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Bill Acceptor

TAO-A/V II Series

Installation Guide

International Currency Technologies Corp.

Use of Materials Limitations

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Contents

1. Introduction

1-1. Overview

TAO-A/V II series is a bill acceptor which features a lockable bill box for high-security with acceptance rate up to 96% or greater.

1-2. Features

- Four way bill insertion acceptance.
- Auto-calibrating.
- Win XP/Vista and Linux compatible USB interface available.
- Secure lockable and removable cashbox with 200, 500 or 1000 note capacity.
- Advanced water resistant design.
- Excellent resistant to humidity environment.
- Perfect for indoor and outdoor applications.
- Support update firmware using a USB flash drive.

2. Specifications

General

Acceptance Rate	96 % or greater
Bill Insertion	Four way acceptable
Transaction Speed	Approx. 3 seconds to stack
Interface	TAO-A IIU: Pulse, 5V ENABLE, NISR ICT Protocol, Single Price. TAO-V IIU: Pulse, MDB, ICT Protocol.

Installation: Indoor use only!!

Electrical

Power Source	TAO-A IIU: 12V DC (10.8V~13.2V DC) 117V AC (105.3V~128.7V AC) TAO-V IIU: 12V DC (10.8V~13.2V DC) 24V AC (21.6V~26.4V AC) 34V DC (20V~42.5V DC)
Power Consumption	TAO-A IIU: 12V DC- Standby : 0.3A, 4W Operation: 0.9A, 11W Maximum: 2.6A, 32W 117V AC- Standby : 0.06A, 7W Operation: 0.12A, 15W Maximum: 0.4 A, 47W

Power Consumption	TAO-V IIU: 12V DC- Standby : 0.3A, 4W Operation: 0.8A, 10W Maximum: 2.5A, 30W 24V AC- Standby : 0.2A, 5W Operation: 0.5A, 12W Maximum: 1.5A, 36W 34V DC- Standby : 0.15A, 6W Operation: 0.4A, 14W Maximum: 1.35A, 46W
Operation Environment	Operation Temperature: 0°C~55°C Storage Temperature : -30°C~70°C Humidity: 30%~85% RH(no condensation)

Mechanical

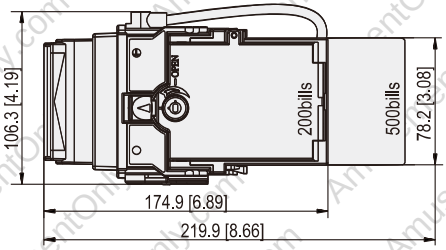
Bill Capacity	TAO-A/V IIU-P2 : 200 bills TAO-A/V IIU-P5 : 500 bills TAO-A/V IIU-P10: 1000 bills
Weight	TAO-A/V IIU-P2 : Approx. 1.3kg TAO-A/V IIU-P5 : Approx. 1.5kg TAO-A/V IIU-P10: Approx. 1.72kg
Outline Dimension	Refer to page. 5
Bill Accepted Width	62mm~66mm

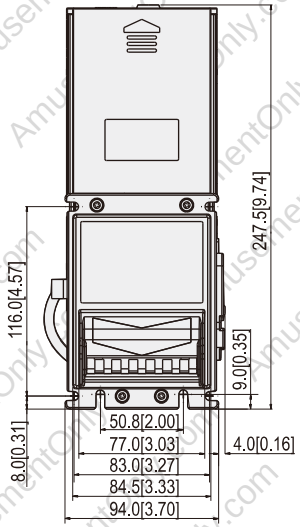
3. Packing List

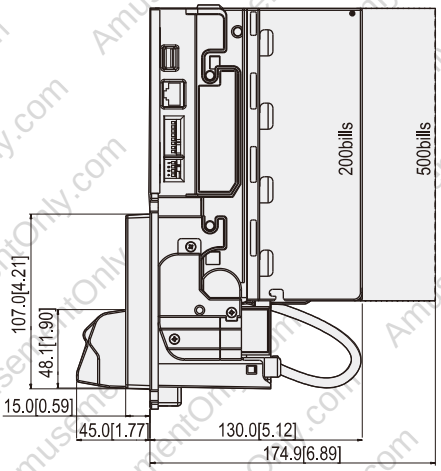
Main	Bill Acceptor
Accessory	Harnesses: Refer to 5-1 TAO-A/V II series Installation Guide TAO-A/V II series Switches Setting Guide Key for bill box Bezel Sticker

4. Dimension

TAO-A/V IIU-P2/ P5



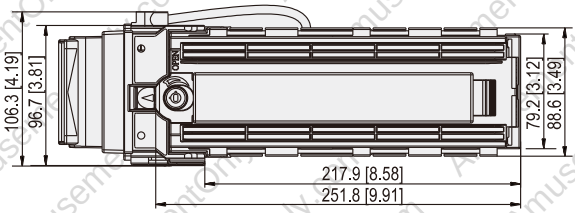


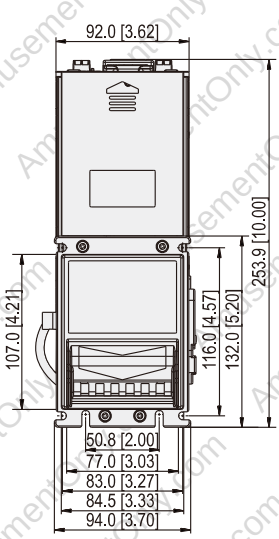


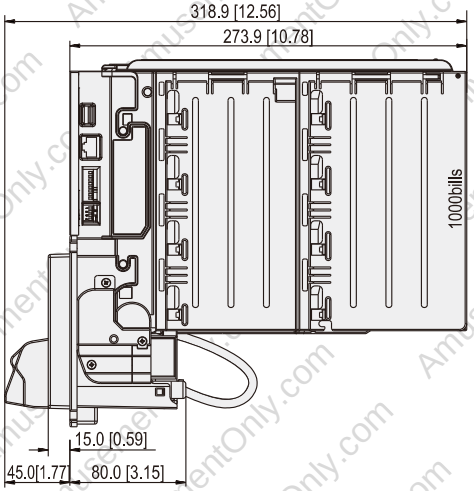
Unit : mm [inch]

4 FIG.01

TAO-A/V IIU-P10







Unit : mm [inch]

4 FIG.02

5. Installation

5-1. Harness Application

5-1 TABLE 01

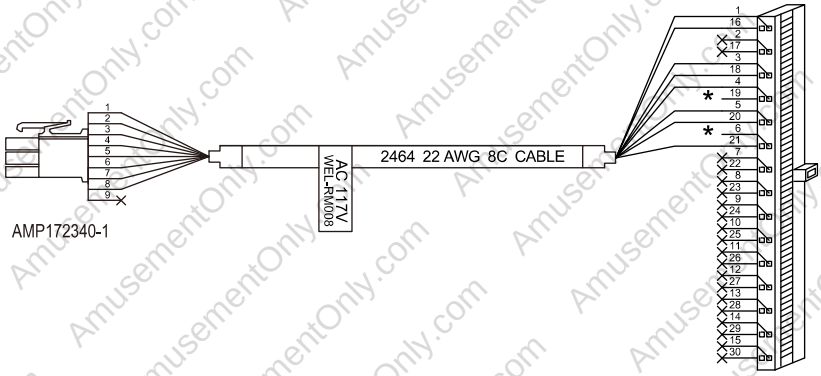
Model	Interface	Used Voltage	Usage	Harness	Page
TAO-A IIU	Standard Pulse	117V AC	Power & *Data Comm.	WEL-RM008	8
			Extension Wire	WEL-RM012	9
		12V DC	Power & *Data Comm.	WEL-RM007	10
			Extension Wire	CU-R961-1	11
	5V ENABLE	117V AC	Power & *Data Comm.	WEL-RM017	12
			Extension Wire	WEL-RM018	13
	RS232 for ICT Protocol	12V DC	Power	WEL-RM007	10
			Power Extension Wire	CU-R961-1	11
			*Data Comm.	WEL-RV706-1 or 2-BA-RV706	14
		117V AC	Power	WEL-RM008	8
			Power Extension Wire	WEL-RM012	9
			*Data Comm.	WEL-RV706-1 or 2-BA-RV706	14
	NISR	117V AC	Power & *Data Comm.	WEL-RM023	15
	Single Price	117V AC	Power & *Data Comm.	WEL-RM031	16
	USB Download	-	USB Extension Wire	WEL-RXBA31-2 (Optional)	19
TAO-V IIU	Standard Pulse	12V DC	Power & *Data Comm.	WEL-RV701	17
			Extension Wire	CU-R961-1	11
	MDB	34V DC	Power & *Data Comm.	WEL-RM006	18
	RS232 for ICT Protocol	12V DC	Power	WEL-RV701	17
			Power Extension Wire	CU-R961-1	11
			*Data Comm.	WEL-RV706-1 or 2-BA-RV706	14
	USB Download	-	USB Extension Wire	WEL-RXBA31-2	19

* Data Comm. : Data Communication.

5-1 FIG.01

Interface	Used Voltage	Usage
Standard Pulse	117V AC	Power & *Data Comm.
RS232 for ICT Protocol	117V AC	Power

WEL-RM008



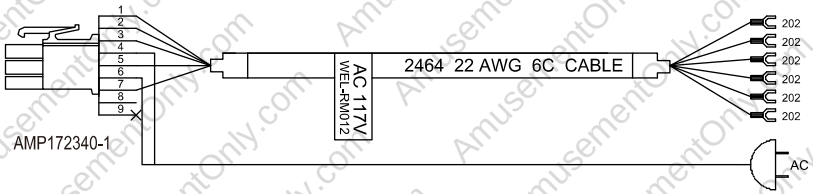
PIN 1- YELLOW.....NEUTRAL INHIBIT
PIN 2- RED.....NEUTRALE NABLE
PIN 3- BROWN.....HOT ENABLE
PIN 4- BLACK.....117VAC HOT(Power)
PIN 5- GREEN.....Earth-Ground
PIN 6- WHITE.....117VAC NEUTRAL(Power)
PIN 7- BLUE.....CREDIT_RELAY(N.O.)
PIN 8- PURPLE.....CREDIT_RELAY(Common)

PIN 1- PURPLE.....CREDIT_RELAY(Common)
PIN 3- RED.....NEUTRALENABLE
PIN 4- WHITE.....117VACNEUTRAL(Power)
PIN 5- YELLOW.....NEUTRALINHIBIT
PIN 16- BLUE.....CREDIT_RELAY(N.O.)
PIN 18- BROWN.....HOTENABLE
PIN 20- BLACK.....117VACHOT(Power)
PIN 21- GREEN.....EARTHGROUND

5-1 FIG.02

Interface	Used Voltage	Usage
Standard Pulse	117V AC	Extension Wire for WEL-RM008
RS232 for ICT Protocol	117V AC	Power Extension Wire for WEL-RM008

WEL-RM012



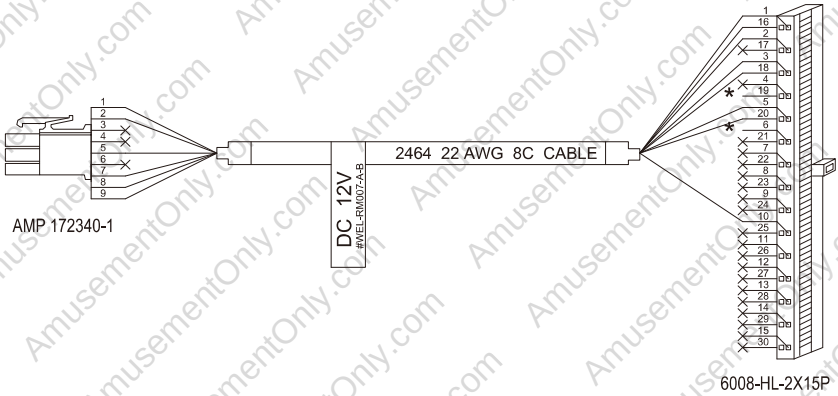
PIN 1- YELLOW.....NEUTRAL INHIBIT+
PIN 2- RED.....NEUTRAL INHIBIT-
PIN 3- ORANGE.....HOT ENABLE
PIN 4- BLACK.....117VAC HOT (Power)
PIN 5- GREEN.....Earth - Ground
PIN 6- BLACK.....117VAC NEUTRAL (Power)
PIN 7- BLUE.....CREDIT_RELAY (N.O.)
PIN 8- PURPLE...CREDIT_RELAY (Common)
PIN 9- Reserved

PURPLE.....CREDIT_RELAY (Common)
BLUE.....CREDIT_RELAY (N.O.)
GREEN.....Earth - Ground
ORANGE.....HOT ENABLE
RED.....NEUTRAL INHIBIT-
YELLOW.....NEUARAL INHIBIT+

5-1 FIG.03

Interface	Used Voltage	Usage
Standard Pulse	12V DC	Power & *Data Comm.
RS232 for ICT Protocol	12V DC	Power

WEL-RM007



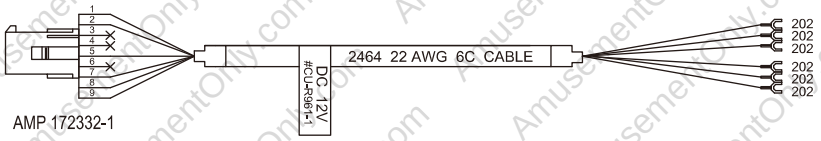
PIN 1- YELLOW.....INHIBIT+
PIN 2- GREEN.....INHIBIT-
PIN 3- Reserved
PIN 4- Reserved
PIN 5- RED.....12V DC (Power)
PIN 5 Dotted- BLACK.....12V DC (Power)
PIN 6- Reserved
PIN 7- BLUE.....CREDIT_RELAY (N.O.)
PIN 8- PURPLE.....CREDIT_RELAY (Common)
PIN 9- BROWN.....GND (Power)
PIN 9 Dotted- WHITE.....GND (Power)

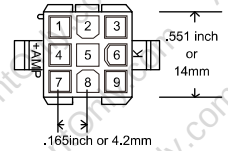
PIN 1- PURPLE.....CREDIT_RELAY (Common)
PIN 2- RED.....12VDC (Power)
PIN 3- WHITE.....ENABLE-
PIN 5- YELLOW.....INHIBIT+
PIN 10- BROWN.....GND (Power)
PIN 16- BLUE.....CREDIT_RELAY (N.O.)
PIN 18- BLACK.....ENABLE+
PIN 20- GREEN.....INHIBIT-

5-1 FIG.04

Interface	Used Voltage	Usage
Standard Pulse	12V DC	Extension Wire for WEL-RM007
Standard Pulse	12V DC	Extension Wire for WEL-RV701
RS232 for ICT Protocol	12V DC	Power Extension Wire for WEL-RM007
RS232 for ICT Protocol	12V DC	Power Extension Wire for WEL-RV701

CU-R961-1





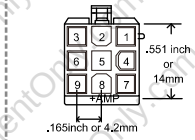
AMP 172332-1 BACK VIEW

PIN 1- YELLOW.....INHIBIT+
PIN 2- GREEN.....INHIBIT-
PIN 5- RED.....+12VDC(POWER-IN)
PIN 7- BLUE.....CREDIT-RELAY-NO
PIN 8- PURPLE.....CREDIT-RELAY-COM
PIN 9- ORANGE.....GND(POWER-IN)

5-1 FIG.05

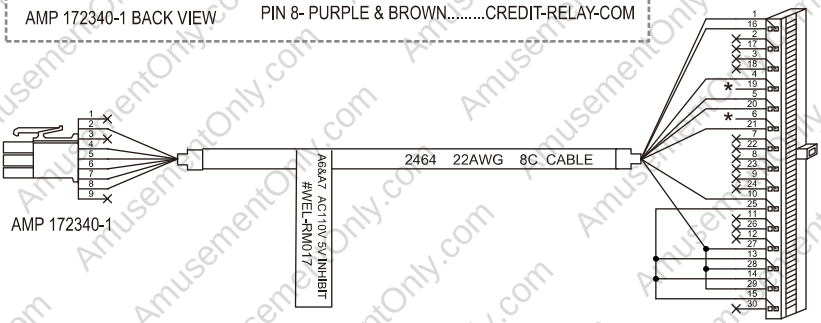
Interface	Used Voltage	Usage
5V ENABLE	117V AC	Power & *Data Comm.

WEL-RM017



AMP 172340-1 BACK VIEW

PIN 2- RED.....I-ENABLE-L
PIN 4- BLACK.....115VAC-HOT
PIN 5- GREEN.....EARTH-GROUND
PIN 6- WHITE & YELLOW.....115VAC-NEUTRAL
PIN 7- BLUE.....CREDIT-RELAY-NO
PIN 8- PURPLE & BROWN.....CREDIT-RELAY-COM

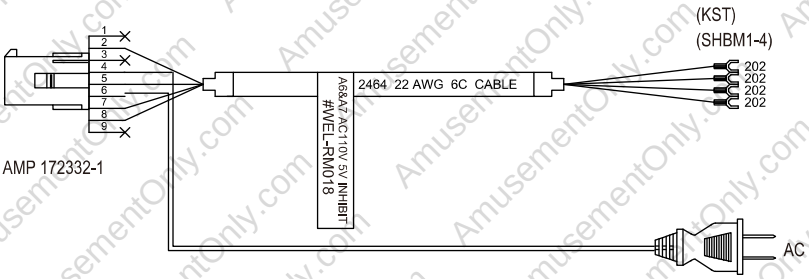


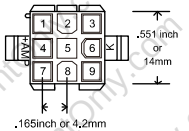
PIN 1- PURPLE.....CREDIT-RELAY-COM
PIN 4- WHITE.....115VAC-NEUTRAL(POWER IN)
PIN 5- YELLOW.....NEUTRAL-INHIBIT
PIN 10- BROWN.....GND
PIN 16- BLUE.....CREDIT-RELAY-NO
PIN 20- BLACK.....115VAC-HOT(POWER IN)
PIN 21- GREEN.....EARTH-GROUND
PIN 27. & 28. & 29. - RED.....I-ENABLE-L
PIN 13. & 14. & 15. & 25. - BLACK.....I-ENABLE-H

5-1 FIG.06

Interface	Used Voltage	Usage
5V ENABLE	117V AC	Extension Wire for WEL-RM017

WEL-RM018





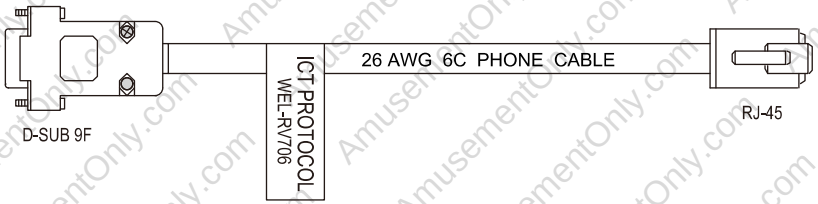
AMP 172332-1 BACK VIEW

PIN 2- RED.....I-ENABLE-L
PIN 4- BLACK.....115VAC-HOT(POWER-IN)
PIN 5- GREEN.....EARTH-GROUND
PIN 6- BLACK.....115VAC-NEUTRAL(POWER-IN)
PIN 7- BLUE.....CREDIT-RELAY-NO
PIN 8- PURPLE.....CREDIT-RELAY-COM

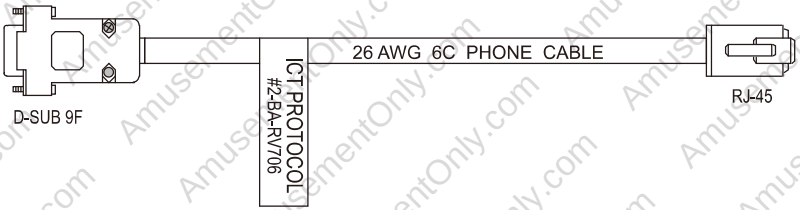
5-1 FIG.07

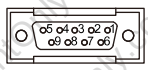
Interface	Used Voltage	Usage
RS232 for ICT Protocol	12V DC	*Data Comm.
RS232 for ICT Protocol	117V AC	*Data Comm.

WEL-RV706-1



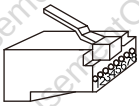
2-BA-RV706





D-SUB 9F TOP VIEW

PIN 1- RESERVED
PIN 2- RXD
PIN 3- TXD
PIN 4- RESERVED
PIN 5- GND
PIN 6- RESERVED
PIN 7- RESERVED
PIN 8- RESERVED
PIN 9- RESERVED



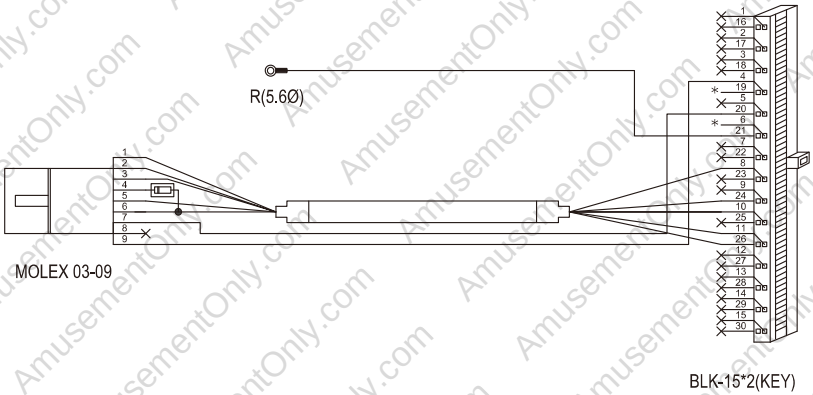
RJ-45 VIEW

PIN 1- BLUE.....GND
PIN 2- YELLOW.....TX22
PIN 3- GREEN.....RX22
PIN 5- RESERVED
PIN 6- RESERVED
PIN 6- RED.....VCC
PIN 7- BLACK.....RX11
PIN 8- WHITE.....TX11

5-1 FIG.08

Interface	Used Voltage	Usage
NISR	117V AC	Power & *Data Comm.

WEL-RM023



⑦④①
⑧⑤②
⑨⑥③

MOLEX 03-09
BACK VIEW

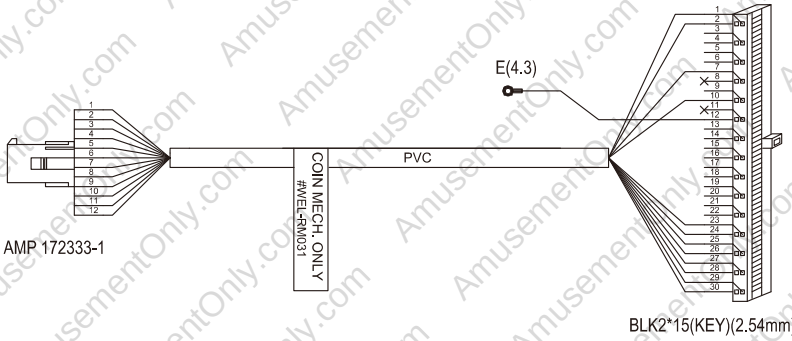
PIN 1- BLACK.....GND
PIN 2- WHITE...../INTERRUPT
PIN 3- YELLOW...../DATA
PIN 4- DIODE(-)
PIN 5- RED...../SEND
PIN 6- BLUE & DIODE(+)...../ACCEPT-ENABLE
PIN 7- BLACK / WHITE.....115VAC-HOT
PIN 9- WHITE / BLACK.....115VAC-NEUTRAL

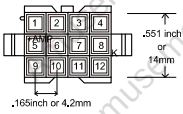
PIN 4- WHITE / BLACK.....115VAC-NEUTRAL
PIN 8- WHITE...../INTERRUPT
PIN 10- BLACK.....GND
PIN 11- YELLOW...../DATA
PIN 20- BLACK / WHITE.....115VAC-HOT
PIN 21- GREEN / YELLOW.....EARTH_GROUND
PIN 24- BLUE...../ACCEPT-ENABLE
PIN 26- RED...../SEND

5-1 FIG.09

Interface	Used Voltage	Usage
Single price	117V AC	Power & *Data Comm.

WEL-RM031





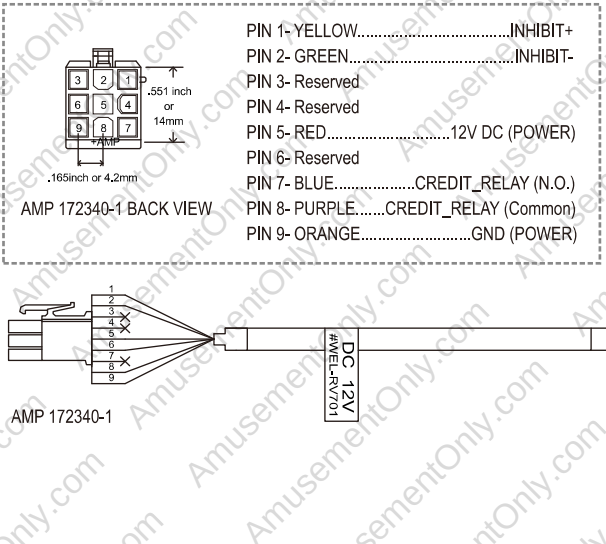
PIN 1- BLACK(20AWG).....115VAC-HOT
PIN 2- RED(20AWG).....115VAC-NEUTRAL
PIN 3- BLUE.....RESERVED
PIN 4- GREEN.....CREDIT-RELAY-NO
PIN 5- WHITE.....CREDIT-RELAY-COM
PIN 6- BLACK.....RESERVED
PIN 7- YELLOW.....1-ENABLE-H
PIN 8- PURPLE.....1-ENABLE-L
PIN 9- BROWN.....RESERVED
PIN 10- ORANGE.....RESERVED
PIN 11- GREY.....RESERVED
PIN 12- RED.....RESERVED

PIN 1- WHITE.....CREDIT-RELAY-COM
PIN 2- GREEN.....CREDIT-RELAY-NO
PIN 7- RED(20AWG).....115VAC-NEUTRAL
PIN 10- BLACK(20AWG).....115VAC-HOT
PIN 12- YELLOW/GREEN(20AWG).....EARTHGND
PIN 23- BROWN.....RESERVED
PIN 24- PURPLE.....1-ENABLE-L
PIN 25- BLUE.....RESERVED
PIN 26- GREY.....RESERVED
PIN 27- ORANGE.....RESERVED
PIN 28- RED.....RESERVED
PIN 29- YELLOW.....1-ENABLE-H
PIN 30- BLACK.....RESERVED

5-1 FIG.10

Interface	Used Voltage	Usage
Standard Pulse	12V DC	Power & *Data Comm.
RS232 for ICT Protocol	12V DC	*Data Comm.

WEL-RV701

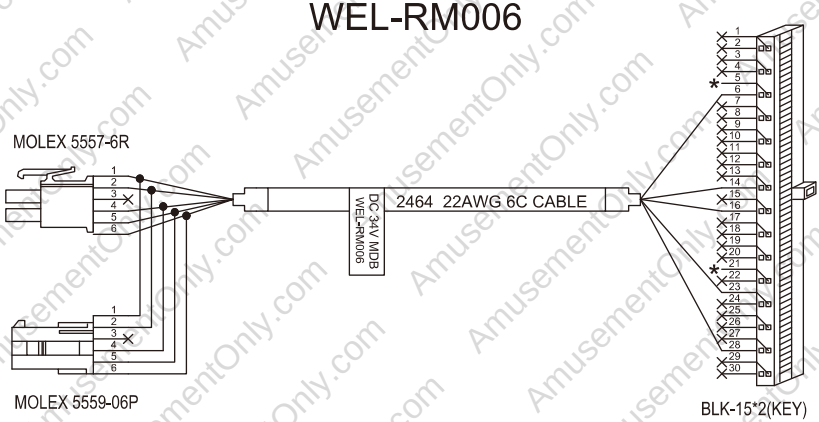


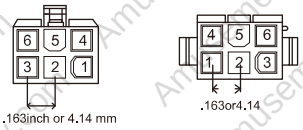
PIN 1- PURPLE.....CREDIT_RELAY (Common)
PIN 2- BLUE.....CREDIT_RELAY (N.O.)
PIN 3- RED.....12VDC (POWER)
PIN 4- YELLOW.....INHIBIT+
PIN 18- GREEN.....INHIBIT-
PIN 20- ORANGE.....GND (POWER)

5-1 FIG.11

Interface	Used Voltage	Usage
MDB	34V DC	Power & *Data Comm.

WEL-RM006





MOLEX 5557-6R
BACK VIEW

MOLEX 5559-06P
BACK VIEW

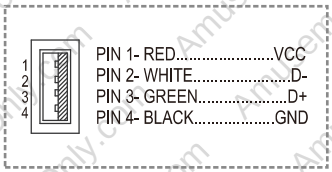
PIN 1- BLUE.....34VDC
PIN 2- YELLOW.....34VDC Power Return
PIN 3- Reserved
PIN 4- ORANGE.....Master Receive
PIN 5- RED.....Master Transmit
PIN 6- GREEN.....Communications Common

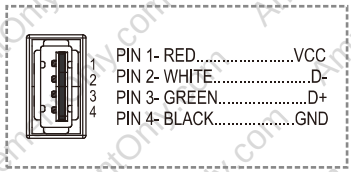
PIN 6- ORANGE.....Master Receive
PIN 14- RED.....Master Transmit
PIN 16- YELLOW.....34VDC Power Return
PIN 23- BLUE.....34VDC
PIN 28- GREEN.....Communications Common

5-1 FIG.12

Interface	Used Voltage	Usage
USB Download	-	USB Extension Wire

WEL-RXBA31-2

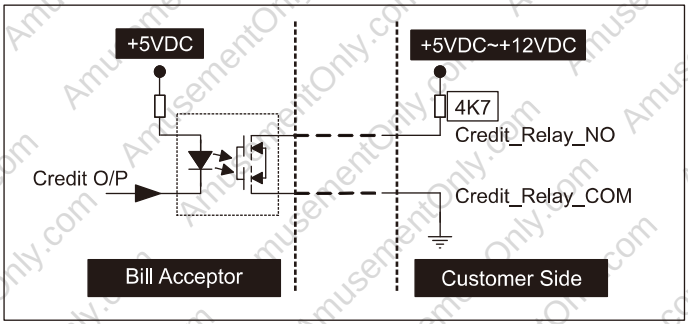


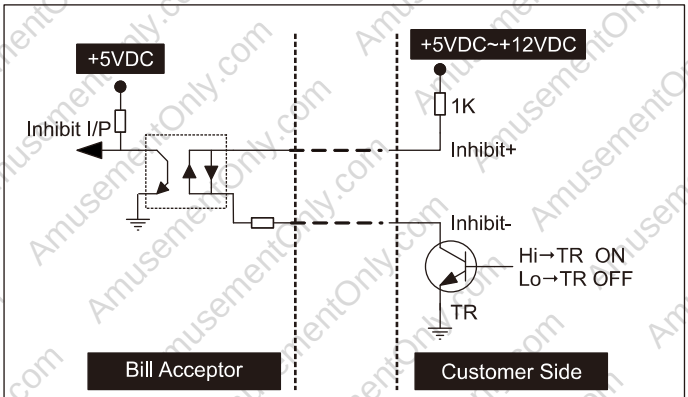


5-1-1. I/O Circuit

Pulse Interface.

5-1-1 FIG.01



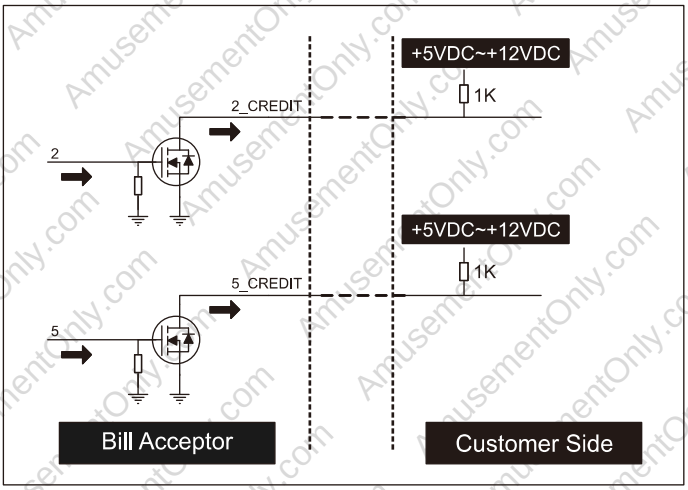


BA Status	*DIP SW Setting		Control Signal
Inhibit	Inhibit Active	Low	Low
		High	High
Enable	Inhibit Active	Low	High
		High	Low

Note: Please refer to DIP Switch Setting Guide for detail.

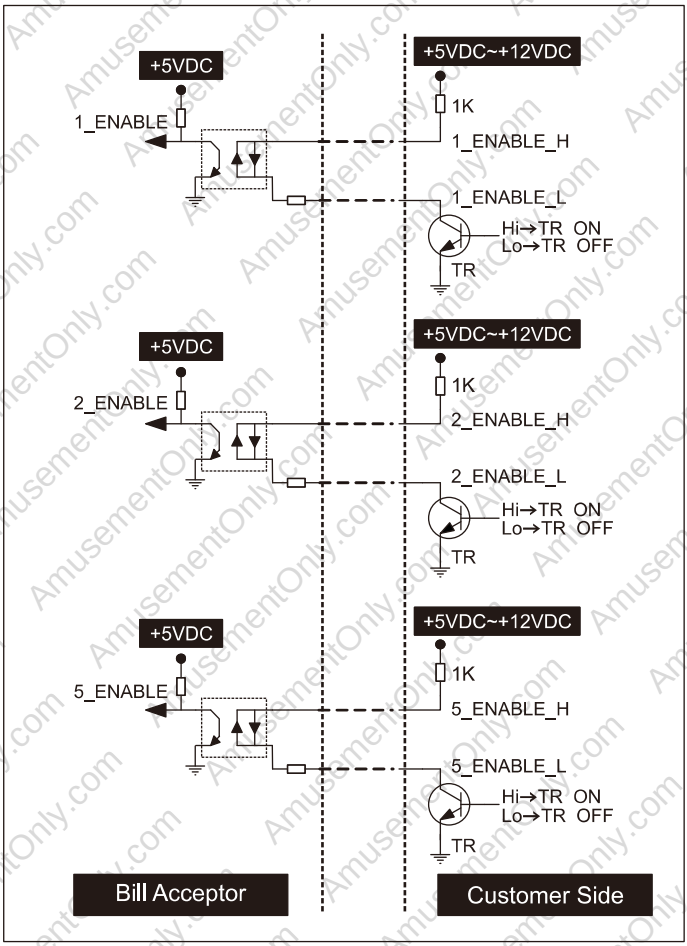
5V Enable Interface-1

5-1-1 FIG.02



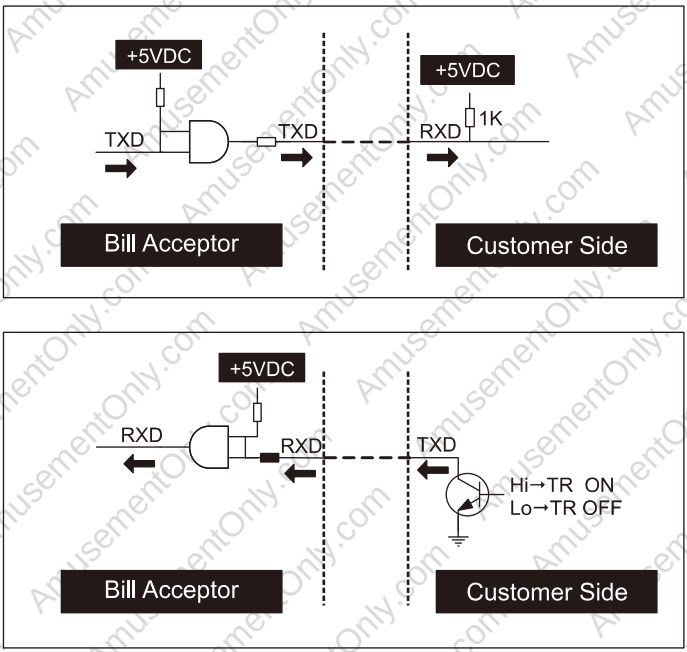
5V Enable Interface-2

5-1-1 FIG.02-1



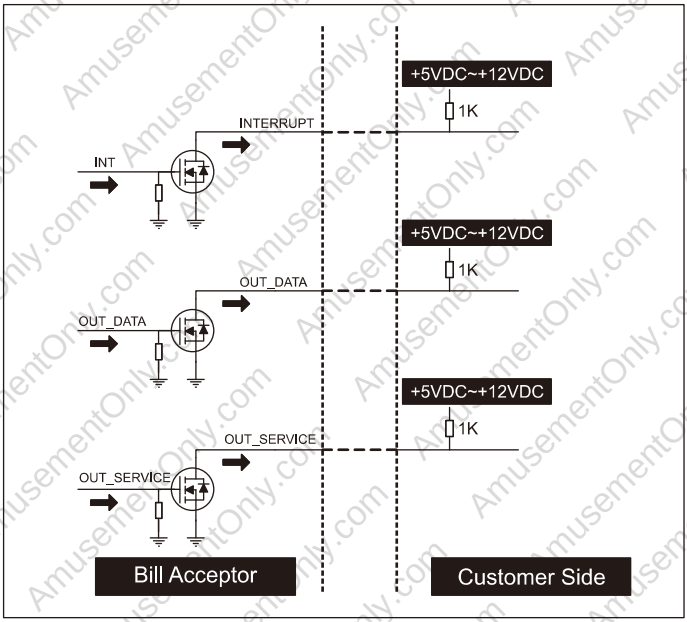
ICT Protocol Interface.

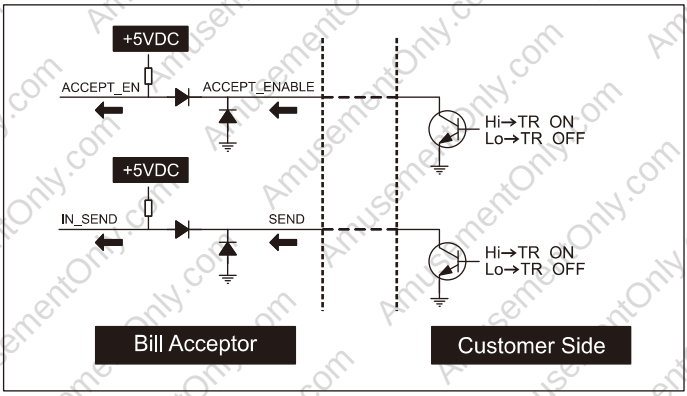
5-1-1 FIG.03



NISR Interface.

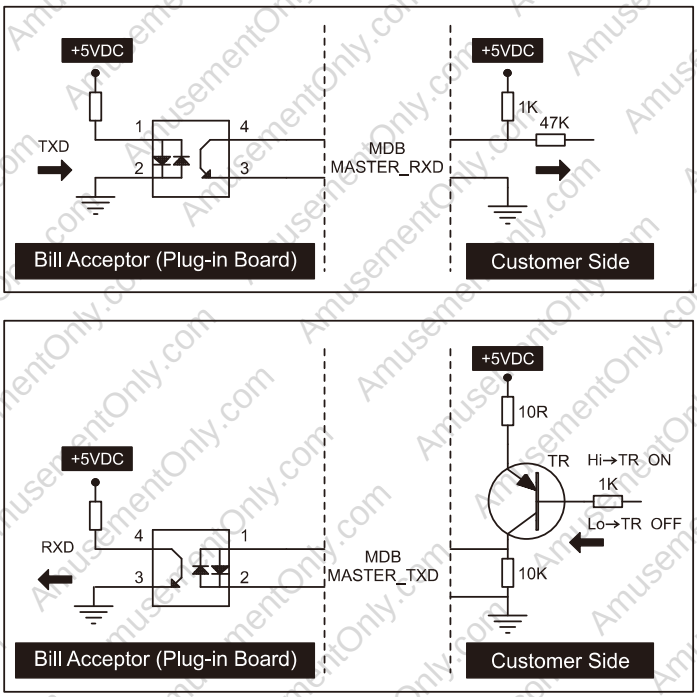
5-1-1 FIG.04





MDB Interface.

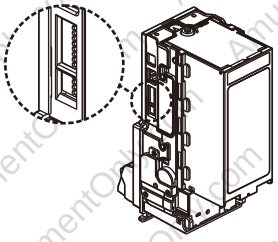
5-1-1 FIG.05



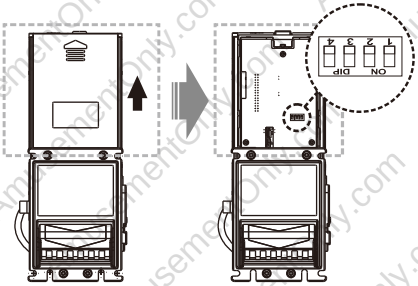
5-2. DIP Switch Setting

There are two serial DIP switches which are located on the side of TAO-A/V IIU (as FIG.01). According to different currencies which are used by users, DIP switch settings could be varied to fit users' needs. Besides, there's also a serial DIP switches on CPU board inside of TAO-A/V IIU for interface settings (as FIG.02).

Please refer to "TAO-A/V series DIP Switch Setting Guide" in the package for more details.



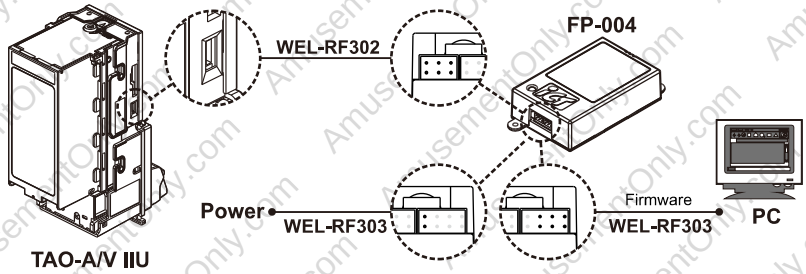
5-2 FIG.01



5-2 FIG.02

5-3. Software Download and Upgrade

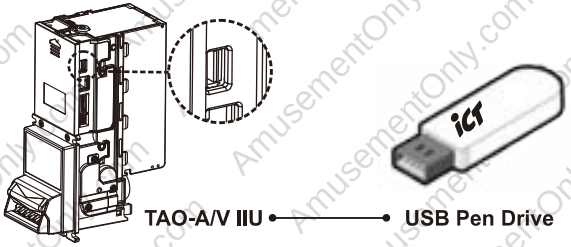
To download and upgrade the software to TAO-A/V IIU, the programmer (FP-004) is needed. Please contact ICT to purchase FP-004 and refer to FP-004 user guide for software download and upgrade information.



Power must be applied to Bill Acceptor **after** connecting.

5-3-1. USB Pen Drive Download

1. Plug in the USB Pen Drive's (with new firmware in the root file directory) in to the USB Socket on the bill acceptor.
2. Reboot the power of the bill acceptor.
3. The update process will automatically begin and the status LED indicates the different update progress showing in the following chart.

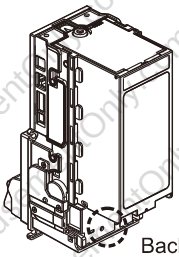


4. The location of status LED

LED Indicator	Status
Flashing (Interval: 100 ms)	Update in progress
Flashing twice (Interval: 1sec)	Update successful
No light	1. Update fail 2. No firmware found in the Flash Drive

Note:

1. Do not remove the USB Pen Drive during the update process.
2. If the USB Pen Drive contains more than one firmware, the device will use the last modified date as the firmware to be transfer to the bill acceptor.
3. Please remove the USB Pen Drive when the upgrade has finished.



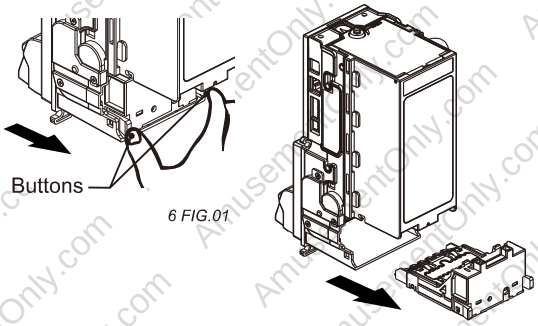
5-3-1 FIG.01

6. Maintenance

To make sure the bill acceptor always works smoothly, please clean the internal parts regularly.

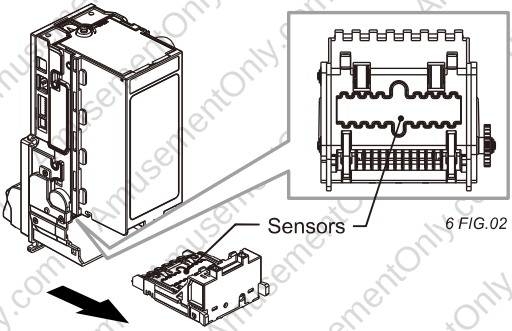
To clean the internal parts:

1. Press the buttons on the sides of bill path and pull the unit out.



6 FIG.01

2. Use a soft, dry cloth, or towel to clean the bill path and sensors.



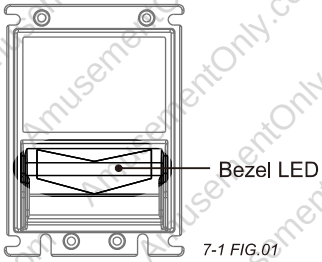
6 FIG.02

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

7-1. Bezel LED Errors

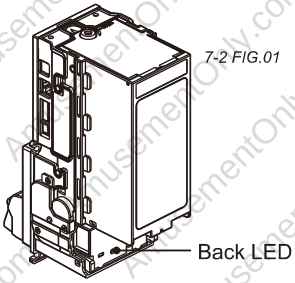


7-1 FIG.01

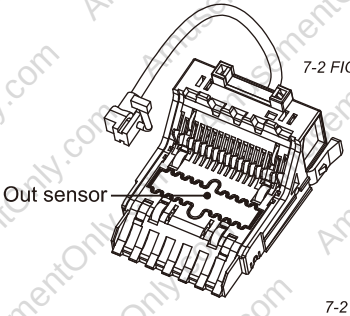
7-1 TABLE 01

LED Flashes		Status	Correct Actions
Red	Green		
	1	White Card Calibration.	Please calibrate with ICT white calibration card.
1		Bill jammed.	Remove the bill box by sliding the top button and the bill path (refer to page 32), and then remove the jammed bill.
2		Disable.	Inspect the right DIP switch setting.
3		Recognition sensor module error.	Inspect the foreign objects on sensor or bill path and clean.
3+2		Hook sensor error.	Inspect the foreign objects on security hook and clean.
3+4		Out sensor error. (as 7-2 FIG.02)	Inspect the foreign objects on sensor or bill path and clean.
4		Anti-string sensor error or a stringing attempt has detected.	Inspect the foreign objects on sensor or bill path and clean.
5		Bill box has been removed.	Replace the bill box.
6		Stacker error or stacker full.	Empty the bill box.
7		Motor error.	Inspect the foreign objects on bill path and clean.

7-2. Back LED Errors



7-2 FIG.01



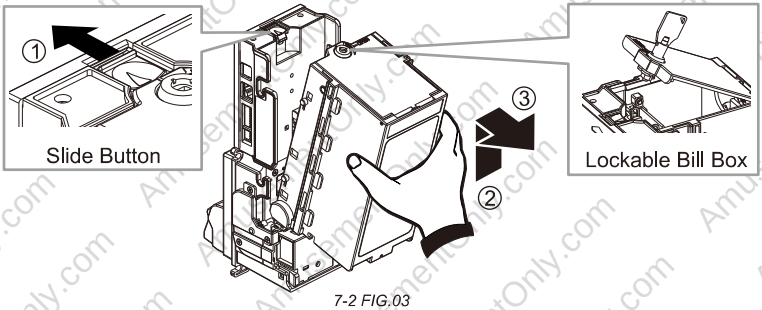
7-2 FIG.02

7-2 TABLE 01

LED Flashes Green	Status	Corrective Actions
1	White Card Calibration.	Please calibrate with ICT white calibration card.
1	Bill jammed.	Remove the bill box by sliding the top button and the bill path (refer to page 32), and then remove the jammed bill.
2	Disable.	Inspect the right DIP switch setting.
3	Recognition sensor module error.	Inspect the foreign objects on sensor or bill path and clean.
3+2	Hook sensor error.	Inspect the foreign objects on security hook and clean.
3+4	Out sensor error. (as 7-2 FIG.02)	Inspect the foreign objects on sensor or bill path and clean.
4	Anti-string sensor error or a stringing attempt has detected.	Inspect the foreign objects on sensor or bill path and clean.
5	Bill box has been removed.	Replace the bill box.
6	Stacker error or stacker full.	Empty the bill box.
7	Motor error.	Inspect the foreign objects on bill path and clean.

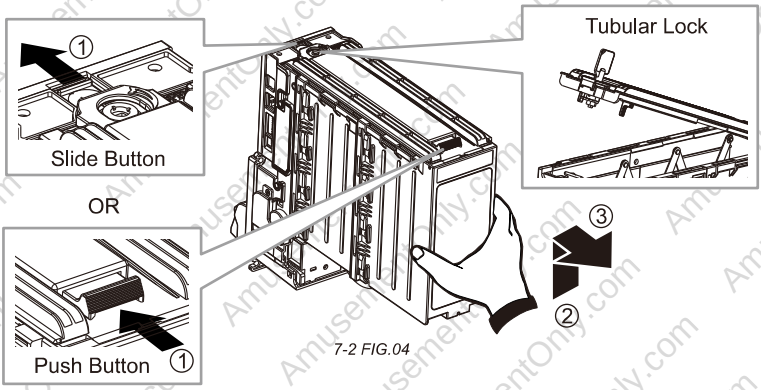
If the error can not be solved after corrective actions or happen again, please contact ICT for technical support.

♦ **TAO-A/V IIU-P2/P5**



7-2 FIG.03

♦ **TAO-A/V IIU-P10**



7-2 FIG.04

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