Note Dispenser

ND-100

Installation Guide

V. 2.0 Part Number : H4850A-R

International Currency Technologies Corp.

Use of Materials Limitations

Contents

1. Introduction

1-1. Overview

ND-100 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 acceptable.
- Self-study function.
- Different dispensing note sizes acceptable.

2. Specifications

General

Acceptance Speed	Approx. 1 second
Interface	Pulse, Hopper, RS232

Electrical

Power Source	12V DC (11.4~12.6V DC)
Power Consumption	Standby : 0.3A, 3.6W Operation: 1.5A, 18W Maximum: 2.5A, 30W
Operation Environment	Operation Temperature: 0°C~55°C Humidity: 30%~90%RH (no condensation)

Mechanical

Bill Box Capacity	Approx. 100 notes
Bill Accepted Width	W: 60mm~ 84mm L : 100mm~180mm T : 0.1mm<Min.>~0.2mm<Max.>
Weight	Approx. 1.5kg
Outline Dimension	Refer to Page. 4

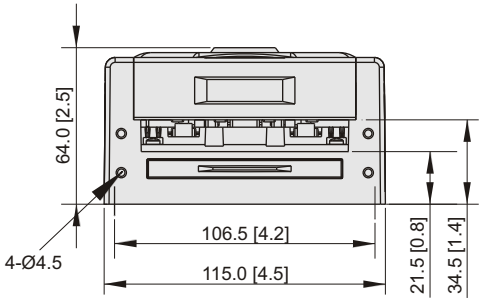
Installation: Indoor use only!!

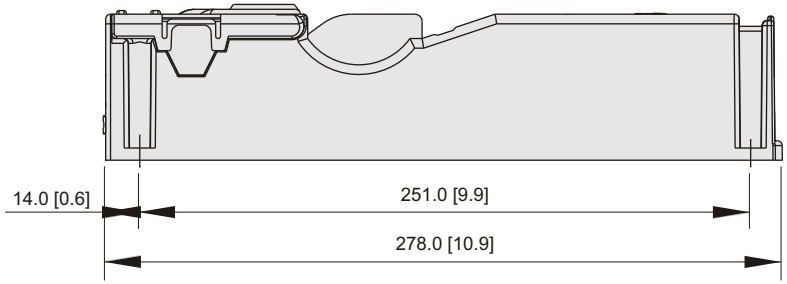
3. Packing List

Main	Note Dispenser
Accessory	ND-100 Installation Guide Note Pressure Plate Harness (Refer to page. 5) Key

4. Dimension

Figure.1





Unit : mm [inch]

5. Installation

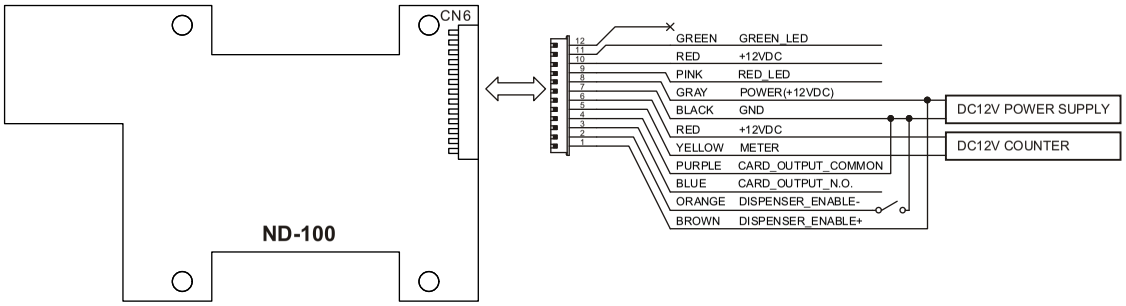
5-1. Harness Application

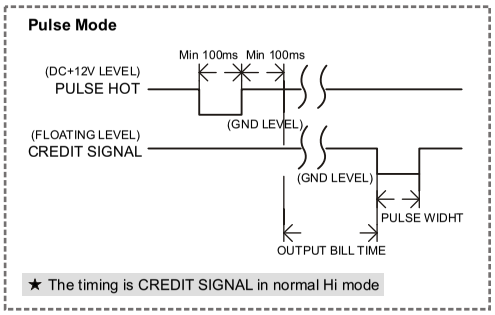
Table. 1

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.

Pulse Signal Mode





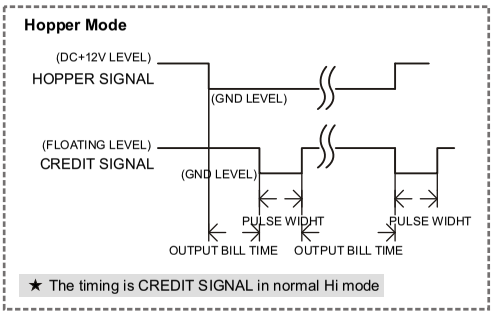
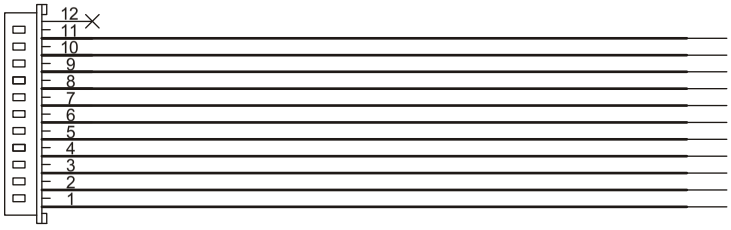


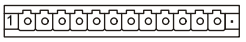
Figure.2

Interface	Used Voltage	Usage
Pulse	12V DC	Power & *Data Comm.
Hopper	12V DC	Power & *Data Comm.
RS232	12V DC	Power

WEL-R3M09



MOLEX 5264 12P

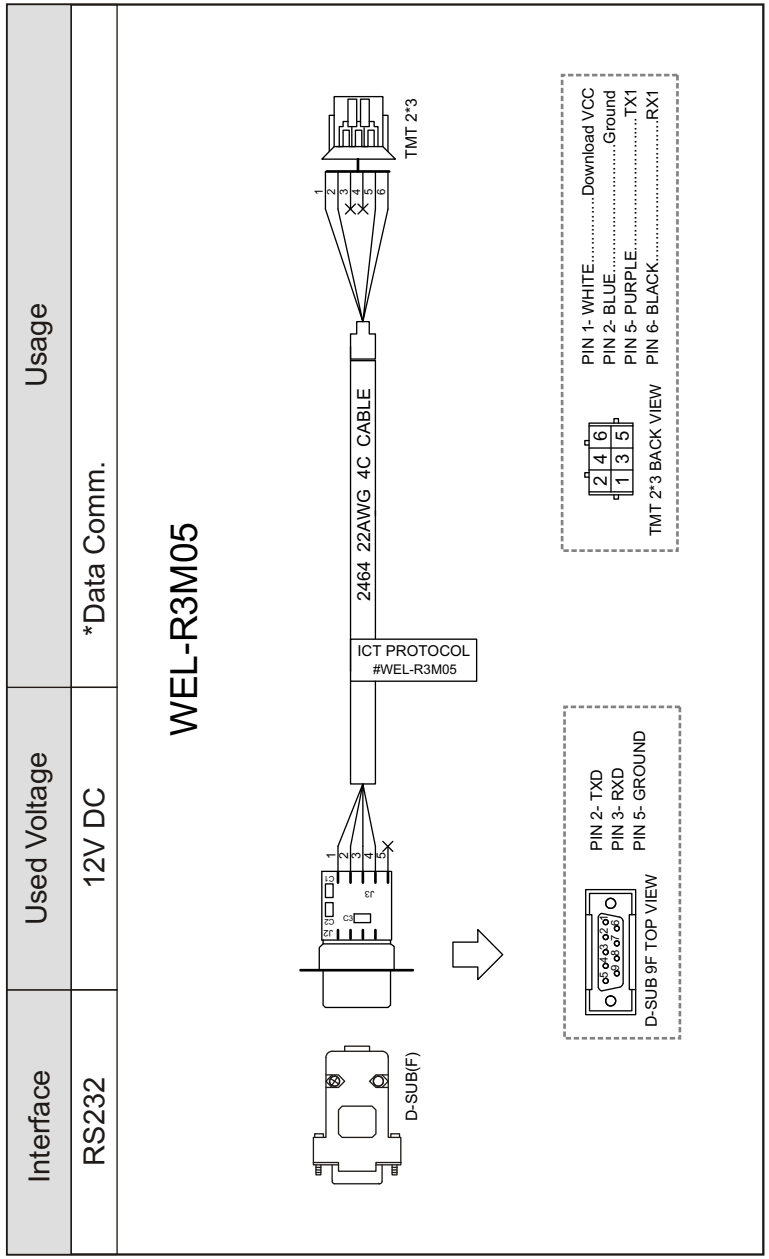


MOLEX 5264 12P BACK VIEW

PIN 11- GREEN.....GREEN_LED
PIN 10- RED.....+12VDC
PIN 9- PINK.....RED_LED
PIN 8- GRAY.....POWER(+12VDC)
PIN 7- BLACK.....GND
PIN 6- RED.....+12VDC
PIN 5- YELLOW.....METER
PIN 4- PURPLE.....CARD_OUTPUT_COMMON
PIN 3- BLUE.....CARD_OUTPUT_N.O.
PIN 2- ORANGE.....DISPENSER_ENABLE-
PIN 1- BROWN.....DISPENSER_ENABLE+

Figure.3

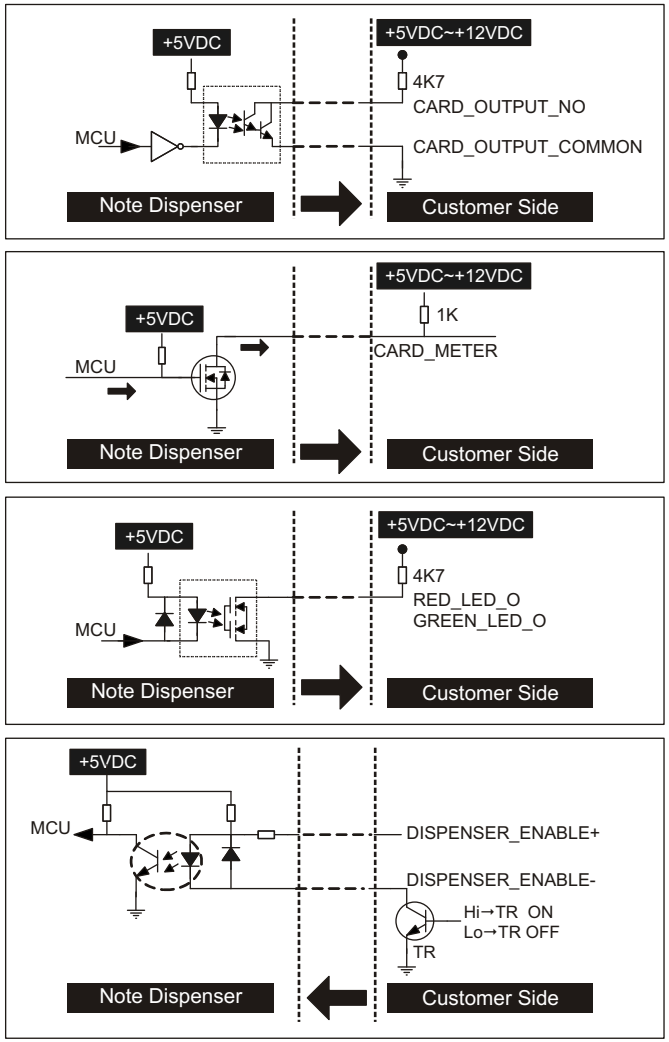
Figure.4



5-1-1. I/O Circuit

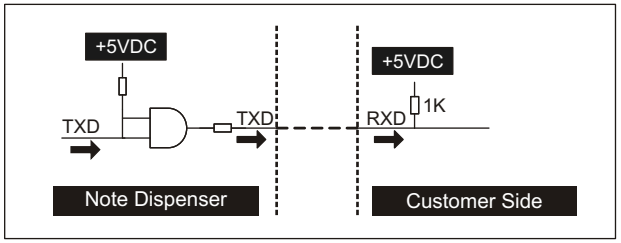
Hopper & Pulse

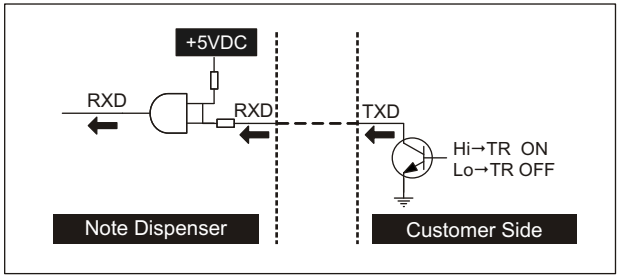
Figure.5



RS232 <TTL Level>

Figure.6





5-2. Function Setting

5-2-1. DIP Switch Setting

♦ Interface Setup:

Table.2

DIPSW / Setup Type	1	2	3	Timing Series Interval	Machine Number	Control Signal Mode
★ 1	ON	ON	ON	2Sec±5%	0	Hopper Mode
2	OFF	ON	ON	1Sec±5%	1	Hopper Mode
3	ON	OFF	ON	800ms±5%	2	Hopper Mode
4	OFF	OFF	ON	550ms±5%	3	Hopper Mode
5	ON	ON	OFF	2Sec±5%	4	Pulse Mode
6	OFF	ON	OFF	1Sec±5%	5	Pulse Mode
7	ON	OFF	OFF	800ms±5%	6	Pulse Mode
8	OFF	OFF	OFF	550ms±5%	7	Pulse Mode

♦ Currency Value Setup:

Table.3

DIPSW / Setup Type	4	5	6	7	Dispensing Note Type
★ 1	ON	ON	ON	ON	1 Level
2	OFF	ON	ON	ON	2 Level
3	ON	OFF	ON	ON	3 Level
4	OFF	OFF	ON	ON	4 Level
5	ON	ON	OFF	ON	5 Level
6	OFF	ON	OFF	ON	6 Level
7	ON	OFF	OFF	ON	7 Level
8	OFF	OFF	OFF	ON	8 Level
9	ON	ON	ON	OFF	9 Level
10	OFF	ON	ON	OFF	10 Level
11	ON	OFF	ON	OFF	11 Level
12	OFF	OFF	ON	OFF	Spare Level
13	ON	ON	OFF	OFF	Spare Level
14	OFF	ON	OFF	OFF	Test Mode(300M)
15	ON	OFF	OFF	OFF	Calibration Mode
16	OFF	OFF	OFF	OFF	Rally Prearrange Note Data

♦ Study Mode Setup:

Table.4

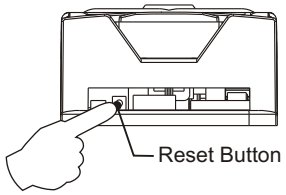
SW8	Note Study Mode Setting
★ ON	Dispense Mode
OFF	Study Mode

<★ > Factory Setting

5-2-2. Reset Key

Figure.7

Press this button (time≦3s) to restart the note dispenser.
It does not need to turn the power off and on again.
Press this button (time>3s) to card revise mode.



5-2-3. Note Dispensing Mode :

(1) Pulse Mode : When the dispenser receives one, pulses it will dispense one note.

(2) Hopper Mode : The note dispenser will begin to dispense note when it receives the dispense command, and it will not stop dispensing untill it receives the stop command.

(3) RS-232 Mode : It receives commands from Rs232 signal to dispense note.

P.S. Pulse Mode or Hopper Mode dispense one note sends one Credit and one Counter.
RS232 Mode Dispense one note only sends one Counter.

5-2-4. RS-232 Command / Response List

(1) Transmission Specifications

Table.5

Transmission speed	9600bps
Synchronizing method	Asynchronizing method
Connection control method	Polling method
Data format	Start bit : 1 Data bit : 8 Parity bit : even Stop bit : 1

(2) Message Format

Table.6

STX	M/S	MachineNumber	Cmd/Status	Data	CheckSum

(3) Format Dscription

Table.7

Message	Function	Size	Code
STX M/S	Start code	1 byte	[0x01] : Start code
	Master/Slave code	1 byte	[0x10] : Master code [0x01] : Slave code
Machine Number	Single machine payout	1 byte	Currently is set for 0 ~ 7 (max 8 units interlinked)
	Multiple machines payout		1 bit control 1 machine (LSB is No.0 ; MSB is No.7)
Cmd / Status	Master command code	1 byte	[0x10] : Request payout [0x11] : Request machine status [0x12] : RESET command [0x13] : Request multiple machines payout
	Slave status code		[0x00] : Status fine [0x01] : Note empty [0x02] : Stock less [0x03] : Note jam [0x04] : Over length [0x05] : Note not exit [0x06] : Sensor error (Reserve) [0x07] : Double note Error (Reserve) [0x08] : Motor error [0x09] : Dispensing busy [0x0A] : Sensor Adjusting (Reserve) [0x0B] : Checksum error [0x0C] : Low power error [0xAA] : ACK [0xBB] : NAK
Data	Data code	1 byte	Dispense count
Check Sum	Checking code	1 byte	STX + M/S + Machine Number + Cmd/Status + Data

(4) Message Description

Table.8

STX	M/S	Machine Number	Cmd/Status	Data	CheckSum	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	0x00	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 : How many bills you want dispense.
(2) Count2 : How many bills have already dispensed.

(5) Example

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

Table.9

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

If the note dispensing process is successful, ND-100 will reply as follow.

Table.10

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

If the note dispensing process fails, ND-100 will reply as follow.

Table.11

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

If the note dispensing process 1 bill and fails, ND-100 will reply as follow.

Table.12

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

B. User request multiple machines No.1 and No.2 and No.5 and No.6 to dispense 1 bill.

Table.13

STX	M/S	Machine Number	Cmd/Status	Data	CheckSum
0x01	0x10	0x66(01100110)	0x13	0x01	0x8B

Note : The ND-100 will not response anything in this command.

After request command user needs to poll the machine status by yourself.

Table.14

STX	M/S	Machine Number	Cmd/Status	Data	CheckSum
0x01	0x10	0x01	0x11	0x00	0x23

If the note dispensing process is successful ,ND-100 will reply as follow.

Table.15

STX	M/S	Machine Number	Cmd/Status	Data	CheckSum
0x01	0x01	0x01	0xAA	0x01	0xAE

If the note dispensing process fails ,ND-100 will reply as follow.

Table.16

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

Other machines No.2 and No.5 and No.6 are poll the same as above.

C. User request all machines to dispense 5 bill.

Table.17

STX	M/S	Machine Number	Cmd/Status	Data	CheckSum
0x01	0x10	0xFF(11111111)	0x13	0x05	0x28

After request command user needs to poll the all machines status.

Table.18

STX	M/S	Machine Number	Cmd/Status	Data	CheckSum
0x01	0x10	0x00~0X07	0x11	0x00	0x22~0x29

And check all machines status as follow example 2.

(6) LED Message

Green Color:

Flash	Status
0	Status fine
1	Dispensing busy

Table.19

Orange Color:

Flash	Status
0	Stock less
1	Sensor adjusting
2	Note not exit

Table.20

Red Color:

Flash	Status
0	Empty note
1	Note jam
2	Over length
3	Sensor error
4	Double note error
5	Motor error
6	Checksum error

Table.21

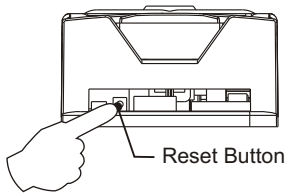
Flash Interval Approximately 1s.

6. Operation

6-1. How to fill notes

1. As figures show, take off pressure chunk and put the banknotes or tickets (conpons) into the Note Dispenser.
2. After filling banknotes, put the pressure chunk on the top of banknotes.
3. Push the Reset button(*as figure.8*) on the back of the Note Dispenser after filling banknotes.
4. Notes Dispenser has memory function. If banknotes left inside, those banknotes would come out in advance after users push the Reset button.

Figure.8



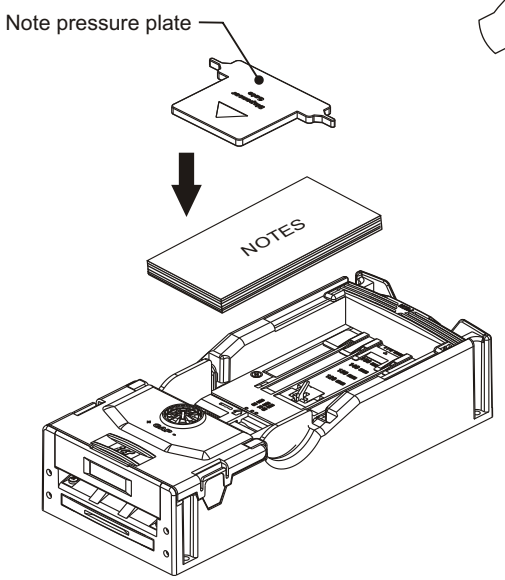


Figure.9

6-2. How to adjust width and length

1. Use the note partition board ① to adjust the length and note partition board ② to adjust the width, as shown in the picture.

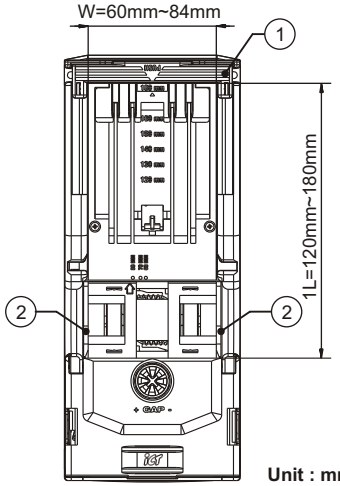
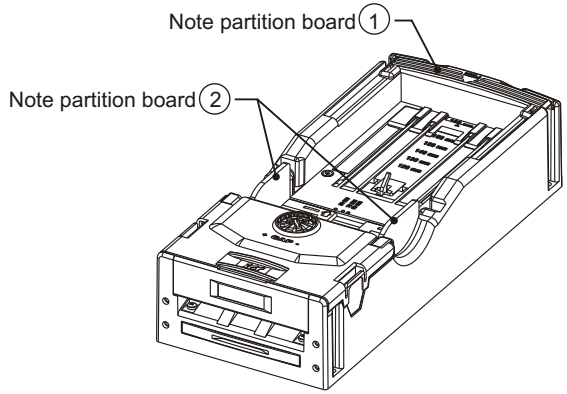


Figure.10

Unit : mm [inch]

Figure.11

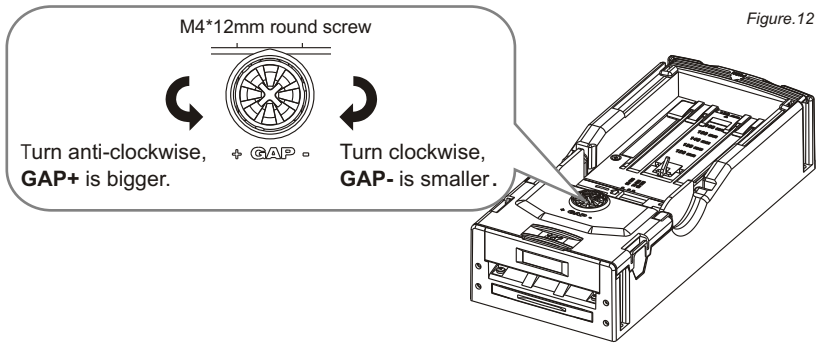


6-3. How to adjust dispensing thickness

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

1. Adjust the gauge by turning the M4*12 phillips screw.
2. Test the note dispensing status after you adjust the height. If it dispenses more than 1 note at the time, please turn the screw anti-clockwise to make it tighter. If it dispenses the note difficultly, then please turn the screw clockwise to loosen it up (*as figure.12*).
3. Load notes into the dispenser and set Note Dispenser as Calibration Mode, and then turn the power on.
4. Turn the power on and dispensing should start automatically, observe the front LED for the operation status of the dispenser.
5. Red light indicates that the speed of dispensing is too fast.
6. Green light indicates normal dispensing speed.
7. Orange light indicates that the dispensing speed is too slow.
8. After successful calibration, set DIPSW (4)-ON (5). (6). (7)-OFF (Dispense Mode), rest power to start normal operation.

Figure.12



7. Maintenance

1. Push the both sides of (upper base unit) inward and open it.
2. Released the sensor connector from the upper base module and to remove the upper base module.
3. Clean the sensor protection cover regularly.
4. Plug the sensor connector back to the upper base module and push it back to the normal position.
5. Close the upper base unit downward.

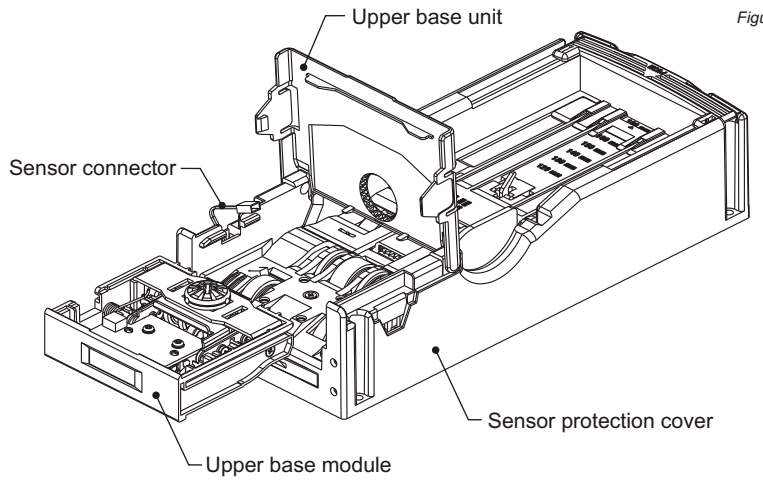


Figure.13

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

Recommended	**Mild, non-abrasive, soap water.**
DO NOT USE	**Organic solvent , Alcohol, Volatility liquid.**

8. Troubleshooting

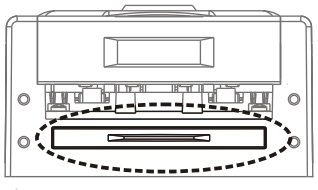


Figure.14

LED

Table.22

LED Flashes			Status	Corrective Actions
Green	Orange	Red		
ON	N/A	N/A	Normal.	N/A
1			Busy.	N/A
N/A	ON	N/A	Note Amount Low.	Fill the card up then press Reset.
	1		Sensor Calibrating.	N/A
	2		Note hasn't been taken from slot.	Take the dispensing note away.
	N/A	ON	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.

ICT Taiwan

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 (For Sales)

rma@ictgroup.com.tw (For Customer Service)

Website: www.ictgroup.com.tw