



Access Control Devices Incorporated

CopyMate® Express User's Guide

CopyMate® Express User's Guide

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1. CopyMate® Express Facts

The CopyMate® Express debit card reader allows control of copiers, reader/printers, laser printers, and other office machines through the use of cash or units cards. Optional equipment will allow control of computers, laser printers, and network print queues. This unit is affordably priced and offers features that other readers do not offer. Reports can be read from the display or printed to the optional SKT-40 dot matrix printer.

This unit is designed to be simple to operate and is built to last. CopyMate®, readers use high field magnetic cards for secure and reliable operation.

Key Features:

- Latest Technology incorporated into electronics and drive
- Accepts paper or plastic cards to 30 mil (standard credit card size)
- Reads and writes at 3800 to 4000 oerstead (high field/security)
- Accepts CR-80 or CR-50 size cards (factory configuration)
- Allows the use of debit cash and units cards
- Printer/PC port
- Large LCD display
- Readout of sales meters via display
- Printout available with optional SKT-40 dot matrix printer
- Display mounted at easy view/access 45-degree angle
- Metal chassis and enclosure for long life
- Easy access to all user serviceable parts
- Instructions are clearly printed on the enclosure
- Machine harness included

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Options:

- SKT-40 dot matrix printer
- ACD3080 Card Dispenser
- ACD3180 Card Dispenser/Encoder
- Print Control Software
- ACD3180CC Credit Card Transfer Station

Specifications:

Size:	H 3.5" x W 4.5" x d 7.5"
Power:	115vac (16vac UL approved class 2 transformer)
Security:	SuperCard Access
Shipping	Weight: 3lbs.
Warranty:	Two years

The CopyMate® Express is designed to be reliable and simple to use. Please read this manual completely to achieve a good understanding of its operations. Although the CopyMate® has many features, it is very simple to operate once the supervisor has read this manual. Users need only enter a valid debit card to operate the controlled device. Please observe the following guidelines:

- Use only a 16vac class-2 power supply (16vac or higher)
- Do not drop the CopyMate or the power supply
- Understand the Supervisor and Management functions before you attempt to use them
- **Do not attempt to service the CopyMate® unit**

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2. Preparations

Unpacking

Once you have opened the carton, check for the following items:

- 1 CopyMate® controller
- 2 SuperCards (programmed for your installation)
- 1 16vac power supply (Class 2 UL/CSA Listed Only!)
- 1 User's Guide (this manual, or cd rom)
- 1 Machine harness (used to connect the CopyMate® to the controlled device)

Operational Features/Nomenclature

- 1. Display – One line x 16 characters (each line) LCD
- 2. SuperCard
- 3. Power Input – Input from the power supply
- 4. Machine Harness Input/Output – Connector for the machine harness
- 5. Printer Port – Output port for serial printer, PC, or data transfer
- 6. Supervisory Access – Requires 'SuperCard'

Note: The service mode is only available when a valid SuperCard has been entered. Users cannot affect operations or access menus.

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3. Operation

The CopyMate® series of controllers provide access control for copiers, reader/printers, duplicators, etc. The operation is quite simple in that the user need do nothing more than insert a valid debit card and the device under control will operate normally. There are several options open to determine how the CopyMate® unit functions. These options are normally setup by a 'key operator' whom we will call the Supervisor. The supervisor can set several options using a special card.

After the unit is setup to operate, the person assigned to accomplish day-to-day tasks controls the accounting side of the operation (such as collecting data). We call this person the Account Manager. The supervisor and account manager can, of course, be the same person. The use of a 'SuperCard' allows access to service menus. In the following sections each function will be discussed.

Use of Cards

There are three types of cards used with the CopyMate® Express. Two can be encoded by entering the service menu and accessing menu option "Encode Cards"...

Debit: Cash or Units SuperCard

Debit Cards

These cards are based on declining balances. Debit cards can be cash or units and are normally used to charge for pages printed/copied.

Cash

The card's value is represented in cash amounts and deducts the proper amount for each page.

Units

The card's value is represented in units and the proper number of units (usually set to 1) will deduct for each page.

Both Cash and Units debit cards are encoded with a group code as part of the data. This group code (sometimes called site code) is used to determine if a card is to be accepted by the unit. The CopyMate® Express will accept three different group codes and can be charged a different price based upon the group. These codes allow the supervisor to allow only certain groups to use a particular reader and/or to charge different prices based upon group code. For instance, cards with group codes 17, 100, and 1700 could be encoded on different cards used by graduate students from business, medical, and engineering schools respectively. If the reader is setup to only accept group codes 17 and 100, the engineering students can not use this unit. Also, the reader can be set up to charge 7.5 cents for group 17 and 10 cents for group 100. These capabilities provide great flexibility in how your system can operate.

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Supercards

These cards are used by management to access supervisor and management menus. Only management personnel should have access to this card.

Reading Errored Cards

A card that has been pulled from the reader by an enterprising user (and rarely when value could not be written back to the card) will have zero value recorded in the first frame of data and the starting value recorded in the second frame.

When a card is inserted, zeros are written to the first frame to prevent tampering.

The initial value is still recorded in the second frame. When the copy session is over, the correct value is written to both frames.

The original value that was on the card at the start of the copy session can be displayed in one of three ways...

1. Using a CopyMate® Express equipped with certain software versions, the card can be inserted and the display will read as follows (as opposed to the normal "Balance: \$ 999.999") "000.000 005.000" this example shows an errored card that had \$5 at the time of insertion.
2. Using a CopyMate® Card+ in management mode selection number 5.
3. Using a CopyMate® KPE in management mode selection number 5.

User Operation - Debit Cards

Users will follow the procedure outlined below to use the copier (or other device)

- Insert a valid debit card
- If the card entered can't be read or has incorrect IDX or IRD code, the card will be returned and "Invalid Data" will display
- If the card entered had incorrect Group code, the card will be returned and "Invalid Group" will display
- If the card is valid (proper access codes and at least enough value to make one copy), the following will display:
BALANCE: 010.500
- Copies can be made normally (copy session)
- When the copy session is finished press Card Return button. The card will be returned and the copier will disable

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User Operation - SuperCard

In order to access the service menus, a valid SuperCard must be inserted into the reader. When the 'SuperCard' is inserted, the card will be returned and a message will appear:

“Service Mode” will display for two seconds

A description of each menu option is provided in the following sections. Basically the majority of the service menu is used only during setup or servicing. The beginning of the menu is used more frequently in order to set pricing, read/print/download/ usage data, encode cards, etc.

Until a 'SuperCard' is inserted, the service menu is not available. Card reader operation cannot be manipulated without a valid SuperCard.

Service Menu Outline (Accessed with SuperCard)

Encode Cards
Read Meters
Clear Meters

<u>Prices</u>	<u>Range</u>	<u>Default</u>
4. \$/PG G1:	(\$00.000 TO\$99.999, \$00.000 = no charge)	10 cents
5. \$/PG G2:	(\$00.000 TO\$99.999, \$00.000 = no charge)	10 cents
6. \$/PG G3:	(\$00.000 TO\$99.999, \$00.000 = no charge)	10 cents
7. U/PG G1:	(0 to 9999, 0 = no charge)	1 unit
8. U/PG G2:	(0 to 9999, 0 = no charge)	1 unit
9. U/PG G3:	(0 to 9999, 0 = no charge)	1 unit

Delays – (All delays have same range and increments)

10. Disable Delay (0 to 255, 0 to 12.75 seconds in 50ms intervals)	0
11. Blind Time	0
12. Billing Delay	0
13. Eject Delay	0
14. Card Max \$ (\$000.000 to 999.999, \$000.000 = no limit)	000.000
15. Card Timeout: (0 to 255, 1 minute intervals)	5

Group Codes

16. G1 Code:	(0 to 4095)	9
17. G2 Code:	(0 to 4095)	2
18. G3 Code:	(0 to 4095)	3

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Service Menu Options

When the 'SuperCard' is inserted, the card will be returned and a selection menu will appear:

"Service Mode" will be displayed for two seconds then the first option ("Encode Cards" below will display)

Service Menu Navigation

Each option can be reached by inserting a card into the throat of the reader then removing it to sequentially move from one option to the next. Once the desired option is displayed, press the card eject (front panel) button to select the option. Once an option has been selected, the card eject button will increment the value and the **aux button** (located on the rear of the reader) will decrement the value.

Refer to Figure 1 in Appendix 'A' for front panel button (card eject) and Figure 2 in Appendix 'A' for the aux button.

Holding a button down will increment/decrement the value by a factor of at least 100. Pressing the button for approximately one second (may be somewhat shorter) changes the value by 10, and pressing the button very quickly changes the value by 1. With a little experimentation, this can be accomplished rapidly.

Each of the service menu options is described below:

Encode Cards – Cash/Units

This option allows management personnel to pre-encode cards with cash or units value. To encode cards, press the card return button while "Encode Cards" is displayed...

"G1 Code: X" (your actual group code) will display

This will allow cards to be encoded as group code one (set to 9 in this example). If group code two or three cards are desired, insert then remove a card to/from the reader's throat until the desired group code (G2 or G3) is displayed. Use of group code can allow control of access to the particular reader. If the group code stored f the three group codes stored in the reader, the card will be returned and the following error message will be displayed:

"Invalid Group"

Once the desired group code is displayed, press the card return button to accept the option and go to the next option.

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"Encode Cash" will appear.

If the desired card(s) will carry cash value, press the card return button. If units cards are to be encoded insert and remove a card to bypass the cash selection (see "Encode Units" below)...

" Balance:\$.000" will appear

Press the card return button to increment this value. Press the aux button (located in the rear of the reader) to decrement the value. Press the appropriate button(s) until the desired value is displayed. When the value displayed is equal to the value to encode, insert and remove a card to accept the value.

The display will alternate between the following screens...

"To Encode,"
"Insert Card..."

Insert card(s) to be encoded, when finished, press the card return button to exit service.

"Encode Units" will appear *if encode cash was bypassed...*

"Balance: 000" will appear.

Press the card return button to increment this value. Press the aux button (located in the rear of the reader) to decrement the value. Press the appropriate button(s) until the desired value is displayed. When the value displayed is equal to the value to encode, insert and remove a card to accept the value.

The display will alternate between the following screens...

"To Encode,"
"Insert Card..."

Insert card(s) to be encoded.
When encoding is complete, press card return to exit service.

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Read Meters (Sales & Usage Information)

- Press card return to select this option
- Meters will display as follows:

\$ GP1:	\$00.000	(dollar value of cash copies for group 1 cards)
\$ GP2:	\$00.000	(dollar value of cash copies for group 2 cards)
\$GP3:	\$00.000	(dollar value of cash copies for group 3 cards)
U GP1:	0	(unit copies made using group 1 cards)
U GP2:	0	(unit copies made using group 2 cards)
U GP3:	0	(unit copies made using group 3 cards)
TOT GP1:	0	(total copies made using group 1 cards)
TOT GP2:	0	(total copies made using group 2 cards)
TOT GP3:	0	(total copies made using group 3 cards)
TOT Pgs:	0	(total all copies made)

Clear Meters

Caution! Once meters have been cleared the data **can not be recovered**.

- Press Aux to select this option
- Reader will exit service menu

Setting Prices

Insert and remove a card to sequence through the service menu until the pricing items display...

- - \$/PG G1:\$.100 equals 10.0 cents per page for group1 cards
- - \$/PG G2:\$.100 equals 10.0 cents per page for group2 cards
- - \$/PG G3:\$.100 equals 10.0 cents per page for group3 cards
- - U/PG G1:\$ 1 equals 1 unit per page for group1 cards
- - U/PG G2:\$ 1 equals 1 unit per page for group 2 cards
- - U/PG G3:\$ 1 equals 1 unit per page for group 3 cards
- Press the card button to select the price setting to change
- Change value to the desired value and insert a card to accept and move to the next option.

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Setting Delays

These menu options provide several parameter settings that can be used as necessary to control copiers. Normally, these settings will not need to be changed. Each unit represents 50 milliseconds of delay. A setting of 10 represents 500ms (1/2 second) delay. All delays have ranges of 0 to 255, which equals 0 to 12.75 seconds.

Disable Delay

This setting determines how long the CopyMate® waits before disabling the copier after card return has been pressed. If partial copies are made, this setting can correct the problem...

- Press card return to select this option
- Change value to the desired value and insert a card to accept and move to the next option.

Blind Time

This setting determines how long the CopyMate® waits before accepting another copy charge pulse. If more than one charge is made per copy, this setting can correct the problem...

Billing Delay

This setting determines how long a pulse must be present (pulse duration) before considered a valid pulse and charged for.

- Press card return to select this option
- Change value to the desired value and insert a card to accept and move to the next option.

Eject Delay

This setting determines how long the CopyMate® waits before ejecting the card after card return has been pressed. If copies are made just after the card return has been pressed, this setting can correct the problem...

- Press card return to select this option
- Change value to the desired value and insert a card to accept and move to the next option.

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Card Max (Largest card accepted)

This setting determines the largest (highest) value card accepted. If a card with a higher value is inserted, it will be returned and the display will read...

“Above Max”

The default setting of \$000.000 allows card of any value to be accepted.

- Press card return to select this option
- Change value to the desired value and insert a card to accept and move to the next option.

Card Time-Out

The time-out feature determines how long a card will remain in the reader when no activity has occurred. This feature will automatically disable the copier and return the user's card after the time-out setting has been reached with no activity (no copies made). This is useful to help avoid unnecessary delays during the copy session. The default time-out is five minutes.

- Press card return to select this option
- Change value to the desired value and insert a card to accept and move to the next option.

Group Codes

- Press card return to select this option
- The CopyMate® Express can accept three different group codes
- Group codes are set through this option
- G1 Code: 9
- G2 Code: 2
- G3 Code: 3
- Group codes can be any number between 0 and 4095
- Change value to the desired value and insert a card to accept and move to the next option.

Note: These codes are normally preset at the factory. Changing these settings can disallow use of some cards provided at the time of purchase. If these codes are changed, be sure to write them down and specify them when ordering new cards.

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4. Default Values

The default values for all parameters are listed below. If selection 9 of the supervisor's menu is completed, all variables will assume these default values.

Prices

1. \$/PG G1:	\$000.100	(10 cents per page)
2. \$/PG G2:	\$000.100	(10 cents per page)
3. \$/PG G3:	\$000.100	(10 cents per page)
4. U/PG G1:	1	(1 unit per page)
5. U/PG G2:	1	(1 unit per page)
6. U/PG G3:	1	(1 unit per page)

Delays

1. Disable Delay	0
2. Blind Time	0
3. Billing Delay	0
4. Eject	0

Card Parameters

1. Card Max\$	\$000.000
2. Card Time-Out:	5

Group Codes

1. G1 Code:	9
2. G2 Code	2
3. G3 Code	3

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5. Error Messages

The CopyMate® Express has several error messages that will display under certain conditions. These messages are listed below:

- Insert Error – Motor speed error or improper insertion. Call service if consistent.
- Blank Card – Card is not encoded or encoding is not recognized
- Invalid Data – Bad IDX/IDR/Parity/LRC
- Invalid Group – Group code not supported (setup) by unit
- Above Max – Card value is higher than Card Max setting (setup in service menu)
- Verify error – This message indicates that the reader was unable to write the card successfully or could not read the card during verify. If this happens during normal operation, insert the card again. If the results are the same, the card should be turned in to the manager to be read and re-encoded.
- Read Error – Unable to read card properly

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6. Troubleshooting

The CopyMate® Express is designed to provide years of trouble-free service. If you experience a problem, first write down the observed symptoms then follow the tips below. If the unit continues to malfunction, call your dealer for service.

Symptom	Probable Cause	Solution
No Display	Power supply not connected or not plugged-in	Ensure that the wall transformer is connected to the CopyMate® and is plugged into the outlet
Will not accept cards	Bad power supply	Call service
Will not write properly	1) Bad sensor 2) Dirty read/write head	Call service Clean head with ACDI cleaning card
Printer does not print	1) Improper cable, cable connection 2) Defective or incorrectly configured printer	Ensure that printer cable is connected correctly Test the printer Baud rate = 9600, Language = U.S., Data Length = 8 bits, no parity

Removing a stuck card: Using the access key supplied, remove the cover and push the card out through the front of the reader.

Disconnect power before opening the unit!

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INTERNAL CARD READER

