

COMMUNICATION PROTOCOL

[Electronic cash registers]

[ECR – CP – Bulgaria – 1.3]



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INTRODUCTION

The purpose of this document is to explain exchange data formats and communication protocol of Electronic cash registers (ECR).

The ECRs works could be controlled by application software through the USB/GPRS interfaces. The communication is performed through the specific list of commands.

SPECIFICATION

Communication regime

Interface – RS232C
Speed – 19200/ 57600 bps
Parity – none
Data bits - 8
Stop bits - 2

Data format

0	1	2	3	4	5	5+1	5 + n	6 + n
0AAH	055H	Address:	Command	Length (n)	Data	Data	Data	Check sum

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

$$\text{Address}[2] + \text{Command}[3] + \text{Length}[4] + \text{Data}[5] + \text{Data}[5+1] + \dots + \text{Data}[5+n] + \text{Control sum}[6+n] = 0$$

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

The field “Length” describes the number of data fields, and thus, the position of “control sum”.

Instructions classification

There exist two types of instructions, depending on the time of execution:

- Immediately executed instructions
- Instructions with delayed execution

At the immediate execution commands the operations on the execution are performed between the receiving of the command and the sending of the answer. The time for answer is not more than $T_{ans} \leq 50\text{ms}$, except for the command for receiving of ECR's status $T_{ans} \leq 5\text{ms}$ with shortened access time (quick).

The answer of commands with delayed execution indicates the acceptance of the command for execution. The actual execution follows the transfer of the answer, the ECR status is “Busy”. After the operation is completed the status changes into “Free” or “report” (in case there are results). Time for answer $T_{ans} \leq 10\text{ms}$.

Working regime

The ECR may operate in two regimes: autonomous and system. The switching over between the regimes is done through the interface with command 060H. In autonomous regime the programmed items are accessible for registration by the operator by serial and barcode number and in system regime only by barcode number.

INSTRUCTIONS AND COMMANDS

The position and the size of the fields in the descriptions of the commands are given in bytes. The position is related to the beginning of the informational part.

The decimal numbers are presented with fixed point. The position of the point for percentages is on 2nd position, for quantity on 3rd position, and for prices on 2nd or 0 positions depending on the programming. The logic fields are given with two bytes, 0000 for FALSE and FFFF for TRUE.

10h Returns IBFM number

Command	Data	Classification
10h	without information part	Immediate execution

answer:

Position	Number	Value
0	8	The number is in ASCII presentation

11h Returns heading lines from 1 to 8

Command	Data	Classification
11h	without information part	Immediate execution

answer:

Position	Number	Value	Notes
0	1	Row 1 printing format	Printing format: 00h – the row will not be printed; 80h - the row will be printed; *The rows from 1 to 5 is printed always, no matter of the contents; *The rows from 6 to 8 is printed in the footer of the receipt; *Some ECRs may have only 6 rows
1	24/18	Row 1 contents	
25/19	1	Row 2 printing format	
26/20	24/18	Row 2 contents	
50/38	1	Row 3 printing format	
51/39	24/18	Row 3 contents	
75/57	1	Row 4 printing format	
76/58	24/18	Row 4 contents	
100/76	1	Row 5 printing format	
101/77	24/18	Row 5 contents	
125/95	1	Row 6 printing format	
126/96	24/18	Row 6 contents	
150/114	1	Row 7 printing format	
151/115	24/18	Row 7 contents	
175/133	1	Row 8 printing format	
176/134	24/18	Row 8 contents	

12h Returns discounts and add-ons

Command	Data	Classification
12h	without information part	Immediate execution

answer:

Position	Number	Value	Notes
0	2	Discount Percent	
2	2	Add-on Percent	
4	2	Discount Value	
6	2	Add-on Value	

13 h Returns the status of Yes/No parameters

Command	Data	Classification
13h	without information part	Immediate execution

answer:

Position	Number	Value	Note:
0	2	Open drawer check-up	The parameters status: 0000h – the function is forbidden; FFFFh – the function is allowed;
2	2	Compulsory amount to pay	
4	2	Forbidden direct correction	
6	2	Forbidden "Deep Void"	
8	2	Allowed issuing of receipt copy	
10	2	Print taxes on the receipt	
12	2	Print percent ratios on the receipt	
14	2	Print barcode number on the receipt	
16	2	External printer connected	
18	2	Allow more than one operator to work on one bill	
20	2	Automatic ECR discharge after finising	
22	2	Print operator's registration	
24	2	Operation only in bill	
26	2	Tax system - VAT	
28	2	Decimal point is on 2 nd position	
30	2	VAT included in the price	

14h Returns the fiscal number of the device

Command	Data	Classification
14h	without information part	Immediate

answer:

Position	Number	Value
0	4	Service number in PBCD


15h Returns the financially responsible person

Command	Data	Classification
15h	without information part	Immediate

answer:

Position	Number	Value
0	13	Number in ASCII format

16h Returns the information for an item

Command	Data	Classification
16h		Immediate execution

Position	Number	Value	Range
0	2	Item's number	From 1 to 10 000

Some ECRs use 12 characters for the name, and some 18. Depending on that response is different

Answer (18 characters):

Position	Number	Value
0	2	Item's number
2	4	Single price
6	4	Available quantity
10	1	Item group
11	1	Tax group
12	4	Turnover
16	1	Reserved
17	18	Name
35	1	Department group
36	1	Flags bit 0 – Forbidden for sale (0 or 1) bit 1 – Single transaction (0 or 1) bit 2 – Operation with fractions (0 or 1) bit 3 – Operation without available quantity (0 or 1) bit 4 – Reserved bit 5 – Stock-taking (0 or 1) bit 6 – Reserved bit 7 – Reserved
37	4	Quantity sold

Answer (12 characters):

Position	Number	Value
0	2	Item's number
2	4	Single price
6	4	Available quantity
10	1	Item group
11	1	Tax group
12	4	Turnover
16	12	Name
28	1	Type of payment
29	1	Department group
30	1	Flags bit 0 – Forbidden for sale (0 or 1) bit 1 – Single transaction (0 or 1) bit 2 – Operation with fractions (0 or 1) bit 3 – Operation without available quantity (0 or 1) bit 4 – Reserved bit 5 – Stock-taking (0 or 1) bit 6 – Reserved bit 7 – Reserved
31	4	Quantity sold

17h Returns information for the departments

Command	Data	Classification
17h		Immediate execution

Position	Number	Value	Range
0	2	Department's number	From 0 to 9

Some ECRs use 12 characters for the name, and some 18. Depending on that response is different

Answer (18):

Position	Number	Value
0	2	Department's number
2	4	Single price
6	1	Item group
7	1	VAT group
8	4	Turnover
12	1	Reserved
13	18	Name
31	1	Flags bit 0 – Forbidden for sale (0 or 1) bit 1 – Single transaction (0 or 1) bit 2 – Operation without available quantity (0 or 1)
32	4	Quantity sold

Answer (12):

Position	Number	Value
0	2	Department's number
2	4	Single price
6	1	Item group
7	1	VAT group
8	4	Turnover
12	12	Name
24	1	Type of payment
25	1	Flags bit 0 – Forbidden for sale (0 or 1) bit 1 – Single transaction (0 or 1) bit 2 – Operation without available quantity (0 or 1)
26	4	Quantity sold

18h Returns information for the item's group consignment percent

Command	Data	Classification
18h	without information part	Immediate

answer:

Position	Number	Value
0	2	Consignment percent for item's group 1
2	2	Consignment percent for item's group 2
4	2	Consignment percent for item's group 3
6	2	Consignment percent for item's group 4
8	2	Consignment percent for item's group 5
10	2	Consignment percent for item's group 6
12	2	Consignment percent for item's group 7
14	2	Consignment percent for item's group 8
16	2	Consignment percent for item's group 9
18	2	Consignment percent for item's group 10

19h Returns information for the VAT groups

Command	Data	Classification
19h	without information part	Immediate

answer:

Position	Number	Value	Notes
0	2	Percent of the obligation for VAT group 1	*The tax percentage for each group is represented by 2 bytes – fixed point on second digit Default value: Presentation: B=20.00% 07 D0 B =20.00% 07 D0 Γ=07.00% 02 BC All others: = 00.00% 00 00
2	2	Percent of the obligation for VAT group 2	
4	2	Percent of the obligation for VAT group 3	
6	2	Percent of the obligation for VAT group 4	
8	2	Percent of the obligation for VAT group 5	
10	2	Percent of the obligation for VAT group 6	
12	2	Percent of the obligation for VAT group 7	
14	2	Percent of the obligation for VAT group 8	

1Ah Returns information for the operators

Command	Data	Classification
1Ah		Immediate



Position	Size	Meaning	Range
0	2	Operator number	From 1 to 32 (depend on ECR model/country)

answer:

Position	Number	Value
0	2	Operator's number
2	12	Operator's name
14	4	Operator's code
18	2	Reserved field for the operator

1Bh Returns information for payments

Command	Data	Classification
1Bh	without information part	Immediate

answer:

Position	Number	Value
0	2	Course of payment 1 to 1 (always 1)
2	2	Course of payment 2 to 1
4	2	Course of payment 3 to 1
6	2	Course of payment 4 to 1
8	6	Name of payment 1
14	6	Name of payment 2
20	6	Name of payment 3
26	6	Name of payment 4

1Ch Returns information for hourly periods

Command	Data	Classification
1Ch	without information part	Immediate

answer:

Position	Number	Value
0	1	Beginning of period 1 - minutes (PBCD)
1	1	Beginning of period 1 - hour (PBCD)

2	1	End of period 1 – minutes (PBCD)
3	1	End of period 1 - hour (PBCD)
4	1	Beginning of period 2 - minutes (PBCD)
5	1	Beginning of period 2 - hour (PBCD)
6	1	End of period 2 – minutes (PBCD)
7	1	End of period 2 - hour (PBCD)
8	1	Beginning of period 3 - minutes (PBCD)
9	1	Beginning of period 3 - hour (PBCD)
10	1	End of period 3 – minutes (PBCD)
11	1	End of period 3 - hour (PBCD)
12	1	Beginning of period 4 - minutes (PBCD)
13	1	Beginning of period 4 - hour (PBCD)
14	1	End of period 4 – minutes (PBCD)
15	1	End of period 4 - hour (PBCD)
16	1	Beginning of period 5 - minutes (PBCD)
17	1	Beginning of period 5 - hour (PBCD)
18	1	End of period 5 – minutes (PBCD)
19	1	End of period 5 - hour (PBCD)
20	1	Beginning of period 6 - minutes (PBCD)
21	1	Beginning of period 6 - hour (PBCD)
22	1	End of period 6 – minutes (PBCD)
23	1	End of period 6 - hour (PBCD)
24	1	Beginning of period 7 - minutes (PBCD)
25	1	Beginning of period 7 - hour (PBCD)
26	1	End of period 7 – minutes (PBCD)
27	1	End of period 7 - hour (PBCD)
28	1	Beginning of period 8 - minutes (PBCD)
29	1	Beginning of period 8 - hour (PBCD)
30	1	End of period 8 – minutes (PBCD)
31	1	End of period 8 - hour (PBCD)

1Dh Returns information for keys functions

Command	Data	Classification
01Dh	without information part	Immediate

answer:

Position	Number	Value	Notes	
0	1	Function without number for key 1	Key by default	Function by default
1	1	Function without number for key 2	Without number	Hex Dec
2	1	Function without number for key 3	Key 1 – Host key	01 1
3	1	Function without number for key 4	Key 2 – Check	0e 14
4	1	Function without number for key 5	Key 3 – Card	0f 15
5	1	Function without number for key 6	Key 4 – Host key	04 4
6	1	Function without number for key 7	Key 5 – ON	16 22
7	1	Function without number for key 8	Key 6 – VD	1c 28
8	1	Function without number for key 9	Key 7 – X	14 20
9	1	Function without number for key 10	Key 8 – PLU	19 25
10	1	Function with number for key 1	Key 9 - key	0f 15
11	1	Function with number for key 2	Key 10 -	10 16
12	1	Function with number for key 3	With number	Hex Dec
13	1	Function with number for key 4	Key 1 - D1	01 - 1
14	1	Function with number for key 5	Key 2 - D2	0e - 14
15	1	Function with number for key 6	Key 3 - D3	0f - 15
16	1	Function with number for key 7	Key 4 - D4	04 - 4
17	1	Function with number for key 8	Key 5 – ON	05 - 5
18	1	Function with number for key 9	Key 6 – VD	1d - 29
19	1	Function with number for key 10	Key 7 – X	1a - 26
			Key 8 – PLU	18 - 24
			Key 9 -	0f - 15
			Key 10 -	10 - 16
			* The keys with number 9 and 10 are assessable only trough the interface.	

1Eh Returns information for the item (by item's number)

Command	Data	Classification
1Eh		Immediate execution



Position	Number	Value	Range
0	2	Item's number	From 1 to 10 000

answer:

Position	Number	Value	Notes
0	2	Flag – programmed barcode number	“Flag – programmed barcode number”: 0000h – if not programmed and different from 0 if it is programmed; *The command will not be executed in case the mode is R (registration) and the keyboard is not locked. * Reading the number “0” will return correct max number of records.
2	6	Barcode number PBCD	
8	2	Item's number	

1Fh Returns information for the item (by barcode number)

Command	Data	Classification
1Fh		Immediate execution



Position	Number	Value
0	6	Barcode number in PBCD

answer:

Position	Number	Value	Notes
0	2	Flag – programmed barcode number	“Flag – programmed barcode number”: 0000h – if not programmed and different from 0 if it is programmed; *The command will not be executed in case the mode is R and the keyboard is not locked. * Reading the number “0” will return correct max number of records.
2	6	Barcode number PBCD	
8	2	Item's number	

20h Turnover by hours

Command	Data	Classification
020h	Without information part	Immediate execution

answer:

Position	Number	Value
0	4	Turnover for hourly period 1
4	4	Turnover for hourly period 2
8	4	Turnover for hourly period 3
12	4	Turnover for hourly period 4
16	4	Turnover for hourly period 5
20	4	Turnover for hourly period 6
24	4	Turnover for hourly period 7
28	4	Turnover for hourly period 8

21h Turnover by groups

Command	Data	Classification
021h	without information part	Immediate

answer:

Position	Number	Value
0	4	Turnover by groups 1
4	4	Turnover by groups 2
8	4	Turnover by groups 3
12	4	Turnover by groups 4
16	4	Turnover by groups 5
20	4	Turnover by groups 6
24	4	Turnover by groups 7
28	4	Turnover by groups 8
32	4	Turnover by groups 9
36	4	Turnover by groups 10

22h Turnover by VAT groups

Command	Data	Classification
022h	without information part	Immediate

answer:

Position	Number	Value
0	4	Turnover for VAT group 1
4	4	Turnover for VAT group 2
8	4	Turnover for VAT group 3
12	4	Turnover for VAT group 4
16	4	Turnover for VAT group 5
20	4	Turnover for VAT group 6
24	4	Turnover for VAT group 7
28	4	Turnover for VAT group 8

23h Turnover by operators

Command	Data	Classification
23h		Immediate execution



Position	Number	Value	Range
0	2	Operator's number	From 1 to 8

answer:

Position	Number	Value	Notes
0	2	Operator's number	Status: 0 – there are not accumulated sales since the last report with nullifying (Z); 1 – there is sum overflow in sales and report with nullifying has to be performed; 2 – there are accumulated sales since the last report with nullifying (Z); * Turnover by groups is pertaining to
2	2	Number of clients	
4	2	Number of discounts	
6	2	Number of add-ons	
8	2	Reserved	
10	2	Number of returned	
12	2	Number of corrections	
14	2	Number of Received on Amounts (RA)	
16	2	Number of Paid Out (PO)	
18	2	Status	
20	4	Amount of discounts	
24	4	Amount of add-ons	
28	4	Amount received in payment 1	
32	4	Amount received in payment 2	

36	4	Amount received in payment 3	current operator. * The ECR's turnover is accessible through the turnover of operator 10 (the 10 th operator is not existent).
40	4	Amount of received in payment 4	
44	4	Amount returned	
48	4	Amount corrections	
52	4	RA amount in payment 1	
56	4	PO amount in payment 1	
60	4	RA amount in payment 2	
64	4	PO amount in payment 2	
68	4	RA amount in payment 3	
72	4	PO amount in payment 3	
76	4	RA amount in payment 4	
80	4	PO amount in payment 4	
84	4	Reserved field	
88	4	Turnover by PLU Group 1	
92	4	Turnover by PLU Group 2	
96	4	Turnover by PLU Group 3	
100	4	Turnover by PLU Group 4	
104	4	Turnover by PLU Group 5	
108	4	Turnover by PLU Group 6	
112	4	Turnover by PLU Group 7	
116	4	Turnover by PLU Group 8	
120	4	Turnover by PLU Group 9	
124	4	Turnover by PLU Group 10	

24h X Report (Turnovers by items)

Command	Data	Classification
24h	↓	Delayed execution

Position	Number	Meaning
0	2	Start PLU number
2	2	End PLU number (including)

Answer:

Command	Data	Notes
24h	without information part	* The answer can be received through command 070H, contains the X-report (074H) of the selected items. Max 16 records per page. * Use command 062 to read next page of report.

26h Z Report (Turnovers by items + nullifying) & Delete Barcodes

Command	Data	Classification
26h	↓	Delayed execution

Position	Number	Value	Notes
0	2	Start PLU number	* Similar to 24h. Also deletes the items <u>turnover and the barcodes if they are programmed.</u> *The command will not be executed in case the mode is R (registration) and the keyboard is not locked.
2	2	End PLU number	

28h Delete the item (by barcode number)

Command	Data	Classification
1Fh	↓	Immediate execution

Position	Number	Value
0	6	Barcode number in PBCD

29h Reprogramming of items (in-line)

Command	Data	Classification
29h	↓	Immediate execution

Position	Number	Value	
0	6	Item's nomenclature number (PBCD)	* The price could be programmed in case the daily Z report is cleared and a new receipt has not been started;
6	4	Single price	
10	4	Available quantity	
14	1	Item group	
15	1	Tax group	
16	4	Turnover (without meaning)	
20	12	Name	
32	1	Type of payment	
33	1	Department group	
34	1	Flags bit 0 – Forbidden for sale (0 or 1) bit 1 – Single transaction (0 or 1) bit 2 – Operation with fractions (0 or 1) bit 3 – Operation without available quantity (0 or 1) bit 4 – Reserved bit 5 – Stock-taking (0 or 1) bit 6 – Reserved bit 7 – Reserved	

2Ah Z Report (Turnovers by items + nullifying) – only sold PLUs

Command	Data	Classification
2Eh	↓	Immediate execution

Position	Number	Value	Note
0	2	First PLU number	Shows only PLUs with: Turnover not null
2	2	Last PLU number	

answer:

Command	Data	Notes
2Bh	without information part	Similar to 24h, but uses 73h to return result, instead of 74h

2Bh Z Report (Turnovers by items + nullifying) (all items)

Command	Data	Classification
2Bh	↓	Delayed execution

Position	Size	Meaning	Note
0	2	Start number	All PLUs in selected range.
2	2	End number (including)	

answer:

Command	Data	Notes
2Bh	without information part	Similar to 24h, but uses 73h to return result, instead of 74h

2Ch Returns status

Command	Data	Classification
02Ch	without information part	Immediate execution

answer:

Position	Number	Value	Notes
0	4	Amount in the receipt	Last Command : 0 – Out of receipt; 1 – Quantity; 2 – Subtotal; 3 – Department with free price; 4 – Department with programmed price; 5 – Item; 6 – Null operation (VOID, DEEP VOID, etc.); 7 – Payment; 8 – Price; 9 – End of receipt;
4	2	Last send command	
6	2	Number of last receipt (from the counter of the all receipts)	
8	2	Position of the key (Mode – check 039H)	
10	2	Operator number	
12	2	Flag (0FFFFh - bill; 0h - receipt)	
14	2	Table number	
16	2	Serial number of the bill	
18	2	Flag invoice	

2Dh Input from the keyboard

Command	Data	Classification
2Dh		Immediate execution

Position	Number	Value	Note		
0	1	Number of the keys (1 to 30)	Number	Key code	Function
1	1	Key code 1			
2	1	Key code 2			
3	1	Key code 3			
...			
N	1	Key code N			

Answer:

Position	Number	Value	Notes
0	2	Instruction status	0000h – the instruction has been rejected; FFFFh – the instruction has been executed;

2Eh Sending of comment lines

Command	Data	Classification
2Eh		Immediate execution



Position	Number	Value	Note
0	24/18	Row 1 of print (printed with “.”)	*It is possible to print up to 10 comment lines (lines 2 to 10 are optional). * It is not possible to print the comments row in the fiscal receipt.
24/18	24/18	Row 2 of print (printed with “.”)	
...	
/	24/18	Row N(<=10) of print (printed with “.”)	

answer:

Position	Number	Value	Notes
0	2	Instruction status	0000h – the instruction has been rejected; FFFFh – the instruction has been executed;

2Fh Delete all programmed barcode numbers simultaneously

Command	Data	Classification
02Fh	without information part	Delayed execution

answer:

Position	Number	Value	Notes
0	2	Instruction status	FFFFh –the instruction has been executed; 0000h – the instruction has been rejected; *The command will not be executed in case the mode is R and the keyboard is not locked.

30h Reset and print of the turnover by items

Command	Data	Classification
030h	without information part	Delayed execution

31h Reset and print of the turnover by items number

Command	Data	Classification
031h	without information part	Delayed execution

32h Reset and print of the turnover by departments

Command	Data	Classification
032h	without information part	Delayed execution

33h Reset of turnover by VAT gro

Command	Data	Classification
032h	without information part	Delayed execution

34h Reset and print of the turnover by operators

Command	Data	Classification
034h	without information part	Delayed execution

35h Reset and print of the turnover by departments

Command	Data	Classification
035h	without information part	Delayed execution

36h Reset and print of the turnover by hours

Command	Data	Classification
036h	without information part	Delayed execution

39h Set key lock position

Command	Data	Classification
39h		Immediate execution



Position	Number	Value	Notes
0	1	Key lock position	0 – ECR unlock 1 – Registration(R) 2 – X Report mode (X) 3 – Programming mode (P) 4 - Z report mode (Z) 5 – OFF 6 – Current time 7 – Service mode (S)

3Dh Programming of the linked reports

Command	Data	Classification
3Dh	without information part	Immediate execution

answer:

Position	Number	Value	Notes
0	2	Start number of the item for the reports	Flags: 0000h – the report is not attached to daily report; FFFFh – the report is attached to the daily report;
2	2	End number of the item for the reports	
4	2	Flag "Report by items attached to daily Z report"	
6	2	Flag "Report by departments attached to daily Z report"	
8	2	Flag "Report by items groups attached to daily Z report"	
10	2	Flag "Report by operators attached to daily Z report"	
12	2	Flag "Report by hours attached to daily Z report"	
14	2	Flag "Report by bills attached to daily Z report"	

3Eh Restaurant's parameters - read

Command	Data	Classification
3Eh	without information part	Immediate execution

answer:

Position	Number	Value
0	2	Percentage service (00.00 to 99.99)
2	2	Number of sections for print (0-3)
4	2	Number kitchen printer for section 1 (0-3)
6	2	Number kitchen printer for section 2 (0-3)
8	2	Number kitchen printer for section 3 (0-3)
10	2	Shifting on X for slip printer (0-40)
12	2	Shifting on Y for slip printer (0-40)
14	20	Row 1 for slip printer
34	40	Row 2 for slip printer
74	40	Row 3 for slip printer
114	20	Row 4 for slip printer

3Fh Programming of restaurant's parameters

Command	Data	Classification
3Fh		Immediate execution



Position	Number	Value
0	2	Percentage service (00.00 to 99.99)
2	2	Number of sections for print (0-3)
4	2	Number kitchen printer for section 1 (0-3)
6	2	Number kitchen printer for section 2 (0-3)
8	2	Number kitchen printer for section 3 (0-3)
10	2	Shifting on X for slip printer (0-40)
12	2	Shifting on Y for slip printer (0-40)
14	20	Row 1 for slip printer
34	40	Row 2 for slip printer
74	40	Row 3 for slip printer
114	20	Row 4 for slip printer

40h Adding quantity

Command	Data	Classification
40h		Immediate execution



Position	Number	Value
0	2	Item's number
2	4	Quantity to add

41h Programming the rows of the heading lines

Command	Data	Classification
41h		Immediate execution



Position	Number	Value	Notes
0	1	Row 1 printing format	Printing format: 00h – the row will not be printed;
1	24/18	Row 1 contents	

25/19	1	Row 2 printing format	80h - the row will be printed; 90h – the row will be printed in bold font; *The rows from 1 to 5 is printed always, no matter of the contents; *The rows from 6 to 8 is printed in the footer of the receipt; *Some ECR have only 6 rows!!!
26/20	24/18	Row 2 contents	
50/38	1	Row 3 printing format	
51/39	24/18	Row 3 contents	
75/57	1	Row 4 printing format	
76/58	24/18	Row 4 contents	
100/76	1	Row 5 printing format	
101/77	24/18	Row 5 contents	
125/95	1	Row 6 printing format	
126/96	24/18	Row 6 contents	
150/114	1	Row 7 printing format	
151/115	24/18	Row 7 contents	
175/133	1	Row 8 printing format	
176/134	24/18	Row 8 contents	

answer:

Command	Data	Notes
41h	Instruction status	FFFFh –the instruction has been executed; 0000h – the instruction has been rejected; * The command will be executed after Z report is started.

42h Programming discounts and add-ons

Command	Data	Classification
42h		Immediate execution

Position	Number	Value
0	2	Percent discount (00.00 to 99.99)
2	2	Percent add-on (00.00 to 99.99)
4	2	Value discount (00.00 to 99.99)
6	2	Value add-on (00.00 to 99.99)

43h Programming of two digits parameters

Command	Data	Classification
43h		Immediate execution

Position	Number	Value	Note:
0	2	Open drawer check-up	The parameters status: 0000h – the function is forbidden; FFFFh – the function is allowed;
2	2	Compulsory amount to pay	
4	2	Forbidden direct correction	
6	2	Forbidden “Deep Void”	
8	2	Allowed issuing of receipt copy	
10	2	Print taxes on the receipt	
12	2	Print percent ratios on the receipt	
14	2	Print barcode number on the receipt	
16	2	External printer connected	
18	2	Allow more than one operator to work on one bill	
20	2	Automatic ECR discharge after finising	
22	2	Print operator’s registration	
24	2	Operation only in bill	

44h Programming of fiscal parameters

Command	Data	Classification
44h		Immediate execution



Position	Number	Value	Note:
0	2	Flag for decimal point	Flag for decimal point: 0000h – no decimal point; FFFFh – decimal point available; Flag for advertisement line 1&2: Always FFh
2	2	Percent for VAT 1 (00.00 to 99.99)	
4	2	Percent for VAT 2	
6	2	Percent for VAT 3	
8	2	Percent for VAT 4	
10	2	Percent for VAT 5	
12	2	Percent for VAT 6	
14	2	Percent for VAT 7	
16	2	Percent for VAT 8	
18	1	Flag for advertisement line 1 (FFh)	
19	24/18	Line 1 (company name)	
43/37	1	Flag for advertisement line 2 (FFh)	
44/38	24/18	Line 2 (address of the site)	

Answer:

Position	Number	Value	Notes
0	2	Instruction status	0000h – the instruction has been rejected; FFFFh – the instruction has been executed;

45h Information for bills

Command	Data	Classification
45h		Immediate execution



Position	Number	Value	Note:
0	2	Serial number of bill	0 – number of bills

answer:

Position	Number	Value
0	2	Maximum number of open bills
2	2	Number of free bills
4	2	Bill number
6	1	Operator who opened the bill
7	4	Amount in the bill
11	1	Number of positions in the bill
12	1	Number of orders
13	2	Percentage discount
15	2	Reserved

46h Programming of items

Command	Data	Classification
46h		Immediate execution



Position	Number	Value	Notes
0	2	Item number (from 1 to 10000)	Case of 18 character for name
2	4	Single price (0.00 99999.99)	
6	4	Available quantity (0.000 99999.999)	
10	1	Items group (from 1 to 10)	
11	1	VAT group (from 0 to 8)	

12	5	Turnover - (without meaning)	* The price could be programmed in case the daily Z report is cleared and a new receipt has not been started;
17	18	Name	
35	1	department (from 0 to 9)	
36	1	Flags bit 0 – sale forbidden (0 or 1) bit 1 – single transaction (0 or 1) bit 2 – operation with fraction (0 or 1) bit 3 – operation without available quantity (0 or 1) bit 4 – reserved bit 5 – stock-taking (0 or 1) bit 6 – reserved bit 7 – reserved	
37	4	Quant sold (not changed)	

Position	Number	Value	
0	2	Item's number	Case of 12 character for name * The price could be programmed in case the daily Z report is cleared and a new receipt has not been started;
2	4	Single price	
6	4	Available quantity	
10	1	Item group	
11	1	Tax group	
12	4	Turnover (without meaning)	
16	12	Name	
28	1	Type of payment	
29	1	Department group	
30	1	Flags bit 0 – Forbidden for sale (0 or 1) bit 1 – Single transaction (0 or 1) bit 2 – Operation with fractions (0 or 1) bit 3 – Operation without available quantity (0 or 1) bit 4 – Reserved bit 5 – Stock-taking (0 or 1) bit 6 – Reserved bit 7 – Reserved	
31	4	Quant sold (not changed)	

47h Programming of departments

Command	Data	Classification
47h		Immediate execution



Position	Number	Value	
0	2	Department (from 1 to 10)	Case of 18 character For PLU name
2	4	Single price (0.00 99999.99)	
6	4	Available quantity (0.000 99999.999)	
10	1	Item group (from 1 to 10)	
11	1	VAT group (from 1 to 9)	
12	4	Turnover - 0.00 to 9999999.99	
16	18	Name	
34	1	Flags bit 0 – sale forbidden (0 or 1) bit 1 – single transaction (0 or 1) bit 2 – operation with fraction (0 or 1) bit 3 – operation without available quantity (0 or 1)	
35	4	Quant sold - 0.000 to 99999.999	

Position	Number	Value	Case of 12 character For PLU name
0	2	Department's number	
2	4	Single price	
6	1	Item group	
7	1	VAT group	
8	4	Turnover	
12	12	Name	
24	1	Type of payment	
25	1	Flags bit 0 – Forbidden for sale (0 or 1) bit 1 – Single transaction (0 or 1) bit 2 – Operation without available quantity (0 or 1)	
26	4	Quantity sold	

48h Programming of item consignment groups

Command	Data	Classification
48h		Immediate execution

↓

Position	Number	Value
0	2	Consignment percent for item 1 (0.00 99.99)
2	2	Consignment percent for item 2 (0.00 99.99)
4	2	Consignment percent for item 3 (0.00 99.99)
6	2	Consignment percent for item 4 (0.00 99.99)
8	2	Consignment percent for item 5 (0.00 99.99)
10	2	Consignment percent for item 6 (0.00 99.99)
12	2	Consignment percent for item 7 (0.00 99.99)
14	2	Consignment percent for item 8 (0.00 99.99)
16	2	Consignment percent for item 9 (0.00 99.99)
18	2	Consignment percent for item 10 (0.00 99.99)

49h Programming of discount for the bill

Command	Data	Classification
49h		Immediate execution

↓

Position	Number	Value
0	2	Serial number of the bill
2	2	Percentage of discount (0.00 99.99)
4	2	Reserved

4Ah Programming of operators

Command	Data	Classification
4Ah		Immediate execution

↓

Position	Number	Value
0	2	Operator's code (1-32)
12	12	Operator's name
24	4	Operator's password
28	2	Reserved field for the operator

4Bh Programming of payments

Command	Data	Classification
4Bh		Immediate



Position	Number	Value
0	2	Course of payment 1 to 1 (always 1)
2	2	Course of payment 2 to 1 (00.00 to 99.99)
4	2	Course of payment 3 to 1 (00.00 to 99.99)
6	2	Course of payment 4 to 1 (00.00 to 99.99)
8	10	Name of payment 1
18	10	Name of payment 2
28	10	Name of payment 3
38	10	Name of payment 4

4Ch Programming of periods

Command	Data	Classification
4Ch		Immediate execution



Position	Number	Value
0	1	Begin of period 1 – minutes PBCD (00H 30H)
1	1	Begin of period 1 – hour PBCD (00H 23H)
2	1	End of period 1 – minutes PBCD (00H 30H)
3	1	End of period 1 – hour PBCD (00H 23H)
4	1	Begin of period 2 – minutes PBCD (00H 30H)
5	1	Begin of period 2 – hour PBCD (00H 23H)
6	1	End of period 2 – minutes PBCD (00H 30H)
7	1	End of period 2 – hour PBCD (00H 23H)
8	1	Begin of period 3 – minutes PBCD (00H 30H)
9	1	Begin of period 3 – hour PBCD (00H 23H)
10	1	End of period 3 – minutes PBCD (00H 30H)
11	1	End of period 3 – hour PBCD (00H 23H)
12	1	Begin of period 4 – minutes PBCD (00H 30H)
13	1	Begin of period 4 – hour PBCD (00H 23H)
14	1	End of period 4 – minutes PBCD (00H 30H)
15	1	End of period 4 – hour PBCD (00H 23H)
16	1	Begin of period 5 – minutes PBCD (00H 30H)
17	1	Begin of period 5 – hour PBCD (00H 23H)
18	1	End of period 5 – minutes PBCD (00H 30H)
19	1	End of period 5 – hour PBCD (00H 23H)
20	1	Begin of period 6 – minutes PBCD (00H 30H)
21	1	Begin of period 6 – hour PBCD (00H 23H)
22	1	End of period 6 – minutes PBCD (00H 30H)
23	1	End of period 6 – hour PBCD (00H 23H)
24	1	Begin of period 7 – minutes PBCD (00H 30H)
25	1	Begin of period 7 – hour PBCD (00H 23H)
26	1	End of period 7 – minutes PBCD (00H 30H)
27	1	End of period 7 – hour PBCD (00H 23H)
28	1	Begin of period 8 – minutes PBCD (00H 30H)
29	1	Begin of period 8 – hour PBCD (00H 23H)
30	1	End of period 8 – minutes PBCD (00H 30H)
31	1	End of period 8 – hour PBCD (00H 23H)

4Dh Programming of keys

Command	Data	Classification
4Dh		Immediate execution



Position	Number	Value	Notes
0	1	Function without number for key 1	*Function number from 1 to 30.
1	1	Function without number for key 2	
2	1	Function without number for key 3	
3	1	Function without number for key 4	
4	1	Function without number for key 5	
5	1	Function without number for key 6	
6	1	Function without number for key 7	
7	1	Function without number for key 8	
8	1	Function without number for key 9	
9	1	Function without number for key 10	
10	1	Function with number for key 1	
11	1	Function with number for key 2	
12	1	Function with number for key 3	
13	1	Function with number for key 4	
14	1	Function with number for key 5	
15	1	Function with number for key 6	
16	1	Function with number for key 7	
17	1	Function with number for key 8	
18	1	Function with number for key 9	
19	1	Function with number for key 10	

4Eh Programming password of the working mode

Command	Data	Classification
4Eh		Immediate execution



Position	Number	Value	Notes
0	2	Item's number from 1 to 10 000	*The command will not be executed in case the mode is R (registration) and the keyboard is not locked.
2	6	Barcode number in PBCD	

4Fh Programming of barcode number

Command	Data	Classification
4Fh		Immediate execution



Position	Number	Value	Notes
0	2	Item's number from 1 to 10 000	*The command will not be executed in case the mode is R (registration) and the keyboard is not locked. * Reading the number "0" will return correct max number of records.

50h Read ECR parameters

Command	Data	Classification
50h	without informational part	with immediate execution

Answer :

Position	Number	Value	Notes
0	1	Reserved	Old models (return only 2 byte): 30h, 70h, F0h – Model 70a F4h – Model 70x
1	1	ECR type (old models)	
2	1	ECR type (new models)	New models (return 4 byte): 01h – A100 02h – A300 04h – A500 08h – A800 10h – A600 *the most recent ECRs return last 5 fields (8+n bytes)
3	1	Number of characters in adv.lines	
4	1	Number of department	
5	1	Number of cashier	
6	2	Number of plues	
8	1	Length of the name	
9	n	Name of the ECR (ASCII)	

52h Reruns system date and time

Command	Data	Classification
52h	without information part	Immediately execution

answer:

Position	Number	Value	Notes
0	1	Minutes (MM)	*The programming values are in PBCD format.
1	1	Hour (HH)	
2	1	Date (DD)	
3	1	Month (MM)	
4	1	Year (YY)	
5	1	Day of Week	

53h Programming system date and time

Command	Data	Classification
53h		Immediately execution

Position	Number	Value	Notes
0	1	Date (DD)	*The current date and time could be programmed if the Z report has been cleared. For the time change the service button has to be pressed too. *The programming values are in PBCD format.
1	1	Month (MM)	
2	1	Year (YY)	
3	1	Day of week	
4	1	Minutes (MM)	
5	1	Hour (HH)	

answer:

Position	Number	Value	Notes
0	2	Instruction status	0000h – rejected; 00FFh – date accepted; FFFFh – date and time accepted;

54h Read software interface parameters

Command	Data	Classification
54h	without informational part	with immediate execution

Answer:

Position	Number	Value
0	2	Flag external device
2	2	Reserved
4	2	Flag connected scanner
6	2	Flag connected additional keyboard
8	2	Invoice number

55h Programming of software interface parameters

Command	Data	Classification
55h		delayed execution, "silent"



Position	Number	Value
0	2	Flag external device
2	2	Reserved
4	2	Flag connected scanner
6	2	Flag connected additional keyboard
8	2	Invoice number

56h Read the number of the last invoice

Command	Data	Classification
56h	without informational part	with immediate execution

Answer:

Position	Number	Value
0	4	Invoice number

57h Programming of the number of last invoice

Command	Data	Classification
57h		delayed execution, "silent"



Position	Number	Value	Notes
0	4	Low 4 bytes of first invoice number	First Invoice Number: from 0 to 9999000000
4	2	High 2 bytes of first invoice number	
6	2	Invoice range (number of invoices in the range)	

*Code of key QTY(X) - 01AH**Order for setting up an invoice:*

1. Check up the ECR's status -
must be at the beginning of the receipt - 0
2. Check up the ECR's number
3. Set VAT and Tax numbers of the recipient - key X and the numbers.
4. Sales
5. Set the data for the buyer/recipient - the last 5 rows
Note: not printed in this moment
6. Close the invoice with TL or certain amount.

58h Read the rows of the invoice


Command	Data	Classification
58h	without informational part	with immediate execution

Answer:

Position	Number	Value
0	1	<>0 in case Row 1 us programmed
1	24	Row 1
25	1	<>0 in case Row 2 us programmed
26	24	Row 2
50	1	<>0 in case Row 3 us programmed
51	24	Row 3
75	1	<>0 in case Row 4 us programmed
76	24	Row 4


100	1	<>0 in case Row 5 us programmed
101	24	Row 5

59h Programming the rows of the invoice

Command	Data	Classification
59h		delayed execution, "silent"

Position	Number	Value
0	1	<>0 in case Row 1 us programmed
1	24	Row 1
25	1	<>0 in case Row 2 us programmed
26	24	Row 2
50	1	<>0 in case Row 3 us programmed
51	24	Row 3
75	1	<>0 in case Row 4 us programmed
76	24	Row 4
100	1	<>0 in case Row 5 us programmed
101	24	Row 5

5Ch Sending data trough second interface

Command	Data	Classification
5Ch		Delayed execution

Position	Number	Value
0	n	Data package to be send (n<200)


5Dh Receiving data trough second interface

Command	Data	Classification
5Dh	without informational part	with immediate execution

Answer:


Position	Number	Value
0	n	Data package received (n<200)

5Fh Defining the regime for buffering

Command	Data	Classification
5Ch		Delayed execution

Position	Number	Value
0	2	Flag – is data buffered (FFFFh – on; 0 – off)

60h Programming of operators

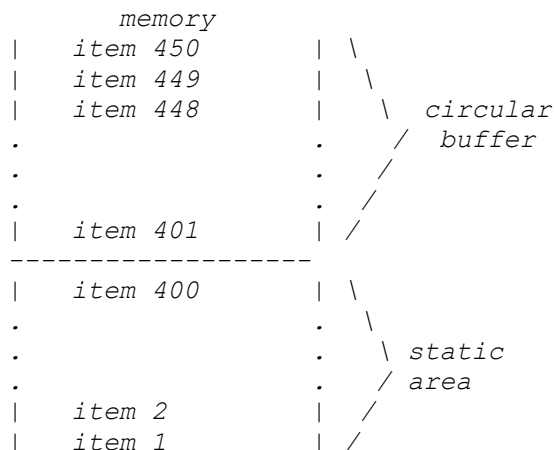
Command	Data	Classification
60h		delayed execution, "silent"

Position	Number	Value
0	2	0FFFFh – system regime
2	2	Size of buffer for Items 0 or from 30 to 450

or

Position	Number	Value
0	2	0 – out of system regime

In case the size of the buffer has value different from zero (when switching over from non-system into system regime) is created a cyclic buffer, in which the last received item's templates are saved. The buffer is disposed from up down in the area for items. For example: buffer with size 100 items



In case in the moment of switching over from system to non-system regime, and there is unfinished receipt, in which templates are used, then they are automatically reported (this does not refer to the circular buffer).

62h Command confirmation

Command	Data	Classification
62h	without informational part	with immediate execution, "silent"

answer:

Command	Data	Notes
62h	without informational part	This instruction is send as an answer of command 72h or as confirmation for 74h.

70h Check the device status

Command	Data	Classification
70h	without informational part	Immediate, silent, fast

answer 0:

Command	Data	Notes
Vital Error – 6Fh	without informational part	- lack of paper - fiscal error - printer error

answer 1:

Command	Data	Notes
in condition "free" - 70h	without informational part	Only in condition "free" the ECR accepts commands for execution.

answer 2:

Command	Data	Notes
in condition "busy" - 71h	without informational part	The answer busy means that the ECR has not completed the previous command yet.

answer 3:

Command	Number	Data	Notes
Pressed functional key – 72h	2	Number of the functional key (1 do 8)	
	4	Quantity (hex)	
	9	Key codes in sequential order as they have been pressed from the keyboard till the functional key is pressed	

answer 4:

Command	Data	Classification
X report for templates - 74H		Immediate execution



Position	Size	Meaning	Notes
0	6	nomenclature number PBCD	* Commands 24h, 2Ah, 2Bh could provoke this answer. * n<=16
6	4	turnover	
10	4	quantity sold	
16	6	nomenclature number	
20	4	turnover	
24	4	quantity sold	
	...		
n*14	6	nomenclature number	
n*14+6	4	turnover	
n*14+10	4	quantity sold	

ANSWER TO A TEMPORARILY INVALID OR NON-EXISTING COMMAND

The ECR answers with 07FH without informational part in the following cases:

- Received unknown command
- Received command 061H without request (code 072H)
- Received command 062H without report sent (code 073H or 074H)