ACROPRINT®

AcroComm Programming Manual

March 5, 2001

- Section 2.2 Updated
- Section 2.3 Updated
- Appendix A updated with all new instructions…
- Appendix B updated with the new formulas.
- Section 1.5 updated according to the last ACROCOMM Version.
- Sections 4 and 5 updated according to the new ADCT firmware version.

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1. AcroComm.exe   Windows -

The AcroComm program provides the Software Developer / System Integrator the necessary tools to integrate the data collection terminals with their application. AcroComm Windows Software provides the developer the GUI front end to easily customize, configure and program the Acroprint Data Collection Terminal. The software allows the developer to configure multiple input devices, such as Biometrics / Fingerprint Readers, Proximity readers, internal and external Bar Code readers, as well as Magnetic Stripe readers.

ACROCOMM is the program that allows the user to communicate with Acroprint terminals; without this program, the terminal cannot communicate with any other entity.

ACROCOMM performs the following tasks:

- Poll TRANSACTIONS stored in the clock,
- Poll information related to the transactions from the CLOCK,
- Initialize the CLOCK's memory,
- Send configuration values to the CLOCK that it will use to function,
- Update the CLOCK's Time and Date

This program may be used in two ways:

- As a Windows Menu, where the program displays a menu of the tasks it can perform and the user selects the option desired, and
- As a Command Line, where it receives parameters that represent the tasks that the user wants the program to perform.

1.1. Installing AcroComm

A self-extracting zip file SETUP.EXE that creates an ACROCOMM subdirectory containing the following files:

- ACRO.ICO   Icon
- ACROCOMM.EXE   Windows NT/95 Communications program
- ACROCOMM.INI   AcroComm setup file
- ACROCOMM.TXT   Installation text
- DATALOG.DAT   Temporary data storage
- MCW16.DLL   Dynamic Link Library
- POLL_CLK.5.3.4.XLS   Excel Sample Macro
- PROGRAM.CLK   Clock command list
- README.TXT   Updated information
- SUPPORT.TXT   Support Information

To use Acrocomm as a Windows Menu, parameters should not be passed to the program. From the RUN command, for example, it will be executed as follows: ACROCOMM.EXE

To use Acrocomm as a Command Line, refer to Command Line operation in this manual.

1.2. *AcroComm Main Menu*

The main menu provides an icon tool bar for polling/programming terminals, setting time, resolving transactions, setting terminal specifications, and clearing the screen.
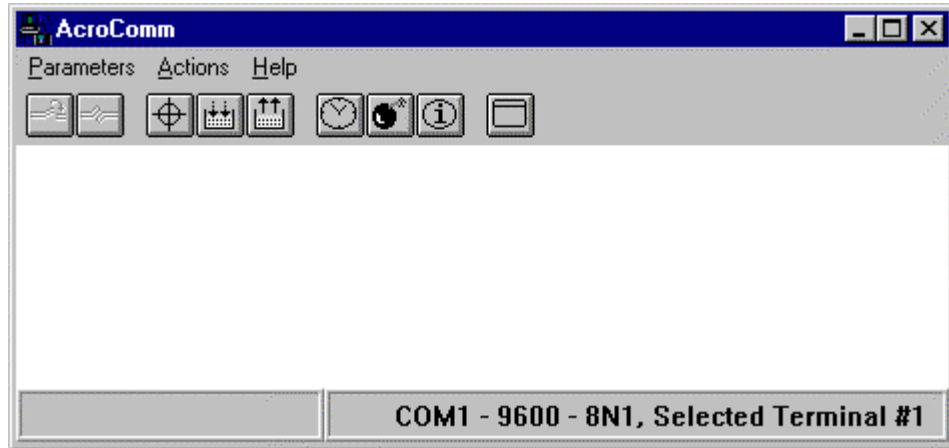
1.3. *Parameters Menu*

The parameters pull down provides control of transaction storage, source of instructions keyboard or PROGRAM.CLK file and communications setup.
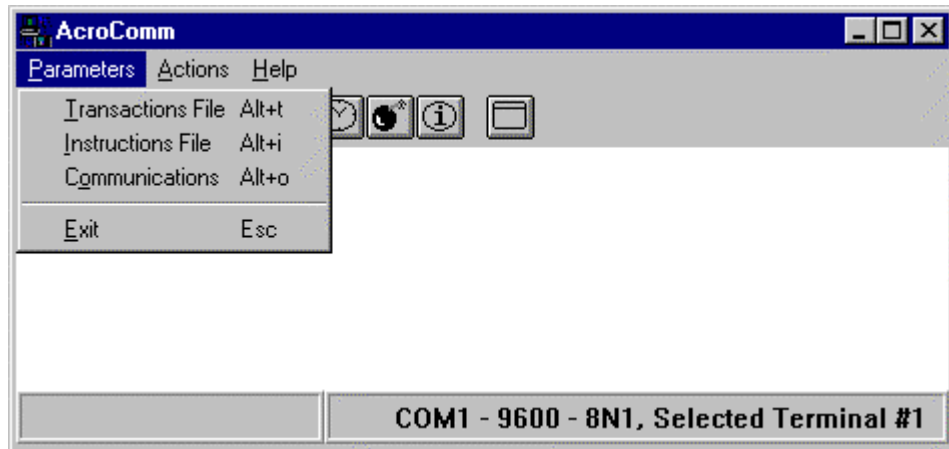
1.4. *Transaction File*

When transactions are polled, the program can send them to one of two places: to the screen or to a specific file. The current destination of transactions is shown on the menu. When this option is selected, the program will ask for the name of the Transaction Destination File. If a name is not given, it takes the default destination.

The Transactions will be replaced in the default transaction file, DATA.DAT, during each polling when the Replace Flag is checked. The DATA.DAT will be appended to if the Replace flag is NOT checked. When a file is not specified, they will be sent to the screen.

The transaction information can be displayed in the AcroComm window or saved as a file. For example: DATA.DAT.
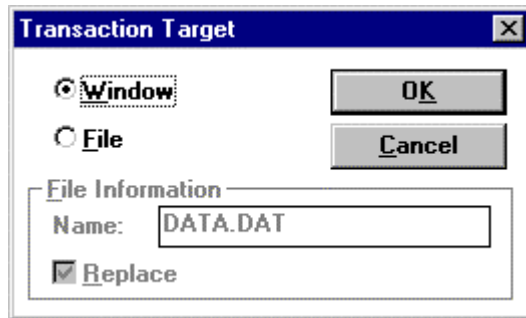
1.5.   *Source for Instructions*

The source of instruction can be entered one command at a time via the keyboard or from a text file. For example: PROGRAM.CLK.
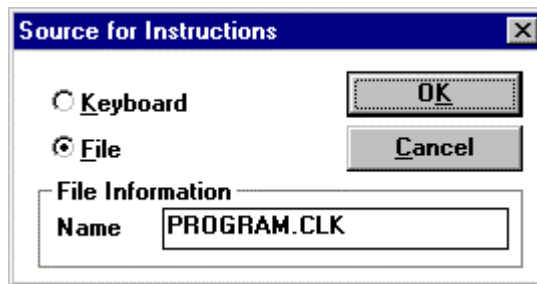
1.6.   *Communications Setup*

The communications setup allows for the standard comm port 1 through 4 communications and shared comm port through a network. Adjustable baud rate speed can be set from 1200 to 19200 on RS232 and RS485 communications. Modem communications can be set at 1200 and 2400 baud only. Terminal ID's can be 1-9, A-Z, a-z, …

Wait for Answer, xx seconds is used for modem connections and allows the pc modem to connect to the Acroprint terminal modem.

Select all clock ID's separated by a comma. Example: 1, 2, 4, A, Z
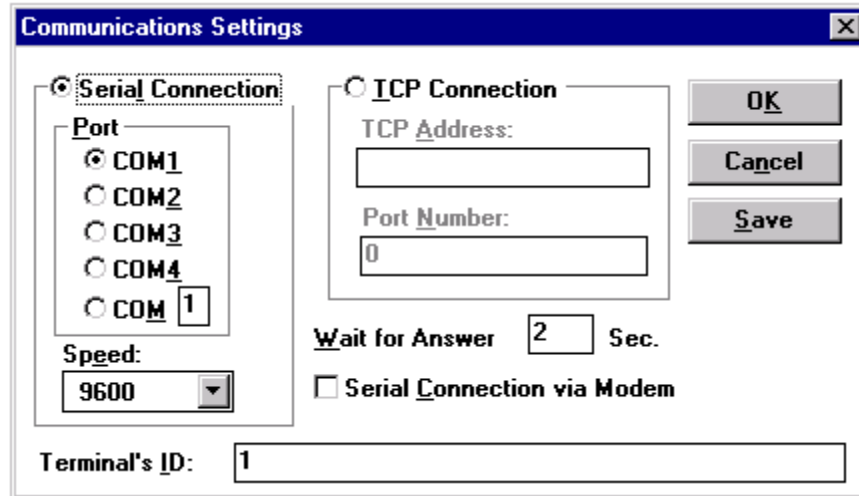
1.7.   Actions Menu

The Actions Menu allows you to poll, program, obtain information, update time and date, reset transactions, dial and hang up modem terminals.
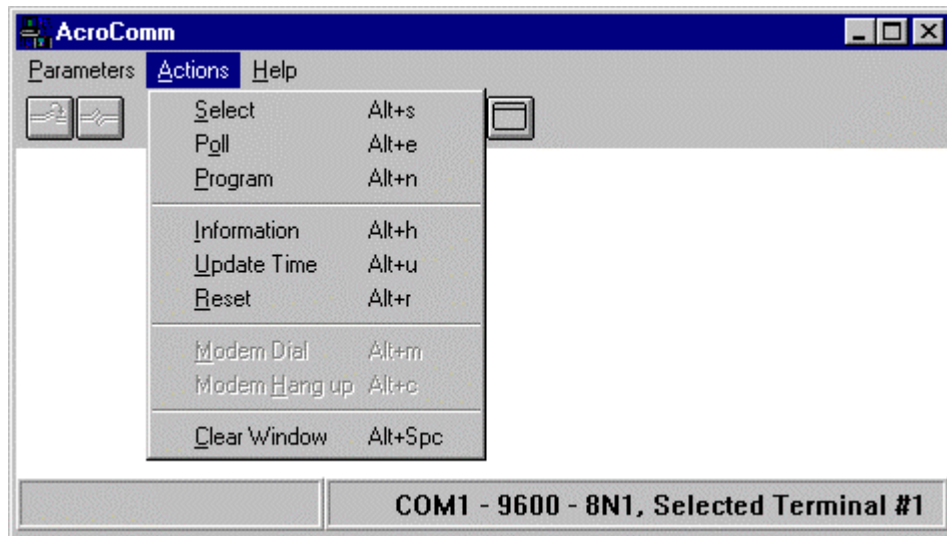
1.8.   Select

Select terminal from list provided in the communications setup.
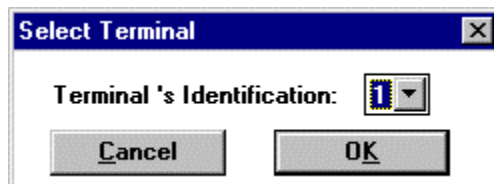
1.9. Poll

When selecting poll, the program will send the TRANSMIT instruction to the Current Selected Clock, the clock will transmit the transactions. The computer will read them and send them to the specified destination in Transactions Destination.
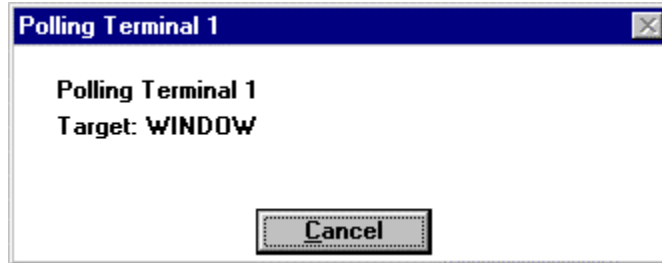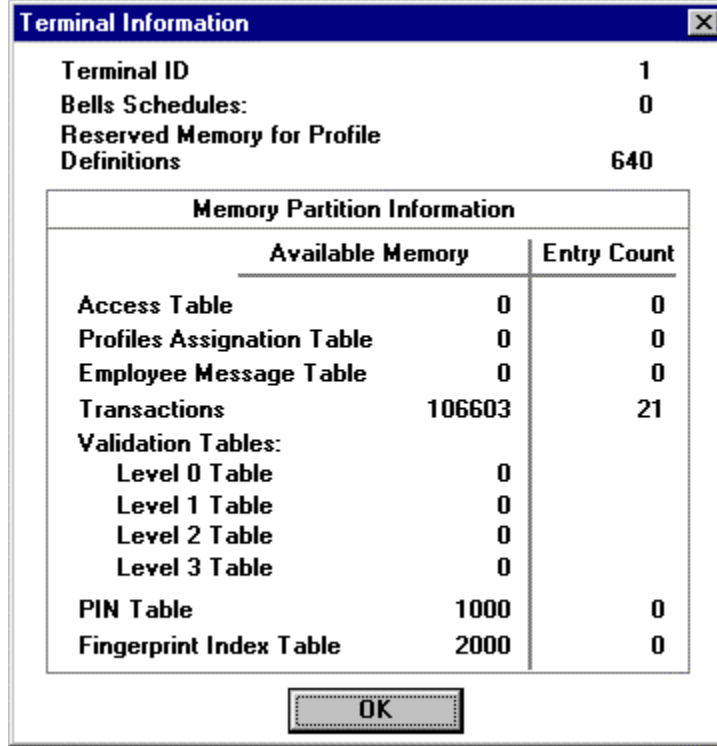
1.10. Program

When selecting program, the program will read the instructions or configuration values from the specified Instructions Source File, it will verify them and send them to the currently selected Clock. If an Instructions Source File is not specified, the program will request that it be keyed in. Either way, the instruction format must be followed. If there is an instruction the program does not recognize, it will ignore it.
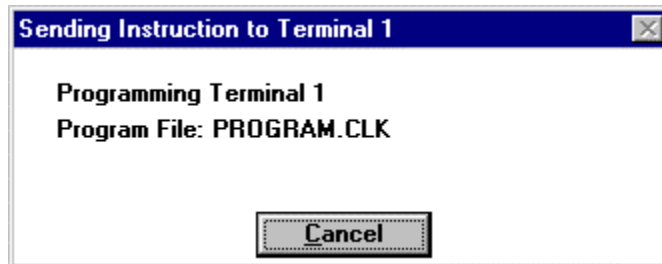
1.11. Information

Terminal Information provides memory status parameters, such as transaction space available, and memory used by downloading tables, including access, lockout, validation, etc.

```
Terminal Information                                    ☒

  Terminal ID                                      1
  Bells Schedules:                                 0
  Reserved Memory for Profile
  Definitions                                    640

  ┌──────────── Memory Partition Information ────────────┐
  │              Available Memory  │  Entry Count        │
  │                                │                     │
  │  Access Table            0     │       0             │
  │  Profiles Assignation Table  0 │       0             │
  │  Employee Message Table  0     │       0             │
  │  Transactions         106603   │      21             │
  │  Validation Tables:            │                     │
  │      Level 0 Table       0     │                     │
  │      Level 1 Table       0     │                     │
  │      Level 2 Table       0     │                     │
  │      Level 3 Table       0     │                     │
  │  PIN Table            1000     │       0             │
  │  Fingerprint Index Table  2000 │       0             │
  └────────────────────────────────────────────────────┘

                 ┌──────── OK ────────┐
```

1.12. Update Time

This parameter updates the terminal's date and time with the PC's date and time.

```
Update Time, Terminal 1                                ☒

   Programming Terminal 1
   Sending Time Update



               ┌──── Cancel ────┐
```
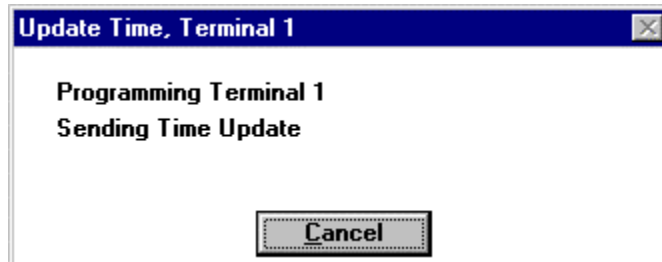
1.13. Reset

Before this instruction is executed, the user must make sure that the transactions were successfully polled. This function tells the terminal to erase ALL transactions stored.

The program will ask for confirmation before sending the instruction to initialize.
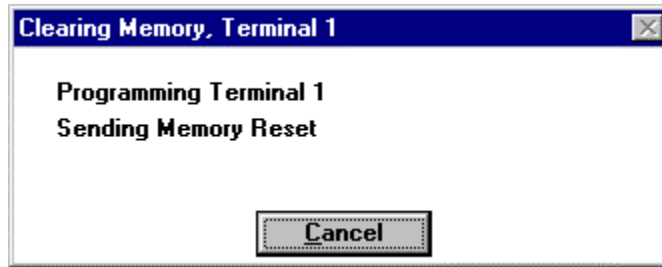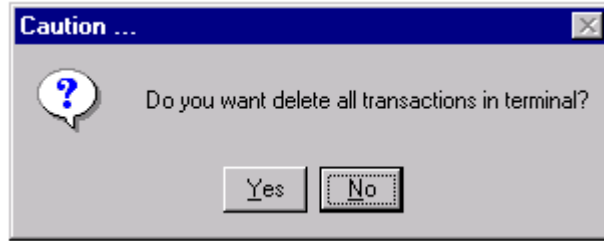
1.14. Modem Dial

If you had selected "Communications via Modem" in Communications Setup, the following two fields will be available, "Modem Dial" and "Modem Hang Up." Select Dial Mode and Phone Number to dial. Example: 9,, 5554222. The commas add a delay between obtaining an outside line and dialing the number. When communication with the modem terminal is achieved, a new menu will appear on the screen; it will have all the options described above.
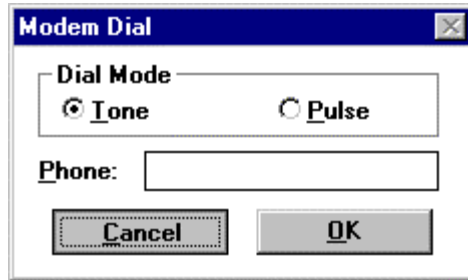
1.15. Modem Hang up

This option allows the user to terminate the telephone connection and exit the program if desired. After ending communication, the main menu described at the beginning of this section will be displayed.
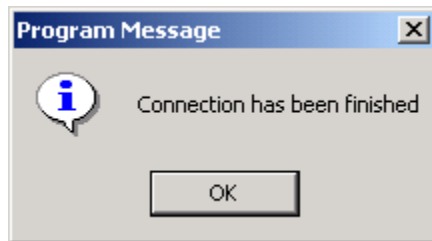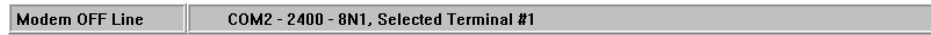
1.16. Clear Window

The Clear Window command erases all text in the AcroComm display window.
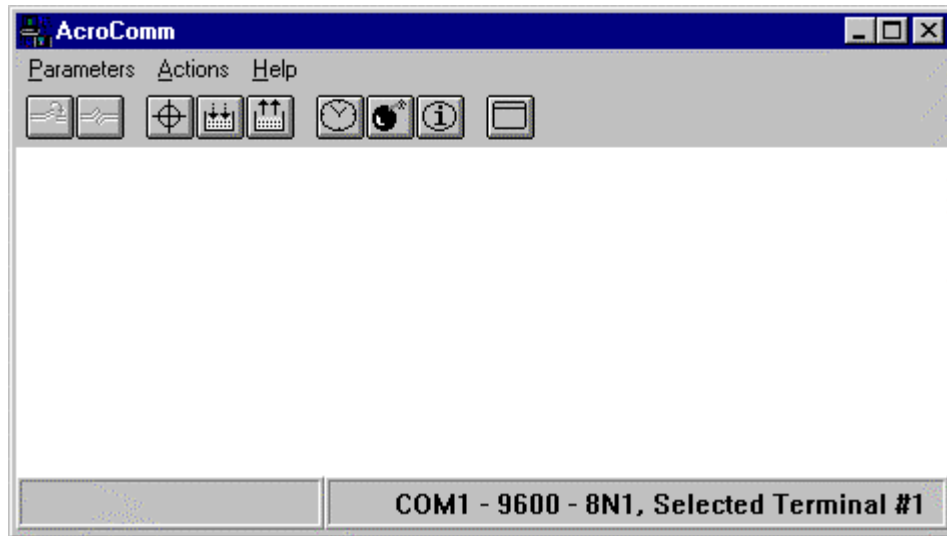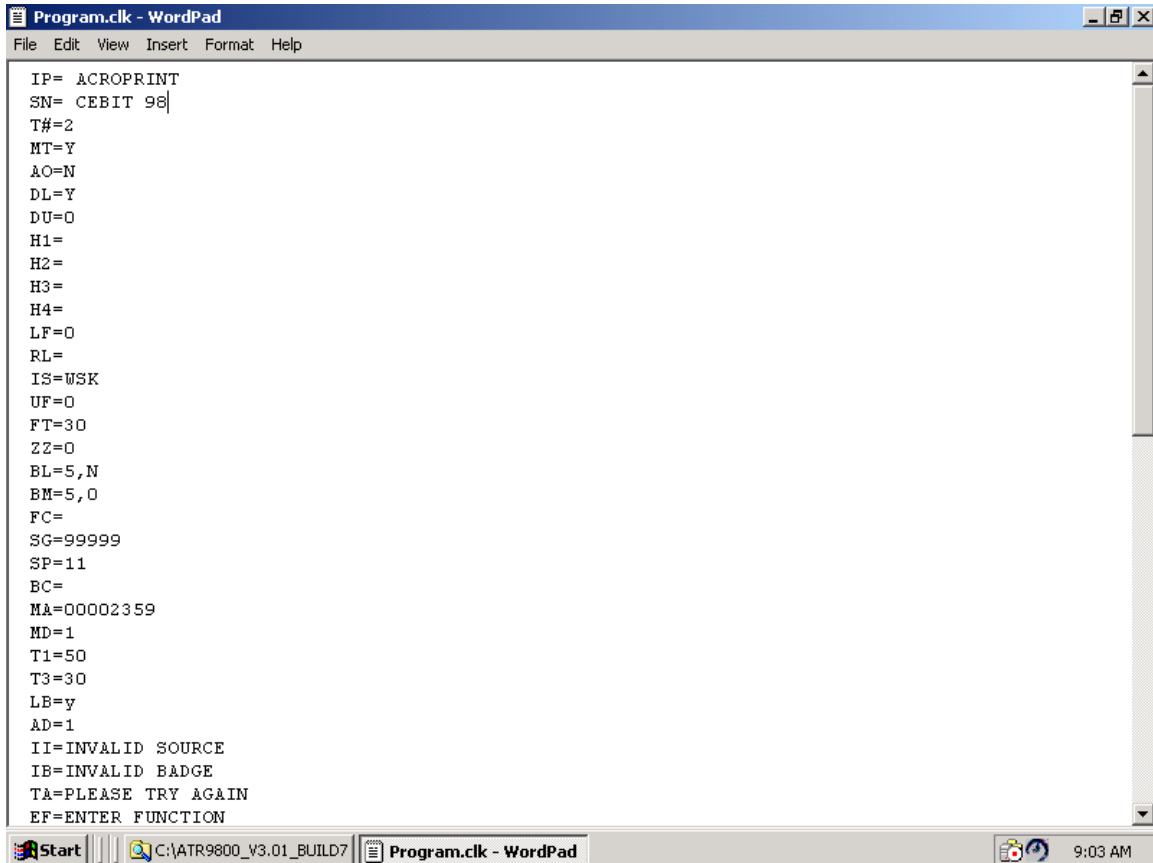
1.17. Help Menu

The Help Menu allows you to edit the program clock file and display version information.
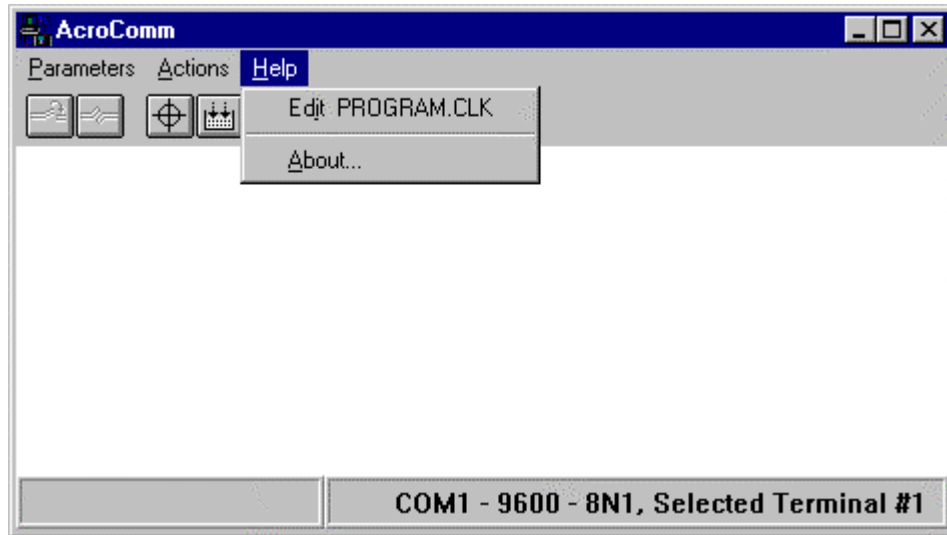
1.18. Edit PROGRAM.CLK

The PROGRAM.CLK file is a list of programming commands that are used to configure the Acroprint terminals. Refer to Appendix A for command details.

```
Program.clk - WordPad
File  Edit  View  Insert  Format  Help

IP= ACROPRINT
SN= CEBIT 98
T#=2
MT=Y
AO=N
DL=Y
DU=0
H1=
H2=
H3=
H4=
LF=0
RL=
IS=WSK
UF=0
FT=30
ZZ=0
BL=5,N
BM=5,0
FC=
SG=99999
SP=11
BC=
MA=00002359
MD=1
T1=50
T3=30
LB=y
AD=1
II=INVALID SOURCE
IB=INVALID BADGE
TA=PLEASE TRY AGAIN
EF=ENTER FUNCTION
```

Start | C:\ATR9800_V3.01_BUILD7 | Program.clk - WordPad   9:03 AM

1.19. Help - About

Version information.
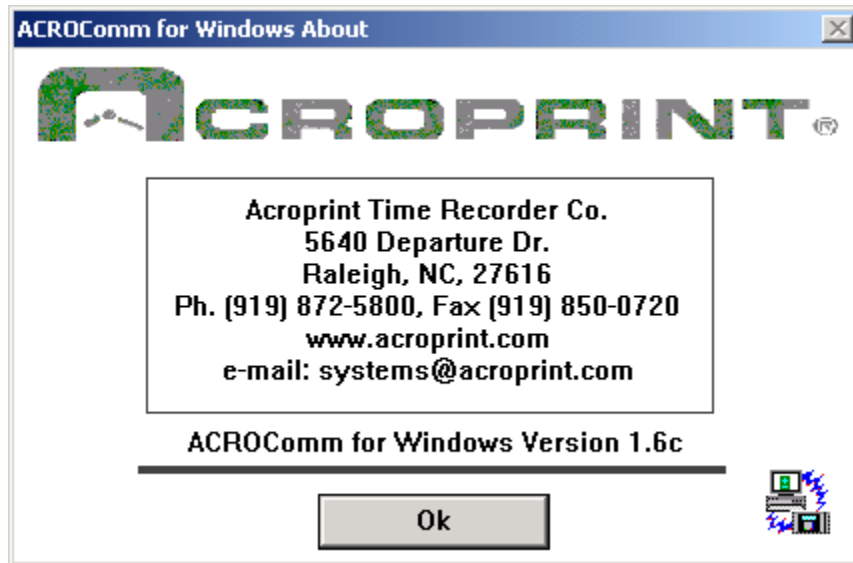
2. Using ACROCOMM

To better understand the use of the programs in this SYSTEM, we will select certain terms to identify each logical entity in it.

The SYSTEM has two programs, one loaded into the Computer and the other into the Terminal (clock), and they will be identified as follows:

- The PROGRAM is the code loaded into the COMPUTER,

- The CLOCK is the code loaded into the CLOCK.

Other entities related to these programs are:

INSTRUCTIONS are the orders the PROGRAM sends to the CLOCK to perform a specific task.

- PARAMETERS are the instructions the user gives the PROGRAM to perform a specific task.

- CONFIGURATION VALUES are the values sent to the CLOCK to regulate its performance.

- TRANSACTIONS are the chained swipes that the CLOCK stores and later sends to the PROGRAM when it asks for them.

2.1. Configuration

Aside from the form of usage chosen, ACROCOMM needs to be configured for its use, due to the fact that it has to communicate with the clock connected in any of the following ways:

- One clock connected directly to the computer on a serial port,

- One clock connect to the computer through a modem,

- A network of clocks connected directly to the serial port of the computer,

- A network of clocks connected to the computer through a modem.

- One clock connected to a computer on a serial port through a network.

- A network of clocks connected directly to the serial port of the computer through a network.

- One clock connected to a computer using a TCP/IP address.

2.2. *Configfile.ini*

ACROCOMM can only work with one type of configuration at a time. The instructions that make up the configuration file (*configfile.ini*) are the following:

Instruction	Description
MODEM	It indicates the connection will be made through a modem.
BAUDS *number*	It indicates the speed of transmission of data that it will use, where numbers must be one of the following: 1200, 2400, 9600.
PORT *number*	It indicates which port it will use. It can be any of the following: 1 for COM1 2 for COM2 3 for COM3 4 for COM4
CONNECTION *mode*	It indicates the connection type with the CLOCK. *mode* may be SERIAL for serial connection (which is the default) or TCP for a connection using TCP/IP
TCPADDRESS *n.n.n.n*	This is the TCP/IP address of the clock the ACROCOMM will initially connect with. (Default address of the clock is 192.168.0.254)
TCPPORT *number*	Indicates the TCP/IP port of the clock the ACCROCOMM will initially connect with. This must be a number greater than 10000 and MUST coincide with the number set in the CLOCK. Default for this value in the clock is 10001.
WAIT *number*	It indicates how long (in seconds) it should wait for a response from the CLOCK after sending an order.
R	It indicates that a network of clocks will be connected.
S	It indicates that only one clock will be connected.
IDs	A list of the clocks' IDs; it indicates which clocks are connected. An ID is made up by the character's ASCII number, between '[ ]', i.e.: [number]. *See Appendix F for ASCII Code List.*

The default values for these variables are the following: **(Example 1)**

> BAUDS 9600
> PORT 1
> WAIT 4
> S
> [49]

For example, if our system is composed by a network of 5 clocks connected through a Modem on the COM2 port, the configuration file will be: **(Example 2)**

```
;To indicate the use of a modem
MODEM
;Using the serial port COM2
PORT2
;It indicates it is a network
R
;Clocks' IDs
#1
#2
;ASCII numbers of characters 3 and 4
[51]
[52]
```
(";" Denotes a Remark Statement)

Note that the BAUDS are not included because it takes the default value of 9600.

There is no limit to the number of clocks that can be connected on a network, but all clock (ID*s*) must be included in the configuration file to prevent a malfunction in communication. An ID must not be duplicated because it represents the logical address of the clock.

The configuration file **(*configfile.ini*)** must be made known to the program using the operator @, always on the first position of the parameters. If this file is not indicated, the program will look for the file ACROCOMM.INI, and if it does not find this file, it will take the default values.

2.3. **ACROCOMM: Command Line**

ACROCOMM can also work as a command line. The tasks that it is to perform are given at the command line from DOS windows as parameters. The format is as follows:

ACROCOMM [@*configfile.ini*] [-*parameters...*]

Where @configfile may be a set of the following commands:

configfile
The *configfile* can be any name (example, *abz.ini*). The *configfile* defaults to ".ini" file extension unless otherwise specified. Example "*abz*" is considered "*abz.ini*" .

ACROCOMM [@abz.ini] [-*parameters...*]

ACROCOMM [@*abz*] [-*parameters...*]

No *configfile*
Without a *configfile,* the system looks for the ***acrocomm.ini*** file. If the ***acrocomm.ini*** is not present on the system the following defaults will be used:

ACROCOMM [-*parameters...*]

```
BAUDS 9600
PORT 1
WAIT 4
S
#1
```

Where -*parameters* may be a set of the following commands:

-S#*ClockId*   Select Clock with identification *IdClock*(character).

	Ex.: Acrocomm @configfile.ini -S#*ClockId*
-S[ascii]	Select Clock with ascii identification *ascii*(character's ascii number). **Ex.: Acrocomm @configfile.ini -S[91]**
-M{T}or{P}*number*	Dial a modem with telephone number given in *number*. Select either {T} for Tone or {P} for Pulse dialing. **Ex.: Acrocomm @configfile.ini -M {T or P} *number***
-A*destination*	Poll transactions from clock and add to *destination* file. **Ex.: Acrocomm @configfile.ini -A*destination***
-E*destination*	Poll transactions from clock and send them to *destination* file, if destination is not specified, they will be displayed on screen. **Ex.: Acrocomm @configfile.ini -E*destination***
-N*source*	Send instruction file in *source*, if source is not specified, the default file will be PROGRAM.CLK. **Ex.: Acrocomm @configfile.ini -Nsource**
-R	Send initialization instruction to the clock's memory. **Ex.: Acrocomm @configfile.ini -R**
-U*offset*	Update Clock's Time and Date. *offset* is the time difference between the clock and the computer. **Ex.: Acrocomm @configfile.ini -U-1**
-H	Obtain memory information from terminal. **Ex.: Acrocomm @configfile.ini -S#1 –Hheader.txt** **(* See Appendix D Terminal Memory Information)**

For Example:

1.   To update a clock's Time and Date using the system defaults (See Example 1) use the following command lines:

ACROCOMM -U

Since there was no configuration file specified, the system defaults will be used.

2.   To *update and program* a network of 5 clocks connected through a modem configuration file (See Example 2) use the following command line:

Acrocomm @*configfile.ini* -U –N*program.clk*

2.3.1. Considerations

When the program is executed in the form of command line, there are several considerations that must be taken into account; when a chain of parameters is formed, they must be in a logical sequence to correctly execute instructions. If a modem configuration is used, the first command in the chain must be to dial a number, then select a clock, followed by the additional functions desired for the specified clock.

There is no limit to the number of instructions that can be put on the command line; there is only the limit that DOS has on length of line.

The commands will be executed as they are received, with the following consideration: If a command was not executed successfully the program will abort the operation with the current clock, with the logical consequence that it will not execute any of the tasks that follow the command that caused the error

for the selected clock. It will look forward and discard all parameters until the next –S parameter and then it will continue executing the remaining parameters, if they exist.

2.3.2. Error Codes

ACROCOMM feeds back the following error codes to the operating system:

0	Successful execution.
1	Instruction not executed.
2	Transmission cancelled.
3	Communications error.
4	Transmission aborted.
5	Did not receive response.
6	Connection unsuccessful.
8	Invalid format on commands.
9	Invalid instruction.
10	Not configured for modem.
11	Cannot open file.
13	Execution aborted.

3.   Using The Excel/Visual Basic Macro Polling

AcroComm command line operation can be easily incorporated into Excel/Visual Basic applications. This provides extremely fast turnkey solutions for customer applications. The example in Appendix E is an Excel 97/Visual Basic application that allows the user to poll transactions into an Excel spreadsheet. The application is configurable allowing the user to turn on/off columns not required, pair punches, subtotals, totals, etc. This software application can be used out of the box and is intended to be an example of the capabilities of AcroComm, the Acroprint terminal, and Visual Basic within Excel 97. The source code for this example may be copied, used/altered/modified, and included in your own application. The sample program is designed to run on Windows 95 Operating Systems. Refer to Appendix E for program details.

4. Acroprint Terminal Configuration

Each clock is capable of communicating through any of the two ports it has, one is the RS232 found in all clocks; the other is either the RS485 for networks or the internal modem.

4.1. *Configuration Through Badge*

The program has several variables that are configurable through the Configuration Badge. These variables are:

> Date
> Time
> Port

The terminal's identification can be changed through the Configuration Badge. This badge has a special number and is used only for this purpose. It must have the number 000000000, and it must be a magnetic stripe type of badge to be considered a configuration badge. When the clock detects this type of badge, the screen will have the following options:

> Select Option
> 1-Date 2-Ports 3-Readers 4-Test 5-Initialization 6-FIU Reset

To select, the key with the number chosen must be pressed, <Enter> is not required. A beep will sound to acknowledge the reception of the entry. The program will wait up to 10 seconds to receive an entry. If this does not happen, it will return to normal execution.

4.1.1. Configuring Procedure for entering the Date and Time

Swipe the Configuration Badge 000000000
(This badge is provided with each terminal.)

Select option 1 for DATE <Press ENTER>

Select the Day, Month, Year, DDMMYYYY <Press ENTER>

Select the Time HH:MM <Press ENTER>
(Time is entered in military time, 2:00 pm = 14:00)

4.1.2. Configuring Procedure for Selecting Ports

Swipe the Configuration Badge 000000000
(This badge is provided for each terminal.)

Select option 2 for Ports < press ENTER>

Select option 0 for RS232 <press ENTER>

Select the baud rate 0 for 1200, 1 for 2400, 2 for 4800, 3 for 9600 and 4 for 19,200 baud. <press ENTER>

(FOR MODEM TERMINAL ONLY)

Select option 1 for Modem <press ENTER>

Select the Modem baud rate 0 for 1200 and 1 for 2400 baud <press ENTER>

Select the Answer Window HHMMHHMM for starting and ending times <press ENTER> (Time is in military format. Example: Clock will not answer during business hours and will only answer between the hours of 8:00 pm and 6:00 am, then select 20000600)

(FOR RS485 TERMINALS ONLY)

Select option 1 for RS485 <press ENTER>

Select the 0 for 1200, 1 for 2400, 2 for 4800, 3 for 9600 and 4 for 19,200 baud <press ENTER>

(FOR ETHERNET TERMINALS ONLY)

Select option 2 for Ethernet <press ENTER>

Select the baud rate option 3 for 9600 baud <press ENTER>
(Leave this as the default for Ethernet.)

Select the TCPIP address <press ENTER>
(Your network administrator will have this information.)

Select the GATEWAY address <press ENTER>
(Your network administrator will have this information.)

Select the PORT VALUE <press ENTER>
(Default number 10001. Select the same value in the atr9800 software.)

Select the NETMASK PART BITS NUMBER <press ENTER>
(Your network administrator will obtain this information.) The Default Subnet Mask IP number contains 4 segments of numbers separated by "." To determine the NETMASK VALUE obtain your Subnet Mask IP number from the Network administrator XXX.125.125.125 for you server, convert EACH 125 (your numbers will be different) to binary and count the number of zero's in the binary segment and enter this number. 125 = 01111101 in binary. Each 125 has 2 zeros, therefore the Netmask part bits number is set to 6.)

Set the BUFFER FLUSH VALUE <press ENTER>
(Default number 000. The Buffer Flush value is used with Unix communications. Consult Acroprint for details communicating with UNIX.)

Select the TERMINAL TRANSACTION PRINTER TYPE <press ENTER> (default is parallel port)

Select the TRANSACTION TIME OUT < press ENTER>
(This controls how long the terminal will restrict between badge swipes. Example: You want to keep your employees off the terminal for at least 30 minutes for lunch, then set Transaction Timeout to 30.)

Select TERMINAL ID <press ENTER>
(Default is 1, select the ID for terminal, each terminal MUST have a unique ID.)

The terminal MUST be powered down and back up to accept the new TCPIP information.

4.1.3. Configuring Procedure for Selecting the READERS:

Swipe the Configuration Badge 000000000
(This badge is provided with each terminal.)

(Select any combination 1234 to activate the readers. 1 for Internal Barcode, 2 for External Barcode, 3 for Internal Magnetic Stripe and 4 for Internal Proximity Reader.) Note, if 4 is selected then the External Barcode Reader will be disabled.

Note, if you turned OFF all readers you will be unable to read the configuration badge. The following procedure will allow you to re-enable the readers. Press the IN, then the OUT and then the ENTER key within 1 second. The terminal will go into a testing mode. Press the Clear key followed by Press the IN, then the OUT and then the ENTER key within 1 second or before the time is displayed.

4.1.4. Enabling Serial/Parallel Printing

Select option no. 2, and the terminal requires you to enter the communications port, the speed of transmission needed for the port, the PRINTING PORT PARALLEL (Default) or serial and the terminal ID. If you choose the serial port for transaction printing, the speed used will be the same defined for communications. If RS232 is not being used for communications, the default of 9600 baud will be applied. If you need a different speed, you will have to enter it every time the terminal is turned on.

5. About the CLOCKS

The Acroprint Terminal CLOCK works as a data collection terminal. It receives the badge through any of the available sources. It validates it, and stores the transaction.

5.1. *Badge Validation Criteria*

This type of clock uses extensive validation criteria:

- The badge length is configured by the parameter BL. You can swipe any badge with an alphanumeric number in length equal or lesser than the number specified in the parameter BL.

- The badge must have a security prefix, specified in the parameter BC. All badges must start with the specified prefix. You may leave the security prefix empty to not enforce this rule.

- There is a supervisor prefix specified in the parameter SP. All badges starting with this prefix, will be considered as Supervisor Badges and will not be assigned as employee badges.

- There is only one Configuration Badge, with badge number 000000000 encoded in a magnetic strip.

- Any badge with an alphanumeric number up to 10 characters in length may be displayed.

- Entries must be made through a valid source, determined with parameter IS. These can be a magnetic stripe readers, keyboard, barcode readers or proximity readers.

- Any badge different from the Configuration badge will be processed as a normal badge.

The memory capability is variable according to the partitions made to the memory, due to the fact that it has to save space for the tables. It has 65,535 memory bytes available. See Appendix B for formulas to calculate the tables' sizes.

5.1.1. Messages

Through the command EM, you can load into the clock a table, with messages to assign to badges. These messages can be configured to be displayed when the badge is swiped or when a specific function is executed where it is defined to see the table of messages. The message has 16 characters.

Each clock has a different memory capability to store swipes, according to the type of clock. When the end of memory is near, it will begin to display caution warning messages indicating how many bytes are left in memory. When it reaches the limit, it will block out completely until the memory is initialized again.

5.1.2. Diagnostic Mode

When the terminal is in idle mode, after having displayed the time and date on the display for the first time, press the sequence <IN><OUT><ENTER> and the terminal will enter into a Diagnostic Mode that allows you to verify the accuracy of the terminal's readers. Immediately, the terminal displays the following information:

> I-P-B-N-X-M-S
> 1-1-3 -1-1 -0-0

This indicates configuration of the terminal as follows:

I:	Terminal ID number.
P:	Communications port (0:RS232,1:RS485).
B:	Transmission speed in baud (0:1200,1:2400,2:4800,3:9600,4:19200,5:38400).
N:	Internal barcode reader (0:not active, 1:active).
X:	External barcode reader (0:not active, 1:active).
M:	Magnetic stripe reader (0:not active, 1:active).
S:	Proximity reader (0:not active, 1:active).

5.1.3. Functions

When the clock reads a badge, it compares the badge number with the Configuration Badge. If it does coincide, it compares it with the Supervisor Prefix, then with the Swipe & Go range, and finally it asks for the function number.

Up to 13 functions may be defined in the system with the parameter FP, and up to 6 instructions for each function with parameter FL. Each instruction allows the recollection of one piece of data.

The functions are:

? – Swipe & Go	It is automatically executed when the badge number is within the range defined in the parameter SG.
# – In	Mostly used to indicate the start of the workday.
* – Out	Mostly used to indicate the end of the workday.
0 – 9	These are used for specific purposes defined by the user.

In the definition of each function it is specified if the Lockout Assignment Table, the Access Table, or the Messages to Employees Table must be checked and if the function is exclusively for supervisor use when it is executed.

Each function can be programmed with 6 instructions. In each instruction 1 piece of data may be solicited, one message displayed and one sound made.

When a badge is swiped, it looks to see if there is a message for that badge and determines whether or not to display the message at that moment. If the badge is not within the Swipe & Go range, the screen will display the following message:

> 'Enter Function'

It must be followed by pressing the key required to execute the function. If the key pressed does not have a function defined or is exclusively for supervisor use and it is not a supervisor badge accessing the function, it will display the message 'NOT AVAILABLE'. If this is not the case, it will execute the instructions defined for the function. If the function executed indicates to see

Messages, and there is a message for that badge that should be displayed for the executed function, it will display the message after soliciting the function.

5.1.4. Lockout

The Lockout Assignment Table is loaded into the clock with the command PE, and the Lockout Definitions Table with the command PF.

The profile control works as follows:

1) An employee executes a function defined to check the lockout table.

2) The program checks the Lockout Assignment Table. If it finds the badge, it gets the lockout number assigned for the current day as index for the profile. If it does not find the badge, it executes error message number 2.

3) The lockout index is checked in the Lockout Table. If it finds it, it looks for a schedule defined in the lockout that coincides with the time checked. If it finds a defined schedule, it retrieves the message number. If the lockout is not defined or if it does not find a schedule, it executes error message number 1.

4) If it retrieves the message, it displays it and executes the first instruction in the function executed. At this point, it is determined if the swipe is allowed or not, depending on the message's characteristics.

5.1.5. Supervisor Procedures

Transactions may be added or erased with the Supervisor Badge. For a badge to be a Supervisor Badge, it must begin with the prefix defined in parameter SP.

To add or erase transactions:

1) Swipe a Supervisor Badge, the screen will immediately show:

'Badge Number.'

At this time, swipe or type the employee's badge number that needs to have a swipe erased or added.

2) The screen will show:

a) If the swipe exists: '12/06 08:00   IN'

'<Enter >:Continue'

Press <Enter> if you wish to continue or press <Clear> to Abort.

b) If the swipe does not exist:

Go to step 3) with options: '1-Add   2- Quit'

3) The screen will show:

'Select Option'
'1-Add   2-Erase'

Select the option desired. If you select Erase ('2'), the transaction will be erased immediately and you will return to step 1) of this procedure. If you select Add ('1'), it will ask for the swipe data that you wish to add.

4)   The screen shows:

'Date (DDMMYY):',
'120696'

to allow you to edit the date the swipe will have.

5) The screen shows:

'Time (HHMM):'
'0800'

to allow you to edit the time the swipe will have.

6) After editing the time and date, the program will continue to execute as when a badge is swiped. It will ask for the function and will execute it.

The transaction searches are only done to transactions for the current day, and it stops with the first transaction it finds. When a function to check lockout is executed, and the lockout message does not allow the swipe, but in the same message it allows the supervisor to allow the swipe; while the message is displayed, if the supervisor swipes a supervisor badge, the swipe will be allowed.

6. Appendix A: Configuration Instructions Format

6.1. Command List

Command		Definition	Command		Definition
AC		Access Table Entry	LD		Show Additional Message
AD		Access Signal Length	LE		Validation Table Entries
AO		Access Only Clock	LF		Line Feeds After Transaction Printing
AT		Update Date and Time	LL		Length of Data
AW		Access Windows	MA		Modem Answer Window
AX		Access Control Mode	MD		Ring Delay
BC		Badge Security Prefix	MP		Memory Partition
BL		Badge Length, Badge Type	MT		Military Time
BM		Maximum Badge Length	OT		Enable/Disable On line Transaction
BN		Minimum Badge Length	PE		Badge Profile Assignment
BS		Bell Schedule Record	PF		Profile Definition
CR		Reinitialize the Terminal	PL		PIN Length Definition
DL		Daylight Savings	PM		Profile Messages
DM		Default Message	PR		PIN Register
DU		DST custom Dates	PX		Error Messages Profiles
EF		Enter Function	RA		Register Invalid Transactions
EM		Messages Assigned to Badges	RL		Printing Reset Line
FC		Facility Identification Code	RST		Transaction Memory Initialization
FL		Function Definition	SG		Maximum Number for Swipe & Go
FP		Programming Function Instructions	SF		Fingerprints Supervisor Prefix
FS		Enable/Disable Finger Sensor	SN		Clock Message on the Second Line
FT		Fingerprint Reading Waiting time.	SOT		Start on line transactions
FZ		Total Memory Allocated for the FIU	SP		Supervisor Badge Prefix
H1		Transaction Printing Headers	T#		Clock's Logical ID
H2		Transaction Printing Headers	T1		General Data Entry Time
H3		Transaction Printing Headers	T3		Message Display Time
H4		Transaction Printing Headers	TA		Please Try Again
IB		Invalid Badge	TD		Enable/Disable Terminal Mode
II		Invalid Source	TL		Communication Timeout
IP		Clock Message on the First Line	TP		Display Idle-Prompt Time During Idle
IS		Badge Entry Initial Sources Allowed	UF		Enable to use the FIU
L0		Error Message	XS		FIU Security Id.
L1		Error Message	XF		Access Off Message
L2		Error Message	XN		Access On Message
L3		Error Message	XS		FIU Security #
LB		Use of External Light Box	ZZ		Terminal Locked

The following commands are used to create a script (PROGRAM.CLK) that is downloaded to an ACROPRINT terminal. This Script file is downloaded via the ACROCOMM.EXE.

6.2. *Command List Formats*

The configuration instructions format that are allowed to be sent are listed below:

6.2.1. AC

Access Table Entry

      Format: AC=FGGGGG

where

F:	1-first record, 0-subsequent
GGG..:	Badge number, or 'A' to give access to all badges

An entry of AC=0 will erase the Access Table

6.2.2. AD

Access Signal Length

      Format: AD=NNN

where

NNN:	Access Signal Length in tenths of second. This is also the signal duration when the external light box is in use.

6.2.3. AO

Access Only Clock

      Format: AO=X

where X can be 'Y' or '1' for Yes, or 'N' or '2' for No. When the clock is 'access only' the transactions are not stored

6.2.4. AT

Update Date and Time

      Format: AT=NNN

where NNN can be the time difference between the computer and the clock in hours.

If NNN=0 then "AT" is enough. This instruction retrieves the date and time from the computer, adds the time difference and sends it to the clocks to update their date and time

6.2.5. AW

Access Window

      Format: AW=HHMMHHMMDDDDDDD

where

HH:	Access window start hour
MM:	Access window start minute
HH:	Access window end hour
MM:	Access window end minute
DDDDDD:	Days of the week the access window will be active

The access window is a period of time when the access signal will be continuously on.

6.2.6. AX

Access Control Mode

Format: AX=N

where

N: can be 0-No access, 1-Automatic, 2-Permanent Access

6.2.7. BC

Badge Security Prefix

Format: BC=XXXX...

where XXXX... is the prefix that all badges must have. The instruction 'BC=' disables this validation criteria.

6.2.8. BL

Badge Length, Badge Type

Format: BL=NN,X

where NN is the badge length allowed (1 - 10) and X is the badge type (A= Alpha Numeric and N= Numeric). The clock will read badges only when they have a length equal to the value specified in BL (See BM below). Every time BL is issued, then BN is reset to BL.

6.2.9. BM

Maximum Badge Length

Format: BM=NN[,F]

where

NN: Maximum length of badge allowed (1 - 40)
 F: Offset of the starting character within the badge
         number to start reading the NN characters.

The terminal will store BL characters of the total badge length (BM), starting at the offset position. The terminal will read all badges with a length between BN and BM, but will only store BL characters.

6.2.10. BN

Minimum Badge Length

Format: BN=NN

where

NN: Minimum length of badge allowed (1 - 40)

The terminal will read all badges with a length between BN and BM, but will only store BL characters. Every time BL is issued, then BN is reset to BL.

6.2.11. BS

Bell Schedule Record

Format: BS=FSSSSSSSHHMMDD

where

F: Flag to indicate initial entry (1) or subsequent (0);
S: Day of the week this alarm will be active, from
                    Sunday to Saturday
                    (0 or N – Not Active, 1 or Y – Active)
HHMM: Hour and Minute the signal will be sent to the alarm
DD: Duration of signal in seconds

Each instruction, as described above, represents a record in the Alarm Table. It must be entered in ascending order by hour and minute. When the start flag is 1, all preceding entries of this type will be nullified. If there is an instruction that is not in the correct order, the clock will ignore it and not send the signal to the alarm for that time.

6.2.12. CR

Reinitialize the terminal

Format: CR=X

where X can be Y or 1 for initializing the terminal to all default values and to erase all transactions and tables. X can be N or 0 to simulate turning the unit off and on automatically.

6.2.13. DL

Indicates Summer Energy Daylight Savings

Format: DL=X

where X can 'Y' or '1' to accept it, or 'N' or '0' to not accept it.

The Energy Savings Program contemplates the time adjustments on the first Sunday of April and the last Sunday of October. This is an International Standard

6.2.14. DM

Default Message for online transactions.

Format   DM=MMMMMMMMMMMMMMMMMMMMNNNSSAA

Donde: MMM... The message to be displayed on the terminal screen, up to 20
                Characters.
        NNN   Timeout of the message to be displayed as well as the
                indicated signals.
        SS   Bit map given in HEXADECIMAL format (2 characters)
                indicating the signals that must be raised. Each bit means:
                Bit 0: Access signal.
                Bit 1: Bell Signal.
                Bit 2 y 3: Reserved
                Bit 4: Accepted tone.
                Bit 5:Rejected Tone.
                Bit 6: Message Tone.

Bit 7: Reserved.

AA   Bit map (1 Byte) given in HEXADECIMAL format (2
characters) to indicate several actions with the transaction.
Each bit means:
Bit 0: Allow transaction.
Bit 1 y 2: Reserved
Bit 3: Allow only with Supervisor Badge.
Bit 4: Save the transaction if allowed.

The on line transaction feature uses its own communication program with the computer and is not compatible with the ACRCOMM. Once started (SOT) the ACROCOMM will no longer communicate with the terminal until it is placed in communication mode again by the host.

6.2.15. DU

Indicates Daylight Savings Custom Dates

Format: DU=FDDMMddmmNNN

where F can 'Y' or '1' to use Custom Dates for DLS, or 'N' or '0' to use the International Standard of the DLS (See DL).
DDMM is the starting date of the Daylight Savings Program (DLS), and ddmm is the ending date of the DLS.
NNN is the offset in minutes to be added/subtracted from the time on the dates.

6.2.16. EF

Enter Function Message
Format: EF=XXXXXXXXXXXXXXXXXXXX

where

XXX…string up to 20 characters   The default is "ENTER FUNCTION."

6.2.17. EM

Messages Assigned to Badges

Format: EM=FOINGGG...MMMMMMMMMMMMMMMM

where

F:	Flag, 1-First entry, 0-Subsequent
O:	Display message only once (Y-Yes, N-No)
I:	'Y'-Display message when badge is swiped
	'N'- Display message when function is executed
N:	Function where the message must be displayed.
	Ignored if message displayed when badge is swiped
GGG..:	Badge number
MMM..:	16 character message. All 16 positions must be filled

6.2.18. FC

Facility Identification Code

Format: FC=NNNNNNNNNN

where

NN..N: An alphanumeric field of 10 positions.

This is the facility code that is recorded on the Proximity Cards to verify their authenticity. If a card does not match this code, it will be treated as an invalid badge.

6.2.19. FL

Function Definition

Format: FL=FLSPAMN

where

F:	Function Key (0-9,*,#,?)
L:	Number of Instructions the function will have (1-6)
S:	Supervisor Only function ('Y' or 'N')
P:	Check Profile Table in this function ('Y' or 'N')
A:	Check Access Table in this function ('Y' or 'N')
M:	Check Employee Messages in this function ('Y' or 'N')
N:	Transaction Printing in this function ('Y' or 'N')

6.2.20. FP

Programming Function Instructions

Format: FP=FLMMMMMMMMMMMMMMMMSSSTDNNVT

where

F:	Function to which the instruction belongs (0-9,*,#,?)
L:	Number of instruction (1-6) according to the function's definition
MMM:	Message to be displayed in this instruction (16 characters)
SSS:	Data Entry Source allowed in this instruction (SKWP or blank if data entry not allowed)
T:	Type of data to collect (1-Alphabetic, 2-Numeric, 3-Alphanumeric, 4-Decimal)
D:	Number of decimals if the data is decimal
NN:	Maximum number of characters to receive
V:	Validation type: 0 - No validation, 1 - Press <Enter>, 2 - Use Table (T), 3 - Press <Enter> and Use Table, 4 - Do not show data and use table
T:	Validation table to use. (0 - 3)

6.2.21. FS

Fingerprint Sensor

Format   FS=X

Where X is 'Y' or '1' to enable the Finger Biosensor in the FIU or 'N' or '0' to disable it.

When the biosensor is disabled, then the FIU will read anything that is placed on the FIU, even if it is not a live finger.

6.2.22. FT

Fingerprint Reading Waiting Time

Format   FT=XXX

Where X is the time in tenths of a second the terminal will wait for reading a fingerprint from the FIU when it is registering or validating a fingerprint. This time is counted after the badge is swiped. Default 30 (3 seconds).

6.2.23. FZ

Fingerprint Table

Format   FZ=ZZZZ,LL,A

where

ZZZZ: Memory reserved to store the Fingerprint Table.
LL: Badge Length that is stored in the Fingerprint Table.
A: Number of additional fingerprints stored per badge (Default is 0). This means that if a 0 is sent here, only 1 fingerprint will be stored per badge. Max. is 2 for three fingerprints per badge.

When the FIU reader is used, the default will be only 1 fingerprint per badge to store on the table. If you need to save 3 fingerprints per badge, then A should be set to 2. This will mean that only 333 people (badges) can be registered in the FIU reader.

When the FIU is set to store 2 or 3 fingerprints, the primary finger should be registered first (that means the finger that you intend to use the most). When you attempt to clock in/out, you are prompted to place a finger. The terminal will read the finger placed once, and then it will try to find a match among all fingers stored until a perfect match is found.

6.2.24. Hx

Transaction Printing Headers

where

Format: H1=MMMMMMMMMMMMMMMMMMMM
            H2=MMMMMMMMMMMMMMMMMMMM
            H3=MMMMMMMMMMMMMMMMMMMM
            H4=MMMMMMMMMMMMMMMMMMMM

where

MMM..: The message to be printed as header of the transaction created. It is 20 characters long.

The terminal concatenates the values of H1 and H3 to form a 40 character first header and the values of H2 and H4 to form a 40 character second header for printing.

6.2.25. IB

Invalid Badge Message

    Format: IB=XXXXXXXXXXXXXXXXXXXX

where

    XXX… string up to 20 characters   The default is "INVALID BADGE."

6.2.26. II

Invalid Source Message

    Format: II=XXXXXXXXXXXXXXXXXXXX

where

    XXX… string up to 20 characters   The default is "INVALID SOURCE."

6.2.27. IP

Message that will be constantly displayed on the first line of the clock's screen as the company's ID,:

    Format: IP=XXXXXXXXXXXXXXXXXXXX

where XXX... string up to 20 characters.

The clock's screen has two lines of 20 characters each. This string will be on the first line.

6.2.28. IS

Badge Entry Sources Allowed

    Format: IS=XXXX

where X may be one or any combination of the following:

    S – if the entry is through a Magnetic Stripe Reader
    K – if the entry is through the keyboard
    W – if the entry is through a Bar Code Reader
    P – if the entry is through a Proximity Reader

6.2.29. Lx

Error Messages

    Format: L0=MMMMMMMMMMMMMMMMMMMM
                 L1=MMMMMMMMMMMMMMMMMMMM
                 L2=MMMMMMMMMMMMMMMMMMMM
                 L3=MMMMMMMMMMMMMMMMMMMM

where

    MM..:   Message to be displayed if data entered is not in the validation tables.

6.2.30. LB

Use of External Light Box

    Format: LB=X

where X can be 'Y' or '1' for Yes, or 'N' or '2' for No. The External Light Box is connected to the clock to turn on a green light when a swipe is accepted or a red light when the swipe is not accepted.

6.2.31. LD

Show additional message

      Format: LD=Y

where

      Y: Y or N, 1 or 0.

Indicates if an additional message will be displayed to validated entry.

6.2.32. LE

Validation table entries

      Format: LE=LFNNN…MMMMMMMMMMMMMMMM

where

      L: Table number from 0 to 3.
      F: 1 for first entry, 0 for subsequent.
      NN..:   Data to add. The length is determined by the LL command if the data is only to be validated. If the badge is being validated, it should be added at the end of the data.
      MMM..: Additional message to display if indicated by the LD command and if the validation is successful. Can be null.

6.2.33. LF

Line Feeds after transaction printing

      Format: LF=NN

where

      NN: A number between 0 and 30

When a transaction is printed, the printer will advance the paper NN lines before printing the next transaction.

6.2.34. LL

Length of data

      Format: LL=00,11,22,33,YYYY

where

      00:      Length of data for validation table no. 0.
      11:      Length of data for validation table no. 1.
      22:      Length of data for validation table no. 2
      33:      Length of data for validation table no. 3
      YYYY: Add the badge no. to the data for validating together (Y or N, 0 or 1). One position is reserved for each table.

Indicates the length of data entered to validate against the data in the table; this should exclude the length of the badge if it is being validated as well.

6.2.35. MA

Modem Answer Window

Format: MA=SSSSEEEE

where
SSSS: Start Answer Window (default 00:00)

EEEE: End Answer Window (default 23:59)

Indicates what time window of the day the terminal will answer the telephone

6.2.36. MD

Ring Delay

Format: MD=X

where

X: number of ring delays 1-9

One ring delay equals about 2.5 seconds (default 1)

6.2.37. MP

Memory Partition

Format: MP=AAAAA,PPPPP,MMMMM,00000,11111,
22222,33333,SSSSS,NNNNN

where:

AAAAA: Bytes for the Access Table
PPPPP: Bytes for the Profile Assignment Table
MMMMM: Bytes for the Employee Messages Table
00000,11111,
22222,33333:   Bytes for the Validation Tables 0 - 3
SSSSS: Bytes for the Profiles Table, the default is 640
NNNNN: Bytes for the PIN Table

This parameter must have all positions filled; each number must have 5
characters. When this instruction is executed, all tables and all transactions are
erased. Thus, all tables must be reloaded after this instruction.

6.2.38. MT

Military Time Display
Format: MT=X
where

X: 0 for 12 hour AM & PM or 1 for 00:00 to 23:59

6.2.39. OT

Online transaction message transmission timeout.

Format: OT=XXX

where X: Is the time in tenths of a second the terminal will wait for a response from the host when a transaction is generated on the clock and sent to the host. If X = 0, then the on line transmission is disabled. Anytime OT is different than '0' the terminal will be in online transmission mode even if the terminal is restarted.

6.2.40. PE

Badge Profile Assignments

       Format: PE=<A>ppppppp

where

<A>:	Indicates that the next profile will be applied to all badges
ppppppp:	Profile number to apply to all badges all days (SMTWTFS)

This instruction should be the first PE instruction to be sent to the terminal. At least 20 bytes should be reserved for the profile table. To process this instruction, the terminal reads the first badge assignment on the profile table, and if this corresponds to the letter 'A', it will be processed according to the profile assigned for that day. If it is not the letter 'A', the normal process applies. Please see next PE option.

6.2.41. PE

Also:

       Format: PE=FGGG...NNNNNNN

where

F:	Flag, 1-First entry, 0-Subsequent
GGG..:	Badge Number
NNN..:	Number of profile assigned for each day of the week (Sunday – Saturday). The numbers assigned must be in the profile definition (PF)

6.2.42. PF

Profile Definition

       Format: PF=#TIHHMMHHMM

where

#:	Number of profile. ASCII character beginning with '1'(HEX 31) and increasing to the necessary number. (1-9) first 9 profiles. Check ASCII table for other characters
T:	Profile's schedule number (1-8)
I:	Index to the message in this schedule. Valid characters (1-9,:,;,<,=,>,?)
HHMM:	Schedule's start hour and minute
HHMM:	Schedule's end hour and minute

An entry of PF=0 will erase the Profile Table. Each profile uses 40 bytes of memory, thus there must be enough memory allocated to store the profiles needed.

6.2.43. PL

PIN Definition

    Format: PL=NN

where

    NN: Any number between 0 and 30.

When the value of NN is other than 0, the Personal Identification Number (PIN) will be automatically activated, and NN will be the length of the PIN. The default is 0 for no PIN required.

6.2.44. PM

Profile Messages

    Format: PM:IMMMMMMMMMMMMMMMMASBT

where

I:	Message index. Valid characters (1-9,:,;,<,=,>,?)
MMM..:	16 character message
A:	Allow the check (Y-Yes, N-No)
S:	Allow access supervisor
B:	Emission bell (A-Accepted, R-Rejected, N-None)
T:	Displayed message time

Up to 16 messages can be defined

6.2.45. PR

PIN Register

    Format: PR=FBBBB…NNN…

where

F:	Flag, 1-First 0-Subsequent
BBBB:	Badge number
NNN:	PIN assigned to BBBB badge number

The terminal searches for the badge swiped in the PIN table. If found, it compares the PIN entered to the PIN stored for that badge using the length defined in PL. If the validation is successful, the transaction is accepted.

6.2.46. PX

Error Messages Profiles

    Format: PX=IMMMMMMMMMMMMMMMMMASBT

where

I:	Message number, 1-Profile not defined, 2-Badge not found

MMM..:   16 character message
A: Allow check (Y-Yes, N-No)
S: Allow supervisor access
B: Emission bell (A-Accepted, R-Rejected, N-None)
T: Displayed Message Time

6.2.47. RA

Register Invalid Transactions

Format: RA=F

where

F: Y or N, 1 or 0

An invalid transaction will cause an X character to appear on the function field.

When set to Y or 1, the invalid transactions will be stored in the terminal, in the following cases:

The profile lockout rejects the transaction (puts a '5' mark on transaction record, 2nd field)
The badge that is swiped does not have a fingerprint stored ('6' mark)
The fingerprint read does not match the one stored for the badge ('7' mark)
The badge that is swiped does not have a PIN assigned or the PIN entered is incorrect ('8' mark)
A proximity card was detected with an incorrect facility code ('9' mark)

6.2.48. RL

Printer Reset line

Format: PX=MMMMM…

where

MMM..:   up to 30 Characters

After a transaction is printed, the reset line is sent to the printer. This string accepts any control character that had to be sent to the printer to reset it or to perform any action after the printing.

6.2.49. RST

Transaction Memory Initialization

Format: RST

This instruction eliminates all transactions from the clock's memory

6.2.50. SG

Maximum Number for Swipe & Go

Format: SG=XXXX...

Badge numbers included between numbers 0 and XXXX... will be considered for Swipe & Go. These badges do not execute any functions.

6.2.51. SN

Message that will be constantly displayed on the second line of the clock's screen as the company's ID,:

Format: SN=XXXXXXXXXXXXXXXXXXXX

where XXX... string up to 20 characters.

The clock's screen has two lines of 20 characters each. This string will be displayed on the second line.

6.2.52. SOT

Start Online Transaction transmission mode

Format: SOT

This instruction sets the terminal in online transmission mode if OT is different than 0. (See OT for more details.)

6.2.53. SP

Supervisor Badge Prefix

Format: SP=XXXX...

where XXXX... is the prefix that a badge must have to be considered a Supervisor Badge.

6.2.54. T#

Clock's Logical ID

Format: T#=X

where X is the character that identifies the clock.

6.2.55. T1

General Data Entry Time

Format: T1=NNN

where NNN are the tenths of second the clock will wait for an entry. Default is 30 (3 seconds).

6.2.56. T3

Message Display Time

Format: T3=NNN

where NNN are the tenths of second the clock will display a message on screen.

6.2.57. TA

Please Try Again Message

Format: TA=XXXXXXXXXXXXXXXXXXXX

where XXX…up to 20Characters: The default is "PLEASE TRY AGAIN."

6.2.58. TD

Terminal Mode

Format: TD=NN

where NN is the time in 1/50 of a second the terminal will wait between transactions when sending transactions in terminal mode. If the clock is set in terminal mode then 3 operations can be performed with a terminal client in the computer. These are:

#[id]X1:Extracts the transaction header.
#[id]X2:Extracts the transactions file
#[id]X3:Clears the transaction memory in the terminal.

The terminal mode is used when the terminal is used within an environment other than Windows, such as UNIX.

6.2.59. TL

Communication Timeout

Format: TL=NN

where NN is the time in milliseconds the terminal will wait to receive a communication response when it is communicating with the computer. Default value 750. This value is used when the connection is made with a very segmented link, such as Internet or Cellular Modems.

6.2.60. TP

Display Idle-Prompt Time During Idle

Format: TP=NN

where NN is the time in seconds to display Idle-Prompt time during idle.

6.2.61. UF

Enable use of the FIU (Fingerprint Identification Unit)

Format: UF=L

where

L: 1 to 5 for using the FIU unit, 1 being the least sensitive and 5 being the most sensitive. N or 0 for not using the FIU unit.

6.2.62. XF

Access Off Message

   Format: XF=XXXXXXXXXXXXXXXXXXXX

where XXX…up to 20Characters

6.2.63. XN

Access On Message

   Format: XN=XXXXXXXXXXXXXXXXXXXX

where XXX…up to 20Characters:

6.2.64. XS

FIU Security #

   Format: XN=XXXXXXXXXX

where XXXXXXXXXX is the security code assigned to individual FIU:

6.2.65. ZZ

Terminal Locked

   Format: ZZ=F

where

   F: Y or N, 1 or 0

When set to 1 or Y, the terminal rejects all transactions received. If a badge is swiped or a key is entered, the terminal will show the message "TERMINAL LOCKED, TRANSACTION REJECTED." When F is set to N or 0, this function is deactivated.

7. Appendix B: Table Size Calculations

7.1. Formulas to Calculate Table Size

This formula may be used to determine the values that will be sent to the clock in the instruction MP.

7.1.1. Fingerprint Table

To calculate the size of the FIU table, use the following formula:

Size of Table = (Badge Length + (2 X Fingerprints per employee)) X (Total number of Employees)

7.1.2. Pin Table

To calculate the size of the Personal Identification Table, use the following formula:

Size of Table = (Badge Length + PIN Length) X (Number of Badges)

7.1.3. Access Table

To calculate the size of the Access Table, use the following formula:

Size of Table = (Badge Length)*(Number of Badges)

7.1.4. Profile Assignment Table

To calculate the size of the Profile Assignment Table, use the following formula:

Size of Table = (Badge Length + 7)*(Number of Badges)

7.1.5. Profile Definition Table

By default, the system reserves 640 bytes for the Profile Definition Table, which is 16 profiles. If you need more space, use the following formula to determine the size of the Profile Definition Table:

Size of Table = (40*Number of Profiles)

7.1.6. Employee Messages Table

To calculate the size of the Employee Messages Table, use the following formula:

Size of Table =((Badge Length + 18) *Number of Messages)

7.1.7. Employee Messages Table

To calculate the size of the Level Validation Table, use the following formula:
Size of Table =(Level Code Length + Message Length+2) * Number of entries
Or
If the badge number must be validated together with the level number use
Size of Table =(Level Code Length + Message Length + Badge Length +2) * Number of entries

7.2. Remaining Space for Transaction Storage

Total Memory Available (114,000 Bytes)

-	Access Table Size
-	Profile Assignment Table Size
-	Profile Definition Table Size
-	Employee Messages Table Size
-	Total of Level Validation Table Sizes

Remaining Space for Transaction Storage

To calculate the approximate number of transactions that can be stored in that space, let's consider that the majority of transactions stored will be normal, that is Swipe & Go, In, Out. Then, the transactions that will be able to be stored will be:

$$\textbf{Transactions to be Stored} \sim \frac{\textbf{(Space for Transactions)}}{\textbf{(Badge Length + 6)*(0.70)}}$$

8. Appendix C: Using the Keyboard to Edit Data

To edit data, we use the CLOCK's numeric keyboard's alphanumeric capability, using the <ALPHA> key. Each number has a triad of letters encoded. To enter a letter, the number into which that letter is encoded must be pressed, followed by pressing the <ALPHA> key as many times as the position of the letter in that triad. The following table shows how to enter each letter of the alphabet, as well as some punctuation marks supported.

TO ENTER:	PRESS:	THEN:
A	2	<ALPHA>
B	2	<ALPHA><ALPHA>
C	2	<ALPHA><ALPHA><ALPHA>
D	3	<ALPHA>
E	3	<ALPHA><ALPHA>
F	3	<ALPHA><ALPHA><ALPHA>
G	4	<ALPHA>
H	4	<ALPHA><ALPHA>
I	4	<ALPHA><ALPHA><ALPHA>
J	5	<ALPHA>
K	5	<ALPHA><ALPHA>
L	5	<ALPHA><ALPHA><ALPHA>
M	6	<ALPHA>
N	6	<ALPHA><ALPHA>
O	6	<ALPHA><ALPHA><ALPHA>
P	7	<ALPHA>
R	7	<ALPHA><ALPHA>
S	7	<ALPHA><ALPHA><ALPHA>
T	8	<ALPHA>
U	8	<ALPHA><ALPHA>
V	8	<ALPHA><ALPHA><ALPHA>
W	9	<ALPHA>
X	9	<ALPHA><ALPHA>
Y	9	<ALPHA><ALPHA><ALPHA>
Q	1	<ALPHA>
Z	1	<ALPHA><ALPHA>
(.)	1	<ALPHA><ALPHA><ALPHA>
(hyphen)	0	<ALPHA>
(blank space)	0	<ALPHA><ALPHA>
(diagonal)	0	<ALPHA><ALPHA><ALPHA>

You may move through the edit lines using the <IN> key to move to the left, and <OUT> to move to the right. You may also use the <BACK SPACE> key to erase the letter preceding the cursor. The <CLEAR> key will erase an entry, unless the cursor is in the first position. If the cursor is in

the first position and the <CLEAR> key is pressed, the edit process will be aborted. Press <ENTER> when finishing editing the data.

Data editing also allows entries through a badge. When there is a badge entry with a length larger than the length allowed in the edit mode, a beep will sound and the entry will be rejected.

Editing as data entry, has a wait period, determined in the company's data configuration. If that time elapses without a data entry, a rejection beep will sound and data edition will be cancelled. The time counter is initialized when a key is pressed or a badge swiped.

9. Appendix D: Transactions Output Format

9.1. Header Record Format

Generally, there is only one header record at the beginning of the table, and it is internally generated when the table is empty. It has the following format:

> T#,YYYYMMDD

where

> T#:   Network Clock ID (1 byte)
> YYYYMMDD: Operations start date (Y=year, M=month, D=day)

9.2. Change Date Record Format

This indicates the clock's date change. This type of transaction is generated when there are changes made to Date, Time, etc., and has the following format:

> HHMMSS,S,YYYYMMDD,D

where

> HHMMSS: Hour, Minute, Second when the change occurs
> S: Transaction source, in this record it is always number 4,
>   meaning the transaction is generated internally
> YYYYMMDD: Record's new date and time
> F: &-Date Change

9.3. Normal Transaction Record Format

This represents a normal badge transaction; it contains the information polled through the execution of a function. It has the following format:

> Indicator   1 -→

> HHMMSS,S,BBB...,F,X4,X3,X2,X1,X0[,S,D1...]

where

> HHMMSS: Time of transaction
> S: Source of transaction
> BBB...:   Badge number, variable length
> F: Function executed
> X4,X3,X2,X1,X0:Reserved for further use, 40 will appear in each position
> S: Source of data (1-keyboard, 2-magnetic strip, 3-bar code)
> D1...D8:   Data collected in each function instruction, this only appears if
>   function F requires data and only the required data numbers
>   appear. If the function asks for only 2 pieces of data, only 2
>   will appear. If the function does not require data, this segment
>   will be empty.

9.4. Supervisor Transaction Record

When it reads a supervisor badge that wants to enter a new badge, a different record is generated, this record has the following format:

> Indicator 1   2 3 -→

> HHMMSS,BBB...,F,S,YYYYMMDD,S,HHMM,S,BBB...,F,X4,X3,X2
> ,X1,X0[,F,D1...] from indicator #1 through #2:

where

HHMMSS:	Time of transaction
S:	Source of transaction (1-keyboard, 2-magnetic strip,3-bar code, 0-erased record)
BBB..:	Supervisor badge number, variable length
F:	Supervisor Function (@)
YYYYMMDD:	Date required for record
HHMM:	Time required for record from #3 through the end, the record is identical to the Normal Transaction Record, from that record's #1 indicator through the end.

9.5. *Terminal Memory Information*

ACROCOMM –S#1 –Hheader.txt is a formatted string containing the following information. Every datum is separated by a comma.

v4,   (This is constant)
Terminal Id,
Reserved memory for Profile Definitions,
Available Memory for Access Table,
Actual count of Access Table Entries,
Available Memory for Profile Assignation Table,
Actual count of Profile Assignation Table Entries,
Available Memory for Message Table,
Actual count of Message Table Entries,
Available Memory for Transactions,
Actual count of Transactions,
<New Line Character>
Validation Table 0 Size,
Validation Table 1 Size,
Validation Table 2 Size,
Validation Table 3 Size,
PIN Assignation Table Size,
Actual count of PIN Assignation Table Entries,
Fingerprint Index Table Size,
Fingerprint Index Table Entries

10. Appendix E: Sample Excel/Visual Basic Templates

10.1. Getting Started Terminal Connections

Setup the Acroprint Terminal communications using the configuration badge, for either RS232 or RS485 communications, the Clock ID = 1 and the Baud rate = 9600. Connect the Acroprint Terminal to a standard RS232 or RS485 (converter required) PC serial port (COMM 1 required for Excel Macro Sample provided). Refer to the Acroprint Terminal hardware manual for port connection details. This sample macro defaults to COMM PORT 1, Clock ID 1, 9600 baud. For Modem communications with this sample Macro, the AcroComm command line needs to be modified with a phone number and AcroComm.cfg file within the Visual Basic Code. Refer to sample VB code in this section for location details.

10.2. Installing AcroComm & Excel Macro Sample

A self-extracting zip file SETUP.EXE creates an ACROCOMM subdirectory containing the following files:

- ACRO.ICO   Acroprint Icon
- ACROCOMM.EXE   Windows NT/95 Communications program
- ACROCOMM.INI   Acrocomm setup file
- ACROCOMM.TXT   Installation text
- DATALOG.DAT   Temporary data storage
- MCW16.DLL   Dynamic Link Library
- POLL_CLK.5.3.4.XLS   Excel Sample Macro
- PROGRAM.CLK   Clock command list
- README.TXT   Updated information
- SUPPORT.TXT   Support Information

10.3. Starting The Macro

To start the sample Excel/Visual Basic Macro, select Poll_clk.5.3.4.xls from the run window or from Windows Explorer. This Macro will only operate on MS Excel 97 or later.

10.4. Main Menu

The main menu provides the means to poll, select data viewed, pair punches, totals and subtotals, append data to a standard excel sheet.

10.5. *Commands*

- Poll   Poll terminal transactions into Excel

- Configure   Configure program setup

- Pair Punch   Pair punches

- Sub-Total   Produce subtotal by employee

- Total   Produce Totals

- Sort   Sort by three fields

- Print Setup   Print spreadsheet info

- Delete Data   Delete all data

- Hide   Choose the columns to display

- Top   Adjust spreadsheet to top

- Arrows   Scroll up and down the spreadsheet

10.6. *Testing Data Transfer*

You are now ready to enter some punches in the Acroprint Terminal, try entering a few Clock IN and Clock Out punches, then select poll button. The Excel Macro will begin to communicate with the Acroprint terminal via AcroComm software first polling all the punches and then clearing the terminals memory. The Acroprint Terminal data will be displayed below the main menu in Excel sheet 2. If you need to collect Job Costing information, the terminal keys can be customized to meet your specific needs by simply changing the PROGRAM.CLK file and reprogramming the terminal via Acrocomm. In the example provided function key 1 (F1) was set up to collect 4 data elements (Department, Job, Step and Operation). The Main Menu diagram shows two examples when Function key 1 (F1) was used to collect data. The F1 example setup Program.clk file is included with the ACROCOMM setup disk.

If you experience communications problems, please check that the following are correct:

- Running Excel 97 or later

- Terminal set to ID=1, Baud=9600, Communications=RS232 or RS485

- Cable connected to the correct port on the Acroprint Terminal

- Working PC's Communications port (COMM 1 only)

- Using the correct Adapter and cable assembly for RS232

- Using the correct Adapter/Converter and cable assembly for RS485

10.7. *Visual Basic Source Code*

The following is a Visual Basic Source used in the example POLL_CLK.5.3.4.XLS. The SHELLARG command is used to poll/program the Acroprint terminals. The DATALOG.DAT is a temporary file used to store previously polled data. The data is then stored in an Excel spreadsheet. The source code for this example may be copied, used/altered/modified and included in your own application.

```
Sub Poll_Clock(Optional Clock_Num)
'*****************************

'Calls Acrocomm to poll the clock and copies data from the Datalog.Dat file
'into the Excel sheet. It also calls other procedures for formatting
'and conversions to the final format seen on the sheet

Dim WORKBOOK_NAME As String
Dim TaskID As Single
Dim ID As Variant

WORKBOOK_NAME = ActiveWorkbook.Name
Application.ScreenUpdating = False

'If Validate_Paths() = False Then
'MsgBox "There are invalid path/file names." & Chr(13) & Chr(13) & _
'"They must be corrected before execution can continue.", vbExclamation, "INVALID
PATHS"
'Exit Sub
'End If

Range("a31").Select
Application.DisplayAlerts = False
If IsMissing(Clock_Num) Then Clock_Num = 1

ID = Clock_Num
    If Range("Back_Up_Data") = True Then
       shellarg = "c:\acrocomm\acrocomm.exe -s#" & ID & " -
ec:\acrocomm\Datalog.dat -a" & Range("Back_Up_Path") & " -r"
    Else
       shellarg = "c:\acrocomm\acrocomm.exe -s#" & ID & " -
ec:\acrocomm\Datalog.dat -r"
    End If
'TaskID = Null
'CTR = 1
TaskID = Shell(shellarg, 1)
'Do While TaskID = Null
'wait_time = DateAdd("s", 1, Time())
'Application.Wait wait_time
'CTR = CTR + 1
'If CTR = 200 Then Exit Do
'Loop

If TaskID = 0 Then Exit Sub 'if TaskID=0 Acrocomm failed somehow

Workbooks.OpenText FileName:="c:\acrocomm\datalog.dat", Origin:=2, _
    StartRow:=2, DataType:=xlDelimited, Comma:=True
```

11.   Appendix F: ASCII CODE LIST

Id's 0-9 and A-Z can be programmed via the keypad of "ADCT" terminal. All other codes must be programmed via Acrocomm.exe command line. For example, to program "!" terminal ID, type T#=[33] from the command line and reboot the terminal.

ASCII Code	Character
33	!
34	"
35	#
36	$
37	%
38	&
39	'
40	(
41	)
42	*
43	+
44	,
45	-
46	.
47	/
48 to 57	0 to 9
58	:
59	;
60	<
61	=
62	>
63	?
64	@
65 to 90	A to Z
91	[
92	\
93	]
94	^
95	_
96	`
97 to 122	a to z
123	{
124		
125	}
126	~

12. Appendix G: Glossary

0 -9 - Functions available for specific purposes as defined by the user.

Access Table – A list of valid badge numbers that have access control.

ACROCOMM - A program that allows the user to communicate with the clock. Without this program, the clock cannot communicate with any entity.

ACROCOMM: Command Line - The ACROCOMM program can be run from the DOS prompt with any tasks to be performed specified as parameters.

Badge Length - A parameter that limits the number of alphanumeric characters in a badge.

Badge Validation - Security measures taken to ensure that a badge is valid.

BAUDS *number* - An instruction indicating the speed of transmission of data that the program will use, where numbers must be one of the following: 1200, 2400, 9600.

Configuration Badge - A unique badge, encoded 000000000, which is used to enable CLOCK setup functions.

Diagnostic Mode - A CLOCK operating mode that will allow the user to verify the accuracy of a terminal's readers.

Functions - A collection of up to 6 instructions, each of which allows the recollection of one piece of data. The system may have up to 13 functions defined.

ID - Value indicating the unique identification used by the program to recognize the CLOCK.

In (#) - A function used to indicate the start of the work day.

Initializing Clock Memory - A function to erase all stored transactions.

Messages - A text field of up to 16 characters to be assigned to a badge.

Messages to Employees Table -

MODEM - An instruction indicating the connection will be made through a modem.

Out (*) - A function used to indicate the end of the workday.

Poll Clock Header - An instruction used to display additional information about the CLOCK.

Polling Transactions - An instruction to tell the Current Selected Clock to TRANSMIT.

Port - Value indicating how the CLOCK is connected to the program. Values may be RS232, RS485, or MODEM.

PORT *number* - An instruction indicating which port the program will use. It can be any of the following:1 for COM1, 2 for COM2, 3 for COM3, 4 for COM4.

Profile Assignment Table -

PROGRAM.CLK - A file containing the configuration values to be sent to the CLOCK.

Sending Instructions - An instruction to read, verify, and send the current configuration values to the Current Selected Clock.

Supervisor Badge - A badge that may be used to add or erase transactions, which must begin with the prefix defined in the parameter SP.

Swipe & Go - A function automatically executed when a swiped badge number is within the range defined in the parameter SG.

Transaction Printing - An option that, when enabled, allows the user to obtain a hard copy of any/all transactions.

WAIT *number* - An instruction indicating how long (in seconds) the program should wait for a response from the CLOCK after sending an order.

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