*

Command causes a reset of the RAM. Is permitted only when placed service jumper.
 If the printer is fiscalized in fiscal memory is saved RESET record of type 'C' with the current date and time.

58h (88) REGISTRATION OF SERVICE INTERVENTION

Data fields: *[<Type>]*
Response: *No data*

Command registers the start and end of service intervention with the current date and time. Is permitted only when placed service jumper.

If the argument "Type" is present, is registered with the beginning of the service intervention of this type:

- a) 'N' - neosnovano zahtjevano servisiranje;
- b) 'T' - tehnički pregled;
- c) 'B' - popravka neispravnosti bez skidanja programske i fiskalne plombe;
- d) 'P' - popravka neispravnosti sa skidanjem programske plombe;
- e) 'F' - popravka neispravnosti sa skidanjem fiskalne plombe;
- f) 'O' - popravka neispravnosti sa skidanjem programske i fiskalne plombe;
- g) 'K' - izmjena sadržaja programske memorije;
- h) 'M' - zamjena fiskalnog modula;
- i) 'I' - izmjena sadržaja programske memorije i zamjena fiskalnog modula.

If the argument is missing, is registered end of the intervention.

WARNING! Beginning and end of the service intervention can not be separated by a daily closure. If there is a beginning of the service intervention without end, the printer will refuse to execute a command '69' with an argument '0'.

59h (89) PROGRAMMING OF PRODUCTION TEST AREA

Data fields:	<i><Test></i>
Response:	<i>Result,Free</i>
Test	One byte. If "T" shall be accompanied by an entry in fiscal memory, otherwise there is no record, but only return parameters.
Result	One byte: 'P' Success. 'F' Error.
Free	The number of remaining free blocks entry of such type. /4 bytes/

This command is executed to test the fiscal memory.

Test block for recording in the fiscal memory: *55h,AAh,33h,CCh,5Ah,A5h,3Ch,C3h*.

If raised S1.1 fiscal memory is not formatted or is in **READONLY** mode.

5Ah (90) RETURN OF DIAGNOSTIC INFORMATION

Data fields:	<i><Calc></i>
Response:	<i><FwRev><Sp><FwDate><Sp><FwTime>,<Chk>,<Sw>,<Country>,<Ser>,<FM></i>
Calc	If is "1" is calculated checksum of the fiscal memory. /1 byte/
FwRev	Version of the software. /6 bytes/
Sp	Space. /1 byte/
FwDate	The date of the software DDMmmYY . /7 bytes/
Sp	Space. /1 byte/
FwTime	Time of the software HHMM . /4 bytes/
Chk	Checksum EPROM. 4 byte string in hexadecimal. For example, if the checksum is 214Ah , it will return 32h, 31h, 34h, 41h .
Sw	Software switches Sw1 to Sw8. 8 byte string with "0" or "1"
Country	Number of the country. /1 or 2 bytes/
Ser	Serial number /8 bytes/
FM	Fiscal module number /8 bytes/

5Bh (91) PROGRAMMING THE SERIAL NUMBER OF THE FISCAL PRINTER AND THE NUMBER OF THE COUNTRY

Data fields:	<i>Country,Serial</i>
Response:	<i>Result,CountryStr</i>
Country	This is a byte that indicates the country of operation. The value is set as ASCII code and means: 0 – Русия 1 – Гърция 2 – Украйна 3 – Англия 4 – Полша 5 – Унгария 6 – България 7 – Черна гора 8 – Сърбия 9 – Румъния 10 – Босна и Херцеговина
Serial	These are 8 bytes - serial number, which must be contained two Latin letters and six numbers. Latest should always be 0.
Result	One byte: 'P' - no errors; 'F' - errors.
CountryStr	String containing the name of the country. For example, " B i H "

Command can be executed only in the service mode of the printer and done in manufacturing company. The printer provides to the client with a pre-recorded country and serial number. The serial number can not be changed.

If Result = 'F' and raise S1.1 command is not executed because the fiscal memory is not formatted or the serial number is already set.

5Ch (92) PROGRAMMING THE NUMBER OF THE FISCAL MEMORY

Data fields:	<i>FMnumber</i>
Response:	<i>Result</i>
FMnumber	These are 8 bytes - number of the fiscal memory module. It consists of only two Latin letters and six numbers. The first 7 characters must be identical with those of the serial number.
Result	One byte: 'P' - no errors; 'F' - errors.

If Result = 'F' and raise S1.1 command is not executed because the fiscal memory is not formatted or the serial number is already set.

60h (96) ESTABLISHING IOSA NUMBER

Data fields: <IOSA>
Response: Result

IOSA These are 16 bytes containing the identification number as text.

Result 'P' Success.

61h (97) READING OF THE ESTABLISHED TAX RATES

Data fields: No data
Response: TaxA,TaxE,TaxJ,TaxK,TaxM

Command returns four tax rates, separated by commas.

62h (98) ESTABLISHING OF TAX NUMBERS

Data fields: <JIB>,<PDV>
Response: Result

JIB These are 13 bytes containing the identification number as text.

PDV These are 12 bytes containing the tax number as text.

Result 'P' Success.

'F' Error.

Command can be executed only before fiscalization. In fiscalization numbers are recorded in the fiscal memory and can no longer be changed.

63h (99) READING OF TAX NUMBERS

Data fields: No data
Response: <JIB>,<PDV>

JIB These are 13 bytes containing the identification number as text.

PDV These are 12 bytes containing the tax number as text.

64h (100) DISPLAYING TEXT ON THE DISPLAY

Data fields: Text
Response: No data

Text Text up to 40 characters that is sent to the display. If it is necessary to transmit ASCII characters less than 20h (control sequences), they increased by 40h and are preceded by 10h.

Example: to transmit 1Bh, 4Bh, 00h in the data field is recorded 10h, 5Bh, 4Bh, 10h, 40h.

65h (101) SET OPERATORS PASSWORD

Data fields: <OpCode>,<OldPwd>,<NewPwd>
Response: No data

OpCode Operator's code. From 1 to 32.

OldPwd Old password (4 to 8 digits).

NewPwd New password (4 to 8 digits).

Specifies one of 32 operator's passwords. The password will be requested when opening the fiscal receipt. Three incorrect attempts to set a password will block the printer and the printer must be switched off and for continuing the work.

After initialization or RAM reset all passwords are `0000`.

66h (102) NAMING OPERATOR

Data fields: <OpCode>,<Pwd>,<OpName>
Response: No data

OpCode Operator's code. From 1 to 32.

Pwd Password (4 to 8 digits).

OpName Operator's name (to 24 symbols).

Specifies one of the 32 operators names. The number and name of the operator is printed at the beginning of each fiscal (clients) receipt. In three incorrect passwords the printer will block and the printer must be switched off and on for the continuation of work.

After initialization or RAM reset all the names of operators are empty.

67h (103) INFORMATION ABOUT THE CURRENT RECEIPT

Data fields: *No data*
Response: *CanVd,TaxA,TaxE,TaxJ,TaxK,TaxM*

CanVd: Is it possible return (negative sales) [0/1]
TaxX: Cumulative amount at applicable tax group. 10 integers with a sign.

Provides information about the accumulated amounts in tax groups and whether it is possible return of registered goods.

68h (104) RESET OPERATOR'S DATA

Data fields: *<Operator>,<Password>*
Response: *No data*

Operator: Operator's code. From 1 to 32.
Password: Password (4 to 8 digits).

Reset the accumulated information on the sales made by that operator. Command will be rejected with an invalid password.

68h (105) OPERATORS REPORT

Data fields: *No data*
Response: *No data*

Prints information about operators sales. For each operator are printed name, number, number of fiscal receipts, sales, returns and total accumulated amount of sales.

6Ah (106) DRAWER KICK OUT

Data fields: *[<mSec>]*
Response: *No data*

mSec Pulse length in milliseconds (5-25)

Send a pulse to open the drawer. The parameter sets the new value of pulse length, which is stored on the printer. If the parameter is omitted, is used the latter set value. After RESET memory establishes value of 15 ms.

6Bh (107) DEFINITION AND READING ITEMS

Data fields: *<Option>[Parameters]*
Response: *ErrorCode[,Data]*

Option One byte specifying the type of the requested operation. Depending on the command, it may require additional parameters or not. Possible values: 'P', 'p', 'D', 'R', 'F', 'L', 'N', 'f', 'I', 'n', 'X', 'x', 'I'.

ErrorCode One byte indicating the result of the operation with meaning:

- 'P' Success.
- 'F' Error.

Parameters Data for the command. Described in detail below by <Option>.

- 'P' Programming the item by checking for duplication.
 Syntax: <P><TaxGr><PLU>,<Sprice>,<Name>
 <TaxGr> TAX group ('A','E','J','K','M')
 <PLU> Number of item (depends from value of 43,A between 99500 and 151900).
 <SPrice> Unit Price. 8 significant digits.
 <Name> Name of the item. Up to 36 characters.
 Command will be rejected if the item already has the same name.
- 'p' Programming the item without checking for duplication.
 Unlike subcommand 'P' is not checked if there is an item with the same name.
- 'D' Delete item.
 Syntax: <D><A / PLU >
 <A> Deletes all items.

The command returns count of item that can not be deleted (have accumulated sums) if is different from zero as Data and message „BRISANJE ARTIKALA ZAVRŠENO” is not printed.

When command successfully delete all items the printer makes sound signal and prints the message: „BRISANJE ARTIKALA ZAVRŠENO”. If the printer is fiscalized in fiscal memory is saved RESET record of type 'B' with the current date and time.

- '<PLU>' Deletes the item with that number.
- 'R' Reading items data.
Syntax: <R><PLU>

Returns: <P><PLU>,<TaxGr>,<SPrice>,<Quantity>,<Name>
<Quantity> The accumulated quantity of the sold items. Float with three decimal places.
When item can not be found returns 'F'.
- 'C' Change the unit price of the item.
Syntax: <'C'><PLU>,<SPrice>
<SPrice> New unit price. 8 significant digits.
- 'X' Return of the number of the first free (non programmed) item.
- 'x' Return of the number of the last free (non programmed) item.
- 'I' Returns general information about the items in the format: <Len>,<Tot>,<Pgm>
where:
Len Length of the name of the item (depends from value of 43,A)
Tot Total count of items
Pgm Count of programmed items
- 'F' Returns data for the first found programmed item.
Syntax: <F>[<PLU>]
Returned data are as in subcommand 'R'. If the PLU parameter is set, the demand started growing it in a direction otherwise are starting from 1.
- 'L' Returns data for the last found programmed item.
Syntax: <L>[<PLU>]
Returned data are as in subcommand 'R'. If the PLU parameter is set, the demand starts with him in decreasing direction, otherwise are starting from max item number. (depends from value of 43,A)
- 'f' Return data for the first found item that has sales.
Syntax: <f>[<PLU>]
Returned data are as in subcommand 'R'.If the PLU parameter is set, the demand started growing it in a direction otherwise are starting from 1.
- 'I' Return data for the last found item that has sales.
Syntax: <I>[<PLU>]
Returned data are as in subcommand 'R'. If the PLU parameter is set, the demand starts with him in decreasing direction, otherwise are starting from max item number. (depends from value of 43,A)
- 'N' Return data for the next programmed item found.
Returned data are as in subcommand 'R'.
- 'n' Return the data for the next item that has sales found.
Returned data are as in subcommand 'R'.

Last six subcommands are to extract the data from the computer for all programmed items. A request is subcommand 'F', 'f', 'L' or 'I' and then subcommand 'N' or 'n' to give reply 'F', which means that it has read the last item.

6Dh (109) PRINTING DUPLICATE OF DOCUMENT

Data fields: <Type>,<Start>,<End>
or
<ByNum><RecType>,<StartNum>[,<EndNum>]
Response: <Cnt>

Command causes the print copy of the documents in the specified period (range) and of that type.

Type One or more bytes indicating what type of documents to be included in the print.
Can be:
'A' Print all types of documents.
'N' Non-fiscal receipts.
'F' Fiscal receipts.
'R' Receipts of type "Return".
'Z' Daily closures with clearing (Z-reports).
'X' Daily closures without clearing (X-reports).
'P' Periodical reports.

Start Start date (and hour) in format: DDMMYY[hmmss].
End End date (and hour) in format: DDMMYY[hmmss].
ByNum One optional byte with value '#'. If present, search is by document number, not date and time.
RecType One byte specifying the type of document that will seek number:

- 'A' All types of documents.
- 'F' Fiscal receipts.
- 'R' Receipts of type "Return".

StartNum Start number of document.
EndNum End number of document.
Cnt Count of printed documents.

Command prints duplicate receipts from electronic journal. If not set the start time, it is assumed **0:00:00**. If not set end time, it is assumed **23:59:59**. If demand is by document number and only initial number is set will be seek only one document. There is a limit for printed documents - if the number is greater than 100, are printed only the first 100.

Example: #**R,1,23**

will cause printing receipts from type "Return" from 1 to 23.

Example: **R,280814090000,280814230000**

will cause printing from type "Return" issued by 28/08/2014 09:00:00 to 08/28/2014 23:00:00.

6Eh (110) ADDITIONAL INFORMATION FOR THE DAY

Data fields: *No data*
Response: *Cash, Virman, Card, Cheque, Closure, Rec, ReclRec*

Cash Payed in cash
Virman Payed with "Virman"
Card Payed with card
Cheque Payed with cheque
Closure Current (last) fiscal record
Rec Number of next fiscal receipt
ReclRec Number of next from type "Return"

Returns information about the distribution of the sums for the day by way of payment.

6Fh (111) ITEMS REPORT

Data fields: *<Option>*
Response: *ErrorCode*

Option Specifies the type of printed information. Possible value:

- '0' Prints only items with sales for the day. For each item is printed numbers, name, and quantity sold.
- '1' Prints all programmed items, but only with number, name and unit price.

Items are sorted by number. When is executed daily closure with clearing accumulated on the items are cleared.

70h (112) OBTAINING OPERATOR INFORMATION

Data fields: *Operator*
Response: *Rec;Sales;Total,ReclRec;ReclSales;ReclTotal,DiscountCnt;Discount, MarkupCnt;Markup,VoidCnt;Void,[Password],Name*

Operator Operators code (1 to 32).
Rec Number of fiscal receipts issued by the operator.
Sales Quantity of sales by the operator.
Total Total accumulated amount of sales.
ReclRec Number of receipts from type "Return" issued by the operator.
ReclSales Quantity of sales from type "Return" by the operator .
ReclTotal Total accumulated amount of sales of type "Return".
DiscountCnt Quantity of discounts.
Discount Total amount of discounts.
MarkupCnt Quantity of surcharges.
Markup Total amount of surcharges.
VoidCnt Number of corrections.
Void Total amount of corrections.
Password Operators password. **Returns only when placed service jumper!**
Name Operators name.

Command allows you to obtain the information printed in operators report. The amounts are returned as floating number with the current number of decimal places.

71h (113) DATE AND TIME OF POSTED DATA OR REPORT

Data fields: *Option*
Response: *F*

or

P,DT

Option One byte with value:
 '0' Returns the date and time of end of sending 'Z'-data.
 '1' Returns the date and time of the end of printing of the periodic report.
DT Date and time in format **DD-MM-YY<Space>hh:mm:ss**

The command returns information about sending 'Z'-data or printing them.

If after the last RAM reset is not read data or printed periodic report returns 'F'.

72h (114) INFORMATION FOR FISCAL RECORD OR FISCAL PERIOD

Data fields: *<Closure1>[,<Type>[,Closure2]]*
Response: *ErrorCode,Data*

Closure1 Number of fiscal record
Type Type the requested information. A byte with a value of "0" to "9", specifying the type of data requested:

- '0': *DateTime,RateA,RateE,RateJ,RateK,RateM*
- '1': *Rec,ReclRec,Sales,ReclSales,Voids,ReclVoids*
- '2': *TotalX,...*
- '3': *VatX,...*
- '4': *NetoX,...*
- '5': *Rec,ReclRec,Sales,ReclSales,Voids,ReclVoids*
- '6': *TotalX,...*
- '7': *VatX,...*
- '8': *NetoX,...*
- '9': *RateA,RateE,RateJ,RateK,RateM*

Closure2 Number of fiscal record for references '5', '6', '7' and '8'. For references '0', '1', '2', '3', '4' and '9' this field must be empty.

ErrorCode One byte with value:

- 'P': Valid data.
- 'F': Record is with wrong check sum.
- 'E': That record is empty.

DateTime Date and time of the record in format **DDMMYYhhmmss**.
RateX Active rates for this fiscal record. Percentage value or "DT" if the tax group is prohibited.

Rec Quantity of fiscal receipts
ReclRec Quantity of receipts from type "Return"
Sales Quantity of sales
ReclSales Quantity of sales of receipts from type "Return"
Voids Quantity of voids
ReclVoids Quantity of voids in receipts from type "Return"
TotalX Total amount on tax groups and types of receipts.
VatX Tax charged on tax groups and types of receipts.
NetoX Net amount (excluding VAT) on tax groups and types of receipts.

The command returns information in a separate record (0, 1, 2, 3, 4 and 9) or for a specified period (5, 6, 7 and 8). In subcommand 9 returns data for the record to changing decimals.

The periodic statement for a longer period may take several seconds.

73h (115) PROGRAMMING THE GRAPHICAL LOGO

Data fields: *<RowNum>,<Data>*
Response: *No data*

RowNum Shows the line that programmed. Integer from 0 to 95.
Data Graphical data. Set in hexadecimal, two characters for each byte of information. The data length is up to 54 bytes if it is less shall be supplemented with 00 automatically.

Command allows to define the graphical logo up to **50x12mm (400x96 dots)**/ in **58** mm paper roll mode and **70x12mm (576x96 dots)**/ in **80** mm paper roll mode at the request of the user. Printing them must be activates with

command 43. The logo is printed in each fiscal receipt. For definition of the complete command logo is to be performed 96 times, once for each line. After RAM reset logo will be recovered from flash memory.

74h (116) READING BLOCK OF THE FISCAL MEMORY

Data fields: <Address>,<Bytes>
Response: *Data*

Address Start address (from the beginning of the fiscal memory) - hexadecimal number.
Bytes Number of bytes to return in decimal form (1 to 64).
Data Content of requested fiscal memory block in hexadecimal (2 characters for each byte of data).

The command returns the contents of part of the fiscal memory. To read the full fiscal memory to be executed repeatedly. Values for the address depends on the size of the fiscal memory.

75h (117) READING OF RAM BLOCK

Data fields: <Block>
Response: *Data*

Block Number of memory block (in increments of 64 bytes) - integer.
Data Content of requested memory block in hexadecimal (2 characters for each byte of data) - 128 bytes

The command returns the contents of some of the RAM accumulating daily amounts. To read the entire protected area command to be executed several times.

76h (118) READING A BLOCK OF CODE MEMORY (FIRMWARE)

Data fields: <Address>,<Bytes>
Response: *Data*

Address Start address - hexadecimal number.
Bytes Number of bytes to return in decimal form (1 to 64).
Data The contents of requested code memory block in hexadecimal (2 characters for each byte of data).

The command returns the content of the code memory. The entire size is 30000h. To read the entire code memory to be executed repeatedly.

The command is permitted only if a service jumper.

77h (119) READING DATA FROM THE SD CARD (ELECTRONIC JOURNAL)

Data fields: <Cmd>[,<Addr>,<Bytes>]
Response: *P,Data* or *F*

Cmd Command. One character with value:
 ‘I’ Card information. The other arguments are missing. They return six integers:
Size Total capacity of the electronic journal in bytes.
Used Used space of the electronic journal.
C1 First number of a Z-report in the electronic journal.
C2 Last number of a Z-report in the electronic journal.
D1 First number of document in the electronic journal.
D2 Last number of a document in the electronic journal.
 ‘R’ Reading block of data from the SD card.
Addr Start address - hexadecimal number.
Bytes Number of bytes to return in decimal form (1 to 64).
Data Content of the requested memory block in hexadecimal (2 characters for each byte of data).

The command returns information about the SD card or block readed data from it. Failure returns a byte with a value of ‘F’.

7Ah (122) READING DOCUMENTS OF ELECTRONIC JOURNAL

Data fields: [<Type>,<Start>,<End>]
 or
 [<ByNum><RecType>,<StartNum>,<EndNum>]
Response: *P,Data* or *F*

The command causes reading of documents in setted period (range of numbers) from chosen type.

Type	One or more bytes defining type of the documents, which will be searched:
‘A’	All types of documents.
‘N’	Non-fiscal documents.
‘F’	Fiscal documents.
‘R’	Return documents.
‘Z’	Z reports.
‘X’	X reports.
‘P’	Periodical reports.
‘D’	Duplicates.
Start	Start date and hour in format DDMMYY[hhmmss] .
End	End date and hour in format DDMMYY[hhmmss] .
ByNum	One optional byte with value '#'. If this optional byte exists searching will be made by range of receipt numbers.
RecType	One byte defining type of the documents, which will be searched:
‘A’	All type of documents.
‘F’	Fiscal documents.
‘R’	Return documents.
StartNum	Start number of documents.
EndNum	End number of documents.
Data	Returned data.

The command returns information as texts rows from the EJ. If in **Start** is missing hour, will be set to **00:00:00**. If in **End** is missing hour, will be set to **23:59:59**. If the searching is by range of numbers and is given only first number, search will return only the document with this number.

The command is executed with attribute only for the first time, every next time without attributes till answer “F”. The returned text is formatted same as printed data (in front are added spaces to center the text and double-wide print is represented by spaces between letters). Host program needs to add at the end of each row returned tokens <CR> and <LF>, as they participate in the MD5 checksum of the documents.

If the command is executed with minuscule type or rectype attribute (a, f, n, r, z, x, d or p) will return:

Data One or more journal lines. If more than one line, <LF> (ASCII code 10) is used as separator.

A simple space characters suppression procedure is used:

If The character with ASCII code 7Fh (127) is present,

then the next byte is read. If the next byte is 7Fh, too, then two characters code the ASCII symbol 7Fh.

Otherwise the application must subtract 80h from the byte and use the result as a repeat counter for space characters.

For example: 7Fh 89h represent 9 spaces.

When writing the read lines to a file, <CR> and <LF> characters must be put as line separators.

7Bh (123) CHECKING DOCUMENTS OF ELECTRONIC JOURNAL

Data fields: [*<Type>*,*<Start>*,*<End>*]
or
 [*<ByNum>**<RecType>*,*<StartNum>*],*<EndNum>*]
Response: *P,Data | X,Data | N,Data | F*

The command causes checking of documents in setted period (range of numbers) from chosen type.

Type	One or more bytes defining type of the documents, which will be checked:
‘A’	All types of documents.
‘N’	Non-fiscal documents.
‘F’	Fiscal documents.
‘R’	Return documents.
‘Z’	Z reports.
‘X’	X reports.
‘P’	Periodical reports.
‘D’	Duplicates.
Start	Start date and hour in format DDMMYY[hhmmss] .
End	End date and hour in format DDMMYY[hhmmss] .
ByNum	One optional byte with value '#'. If this optional byte exists searching will be made by range of receipt numbers.
RecType	One byte defining type of the documents, which will be searched:
‘A’	All type of documents.
‘F’	Fiscal documents.
‘R’	Return documents.
StartNum	Start number of documents.
EndNum	End number of documents.

Data Returned data.

Error codes are:

- P** – success;
- X** – when non-fiscal receipt;
- N** – error in document;
- F** – not found;

Returned data is formatted as:

<Rtype><Number>,<Date><Space><Time>[,<MD5>]

for documents of type non-fiscal MD5 check sum is not returned.

Examples:

F2,02-08-14 14:40:50,0d0f0072099335f4632a46eac9b8fab2

R13,02-08-14 14:41:58,a01810127e892deca73b666704b8af93

N126,04-08-14 16:09:32

Where:

Rtype – type of documents (can be F, R, N, X, Z, D or P)

Rtype can be:

- 'N'** Non-fiscal documents.
- 'F'** Fiscal documents.
- 'R'** Return documents.
- 'Z'** Z reports.
- 'X'** X reports.
- 'P'** Periodical reports.
- 'D'** Duplicates.

Number – number of document (global number)

Date – date of document in format DD-MM-YYYY

Space – ASCII code 20h

Time – time of document in format HH:MM:SS

MD5 – read from EJ md5 check sum

The command is executed with attribute only for the first time, every next time without attributes till answer “F”.

7Dh (125) SERVICE PROHIBITION AND AUTHORIZATION OF PRINT

Data fields: *<Option>*

Response: *No data*

- Option**
- '1'** Prohibition of printing
 - '0'** Authorisation of printing

By prohibition of printing the printer does everything normally, but does not print anything. The command is designed to test the machine - allow for thousands of commands for sale for a short time during the testing of arithmetic. Can be performed only when placed service jumper. When you turn off the printer it returns to normal print.

7Eh (126) SERVICE FORMATTING OF THE SD CARD

Data fields: *No data*

Response: *'P' or 'F'*

Command erases and formats the SD card. Is permitted if:

- ✦ when placed service jumper.
- ✦ The printer has a SD card.
- ✦ Are set serial number and fiscal memory number.
- ✦ The printer is not fiscalized.

SD card is formatted automatically when fiscalization of the printer.

Return result: 'P' - successfully; 'F' - failed.

90h (144)**SET GPRS CONNECTION DATA**

Data fields: <APN><Tab><User><Tab><Password><Tab><PIN><Tab><FTP><Tab>

<FTP_User><Tab><FTP_Pwd><Tab><FTP_CmdDir><Tab><FTP_DataDir><Tab><FTP_Port>

Response: 'P' or 'F'

where:

- *APN* – access point name
- *User* – username of access point
- *Password* – password of access point
- *PIN* – SIM card pin (if is disabled = empty string)
- *FTP* – FTP server address
- *FTP_User* – FTP username
- *FTP_Pwd* – FTP password
- *FTP_CmdDir* – FTP directory for command files
- *FTP_DataDir* – FTP directory for report files
- *FTP_Port* – FTP port of the server

If command is executed without parameters will return already set data in exactly same order.

The command sets needed GPRS data for communication.

91h (145)**FTP TASK SUPPORT**

Data fields: *[cmd]*

Response: *No data*

where

cmd can be:

- *I* - Reset to initial task.
- *R* - Reset terminal (Cancel task and immediately read new command).

If command is executed without parameters will return information about the current task in given order.

ALL (<StartDate> <Space> <EndDate> <Space> <Period>|<Date> <Space> <Time>)[<NextSendDate> <Space> <NextSentTime>] <FILELIST>

PERIOD (<StartDate> <Space> <EndDate> <Space> <Period>|<Date> <Space> <Time>)[<NextSendDate> <Space> <NextSentTime>] <FILELIST>

LAST (<LastSentClosure> <Space> <Period>|<Date> <Space> <Time>)[<NextSendDate> <Space> <NextSentTime>] <FILELIST>

*Appendix 1***LIST OF PRINTERS COMMANDS - IN A GROWING NUMBER**

HEX	DEC	FUNCTION
21h	(33)	Clearing of the display
22h	(34)	Registering of a service contract
23h	(35)	Displaying text on lower row of the display
26h	(38)	Opening of non-fiscal receipt
27h	(39)	Closing non-fiscal receipt
29h	(41)	Save the current settings in flash memory
2Ah	(42)	Printing of free text in non-fiscal receipt
2Bh	(43)	Setting of the header and footer and print options
2Ch	(44)	Advancing the paper
2Dh	(45)	Paper cut off
2Fh	(47)	Displaying text on upper row of the display
30h	(48)	Opening the fiscal (clients) receipt
32h	(50)	Tax rates entered during the accounted period
33h	(51)	Subtotal
34h	(52)	Registration of sale and display
35h	(53)	Calculation of a total
37h	(55)	Inserting of information for customer in invoice
38h	(56)	Closing of a fiscal receipt
3Ch	(60)	Correction summer / winter time
3Dh	(61)	Setting date and time
3Eh	(62)	Reading of current date and time
3Fh	(63)	Displaying of date and time
40h	(64)	Information for the last fiscal record
41h	(65)	Information on the amounts of the day
44h	(68)	Count of free fields in fiscal memory
45h	(69)	Daily closure (with and without clearing)
46h	(70)	Serve in and serve out
47h	(71)	Print diagnostic information
48h	(72)	Fiscalization
49h	(73)	Printing the fiscal memory by record number
4Ah	(74)	Statuses
4Ch	(76)	Status of fiscal transaction
4Fh	(79)	Cumulative amounts of fiscal memory for a period
50h	(80)	Making the sound signals
51h	(81)	Sales information in receipt
53h	(83)	Establishment of decimals name for the currency and prohibited tax groups
57h	(87)	Service ram reset
58h	(88)	Registration of service intervention
59h	(89)	Programming of production test area
5Ah	(90)	Return of diagnostic information
5Bh	(91)	Programming the serial number of the fiscal printer and the number of the country
5Ch	(92)	Programming the number of the fiscal memory

60h	(96)	Establishing IOSA number
61h	(97)	Reading of the established tax rates
62h	(98)	Establishing of tax numbers
63h	(99)	Reading of tax numbers
64h	(100)	Displaying text on the display
65h	(101)	Set operators password
66h	(102)	Naming operator
67h	(103)	Information about the current receipt
68h	(104)	Reset operator's data
69h	(105)	Operators report
6Ah	(106)	Drawer kick out
6Bh	(107)	Definition and reading items
6Dh	(109)	Printing duplicate of document
6Eh	(110)	Additional information for the day
6Fh	(111)	Items report
70h	(112)	Obtaining operator information
71h	(113)	Date and time of posted data or report
72h	(114)	Information for fiscal record or fiscal period
73h	(115)	Programming the graphical logo
74h	(116)	Reading block of the fiscal memory
75h	(117)	Reading of ram block
76h	(118)	Reading a block of code memory (firmware)
77h	(119)	Reading data from the sd card (electronic journal)
7Ah	(122)	Reading documents of electronic journal
7Bh	(123)	Checking documents of electronic journal
7Dh	(125)	Service prohibition and authorization of print
7Eh	(126)	Service formatting of the sd card
90h	(144)	Set gprs connection data
91h	(145)	Ftp task support

APPENDIX 3

DESCRIPTION OF CORRESPONDING ERROR CODES

ERR_CODE	DESCRIPTION
-150001	SYNTAX ERROR
-150002	INVALID COMMAND
-150010	PRINTER IS BLOCKED
-150100	DATE AND TIME NOT SET
-150101	PAPER END
-150102	ELECTRONIC JOURNAL ERROR
-150103	OVERFLOW
-150104	INVALID PASSWORD
-150105	LESS THAN 2 HEADER LINES
-150106	INVALID SERIAL NUMBER
-150107	INVALID DATA
-150108	PRINTER FAULT
-150109	INVALID IOSA
-150110	INVALID_RECEIPT_NUMBER
-150200	FISCAL OR NON-FISCAL RECEIPT OPEN
-150201	RECEIPT IS NOT OPEN
-150202	SHIFT STARTED
-150203	SHIFT NOT STARTED
-150204	SHIFT OVER 24 HOURS
-150205	TIME EARLIER THAN LAST RECORD IN FM
-150206	TIME EARLIER THAN LAST RECORD IN EJ
-150207	PROBABLY INVALID TIME. SET THE CLOCK!
-150208	PRINTER NOT IN SERVICE MODE
-150209	CANNOT READ EJ
-150210	CANNOT WRITE TO EJ
-150211	CANNOT FORMAT EJ
-150212	CANNOT OPEN DOCUMENT
-150213	NO ACCESS TO DISPLAY
-150214	JOURNAL NEAR END
-150215	CANNOT FORMAT VALID EJ
-150216	FORBIDDEN RECEIPT TYPE
-150217	TIME ALREADY ADJUSTED
-150218	TIME BEFORE CURRENT TIME
-150300	FM NOT FORMATTED
-150301	SERIAL NUMBER NOT SET
-150302	TAX NUMBER NOT SET
-150303	VAT RATES NOT PROGRAMMED
-150304	NO ACTIVE VAT RATES

-150305	PRINTER IS NOT FISCALISED
-150306	PRINTER IS FISCALISED
-150307	NO RECORDS IN FM
-150308	NO FM RESPONSE
-150309	TOO MANY RECORDS IN FM
-150310	SERIAL NUMBER ALREADY SET
-150311	FM IS READ ONLY
-150312	FM DISCONNECTED
-150313	NOT IOSA NUMBER
-150314	IN SERVICE REPAIR
-150315	NOT IN SERVICE REPAIR
-150316	FISCAL NUMBER SET
-150400	PLU NOT EXISTS
-150401	DEPARTMENT NOT EXISTS
-150402	INVALID VAT GROUP
-150403	VAT GROUP NOT PERMITTED
-150404	TOO MANY SALES IN RECEIPT
-150405	VOID AFTER PAYMENT OR DISCOUNT/MARK UP
-150406	NEGATIVE TOTAL
-150407	DISCOUNT TOO BIG
-150408	TRYING VOID OF NONEXISTING SALE
-150409	PAYMENT IS STARTED
-150410	OPTIONAL PAYMENT NOT DEFINED
-150411	EVERYTHING IS ALREADY PAID
-150412	TOTAL IS NOT FULLY PAID
-150413	NOT ENOUGH CASH IN DRAWER
-150414	CASH PAYMENT ONLY ALLOWED
-150415	NO CHANGE ALLOWED
-150416	NON-ZERO OPERATOR DATA
-150417	NON-ZERO PLU DATA
-150418	NON-ZERO DEPARTMENT DATA
-150419	NO FREE PLUS
-150420	TOO MANY TEXT LINES IN RECEIPT COPY BUFFER
-150421	NO TEXT LINES IN RECEIPT COPY BUFFER
-150422	NONZERO PAY DATA
-150423	PLU SOLD IN RECEIPT
-150427	ZERO OR NEG SUM INPUT
-150428	PAYMENT TYPE NOT ALLOWED
-150429	DUPLICATE NAME