



F P 6 0 0 – Fiscal Printer
LLProtocol & Commands

Ver. 1.00

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INTRODUCTION

The fiscal device functions under the control of an application program, and communicates with it via an asynchronous serial channel for connection to the RS232 interface.

It's purpose is to execute a previously defined set of commands, which are logically arranged depending on the type of operations, which have to be executed.

This utility program doesn't have direct access to the resources of the fiscal device, but can download data, connected with the state of the fiscal device and the fiscal memory.

The fiscal device performs the following operations:

- Save the fiscal number of the fiscal device
- Save the fiscal parameters - like the tax number of the person, registered for taxation, the date of starting operations etc.
- Save information about the owner, his/her address, names etc.
- Save data on the sum of the sales and generating clients receipts
- Save data on the daily turnover in the fiscal memory and generate daily report
- Generate reports on completed sales and the contents of the fiscal memory
- Print reports, generated by the application
- Returns data to the application program.

TAXATION CATEGORIES AND CALCULATION OF VAT (PDV)

In Serbian: PDV means (Porez na Dodatu Vrednost)

Each separate sale is recalculated in relation to a given taxation category (PDV), which defines the tax rate, applicable to the base price for the formation of the sale price.

The fiscal printer work with 9 categories at the most and they are marked with the first letters of the alphabet of the respective country, for which the fiscal printer (FP) has been set-up.

In the case of Serbia

this letters would be A, G, D, Đ, E, Ž, I, J, K.

BTW this letters should be **A, Г, Д, Ђ, Е, Ж, И, Ј, К**, in cyrillic letter.

For each of the Tax groups a tax rate is selected (in percents) which should be number in a format "99,99" .

Use command **83 (53h)** to set Tax Groups.

The net value of the sales is calculated with the help of the formula:

In PDV mode:

=====

NET_value = ROUND (SALE_value / (1 + TAX_rate)).

TAX_value = SALE_value - NET_value

=====

In PPR mode: Not in use

NET_value = ROUND (SALE_value * (1 - TAX_rate)).

The function ROUND return the number rounded on specified number of decimal points.

The value of the tax sum due is calculated with the help of the formula:

TAX_value = SALE_value - NET_value

OPERATION MODES OF THE FISCAL DEVICE

The fiscal device can work in two modes.

1. Tutorial mode – non fiscal mode.

The device has not been fiscalized.

All data, necessary for it's normal functioning has been entered and recorded in the fiscal memory with the exception of the PIB - Owner Tax Number.

Clients receipts may be opened and issued but they always contain a note "INFO" on the top, that they are not fiscal.

Daily financial reporting and clearing can be done, but this is not recorded in the fiscal memory.

2. Normal mode of operation – fiscal mode.

The device is fiscalized. The PIB – Owner Tax Number has been entered into the fiscal memory.

All financial regulations will be applied.

THE DIFFERENT STATES OF THE FISCAL PRINTER

The fiscal printer can have several different states and the transitions between them are not always possible.

The control of the printer and the transitions between the states, when this is possible, are controlled by the application program on the HOST (PC), which must be coordinated with the used protocol.

When this protocol has not been applied correctly, the printer may shift into an undesirable state, or it's moving through a given state may be skipped, leading it to enter the ERROR state.

A. INITIAL STATE

In this state, the date and time can be set, the initial receipt's number can be programmed and the IBFM, the fiscal module number and the country code can be entered.

These operations are performed, before the device is given to it's owner, by an authorized service specialist.

The following commands must be performed in the order in which they are presented:

61 (3Dh), 91 (5Bh), 92 (5Ch) and also 83 (53h).

THESE OPERATIONS MUST BE DONE ONLY BY SERVICEMAN ON THE CLIENT SITE.

After these operations the printer must be switched OFF and then switched ON again.

B. AFTER FORMATTING THE FISCAL MEMORY

In this state, the type of the currency and the tax rates are entered.

This is the state, in which the fiscal devices are stored in the warehouse of the manufacturer.

The commands that follow are performed in the following order: **83 (53h).**

After these operations are performed the fiscal printer can be handed over to the client, who will use it.

C. WHEN HANDED OVER TO THE CLIENT

In this state, the Header and the Footer are set up - this is the beginning and the end of each separate receipt.

The command **43 (2Bh)** has to be performed as many times as the number of the lines entered.

D. TUTORIAL MODE

This is the state, in which the fiscal printer is until it is not fiscalized.

Operation start with command **98 (62h).**

The issuing of receipts is possible but it should be borne in mind, that even client's receipts are marked as "non-fiscal".

Daily fiscal reports and clears is possible, but this will not be entered into the fiscal memory.

A tax number is entered, but it is not recorded in the fiscal memory.

E. FISCALIZED FISCAL PRINTER

Fiscal receipts can be issued in this state and they will be marked as such.

Before fiscalization, the PIB - Owner Tax Number has to be entered and the fiscalization command executed: **98 (62h)** and **72 (48h).**

F. IRREVERSIBLE ERROR IN THE FISCAL PRINTER

This is the state, in which the printer will be in case of a serious technical or logical error in the device, as well as an error, due to the complete lack of the module "fiscal memory".

What is needed is a clearing of the RAM (the fiscal memory is taken out, the device is switched on and switched off after that).

A new fiscal memory module is then installed, because the one, which was in operation, before the error occurred, is switched to the READ-ONLY mode.

Recordings in the fiscal memory are impossible in this mode.

These operations should be performed by a service specialist.

Events, which may possibly lead to this state, are:

- An impossibility for performing a correct entry into the fiscal memory,
- Finding an illegal entry into the fiscal memory,
- Failure to find or identify its fiscal memory module.

CURRENT STATE OF THE FISCAL PRINTER

The current state of the device is encoded in a field which is 6 Bytes long and is transferred to each message, issued from the fiscal printer.

Byte 0

General purpose

0.7 =	bit 7 is reserved
0.6 =	bit 6 is reserved
0.5 = 1	general error - this is OR of all errors, marked with "#".
0.4 = 1#	Failure in printing mechanism
0.3 = 1	Display is disconnected
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 =	bit 7 is reserved,
1.6 =	bit 6 is reserved,
1.5 = 1	Printer cover is open
1.4 = 1#	RAM failure after switch ON
1.3 = 1#	not used.
1.2 = 1#	Operational memory was cleared
1.1 = 1#	Command cannot be performed in the current fiscal mode
1.0 = 1	During command some of the fields for sums overflow. Status 1.1 will also be set and the command will not cause changes to data in the printer.

Byte 2

General purpose

2.7 =	bit 7 is reserved,
2.6 =	bit 6 is reserved,
2.5 = 1	A non-fiscal receipt has been opened
2.4 = 1	paper near end for Journal printer
2.3 = 1	A fiscal receipt has been opened
2.2 = 1	no paper for Journal printer
2.1 = 1	paper near end. Combined flag for both printers
2.0 = 1#	no paper. Combined flag for both printers. 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

Status of configuration keys

3.7 =	bit 7 is reserved,
3.6 =	bit 6 is reserved,
3.5 = 1	not in use
3.4 = 1	not in use
3.3 = 1	Baud rate is set up.
3.2 = 1	SW3 state. Enables the "transparent display" mode
3.1 = 1	not in use
3.0 = 1	SW1 state. Permits the automatic paper cutting function

Byte 4

Fiscal memory

4.7 =	bit 7 is reserved
4.6 =	bit 6 is reserved
4.5 = 1	OR of all mistakes marked by '*' from bytes 4 and 5.
4.4 = 1*	Fiscal memory is fully engaged.
4.3 = 1	If there is space for not more than 50 entries (daily closure) in the FM.
4.2 = 1	when there is no fiscal memory module
4.1 = 1	not in use,
4.0 = 1*	When there is an error during entry in the fiscal memory

Byte 5

Fiscal memory

5.7 =	bit 7 is reserved,
5.6 =	bit 6 is reserved,
5.5 = 1	when the serial number and fiscal number are programmed,
5.4 = 1	If tax rates have been entered at least once
5.3 = 1	If the printer is in fiscal mode
5.2 = 1*	not in use
5.1 = 1	If the fiscal memory has been formatted
5.0 = 1*	If the fiscal memory is in "read-only" mode

POWER FAILURE

The printer status is reflected in it's internal status Bytes at all times.

When it is switched on (after a power OFF), the commands **74 (4Ah)** and **103 (67h)** initiate the utility program to gather information on the status of the device.

The utility program must make a decision about the future behavior of the printer, depending on it's status.

It is guaranteed, that the fiscal memory will not be destroyed from the power failure and that the accumulated sums in the operational memory will remain valid.

If the Power Failure occurs when the printer in printing, after the Power is recovered the printer will print "POWER FAIL" with double width characters and will finish the printing.

If the Power failure occurs when the printer is making a "DAILY REPORT", after the Power is recovered the printer will print "REPEAT CLOSURE" and will restart the command.

LOW LEVEL PROTOCOL

A. Protocol type - Master (Host) / Slave

The fiscal printer executes the commands, sent by the Host, and returns a message depending on the character of the result.

The fiscal printer cannot initiate communication.

Only reports, resulting from the execution of given commands, are sent to the Host.

Messages in the protocol are either "packed" messages or single Bytes.

The fiscal printer maintains communication via RS232 interface at speeds of: 115200, ... 19200 or 9600 b/s, 8N1. Speed is set from SW3, 4, 5.

B. Order of the messages

Host sends a packed message, containing the command, sent to the printer.

The fiscal printer executes the operation and returns a packed answer.

Host must wait for the printer's answer before sending another message.

The protocol uses non-packed codes with a length of one byte for processing the necessary pauses and error mistakes.

C. NON-WRAPPED MESSAGES - TIME-OUT Non-packed messages, time-out

Given normal operation of all Host messages, Slave answers not later than 60 ms, with a packed message or with a single-byte code.

Host must have 500 ms time-out for getting the message from Slave.

If, during this time, no answer comes, the message is repeated with the same logical number and the same command.

After several unsuccessful attempts, Host indicates, that there is either no connection with the fiscal printer or that there is a hardware error.

Non-packed messages contain one byte and are:

- a. NAK 15h

This code is sent from Slave, when there is an error in the control sum or in the form of the received message.

When Host receives a NAK, a new message, with the same logical number, is transmitted.

- b. SYN 16h

This code is sent by Slave, when the execution of the command is received needs more time.

SYN is dispatched every 60 ms until the packed message is ready for an answer.

Character	Hex Value	Meaning
	01	
STX	02	Start of text
ETX	03	End of Text
EOT	04	End Of Transmission
	05	
ACK	06	positive ACKnowledgment
NAK	15	Negative Acknowledgment
SYN	16	

D. WRAPPED MESSAGES

Host to printer (Send)

<01><len><seq><cmd><data><05><bcc><03>

Printer to Host (Receive)

<01><len><seq><cmd><data><04><Status><05><bcc><03>

<01>	preamble length 1 byte value 01h
<len>	number of Bytes from <01> (without it) up to <05> (including) plus a fixed shift of 20h. Length 1 byte value 20h - 7Fh
<seq>	logical number of the frame length 1 byte value 20h-7Fh

The fiscal printer records the same <seq> in the reply message.

If the FP receives a message with the same <seq> as the last message received, it will not perform an operation, but will repeat the last message it has sent.

<cmd>	code of the command. Length 1 byte value 20h-7Fh
-------	--

The FP writes the same <cmd> in the message reply.

If the printer receives a non-existing code, it replies with a "packed message" with zero length of the data field and sets the respective status bit.

<data>	data: length 0 - 203 Bytes for Host to Printer 0 - 198 Bytes for Printer to Host value 20h-FFh
--------	---

The format length of the data field depends on the command.

If the command has no data, then the length of this field is zero.

If there is a syntax mistake, the data is set up with the respective status bit and a "packed message" is returned with zero length of the data field.

<04>	divider (only for Printer to Host messages) length 1 byte value 04h
<status>	the field with the current state of the fiscal device. length 6 Bytes value 80h - FFh
<05>	postamble length 1 byte value 05h
<bcc>	control sum (0000h-FFFFh). Length 4 byte value 30h - 3Fh

The sum includes from <01> and without it to <05> including.

Every digit from the two Bytes is sent with an added 30h.

For example, the sum 1AE3h is presented as 31h, 3Ah, 3Eh, 33h.

<03>	terminator length 1 byte value 03h
------	--

E. Composing messages, syntax and used symbols.

- A. The data field depends on the type of command
- B. The parameters, sent to the printer, may be divided by commas and/or may have fixed length.
- C. A comma between the parameters means it is obligatory.

When the different parameters are closed in < > they are obligatory, although they are not visible in the message.

When a given parameter is closed in [] it is not obligatory.

The brackets themselves are not visible in the message.

Example: When in the data field we write - 2500, 100, Text, then in that area there are:

2D 32 35 30 30 2C 31 30 30 2C 54 65 78 74 - hexadecimal digits represent the ASCII value.

EXAMPLE 1:

Command: Paper feed (\$2C)
Parameter: 10 (10 lines)

HEX											
01	26	22	2C	31	30	05	30	30	3D	3A	03

- \$01 - PREAMBLE
- \$26 - LENGTH (LENGTH+SEQ+COMMAND+DATA+POSTAMBLE+\$20)
- \$22 - SEQ (from \$22 to \$7F)
- \$2C - COMMAND -2C paper feed
- \$31, \$30 - DATA (ASCII '10')
- \$05 - POSTAMBLE
- \$30 \$30 \$3D \$3A - BCC (CHECKSUM)
- $26+22+2C+30+31+05=DA+30303030$
- \$03 - TERMINATOR

EXAMPLE 2:

Command: Define article (\$6B)
Parameter: PA1,10,Артикал

HEX																							
01	32	22	6B	50	C0	31	2C	31	30	2C	C0	F0	F2	E8	EA	E0	EB	05	30	38	3F	3D	03

- \$01 - PREAMBLE
- \$32 - LENGTH(LENGTH+SEQ+COMMAND+DATA+POSTAMBLE+\$20)
- \$22 - SEQ (from \$22 to \$7F)
- \$6B - COMMAND -\$6B define article
- \$50,\$C0,...\$EB - DATA (ASCII 'Артикал') cyrillic
- \$05 - POSTAMBLE
- \$30 \$38 \$3F \$3D - BCC (CHECKSUM)
- \$03 - TERMINATOR

INITIALIZATION AND FISCALIZATION

A. INITIAL STATE

In this state, the date and time can be set, the initial receipt's number can be programmed and the IBFM, the fiscal module number and the country code can be entered. These operations are performed, before the device is given to its owner, by an authorized service specialist.

The following commands must be performed in the order in which they are presented: **61 (3Dh), 91 (5Bh), 92 (5Ch) and also 83 (53h).**

THESE OPERATIONS MUST BE DONE ONLY BY SERVICEMAN ON THE CLIENT SITE.

After these operations the printer must be switched OFF and then switched ON again.

2Bh (43) SETTING HEADER, FOOTER AND PRINTING OPTIONS

Data field: <item><text>
Response: depends from the Syntax

Data field:
Response :

Item One symbol with the following content:
"0" to "9" is the number of the lines entered.
The lines of the header are from 0 - 5 and the footer from 6 - 9.

"C" Auto cutter function On/OFF. Default status is defined by SW1.
"L" Graphic LOGO printing On/OFF. The Logo is defined by command 115 (73h)
"I" Allows to read the parameters, which we have set earlier by command 43 (2Bh)
"B" Bar code size. Value from 24 (3mm) to 240 (30mm).
"D" Darkness – from 1 (bright) to 5 (very dark),

Text Text up to 36 symbols, where:

If <item> is a number from 0 to 9 - this is the text of the respective line
If <item> = "L" - one symbol "0" or "1", where "0" forbids and "1" permits the first and second line of the Graphic LOGO.
If <item> = "C" - one symbol "0" or "1" where "0" forbids and "1" permits auto cutting function.

The "header" consists of 6 lines of text, which is printed out at the beginning of each fiscal or non-fiscal receipt. The normal functioning of the printer demands the entry of at least a "header" of two lines. The "footer" is of 4 lines, printed at the end of each receipt. The "header" and "footer" are printed centered on line. This command must be executed at most 6+4 times in order to enter all the lines of the "header" and "footer".

3Dh (61) SETTING THE CLOCK - DATE AND HOUR

Data field: <DD-MM-YY><space><HH:MM[:SS]>
Response: no data

Data field: 23-02-12 14:35:04
Response : none

A date, earlier than the date of the last entry into the fiscal memory, cannot be set. Settings include the year 2098. A year, earlier than 98, is considered the 21 century. After RESET of the memory, the command must be performed for the continuation of the normal work of the device. In non-fiscal mode you can set date and time as you wish.

5Bh (91) PROGRAMMING THE SERIAL NUMBER AND THE FISCAL MEMORY NUMBER - Set a country and IBFM

Data field: <Country>,<IBFM>
Response: Result,CountryStr

Data field: 8, AG999999
Response : P, СРБИЈА

Country =8
IBFM 8 Bytes – IBFM, 2 Latin letters=AG and 6 digits.

Result = P - no error;
= F - error.

CountryStr Serbia (in Cirillic letters)

This Command is executed only once at the manufacturer in non-fiscal mode.
The printer is supplied to the customer with the country and IBFM programmed.

If Result = "F" and SW 1.1 is raised, the command is not executed because the fiscal memory has not been formatted or the serial number has already been entered.

53h (83) SETTING THE MULTIPLIER, DECIMALS, CURRENCY NAME AND DISABLED TAXES

Data field: [<Decimals>,<TaxFlags>,<TaxX>, ...]
Response: [<Decimals>,<TaxFlags>,<TaxX>, ...]

Data field: 2, 010110000, 0, 0, 0, 18, 8, 0, 0, 0, 0
Response : 02, 010110000, 00, 00, 00, 18, 08, 00, 00, 00, 00

Decimals Can be 02 or 2.
TaxFlags Is a 9-digit string, consisting of "1" and "0".
Every digit represents one Tax Group ("1" to "9").
"1" means allowed tax, "0" means forbidden tax.
TaxX Percent for Tax Group X (2 bytes)

Command is allowed only immediately after fiscal closure.

62h (98) SETTING THE TAX REGISTRATION NUMBER Set PIB

Data field: <Text>
Response: Result

Data field: 999999999
Response : P

Text PIB - Owner Tax Number has 9 to 13 symbols.
Result = "P" no error
= "F" error

Can't be changed after fiscalization.

65h (101) SETTING THE OPERATOR'S PASSWORD

Data field: <OpCode>, <OldPwd>, <NewPwd>
Response: no data

Data field:
Response : none

Op Code Operator's code (1 ... 8)
OldPwd Old password (4 - 6 digits)
NewPwd New password (4 - 6 digits)

Enters one of the eight operator's password. The password will be asked when a fiscal receipt is opened.
After three incorrect entries of a password, the printer will be blocked.
It should be switched-off and then on to continue work.
After initialization or clearing of the operational memory, all 8 passwords are "0000"

66h (102) ENTERING OPERATOR'S NAME

Data field: <OpCode>, <Pwd>, <OpName>
Response: no data

Data field:
Response : none

OpCode Operator's code (1 ... 8)
Pwd Password (4 - 6 digits)
OpName Name of the operator (up to 24 chars)

Enter one of the eight operator's names.
The name and the number of the operator are printed at the beginning of each fiscal (client's) receipt.
After three unsuccessful attempts for entering a password, the printer is blocked and has to be switched off and on again to continue work.
After initialization and clearing of the operational memory all operator's names are empty strings.

68h (104) RESET OPERATOR'S SALES DATA

Data field: <OpCode>, <Pwd>
 Response: no data

Data field: 1, 0000
Response : none

OpCode Operator's code (1 ... 8)
Pwd Operator's password (4 - 6 digits)

Clears the accumulated sums for the selected Operator.
 If the password is not a valid one, this command will be rejected.

48h (72) FISCALIZATION - Confirm IBFM

Data field: IBFM
 Response: ErrCode

Data field: CΓ999999
Response : P

IBFM The Identification Number of Fiscal Module IBFM - 8 byte.
 It should be the same as set by 91 (5Bh).
 The SW3 status is used to see weather the command has been successful.

ErrCode = P no errors
 = N error code.

Error codes:

1. The IBFM is not valid.
2. The fiscal printer is fiscalized.
3. No serial number.
4. IBFM is not the same as the one entered.
5. There is an opened receipt.
6. Fiscal receipt have been issued after the last daily report and clear.
7. All entered rates are zero.
8. Tax number consists only of zeros.
9. The RTC is not correct

Fiscalization of the device is performed.

After the successful execution of the command the setting back of the device into a non-fiscal mode is impossible.

73h (115) PROGRAMMING A GRAPHIC LOGO

Data field: <RowNum>,<Data>
 Response: no data

Data field:
Response : none

RowNum Shows the row which we are programming. Number from 0 to 95
Data Graphic data. The data is transferred in hexadecimal format.

The length of the data is 54 Bytes. If they are less the line is filled with "zero".
 The command allows to define a Logo with 54 x 12 mm (432 x 96 dots).
 The printing of Logo is activated by command 43 (2Bh).
 The Logo is printed before the header on each fiscal or non fiscal receipt.
 In order to define the LOGO this command shall be repeated 96 times, once for each line of the Logo.
 After RAM Reset the Logo is empty.

B. AFTER FORMATTING THE FISCAL MEMORY

In this state, the type of the currency and the tax rates are entered.
 This is the state, in which the fiscal devices are stored in the warehouse of the manufacturer.
 The commands that follow are performed in the following order: **83 (53h)**.
 After these operations are performed the fiscal printer can be handed over to the client, who will use it.

C. WHEN HANDED OVER TO THE CLIENT

In this state, the Header and the Footer are set up - this is the beginning and the end of each separate receipt.
 The command **43 (2Bh)** has to be performed as many times as the number of the lines entered.

D. TUTORIAL MODE

This is the state, in which the fiscal printer is until it is not fiscalized.

Operation start with command **98 (62h)**.

The issuing of receipts is possible but it should be borne in mind, that even client's receipts are marked as "non-fiscal".

Daily fiscal reports and clears is possible, but this will not be entered into the fiscal memory.

A tax number is entered, but it is not recorded in the fiscal memory.

E. FISCALIZED FISCAL PRINTER

Fiscal receipts can be issued in this state and they will be marked as such.

Before fiscalization, the PIB - Owner Tax Number has to be entered and the fiscalization command executed: **98 (62h)** and **72 (48h)**.

The tax number is entered into the memory together with the current date and time.

All registers are cleared.

The printer opens a non-fiscal receipt and records the moment of fiscalization. It is then closed.

A. ISSUING NON-FISCAL RECEIPTS

The receipt is opened, the text is printed and the receipt is closed.
Commands **38 (26h)**, **42 (2Ah)**, **39 (27h)** are used.

Non-fiscal receipts print information, which does not illustrate the registering of sales. For example, they may offer information on the orders made in a restaurant before the payment of the final bill - this final bill must be a fiscal receipt.

OPENING A NON-FISCAL RECEIPT

Command: 38 (26h)
Data: "" (empty string)

The command initiates the printing of a header - after which a new command is anticipated.

FREE, NON-FISCAL TEXT

Command – 42 (2Ah)
Data: Free text

A freely typed text is entered within the framework of 36 symbols per line. The command can be executed to an indefinite number of times.

CLOSING A NON-FISCAL RECEIPT

Command - 39 (27h)
Data: "" (empty string)

The date and hour are printed as well as the non-fiscal logo and the order number of the printer. The printer is then ready for accepting new commands.

26h (38) OPENING A NON-FISCAL RECEIPT.

Data field: no data
Response: AllReceipt, ErrCode

Data field: none
Response : 0001

AllReceipt The number of all issued receipts (fiscal and non-fiscal) from the last fiscal closure to the present moment (4 Bytes).
ErrCode when command has been unsuccessful (1 Byte).
=1 The fiscal memory is not formatted.
=2 There is an opened fiscal receipt.
=3 There is an opened non-fiscal receipt.
=4 The RealTimeClock is not correct.

FP performs the following operations:

1. A reply is received, containing AllReceipt.

27h (39) CLOSING A NON-FISCAL RECEIPT

Data field: no data
Response: AllReceipt

Data field: none
Response : 0002

AllReceipt The number of all issued receipts (fiscal and non-fiscal) from the last fiscal closure to the moment (4 Bytes).

FP performs the following operations:

1. The logical number, date and time of the document is printed.
2. A reply is received, containing AllReceipt.

If SW 1.1 has been raised, the command is not performed, because a non-fiscal receipt is being opened.

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

Data field: Text
Response: no data

Data field: FREE TEXT
Response : none

Text Text up to 30 characters

If SW 1.1 is raised, this means that a non-fiscal receipt is opened and the text is not printed out.

B. ISSUING FISCAL RECEIPTS

First, a fiscal receipt is opened, then sales are registered, the payment is done and finally, the receipt is closed. Commands – **48 (30h)**, **51 (33h)**, **52 (34h)**, **53 (35h)**, **56 (38h)**, **58 (3Ah)** are used.

A daily financial report and clearing is performed in order to enter the information into the fiscal memory. The command **69 (45h)** are used.

OPENING A FISCAL RECEIPT

Command: 48 (30h)

The first number is the operator's number (maximum 16); the second is the operator's password, while the third is the order number of the point of sale (department or location). In a newly purchased printer the six zeros are the operator's default password – you may, naturally, enter your own. The third number is suitable only in commercial centres with many points of sale (departments). After entering that command, the printer will print out several "header" lines, which will contain the text registration number and the name and individual number of the operator.

REGISTERING A SALE

Command: 52 (34h)

A text of up to 36 symbols is printed (prior to the symbol there is a tab symbol - **09h**), the single price of the item and the quantity and its relevant tax group, which is in the 48th position on the line. The printer calculates the price. The commentary may only be up to two lines, in which case the lines will be divided with an <LF> (**0Ah**).

PAYMENT

Command: 53 (35h)

The command is used for receiving payment on registered sales, after which new sales are forbidden. Before the tab symbol, the spacing might also have a descriptive text of one or two lines, which have not been presented in the example. Symbol 'P' shows the type of payment employed - in this particular case "in cash" - after which the sum due is printed out. The payment can be performed several times but the closing of receipt is possible only if the overall, paid sum is equal or greater than the sum of sales.

CLOSING A FISCAL RECEIPT

Command: 56 (38h)

The command prints a maximum of two lines of text - usually an advertisement "footer"- the reg. number of the document, the quantity of the sales registered and the compulsory elements of any fiscal receipt: fiscal logo, date and hour, serial number of the printer and the reg. number of the fiscal memory. After sending the command, the paper is cut, if automatic cutting is enabled. The printer is ready for a new document.

30h (48) OPENING A FISCAL CLIENT'S RECEIPT

Data field: <OpCode>;<OpPwd>;<TillNmb>
Response: AllReceipt, FiscReceipt

Data field: 1; 0000, 1
Response : 0001, 0000015

OpCode Operator's number (1 to 8)
OpPwd Operator password (4 - 6 digits)
TillNmb Operator's place number (1 - 5 digits)

AllReceipt Number of all issued receipts (fiscal or not) from the last fiscal closure (4 Bytes).
FiscReceipt The number of all issued fiscal receipts from the last fiscal closure (7 Bytes).

The Fiscal Printer performs the following operations:

1. Prints "header",
2. Print Graphics Logo, footer
3. Prints Owner Tax Number,
4. Print number and name of operator and work place.
5. Return of AllReceipt and FiscReceipt.

The command will not be successfully completed when:

1. There is an opened fiscal or non-fiscal receipt
2. The maximum number of daily receipts has been issued.

3. No free fiscal memory.
4. Failure of the fiscal memory.
5. No code or operator password.
6. "Header" contains less than 2 lines.
7. All tax rates are "0".
8. No tax number entered.
9. Incorrect operator password.

When incorrect operator passwords are entered for 3 times, the printer stops functioning and must be switched off and on again for continuing work.

33h (51) SUBTOTAL

Data field: <Display>
 Response: SubTotal, Tax1, Tax2, Tax3, Tax9

Data field:
Response :

- Display** = "1", the value of the subtotal will be displayed,
- SubTotal** The sum of the current fiscal receipt (up to 10 Bytes)
- Tax1** The sum of taxes under category 1 (up to 10 Bytes)
- Tax2** The sum of taxes under category 2 (up to 10 Bytes)
- Tax3** The sum of taxes under category 3 (up to 10 Bytes)
- ...
- Tax9** The sum of taxes under category 9 (up to 10 Bytes)

The sum of all sales, registered in the fiscal receipt to the moment.
 The calculated sum is returned to PC as well as accumulated sums for each tax category.

34H (52) REGISTRATION AND DISPLAY

Data field: <S>[Sign]<PLU>[*Qwant] [#Price]
 Response: no data

Data field: S101
Response : none

- S** Letter "S"
- Sign** One byte "+" or "-"
- PLU** PLU number. Integer from 1 - 81000 (5 digit)
- Qwant** Optional parameter, defining the quantity (5.3) 99 999.999.
 The default value is "1.000"
 The length of this parameter is 8 digits (no more than 3 after the decimal point).
- Price** Optional parameter, defining the single price, without permanent change

The Fiscal Printer performs the following operations:

1. Print Article, price and name
2. Price
- 3.
4. Price is displayed on upper raw, name on lower raw of display.

The command will not be successful if:

1. A fiscal receipt has not been opened,
2. Article does not exists
3. There are more then 512 Items in receipt,
4. Command Total is sucessfully executed,
5. Total by Tax Group is negative
6. Total surcharge and discount is negative
7. Customer display is not connected

35h (53) CALCULATION OF A TOTAL - PAYMENT REGISTRATION

Data field: [[<PaidMode>]]<[[Sign]Amount>]
 Response: <PaidCode><Amount2>

Data field: P100
Response : R+000007000

- PaidMode** An optional code, showing the form of payment, which can have the following values:
- "P" Payment in cash (by default),
 - "C" Payment by cheques,
 - "D" Payment by debit cards.

Depending on the code, the accumulated sums in the different registers may be required in the daily report.

Command 53 without argument pay rest of Receipt.

Sign	One byte, with a value "+", showing the symbol "Amount" (the sum which will be paid),
Amount	The sum, which is being paid (9.2) 999 999 999.99
PaidCode	One byte -the result from the execution of the command. = F Error = E The calculated sub-total is negative. NOT used in SR version = D If the paid sum is smaller than the sum of the receipt. The residual amount for completing the payment is returned to Amount. = R If the paid sum is greater than the sum of the receipt a Change message appears and the change is returned to Amount. = I The sum under a given tax group has been negative and that is why an error has occurred. The current sub-total sum is returned to Amount. NOT used in SR version
Amount2	Up to 9 digits with a symbol. Depends on PaidCode.

This command causes the calculation of the sums on the fiscal receipt, the printing out of the sum with a specific font and showing it on the display. The printing of an additional text is also possible - for example, a text describing the form of payment.

The command will not be successful if:

1. A fiscal receipt has not been opened,
2. The accumulated sum is negative,
3. Amount paid with parameter C (cheques) or D (debit card) is larger than TOTAL
4. If one of the sums from the different tax groups is negative.

After the successful execution of the command, the fiscal printer will not perform the commands 48 (30h) and 51 (33h) within the opened receipt. It can however execute the command 53 (35h).

38h (56) CLOSING A FISCAL RECEIPT

Data field: no data
Response: AllReceipt, FiscReceipt, Amount

Data field: none
Response : 0002, 0000016, +000000003000

AllReceipt Number of all receipts issued from the last daily report.
FiscReceipt Number of all fiscal receipts, issued from the last report.
Amount Fiscal Receipt total value.

The sums from the fiscal receipt are added to the daily sums in the RAM registers.

The command will not be executed if:

1. A fiscal receipt is not opened,
2. Command 53 (35h) is not successful,
3. The amount paid by command 53 (35h) is less than the Total Sum of the fiscal receipt.

C. PLU DEFINING

6Bh (107)

DEFINING AND READING ITEMS

Data field:	<Option>[, Parameters]
Response:	ErrorCode[, Data]
Data field:	p€101, 30
Response :	P
Option	1 Byte, available options are: "P", "D", "R", "C", "F", "N"
Parameters	Depending of Option syntax is different.
ErrorCode	= P no error = F error
Option = "P"	Programming new article
Data field:	<P><TaxGr><PLU>,<Sprice>,<Name>
Response:	ErrorCode[, Data]
TaxGr	A capital cyrillic letter from "А", "Г", "Д", "Б", "Е", "Ж", "И", "Ј", "К",
PLU	An integer from 1 to 99999
Sprice	The single price, (8.2) 99 999 999.99
Name	Name of the article up to 32 char.
Option = "D"	Deleting an article
Data field:	<D><A | PLU
Response:	ErrorCode[, Data]
A	Delete ALL Articles (only in service mode). Is registred as RESET.
PLU	PLU number, The last PLU cannot be deleted.
Option = "R"	Read an article
Data field:	<R><PLU>
Response:	<PLU>,<TaxGr>,<Sprice>,<Amount>,<Name>
PLU	An integer from 1 to the value,
TaxGr	
Sprice	The single price
Amount	The accumulated amount after PLU definition.
Name	Name of the article. Up to 32 Chars.
Option = "C"	Change a price of an article
Data field:	<C><PLU>,<Sprice>
Response:	ErrorCode[, Data]
PLU	PLU number
Sprice	New Unit Price. Up to 8 digits
Option = "F"	Find first article. Subtype of Read.
Data field:	<F>[, Parameters]
Option = "N"	Find Next article. Subtype of Read.
Data field:	<N>[, Parameters]
Option = "f"	Find first article with sale within a day.
Data field:	<F>[, Parameters]
Option = "n"	Find Next article with sale within a day
Data field:	<N>[, Parameters]
Option = "X"	Return first free PLU

D. GENERATING REPORTS

Reports are generated only by the fiscal printer and after receiving the command from the PC.

The client's program cannot perform any changes on the reports when they are generated – they look exactly as they have been set up in the fiscal memory.

Initiation is done with the commands:

50 (32h) - report for tax changes and decimal point changes

69 (45h) - daily financial report with or without clearing,

79 (4Fh) - financial report - date to date and number to number of the fiscal recording,

111 (6Fh) - daily fiscal report with or without clearing and printing of the article sums.

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

Data field: [<Start>, <End>]
Response: ="F" if no tax rates are found for the period.

Data field:
Response :

Start The date of the start of the period – DDMMYY (6 Bytes).
End The date of the end of the period - DDMMYY (6 Bytes).

The comma is obligatory when start and end are entered.
In case the data field is empty, the information of the last entered rates is recovered.

PAA, BB, CC, DD, II DDMMYY,.. - if no rates are found

where P means "PASS" and after that, all rates are counted out as well as the date of their entry.

45h (69) DAILY FINANCIAL REPORT

Data field: [<Option>][N][A]
Response: Closure, FM_Total, Total1, Total2, Total3, Total9

Data field: 1
Response :
0001, +000000000000, +000000000000, +000000000000, +000000000000, +000000000000,
+000000000000, +000000000000, +000000000000, +000000000000

Option Optional parameter, controlling the type of the generated report
="0" – «Z» The print-out finishes with " FISCAL RECEIPT" or" NON-FISCAL RECEIPT", depending if printer is fiscalized or not.
="1" – "X" daily report without clearing is performed
="2" – "X" daily report without clearing is performed , with additional information (i.e. no entry in the fiscal memory is performed and no clearing of the registers).
The print-out is performed with a logo "INTERNAL RECEIPT".
The contents of the registers (internal deposit and cash-out) is not printed.

N The presence of this symbol at the end of data, forbids clearing of Operators, when a report with clear is performed.

A The presence of this symbol at the end of data, forbids clearing of Operators, when a report with clear is performed.

Closure Number of the fiscal closure - 4 Bytes.
FM_Total The sum of all sales (no VAT) - 12 Bytes with a mark.
TotalX The sum of each tax category, 1, 2, 3, , .9 - 12 Bytes with a mark.

49H (73) DETAILED FISCAL MEMORY REPORT BY CLOSURE NUMBER

Data field: <Start>,<End>
Response: None

Data field:
Response :

Start The number of the starting fiscal entry - 4 bytes
End The number of the ending fiscal entry - 4 bytes

The command leads to printing of a detailed report of the fiscal memory from one selected number to another.

4Fh (79) SHORT FISCAL MEMORY REPORT BY CLOSURE DATE

Data field: <Start>,<End>
Response: no data

Data field:
Response : none

Start Starting date - 6 Bytes (DDMMYY)
End Ending date - 6 Bytes (DDMMYY)

69h (105) OPERATOR'S REPORT

Data field: no data
Response: no data

Data field:
Response : none

For each Operator the printer will print Operator's name, Number of fiscal receipts, discounts, surcharge, accumulated sums, and returns.

6Fh (111) ITEMS REPORT - Report - Price List

Data field: <Option>
Response: ErrorCode

Data field:
Response :

Option = "0" Only the PLU for which have sales records for the day are printed.
For each PLU is printed – PLU number, Name, Unit price, Sold Quantity and Total turnover for this PLU.
= "1" All programmed PLUs are printed, but only with a number and unit price.

The PLUs are sorted by their number.

When a Daily report with clear is performed 45h (69) and option "A" the accumulated sums are cleared.

E. DISPLAY DATA

21h (33) CLEARING THE DISPLAY

Data field: no data
Response: no data

Data field: none
Response : none

If a fiscal receipt is opened and SW3 is OFF, only the lower line is cleared.

23h (35) TEXT ON THE LOWER LINE OF DISPLAY

Data field: Text
Response: no data

Data field: LOWER TEXT
Response : none

Text A text of 20 symbols, sent directly to the display.
Before it, a command is issued for the positioning and clearing of the lower line.

2Fh (47) DISPLAYING A TEXT ON THE UPPER LINE OF DISPLAY

Data field: Text
Reply: no data

Data field: UPPER TEXT
Response :

Text Up to 20 characters, sent directly to the display.
Before that, a command for positioning and clearing the upper line is entered.
The command is rejected when a fiscal receipt is opened or SW3 is OFF.

3Fh (63) DISPLAYING THE DATE AND HOUR

Data field: no data
Response: no data

Data field: none
Response : none

The lower line of the display shows current date and time: DD-MM-YY HH:MM:SS.

64h (100) SHOWING TEXT ON DISPLAY

Data field: Text
Response: no data

Data field: TEXT
Response : none

Text Text of up to 40 symbols, which are sent to the display (20 Upper + 20 lower text)
If sending of ASCII symbols, smaller than 20h (control characters) to the display is needed,
these symbols are increased to 40h and are preceded by 10h.

Example: in order to send "<ESC>K<0>" in 1Bh, 4Bh, 00h in the data field
the following should be entered: 10h, 5Bh, 4Bh, 10h, 40h.

F. READING - GETTING DATA**3Eh (62) READING CURRENT DATE AND HOUR**

Data field: no data
 Response: <DD-MM-YY><space><HH:MM:SS>

Data field: none
Response : 23-02-12 13:41:45

40h (64) READING LAST FISCAL CLOSURE DETAILS

Data field: no data
 Response: N,Tax1, , Tax9, Date

Data field: none
Response : 0014, 240212

N The number of the fiscal closure - 4 Bytes
 TaxX Net sums on all VAT code – '1, 2, 3, ...9 - 12 Bytes with symbol. For forbidden tax groups is zero. **OUT**
 Date The date of the last fiscal closure - 6 Bytes. DDMMYY.

The command leads to transmitting the information on the last entry in the fiscal memory of the computer.

41h (65) READING DAILY TOTALS

Data field: no data
 Response: Total, Tax1, Tax9

Data field: none
Response : +000000061000, +000000000000, +000000000000, +000000000000, +000000061000,
 +000000000000, +000000000000, +000000000000, +000000000000, +000000000000

Total The sum of all sales, not taxed (tax group SPACE) - 12 Bytes.
 TaxX The net sums of each VAT code - 1, 2, 3, 9 - 12 Bytes with a sign.

The net sums, divided in tax groups, are returned after the last fiscal closure until the moment of receiving the command.

43h (67) READING DAILY STATISTICS

Data field: no data
 Response: Total, NegTotal, NotPaid, FiscReceipt, AllReceipt

Data field: none
Response : +000000061000, +000000000000, +000000000000, 0000029, 0002

Total The sum of all the sales
 NegTotal The sum of all the sales with a negative price - 12 Bytes with a sign.
 NotPaid The sum of all non-paid accounts - 12 Bytes with a sign.
 These are the sums from the filed Amount in the data of command 53 (35h), for which an "N" flag is shown through the data of the same command. Will be removed in next release.
 FiscReceipt All issued fiscal receipts - 4 Bytes.
 AllReceipt All issued receipts up to the moment - 4 Bytes.

The sums, accumulated from the last fiscal closure to the command, are calculated and returned.

44h (68) READING THE NUMBER OF FREE FIELDS IN THE FISCAL MEMORY

Data field: no data
 Response: Logical, Physical

Data field: none
Response : 1986, 1986

Logical The number of the logical places for daily closure - 4 Bytes,
 Physical Not used.

The number of the free Fiscal No is returned.
 These fields record the daily report information with clearing.

4Ah (74) READING THE STATUS OPTIONS 36-bit status

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

Data field:
Response : €€€€€'

Option = "W", All printer buffers must be printed out first.
 = "X", The status is returned immediately (default).

Sn 6 Status bytes (S0 - S5) each (2 Hex digits)

4Ch (76) READING STATUS OF THE FISCAL TRANSACTION

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

Data field: T
Response : 0, 0000, +000000000, +000000000

Option = "T"
 If the parameter has been selected, the command will return the information on the current state of the sum due for payment by client.

Open = "1" if a fiscal or non-fiscal receipt is opened / which is it can be understood from the status bits!
 = "0" if there is no opened receipt.

Items The number of the registered sales and the current or last fiscal receipt - 4 Bytes.

Amount The sum from the last fiscal receipt - 9 Bytes with a sign.

Tender The sum tendered (payed) against the current or the last receipt - 9 Bytes with a sign.

The command supports the PC application's ability to monitor the status and, if needed, to restore and complete an already started fiscal operation, which has been interrupted on emergency or out of time - for example, as a result of a power failure.

The command calls the calculation and printing out of a short periodic financial report.

5Ah (90) RETURNS DIAGNOSTIC INFORMATION

Data field: <Calc>
 Response: <FwRev><SP><FwDate><SP><FwTime><Chk><Sw><Country>, <IFBM>, <FM>

Data field: 1
Response : (for example) 1. 00SR 15FEB12 1000, 2A9C, 00000111, 8, SGG999999, 00000000

Calc if "1", the control sum of the fiscal memory is calculated - 1 Byte.

FwRev The version of the software utility - 6 Bytes.

SP Space 20h.

FwDate The date of the software utility - DDmmYY - 7 Bytes.

Sp Space (20h)

FwTime Time of the software utility HHMM - 4 Bytes.

Chk Control sum of the EPROM. a 4 bytes string in Hex format.
 If the control sum is 214Ah, it will be transmitted as 32h, 31h, 34h, 41h.

Sw The keys from SW1 to SW8 - an 4 byte string with a "0" or "1".

Country The number of the country - 1 byte.

IFBM Identification Number of Fiscal Module - 8 Bytes.

FM The number of the Fiscal Module - 8 Bytes.

61H (97) READING THE SET TAX RATES

Data field: no data
 Response: Tax1, Tax2, Tax3, ...Tax9

Data field: none
Response : 00, 00, 00, 18, 08, 00, 00, 00, 00

Tax1 Tax 0-A (percent)

Tax2 Tax 1- (percent)

Tax3 Tax 2- (percent)

Tax4 Tax 3-D (percent)

...

Tax9 Tax 8 (percent)

63h (99) READING THE TAX REGISTRATION NUMBER

Data field: no data
 Response: Text

Data field: none
Response : 999999999, IEÁ

Text The PIB - Owner Taxation Number is presented as a string

67h (103) READING INFORMATION ON THE CURRENT RECEIPT

Data field: no data
 Response: CanVd, Tax1, Tax2, Tax3, ... Tax9

Data field: none
Response : 0, +000000000000, +000000000000, +000000000000, +000000000000, +000000000000,
 +000000000000, +000000000000, +000000000000, +000000000000

CanVd is returning possible (sale with a zero mark) [0/1].
 Tax 1 Sum, accumulated for tax group 1
 Tax 2 Sum, accumulated for tax group 2
 Tax 3 Sum, accumulated for tax group 3
 ...
 Tax 9 Sum, accumulated for tax group 9

Provides information on accumulated sums under the different tax groups and weather the return of the registered items is possible.

6Eh (110) READING ADDITIONAL DAILY SALES INFORMATION

Data field: no data
 Response: Cash, Debit, Cheque, Closure, Receipt

Data field:
Response : +000000061000, +000000000000, +000000000000, +0, +0,
 +0, +0, 0014, 0002

Cash Paid in cash
 Debit Debit card payment
 Cheque Cheques payments
 Closure Current fiscal closure
 Receipt Number of the next fiscal receipt

Returns the information for the distribution of the daily sum according to the terms of payment.

70h (112) READING INFORMATION ON THE OPERATOR

Data field: Operator
 Response: Receipts, Total, Discount, Surcharge, Void, Name

Data field: 1
Response : 2; 13; 610. 00; 0; 0. 00, 00000000;

Operator Operator's number (from 1 to 8)
 Receipts Number of fiscal receipts issued by this Operator
 Total Number of sales and Total sum, divided by""
 Discount Number of discounts and Total sum of discounts
 Surcharge Number of surcharges and Total sum of surcharges
 Void Number of Voids and Total sum of Voids
 Name Operator's name

71h (113) READING THE NUMBER OF THE LAST PRINTED DOCUMENT (receipt, reps)

Data field: no data
 Response: DocNum, FiscRecNum, ClosNum

Data field: none
Response : 0000085

DocNum The number of the last printed document (7 digits)
 FiscRecNum The number of the last printed fiscal receipt
 ClosNum The number of the last printed daily closeru (Z report)

72h (114) READING INFORMATION ON THE FISCAL ENTRY OR A FISCAL PERIOD

Data field: <Closure>, <Type>, Closure2>]
 Response: ErrorCode, TaxX (X up to 9)

Data field: 12, 0
Response : P, 0. 00, 1. 00, 0. 00, 150. 00, 0. 00, 0. 00, 0. 00, 0. 00, 0. 00

Closure Number of fiscal record
 Type Type of requested information:
 "0" Sums according to Tax Groups
 "1" Net sums according to Tax Groups
 "2" Accumulated taxes for each Tax Group
 "3" TAX rates are returned

Closure2 "4" Sums according to Tax Groups for a certain period
 "5" Net sums according to Tax Groups for a certain period
 "6" Accumulated taxes for each Tax Group for a period
 Number of fiscal record for "4", "5" and "6".
 for "0", "1", "2" and "3" this field should be empty.

ErrorCode = "F" The record is with wrong checksum and is empty
 = "E" is empty
 = "P" no error"

TaxX... Sum or percentage depending on Type

74h (116) READ FISCAL MEMORY BLOCK BY COUNT

Data field: <Address>,<Count>
 Response: Data

Data field:
Response :

Address Starting address 00000h – 1FFFFh
 Count Bytes to read (1 – 64).

Data Data string as hexadecimal value (two char per byte).

To read a whole fiscal memory, you have to execute this command 2048 times x 64 Bytes. Please do not exceed 64K boundary.

75h (117) READ ACUMULATED SALES TOTALS

Data field: <Num>
 Response: Data

Data field:
Response :

Num Num=0,1,2,3 means first, second, third, fourth 64 Bytes to read

Data Data string as hexdecimla value (two char per byte).

You can read only 256 Bytes containing working register of Accumulated Sales Totals.

77h (119) READ DATE AND TIME OF LAST RECORD IN FISCAL MEMORY

Data field:
 Response: Data

Data field:
Response :

G. OTHER NOT-CLASSIFIED COMMANDS

2Ch (44) ADVANCING PAPER

Data field: [Lines [,Option]]
Response: no data

Data field: 1, 1
Response : none

Lines The number of lines to which the paper will be fed.
This should be a positive number, not greater than 99 (1 or 2 Bytes).
If this parameter is missing 1 line feeding is assumed.

Option Defines which paper to be fed:
"0" no effect
"1" Only receipt paper is fed
"2" Only journal paper is fed
"3" Both papers are fed.
If this parameter is missing "1" is assumed.

2Dh (45) CUTTING OFF PRINTED DOCUMENT

Data field: no data
Response: Result

Data field: none
Response :

Result "P" Successful cut
"F" Fail cut

This command is used to cut the receipt. It should be noted, that the application program will take care to move the receipt at least with 2 lines forward. Otherwise the end of the receipt will be cut.
If the printer is in Auto cutting mode, it will position the paper automatically.
In this case it is not necessary to use this command.

When the cutter is blocked, the paper must be taken out of the cutter and to execute this command.
This will put the cutter in a home position.

3Ch (60) DATE AND TIME CORRECTION

Data field: Option
Response: no data

Data field:
Response : none

Option ="0" Set time 1 Hour backward
="1" Set time 1 Hour forward

46h (70) INTERNAL DEBITING AND CREDITING (SERVICE IN AND OUT) Cash-in and Cash-out

Data field: [Sign][Amount]
Response: ExitCode, CashSum, ServIn, ServOut

Data field: - 30
Response : P, +000000007000, +000000010000, +000000003000

Amount The sum to be registering (8.2) 99 999 999.99.
Depending on the mark (negative is Cash-out) of the digit it is interpreted as a Cash-in or a Cash-out.

ExitCode "P" - The order is entered.
If the sum is "zero", the printer prints an internal receipt for registering the operation.
"F" - The entry is forbidden. This happens when:

in-cash volume is less than the entered internal cash-out,
There is an opened fiscal or non-fiscal receipt,
CashSum In-cash volume (w/o dec. point, last t digits are decimals)
ServIn The sum from all commands " Internal cash-in " (w/o dec. point, last t digits are decimals)
ServOut The sum of all commands "Internal cash-out"(w/o dec. point, last t digits are decimals)

Changes the contents of the register for "in-cash" amounts.
Depending on the mark of the sum in question, it is accumulated in the register on internal cash deposit and discount.
The information is not entered in the fiscal memory and is accessible until the daily closure.
It is printed with the command 69 (45h) or when a daily report is initiated, without clearing from the printer itself.

47h (71) DIAGNOSTIC INFORMATION REPORT

Data field: no data
 Response: no data

Data field: none
Response : none

This command prints an internal receipt, containing diagnostic information:

1. Print current working mode (PDV, PPR)
2. Prints the data and the version of the firmware.
3. Prints the check sum
4. Prints the speed of the serial port transfer.
5. Prints the position of the configuration keys and the number of the respective country,
6. Prints current date and time.
7. Prints the number, date and time of the last "RAM CLEAR"
8. Prints the current temperature of the print heads.
9. Prints the total number of fields in the fiscal memory and the number of the free fields.
10. Prints the current date and time.

This command shall be executed when a receipt is opened and there is no paper.
 It can be executed by pressing "SEL" key while switching ON the printer.

50h (80) SOUND SIGNAL

Data field: no data
 Response: no data

Data field: none
Response : none

Command send a short Sound Signal.

59h (84) PRINTING BAR CODE INTO NON-FISCAL RECEIPT

Data field: <Type>,<Data>

<Type>; <Data>

Response: None

Type Barcode type. 1 byte with possible value:

- '1' EAN8 bar code. Data contains only digits and is 7 bytes long. The check sum is automatically calculated and printed.
- '2' EAN13 bar code. Data contains only digits and is 12 bytes long. The check sum is automatically calculated and printed.
- '3' Code128 bar code. Data contains symbols with ASCII codes between 32 and 127. Data length is between 22 and 42 symbols (depends on the content – the maximum length is if all symbol are digits). The check sum is automatically calculated and printed.
- '4' ITF (Interleaved 2 of 5). Data contains only digits
- '5' ITF (Interleaved 2 of 5). Data contains only digits. The check sum is automatically calculated and printed.

The command prints a bar code. Printing a bar code is permitted only in an opened fiscal or non-fiscal receipt. The barcode is centered. If data length or content is not valid, nothing is printed and "Syntax error" status bit is set. Bar code Height is regulated in command (43).
 If syntax is <Type>;<Data>, printer prints numeric data below bar code lines.

59h (89) PROGRAMMING THE PRODUCTION TEST AREA - Test Fiscal memory size

Data field: <Test>
 Response: Result, Free

Data field: T
Response : P, 38

Test = T
Result = P no error,
 = F error
Free Memory size in Hex format.

The command tests the fiscal memory.
 Pattern for recording is: **55h, AAh, 33h, CCh, 5Ah, A5h, 3Ch, C3h.**
 If SW 1.1 is raised, the fiscal memory has not been formatted or is in the read-only mode.

Data field: [<mSec>]
Response: no data

Data field:
Response : **none**

mSec Drawer opening pulse length (from 5 to 25 msec)

User can set the length of the pulse for opening the Cash Drawer.
After the parameter is set it will stay till a RAM RESET is performed.
After a Reset the default value is 15 msec.

The set of symbols for the Fiscal Printer

	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0		0	@	P	`	p	Ђ	ђ		°	А	Р	а	р
1	!	1	А	Q	a	q					Б	С	б	с
2	"	2	В	R	b	r					В	Т	в	т
3	#	3	С	S	c	s			J		Г	У	г	у
4	\$	4	Д	T	d	t					Д	Ф	д	ф
5	%	5	Е	U	e	u					Е	Х	е	х
6	&	6	Ф	V	f	v					Ж	Ц	ж	ц
7	'	7	Г	W	g	w					З	Ч	з	ч
8	(	8	Н	X	h	x					И	Ш	и	ш
9	)	9	І	Y	i	y								
A	*	:	J	Z	j	z	Љ	љ			К		к	
B	+	;	К	[	k	{					Л		л	
C	,	<	L	\	l	|	Њ	њ		j	М		м	
D	-	=	M	]	m	}					Н		н	
E	.	>	N	^	n	~	Ћ	ћ			О		о	
F	/	?	O	_	o		Џ	џ			П		п	

List of fiscal commands – alphabetic order

hex	dec	FUNCTION
21h	(33)	Display clear text
23h	(35)	Display a text on lower line of the display
26h	(38)	Open a non-fiscal text
27h	(39)	Close a non-fiscal text
2Ah	(42)	Print a non-fiscal free text
2Bh	(43)*	Set header and footer.
2Ch	(44)	Printer Paper feed
2Dh	(45)	Printer Auto cut of receipts
2Fh	(47)	Display a text on upper line of display
30h	(48)	Open a fiscal (client's) receipt
32h	(50)	Get Tax Rates within period
33h	(51)	Display a Subtotal
34h	(52)	Register and display sales
35h	(53)	Register Payment
38h	(56)	Close a fiscal receipt
3Ch	(60)	Date and Time corection
3Dh	(61)*	Set date and time
3Eh	(62)	Get back date and time
3Fh	(63)	Display date and time
40h	(64)	Info on last fiscal closure
41h	(65)	Info on daily taxes
43h	(67)	Get daily statistics
44h	(68)	Get free Fiscal No
45h	(69)	Close Fiscal No (daily financial report)
46h	(70)	Register cash-in and cash-out
47h	(71)	Report of diagnostic info
48h	(72)*	End of Fiscalization – Confirm IBFM
4Ah	(74)	Get status bytes
4Ch	(76)	Fiscal Closure Status
4Fh	(79)	Report summary of the fiscal memory by the date
50h	(80)	Send a Sound Signal
53h	(83)	Set Mode, Decimals and allowed taxes
54h	(84)	Print bar code into non-fiscal receipt (NEW)
59h	(89)	Test Fiscal Memory Size
5Ah	(90)	Get the diagnostic information
5Bh	(91)*	Set country and IBFM
61h	(97)	Get Tax Rates
62h	(98)*	Set PIB - Owner Tax Number
63h	(99)	Get PIB - Owner Tax Number
64h	(100)	Display free text on display
65h	(101)	Set operator's password
66h	(102)	Set operator's name
67h	(103)	Information on a current receipt
68h	(104)	Reset operators sales data
69h	(105)	Report on operators
6Ah	(106)	Set Drawer opening time
6Bh	(107)	Define and read of Article
6Eh	(110)	Get sales data
6Fh	(111)	Report Price list
70h	(112)	Get operators data
71h	(113)	Get number of the last printed doc (receipt, rep) (NEW)
72h	(114)	Info for a fiscal record or for a fiscal period
73h	(115)	Programming of graphic LOGO
74h	(116)	Reading block of fiscal memory

* Command are allowed only in service mode

New command: 84, 113.

Notes: