ICT

Leonid
Mini Hopper
Installation Guide

International Currency Technologies Corp.

Use of Materials Limitations

Contacts

1. Introduction

1-1. Overview

Mini hopper is a coin dispensing unit for one denomination. Users can adjust the coin dimension with different coin payout plates and coin adjustment points. The design of Mini Hopper is easy-operated, trouble-free, and high reliability.

1-2. Features

- Dual sensors, double protections.
- Easy maintenance.
- Easy installation.
- Coin size adjustable.
- Advanced coin low level detection.
- Compact design with enormous capacity.

2. Specifications

General

Dispensing Speed	12V DC: 5~6 coins/second 24V DC: 6~8 coins/second
Interface	Pulse, ICT, Hopper, ccTalk, Red Flag **Note: For ccTalk information, please refer to Appendix.*
Counting Method	Dual sensors
Installation	Indoor

Electrical

Power Source	MH-12XXX: 12V DC (11.4~12.6V DC) MH-24XXX: 24V DC (22.8~25.2V DC)
Power Consumption	12V DC: Standby : 0.05A, 0.6W Not loaded: 0.75A, 9W Maximum : 2.5A, 30W 24V DC: Standby : 0.05A, 1.2W Not loaded: 0.45A, 10.8W Maximum : 2.5A, 60W
Operation Environment	Operation Temperature: 5°C~50°C Storage Temperature: -30°C~70°C Humidity: 30%~85%RH(no condensation)

Mechanical

Coin Capacity	Approx. 500 coins
Accessories(Option)	Extensions: 500 coins, Max. one extension.
Weight	Approx. 0.8kg

Applicable Coin Size

A TYPE
(Diameter) 22.5mm~28mm
(Thickness) 1.6mm~2.4mm

B TYPE
(Diameter) 20mm~23mm
(Thickness) 1.6mm~2.2mm

C TYPE
(Diameter) 23mm~30mm
(Thickness) 2.5mm~3.3mm

D TYPE
(Diameter) 23mm~30mm
(Thickness) 1.6mm~2.4mm

E TYPE
(Diameter) 17.9mm~19.7mm
(Thickness) 1.3mm~1.8mm

F TYPE
(Diameter) 22.5mm~28mm
(Thickness) 1.0mm~1.5mm

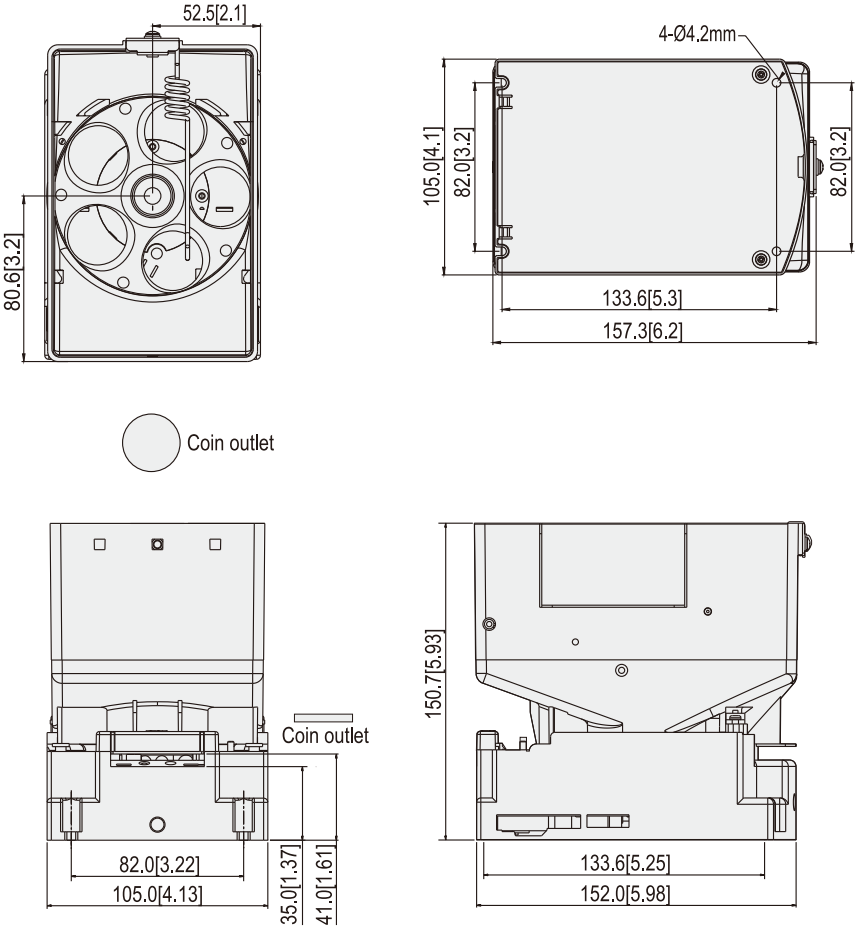
G TYPE
(Diameter) 20mm~23mm
(Thickness) 1.2mm~1.6mm

H TYPE
(Diameter) 28mm~31mm
(Thickness) 2.0mm~2.8mm

3. Packing List

Main	Mini Hopper
Accessory	Harness: Refer to **5-1** Mini Hopper Installation Guide

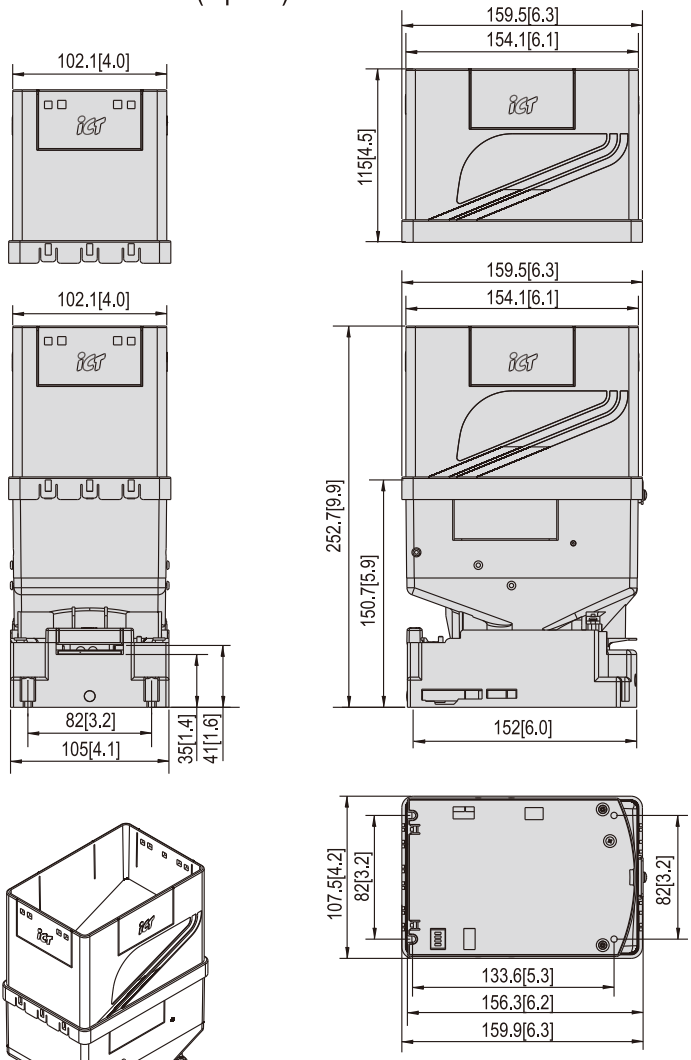
4. Dimension



Unit : mm [inch]

4 FIG.01

Extensions: 500 coins (Option)



Unit : mm [inch]

1-3 FIG.02

5. Installation

5-1. Harness Application

With CPU Board :

5-1 TABLE 01

Interface	Used Voltage	Usage	Harness	Page
ccTalk	12V DC (MH-12XXX) 24V DC (MH-24XXX)	Power & *Data Comm.	WEL-RHP02	8
		Power & *Data Comm.	WEL-RHP38	9
		Power & *Data Comm.	CNT-R7025	9
Hopper Mode		Power & *Data Comm.	WEL-RHP17	10
Pulse Mode		Power & *Data Comm.	WEL-RHP17	10
ICT Mode		*Data Comm.	WEL-R7U06-2 or 2-BA-R7U06	11
Red Flag		*Data Comm.		11

*Data Comm. : Data Communication.

Without CPU Board :

5-1 TABLE 02

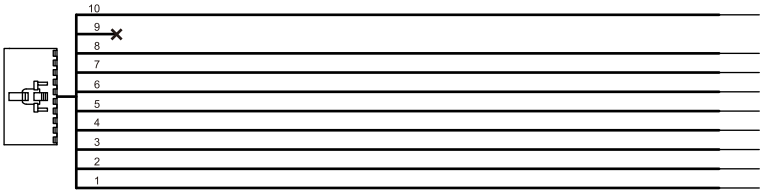
Interface	Used Voltage	Usage	Harness	Page
Hopper Mode	12V DC (MH-12XXX) 24V DC (MH-24XXX)	Power & *Data Comm.	WEL-RHP17	12

*Data Comm. : Data Communication.

5-1 FIG.01

Interface	Used Voltage	Usage
ccTalk	12V DC(MH-12XXX) 24V DC(MH-24XXX)	Power & *Data Comm.

WEL-RHP02
(With CPU Board)



MOLEX42375 10P

PIN 10- GRAY.....RESET	PIN 5- YELLOW.....+12V/+24V DC
PIN 9- Reserved	PIN 4- ORANGE.....+12V/+24V DC
PIN 8- PURPLE.....DATA	PIN 3- RED.....Address select 1
PIN 7- BLUE.....GND	PIN 2- BROWN.....Address select 2
PIN 6- GREEN.....GND	PIN 1- BLACK.....Address select 3

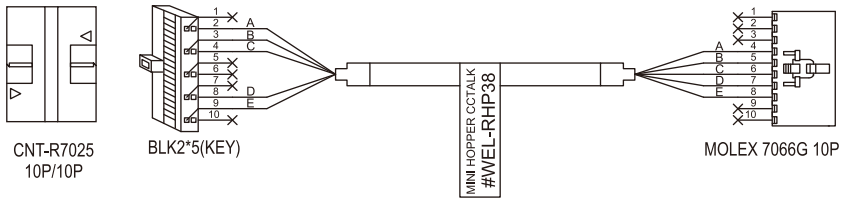
5-1 FIG.02

Interface	Used Voltage	Usage
ccTalk	12V DC(MH-12XXX) 24V DC(MH-24XXX)	Power & *Data Comm.

WEL-RHP38
(With CPU Board)

CNT-R7025
CNT-R7025 10P/10P

PIN 10- BLACK.....+12V/+24V DC
PIN 7- WHITE.....+12V/+24V DC
PIN 8- RED.....GND
PIN 4- YELLOW.....GND
PIN 1- PURPLE...../DATA



BLK2*5(KEY)

PIN 2- BLACK.....+12V/+24V DC
PIN 3- WHITE.....+12V/+24V DC
PIN 4- RED.....GND
PIN 8- YELLOW.....GND
PIN 9- PURPLE...../DATA

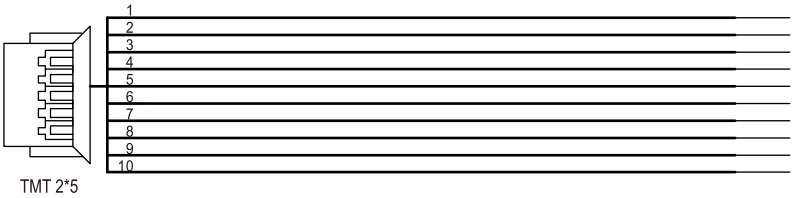
MOLEX 7066G 10P

PIN 4- BLACK.....+12V/+24V DC
PIN 5- WHITE.....+12V/+24V DC
PIN 6- RED.....GND
PIN 7- YELLOW.....GND
PIN 8- PURPLE...../DATA

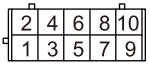
5-1 FIG.03

Interface	Used Voltage	Usage
Hopper Mode	12V DC(MH-12XXX) 24V DC(MH-24XXX)	Power & *Data Comm.
Pulse Mode		

WEL-RHP17
(With CPU Board)



TMT 2*5



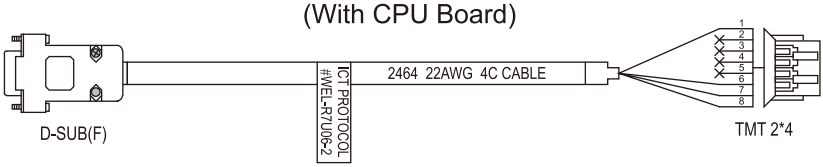
TMT 2*5 BACK VIEW

PIN 1- RED.....+12V/+24V DC (Power)
PIN 2- BLACK.....Ground(Power)
PIN 3- YELLOW.....CREDIT RELAY(N.O.)
PIN 4- BLACK.....CREDIT RELAY(Common)
PIN 5- BLUE.....PAYOUT_IN
PIN 6- PURPLE.....COIN_EMPTY_O
PIN 7- GRAY.....METER_N.O
PIN 8- BLACK.....METER_COM
PIN 9- WHITE.....INHIBIT_N.O
PIN 10- BLACK.....INHIBIT_COM

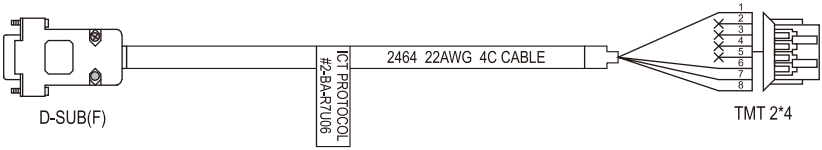
5-1 FIG.04

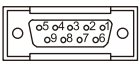
Interface	Used Voltage	Usage
ICT Mode	12V DC(MH-12XXX) 24V DC(MH-24XXX)	*Data Comm.
Red Flag		

WEL-R7U06-2
(With CPU Board)



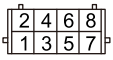
2-BA-R7U06
(With CPU Board)





D-SUB 9F TOP VIEW

PIN 2- TXD
PIN 3- RXD
PIN 5- GND



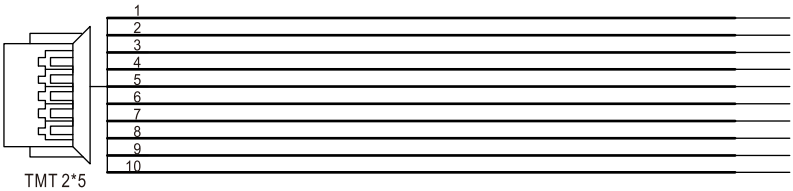
TMT 2*4
BACK VIEW

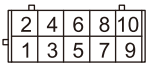
PIN 1- BLUE.....Ground
PIN 6- WHITE.....Download VCC
PIN 7- BLACK.....RX1
PIN 8- PURPLE.....TX1

5-1 FIG.05

Interface	Used Voltage	Usage
Hopper Mode	12V DC(MH-12XXX) 24V DC(MH-24XXX)	Power & *Data Comm.

WEL-RHP17
(Without CPU Board)



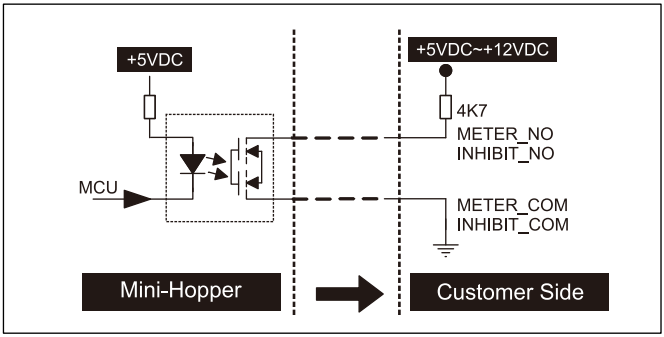


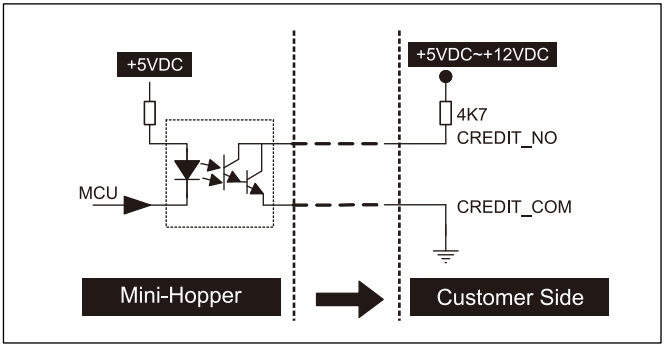
TMT 2*5 BACK VIEW

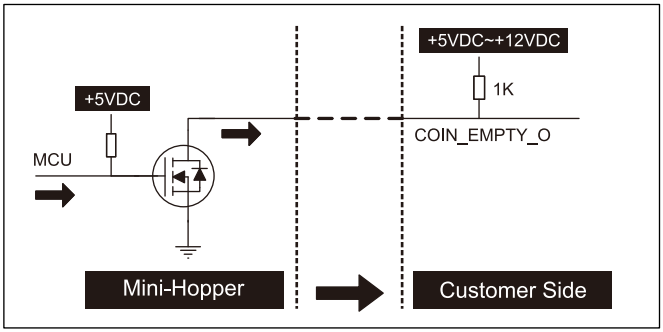
PIN 1- RED.....+12V/+24V DC (Power)
PIN 2- BLACK.....Ground(Power)
PIN 3- YELLOW.....CREDIT RELAY(N.O.)
PIN 4- BLACK.....CREDIT RELAY(Common)
PIN 5- BLUE.....TRIGGER_IN-
PIN 6- PURPLE.....COIN_EMPTY_O
PIN 7- GRAY.....TRIGGER_IN+
PIN 8- N/A
PIN 9- N/A
PIN 10- N/A

5-2. I/O Circuit

Hopper & Pulse Interface

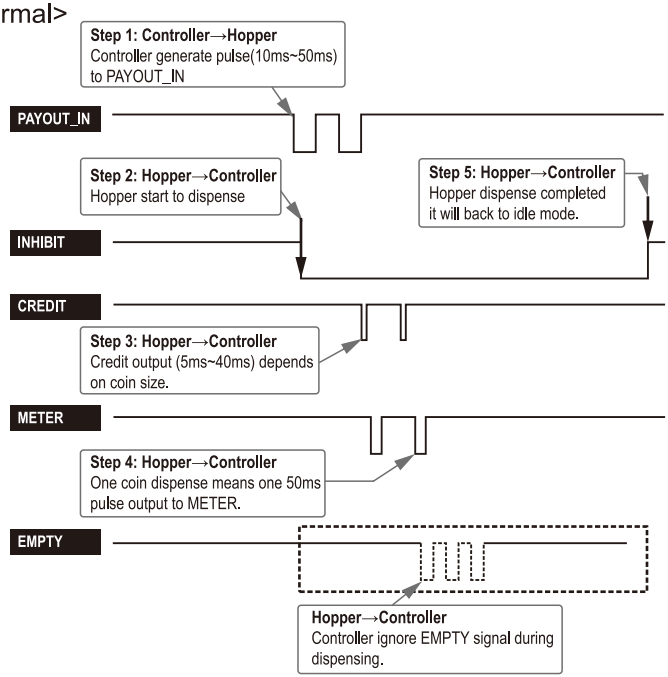






Pulse mode

<Normal>



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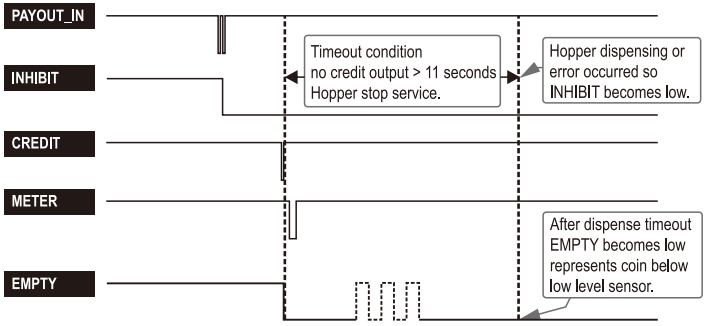
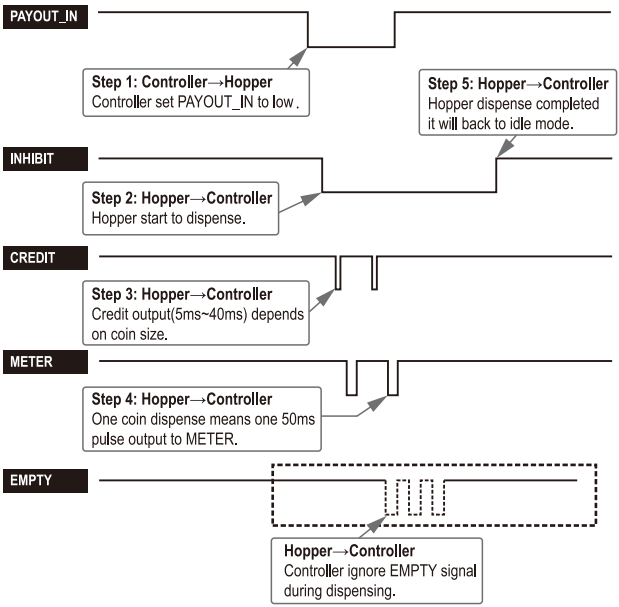
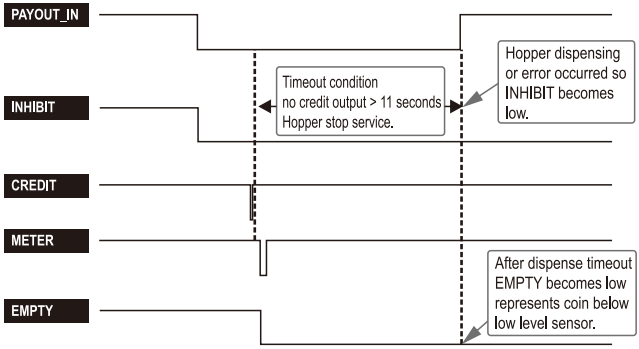


Hopper mode

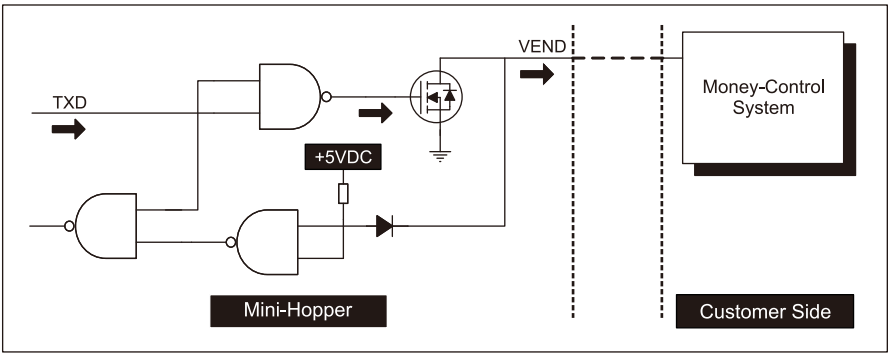
<Normal>

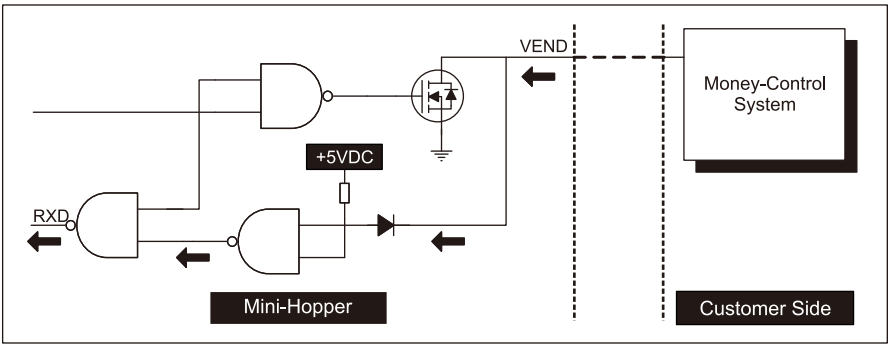


<Error>

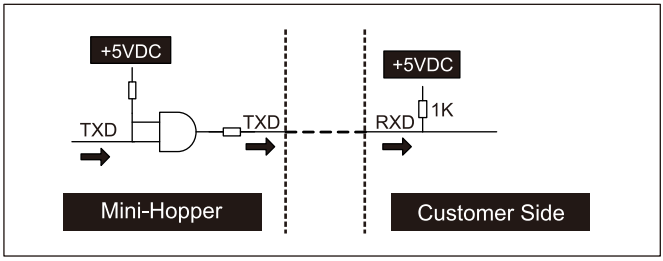


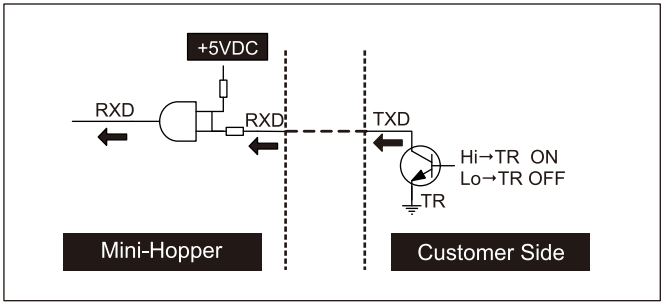
ccTalk Interface.





ICT-Protocol & Red Flag Interface.



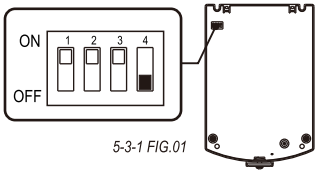


5-3. Mini Hopper With CPU Board

5-3-1. Mini Hopper Setup

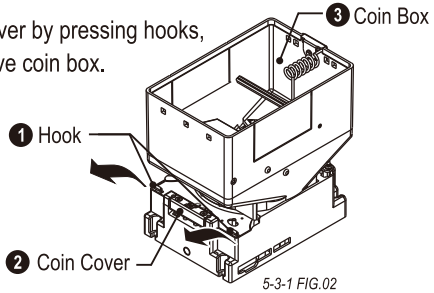
(1). For Hopper Mode, Pulse Mode, and ccTalk Mode:

A. Setup DIP Switches which are located at the bottom of Mini Hopper according to interface.
(Please refer to (P.21) 5-3-2. DIP Switch Setup.)



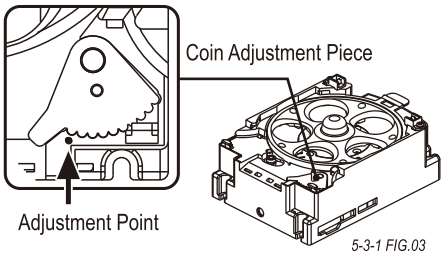
5-3-1 FIG.01

B. Remove the cover by pressing hooks, and then remove coin box.



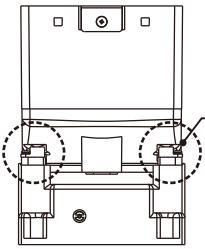
5-3-1 FIG.02

C. Adjust coin dimensions.
(Please refer to (P.28)5-5. Adjustment Coin Dimension Chart.)



5-3-1 FIG.03

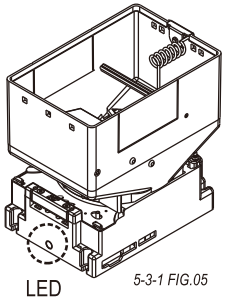
D. Fill coins in the coin box unit, the coins are higher than empty sensor.



5-3-1 FIG.04

E. Connect the cable to one side of Mini Hopper.
(Please refer to (P.24) 5-3-3. Connection.)

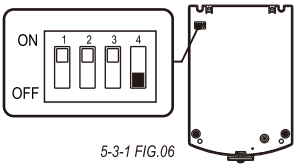
F. Apply power to Mini Hopper, if LED turns from orange to green, it indicates the machine is completed setup.



5-3-1 FIG.05

(2). For ICT Mode:

A. Setup DIP Switches which are located at the bottom of Mini Hopper according to interface. (Please refer to (P.21) 5-3-2. DIP Switch Setting)



5-3-1 FIG.06

B. Connect the cable to one side of Mini Hopper.
(Please refer to (P.24) 5-3-3. Connection.)

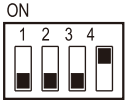
C. Download the software(Mini Hopper Tool Kit) from PC through download box (FP-001).

To purchase download box(FP-001) and cables for downloading, please contact ICT.
For software (Mini Hopper Tool Kit) downloading, please go on ICT *website: www.ictgroup.com.tw*

5-3-2. DIP Switch Setting

(1). For MH-XXX**C**X

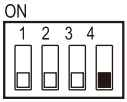
A. ccTalk setup:



Function	SW1	SW2	SW3	SW4
★ **Address 3**	OFF	OFF		ON
Address 4	ON	OFF		ON
Address 5	OFF	ON		ON
Address 6	ON	ON		ON
Restore Factory Password(0000)			ON	
System Password			OFF	

(★) Manufacture setting

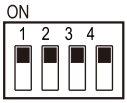
B. Hopper mode setup:



SW1	SW2	SW3	SW4
N/A	N/A	N/A	OFF

(2). For MH-XXX**G**X

A. ICT mode setup:



★

SW1	SW2	SW3	SW4
ON	**ON**	**ON**	**ON**

(★) Manufacture setting

Channel setting:

Channel	1	2	3	4	5	6	7	8
Ratio	1	2	5	10	0	0	0	0

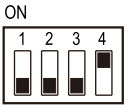
Channel	9	10	11	12	13	14	15	16
Ratio	0	0	0	0	0	0	0	0

Channel setting:
(behind factory number 16XXXXXXXXXX)

Channel	1	2	3	4	5	6	7	8
Ratio	1	2	3	4	5	6	7	8

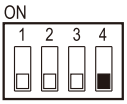
Channel	9	10	11	12	13	14	15	16
Ratio	9	10	500	0	0	0	0	0

B. Pulse mode setup:



Coins/Pulse	SW1	SW2	SW3	SW4
1/1	OFF	OFF	OFF	ON
2/1	ON	OFF	OFF	ON
4/1	OFF	ON	OFF	ON
5/1	ON	ON	OFF	ON
10/1	OFF	OFF	ON	ON
20/1	ON	OFF	ON	ON
50/1	OFF	ON	ON	ON

C. Hopper mode setup:

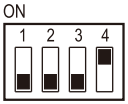


SW1	SW2	SW3	SW4
N/A	N/A	N/A	OFF

Please reset Mini Hopper every time after DIP switch setup.

(3). For MH-XXX**F**X

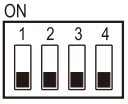
A. Red Flag setup:



Function	SW1	SW2	SW3	SW4
★ **Address 0 9600 baud E/8/1**	**OFF**	**OFF**	**OFF**	**ON**
Address 1 9600 baud E/8/1	ON	OFF	OFF	ON
Address 2 9600 baud E/8/1	OFF	ON	OFF	ON
Address 3 9600 baud E/8/1	ON	ON	OFF	ON
Address 0 19200 baud E/8/1	OFF	OFF	ON	ON
Address 1 19200 baud E/8/1	ON	OFF	ON	ON
Address 2 19200 baud E/8/1	OFF	ON	ON	ON
Address 3 19200 baud E/8/1	ON	ON	ON	ON

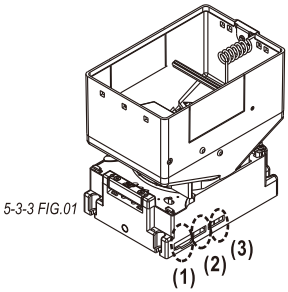
(★) Manufacture setting

B. Hopper mode setup:

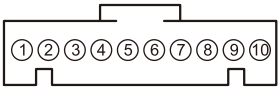


SW1	SW2	SW3	SW4
OFF	OFF	OFF	OFF

5-3-3. Connection



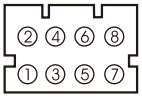
(1) ccTalk Interface Connecter



MOLEX 42375 10PIN

PIN 1- Address select 3
PIN 2- Address select 2
PIN 3- Address select 1
PIN 4- +12V/+24V DC
PIN 5- +12V/+24V DC
PIN 6- Ground
PIN 7- Ground
PIN 8- DATA
PIN 9- Reserved
PIN 10- Reset

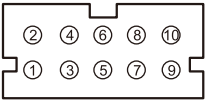
(2) Download and ICT Interface Connecter



TMT2*4

PIN 1- Ground
PIN 2- TXD2
PIN 3- RXD2
PIN 4- Program
PIN 5- /Reset
PIN 6- VCC
PIN 7- RXD1
PIN 8- TXD1

(3) Power and I/O Connecter (Hopper Mode or Pulse Mode)



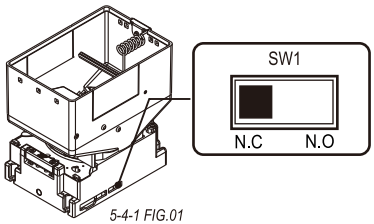
TMT2*5

PIN 1- +12V/+24V DC(Power)
PIN 2- Ground(Power)
PIN 3- CREDIT RELAY(N.O.)
PIN 4- CREDIT RELAY(Common)
PIN 5- PAYOUT_IN
PIN 6- COIN_EMPTY_O
PIN 7- METER_N.O
PIN 8- METER_COM
PIN 9- INHIBIT_N.O
PIN10- INHIBIT_COM

5-4. Mini Hopper Without CPU Board

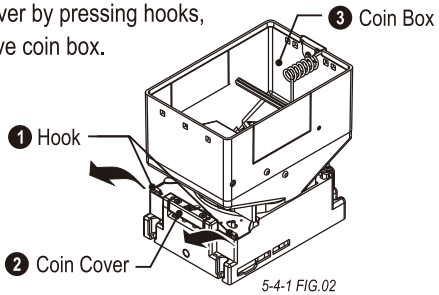
5-4-1. Mini Hopper Setup

A. Setup DIP Switches which are located at the bottom of Mini Hopper according to interface.
(Please refer to (P.27) 5-4-2. DIP Switch Setup.)



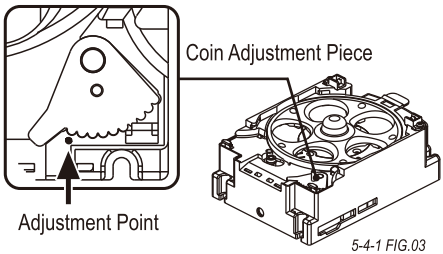
5-4-1 FIG.01

B. Remove the cover by pressing hooks, and then remove coin box.



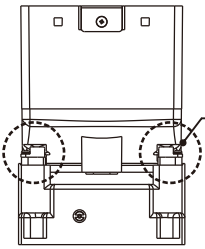
5-4-1 FIG.02

C. Adjust coin dimensions.
(Please refer to (P.28)5-5. Adjustment Coin Dimension Chart.)



5-4-1 FIG.03

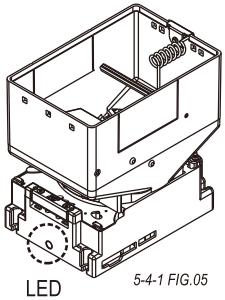
D. Fill coins in the coin box unit, the coins are higher than empty sensor.



5-41 FIG.04

E. Connect the cable to one side of Mini Hopper.
(Please refer to (P.27) 5-4-3. Connection.)

F. Apply power to Mini Hopper, if LED turns from orange to green, it indicates the machine is completed setup.



5-4-1 FIG.05

5-4-2. DIP Switch Setting

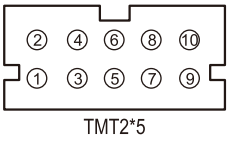
(1). For MH-XXX**H**X

A. Credit output function setup:

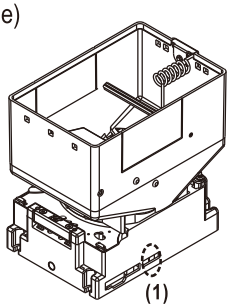
SW2
Normal Open
Normal Close

5-4-3. Connection

(1). Power and I/O Connecter (Hopper Mode)



TMT2*5

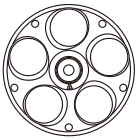
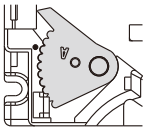
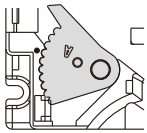
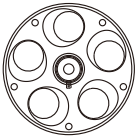
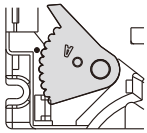
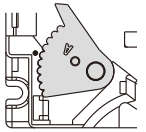
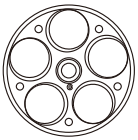
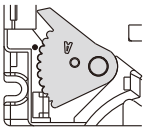
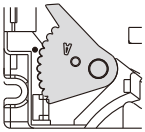
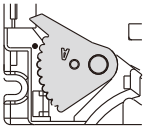


5-4-3 FIG.01

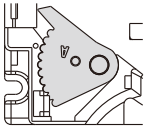
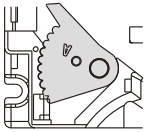
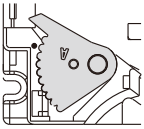
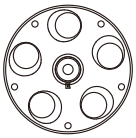
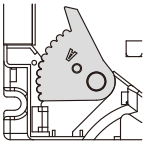
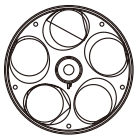
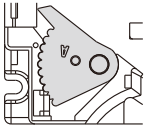
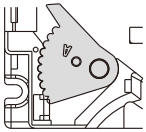
PIN 1- +12V/+24VDC (Power)
PIN 2- Ground (Power)
PIN 3- Credit Relay (N.O.)
PIN 4- Credit Relay (Common)
PIN 5- TRIGGER_IN-
PIN 6- Coin_Empty_Output (Normal Open Active Low)
PIN 7- TRIGGER_IN+
PIN 8- N/A
PIN 9- N/A
PIN 10- N/A

5-5. Adjustment coin dimension

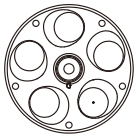
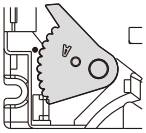
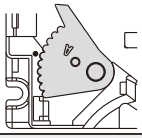
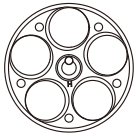
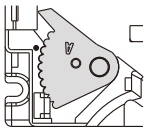
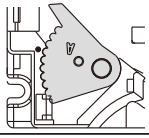
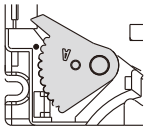
5-5 TABLE 01

Coin Payout Plate	Coin Payout Adjustment	Diameter	**22.5mm ≦ 28mm**
A	**C1607A-R**	thickness	**1.6mm ≦ 2.4mm**
 Part number **A25140-R**		Diameter	25.5mm ≦ 28mm
		thickness	1.6mm ≦ 2.4mm
		Diameter	22.5mm ≦ 25.5mm
		thickness	1.6mm ≦ 2.4mm
Coin Payout Plate	Coin Payout Adjustment	Diameter	**20mm ≦ 23mm**
B	**C1607A-R**	thickness	**1.6mm ≦ 2.2mm**
 Part number **A25920-R**		Diameter	22.5mm ≦ 23mm
		thickness	1.6mm ≦ 2.2mm
		Diameter	20mm ≦ 22.5mm
		thickness	1.6mm ≦ 2.2mm
Coin Payout Plate	Coin Payout Adjustment	Diameter	**23mm ≦ 30mm**
C	**C1607A-R**	thickness	**2.5mm ≦ 3.3mm**
 Part number **A26740-R**		Diameter	25.5mm ≦ 28mm
		thickness	2.5mm ≦ 3.3mm
		Diameter	23mm ≦ 25.5mm
		thickness	2.5mm ≦ 3.3mm
		Diameter	28mm ≦ 30mm
		thickness	2.5mm ≦ 3.3mm

5-5 TABLE 01-1

Coin Payout Plate	Coin Payout Adjustment	Diameter	**23mm ≦ 30mm**
D	**C1607A-R**	thickness	**1.6mm ≦ 2.4mm**
 Part number **A28730-R**		Diameter	25.5mm ≦ 28mm
		thickness	1.6mm ≦ 2.4mm
		Diameter	23mm ≦ 25.5mm
		thickness	1.6mm ≦ 2.4mm
		Diameter	28mm ≦ 30mm
		thickness	1.6mm ≦ 2.4mm
Coin Payout Plate	Coin Payout Adjustment	Diameter	**17.9mm ≦ 19.7mm**
E	**C1607A-R**	thickness	**1.3mm ≦ 1.8mm**
 Part number **A30750-R**		Diameter	17.9mm ≦ 19.7mm
		thickness	1.3mm ≦ 1.8mm
Coin Payout Plate	Coin Payout Adjustment	Diameter	**22.5mm ≦ 28mm**
F	**C1607A-R**	thickness	**1.0mm ≦ 1.5mm**
 Part number **A31150-R**		Diameter	25.5mm ≦ 28mm
		thickness	1.0mm ≦ 1.5mm
		Diameter	22.5mm ≦ 25.5mm
		thickness	1.0mm ≦ 1.5mm

5-5 TABLE 01-2

Coin Payout Plate	Coin Payout Adjustment	Diameter	**20mm ≦ 23mm**
G	**C1607A-R**	Thickness	**1.2mm ≦ 1.6mm**
 Part number **A43910-R**		Diameter	22.5mm ≦ 23mm
		Thickness	1.2mm ≦ 1.6mm
		Diameter	20mm ≦ 22.5mm
		Thickness	1.2mm ≦ 1.6mm
Coin Payout Plate	Coin Payout Adjustment	Diameter	**28mm ≦ 31mm**
H	**C1607A-R**	thickness	**2.0mm ≦ 2.8mm**
 Part number **A46300-R**		Diameter	25.5mm ≦ 28mm
		thickness	2.0mm ≦ 2.8mm
		Diameter	23mm ≦ 25.5mm
		thickness	2.0mm ≦ 2.8mm
		Diameter	28mm ≦ 31mm
		thickness	2.0mm ≦ 2.8mm

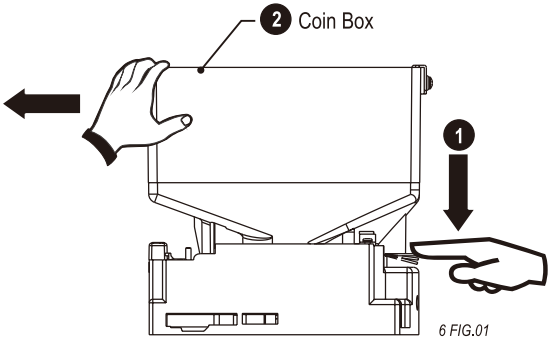
6. Maintenance

To make sure the Mini Hopper always works smoothly, we suggest you clean the internal parts of Mini Hopper regularly.

Please make sure Mini Hopper turnes OFF before cleaning.

To clean the internal parts:

1. Remove the coin box.
2. Use a dry, soft cloth, or brush to clean internal parts and coin path.
3. Use a dry, soft cloth, or towel to clean the coin box

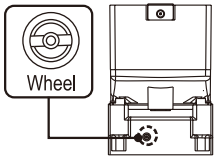


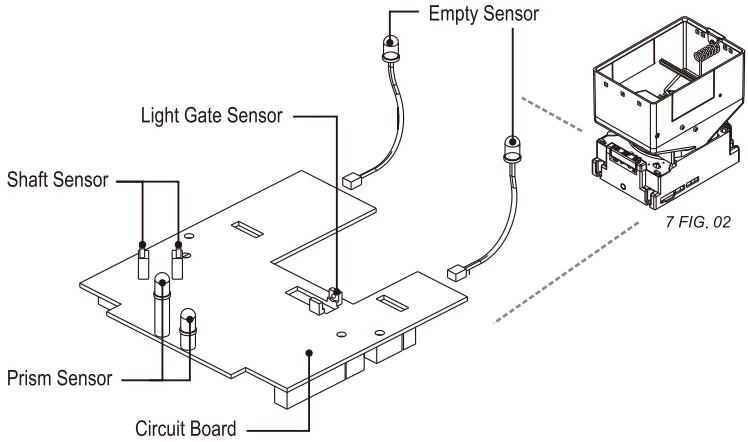
6 FIG.01

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

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

7. Troubleshooting

Flashes	Status	Corrective actions
1	1. Incorrect voltage 2. Coin jammed 3. Motor problem	1. Make sure the voltage is applied to Mini Hopper. 2. Clockwise turn the wheel which is in the back of Mini Hopper to remove the jammed coin and check the shaft-block.  7 FIG.01
2	Insufficient coins	Refill coins or Rester hopper.
3	Double count detect	1. Re-adjust coin size and shaft. 2. Check the control signal refer to 5-2(P13). (After last credit signal output then PAYOUT_IN signal must stop in 12ms other wise may cause coin leak out.)
5	Prism sensor error	Inspect for foreign objects on prism sensor or jammed coins. (as 7 FIG.02)
6	Shaft sensor error	



7 FIG. 02

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

♦ ccTalk Information

Manufacturer ID: ICT

Equipment Category ID: Payout

Product Code: MH-125/ 245

Build Code: Standard

Serial Number: Default as 1 2 3 4 5 6 7 8

Software Revision: Software Revision label locates in the bottom of Mini Hopper.

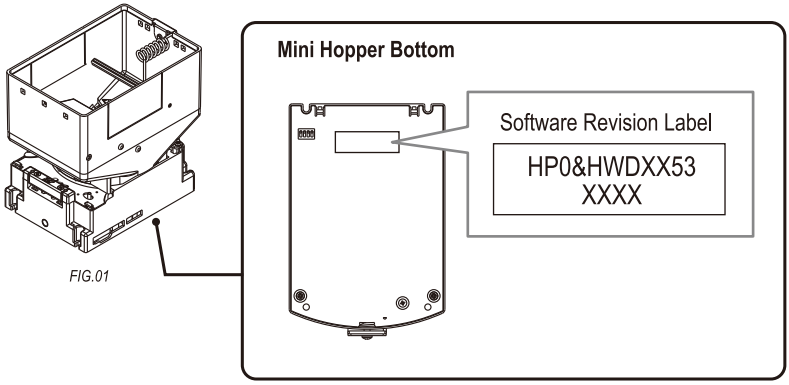


FIG.01

Please contact ICT for more information.

ICT Taiwan

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Website: www.ictgroup.com.tw

V. 20.0 Part Number: H4690S-R