Ghadir systems

Packet Protocol Manual

REVISION NOTES

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Packet Protocol structure

Structure of Tx/Rx packets is as below

STX	LEN	ADRS	CODE	DATA	ETX	BCC
1 BYTE	1 BYTE	1 BYTE	1BYTE	0~68 BYTE	1 BYTE	1 BYTE

1. **STX** Start code of packet (02H)
2. **LEN** Number of bytes between STX and ETX (STX and ETX not included themselves.)
3. **ADRS** Terminal Address (1~255)
4. **CODE** Command code (01H~0FFH)
5. **STATUS** One byte reserved for status.
6. **ETX** End code of packet(03H)
7. **BCC** checks the validity of a packet. Checksum is logical XOR of bytes between STX and ETX

NOTE Data sent/received in 8N1(8bit / No Parity / 1 stop bit).

Example

let the host read the firmware version of terminal with address 255 ,host will send

STX	LEN	ADRS	CODE	ETX	BCC
02h	4	255	0EH	03h	F5h

The checksum is calculated as BCC= 04h XOR FFh XOR 0Eh XOR 03h = F5h

Note that we have no data in this command , after receiving this command by terminal it will send such a response

STX	LEN	ADRS	CODE	DATA	ETX	BCC
02h	48	255	0Eh	"C-CLK-GGR 85/11/22b8 CLK-6000F110010010Err=13"	03h	0D5h

Note that the address in Tx and Rx packet is the address of terminal.

In this example code of Tx and Rx packet is equal but this not happens in some commands.

Command Summary

Code Number	Name	Description	CLK6000	CLK120	MTT5000	ACC320	ACC1000	PCT2000	CCT3000	SG8000
01h	Link Test	Link and Port test	X	X	X	X	X	X	X	X
02h	Collection	New data Collection	X	X	X	X	X	X	X	X
03h	Buffer empty	There is no record	X	X	X	X	X	X	X	X
04h	Return record	Return collected record	X	X	X	X	X	X	X	X
05h	Return Keypad data	Return Keypad data				X			X	
06h	Acknowledge	Confirm last received command	X	X	X	X	X	X	X	X
07h		Confirm record &Turn of outputs				X			X	
08h	Turn On Peripherals	Turn on/off outputs				X			X	
09h	Set Access codes	Download Card's Access code	X	X	X	X	X	X	X	
0Ah	Delete Access codes	Cancel Cards' access code	X	X	X	X	X	X	X	
0Bh	Set Time	Set Time & Date		X	X		X			
0Ch	Reset	Restart Terminal	X	X	X	X	X	X	X	X
0Dh		Read Cards ' Access codes	X	X		X	X			
0Eh	Read Version	Read terminal & firmware version	X	X	X	X	X	X	X	X
0Fh	Set Address	Set Terminal Address	X	X	X	X	X	X	X	X
10h	Reserved	----								
11h		Set terminal work Mode			X	X			X	
12h	Terminal Status	Read Terminal Status				X			X	
13h	Display Row Message	Send Message on Terminal Display row	X		X		X	X	X	
14h	Clear Screen	Clear terminal display	X		X		X		X	
15h	Non	Last command didn't accepted	X	X	X	X	X	X	X	X

	Acknowledge									
16h	Short Message	Send Short Message and Beep					X			
17h	Collect Input Device	Ask for last record(Input terminal)						X		
18h	Collect Output Device	Ask for Card number(Output device)						X		
19h	Return card number (output device)							X		
1Ah	Change Keypad PW	Change keypad Password	X		X		X			
1Bh	Self Programming	Update Terminal firmware (only VERC.)	X		X		X			
1Ch	Print data	Send Data from PC to printer port of terminal			X			X		
1Dh	Shorting Communication	Transfer Data to Peripheral serial port of terminal directly by PC						X		
1Eh		Read or Clear Error counter	X		X		X			
1Fh	Reinitialize	Clear RAM and variables	X	X	X		X			
20h	Read Time	Read time and date of terminal	X	X	X		X	X	X	
21h	Return Time	Return terminal time & date	X	X	X		X	X	X	
22h	Set Alarms	Download alarm times	X	X	X		X			
23h	Clear Alarms	Cancel alarm times	X	X	X		X			
24h	Read Alarm times	Request terminal alarm times	X	X	X		X			
25h	Return Alarm times	Terminal returns alarm times	X	X	X		X			
26h	Set Non authorized cards	Download non authorized cards	X	X	X		X			
27h	Clear Non authorized cards	Cancel non authorized cards	X	X	X		X			
28h	Read Non authorized table	Request non authorized cards of terminal	X	X	X		X			
29h	Return non	Return non authorized cards by	X	X	X		X			

	authorized table	terminal								
2Ah	Open door	Open door with determined time	X	X	X		X			
2Bh	Lock door	Lock door unlimited	X	X	X		X			
2Ch	Unlock door	Unlock door and work normal and determine opening time	X	X	X		X		X	
2Dh	Set Baud	Set Terminal Baud rate	X		X		X	X	X	X
2Eh	Recovery by date	Recovery collection based on date	X	X	X		X			
2Fh	Get Image	Get Collection Area Image	X	X	X		X			
30h	Recovery from last recovered	Recovery based on date and from last location recovered	X		X		X			
31h	Read one record	In slave mode and last record			X					
32h	Active /inactive polling	Activate /deactivated polling other terminals for collect record	X	X	X		X			
33h										
34h		Active "MAMORIAT"& "MORAKHASI" Keys	X	X			X			
35h		Inactive "MAM"&"MOR" keys								
36h	Send card limits	Set card limits(1-8 limit)	X		X					
37h	Read card limits	Read card limits(1-8 limit)	X		X					
38h	Request Billing	In Online restaurant			X					
39h	Active/inactive devices				X					
3Ah	Printer Selection				X					
3Bh										
3Ch										
3Dh	Set /clear/request Only card list	Download card numbers those bypass fingerprint need.	X							
3Eh	Return Only card list		X							

3Fh	Reserved									
40h	Clear all messages	Clear all text messages in the terminal	X	X			X			
41h	Set message	Download message to terminal	X	X			X			
42h	Repeated Card detect	If there is a message for a card in the terminal ,trying again for this card is not accepted and terminal responds with this command.	X	X			X			
43h	Message Buffer is full	New message not accepted because of buffer full.	X	X			X			
44h	Read Message from terminal	Based on card number	X	X			X			
45h	Similar card not found	In message tables	X	X			X			
46h	Return message	Return requested card message	X	X			X			
47h	Clear one card's message		X	X			X			
48h	Set Parameters	Download parameter to terminal	X	X	X					
49h	Read Parameters	Request & read downloaded parameters from terminal	X	X	X					
4Ah	Send full page Message	Send full message to terminal						X		
4Bh	Multi Beep	Send Number of sequential beep and terminal will beep immediately	X							
4Ch	Set Authority list	Download authority list to terminal	X							
4Dh	Return Authority list	Read list by PC from terminal	X							
4Eh							X			
4Fh							X			
50h	Request start address of table in RAM	For transfer formatted large table					X			
51h	Return start address of table in RAM	By terminal to PC					X			

52h		Sending Table & Block specs					X			
53h	Download blocks data						X			
54h	End of sending blocks						X			
55h	Read Table	Request Downloaded table in terminal					X			
56h	Set door buzzer	Enable/disable door control buzzer					X			
57h	Set pre cards	Download pre card spec to terminal	X	X						
58h	Read pre cards	Read pre card spec by PC	X	X						
59h										
5Ah	Send compact data	Send compact data	X							
60h	Send digits to customer display	In CD4000								

Commands description

Link Test (01h)

Tests Link and ports. If the receipt packet is as same as sent packet there is a correct link between PC and terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**01h**	
Status		
Data		A desired string with maximum length 8 byte
End code	03h	
Checksum	#	

Sender PC

Response the same packet is returned by terminal exactly.

Collection (02h)

Request collecting all new records of terminal.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**02h**	

Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

03h there is no new record

04h record with ASCII format include Address of terminal, status of entrance, date, time, Card number

05h record with ASCII format include keypad numbers.(only for ACC320 and CCT3000)

10h record include card data or any other data.(only for ACC320 and CCT3000)

5Ah a group of records (maximum 20 records)with PBCD format.

(***Important note*** *if the status of packet of collection command is set on 55h the response of terminal can be with code of 5Ah ,this supported by firmware of CLK6000 Ver. C from date 85/11/22)*

Buffer Empty (03h)

There is no data record.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**03h**	
Status		
Data		No data
End code	03h	

Checksum	#	

Sender Terminal
Response code No response

Return Record (04h)

Request collecting all new records of terminal.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**04h**	
Status		
Data		Record include 2 or 3 byte terminal address in ASCII 2 byte status of card(Normal , vacation(morkhasi) ,mission ,…) 6 byte Date in ASCII 4 byte time in ASCII 8 byte card number in ASCII
End code	03h	
Checksum	#	

Sender Terminal
Response code

06h confirm collection and tell the terminal sign the record as collected.
15h Error in collecting process.

Return Keypad Data (05h)

Return record contains keypad data in ASCII format.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**05h**	
Status		
Data		data record
End code	03h	
Checksum	#	

Sender Terminal
Response code 06h acknowledge

Acknowledge (06h)

Confirm acceptance of previous command.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**06h**	
Status		
Data		No data or maximum 1byte which shows previous code that Acknowledge is related on it.

End code	03h	
Checksum	#	

Sender Terminal ,PC
Response code 06h acknowledge

Return Keypad Data (07h)

Confirm record acceptance and activate terminal outputs.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**07h**	
Status		
Data		1byte status of on/off outputs Bit0 Error LED Bit1 OK LED Bit2 Ready LED Bit3 Buzzer Bit4 Relay1 Bit5 Relay2 1 byte ON time of activated outputs.
End code	03h	
Checksum	#	

Sender PC
Response code terminal signs record as collected.

Turn on/off outputs (08h)

Confirm record acceptance and activate terminal outputs.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**08h**	
Status		
Data		1byte status of on/off outputs Bit0 Error LED Bit1 OK LED Bit2 Ready LED Bit3 Buzzer Bit4 Relay1 Bit5 Relay2 1 byte ON time of activated outputs.
End code	03h	
Checksum	#	

Sender PC
Response code No response.

Set Access codes (09h)

Send access codes to terminal to allow passing only the cards that have these access codes

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**09h**	
Status		
Data		Access codes in 5groups of 4digit in PBCD format
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm acceptance of sent access codes and from then terminal checks Access code of each card. so from then only the cards that have determined Access codes are accepted and if a card hasn't those access code will receive "ACCESS ERROR" message on LCD

Cancel Access code (0Ah)

Cancel access code checking by terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**0Ah**	
Status		
Data		No data

End code	03h	
Checksum	#	

Sender PC
Response code
06h confirm the canceling access code
15h not confirmed by terminal

Set time(0Bh)

Set time & date of terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**0Bh**	
Status		
Data		YYMMDDHHMM in ASCII Date is Hijri Shamsi and time is hour and minute In English version date is Gregorian
End code	03h	
Checksum	#	

Sender PC
Response code
06h confirm
15h not confirmed by terminal

Reset (0Ch)

Reset terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**0Ch**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm & restart the terminal

Read Access code(0Dh)

Read access code table of terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**0Dh**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

0Dh Confirm and return access cod in five group of 4 digits in PBCD

15h Non Acknowledge

Note in Acc320 and CCT 3000 there is only one group of 4digit in PBCD.

Read Version (0EH)

Cancel access code checking by terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**0Eh**	
Status		
Data		No data(from pc to terminal) Eprom version up to 40 byte
End code	03h	
Checksum	#	

Sender PC

Response code

0Eh with data of Eprom version in ASCII format

15h not confirmed by terminal

Set Address (0Fh)

Change terminal address from 1to 255.

Request command

Field	Data	Description

Start code	02h	
Len	#	
Adrs		
Code	**0Fh**	
Status		
Data		1byte in hex format from 1 to 0FFh
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm and changing address

15h not confirmed by terminal

Note in ACC320 address is set temporary until the system restarts.

Reserved(10h)

Set work Mode (11h)

Set working mode of terminal on Slave (online) or Intelligent (offline) mode

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**11h**	

Status		
Data		One byte include 'S' or 'I'
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm the command and change mode

15h not confirmed by terminal

Terminal status(12h)

Reading terminal status include pressed keys and outputs

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**12h**	
Status		
Data		No data(from Pc to terminal) 1byte (from terminal to pc)
End code	03h	
Checksum	#	

Sender PC, terminal

Response code

06h confirm the command and send status o pressed keys and outputs

15h not confirmed by terminal

Display Row Message(13h)

Send message on display directly

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**13h**	
Status		
Data		Include location of insert x,y font type and displaying text x(0~3) for graphic LCD and 0 for text LCD. Y(0~15) F now value is 0 for fonts(8x16)
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm and display message

15h not confirmed by terminal

Clear Display(14h)

Clear display all

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**14h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm and Clear display

15h Non Acknowledge

Non Acknowledge(15h)

Previous command not accepted.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**15h**	
Status		
Data		No data or maximum 1byte data
End code	03h	
Checksum	#	

Sender PC
Response code No response

Display Row Message(16h)

Short Message

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**16h**	
Status		
Data		number of Beeps(1byte) Strings(maximum 16 byte)
End code	03h	
Checksum	#	

Sender PC or Master terminal
Response code
06h confirm and display message
15h not confirmed by terminal

Collect Input record(17h)

Request input record (input device of PCT2000)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**17h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

03h No record

04h send new record

15h Non Acknowledge

Collect output device(18h)

Request output record (output device of PCT2000)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**18h**	
Status		

Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

03h No Output request

19h send output record

15h Non Acknowledge

Return card code(19h)

Return card number to PC to receive output data (for PCT2000)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**19h**	
Status		
Data		Operator code/PBCD card Number/status of data Status code (00h)request out data (02h)out cancel (03h)confirm output operation (04h) request print again
End code	03h	
Checksum	#	

Sender Terminal

Response code

1Dh send output information

15h Non Acknowledge

Change keypad PW(1Ah)

Change keypad password

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**1Ah**	
Status		
Data		'W' means write new password for input to keypad command menu ASCII code maximum 5 digit for new password
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm acceptance

15h Non acknowledge

Self Programming(1Bh)

Update firmware of system in system.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**1Bh**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC
Response code No
Important Note Only terminals of CLK,ACC,MTT with Verc mainboard and with EEProm AT29C010A and corrected PEEL can be updated.

Print Data(1Ch)

Send data to printer directly
Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**1Ch**	
Status		
Data		Printable data maximum 68byte

End code	03h	
Checksum	#	

Sender PC
Response code

06h data accepted and saved in buffer ,ready to print in first time at proper conditions.

15h Non Acknowledge for some reson for example buffer full.

Short Message (1Dh)

Transfer Data to Peripheral serial port of terminal directly by PC

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**1Dh**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC
Response code

Important note in terminal PCT2000(output device) this command used for sending output data include car specs and billing data as

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**1Dh**	
Status		
Data		Operator code/billing/park time duration/input time & data/car specs/status bits Status (07h) Abonne (0)discount (1)wanted car (2)prevent output (3)No card data
End code	03h	
Checksum	#	

Sender PC

Response code 06h acknowledge

15h non acknowledge

Read or Clear Error buffer(1Eh)

For reading number of errors logged in system include pointer errors and ram errors
Which now corrected automatically.
The errors shown in read version command on windows software as Err R1,R2.

Request command

Field	Data	Description
Start code	02h	
Len	#	

Adrs		
Code	**1Eh**	
Status		
Data		First byte 'C' means clear error buffer 'R' means read error buffer Second byte 1 means pointers errors 2 means Ram errors
End code	03h	
Checksum	#	

Sender PC

Response code

15h Non Acknowledge

06h accept command and clear buffer 'C'

1Eh return buffer for read status 'R'

Reinitialize (1Fh)

Format memory and init all banks of ram.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**1Fh**	
Status		
Data		'REINITILIZATION'

End code	03h	
Checksum	#	

Sender PC
Response code
06h acknowledge
15h non acknowledge

Read Time (20h)

Read terminal date & time

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**20h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC
Response code
21h terminal returns its date &time

Return time (21h)

Return date & time to PC

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**21h**	
Status		
Data		YYMMDDHHmm In ASCII format
End code	03h	
Checksum	#	

Sender Terminal
Response code No

SET ALARMS (22H)

Send Alarm times to terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**22h**	

Status		
Data		40byte Alarm time information in PBCD form in format HHMM which HH means hour and MM means minute In new version (81/5/3) 60 byte include 15 group in form HHMMTTTT which HHMM means hour and minute in PBCD form and TTTT (in word)means seconds (2byte) time duration of activation of alarm.
End code	03h	
Checksum	#	

Sender PC

Response code

06h acknowledge

15h Unacknowledged

Clear Alarms (23h)

Cancel alarm times.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**23h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

06h Acknowledge and delete alarm times by terminal
15h Non Acknowledge

Read Alarm times (24h)

Read alarm times.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**24h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender Terminal
Response code
25h returns Alarm times to PC

Return Alarm times(25h)

Return alarm times

Request command

Field	Data	Description

Start code	02h	
Len	#	
Adrs		
Code	**25h**	
Status		
Data		40byte Alarm time information in PBCD form in format HHMM which HH means hour and MM means minute In new version (81/5/3) 60 byte include 15 group in form HHMMTTTT which HHMM means hour and minute in PBCD form and TTTT (in word)means seconds (2byte) time duration of activation of alarm.
End code	03h	
Checksum	#	

Sender Terminal
Response code No response

Set Non Authorized cards (26h)

Send no authorized cards to terminal.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**26h**	
Status		
Data		40byte card data in PBCD for ten cards
End code	03h	

Checksum	#	

Sender PC

Response code

06h confirm and save the card numbers.

21h not accepted.

Cancel Non Authorized cards(27h)

Delete Non authorized cards table.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**27h**	
Status		
Data		No Data
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm and delete the card number table.

21h not accepted.

Read Non Authorized (28h)

Read no authorized cards to terminal.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**28h**	
Status		
Data		No Data
End code	03h	
Checksum	#	

Sender PC

Response code

29h send non Authorized list

21h not accepted.

Return Non Authorized table(29h)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**29h**	
Status		
Data		40byte card data in PBCD for ten cards
End code	03h	
Checksum	#	

Sender Terminal
Response code
No response.

Open Door (2Ah)

Open door for limited time.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**2Ah**	
Status		
Data		2byte hex for time in minutes xxxx
End code	03h	
Checksum	#	

Sender PC
Response code
06h confirm and opening door for limited time

Lock Door (2Bh)

Locking the door and prevent traffic.

Request command

Field	Data	Description

Start code	02h	
Len	#	
Adrs		
Code	**2Bh**	
Status		
Data		2byte hex for time in minutes xxxx
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm and locking the door and prevent to traffic with show proper message.

Unlock Door (2Ch)

unlocking the door and control normal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**2Ch**	
Status		
Data		1byte hex for time duration for opening door in normal mode
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm and opening the door in normal manner.

15h Non Acknowledge

Set Baud(2Dh)

Set Baud rate of terminal.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**2Dh**	
Status		
Data		1 byte in PBCD from 00 to 11 for setting Bauds from 50bps to 38400bps
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm and set new baud rate

21h no accept and work with current baud.

NOTE

List of usable baud rates in Ghadir systems are

Number	Baud rate	
0	50	
1	75	
2	150	

3	200	
4	300	
5	600	
6	1200	
7	2400	
8	4800	
9	9600	
10	19200	
11	38400	

Baud rates from 0 to 6 are not used in CCT3000.

Recovery (2Eh)

Recovery of records from determined date ,all the records include signed and unsigned records and hasn't any effect on uncollected records.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**2Eh**	
Status		
Data		Date in ASCII form
End code	03h	
Checksum	#	

Sender PC

Response code

03h No record found

04h there is record in that date and send to pc .

Get Image (2Fh)

Emergency collection or receiving image of memory records.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**2Fh**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

03h No record

04h returns image of records (with saving format)

Permanent recovery (30h)

Request record from last recovered location.

Request command

Field	Data	Description
Start code	02h	

Len	#	
Adrs		
Code	**30h**	
Status		
Data		First byte year in PBCD Second byte Month in PBCD Third byte day in PBCD
End code	03h	
Checksum	#	

Sender PC

Response code

04h return record from last not recovered location.

Read one Record (31h)

This command is used only in "slave mode" of MTT5000,and the record is sent to PC online.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**31h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC

Response code

03h buffer empty

04h send record in form of ASCII include address , status of pressed keys , date , time , card number,

In new MTT software record include bytes in ASCII as

Address	Status	Date	Time	Card number	Selected meal
3byte	2byte	6byte	4byte	8byte	20byte

38h request print

Active/Inactive polling(32h)

Active or inactive Master terminal for polling slaves

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**32h**	
Status		
Data		For activating 'E' /Address of slaves(up to 64 slave terminals) For inactivating 'D'
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm acceptance

15h not accepted

Reserved(33h)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**33h**	
Status		
Data		
End code	03h	
Checksum	#	

Sender
Response code

Active/Inactive Function Keys(34h)

Enable or disables function keys of terminal keypad.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		

Code	**34h**	
Status		
Data		'E' enables function keys 'D' disables function keys
End code	03h	
Checksum	#	

Sender PC

Response code

06h confirm acceptance

15h command not confirmed

Reserved (35h)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**35h**	
Status		
Data		
End code	03h	
Checksum	#	

Sender

Response code

Send Card Limits(36h)

Send card limits by PC and save in terminal's memory .
Up to 8 limit can be defined , in each send one limit is set.
With this command only card numbers between these limits are accepted and others will see the message of "out of card limit!"and rejected by terminal.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**36h**	
Status		
Data		First byte is number of card limit(0-8) 8byte include start card limit and end card limit in PBCD format(first 4byte is start and last 4byte is end of limit)
End code	03h	
Checksum	#	

Sender PC & Terminal

Response code

06h confirm acceptance

15h command not confirmed

Read Card Limits(37h)

Reading card limit in 8 zone.

Request command

Field	Data	Description
Start code	02h	
Len	#	

Adrs		
Code	**37h**	
Status		
Data		1 byte (shows the requested limit number from 1to 8)
End code	03h	
Checksum	#	

Sender Terminal

Response code

36h send requested card limit

15h command not accepted

Request Billing(38h)

Request billing on printer

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**38h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender Terminal

Response code

1Ch acceptance and print billing on printer of terminal

15h command not confirmed

Active/Inactive devices(39h)

Active/inactive devices include Printer ank Keypad in MTT terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**39h**	
Status		
Data		'P'(means printer)/ 'PE' (Enable printer) /'PD' (disable printer) 'K'(means keypad)/'KE'(Enable keypad)/'KD'(disable keypad)
End code	03h	
Checksum	#	

Sender Terminal

Response code

06h acceptance

15h command not confirmed

Printer selection(3Ah)

Select type of printer connected to MTT terminal by PC software

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**3Ah**	
Status		

Data		00h LX printer 01h LQ 02h STAR
End code	03h	
Checksum	#	

Sender PC

Response code

06h acceptance

15h command not confirmed

Reserved(3Bh)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**3Bh**	
Status		
Data		
End code	03h	
Checksum	#	

Sender

Response code

Reserved(3Ch)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**3Ch**	
Status		
Data		
End code	03h	
Checksum	#	

Sender
Response code

Set/Clear/Read Only card list (3Dh)

Set / Clear /Read only card list. Note that when setting , this function works based on timeout. In each Time, minimum 4byte (one card number in PBCD) and maximum 68 byte(17 card number) is sent to terminal . In first send, the card numbers start to be saving from the start of list and, saving timeout will be turned on in terminal after returning Ack by terminal, PC will send the next packet and this packet is appended to buttom of stored table . If timeout will pass and no packet will be received by terminal ,the end of stored list in terminal will be closed by FFFFFFFFH.
For deleting the table a packet with 4byte data FFFFFFFFH will be sent by PC and so it overwrited at start of list and so the list is closed in first location and after FFFFFFFFH will be ignored.
For reading the list this command will be sent with empty Data.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**3Dh**	
Status		
Data		Without Data(read list),

		With data 4byte (0ffffffffh) deleting the table, With minimum 4byte(1card number) and maximum 68byte(17 byte)in PBCD format data of only card list will be sent to terminal
End code	03h	
Checksum	#	

Sender PC

Response code

06H Acknowledge

3EH return card list

Return only card List(3Eh)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**3Eh**	
Status		With minimum 4byte(1card number) and maximum 68byte(17 byte)in PBCD format data of only card list will be sent to PC.
Data		
End code	03h	
Checksum	#	

Sender Terminal

Response code

06h Acknowledge

Reserved(3Fh)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**3Fh**	
Status		
Data		
End code	03h	
Checksum	#	

Sender
Response code

Clear All Messages(40h)

Clear all downloaded message.
Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**40h**	
Status		
Data		No Data
End code	03h	
Checksum	#	

Sender PC

Response code

06h Acknowledge

15h Non Acknowledge

Set Message(41h)

Loading messages to terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**41h**	
Status		
Data		Card number in PBCD Message text in ASCII with maximum length 64 byte
End code	03h	
Checksum	#	

Sender PC

Response code

06h acknowledge

42h Card number is repeated and not accepted

43h message Buffer is full

Repeated card detect(42h)

Repeated card detect in response to command 41h.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**42h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender Terminal

Response code

No response

Message Buffer is full(43h)

In response to command 41h if the message buffer is full.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**43h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender Terminal

Response code No response

Read Message(44h)

Read one message saved for one card on terminal

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**44h**	
Status		
Data		Card number in PBCD
End code	03h	
Checksum	#	

Sender PC

Response code

45h there is no message for this card.

46h message found for this card and retrun card number and its message text in ASCII format (total 68 byte).

Similar Card not found(45h)

No message for the requested card .

Request command

Field	Data	Description
Start code	02h	

Len	#	
Adrs		
Code	**45h**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender terminal
Response code No response

Return Message(46h)

Send requested card Number and its message text.
Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**46h**	
Status		
Data		Card number in PBCD(4byte) Message text in ASCII(64 byte)
End code	03h	
Checksum	#	

Sender Terminal
Response code No response

Clear one card's message(47h)

Clear message saved in terminal for requested card.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**47h**	
Status		
Data		Card number in PBCD
End code	03h	
Checksum	#	

Sender PC

Response code

06h acknowledge and deleting the message for the requested card

45h this card not found in message buffer

Set parameters(48h)

Sending string(parameters) with maximum determined length

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		

Code	**48h**	
Status		
Data		P1 (1byte meal type 0-breakfast ,1- launch ,2-dinner) P2(1byte string number 'T' for title ,'0' to '9' for keys ,'L' for time limit of meals , 'F' for define function keys) Note for new MTT '0' to'9' is changed to 00h to 09h and MSBit points to last name of food in desired meal which if be 1 it is the last food in that meal. P3 (food code 0~255) P4 (1 byte string length which is maximum 30 byte) P5(string data which including 00h,0Ah,0Dh must not exceed from 30 byte) P6(predefined food value in list (display))
End code	03h	
Checksum	#	

Sender PC

Response code

06h accepted

15h not accepted

Note if the second parameter (P2) is equal 'L' ,time limits for each meal will be sent. If second parameter(P2)is equal 'F', status of function keys in form of Fxh and so PBCD code of status is sent . and for 4 keys we have 8 byte and this length inserted in P3 too.

Read Parameters(49h)

Reading determined string(parameters) with maximum determined length

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**49h**	

Status		
Data		P1- 1 byte Meal number(0-breakfats, 1-launch, 2-dinner) P2(1byte string number 'T' for title ,'0' to '9' for keys ,'L' for time limit of meals , 'F' for define function keys) '0' to '9' in new MTT systems is in hex not ASCII
End code	03h	
Checksum	#	

Sender PC
Response code 48h

Send full page message(4Ah)

Sending fix 64 byte to terminal for show on LCD

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**4Ah**	
Status		
Data		64 byte text in ASCII form
End code	03h	
Checksum	#	

Sender PC
Response code
06h acknowledge
15h Non Acknowledge (command not accepted by terminal)

Multi Beep(4Bh)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**4Bh**	
Status		
Data		1 byte with value 1~10
End code	03h	
Checksum	#	

Sender PC
Response code 06h confirm acceptance

Set Authority List(4Ch)

Read/Set/delete Authorized card number list.
Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**4Ch**	

Status		
Data		If No data ,request to read Authority list If data is 0FFFFFFFFH request to delete Authority list of terminal If minimum 4byte and maximum 68 byte (in PBCD form) the list is sent to terminal
End code	03h	
Checksum	#	

Sender PC

Response code

06h Acknowledge

4Dh return Authority list

Return Authority list(4Dh)

Return Authority list to PC.
Note terminal uses timeout system to send authority list in packets with maximum 68 byte data length
Last record is 0ffffffffh which shows end of list.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**4Dh**	
Status		
Data		Maximum 68 byte
End code	03h	
Checksum	#	

Sender Terminal

Response code 06h in acceptance

Reserved(4Eh)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**4Eh**	
Status		
Data		
End code	03h	
Checksum	#	

Sender
Response code

Reserved(4Fh)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		

Code	**4Fh**	
Status		
Data		
End code	03h	
Checksum	#	

Sender
Response code

Request start address of table in ram(50h)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**4Eh**	
Status		
Data		No data
End code	03h	
Checksum	#	

Sender PC
Response code

51h return start address of table in 2 byte
15h not confirmed by terminal

Note large tables are formatted based on this address and with this format are saved in terminal.

Return start address of table in ram(51h)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**51h**	
Status		
Data		2byte address of start of table
End code	03h	
Checksum	#	

Sender Terminal

Response code

06h accepted

15h not accepted

Sending Table spec(52h)

Start of table transfer with sending the tables spec.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**52h**	
Status		
Data		Data include

		1-Number of blocks 2-block sizes 3-destination table number**
End code	03h	
Checksum	#	

Sender PC

Response code

51h return start address of table in 2 byte

15h not confirmed by terminal

Note ** this parameter not used currently.

Download Block Data(53h)

Block transferring of data

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**53h**	
Status		
Data		Block Number + data block
End code	03h	
Checksum	#	

Sender PC ,Terminal

Response code

06h accept & saving data block

15h not accepted

End of Sending Block(54h)

Sending last block

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**54h**	
Status		
Data		Last block number Last data if there is
End code	03h	
Checksum	#	

Sender PC,Terminal

Response code

06h accept & saving last block if there is

15h not acceptance of command because of various reasons such as checksum error , block number error,...

Read Table(55h)

Request tables in terminal.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**55h**	
Status		

Data		No data
End code	03h	
Checksum	#	

Sender PC
Response code
52h return table spec for starting table transferring

Set door buzzer(56h)

Enable/disable buzzer of door open status.
Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**56h**	
Status		
Data		'E' enable 'D' disable
End code	03h	
Checksum	#	

Sender PC
Response code
06h accepted
15h not accepted

Set Pre Cards(57h)

Sending pre cards list

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**57h**	
Status		
Data		Number from 1 to 12 Card number in PBCD 2 digit Pre card code in one byte PBCD (one of digits 01,02,03,…,11,12,…,98)
End code	03h	
Checksum	#	

Sender PC,Terminal

Response code

06h accepting the command and saving pre card

15h not accepted

Read Pre cards(58h)

Reading pre card list

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**58h**	
Status		
Data		One number from 1 to 12

End code	03h	
Checksum	#	

Sender PC
Response code

57h return Pre card list
15h not acceptance

`

Reserved(59h)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**59h**	
Status		
Data		
End code	03h	
Checksum	#	

Sender
Response code

Send Compact Data(5Ah)

Send a group of records in response to collection(02h).

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**5Ah**	
Status		
Data		A group of records maximum 20 records each record is 11 byte as below Terminal address(1byte) Card status(1byte)(normal , mission , …) Date in PBCD(3byte) Time in PBCD(2byte) Card number in PBCD(4 byte)
End code	03h	
Checksum	#	

Sender terminal

Response code

06h accept record by PC and terminal will sign them as collected

15h not accepted

Reserved(5Bh)

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**5Bh**	
Status		
Data		

End code	03h	
Checksum	#	

Sender
Response code

Send Digits to customer display(60h)

Sending digits and some alphabetic characters on customer display CD4000
Characters shown on display from right to left.

Request command

Field	Data	Description
Start code	02h	
Len	#	
Adrs		
Code	**60h**	
Status		
Data		Maximum 6 byte character only for characters and digits Or maximum 12 byte for turn on points.
End code	03h	
Checksum	#	

Sender PC or terminals
Response code

06h acceptance
15h not acceptance