ELECTRONIC CASH REGISTER

# CHD2020T CHD2100 CHD2200 CHD2300

# DRIVER DESCRIPTION

Computer Hardware Design SIA

Revision history:

| Date | Description of modifications | Author |
|---|---|---|
| 14.06.2005 | Initial documentation version | NN |
| 27.06.2006 | 1. Financial report read command added [4.3]<br>2. Department table read command added [4.2] | NN |
| 28.06.2006 | 1. CHD2200/CHD2300 description added | NN |
| 11.08.2006 | 1. PLU table read command added [4.1] | NN |
| 14.09.2006 | 1. ECR model names changed:<br>CHD2200T → CHD2200, CHD2300T → CHD2300 | NN |
| 14.09.2006 | 1. Bitmap logo send command added [4.6] | NN |
| 07.03.2007 | 1. Fiscal memory dump read command added [4.7] | NN |
| 16.04.2007 | 1. Fiscal report commands added [4.8] | NN |
| 13.07.2007 | 1. Logo printing enable instructions added [4.6] | NN |
| 06.02.2009 | 1. Added note about key lock X-mode position in [2] | VlaR |
| 02.04.2009 | 1. Clerk report commands added [4.9] | NN |

For questions and/or suggestions please write to support@chd.lv.

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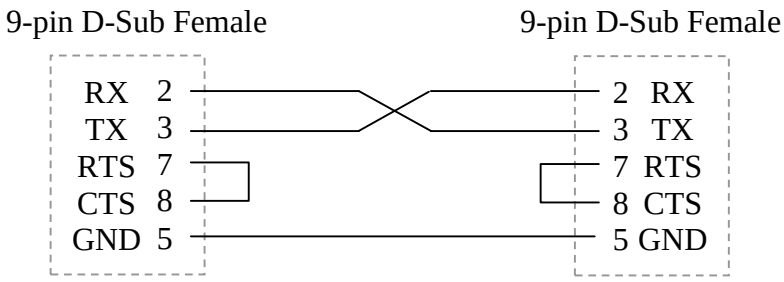
## 1. PC - ECR connection cable




## 2. Driver usage

**NOTE: ECR key lock must be in X-mode position!**

**CHD2020T.exe [/K<n>] command filename**
**CHD2200.exe [/K<n>] command filename**
**CHD2300.exe [/K<n>] command filename**

Options:

| | |
|---|---|
| /K<n> | ECR logical number (use settings from INI-file section [ECR_n]). Needed if more than one ECR defined in INI-file |

**CHD2020T.exe /H**
**CHD2200.exe /H**
**CHD2300.exe /H**

| | |
|---|---|
| /H | Show default help |
| /H1 | Show common commands & options |
| /H2 | Show service commands & options |

## 3. Driver return code (errorlevel)

0 – OK
1 – Error (except of error(s) in input file)
2 – One or more errors found in input file
3 – Modem failed to connect

# 4. Command description

**Notes:**

- Driver always sorts all input file records before sending to ECR. If duplicate records are found then driver will report an input file error. If you need to ignore such errors you can set *IgnoreDuplicates* = 1 in INI-file. In this case only last from duplicate records will be sent to ECR.

**Command Index:**

*200* *PLU table send*
Send PLU record list clearing all previous PLU records from ECR memory.

*201* *PLU record add/modify*
Add or modify existing PLU records. If record with the same PLU number already exists in ECR memory it will be replaced with new data, otherwise PLU record will be added to ECR PLU list.

*207* *PLU table read*
Read existing PLU records.

*502* *PLU periodical sales report read*
Read periodical report for all sold PLU.

*503* *PLU periodical sales report read and clear*
Read and clear periodical report for all sold PLU.

*211* *DEPARTMENT record modify*
Modify existing department records.

*217* *DEPARTMENT record read*
Read existing department records.

*232* *Financial report read*
Read financial report.

*233* *Financial report read and clear*
Read financial report and clear report counters.

*234* *Financial periodical report read*
Read financial periodical report .

*235* *Financial periodical report read and clear*
Read financial periodical report and clear report counters.

*300 Electronics journal status read*
Read electronic journal status.

*302 Electronics journal read*
Read electronic journal lines.

*303 Electronics journal read and clear*
Read and clear electronic journal lines.

*562 Hourly report read*
Read hourly report.

*563 Hourly report read and clear*
Read hourly report and clear report counters.

*670 Logo bitmap send*
Send bitmap logo, which can be printed with or instead of receipt header.

*700 Fiscal memory dump read*
Read fiscal memory dump.

*701 Fiscal report Z counter range set*
Set fiscal report range specifying start and end Z counters.

*702 Fiscal report date range set*
Set fiscal report range specifying start and end date.

*703 Fiscal report read*
Read fiscal report.

*750 Clerk report read*
Read clerk report.

*751 Clerk report read and clear*
Read clerk report and clear report counters.

## 4.1. PLU COMMANDS

### Command 200 – PLU table send

Command line example:

*CHD2020T.exe 200 plu_all.csv*

Input file format:

| Description | Type | Value |
|---|---|---|
| PLU code | Numeric | $1…10^{13}$-1 |
| Price | Numeric | 0-99999999 |
| Name | String | CHD2020T: max 10 chars<br>CHD2200: max 20 chars<br>CHD2300: max 20 chars |
| Department | Numeric | 1-8 |
| Group | Numeric | 0-99 |
| Tax | Numeric | 1-7 |

Input file example:

```
1, 15, "PLU 1", 1, 0, 1
2, 34, "PLU 2", 1, 0, 1
7, 110, "PLU 7", 8, 0, 1
```

### Command 201 – Single PLU record add/modify/delete

Command line examples:

*CHD2020T.exe 201 plu_new_1.csv*

Input file format is the same as PLU table send command input file format.

**NOTE**: If the same PLU already exists it will be overwritten. If department field value is 0, the PLU will be deleted.

Input file example:

```
1, 15, "PLU 1", 1, 0, 1
```

## Command 207 – PLU table read

Command line example:

*CHD2020T.exe 207 plu_all.csv*

Output file format is the same as PLU table send command input file format.

Output file example:

```
3, 135,"Grabulis",1,0,1
...
```

## Command 502 – PLU sales report read
## Command 503 – PLU sales report read and clear

Command line examples:

*CHD2020T.exe 502 plu_xrep.csv*
*CHD2020T.exe 503 plu_zrep.csv*

Output file format:

| Description | Type | Value |
|---|---|---|
| PLU code | Numeric | 1…$10^{13}$-1 |
| Total sold amount | Numeric | 0-999999999999 |
| Total sold quantity | Numeric | 0-9999.999 |

Output file example:

```
1,68,2
7,-440,-4
```

## 4.2. DEPARTMENT COMMANDS

### Command 211 - DEPARTMENT record modify

Command line example:

*CHD2020T.exe 211 dept.csv*

Input file format:

| Description | Type | Value |
|---|---|---|
| Department number | Numeric | 1-8 |
| Price | Numeric | 0-99999999 |
| Department name | String | CHD2020T: max 10 chars<br>CHD2200: max 20 chars<br>CHD2300: max 20 chars |
| Status/Ticket type | Numeric | |
| Department tax | Numeric | 1-7 |

Input file example:

```
1, 100, “Department1”, 0, 1
2, 222, “Department2”, 0, 1
5, 234, “Department5”, 0, 1
```

### Command 217 - DEPARTMENT table read

Command line example:

*CHD2020T.exe 217 dept.csv*

Output file format is the same as DEPARTMENT modify command input file format.

Output file example:

```
1,100,"Department1",0,1
2,222,"Department2",0,1
...
```

## 4.3. FINANCIAL REPORT COMMANDS

### Command 232 – Financial report read
### Command 232 – Financial report read and clear
### Command 234 – Financial periodical report read
### Command 235 – Financial periodical report read and clear

Command line example:

*CHD2020T.exe 232 fin_xrep.csv*
*CHD2020T.exe 233 fin_zrep.csv*
*CHD2020T.exe 234 fin_acc_xrep.csv*
*CHD2020T.exe 235 fin_acc_zrep.csv*

Output file format:

| Description | Type |
|---|---|
| Report line description | String |
| Value1 | Numeric |
| Value2 | Numeric |
| Value3 | Numeric |

| Report line description | Value1 | Value2 | Value3 |
|---|---|---|---|
| Department 1 | Total | Sales Item Counter | Activity Counter |
| Department 2 | Total | Sales Item Counter | Activity Counter |
| Department 3 | Total | Sales Item Counter | Activity Counter |
| Department 4 | Total | Sales Item Counter | Activity Counter |
| Department 5 | Total | Sales Item Counter | Activity Counter |
| Department 6 | Total | Sales Item Counter | Activity Counter |
| Department 7 | Total | Sales Item Counter | Activity Counter |
| Department 8 | Total | Sales Item Counter | Activity Counter |
| Cash | Total 1 | Activity Counter | Total 2 |
| Check | Total 1 | Activity Counter | Total 2 |
| Charge | Total 1 | Activity Counter | Total 2 |
| Taxable 1 Sale | Total | 0 | 0 |
| Taxable 2 Sale | Total | 0 | 0 |
| Taxable 3 Sale | Total | 0 | 0 |
| Taxable 4 Sale | Total | 0 | 0 |
| Taxable 5 Sale | Total | 0 | 0 |
| Taxable 6 Sale | Total | 0 | 0 |
| Taxable 7 Sale | Total | 0 | 0 |
| Taxable 8 Sale | Total | 0 | 0 |
| None Taxable Sale | Total | 0 | 0 |

| | | | |
|---|---|---|---|
| Tax 1 Amount | Total | 0 | 0 |
| Tax 2 Amount | Total | 0 | 0 |
| Tax 3 Amount | Total | 0 | 0 |
| Tax 4 Amount | Total | 0 | 0 |
| Tax 5 Amount | Total | 0 | 0 |
| Tax 6 Amount | Total | 0 | 0 |
| Tax 7 Amount | Total | 0 | 0 |
| Tax 8 Amount | Total | 0 | 0 |
| Percent Discount | Total | 0 | Activity Counter |
| Percent Add-On | Total | 0 | Activity Counter |
| Amount Discount | Total | 0 | Activity Counter |
| Amount Add-On | Total | 0 | Activity Counter |
| Received on account | Total | 0 | Activity Counter |
| Paid out | Total | 0 | Activity Counter |
| Item Void | Total | 0 | Activity Counter |
| Return | Total | 0 | Activity Counter |
| No sale | 0 | 0 | Activity Counter |
| FC in Drawer 1 | Total | 0 | 0 |
| FC in Drawer 2 | Total | 0 | 0 |
| FC in Drawer 3 | Total | 0 | 0 |
| FC in Drawer 4 | Total | 0 | 0 |
| FC in Drawer 5 | Total | 0 | 0 |
| Net Sale | Total | 0 | 0 |
| Gross Sale | Total | 0 | 0 |
| Z1 or Z2 Count | 0 | 0 | Activity Counter |

Output file example:

```
"Department 1",393,3,3
"Department 2",0,0,0
...
"Department 8",0,0,0
"Cash",393,3,393
"Check",0,0,0
...
```

## 4.4. HOURLY REPORT COMMANDS

### Command 562 – Hourly report read
### Command 563 – Hourly report read and clear

Command line example:

*CHD2020T.exe 562 hour_xrep.csv*
*CHD2020T.exe 563 hour_zrep.csv*

Output file format:

| Description | Type | Value |
|---|---|---|
| Hour | Numeric | 1 – 24 |
| Amount | Numeric | 0 – ($10^{12}$-1) |
| Count | Numeric | 0 – ($10^{4}$-1) |

Output file example:

```
...
13,200,2
14,0,0
15,409,4
16,20802,3
17,868,8
...
```

## 4.5. ELECTRONIC JOURNAL COMMANDS

**NOTE: Electronics journal commands work with CHD2200 only!**

### Command 300 – Electronics journal status read

*CHD2200.exe 300 EJ_Status.csv*

Output file format:

| Description | Type |
|---|---|
| Total journal line count | Number |
| Current journal line count | Number |

Output file example:

```
10000,18
```

### Command 302 – Electronics journal read
### Command 303 – Electronics journal read and clear

Command line example:

*CHD2200.exe 302 EJ.csv*
*CHD2200.exe 303 EJ.csv*

Output file format:

| Description | Type | Value |
|---|---|---|
| Electronic journal line | String | ECR printer width in chars |

NOTE: Last output file line will contain an electronic journal ECR.

Output file example:

```
...
Milk
       0000000000001
            *1.35 1
~~~~~~~~~~~~~~~~~~~
SUBTOTAL       *1.35
~~~~~~~~~~~~~~~~~~~
TAXABLE1/W     *1.35
```

```
TAX 1 0
TAXABLE-1      *1.35
~~~~~~~~~~~~~~~~~~~
TOTAL        *я1.я3я5
CASH         *я1.я3я5
02-01-06        01:03
[crc=9f91 l=000024 ]
```

## 4.6. LOGO BITMAP SEND COMMAND

**NOTE: Logo bitmap send works with CHD2200, CHD2300 only!**

### Command 670 – Bitmap logo send

Command line example:

*CHD2200.exe 670 Logo.bmp*

Input file format:

Input file should be a standard B/W (monochrome) bitmap.
Bitmap width depends on ECR type:

| ECR type | Logo bitmap width |
|---|---|
| CHD2100 | 162 pixels |
| CHD2200 | 192 pixels |
| CHD2300 | 240 pixels |

To enable logo printing:
(Keylock in S-position) 14 [REFUND] 0023 [#/NS]

## 4.7. FISCAL MEMORY DUMP READ COMMAND

**NOTE: Fiscal memory dump read works with ECRs having a fiscal module!**

### Command 700 – Fiscal memory dump read

Command line example:

*CHD2200.exe 700 Dump.bin*

Output file format:

Binary file containing fiscal memory dump.

## 4.8. FISCAL REPORT COMMANDS

### Command 701 – Fiscal report Z counter range set

Command line example:

*CHD2200.exe 701 Z_Range.csv*

Input file format:

| Description | Type | Value |
|---|---|---|
| Report number | Numeric | Not used |
| Report type | String | D – detailed report<br>S – summary report |
| Start Z counter | Numeric | 0 – 9999 |
| End Z counter | Numeric | 0 – 9999 |

Input file example (Z counter range):

```
1, S, 1, 7
```

### Command 702 – Fiscal report date range set

Command line example:

*CHD2200.exe 702 DateRange.csv*

Input file format:

| Description | Type | Value |
|---|---|---|
| Report number | Numeric | Not used |
| Report type | String | D – detailed report<br>S – summary report |
| Start date | Date | DD–MM–YY<br>DD – two digit day, MM – two digit month, YY – two digit year |
| End date | Date | DD–MM–YY<br>DD – two digit day, MM – two digit month, YY – two digit year |

Input file example (date range):

```
1, D, 01-04-07, 11-04-07
```

## Command 703 – Fiscal report read

Command line example:

*CHD2200.exe 703 Report.txt*

Output file format:

| Description | Type | Value |
|---|---|---|
| Fiscal report line | String | ECR printer width in chars |

NOTE: Last output file line will contain an electronic journal ECR.

Output file example:

```
...
~~~~~~~~~~~~~~~~~~~~
       ΑΛΛΑΓΗ
  ΣΥΝΤΕΛΕΣΤΩΝ ΦΠΑ
~~~~~~~~~~~~~~~~~~~~
   13.04.07 Χ:11:16
ΑΠΟ ΣΕ:
 A:    4.50%-> 4.50%
 B:    9.00%-> 9.00%
 Γ:   19.00%->19.00%
...
```

## 4.9. CLERK REPORT COMMANDS

### Command 750 – Clerk report read
### Command 751 – Clerk report read and clear

Command line example:

*CHD2200.exe 750 ClerkReport.csv*
*CHD2200.exe 751 ClerkReport.csv*

Output file format:

| Description | Type |
|---|---|
| Report line description | String |
| Clerk number | Numeric |
| Amount | Numeric |
| Count | Numeric |

| Report line description | Value1 | Value2 |
|---|---|---|
| Void | Void amount | Void counter |
| Refund | Refund amount | Refund counter |
| Sales | Sales amount | Sales counter |

Output file example:

```
“Voids”,1,92,2
“Refunds”,1,1292,5
“Sales”,1,444,12"
“Voids”,2,0,0
“Refunds”,2,0,0
“Sales”,2,200,2
...
```

# 5. Standard INI-file settings

Driver searches for a configuration INI-file in its directory. If the configuration INI-file is missing the default INI-file will be created.

INI configuration file consists of a default section named [Common] and several sections [ECR_n] describing each ECR connected.

## *[Common] section*

This section may contain following settings:

*DbgErrorLog* = 0…3
- 0 = do not write debug info
- 1 = write debug info only in case of unrecoverable error
- 2 = write debug info in case of any error
- 3 = always write debug messages

*CodePage* = DOS | RIM
Code page to use for particular language (supported for Latvian language only).
By default no codepage translation is used.

*Delimiter* = any character
CSV-file field delimiter. By default is ‘,’. Can be overridden by command line /F switch.

*IgnoreDuplicates* = 0…1
Ignore input file records with duplicating numbers, i.e. do not interpret them as a syntax error.
By default is 0.

## *[ECR_n] section*

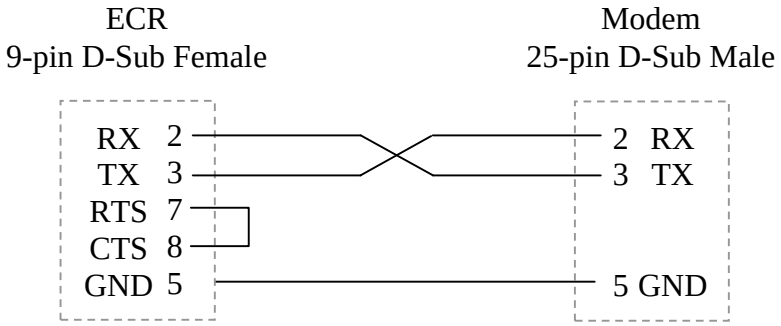
This section may contain following settings:

*ComNumber*
Serial port number. By default is 1.

# 6. Connection to remote ECR via Modem

Driver can use one or more AT-compatible (Hayes) modems connected to serial ports to make connections to remote ECR(s). Remote ECR needs some modem too. In case of remote ECR network only master ECR needs modem. To get faster connecting it is recommended to use the same modems on both sides.

## 6.1. ECR - MODEM CABLE




## 6.2. ECR MODEM CONFIGURING PROCEDURE

1. Temporary connect your modem to some PC with standard serial modem cable.
2. Configure your terminal program to use serial port with [baud=19200, parity=n, stop=1].
3. From terminal program issue the following command to modem:

   For U.S. Robotics Sportster modem**:**
   AT&F1E0M0Q1Y0&B1&D0&H0&N10&R1S0=1S19=2&W0

   For Planet ME-560R modem**:**
   AT&F0+MS=11,0,19200,19200,0,0,19200
   ATE0M0Q1&D0&K0&Y0S0=1S30=12&W0

   For Acorp (Conexant) M56SCD modem:
   AT&F0+MS=V34,0,19200,19200,19200,19200
   ATE0M0Q1&D0&K0&Y0S0=1S30=12&W0

   For Zyxel Omni.net ISDN modem:
   AT&ZI4=*PhoneNumber*
   AT&FE0Q1&D0&H0S0=1S20=5S15=2S50=10&W0

4. For old U.S. Robotics Sportster modem with DIP-switch, set DIP-switch as above: 1,4,8-down, 2,3,5,6,7-up.
5. Disconnect modem from the PC. Now this modem is ready for use with ECR.

## 6.3. ECR CONFIGURATION

Configuration of ECR is the same as for direct PC connection except of PARITY must be set to NONE.

## 6.4. PC - MODEM CABLE

For connecting of modem to PC where driver will run the standard modem serial cable should be used. In case of serial port is missing on PC the driver can work with USB to serial port converters.

## 6.5. PC MODEM CONFIGURING

It is recommended to configure modem to load factory default settings (with hardware flow enabled) at power-on by issuing following command (this should be done only once):

For U.S. Robotics Sportster modem**:**
AT&F1Y0&W0

For Planet ME-560R and Acorp (Conexant) M56SCD modems**:**
AT&F0&Y0&W0

For Zyxel Omni.net ISDN modem:
ATZ4

For old U.S. Robotics Sportster modem with DIP-switch, set DIP-switch as above:
1,2,4,6-up, 3,5,7,8-down

## 6.6. MODEM RELATED SETTINGS IN INI-FILE

### *[ECR_n] section*

*ModemDialNumber*
Phone number used to dial remote ECR (or ECR network).

*ModemPreferences*
Optional parameter that forces using of particular [ModemPreferences_m] section instead of default [ModemPreferences] section.

### *[ModemPreferences], [ModemPreferences_m] section*

*DialString*
Provides first part of dial command send to modem. The second part of this command will be phone number provided in "ModemDialNumber" of [ECR_n] section. As Windows can reconfigure modem it is recommended to load modem factory default settings (with hardware flow enabled) just before dialing command in the "DialString":

For U.S. Robotics Sportster modem**:**
DialString = AT&F1M0DT

For Planet ME-560R and Acorp (Conexant) M56SCD modems**:**
DialString = AT&F0M0DT

For Zyxel Omni.net ISDN modem:
DialString = AT&FB20S42.6=1DI

*ModemDialReplyTranslation*
Optional parameter that forces using of particular [ModemDialReplyTranslation_m] section instead of default [ModemDialReplyTranslation] section where translation of possible modem replies into program return codes in case of unsuccessful dial attempt can be defined.

### *[ModemDialReplyTranslation], [ModemDialReplyTranslation_m] section*

This optional section describes translation of unsuccessful dial attempt response received from modem into program return code. For example:

BUSY = 13
NO ANSWER = 14

## 6.7. EXAMPLES OF INI-FILE WITH REMOTE ECR(S)

This is an example of INI –file for two remote ECRs installed in different places and connected by using one local modem:

*[Common]*
*DbgErrorLog = 1*

*[ECR_2]*
*ComNumber = 1*
*NetworkID = 1*
*ModemDialNumber = 7111111*

*[ECR_3]*
*ComNumber = 1*
*NetworkID = 1*
*ModemDialNumber = 7222222*

*[ModemPreferences]*
*DialString = AT&F1M0DT*

This is an example of INI –file for one local ECR and network of two remote ECRs (only master has modem) connected by using one local modem (with translation of its unsuccessful dial replies into program return code defined):

*[Common]*
*DbgErrorLog = 1*

*[ECR_1]*
*ComNumber = 1*
*NetworkID = 1*

*[ECR_2]*
*ComNumber = 2*
*NetworkID = 1*
*ModemDialNumber = 7333333*

*[ECR_3]*
*ComNumber = 2*
*NetworkID = 2*
*ModemDialNumber = 7333333*

*[ModemPreferences]*
*DialString = AT&F1M0DT*

*[ModemDialReplyTranslation]*

*ERROR = 11*
*NO DIAL TONE = 12*
*BUSY = 13*
*NO ANSWER = 14*
*NO CARRIER = 15*

This is an example of INI –file for two remote ECRs connected by using two different local modems:

*[Common]*
*DbgErrorLog = 1*

*[ECR_1]*
*ComNumber = 1*
*NetworkID = 1*
*ModemDialNumber = 7444444*
*ModemPreferences = Planet*

*[ECR_2]*
*ComNumber = 2*
*NetworkID = 1*
*ModemDialNumber = 7555555*
*ModemPreferences = Sportster*

*[ModemPreferences_Planet]*
*DialString=AT&F0M0DT*

*[ModemPreferences_Sportster]*
*DialString=AT&F1M0DT*
*DialReplyTranslation = Sportster*

*[ModemDialReplyTranslation]*
*ERROR = 10*
*NO DIALTONE = 11*
*BUSY = 12*
*NO CARRIER = 13*

*[ModemDialReplyTranslation_Sportster]*
*ERROR = 10*
*NO DIAL TONE = 11*
*BUSY = 12*
NO CARRIER = 13

# 7. Advanced INI-file settings

All settings below are optional. By default they are set to optimal values. But in certain situations advanced users (for example service personnel) may want to change these settings.

## *[Common] section*

*StandardLog* = 0…1
Use or do not use the standard log file. Standard log file contain started, finished, statistics and also error messages. By default is 1.

*Language*
ECR language to use if unable to detect ECR type and language.

## *[ECR_n] section*

*ComSettings*
Additional serial port configuration string in windows “mode” utility format (for a details see windows help). By example “baud=9600 parity=n”.

*Language*
ECR language to use if unable to detect ECR type and language.

*ComWTTC*
Data write total timeout constant in milliseconds.

*ComByteTimeMult*
This value affects maximum allowed time gap between two sequential bytes.

*ComRetryCount*
Retry count on communication errors.

*ComNakSleepTime*
Sleep time in milliseconds on NAK response from ECR.

*ComGarbageSleepTime*
Sleep time in milliseconds on bad response from ECR

*ModemCommMaxTime*
Maximal allowed communication time between modems

*ModemConnectMaxTime*
Maximal allowed modem connection time

*ModemDisconnectTime*
Time needed for modem to disconnect

*ModemFastReplyMaxTime*
Echo or fast reply wait time

*ModemReplyMaxByteInterval*
Maximal interval between bytes in modem reply

## *[CommandNumberTranslation] section*

This section allows change the number of any command. For example if you define "550 = 532" in this section that will change "Financial report read" command number (532) to old one (550).