

**ND-300CM/KM**

# **Note Dispenser**

Installation Guide



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## 1. Introduction

### 1-1. Overview

ND-300 CM/KM is a series of note dispenser which is able to dispense different sizes of note through study process to fit users' needs.

### 1-2. Features

- Four-way dispensing.
- Self-study function.
- Different dispensing note sizes acceptable.

## 2. Specifications

### General

<b>Note Dispenser Time</b>	Approx. 1 second
<b>Interface</b>	Pulse, Hopper, RS232

### Electrical

<b>Power</b>	12V DC (11.4~12.6V DC)
<b>Power Consumption</b>	Standby : 0.3A, 3.6W Operation: 1.5A, 18W Maximum: 2.5A, 30W
<b>Operation Environment</b>	Operation Temperature: 0°C~55°C Humidity: 30%~85%RH (no condensation)

### Mechanical

<b>Note Capacity</b>	Approx. 300 notes
<b>Note Size Acceptable</b>	W: 60mm~ 83mm L : 100mm~170mm T : 0.1mm<Min.>~0.2mm<Max.>
<b>Weight</b>	Approx. 1.8kg
<b>Outline Dimension</b>	Refer to Page. 4



1. Installation: Indoor use only!
2. Polymer banknotes are unable to be dispensed.

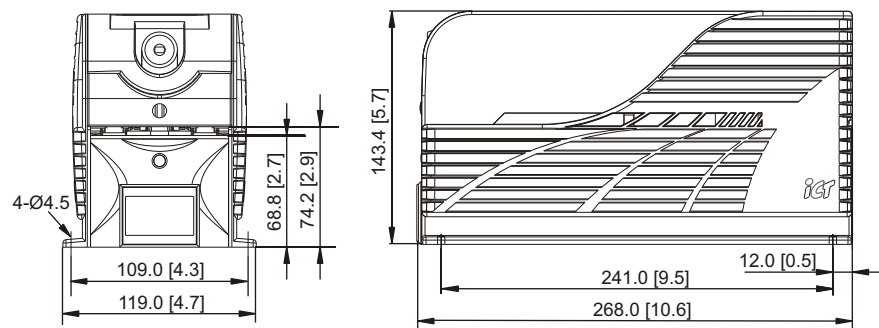
## 3. Packing List

<b>Main</b>	Note Dispenser
<b>Accessory</b>	ND-300 CM/KM Installation Guide Note Pressure Plate Harness (Refer to page. 5) Key

## 4. Dimension

### ◆ ND-300CM

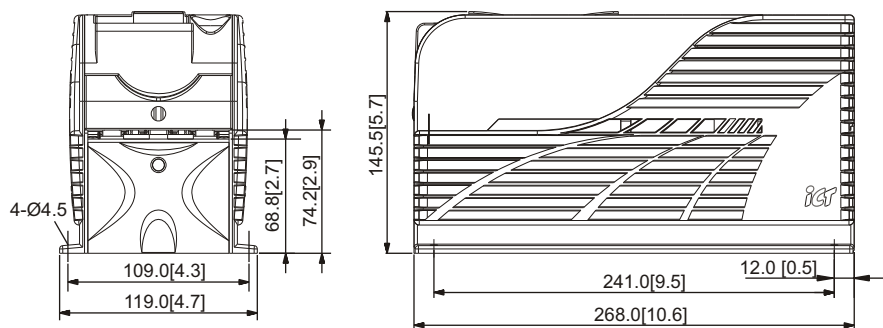
Figure.1



Unit : mm [inch]

### ◆ ND-300KM

Figure.2



Unit : mm [inch]

## 5. Installation

### 5-1. Harness Application

Table 1.

Interface	Used Voltage	Usage	Harness	Page
Pulse	12V DC	Power & *Data Comm.	WEL-R3M09	7
Hopper	12V DC	Power & *Data Comm.	WEL-R3M09	7
RS232	12V DC	Power	WEL-R3M09	7
RS232	12V DC	*Data Comm.	WEL-R3M05	8

\*Data Comm. : Data Communication.

Figure.3

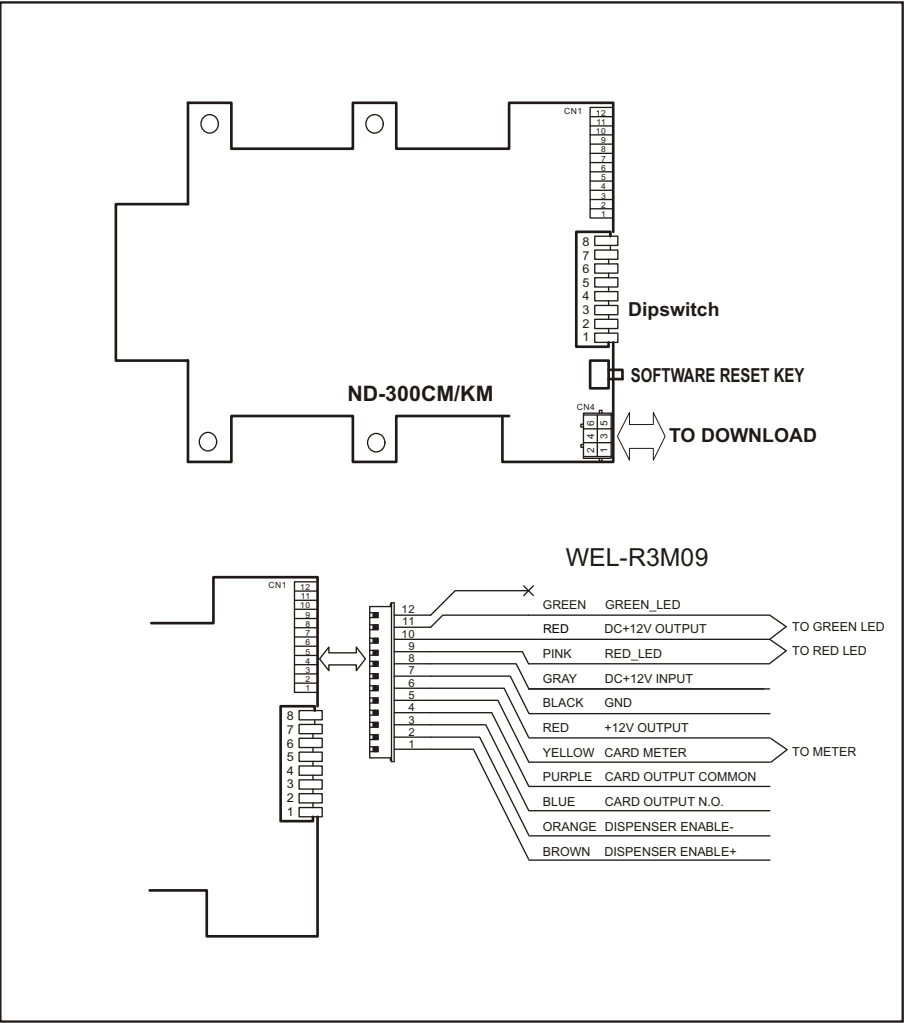


Figure.4

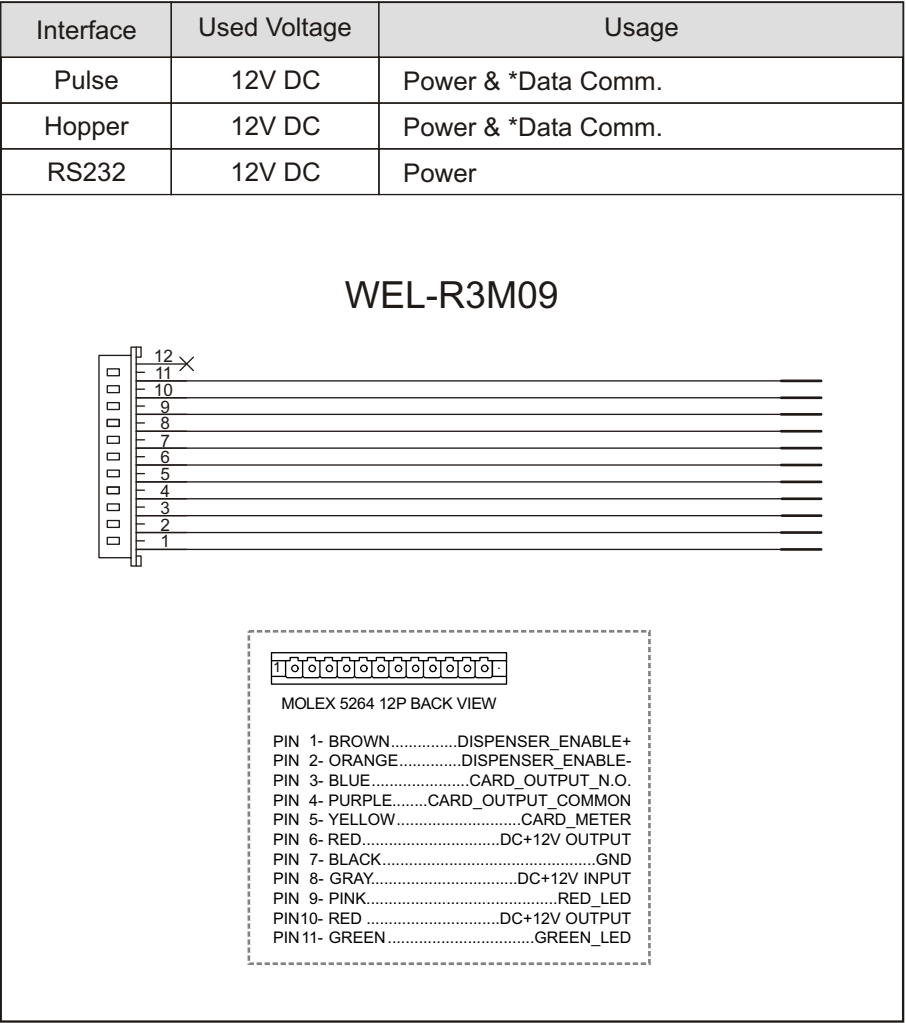
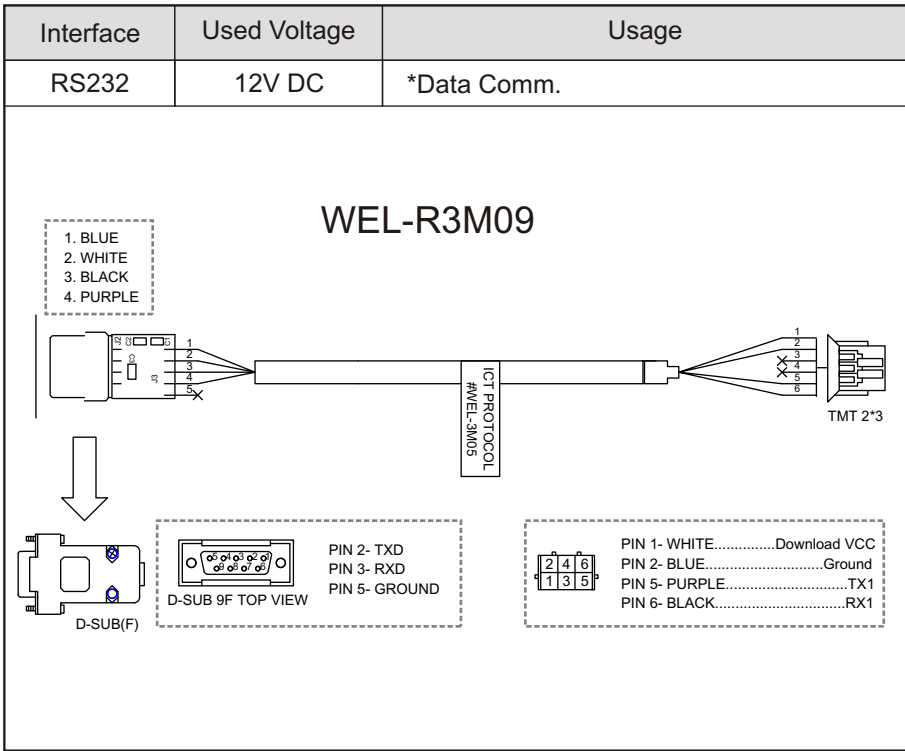


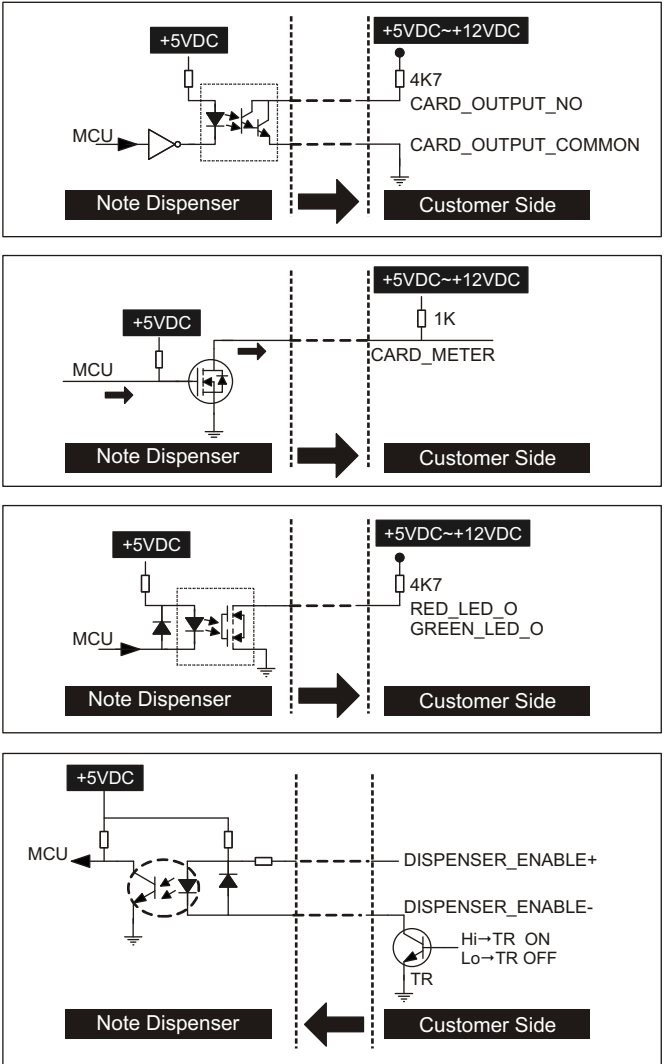
Figure.5



5-1-1. I/O Circuit

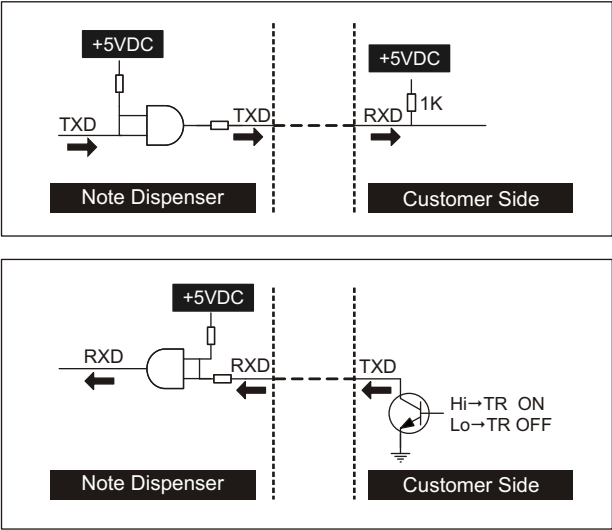
Hopper & Pulse

Figure.6



RS232 <TTL Level>

Figure.7



## 5-2. DIP Switch Setting

### ND-300CM/KM (Generic Firmware)

◆ Interface Setup:

Table.2

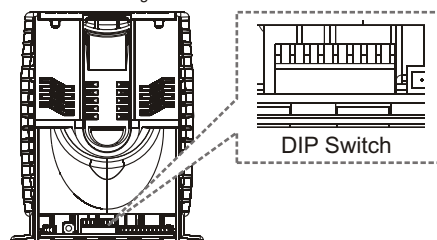
DIPSW Setup Type	1	2	3	Machine Number (RS232)	Control Signal Mode	Timing Series Interval
1	ON	ON	ON	0	Hopper Mode	500ms±5%
2	OFF	ON	ON	1	Hopper Mode	200ms±5%
3	ON	OFF	ON	2	Hopper Mode	100ms±5%
4	OFF	OFF	ON	3	Hopper Mode	50ms±5%
5	ON	ON	OFF	4	Pulse Mode	500ms±5%
6	OFF	ON	OFF	5	Pulse Mode	200ms±5%
7	ON	OFF	OFF	6	Pulse Mode	100ms±5%
8	OFF	OFF	OFF	7	Pulse Mode	50ms±5%

## ◆ Currency Value Setup:

Table.4

Setup Type \ DIPSW	4	5	6	7	Dispensing Note Type
1	ON	ON	ON	ON	Study Level 1
2	OFF	ON	ON	ON	Study Level 2
3	ON	OFF	ON	ON	Study Level 3
4	OFF	OFF	ON	ON	Study Level 4
5	ON	ON	OFF	ON	Study Level 5
6	OFF	ON	OFF	ON	Study Level 6
7	ON	OFF	OFF	ON	Study Level 7
8	OFF	OFF	OFF	ON	Study Level 8
9	ON	ON	ON	OFF	Study Level 9
10	OFF	ON	ON	OFF	Study Level 10
11	ON	OFF	ON	OFF	Study Level 11
12	OFF	OFF	ON	OFF	Study Level 12
13	ON	ON	OFF	OFF	Study Level 13
14	OFF	ON	OFF	OFF	Bypass Mode
15	ON	OFF	OFF	OFF	Calibration Mode
16	OFF	OFF	OFF	OFF	Disable

Figure.8



## ND-300CM/KM (Customized Firmware)

## ◆ Interface Setup:

Table.5

Setup Type \ DIPSW	1	2	3	Machine Number (RS232)	Control Signal Mode	Timing Series Interval
1	ON	ON	ON	0	Hopper Mode	500ms±5%
2	OFF	ON	ON	1	Hopper Mode	200ms±5%
3	ON	OFF	ON	2	Hopper Mode	100ms±5%
4	OFF	OFF	ON	3	Hopper Mode	50ms±5%
5	ON	ON	OFF	4	Pulse Mode	500ms±5%
6	OFF	ON	OFF	5	Pulse Mode	200ms±5%
7	ON	OFF	OFF	6	Pulse Mode	100ms±5%
8	OFF	OFF	OFF	7	Pulse Mode	50ms±5%

## ◆ Currency Value Setup:

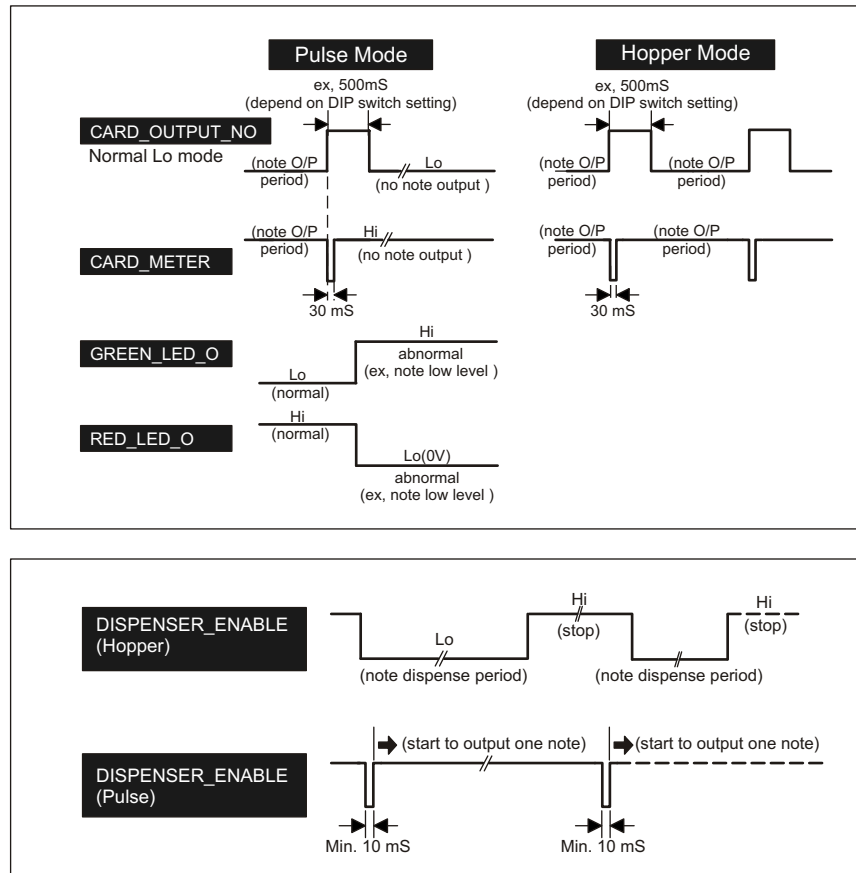
Table.6

Setup Type \ DIPSW	4	5	6	7	Dispensing Note Type
1	ON	ON	ON	ON	Customize Level 1
2	OFF	ON	ON	ON	Customize Level 2
3	ON	OFF	ON	ON	Customize Level 3
4	OFF	OFF	ON	ON	Customize Level 4
5	ON	ON	OFF	ON	Customize Level 5
6	OFF	ON	OFF	ON	Customize Level 6
7	ON	OFF	OFF	ON	Customize Level 7
8	OFF	OFF	OFF	ON	Customize Level 8
9	ON	ON	ON	OFF	Customize Level 9
10	OFF	ON	ON	OFF	Customize Level 10
11	ON	OFF	ON	OFF	Customize Level 11
12	OFF	OFF	ON	OFF	Customize Level 12
13	ON	ON	OFF	OFF	Customize Level 13
14	OFF	ON	OFF	OFF	Bypass Mode
15	ON	OFF	OFF	OFF	Calibration Mode
16	OFF	OFF	OFF	OFF	Disable



### 5-3. Time Chart

Figure.9



### 5-4. Communication Protocol

#### ◆ ND-300CM/KM

#### 1. Transmission Specifications:

Transmission Speed	9600 bps
Connection Control Method	Polling
Data Format	Start bit : 1 Data bit : 8 Parity bit : even Stop bit : 1

Table.7

#### 2. Message Description:

Table.8

STX	M/S	Machine Number	Cmd/Status	Data	Check Sum	Description
0x01	0x10	0x00	0x10	Count1	**	Single machine payout
0x01	0x10	0x00	0x11	0x00	**	Request machine status
0x01	0x10	0x00	0x12	0x00	**	Reset dispenser
0x01	0x10	0x01	0x13	Count1	**	Multiple machines payout
0x01	0x01	0x00	0xAA	Count2	**	Payout Successful
0x01	0x01	0x00	0xBB	Count2	**	Payout fails
0x01	0x01	0x00	0x00	Count2	**	Status fine
0x01	0x01	0x00	0x01	Count2	**	Empty note
0x01	0x01	0x00	0x02	Count2	**	Stock less
0x01	0x01	0x00	0x03	Count2	**	Note jam
0x01	0x01	0x00	0x04	Count2	**	Over length
0x01	0x01	0x00	0x05	Count2	**	Note not exit
0x01	0x01	0x00	0x06	Count2	**	Sensor error (Reserve)
0x01	0x01	0x00	0x07	Count2	**	Double note error (Reserve)
0x01	0x01	0x00	0x08	Count2	**	Motor error
0x01	0x01	0x00	0x09	Count2	**	Dispensing busy
0x01	0x01	0x00	0x0A	Count2	**	Sensor adjusting (Reserve)
0x01	0x01	0x00	0x0B	Count2	**	Checksum error
0x01	0x01	0x00	0x0C	Count2	**	Low power error

Note: (1) Count1 : Note amount users want to dispense.

(2) Count2 : Note amount which are already dispensed.

### 3. Example:

A. User requests machine No.0 to dispense 2 notes.

STX	M/S	Machine Number	Cmd/Status	Data	Checksum
0x01	0x10	0x00	0x10	0x02	0x23

Table.9

- If the note dispensing process is successful, machine will replay as follow.

STX	M/S	Machine Number	Cmd/Status	Data	Checksum
0x01	0x01	0x00	0xAA	0x02	0xAE

Table.10

- If the note dispensing process fails, machine will replay as follow.

STX	M/S	Machine Number	Cmd/Status	Data	Checksum
0x01	0x01	0x00	0xBB	0x0B	0xC8

Table.11

- If the note dispensing process 1 note and fails, machine will replay as follow.

STX	M/S	Machine Number	Cmd/Status	Data	Checksum
0x01	0x01	0x00	0xBB	0x01	0xBE

Table.12

## 6. Operation

### 6-1. Unusable Note

Do not use abnormal notes listed below.

Figure.10

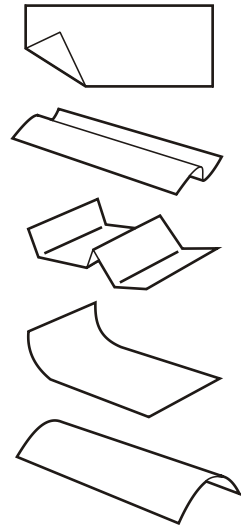
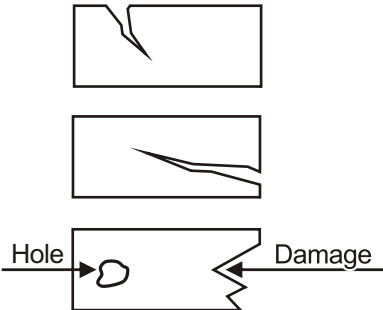
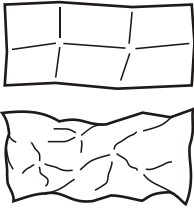

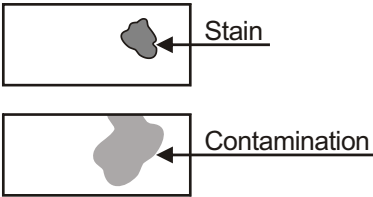
Type	Diagram	Solution
Curled or wrinkled notes		Unfold the note
Broken notes		Prohibited

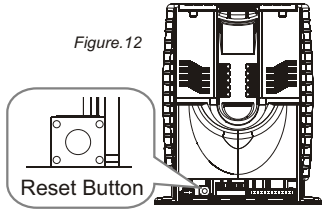
Figure.11

Type	Diagram	Solution
Curled or wrinkled notes		Prohibited
Taped notes		Prohibited
Dirty notes		Prohibited

## 6-2. How to fill notes

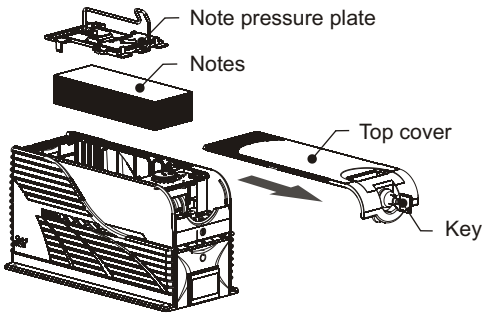
1. Unlock the top cover of the Note Dispenser by the key.
2. Take out the note pressure plate and fill in the notes.
3. Put the note pressure plate back on top of the notes.
4. Put the top cover back and lock it.
5. Reset the note dispenser.

Figure.12



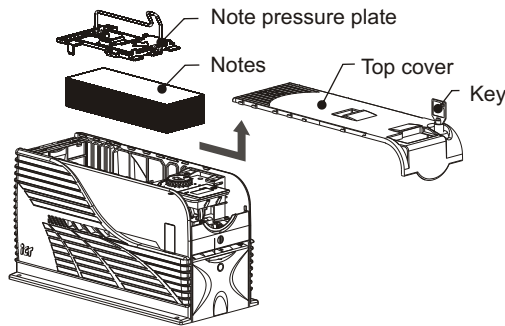
### ◆ ND-300CM

Figure.13



### ◆ ND-300KM

Figure.14



### 6-2-1. Take heed of the notices, when insert bills:

If the bills has laser security line, it is necessary to set the security line at the back-end of ND-300CM/KM for bill exiting when insert bills.

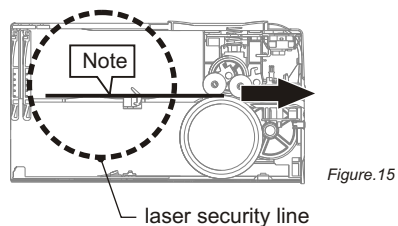


Figure.15

Please insert the note individually to judge the quality:

- Normal Note: Note can be inserted.

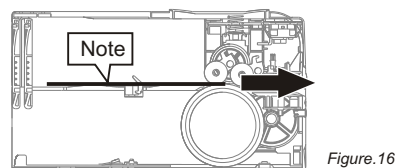


Figure.16

- Abnormal Note: Note can not be inserted.

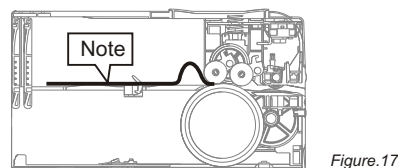


Figure.17



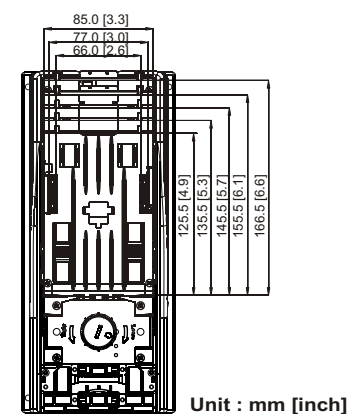
Please do not use the incomplete notes such as extremely dirty, wet, broken, or wrinkled ones to avoid dispense problem.

### 6-3. How to adjust width and length

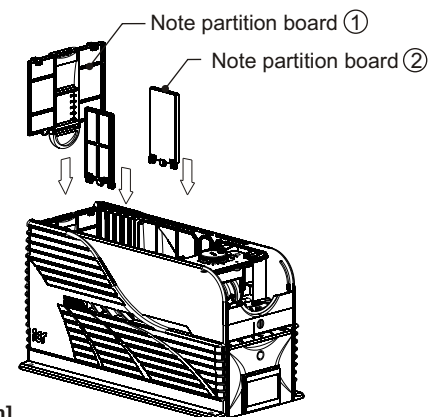
Use the note partition board ① to adjust length and note partition board ② to adjust width.

#### ◆ ND-300CM

Figure.18

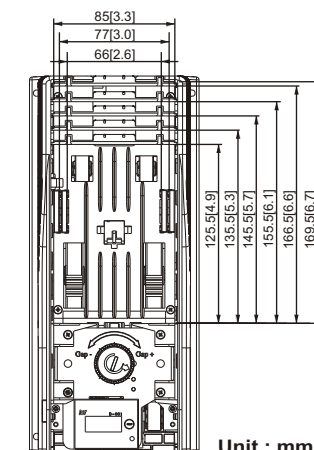


Unit : mm [inch]

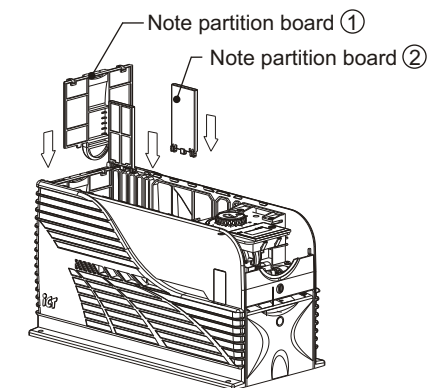


#### ◆ ND-300KM

Figure.19



Unit : mm [inch]



## 6-4. How to adjust dispensing thickness

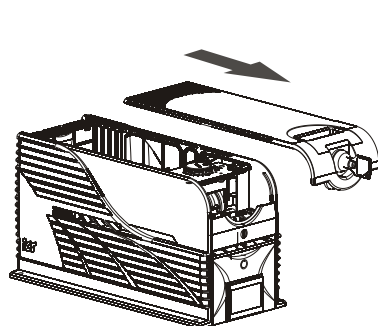
Before using Note Dispenser, please make sure the thickness adjustment is appropriate, so the notes can be dispensed smoothly.

To adjust thickness:

1. Take the front cover off as figure 18 &19.
2. Adjust the thickness by turning the M6\*20 phillips screw.
3. Load notes into the dispenser and set Note Dispenser as Calibration Mode (please refer to 5-2 ), and then turn the power on.
4. Note Dispenser should start automatically after power on, check the front LED for the operation status.
5. Red light indicates dispensing speed is too fast, the motor will stop if this situation happens more than twice.
6. Green light indicates normal dispensing speed.
7. Orange light indicates dispensing speed is too slow, and the error counter will be incremented.
8. After finish calibration, set Note Dispenser as Dispense Mode (please refer to 5-2 ), and then reboot the machine to start normal operation.

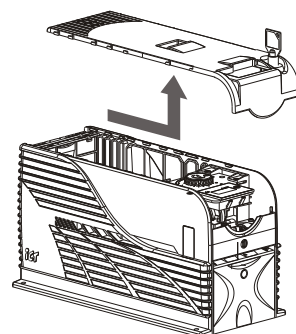
### ◆ ND-300CM

Figure.20



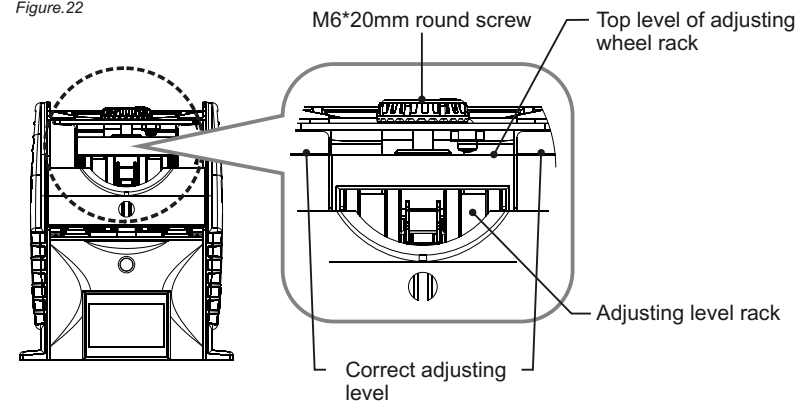
### ◆ ND-300KM

Figure.21



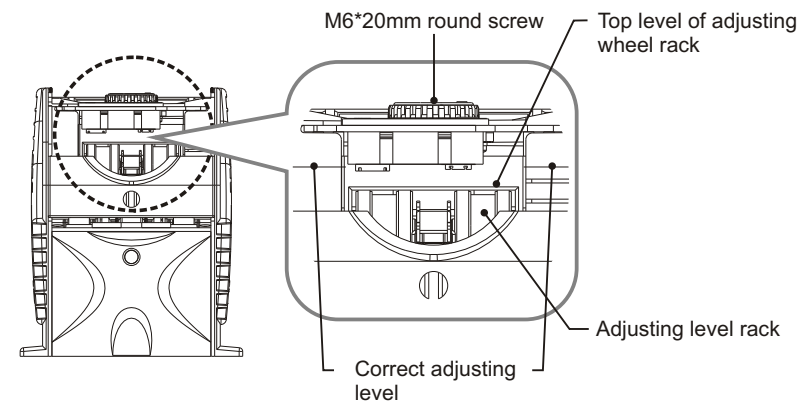
### ◆ ND-300CM

Figure.22



### ◆ ND-300KM

Figure.23

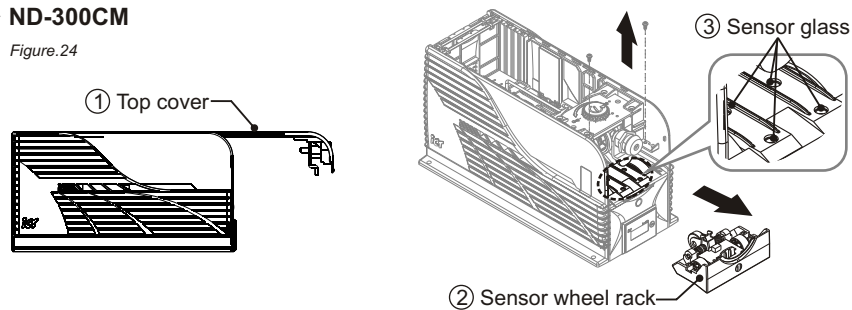


## 7. Maintenance

1. Take top cover ①.
2. Remove two screws on sensor wheel rack ② then take it out.
3. Clean sensor glass ③ periodically.
4. Put sensor wheel rack ②, screws, and top cover ① back after cleaning.

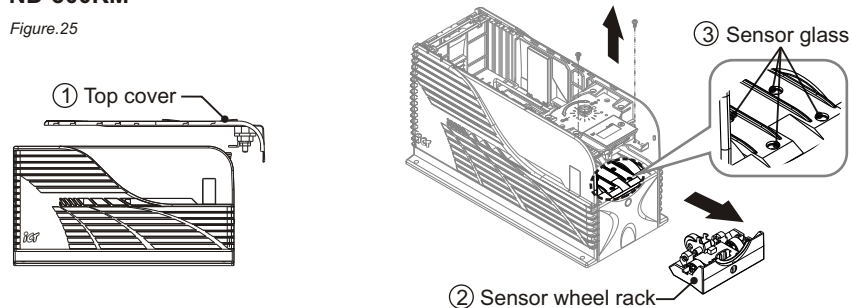
### ◆ ND-300CM

Figure.24



### ◆ ND-300KM

Figure.25

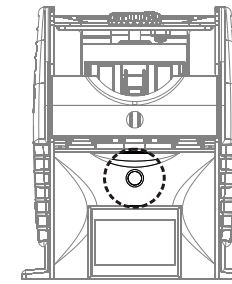


**Maintenance Notice**  
(Any improper maintenance will result invalid warranty.)

<b>Recommended</b>	Mild, non-abrasive, soap water.
<b>DO NOT USE</b>	Organic solvent , Alcohol, Volatility liquid.

## 8. Troubleshooting

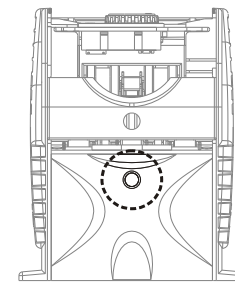
### ◆ ND-300CM



LED

Figure.26

### ◆ ND-300KM



LED

Figure.27

Table.13

LED Flashes			Status	Corrective Actions
Green	Orange	Red		
ON	N/A	N/A	Normal.	N/A
1			Busy.	N/A
1	ON		Note Amount Low.	Fill the card up then press Reset.
	1		Sensor Calibrating.	N/A
N/A	2		Note hasn't been taken from slot.	Take the dispensing note away.
	ON	N/A	Note Stacker empty.	Fill the card up then press Reset.
	1		Note jammed.	Inspect the stacker for jammed note.
	2		Note over length.	Press Reset, if red light is still flashing, re-adjust the length of note.
	3		Sensor error.	Inspect foreign objects on sensor and clean it.
	4		Double dispensing.	Press Reset, if red light is still flashing, re-adjust the length of note.
	5		Motor error.	Call ICT for Technical support.
	6		Checksum error.	Call ICT for Technical support.
	7		RAM error.	Call ICT for Technical support.



If the error can not be solved after corrective actions or happen again, please contact ICT for technical support.



**International Currency Technologies Corporation**

Ji-Hong Building, No 24, Alley 38, Lane 91, Nei-hu Rd., Sec. 1, Taipei, Taiwan, R.O.C.

Tel: 886-2-2797-1238 · Fax: 886-2-2797-1634

[sales@ictgroup.com.tw](mailto:sales@ictgroup.com.tw) (For Sales)

[rma@ictgroup.com.tw](mailto:rma@ictgroup.com.tw) (For Customer Service)

Website: [www.ictgroup.com.tw](http://www.ictgroup.com.tw)