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# Test Program Manual

MODEL : ECDM-400  
 REV. : 1.0  
 DATE : 2006. 11. 23



**PULOON Technology Inc.**





|                                                                                   |                |          |                     |      |         |
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## 1. Preview

The test manual describes how to test ECDM-200 using the test program supplied by the manufacturer.

## 2. Basic Communication Specification

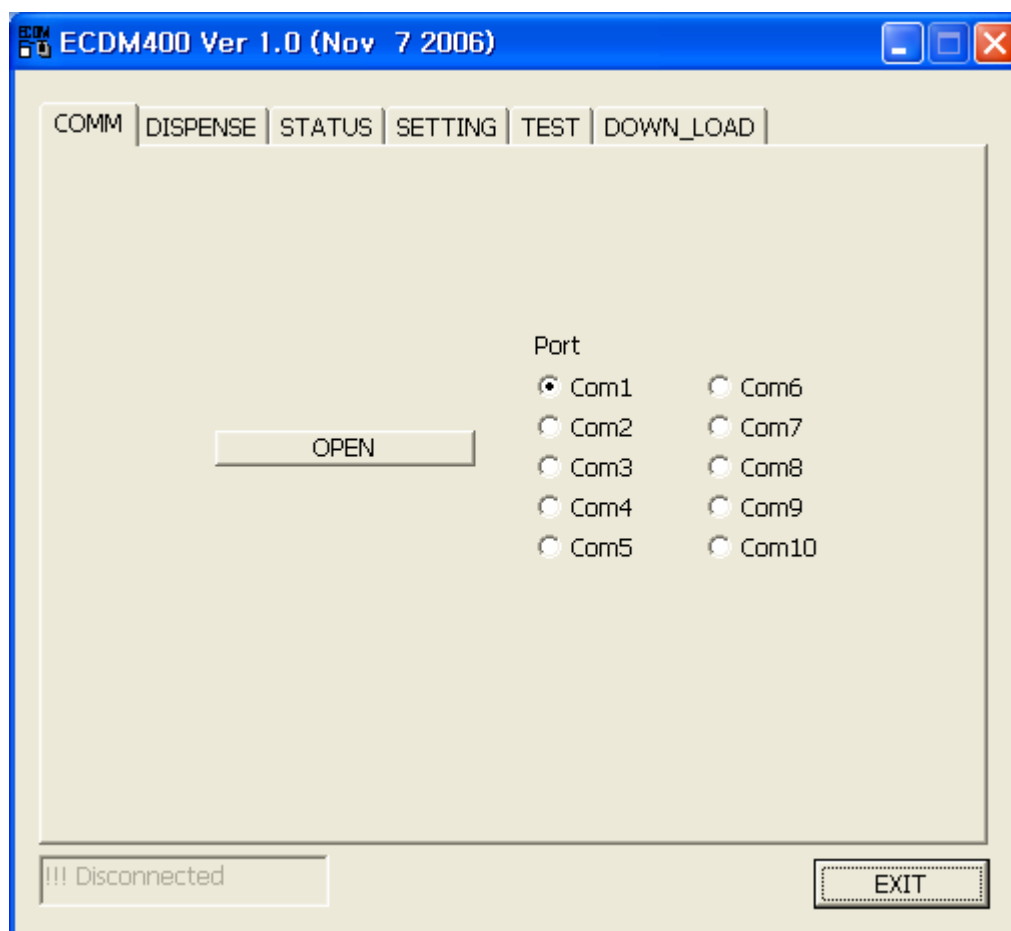
- |                            |                                        |
|----------------------------|----------------------------------------|
| 1) Communication Method    | : RS-232C                              |
| 2) Communication Speed     | : 9600 BPS                             |
| 3) Data Bits               | : 8 Bits                               |
| 4) Parity                  | : Non Parity                           |
| 5) Stop Bit                | : 1 Bit                                |
| 6) Error Inspection Method | : BCC                                  |
| 7) Others                  | : Referring to ECDM-200 Interface Spec |

|                                                                                   |                |          |                     |      |         |
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### 3. Function

The test program is executed and six tabs can be found on the test program.

#### 3.1. COMM



- 1) Connect RS232 cable between PC and LCDM.
- 2) Then start the test program and choose the tab, COMM.
- 3) Check the port of PC available and press the button of OPEN.

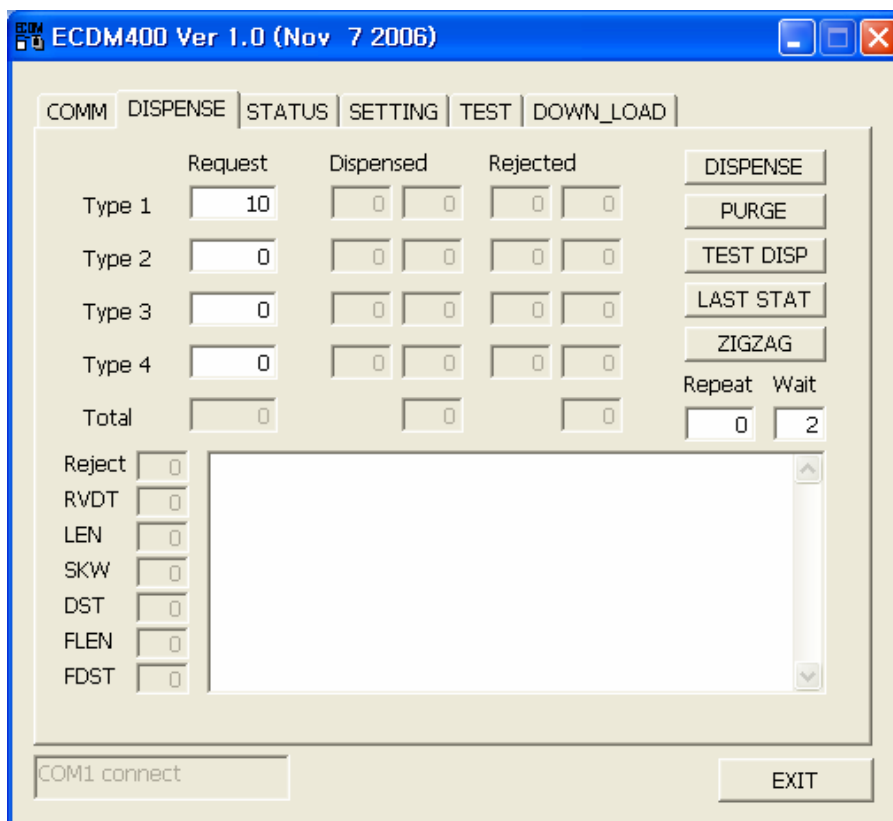
The status of communication is displayed in the small window of the bottom of the tab. (i.g, ACT Time-Out, COMX Connect, Disconnected..)

|                                                                                   |                |          |                     |      |         |
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## 3.2. DISPENSE

### 3.2.1. DISPENSE

- 1) Put the request number for dispensing onto each blank for one transaction and the number of the repetition for testing. Then, press the button of “DISPENSE” and ECDM will start to dispense as requested from the cash cassette which is set in advance to the same Type as the requested. In case no cassette with the requested Type, ECDM will send error signal.
- 2) When two or more cassettes have the same Type, the banknotes will be dispensed from the upper cassette among the same Type cassettes. In such a case, ECDM will enable to dispense banknotes from the upper cassette to the next cassettes with the same Type until the transaction is completed if necessary.
- 3) Without repetition number, ECDM is operated just one time. The waiting time can be set by one second. If the error is occurred during operation, the dialog window is displayed. (Error code is referred to the interface specification.)



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COMM DISPENSE STATUS SETTING TEST DOWN\_LOAD

|        | Request | Dispensed |   | Rejected |   |
|--------|---------|-----------|---|----------|---|
| Type 1 | 10      | 0         | 0 | 0        | 0 |
| Type 2 | 0       | 0         | 0 | 0        | 0 |
| Type 3 | 0       | 0         | 0 | 0        | 0 |
| Type 4 | 0       | 0         | 0 | 0        | 0 |
| Total  | 0       | 0         | 0 | 0        | 0 |

DISPENSE  
PURGE  
TEST DISP  
LAST STAT  
ZIGZAG

Repeat Wait  
0 2

Reject ☐  
RVD ☐  
LEN ☐  
SKW ☐  
DST ☐  
FLEN ☐  
FDST ☐

COM1 connect

EXIT

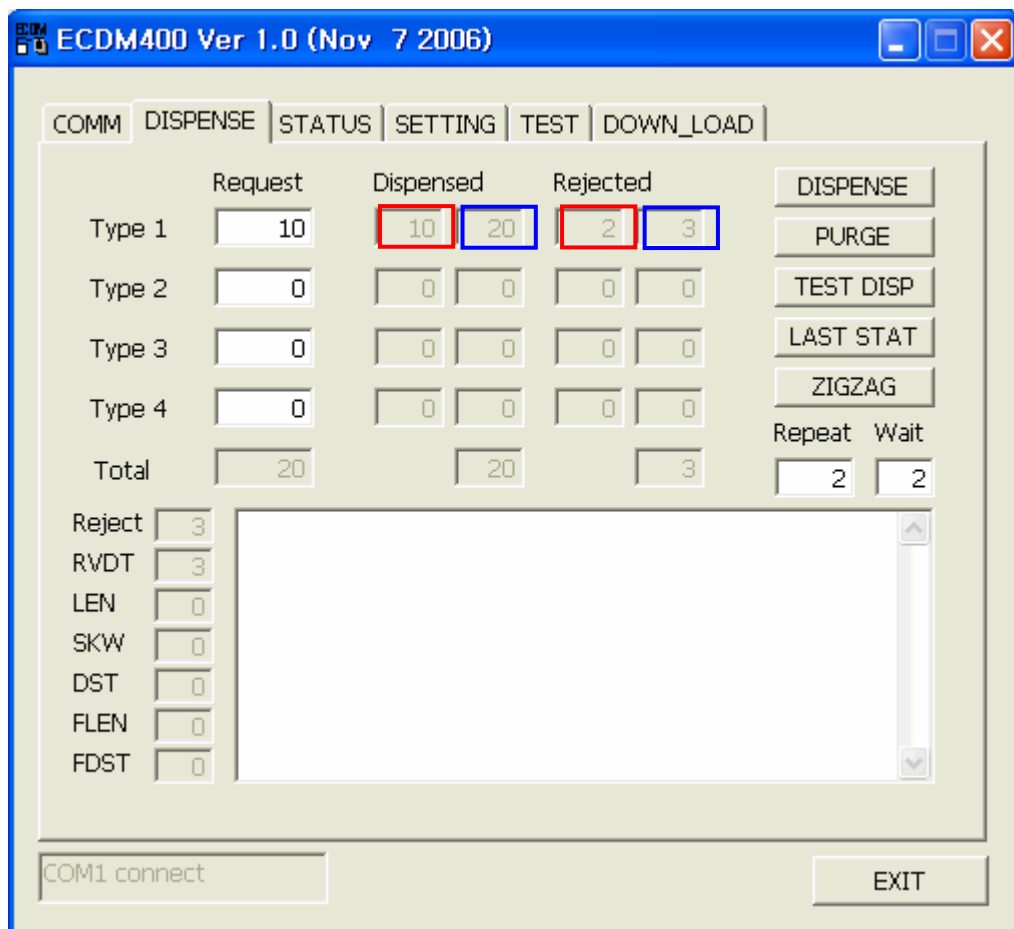
|                                                                                   |                |          |                     |      |         |
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The following picture shows the results after DISPENSE command.

In the column under “Dispensed” the red line shows the number of the latest dispensed notes and the blue line shows the accumulated number of total dispensed notes for all repetition.

In the column under “Rejected”, the red line shows the number of the latest rejected notes and the blue line shows the accumulated number of total rejected notes for all repetition.

In the row of “Total” the number of the dispensed and the rejected from all the cassette are shown.



|        | Request | Dispensed |    | Rejected |   |
|--------|---------|-----------|----|----------|---|
| Type 1 | 10      | 10        | 20 | 2        | 3 |
| Type 2 | 0       | 0         | 0  | 0        | 0 |
| Type 3 | 0       | 0         | 0  | 0        | 0 |
| Type 4 | 0       | 0         | 0  | 0        | 0 |
| Total  | 20      | 20        |    | 3        |   |

Buttons: DISPENSE, PURGE, TEST DISP, LAST STAT, ZIGZAG, Repeat, Wait

Reject section:

|        |   |
|--------|---|
| Reject | 3 |
| RVDT   | 3 |
| LEN    | 0 |
| SKW    | 0 |
| DST    | 0 |
| FLEN   | 0 |
| FDST   | 0 |

COM1 connect:  EXIT

|                                                                                   |                |          |                     |      |         |
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### 3.2.2. PURGE

It causes cash dispenser to be purged. Always one time is activated.

### 3.2.3. TEST DISPENSE

The function of “Test Dispense” is to send the banknotes from cassettes to reject cassette in order to test the dispense function. The limit of the available number on the blank is less than 50 for the transaction.

### 3.2.4. LAST STAT

The latest response is displayed.

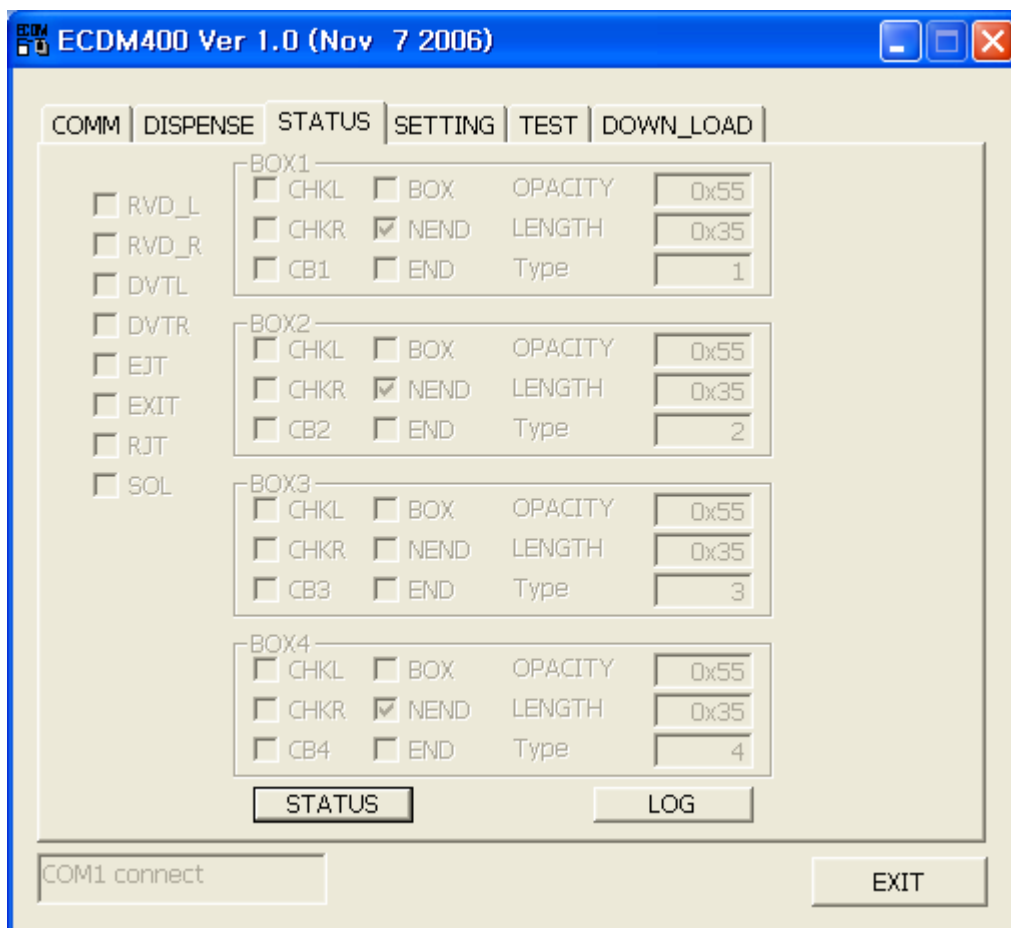
### 3.2.5. ZIGZAG

Every note is dispensed and rejected by turns as requested in the repeatition. The maximum available number is 50.



|                                                                                   |                |          |                     |      |         |
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### 3.3. STATUS



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COMM | DISPENSE | **STATUS** | SETTING | TEST | DOWN\_LOAD

☐ RVD\_L  
☐ RVD\_R  
☐ DVTL  
☐ DVTR  
☐ EJT  
☐ EXIT  
☐ RJT  
☐ SOL

**BOX1**

☐ CHKL ☐ BOX OPACITY   
☐ CHKR ☒ NEND LENGTH   
☐ CB1 ☐ END Type

**BOX2**

☐ CHKL ☐ BOX OPACITY   
☐ CHKR ☒ NEND LENGTH   
☐ CB2 ☐ END Type

**BOX3**

☐ CHKL ☐ BOX OPACITY   
☐ CHKR ☐ NEND LENGTH   
☐ CB3 ☐ END Type

**BOX4**

☐ CHKL ☐ BOX OPACITY   
☐ CHKR ☒ NEND LENGTH   
☐ CB4 ☐ END Type

STATUS LOG

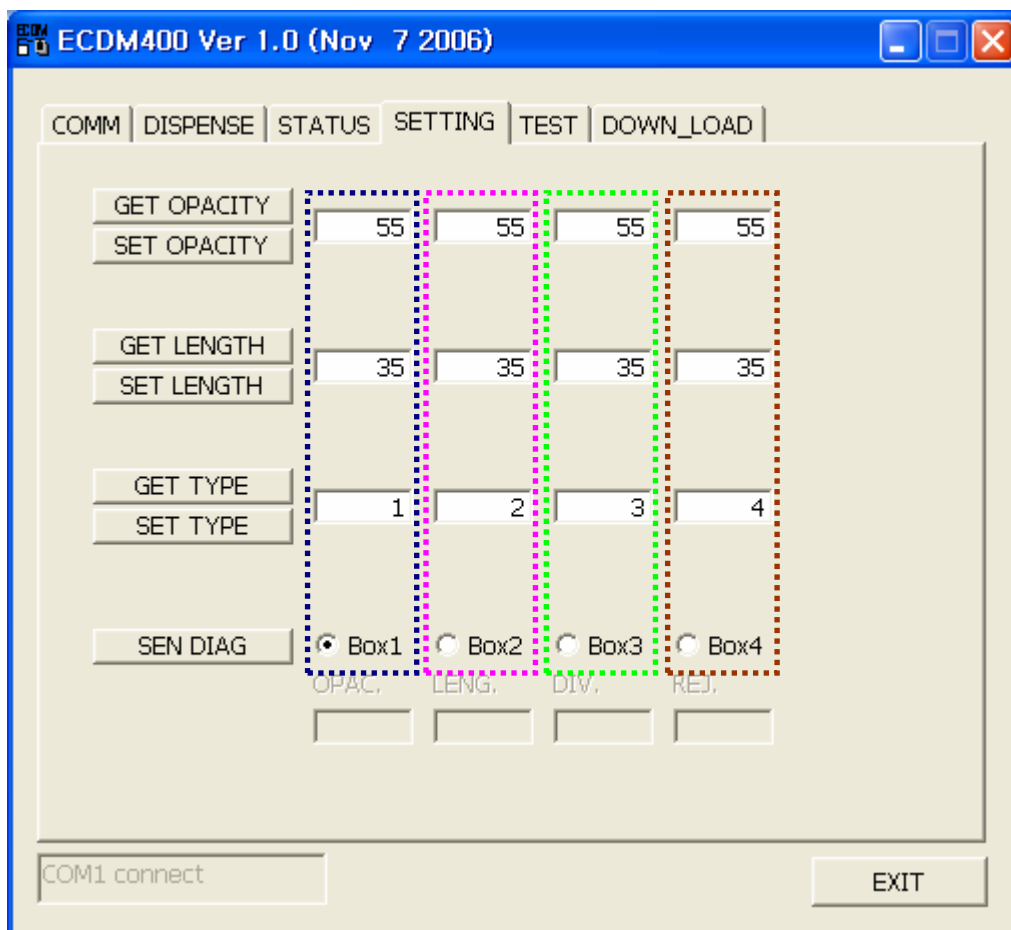
COM1 connect

EXIT

- 1) The STATUS shows the current status of sensors. Without loading notes into cash cassettes, the normal status of sensors is like the picture.
- 2) If a sensor on the path is blocked, it will be marked with check ( v ).  
BOX (Box Existence) sensors and NEND (Nearend) sensors should be checked and all other sensors should not be checked without trouble. (Each sensor name and position is attached in Chapter 5.)
- 3) "LOG" transmits the latest debugging data to PC. The password is "xoxx".

|                                                                                   |                |          |                     |      |          |
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### 3.4. SETTING



ECDM-400 has function to assign Type of cash cassette for each high to the main body and to save parameters related to the banknotes. If user wants to use different thickness and size of note from each cash box, the parameters should be set to the features of the note following the next steps.

(The data of each column are showing the values related to each cassette. The default Type of each cassette is Type 1, 2, 3 and 4 from top to bottom. )

- 1) Load the notes for each cassette.
- 2) Check the cash box to be measured among Box1, 2, 3 and 4 next to the button, SEN DIAG in the bottom.
- 3) Press the button of SEN DIAG and then 5 notes are dispensed from the chosen box for the measurement. The measured values for the OPAC(Thickness) and LENG(Length) of notes are displayed on the bottom of the test program.

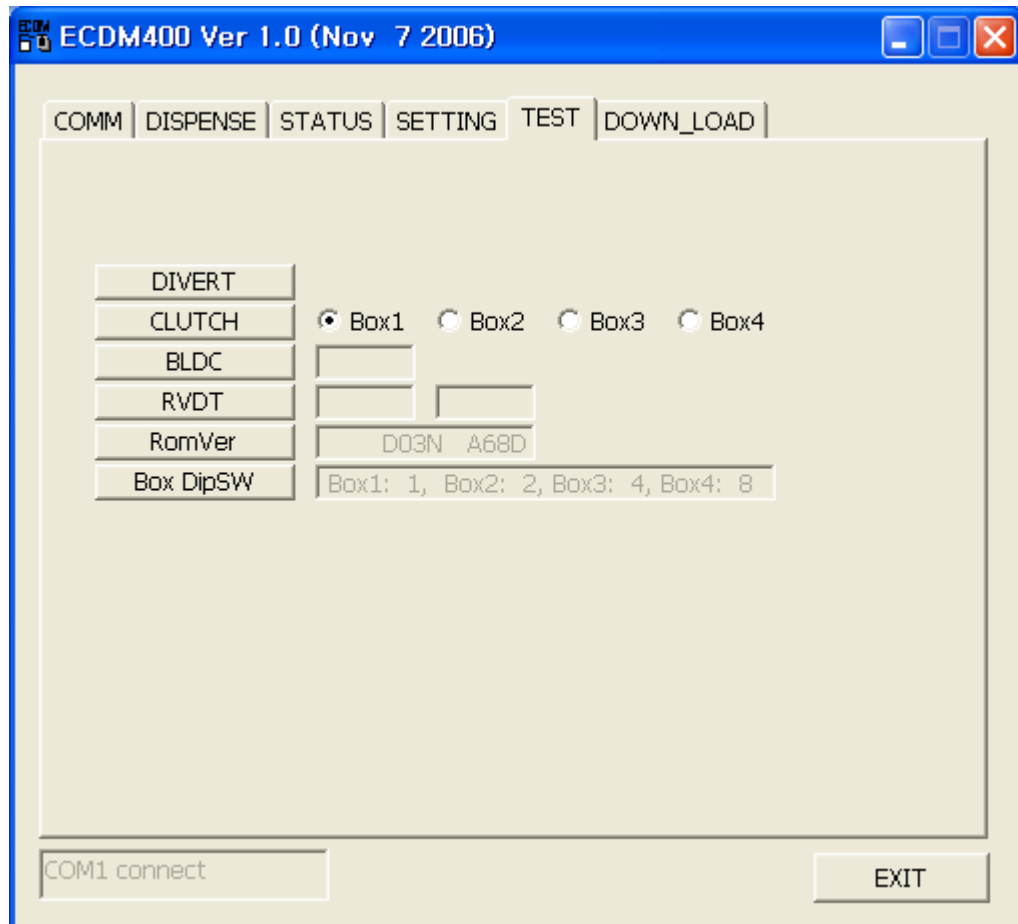
|                                                                                   |                |          |                     |      |          |
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- 4) Now put the measured values to the proper blank referring to the example.
- ex1) Box1 : SEN DIAG → OPAC. 50 LENG. 37  
: Put 50 into the 1<sup>st</sup> blank next to GET OPACITY and 37 into the 1<sup>st</sup> blank next to GET LENG.
- ex2) Box3 : SEN DIAG → OPAC. 52 LENG. 38  
: Put 50 into the 3<sup>rd</sup> blank next to GET OPACITY and 38 into the 3<sup>rd</sup> blank next to GET LENG.
- 5) Press the button of SET OPACITY and SET LENGTH. Then, all the newly set values for each box can be displayed through GET OPACITY and SET LENGTH.
- 6) Repeat this cycle for another boxes.
- 7) SET ORDER button enables to assign the priority for dispensing of the cassette. Current priority can be shown by GET ORDER.

***Caution ) The parameters of the banknotes should be very carefully put after enough testing with SEN DIAG. We recommend the default value can be used unless there is special trouble.***

|                                                                                   |                |          |                     |      |          |
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### 3.5. TEST

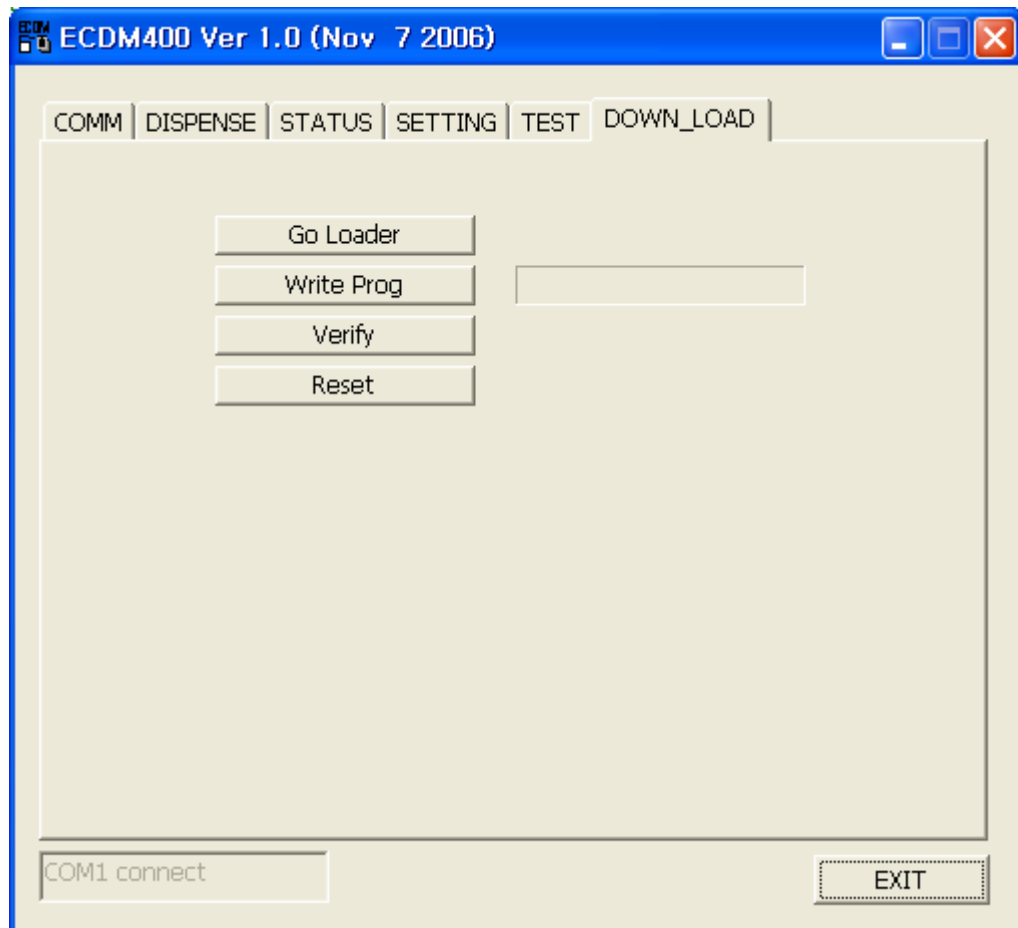


- 1) DIVERT : Checking the solenoid to operate the diverter
- 2) CLUTCH : Testing individual clutch on each box after choosing the box
- 3) BLDC : Normal Speed :  $8000 \pm 5\%$  1CB6 at ROM version B10N (5038)
- 4) RVDT : Measuring RVDT value  
Normal RVDT(OPAC.) value without any load : 124 ~ 130
- 5) RomVer : Check ROM version and CHKSUM
- 6) Box DipSW : Read the Dip S/W setting from each cassette. If there is no cassette, the default value is zero. The setting of dip switches of cash assette is described in the interface specification.

|                                                                                   |                |          |                     |      |          |
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## 3.6. DOWN\_LOAD

### 3.6.1. Go Loader



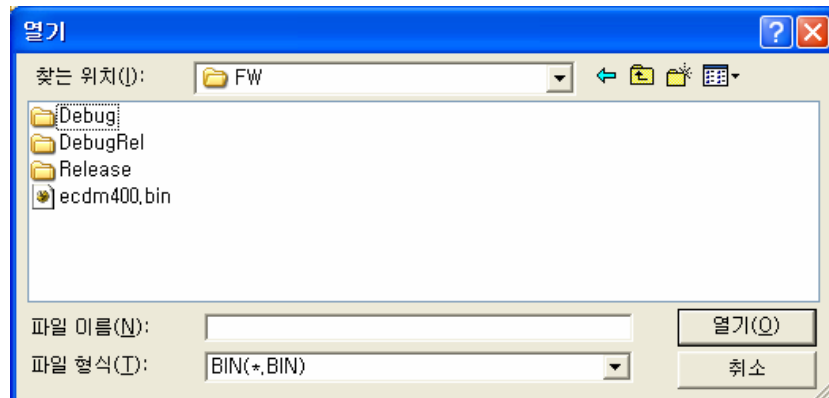
Go Loader changes the mode from operation to program mode and should be executed at first for downloading. If it is successful, the next dialog box is displayed.



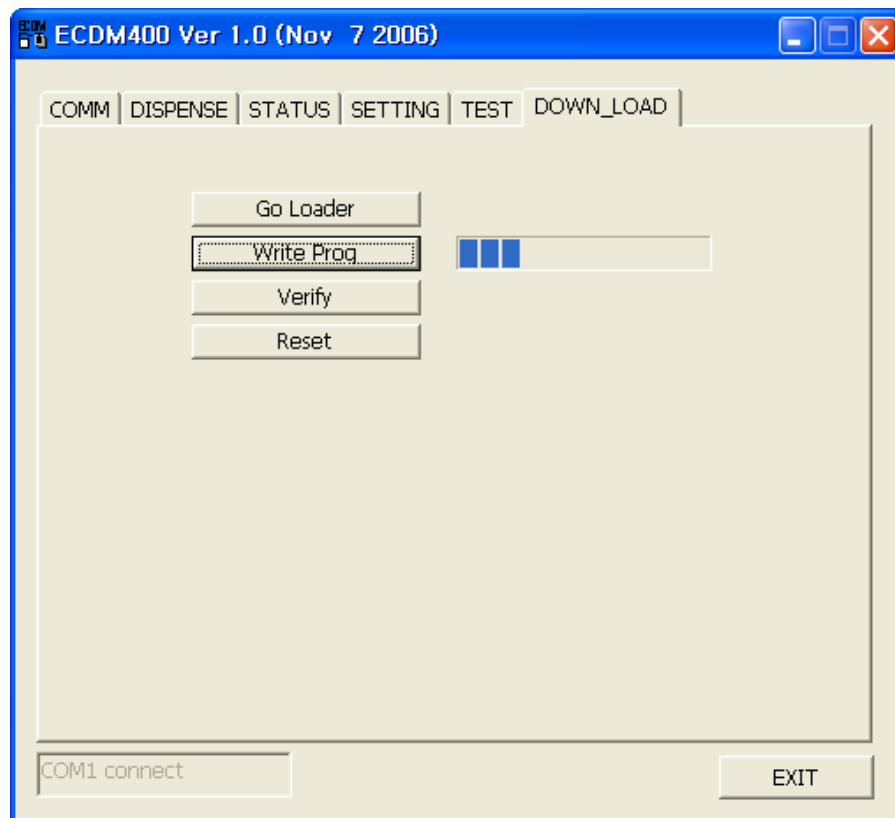
|                                                                                   |                |          |                     |      |          |
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### 3.6.2. Write Prog

Write Prog activates the next dialog box to choose the transferred file.  
The file for downloading in ECDM400 has binary format (BIN).

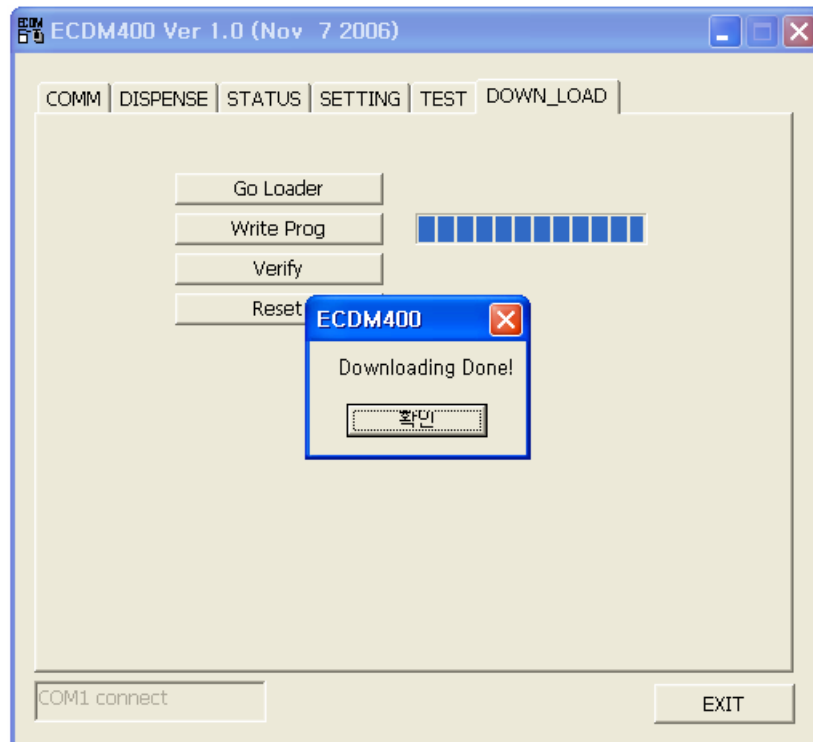


The progress is shown like the next picture.



|                                                                                   |                |          |                     |      |          |
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When the transfer is completed, the confirmation can be shown like the next picture.

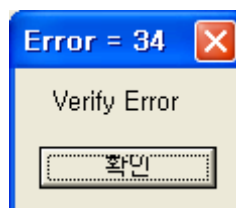


### 3.6.3. Verify

Verify enables to check the check sum of the downloaded file.



Unless the command is executed or the check sum is right value, the error message is shown. In such a error, Write Prog should be executed again.



|                                                                                   |                |          |                     |      |          |
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#### 3.6.4. Reset

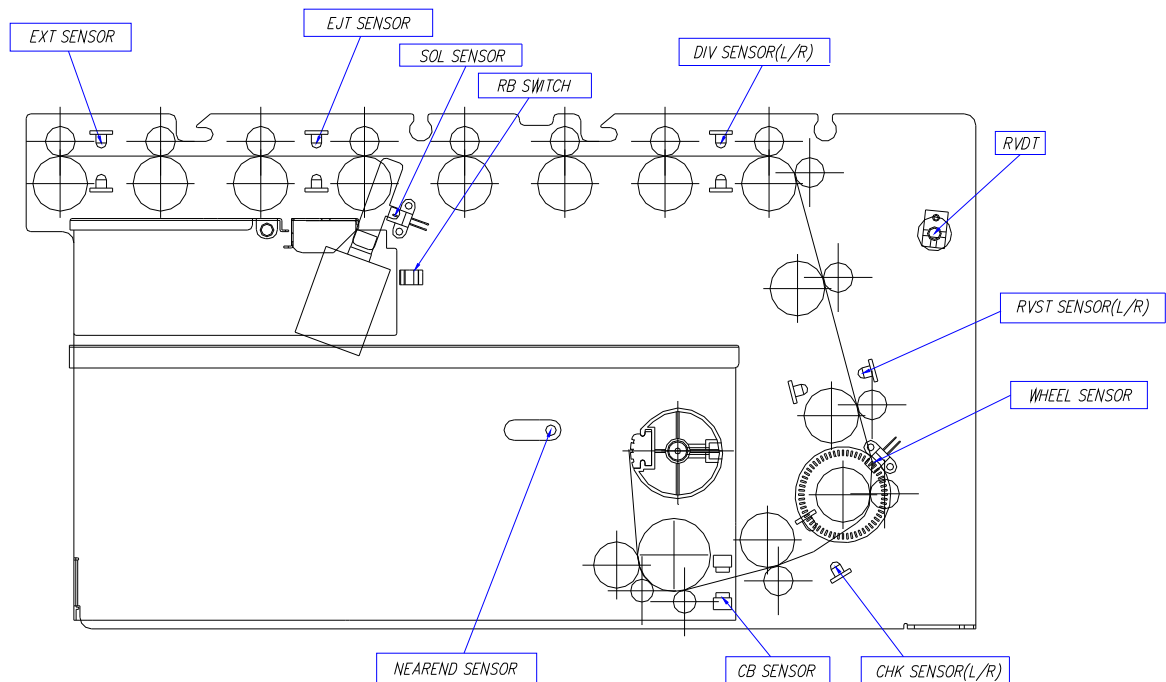
When downloading is completed, Reset terminates the operation of download.

If Verify is not executed or there is Verify Error, Reset will be executed.



|                                                                                   |                |          |                     |      |          |
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## 4. Sensor Assignment



| Name           | Functional Description                                 |
|----------------|--------------------------------------------------------|
| CB Sensor      | To detect the remaining banknotes in the cash cassette |
| CHK Sensor     | To detect the skew, length and distance between notes  |
| RVST Sensor    | Trigerring sensor to measure RVDT values               |
| DIV Sensor     | Trigerring sensor to control Diverter Solenoid         |
| EJT Sensor     | Sensor to check the rejected banknotes                 |
| EXT Sensor     | Sensor to detect the dispensed banknotes               |
| WHEEL Sensor   | Wheel count sensor (Interrupt Sensor)                  |
| SOL            | Sensor to check divertering (Interrupt Sensor)         |
| RB Switch      | To detect Reject Cassette                              |
| NEAREND Sensor | To detect Nearend                                      |
| RVDT           | To measure the thickness of banknotes                  |