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Enhance Mini Hopper

# EMH

Installation Guide



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## ◆ Appendix\_ccTalk Information

## **1. Introduction**

### **1-1. Overview**

Enhance Mini Hopper(EMH) 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 Enhance Mini Hopper is easy-operated, trouble-free, and high reliability.

### **1-2. Features**

- Easy maintenance.
- Easy installation.
- Coin size adjustable.
- Reset & Coin empty button.
- Support USB firmware upgrade.
- Dual sensors, double protections.
- Advanced coin low level detection.
- Compact design with enormous capacity.

## 2. Specifications

### *General*

<b>Dispensing Speed</b>	6~7 coins/second
<b>Interface</b>	Pulse ICT MDB Hopper ccTalk Red Flag
<b>Counting Method</b>	Dual sensors

### *Electrical*

<b>Power Source</b>	12V DC~24V DC 20V DC~45V DC (MDB mode)
<b>Power Consumption</b>	12V DC: Standby: 0.1A, 1.2W 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 34V DC: Standby: 0.05A, 1.7W Not loaded: 0.45A, 15.3W Maximum: 1.75A, 60W
<b>Operation Environment</b>	Operation Temperature: 5°C~50°C Storage Temperature: -30°C~70°C Humidity: 30%~85%RH (no condensation)

## ***Mechanical***

<b>Coin Capacity</b>	Approx. 500 coins
<b>Weight</b>	Approx. 0.8kg
<b>Accessories(Optional)</b>	Extensions: 500 coins, Max. one extension.
<b>Installation</b>	Indoor

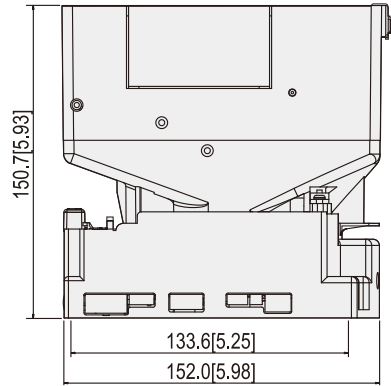
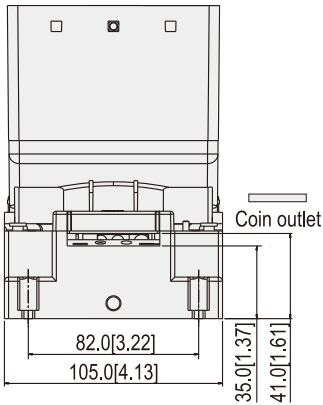
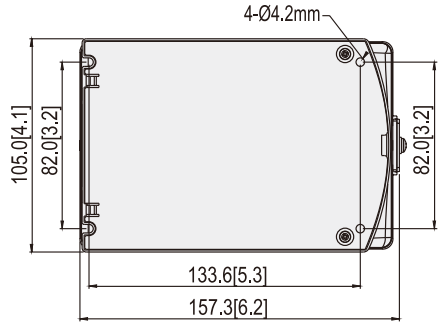
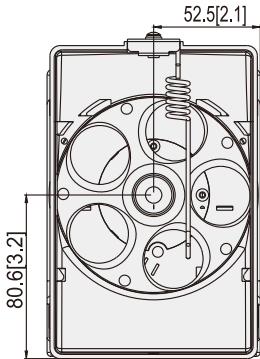
## ***Applicable Coin Size***

<b>A TYPE</b> ( Diameter ) 22.5mm~28mm ( Thickness ) 1.6mm~2.4mm	<b>E TYPE</b> ( Diameter ) 17.9mm~19.7mm ( Thickness ) 1.3mm~1.8mm
<b>B TYPE</b> ( Diameter ) 20mm~23mm ( Thickness ) 1.6mm~2.2mm	<b>F TYPE</b> ( Diameter ) 22.5mm~28mm ( Thickness ) 1.0mm~1.5mm
<b>C TYPE</b> ( Diameter ) 23mm~30mm ( Thickness ) 2.5mm~3.3mm	<b>G TYPE</b> ( Diameter ) 20mm~23mm ( Thickness ) 1.2mm~1.6mm
<b>D TYPE</b> ( Diameter ) 23mm~30mm ( Thickness ) 1.6mm~2.4mm	<b>H TYPE</b> ( Diameter ) 28mm~31mm ( Thickness ) 2.0mm~2.8mm

## **3. Packing List**

<b>Main</b>	Enhance Mini Hopper
<b>Accessory</b>	Harness: Refer to 5-1 Enhance Mini Hopper Installation Guide

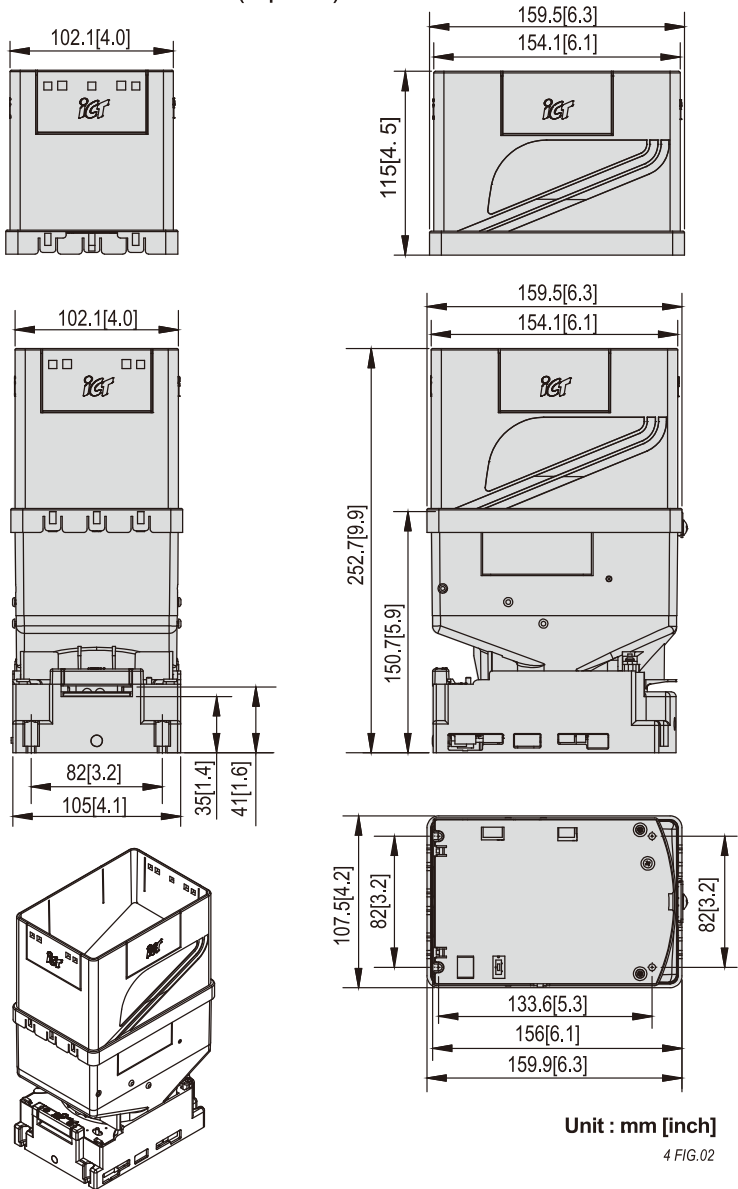
## 4. Dimension



Unit : mm [inch]

4 FIG.01

## Extensions: 500 coins (Option)



## 5. Installation

### 5-1. Harness Application

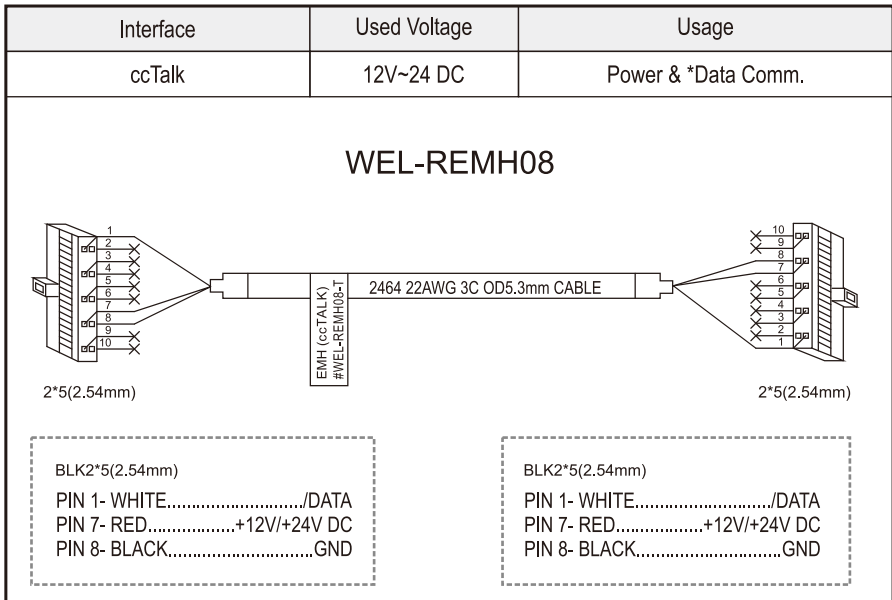
5-1 TABLE 01

Interface	Used Voltage	Usage	Harness	Page
ccTalk	12V~24V DC	Power & *Data Comm.	WEL-REMH08	7
Hopper Mode		Power & *Data Comm.	WEL-RHP17	8
Pulse Mode		Power & *Data Comm.		
ICT Mode		*Data Comm.	WEL-R7U06-2 or 2-BA-R7U06	9
Red Flag		*Data Comm.		
MDB	20V~45V DC	Power & *Data Comm.	WEL-REMH01	10
**ICT Mode	N/A	*Data Comm.	WEL-REMH11	10

\*Data Comm. : Data Communication.

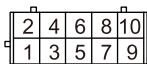
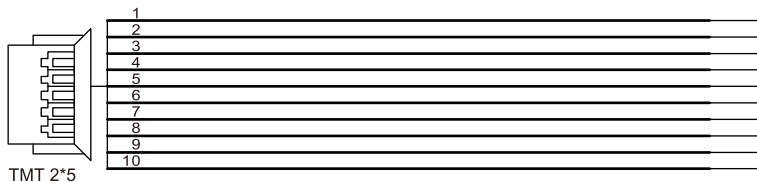
\*\*Only for EMH to UCA2 communication use,by option.

5-1 FIG.01



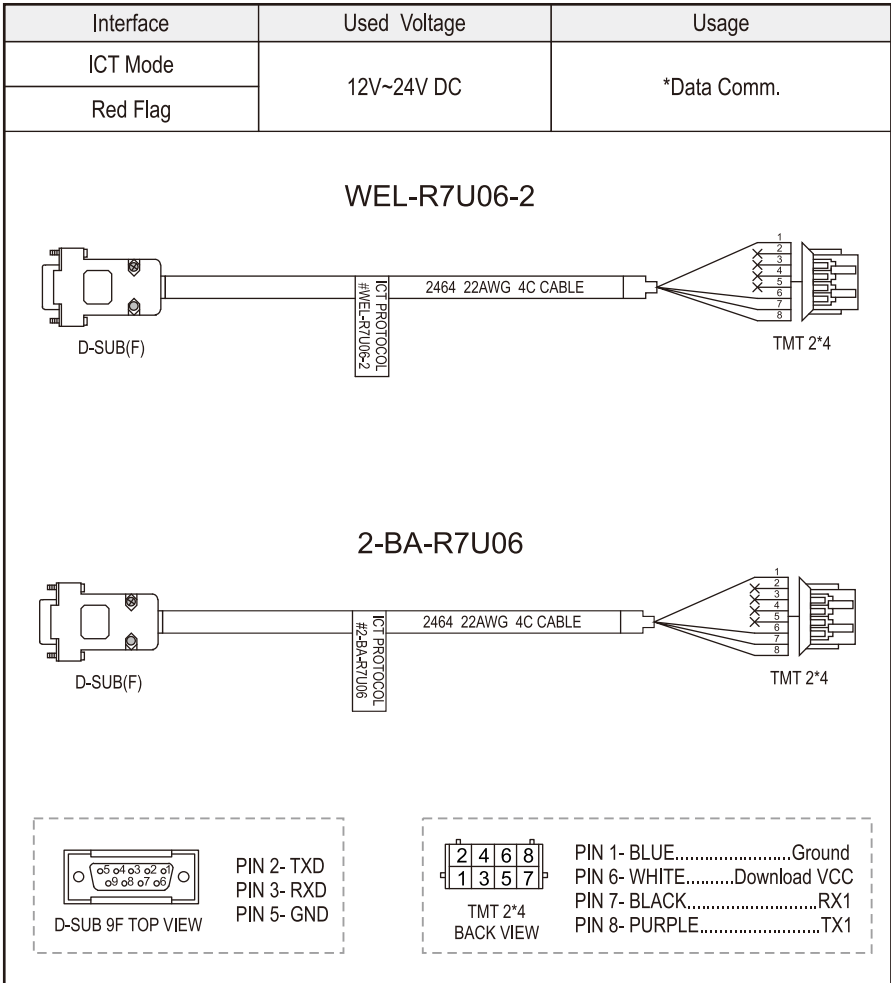
Interface	Used Voltage	Usage
Hopper Mode	12V~24V DC	Power & *Data Comm.
Pulse Mode		

## WEL-RHP17

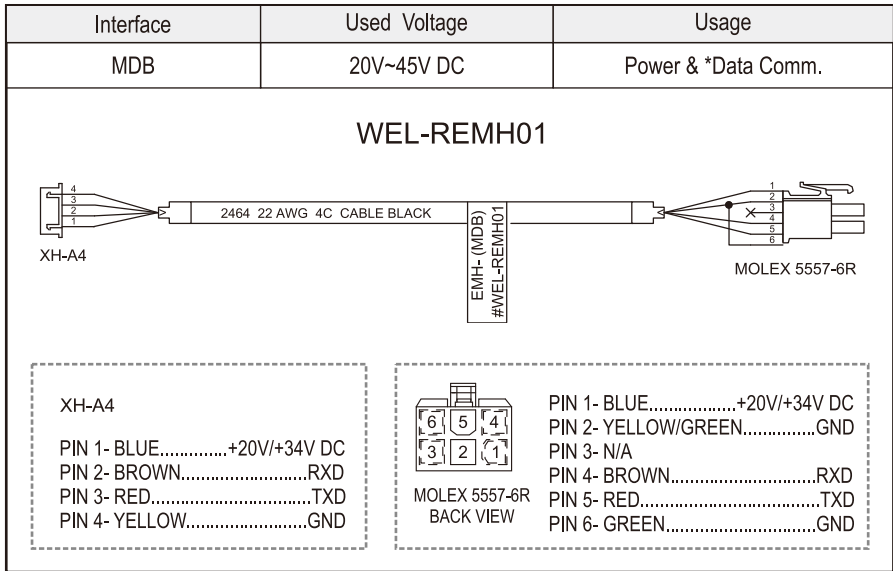


TMT 2\*5 BACK VIEW

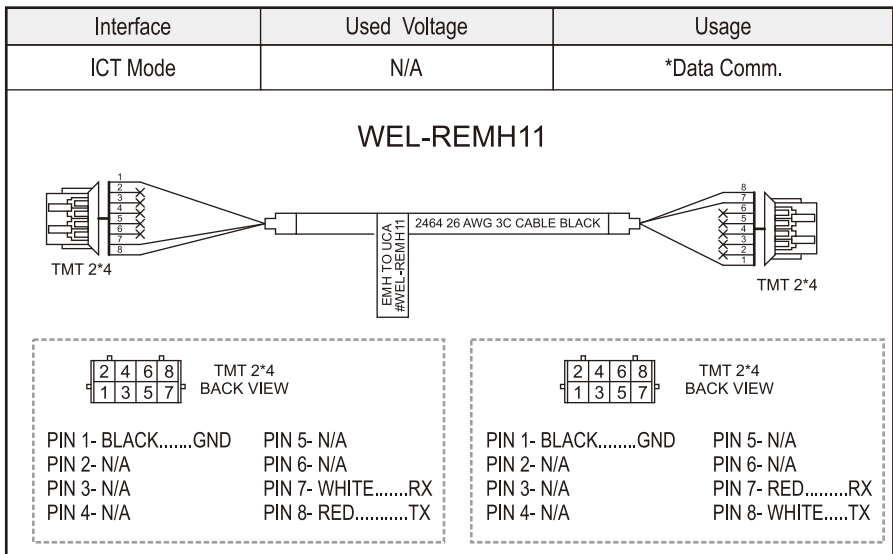
- |                                       |                                |
|---------------------------------------|--------------------------------|
| PIN 1- RED.....+12V/+24V DC (Power)   | PIN 6- PURPLE.....COIN_EMPTY_O |
| PIN 2- BLACK.....Ground(Power)        | PIN 7- GRAY.....METER_N_O      |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



5-1 FIG.04



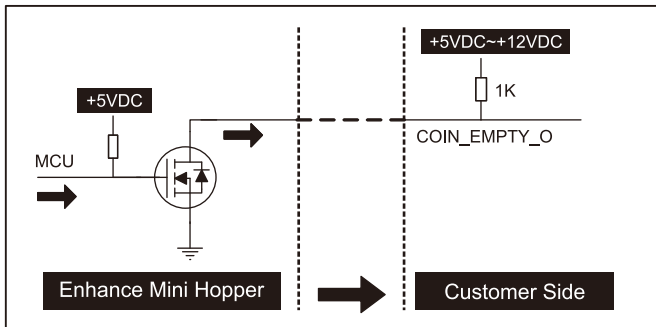
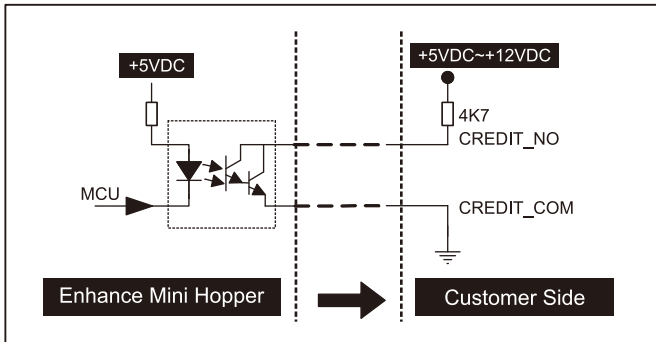
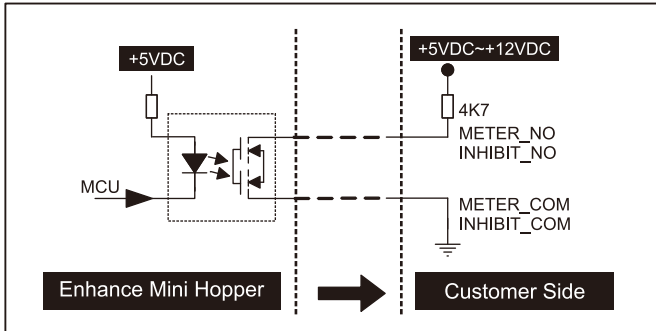
5-1 FIG.05



## 5-2. I/O Circuit

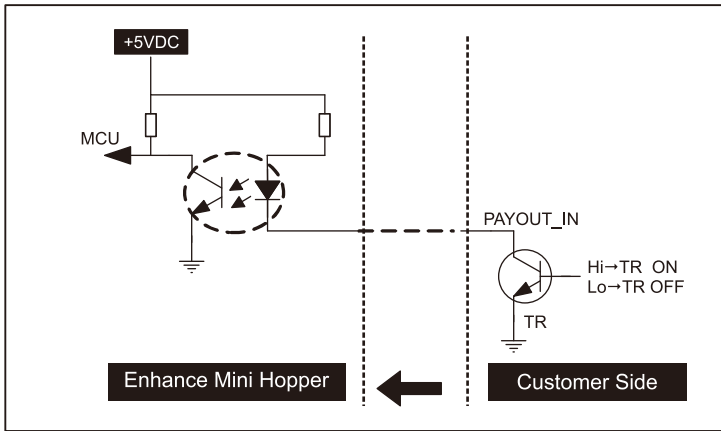
### Hopper & Pulse Interface-1.

5-2 FIG.01



### Hopper & Pulse Interface-2.

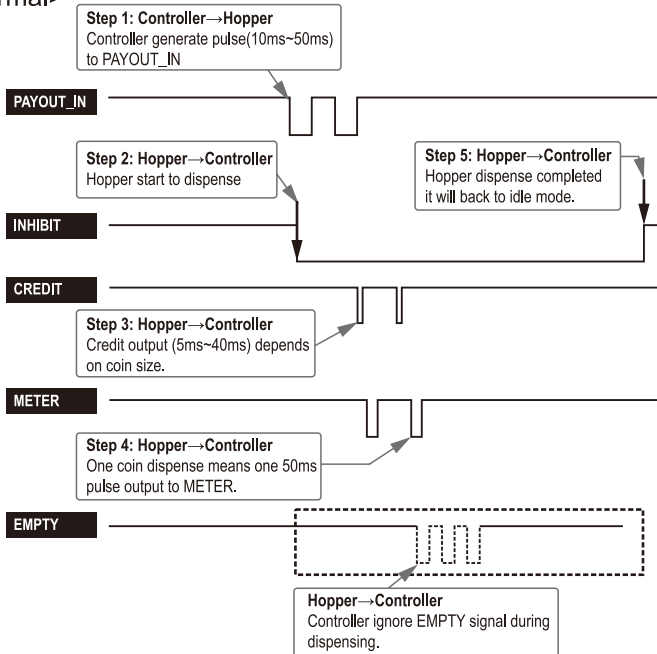
5-2 FIG.01-1



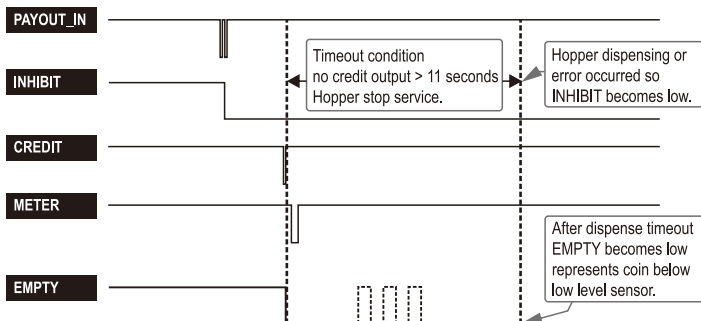
## Pulse mode

5-2 FIG.01-2

### <Normal>



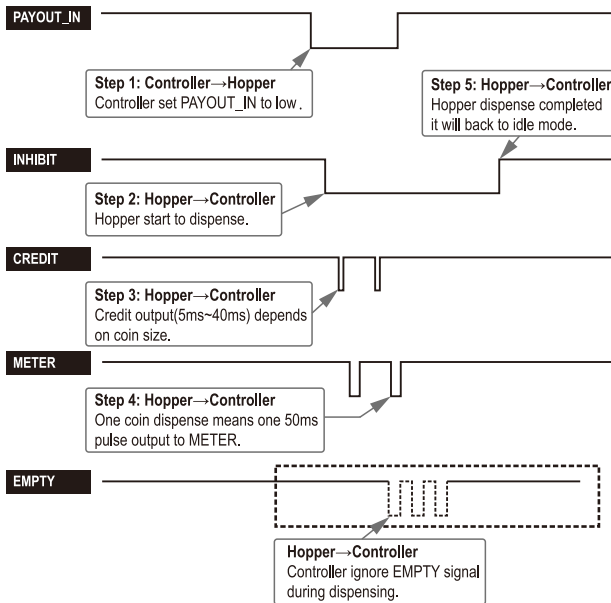
### <Error>



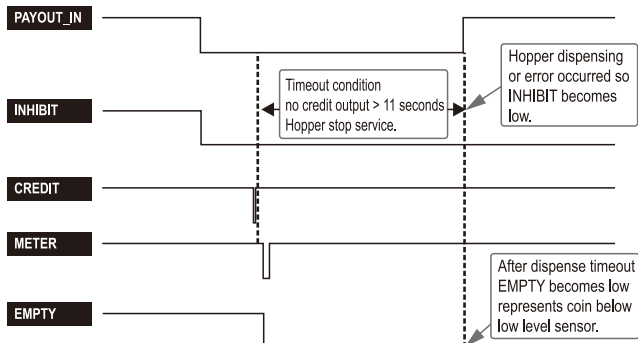
## Hopper mode

5-2 FIG.01-3

### <Normal>

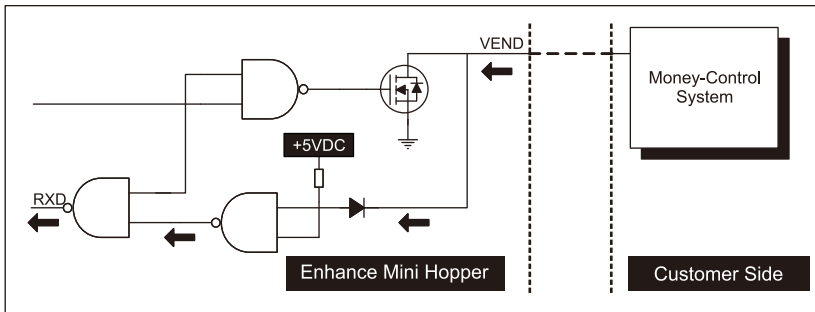
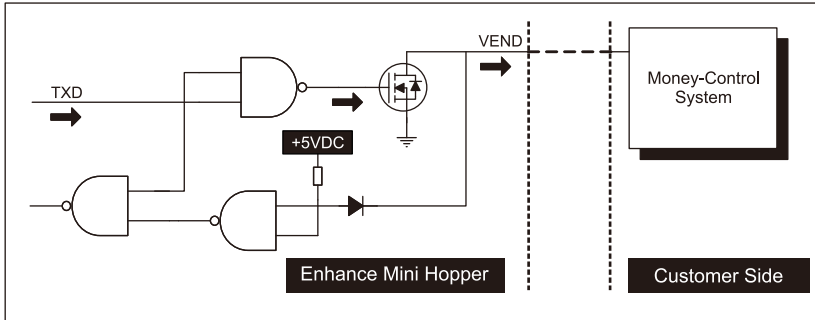


### <Error>



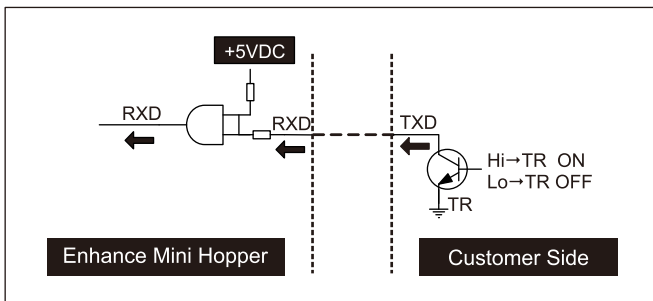
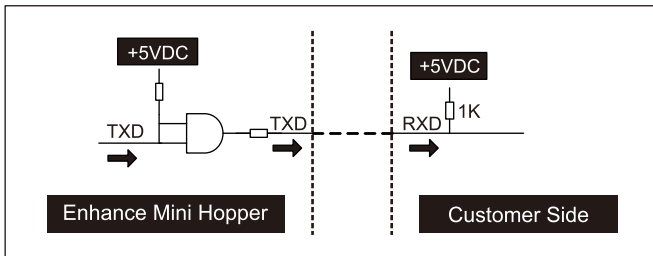
## ccTalk Interface.

5-2 FIG.02



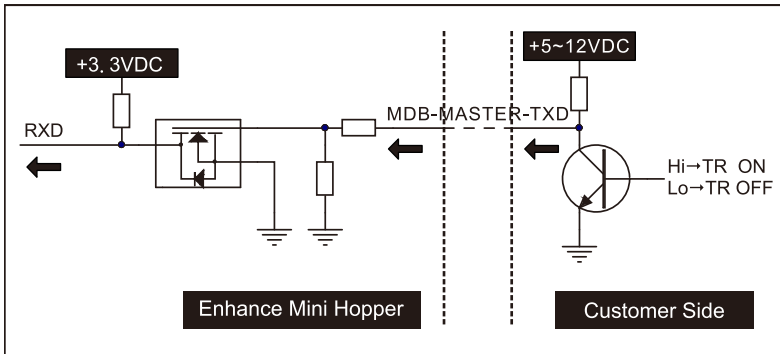
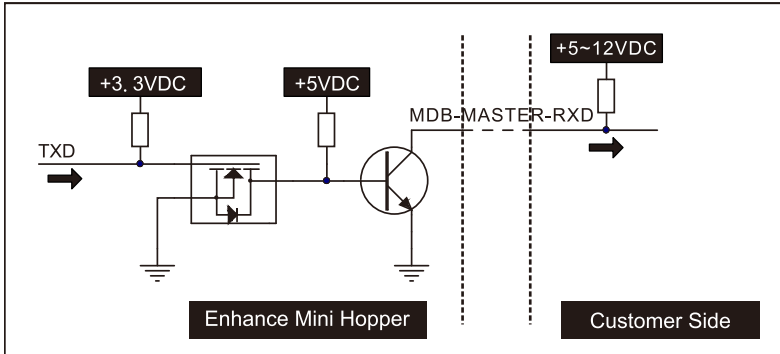
## ICT-Protocol & Red Flag Interface.

5-2 FIG.03



MDB Interface.

5-2 FIG.04

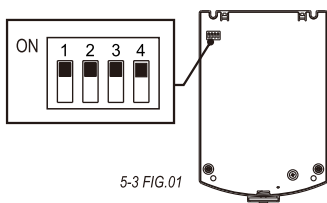


## 5-3. Enhance Mini Hopper With CPU board

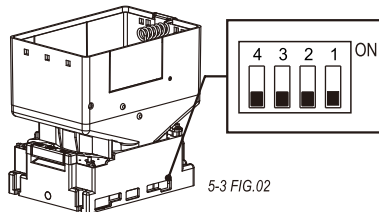
(1). For Hopper Mode, Pulse Mode, and ccTalk Mode Setup:

A. Two dip switches are located as (5-3 FIG.01) the bottom, and as (5-3 FIG.02) the sides of Enhance Mini Hopper.

(Please refer to (P.21)5-4. DIP Switch Setup)



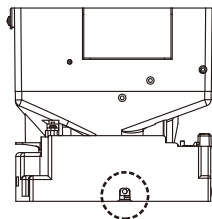
5-3 FIG.01



5-3 FIG.02

B. Reset & Coin Empty Function.

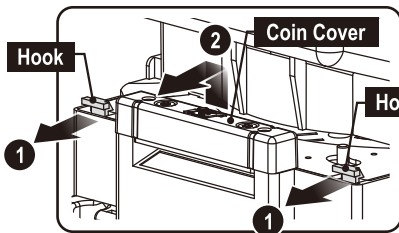
1. Press 3 times to empty all the coins.
2. Hold the button for 2 seconds the hopper will reset.



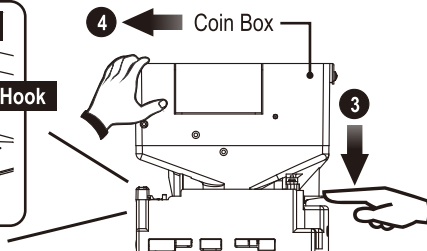
5-3 FIG.03

Reset & Coin Empty button.

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



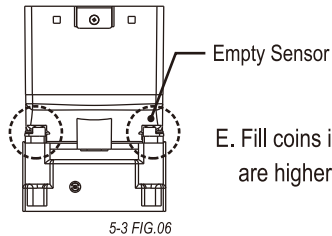
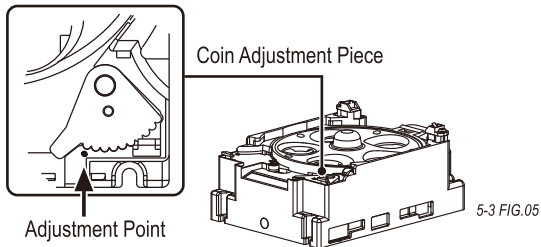
5-3 FIG.04



5-3 FIG.04-1

D. Adjust coin dimensions.

(Please refer to (P.29) 5-9. Adjustment Coin Dimension Chart)

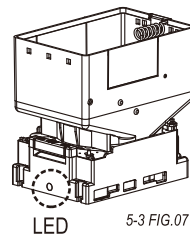


E. Fill coins in the coin box unit, the coins are higher than empty sensor.

F. Connect the cable to one side of Enhance Mini Hopper.

(Please refer to (P.26) 5-5. Connection.)

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



(2). For ICT Mode:

- A. Setup DIP Switches which are located at the bottom of Enhance Mini Hopper (as 5-3 FIG.01) according to interface.  
(Please refer to (P.21) 5-4. DIP Switch Setting)
  
- B. Connect the cable to one side of Enhance Mini Hopper .  
(Please refer to (P.26) 5-5. Connection.)
  
- C. Download the software (Mini Hopper Tool Kit) from PC through download box (FP-001).



For software (Mini Hopper Tool Kit) downloading,  
please go on ICT [website: www.ictgroup.com.tw](http://www.ictgroup.com.tw)

## 5-4. DIP Switch Setting

### (1). ccTalk mode setup:

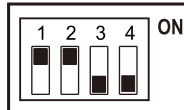
Right side DIP SW: (Setup Address)

5-4 TABLE 01

Function	Setting
★ Address 3	
Address 4	
Address 5	
Address 6	

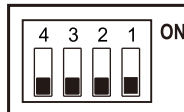
(★) Manufacture setting

Bottom side DIP SW:  
(ccTalk mode)

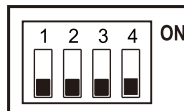


### (2). Hopper mode setup:

Right side DIP SW:

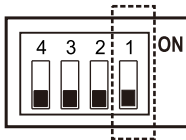


Bottom side DIP SW:  
(Hopper mode)



### (3). ICT mode setup:

Right side DIP SW:

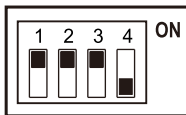


DIP1 ★ **OFF = 9600/E/8/1**  
**ON = 9600/N/8/1**

(★) Manufacture setting

Note. To prevent incorrect or excessive coin dispensing, set the baud rate to **(9600/E/8/1)** and **SW1 to OFF**. ICT is not responsible for improper settings.

Bottom side DIP SW:  
 (ICT mode)



Default channel setting:

5-4 TABLE 02

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

5-4 TABLE 02-1



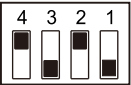
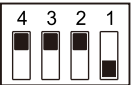



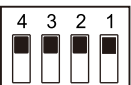
Channel	9	10	11	12	13	14	15	16
Ratio	9	10	500	0	0	0	0	0

 **Please reset EMH every time after DIP switch setup.**

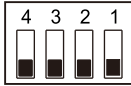
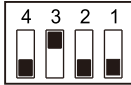
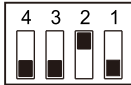
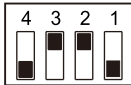



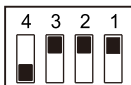
(4). Red Flag mode setup

Right side DIP SW: (baud rate)

5-4 TABLE 03

Function	Setting
Address 0 9600 baud N/8/1	 ON
Address 1 9600 baud N/8/1	 ON
Address 2 9600 baud N/8/1	 ON
Address 3 9600 baud N/8/1	 ON
Address 0 19200 baud N/8/1	 ON
Address 1 19200 baud N/8/1	 ON
Address 2 19200 baud N/8/1	 ON
Address 3 19200 baud N/8/1	 ON

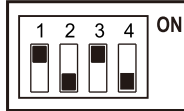
5-4 TABLE 03-1

Function	Setting
★ Address 0 9600 baud E/8/1	 ON
Address 1 9600 baud E/8/1	 ON
Address 2 9600 baud E/8/1	 ON
Address 3 9600 baud E/8/1	 ON
Address 0 19200 baud E/8/1	 ON
Address 1 19200 baud E/8/1	 ON
Address 2 19200 baud E/8/1	 ON
Address 3 19200 baud E/8/1	 ON

(★) Manufacture setting

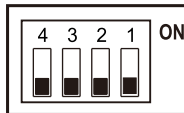
## (4). Red Flag mode setup

Bottom side DIP SW:  
(Red Flag mode)



## (5). MDB mode setup:

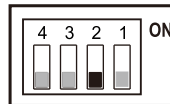
Right side DIP SW:  
(Address)



### SW2

**ON** : The hopper will ignore the low level sensor and reply to VMC the inventory is full, even if the inventory of coin is low.

**OFF**: The hopper will work with the low level sensor and reply to VMC the inventory of coin.  
(Please refer to 5-4 TABLE 04)

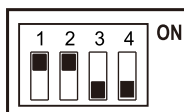


Right side DIP SW2 will reply inventory reference

5-4 TABLE 04






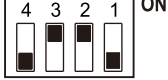

Hopper inventory	Dipswitch #2 = ON, reply inventory(coin)	Dipswitch #2 = OFF, reply inventory(coin)
Higher then low level sensor reply inventory	255	255
Lower then low level sensor reply inventory	255	20
When insufficient of coins or run into any error	0	0

Bottom side DIP SW:  
(MDB mode)



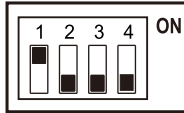
## (6). Pulse mode setup

Right side DIP SW: (baud rate)

5-4 TABLE 05		5-4 TABLE 05-1	
Function	Setting	Function	Setting
★ 1 Coin 1 Pulse		10 Coin 1 Pulse	
2 Coin 1 Pulse		20 Coin 1 Pulse	
4 Coin 1 Pulse		50 Coin 1 Pulse	
5 Coin 1 Pulse			

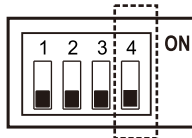
(★) Manufacture setting

Bottom side DIP SW:  
(Pulse mode)



## (7). Enable/Disable button function:

Bottom side DIP SW:



DIP4 ★ OFF = Enable button function  
ON = Disable button function

(★) Manufacture setting

## 5-5. Connection

### (1) ccTalk Interface Connector

PIN 1- /DATA  
 PIN 7- +12V/+24V DC  
 PIN 8- GND

### (2) MDB Interface Connector

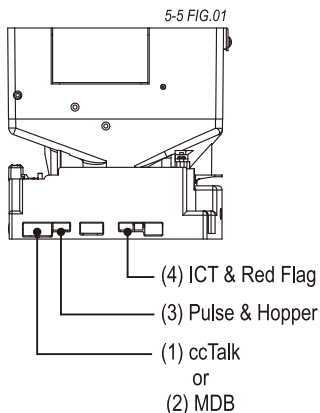
PIN 1- +20V/+34V DC  
 PIN 2- RXD  
 PIN 3- TXD  
 PIN 4- GND

### (3) Pulse & Hopper Interface Connector

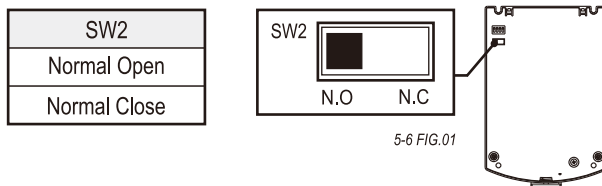
PIN 1- +12V/+24V DC (Power)	PIN 6- COIN_EMPTY_O
PIN 2- Ground(Power)	PIN 7- METER_N.O
PIN 3- CREDIT RELAY(N.O.)	PIN 8- METER_COM
PIN 4- CREDIT RELAY(Common)	PIN 9- INHIBIT_N.O
PIN 5- PAYOUT_IN	PIN 10- INHIBIT_COM

### (4) ICT & Red Flag Interface Connector

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



## 5-6. Credit output function setup



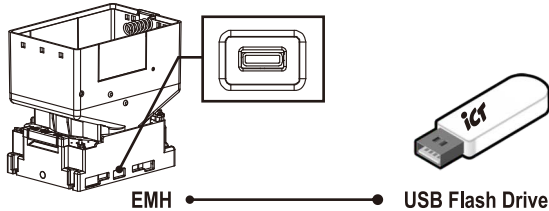
## 5-7. Download and Upgrade by USB

Step 1. Connect USB Flash Drive to PC at first. Copy software files into flash drive.

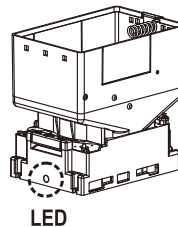
For example: EMH##S0004I0003#####(V1.03\_77ED).bin.



Step 2. Insert USB Flash drive to Enhance Mini Hopper, then restart Enhance Mini Hopper.



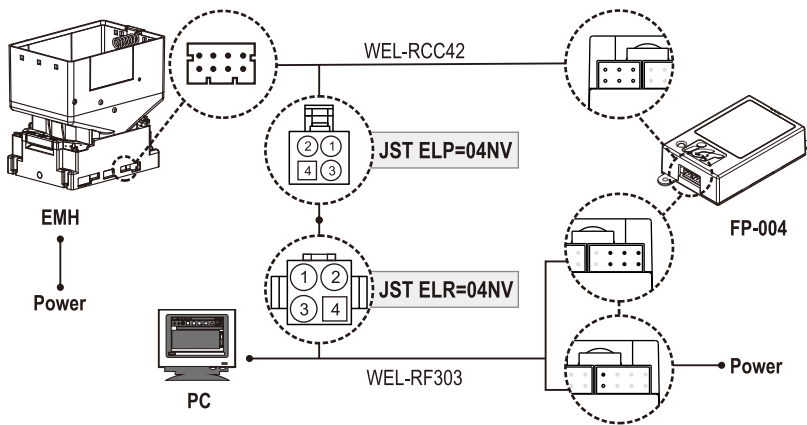
Step 3. Hopper starts upgrade automatically and indicator flashes red. After upgrade finished Indicator flashes red twice.




Step 4. Remove USB Flash Drive and restart hopper to apply setting.

## 5-8. Download and Upgrade by FP-004

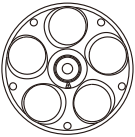
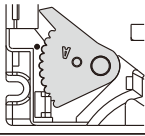
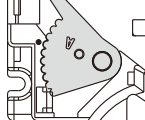
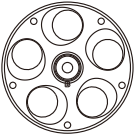
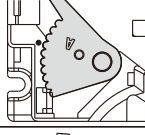
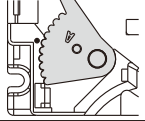
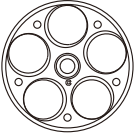
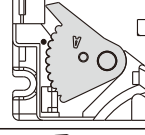
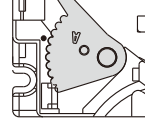
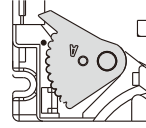
To download and upgrade the software to Enhance Mini Hopper, the programmer (FP-004) is needed. Please contact ICT to purchase FP-004 and refer to FP-004 user guide for software download and upgrade information.




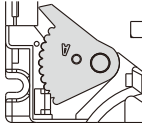
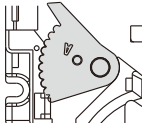
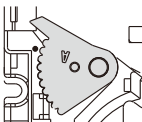
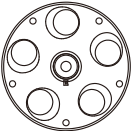
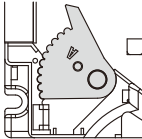

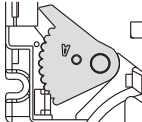
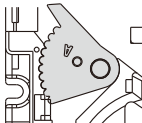
 Power must be applied to EMH **after** connecting.

### 5-9. Adjustment coin dimension

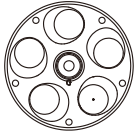
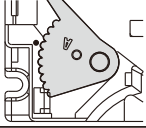
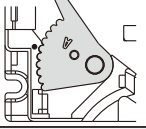
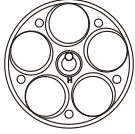
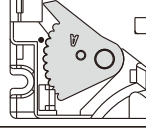
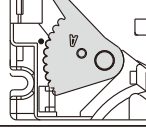
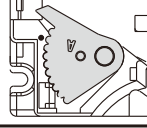
5-9 TABLE 01

Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>22.5mm</b> ≒ <b>28mm</b>		
<b>A</b>	<b>C1607A-R</b>	thickness	<b>1.6mm</b> ≒ <b>2.4mm</b>		
 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Part number</td> </tr> <tr> <td><b>A25140-R</b></td> </tr> </table>	Part number	<b>A25140-R</b>		Diameter	25.5mm ≒ 28mm
	Part number				
	<b>A25140-R</b>				
	thickness	1.6mm ≒ 2.4mm			
	Diameter	22.5mm ≒ 25.5mm			
	thickness	1.6mm ≒ 2.4mm			
Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>20mm</b> ≒ <b>23mm</b>		
<b>B</b>	<b>C1607A-R</b>	thickness	<b>1.6mm</b> ≒ <b>2.2mm</b>		
 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Part number</td> </tr> <tr> <td><b>A25920-R</b></td> </tr> </table>	Part number	<b>A25920-R</b>		Diameter	22.5mm ≒ 23mm
	Part number				
	<b>A25920-R</b>				
	thickness	1.6mm ≒ 2.2mm			
	Diameter	20mm ≒ 22.5mm			
	thickness	1.6mm ≒ 2.2mm			
Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>23mm</b> ≒ <b>30mm</b>		
<b>C</b>	<b>C1607A-R</b>	thickness	<b>2.5mm</b> ≒ <b>3.3mm</b>		
 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Part number</td> </tr> <tr> <td><b>A26740-R</b></td> </tr> </table>	Part number	<b>A26740-R</b>		Diameter	25.5mm ≒ 28mm
	Part number				
	<b>A26740-R</b>				
	thickness	2.5mm ≒ 3.3mm			
		Diameter	23mm ≒ 25.5mm		
		thickness	2.5mm ≒ 3.3mm		
	Diameter	28mm ≒ 30mm			
	thickness	2.5mm ≒ 3.3mm			

5-9 TABLE 01-1

Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>23mm</b> $\leq$ <b>30mm</b>		
<b>D</b>	<b>C1607A-R</b>	thickness	<b>1.6mm</b> $\leq$ <b>2.4mm</b>		
		Diameter	25.5mm $\leq$ 28mm		
		thickness	1.6mm $\leq$ 2.4mm		
		Diameter	23mm $\leq$ 25.5mm		
		thickness	1.6mm $\leq$ 2.4mm		
		Diameter	28mm $\leq$ 30mm		
		thickness	1.6mm $\leq$ 2.4mm		
<table border="1"> <tr> <td>Part number</td> </tr> <tr> <td><b>A28730-R</b></td> </tr> </table>	Part number	<b>A28730-R</b>			
Part number					
<b>A28730-R</b>					
Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>17.9mm</b> $\leq$ <b>19.7mm</b>		
<b>E</b>	<b>C1607A-R</b>	thickness	<b>1.3mm</b> $\leq$ <b>1.8mm</b>		
		Diameter	17.9mm $\leq$ 19.7mm		
		thickness	1.3mm $\leq$ 1.8mm		
	<table border="1"> <tr> <td>Part number</td> </tr> <tr> <td><b>A30750-R</b></td> </tr> </table>	Part number	<b>A30750-R</b>		
Part number					
<b>A30750-R</b>					
Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>22.5mm</b> $\leq$ <b>28mm</b>		
<b>F</b>	<b>C1607A-R</b>	thickness	<b>1.0mm</b> $\leq$ <b>1.5mm</b>		
		Diameter	25.5mm $\leq$ 28mm		
		thickness	1.0mm $\leq$ 1.5mm		
		Diameter	22.5mm $\leq$ 25.5mm		
		thickness	1.0mm $\leq$ 1.5mm		
<table border="1"> <tr> <td>Part number</td> </tr> <tr> <td><b>A31150-R</b></td> </tr> </table>	Part number	<b>A31150-R</b>			
Part number					
<b>A31150-R</b>					

5-9 TABLE 01-2

Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>20mm</b> ≤ <b>23mm</b>		
<b>G</b>	<b>C1607A-R</b>	Thickness	<b>1.2mm</b> ≤ <b>1.6mm</b>		
 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Part number</td> </tr> <tr> <td><b>A43910-R</b></td> </tr> </table>	Part number	<b>A43910-R</b>		Diameter	22.5mm ≤ 23mm
	Part number				
	<b>A43910-R</b>				
	Thickness	1.2mm ≤ 1.6mm			
		Diameter	20mm ≤ 22.5mm		
		Thickness	1.2mm ≤ 1.6mm		
Coin Payout Plate	Coin Payout Adjustment	Diameter	<b>28mm</b> ≤ <b>31mm</b>		
<b>H</b>	<b>C1607A-R</b>	thickness	<b>2.0mm</b> ≤ <b>2.8mm</b>		
 <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Part number</td> </tr> <tr> <td><b>A46300-R</b></td> </tr> </table>	Part number	<b>A46300-R</b>		Diameter	25.5mm ≤ 28mm
	Part number				
	<b>A46300-R</b>				
	thickness	2.0mm ≤ 2.8mm			
			Diameter	23mm ≤ 25.5mm	
			thickness	2.0mm ≤ 2.8mm	
		Diameter	28mm ≤ 31mm		
		thickness	2.0mm ≤ 2.8mm		

## 6. Maintenance

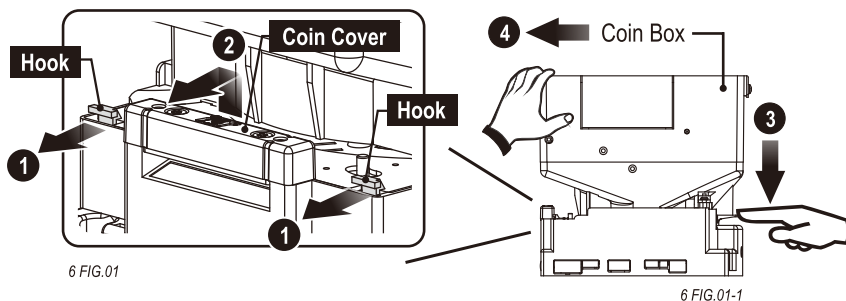
To make sure the Enhance Mini Hopper always works smoothly, we suggest you clean the internal parts of Enhance Mini Hopper regularly.




**Please make sure Enhance Mini Hopper turns 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



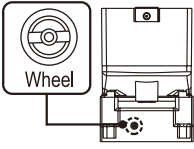


**Maintenance Notice**  
*(Any improper maintenance will result invalid warranty.)*

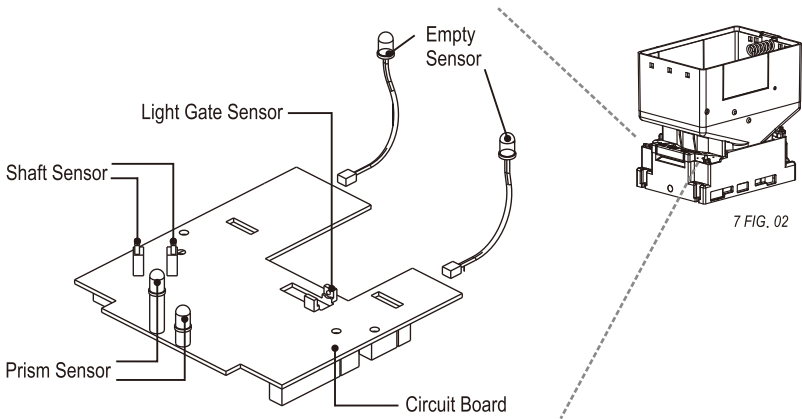
<b>Recommended</b>	<b>Mild, non-abrasive, soap water.</b>
<b>DO NOT USE</b>	<b>Organic solvent , Alcohol, Volatile liquid.</b>

## 7. Troubleshooting

7 TABLE 01

Flashes	Status	Corrective actions
1	1. Incorrect voltage 2. Coin jammed 3. Motor problem	1. Make sure the voltage is applied to EMH. 2. Clockwise turn the wheel which is in the back of EMH to remove the jammed coin and check the shaft-block.
		 <p>7 FIG. 01</p>
2	Insufficient coins	Refill coins or Rester hopper
3	Double count detect	Re-adjust coin size and shaft.
4	Disconnect with VMC	Connect with VMC (ccTalk or MDB interface).
5	Prism sensor error	1. Inspect for foreign objects on prism sensor or jammed coins. (as 7 FIG.02)
6	Shaft sensor error	2. Re-adjust coin size and shaft.
7	Firmware download fail	Stop download procedure and rest EMH, then re-download again.



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

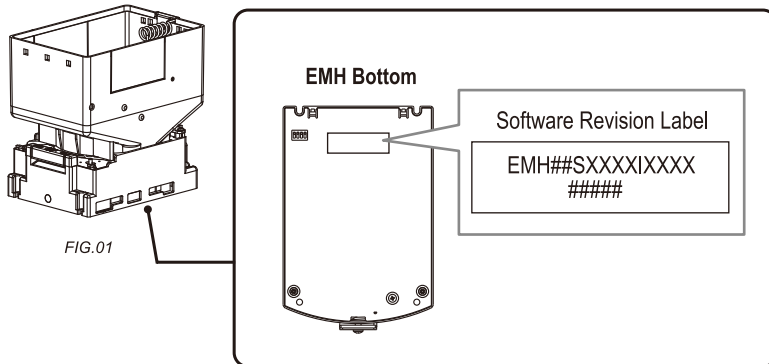
Equipment Category ID: Payout

Product Code: EMH-FR5

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 Enhance Mini Hopper.



**Please contact ICT for more information.**

***ict*** Taiwan

**International Currency Technologies Corporation**

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