ICT

TAO Series

Bill Acceptor

Installation Guide

V. 11.0 Part Number : H4986J-R

International Currency Technologies Corp.

Use of Materials Limitations

Contents

1. Introduction

1-1. Overview

TAO-A/V 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 bill box is available for 200, 500 and 1000 bills capacity.

2. Specifications

General

Acceptance Rate:	96 % or greater
Bill Insertion:	Four way acceptable
Transaction Speed:	Approx. 3 seconds to stack
Interface:	TAO-A: Pulse, 5V ENABLE, NISR, ICT Protocol, USB (Reserved), Single Price (For TRC-6800 coin changer use only). TAO-V: Pulse, MDB, ICT Protocol USB (Reserved),

Installation: Indoor use only!!

Electrical

Power Source:	TAO-A: 12V DC (10.8V~ 13.2V DC) 117V AC (105.3V~128.7V AC) TAO-V: 12V DC (10.8V~ 13.2V DC) 24V AC (21.6V~ 26.4V AC) 34V DC (20 V~ 42.5V DC)
Power Consumption:	TAO-A: 12V DC- Standby : 0.3A, 4W Operation: 0.9A, 11W Maximum: 2.6A, 32W 117V DC- Standby : 0.04A, 5W Operation: 0.12A, 15W Maximum: 0.4A, 47W TAO-V: 12V DC- Standby : 0.3A, 4W Operation: 0.8A, 10W Maximum: 2.5A, 30W 24V DC- Standby : 0.2A, 5W Operation: 0.5A, 12W Maximum: 1.5A, 36W 34V AC- 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-P2 : 200 bills
TAO-A/V-P5 : 500 bills
TAO-A/V-P10:1000 bills

Outline Dimension: Refer to page. 5

Weight: TAO-A/V-P2 : Approx. 1.22kg
TAO-A/V-P5 : Approx. 1.35kg
TAO-A/V-P10: Approx. 1.72kg

Bill Accepted Width: 62mm~66mm

3. Packing List

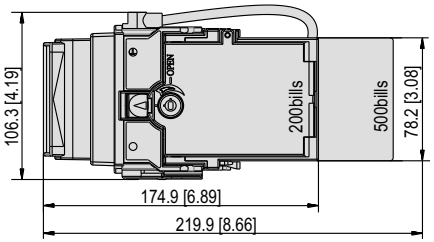
Main: Bill Acceptor

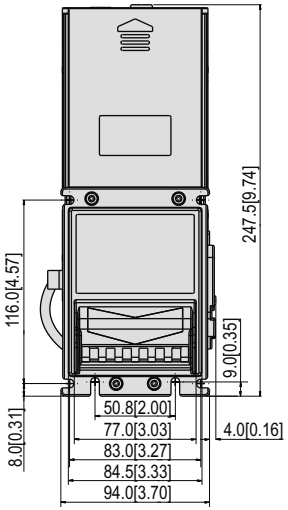
Accessory: Harnesses: Refer to 5-1
TAO-A/V Installation Guide
TAO-A/V Switches Setting Guide
Key for bill box
Bezel Sticker

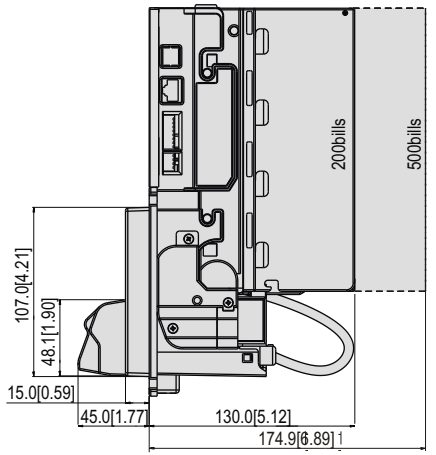
4. Dimension

♦ TAO-A/V-P2/ P5

Figure 1



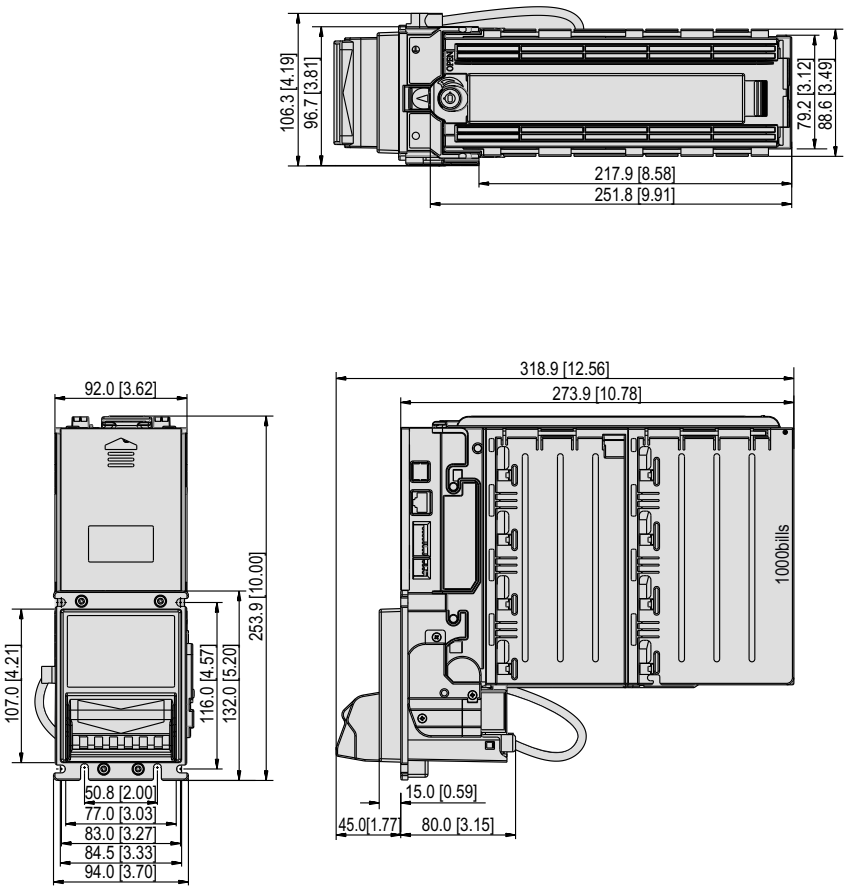




Unit : mm [inch]

♦ TAO-A/V-P10

Figure 2



Unit : mm [inch]

5. Installation

5-1. Harness Application

Table 1

Model	Interface	Used Voltage	Usage	Harness	Page
TAO-A	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	14
		117V AC	Power	WEL-RM008	8
			Power Extension Wire	WEL-RM012	9
			*Data Comm.	WEL-RV706	14
	NISR	117V AC	Power & *Data Comm.	WEL-RM013	15
	**Single Price	117V AC	Power & *Data Comm.	WEL-RM031	16
	USB for ICT Protocol	-	Data Comm.	WEL-RU1180	17
TAO-V	Standard Pulse	12V DC	Power & *Data Comm.	WEL-RV701	18
			Extension Wire	CU-R961-1	11
	MDB	34V DC	Power & *Data Comm.	WEL-RM006	19
	RS232 for ICT Protocol	12V DC	Power	WEL-RV701	18
			Power Extension Wire	CU-R961-1	11
			*Data Comm.	WEL-RV706	14
	USB for ICT Protocol	-	*Data Comm.	WEL-RU1180	17

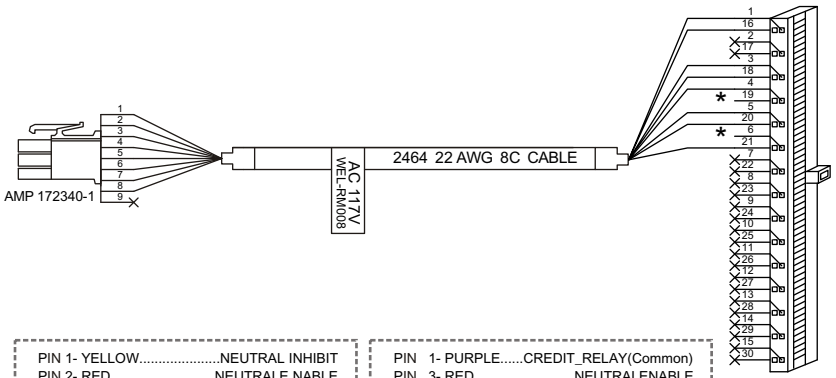
* Data Comm. : Data Communication.

**Single Price : For TRC-6800 coin changer use only.

Figure 3

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

WEL-RM008



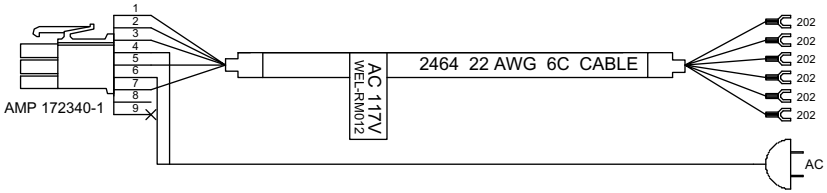
PIN 1- YELLOW.....NEUTRAL INHIBIT
PIN 2- RED.....NEUTRALE NABLE
PIN 3- BROWN.....HOT ENABLE
PIN 4- BLACK.....117VAC HOT(Power)
PIN 5- GREEN.....Earth-Ground
PIN 6- WHITE.....117VAC NEUTRAL(Power)
PIN 7- BLUE.....CREDIT_RELAY(N.O.)
PIN 8- PURPLE.....CREDIT_RELAY(Common)

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

Figure 4

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



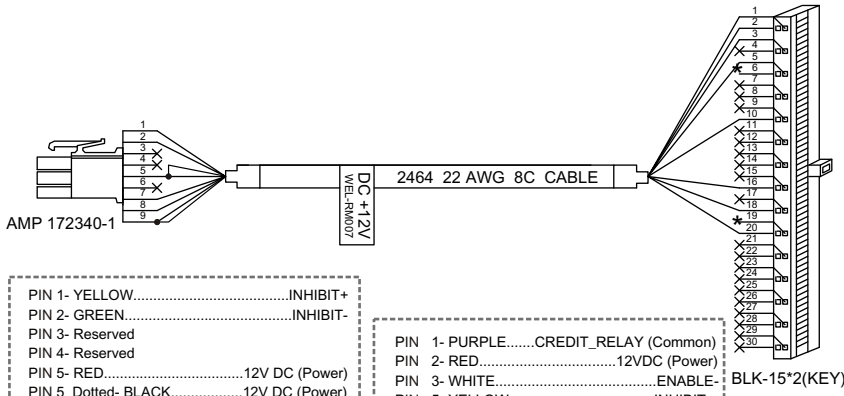
PIN 1- YELLOW.....NEUTRAL INHIBIT+
PIN 2- RED.....NEUTRAL INHIBIT-
PIN 3- ORANGE.....HOT ENABLE
PIN 4- BLACK.....117VAC HOT (Power)
PIN 5- GREEN.....Earth - Ground
PIN 6- BLACK.....117VAC NEUTRAL (Power)
PIN 7- BLUE.....CREDIT_RELAY (N.O.)
PIN 8- PURPLE...CREDIT_RELAY (Common)
PIN 9- Reserved

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

Figure 5

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

WEL-RM007



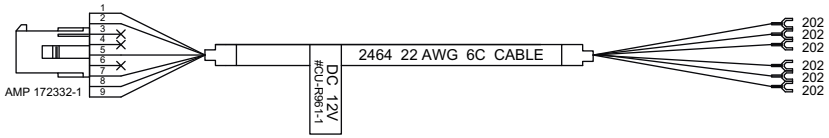
PIN 1- YELLOW.....INHIBIT+
PIN 2- GREEN.....INHIBIT-
PIN 3- Reserved
PIN 4- Reserved
PIN 5- RED.....12V DC (Power)
PIN 5 Dotted- BLACK.....12V DC (Power)
PIN 6- Reserved
PIN 7- BLUE.....CREDIT_RELAY (N.O.)
PIN 8- PURPLE.....CREDIT_RELAY (Common)
PIN 9- BROWN.....GND (Power)
PIN 9 Dotted- WHITE.....GND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

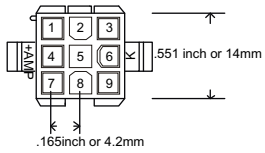
Figure 6

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

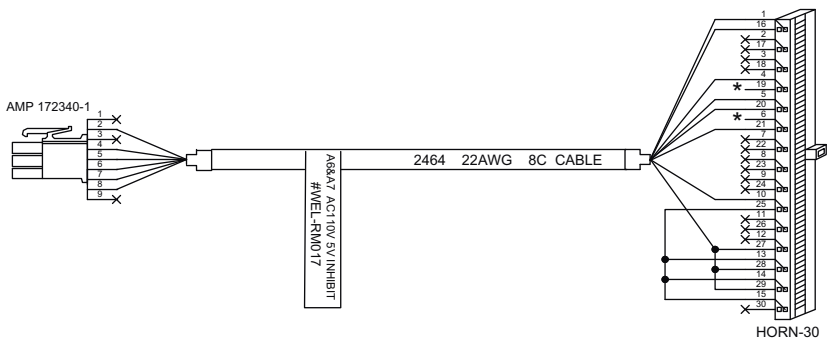


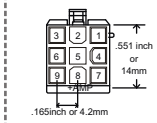
PIN 1- YELLOW.....INHIBIT+
PIN 2- GREEN.....INHIBIT-
PIN 5- RED.....+12VDC(POWER-IN)
PIN 7- BLUE.....CREDIT-RELAY-NO
PIN 8- PURPLE.....CREDIT-RELAY-COM
PIN 9- ORANGE.....GND(POWER-IN)

Figure 7

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

WEL-RM017





AMP 172340-1 BACK VIEW

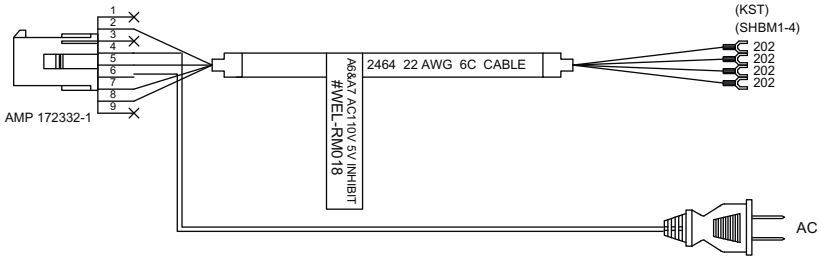
PIN 2- RED.....I-ENABLE-L
PIN 4- BLACK.....115VAC-HOT
PIN 5- GREEN.....EARTH-GROUND
PIN 6- WHITE & YELLOW.....115VAC-NEUTRAL
PIN 7- BLUE.....CREDIT-RELAY-NO
PIN 8- PURPLE & BROWN.....CREDIT-RELAY-COM

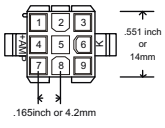
PIN 1- PURPLE.....CREDIT-RELAY-COM
PIN 4- WHITE.....115VAC-NEUTRAL(POWER IN)
PIN 5- YELLOW.....NEUTRAL-INHIBIT
PIN 10- BROWN.....GND
PIN 16- BLUE.....CREDIT-RELAY-NO
PIN 20- BLACK.....115VAC-HOT(POWER IN)
PIN 21- GREEN.....EARTH-GROUND
PIN 27. & 28. & 29. - RED.....I-ENABLE-L
PIN 13. & 14. & 15. & 25.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

Figure 8

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

WEL-RM018





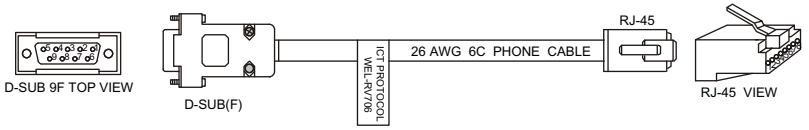
AMP 172332-1 BACK VIEW

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

Figure 9

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

WEL-RV706



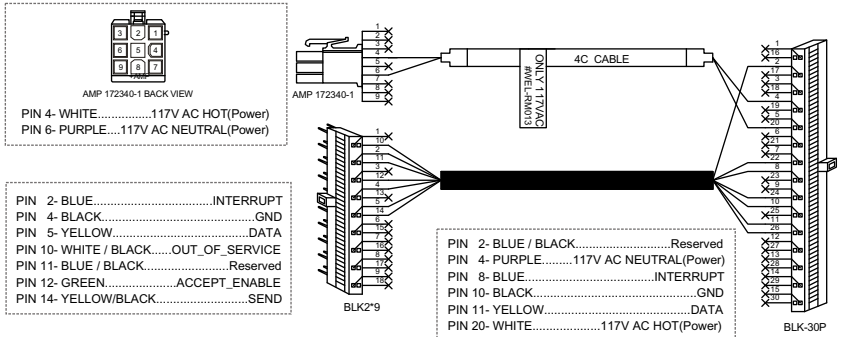
PIN 1- Reserved
PIN 2- RXD
PIN 3- TXD
PIN 4- Reserved
PIN 5- GND
PIN 6- Reserved
PIN 7- Reserved
PIN 8- Reserved
PIN 9- Reserved

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

Figure 10

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

WEL-RM013



PIN 4- WHITE.....117V AC HOT(Power)
PIN 6- PURPLE....117V AC NEUTRAL(Power)

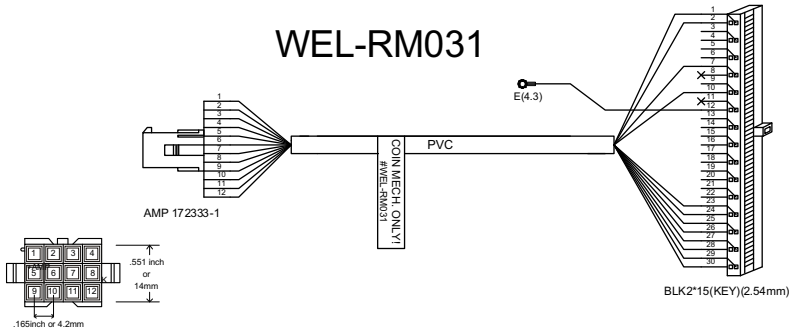
PIN 2- BLUE.....INTERRUPT
PIN 4- BLACK.....GND
PIN 5- YELLOW.....DATA
PIN 10- WHITE / BLACK.....OUT_OF_SERVICE
PIN 11- BLUE / BLACK.....Reserved
PIN 12- GREEN.....ACCEPT_ENABLE
PIN 14- YELLOW/BLACK.....SEND

PIN 2- BLUE / BLACK.....Reserved
PIN 4- PURPLE.....117V AC NEUTRAL(Power)
PIN 8- BLUE.....INTERRUPT
PIN 10- BLACK.....GND
PIN 11- YELLOW.....DATA
PIN 20- WHITE.....117V AC HOT(Power)
PIN 22- WHITE / BLACK.....OUT_OF_SERVICE
PIN 24- GREEN.....ACCEPT_ENABLE
PIN 26- YELLOW/BLACK.....SEND

Figure 11

Interface	Used Voltage	Usage
Single price (For TRC-6800 coin changer use only.)	117V AC	Power & *Data Comm.

WEL-RM031



AMP 172333-1 BACK VIEW

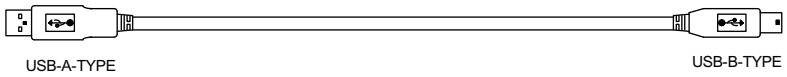
PIN 1- BLACK(20AWG).....115VAC-HOT
PIN 2- RED(20AWG).....115VAC-NEUTRAL
PIN 3- BLUE.....RESERVED
PIN 4- GREEN.....CREDIT-RELAY-NO
PIN 5- WHITE.....CREDIT-RELAY-COM
PIN 6- BLACK.....RESERVED
PIN 7- YELLOW.....1-ENABLE-H
PIN 8- PURPLE.....1-ENABLE-L
PIN 9- BROWN.....RESERVED
PIN 10- ORANGE.....RESERVED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

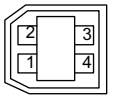
Figure 12

Interface	Used Voltage	Usage
USB for ICT Protocol	-	*Data Comm.

WEL-RU1180



PIN 1- RED.....VCC
PIN 2- WHITE.....D-
PIN 3- GREEN.....D+
PIN 4- BLACK.....GND

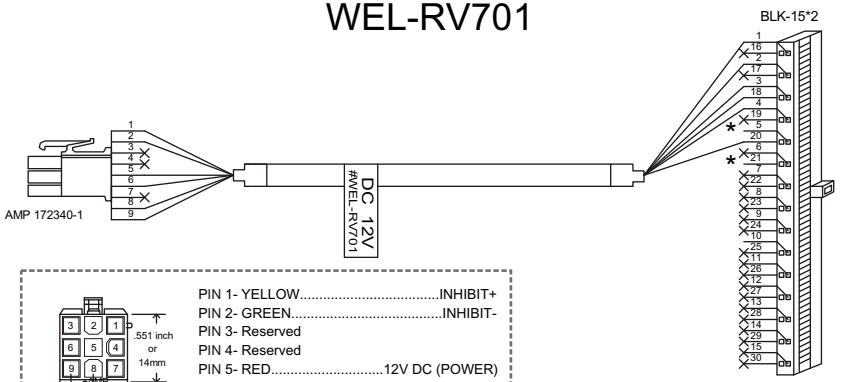


PIN 1- RED
PIN 2- WHITE
PIN 3- GREEN
PIN 4- BLACK

Figure 13

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

WEL-RV701



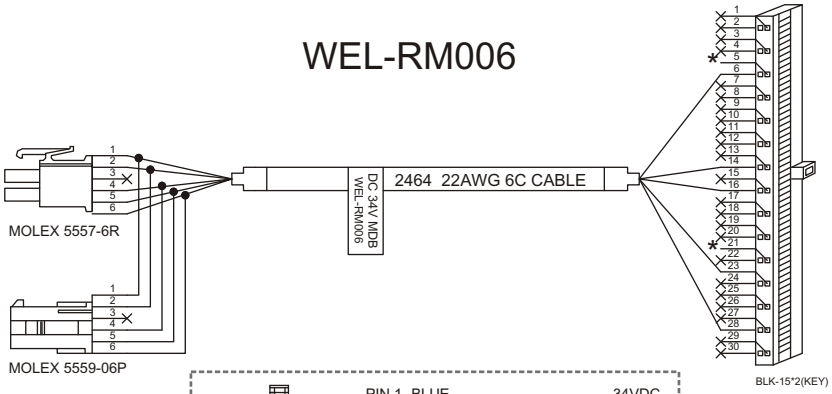
PIN 1- YELLOW.....INHIBIT+
PIN 2- GREEN.....INHIBIT-
PIN 3- Reserved
PIN 4- Reserved
PIN 5- RED.....12V DC (POWER)
PIN 6- Reserved
PIN 7- BLUE.....CREDIT_RELAY (N.O.)
PIN 8- PURPLE.....CREDIT_RELAY (Common)
PIN 9- ORANGE.....GND (POWER)

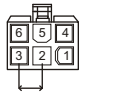
PIN 1- PURPLE.....CREDIT_RELAY (Common)
PIN 2- BLUE.....CREDIT_RELAY (N.O.)
PIN 3- RED.....12VDC (POWER)
PIN 4- YELLOW.....INHIBIT+
PIN 18- GREEN.....INHIBIT-
PIN 20- ORANGE.....GND (POWER)

Figure 14

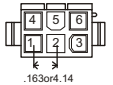
Interface	Used Voltage	Usage
MDB	34V AC	Power & *Data Comm.

WEL-RM006





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



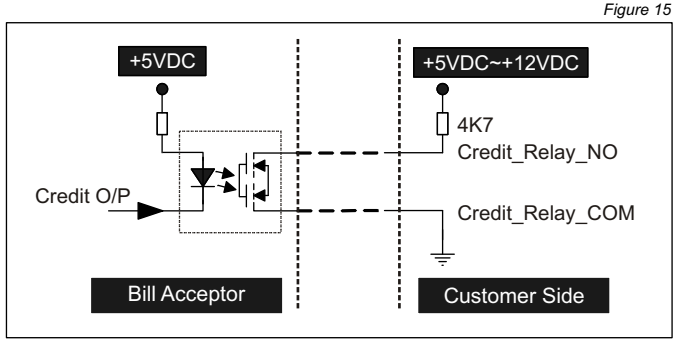
PIN 6- ORANGE.....Master Receive
PIN 14- RED.....Master Transmit
PIN 16- YELLOW.....34VDC Power Return
PIN 23- BLUE.....34VDC
PIN 28- GREEN.....Communications Common

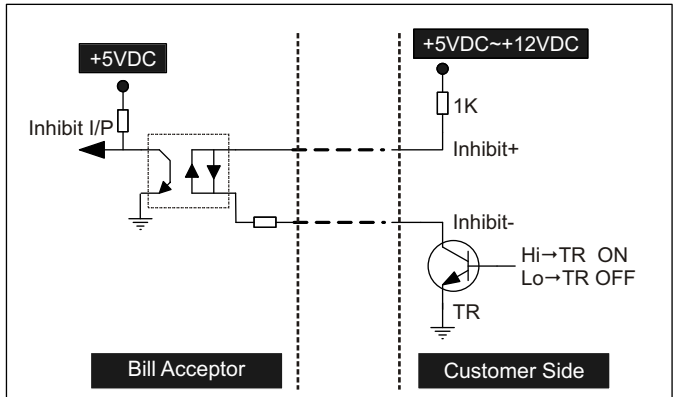
5-1. Harness Application

5-1-1. I/O Circuit

Pulse Interface.

Figure 15





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.

Figure 16

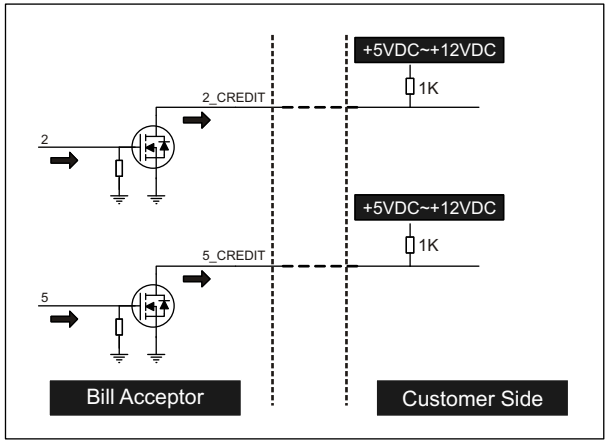
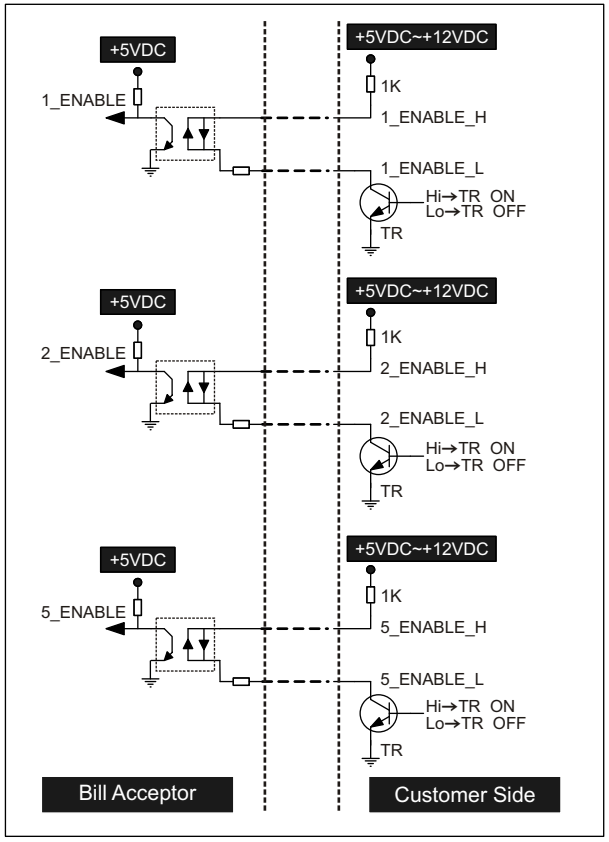
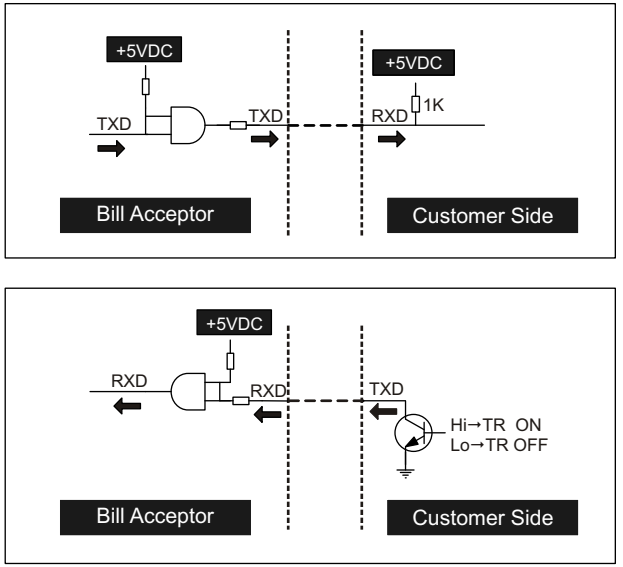


Figure 17



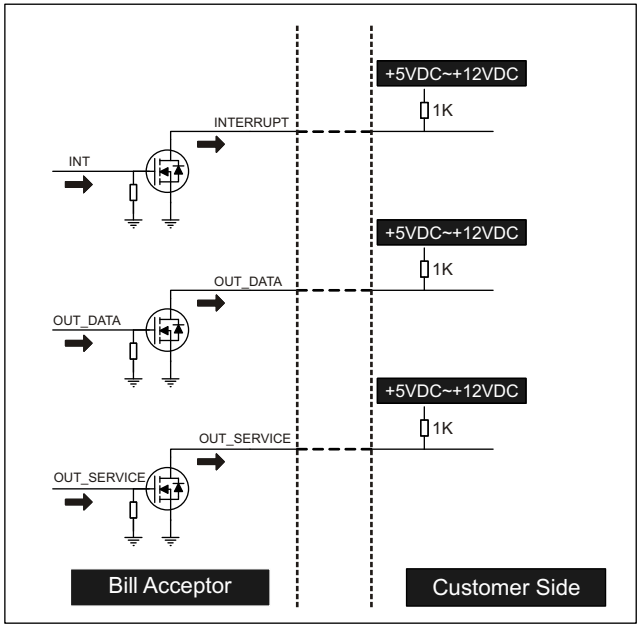
ICT Protocol Interface.

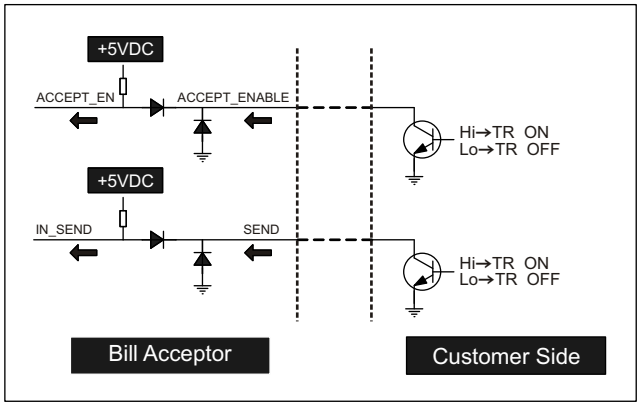
Figure 18



NISR Interface.

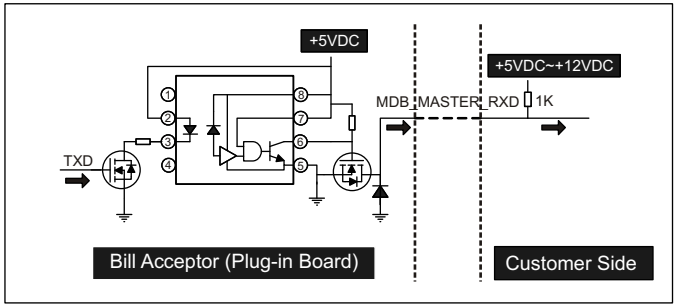
Figure 19

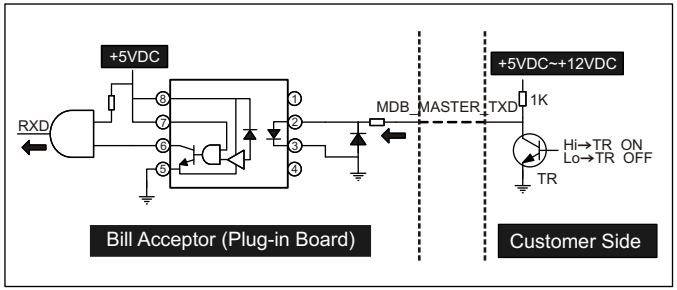




MDB Interface.

Figure 20





5-2. DIP Switch Setting

There are two serial DIP switches which are located on the side of TAO-A/V (as figure 21). 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 for interface settings (as figure 22).

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

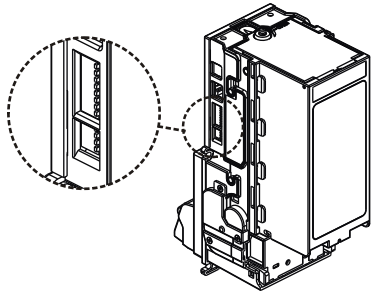


Figure 21

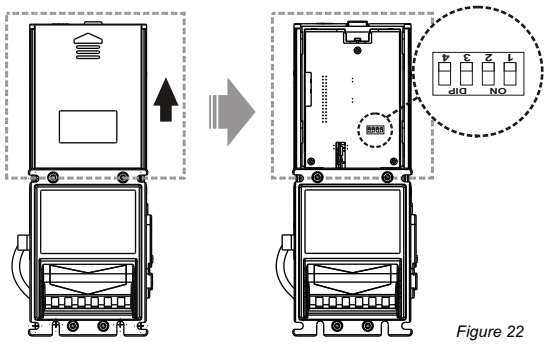


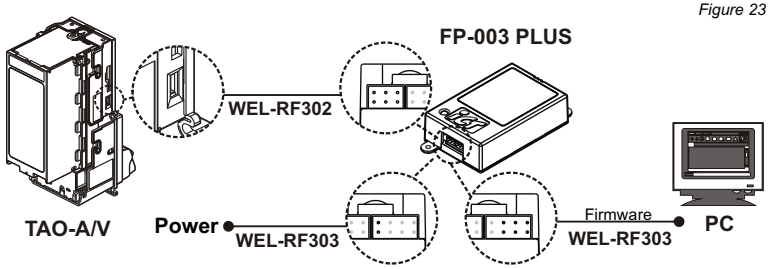
Figure 22

5-3. Software Download and Upgrade

To download and upgrade the software to TAO-A/V, the programmer (FP-003 PLUS/ FP-004) is needed. Please contact ICT to purchase FP-003 PLUS/ FP-004 and refer to FP-003 PLUS/ FP-004 user guide for software download and upgrade information.

♦ **FP-003 PLUS**

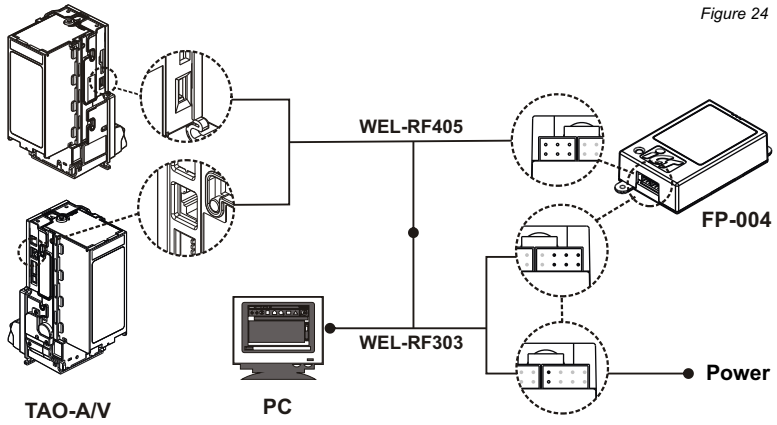
Figure 23



Power must be applied to Bill Acceptor after connecting.

♦ **FP-004**

Figure 24



Power must be applied to Bill Acceptor after connecting.

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.

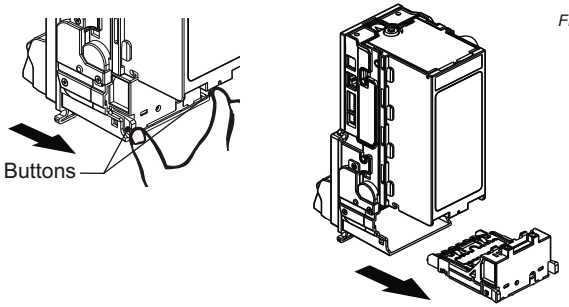


Figure 25

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

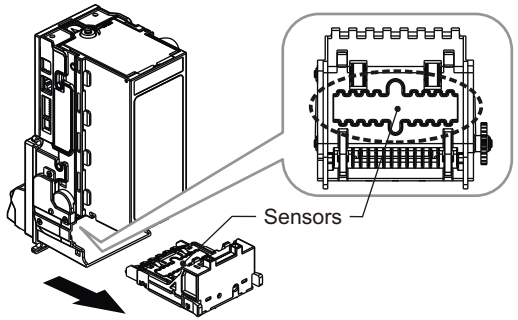


Figure 26

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

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

7. Troubleshooting

7-1. Bezel LED Errors

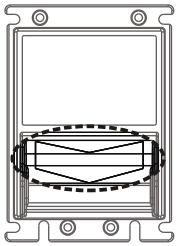


Figure 27

Bezel LED

Table 2

LED Flashes	Status	Correct Actions
Glowing	Bill Acceptor is normal	N/A
Red	Bill Acceptor is error	Check the back LED flash (Refer to **7-2**)

7-2. Back LED Errors

Table 3

LED Flashes	Status	Corrective Actions
1	Bill jammed.	Remove the bill box by sliding the top button and the bill path (as figure 28 & 29), and then remove the jammed bill.
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.(*Figure 28*)	Inspect the foreign objects on sensor or bill path and clean.
2	Disable.	Inspect the right DIP switch setting.
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.

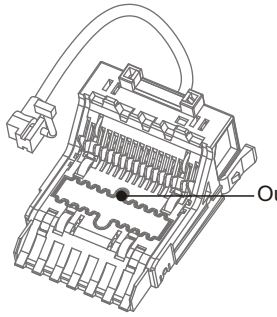
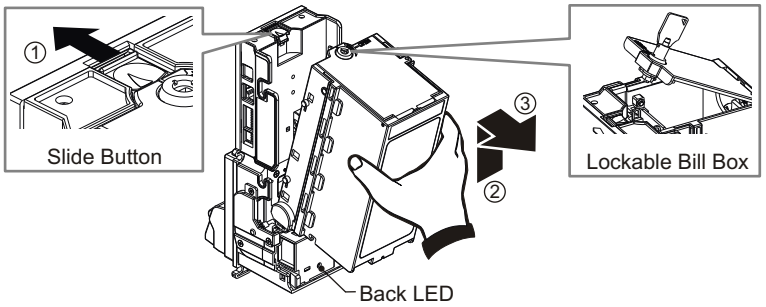


Figure 28

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

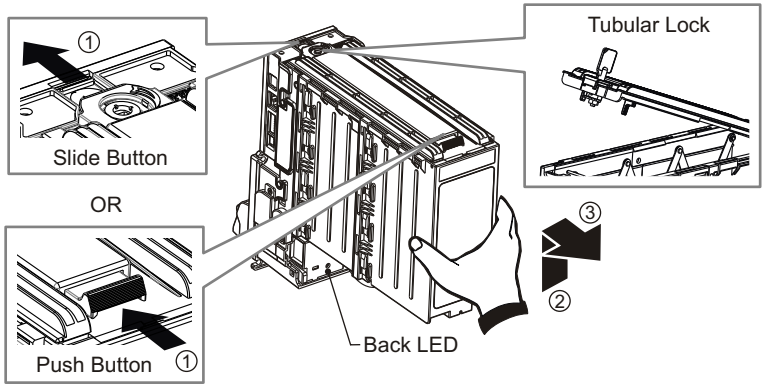
♦ TAO-A/V-P2/P5

Figure 29



♦ TAO-A/V-P10

Figure 30



ICT Taiwan

International Currency Technologies Corporation

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

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

sales@ictgroup.com.tw (For Sales)

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

Website: www.ictgroup.com.tw