

Bill Acceptor

TAIKO

太鼓

Integration Guide



JAPAN CASH/MACHINE CO., LTD.

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1. Precautions

Thank you for purchasing JCM's TAIKO Bill Acceptor. Please be sure to read the following and any related documents thoroughly to understand the correct operation and features of this unit.

1-1. Machine Design

- We take all possible measures to ensure the quality of this unit. However, performance degradation or possible short or open circuit faults could occur at the end of a product's life. Please ensure safety by sufficiently implementing a fail-safe design.
- Allow sufficient space around the unit to facilitate the collection of banknotes and the clearing of jams.

1-2. Installation

- Do not use the acceptor outside of the operation temperature and humidity ranges specified in this guide.
- Do not use the acceptor in location that will obstruct the acceptor's air holes and cause the unit to become hot.
- Do not use the acceptor in locations with extreme temperature fluctuations.
- Do not use the acceptor in direct sunlight or incandescent lighting (3000Lx or greater at a 15-degree angle or less).
- Do not use or store the acceptor in location with high levels of dust.
- The acceptor is for indoor use only; do not use it outside.
- Do not use the acceptor in locations where chemical vapor is present.
- When using the acceptor in a location where the air is subject to the car exhaust emissions or cigarette smoke, be sure to clean and maintain the unit at regular intervals.

1-3. Wiring

- When installing the TAIKO unit or connecting the wiring harness, make sure that the power harness is unplugged from the power terminal to avoid unit damage.
- When connecting the wiring harness to TAIKO unit, be sure to confirm the rated voltage and pin assignments. Failure to do so may result in damage to the unit.
- Be sure to connect the power harness properly. Failure to do so may result in incorrect input/output due to contact failure.
- Do not pull on the power harness with undue force, as that may cause the harness to break.

1-4. Operation

- Be sure to turn off the power to the TAIKO unit when opening the upper and lower lid. Failure to do so may result in your fingers becoming caught in the moving roller.
- Be careful not to get your finger caught when closing the upper lid.
- Do not modify the TAIKO unit. Doing so may damage the unit.
- Do not expose the TAIKO unit to strong impacts or drop the unit as doing so may damage the unit.
- Do not wipe the TAIKO unit, either outside or inside, with thinner or organic solvent.
- Do not allow moisture or liquid to enter the TAIKO unit.
- Do not store the acceptor outside of the specified storage temperature and humidity ranges.
- The following banknotes might be not accepted properly by TAIKO unit or may cause a jam or damage to the unit.
 - a. Banknotes with stains, wear, tears or excessive wrinkles, or that are wet or damp.
 - b. Dog-eared or creased banknotes
 - c. Banknotes with incorrect cut dimensions or printing displacement
 - d. Banknotes with oil smears or foreign objects

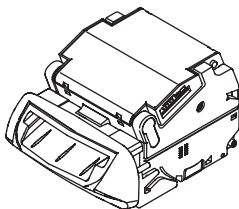
1-5. Disposal

- Disposal of this unit should be accomplished in accordance with your country's regulations for similar types of industrial waste.

2. Package Contents

The following items are contained within the TAIKO packaging.

■ TAIKO unit



■ Installation Guide <This guide>



- This unit has been carefully packed, with special attention taken in regard to quality. However if you happen to find anything damaged or missing, please contact your local distributor immediately.

3. Product Configurations

TAIKO units are configured as follows.

[Model] PUB-* [Type] *** - * * * 0 - X4
 A B C D E F G

A. Validation Method	7: Optical/Transparency/Reflection 11: Optical/Transparency/Reflection/MAG
B. Country Code	ISO 3166 based 3-digit codes
C. Faceplate Type	0: Without faceplate 1: Bill Width Min.68mm/Max.82mm 2: Bill Width Min.76mm/Max.82mm 3: Bill Width Min.70mm/Max.82mm 5: Bill Width 66mm
D. Optional Unit	0: Without optional unit 1: With interface pin assignment conversion adapter harness (ccTalk-compatible)
E. Board Type	1: Standard 2: Interface pin assignment (ccTalk compatible)
F. Operation Code	0: Standard
G. Interface	X4: Serial(ID-003)/MDB/Pulse/ccTalk

Example: **PUB-7 EUR-1020-X4**

Indicates the TAIKO model with optical/transparency/reflection validation method, faceplate type 1, euro software, no optional unit, interface pin assignment (ccTalk compatible) type board, standard operation code and an Serial(ID-003)/MDB/Pulse/ccTalk interface.

4. CE Marking

DECLARATION OF CONFORMITY

MANUFACTURER

Name : JAPAN CASH MACHINE CO., LTD.
Address : 3-15, 2-chome, Nishiwaki, Hirano-ku, Osaka, 547-0035 Japan
Phone : +81-6-6703-8405
Fax : +81-6-6704-7843

DETAILS OF PRODUCT : BILL ACCEPTOR
MODEL TYPES : PUB-7, PUB-11

THIS PRODUCT CONFORMS TO THE ESSENTIAL REQUIEIMENTS OF :

Electromagnetic Compatibility Directive 89/336/EEC
Amended by 92/31/EEC, 93/68/EEC
Low Voltage Directive 73/23/EEC
Amended by 93/68/EEC

and is supported by the following applicable standards

EN61000-6-1 : 2001
EN61000-4-2 : 1995+A1 : 1998+A2 : 2001
EN61000-4-3 : 2002+A1 : 2002
EN61000-4-8 : 1993+A1 : 2001
EN61000-6-3 : 2001
EN55022 : 1994+A1 : 1995+A2 : 1997(ClassB)
EN60950-1 : 2001+A11 : 2004 First Edition

Authorized signatory on behalf of the responsible person

Name/Signature: Tatsuya Urata/ *Tatsuya Urata*
Date : December 1, 2006
Position : Director and executive officer, general manager manufacturing division

Germany Office

Address : Mündelheimer Weg 60, 40472 Düsseldorf, Germany
Phone : +49-211-530645-0
Fax : +49-211-530645-65

5. RoHS Compliance

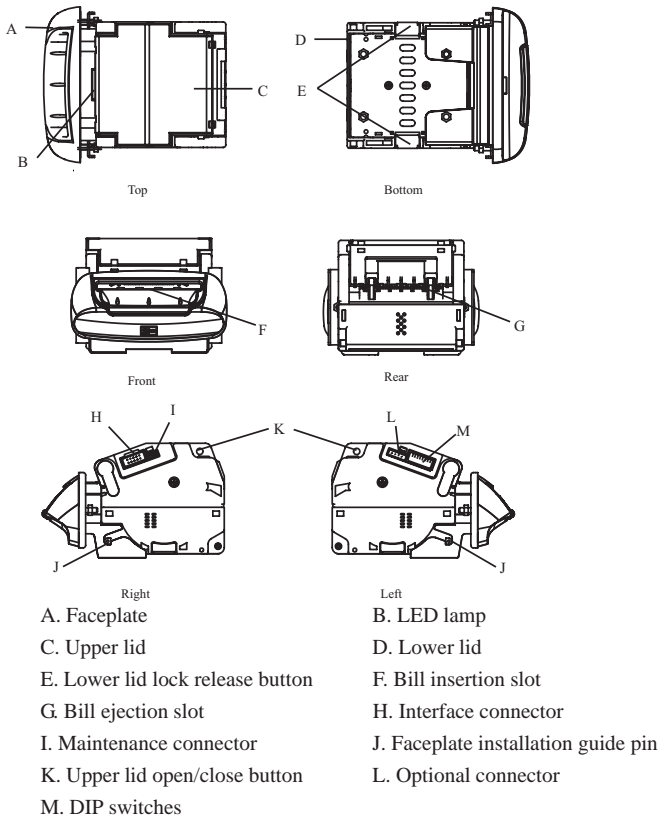
The TAIKO unit is a RoHS Compliant products. The following six kind of hazardous substances fulfills the safety limit of the standard restricted by RoHS compliance.

Restricted Hazardous Substances

- Plumbum
- Mercury
- Cadmium
- Hexavalent Chromium
- PBB
- PBDE

6. Names of Parts

The name of parts for the TAIKO unit are as follows.



7. Product Specifications

7-1. General Specifications

7-1-1. Basic Specifications

Acceptable Banknote Size	Length: 120 mm to 160 mm Width: 62 mm to 82 mm
Insertion Direction *1	4-way
Acceptance Rate *1	95% or higher
Validation Method	PUB-7: Optical/Transparency/Reflection PUB-11: Optical/Transparency/Reflection/MAG
Anti-fishing Mechanism	Lever and optical sensor combination
Interface *2	Serial(ID-003)/MDB/Pulse/ccTalk
Escrow	1 banknote
LED *2	LED lamp (upper portion of faceplate) Full-color lightning (gradation/solid)

*1 May differ depending on the software for your country. For details, refer to the Software Information Sheet.

*2 Can be selected using the DIP switches. See => “5-5. DIP Switch Settings”

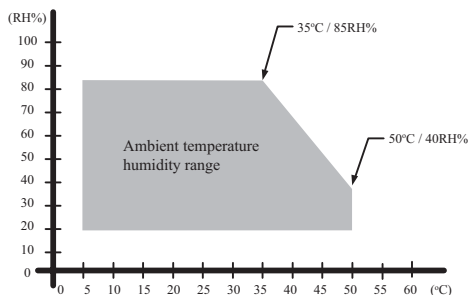
7-1-2. Electrical Specifications

Power Supply Voltage	12V \pm 5% DC
Rated Power Consumption	Standby: Approx. 0.1 A
	Operation: Approx. 0.5 A
	Max.: Approx. 1.4 A (Max. 300 ms)

7-1-3. Environmental Specifications

Operation Temperature *1	5°C to 50°C
Storage Temperature	-20°C to 60°C
Operation Humidity *1	20%RH to 85%RH (No condensation)
Storage Humidity	20%RH to 85%RH (No condensation)
Light Disturbance	Avoid direct sunlight
	Interior lighting must be incandescent lamp
	Angle: 15 degrees or more Illumination: 3000Lx or less
Installation	For indoor use only

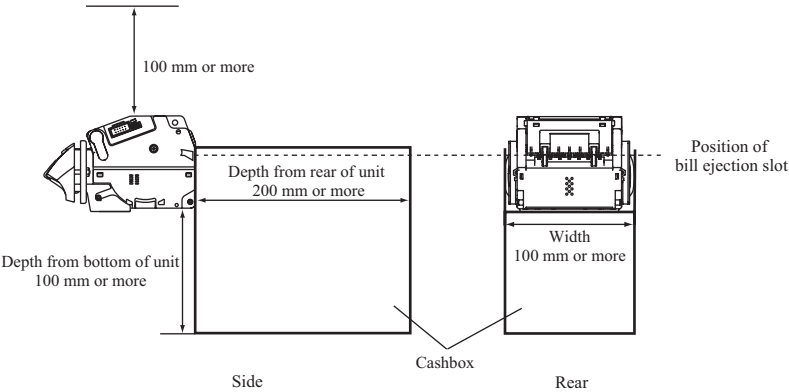
*1 The overall operation temperature and humidity range is as follows.



7-1-4. Installation Specifications

Mounting *1	Door and Horizontal Mounting (No vibration)
Weight	Approx. 0.6 kg
External Dimensions	With Type 1/2/3 faceplate:124mm (W) x 88mm (H) x 145.2mm (D) With Type 5 faceplate:124mm (W) x 88mm (H) x 143mm(D)
Cashbox *2	Supplied by the customer

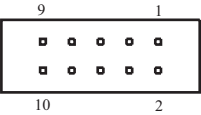
- *1 Allow 100 mm above the unit to open the lid for removal of the unit from the faceplate
- *2 The cashbox must be 100 mm or more in depth from the bottom of the TAIKO unit, 200 mm or more in depth from the rear of the unit and 100 mm or more in width. Both sides of the cashbox must be higher than the position of the bill ejection slot.



7-2. Connector

7-2-1. Interface Connector

The following diagram is the interface connector as viewed from the acceptor side or from a relay board.



Box Type Plug XG4C-1034 (Omron)



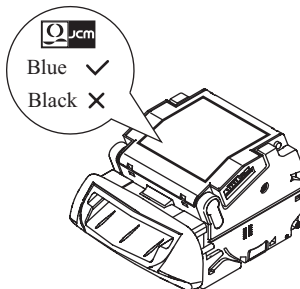
- If a relay board is attached to the TAIKO unit, do not attempt to remove it.

7-3. Pin Assignment

7-3-1. Interface Connector Pin Assignment



- The following pin assignment is for TAIKO units with a blue JCM logo label. If the logo is black, the pin assignment may differ. For details, contact JCM.



■ ccTalk Communication

Pin No.	Signal Name	I/O *1	Function
1	ccTalk+	IN/OUT	ccTalk Send/Receive Line
2	NC	-	Not Connected
3	NC	-	Not Connected
4	NC	-	Not Connected
5	NC	-	Not Connected
6	NC	-	Not Connected
7	VCC	-	12V DC Power Supply
8	VSS	-	Power Supply GND
9	NC	-	Not Connected
10	NC	-	Not Connected

*1 Conditions for the I/O (Input/Output) column are from the acceptor side.

■ Serial(ID-003)/MDB Communication

Pin No.	Signal Name	I/O *1	Function
1	NC	-	Not Connected
2	NC	-	Not Connected
3	RXD-	IN	Data Receive Line (Active when current is applied)
4	RXD+		
5	TXD-	OUT	Data Send Line (Active when current is applied)
6	TXD+		
7	VCC	-	12V DC Power Supply
8	VSS	-	Power Supply GND
9	NC	-	Not Connected
10	NC	-	Not Connected

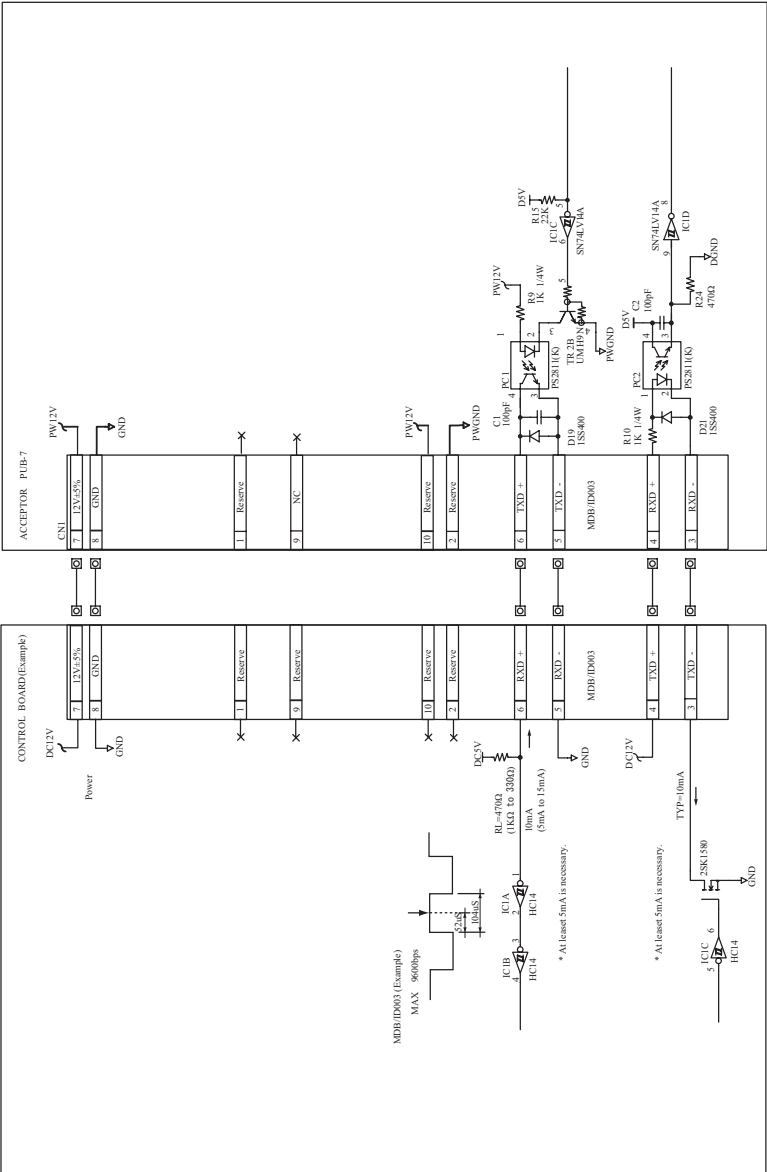
*1 Conditions for the I/O (Input/Output) column are from the acceptor side.

■ **Pulse Communication**

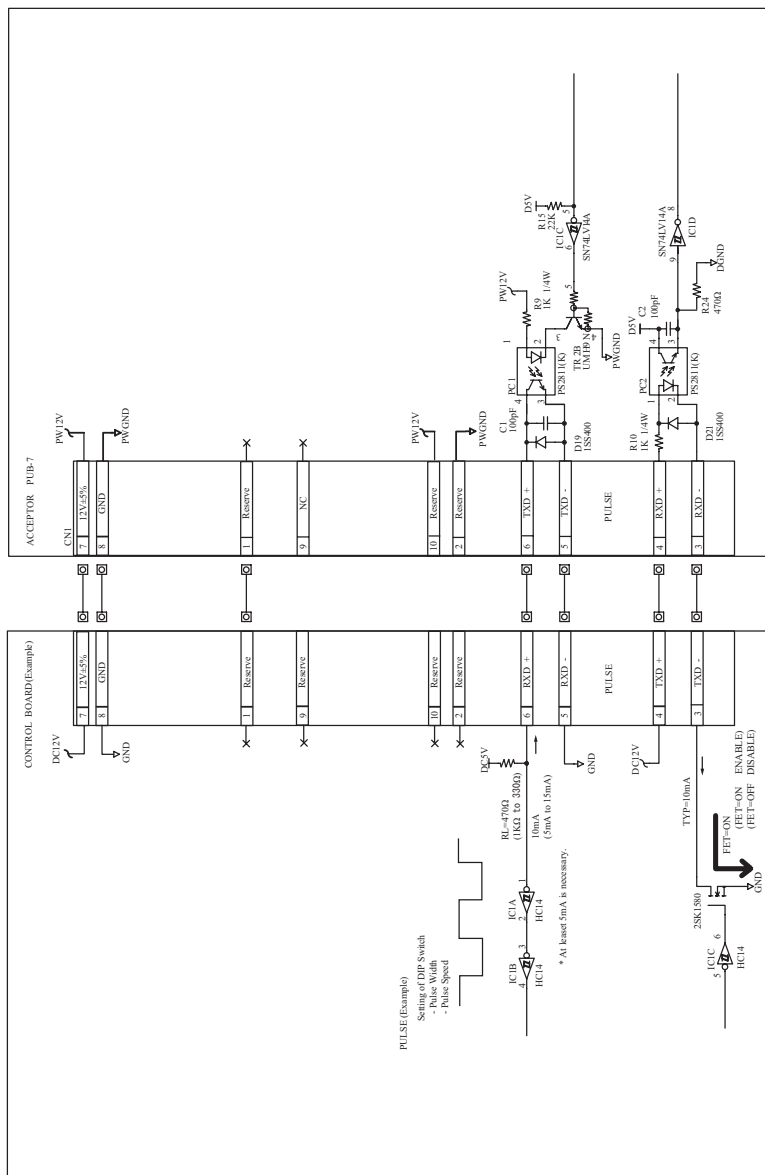
Pin No.	Signal Name	I/O *1	Function
1	NC	-	Not Connected
2	NC	-	Not Connected
3	ENABLE/ DISABLE (-)	IN	Enable/Disable Signal Input Line (Enable when the current is applied. Disable when the current is <u>NOT</u> applied.)
4	ENABLE/ DISABLE (+)		
5	VEND(-)	OUT	Pulse Signal Output Line (Active when the current is applied.)
6	VEND(+)		
7	VCC	-	12V DC Power Supply
8	VSS	-	Power Supply GND
9	NC	-	Not Connected
10	NC	-	Not Connected

*1 Conditions for the I/O (Input/Output) column are from the acceptor side.

7-4-2. Serial(ID-003)/MDB Interface Circuit



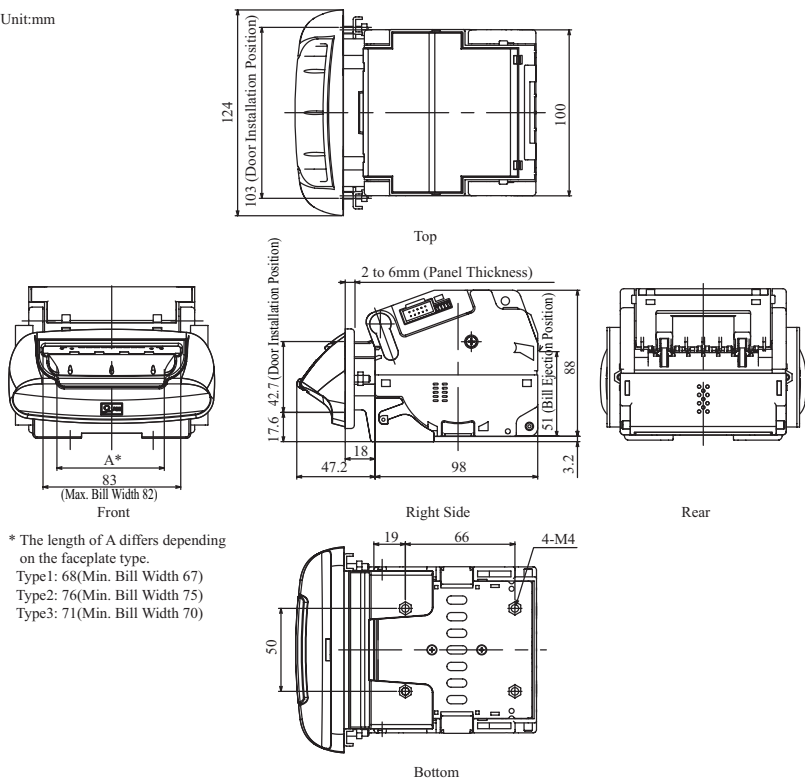
7-4-3. Pulse Interface Circuit



7-5. External Dimensions

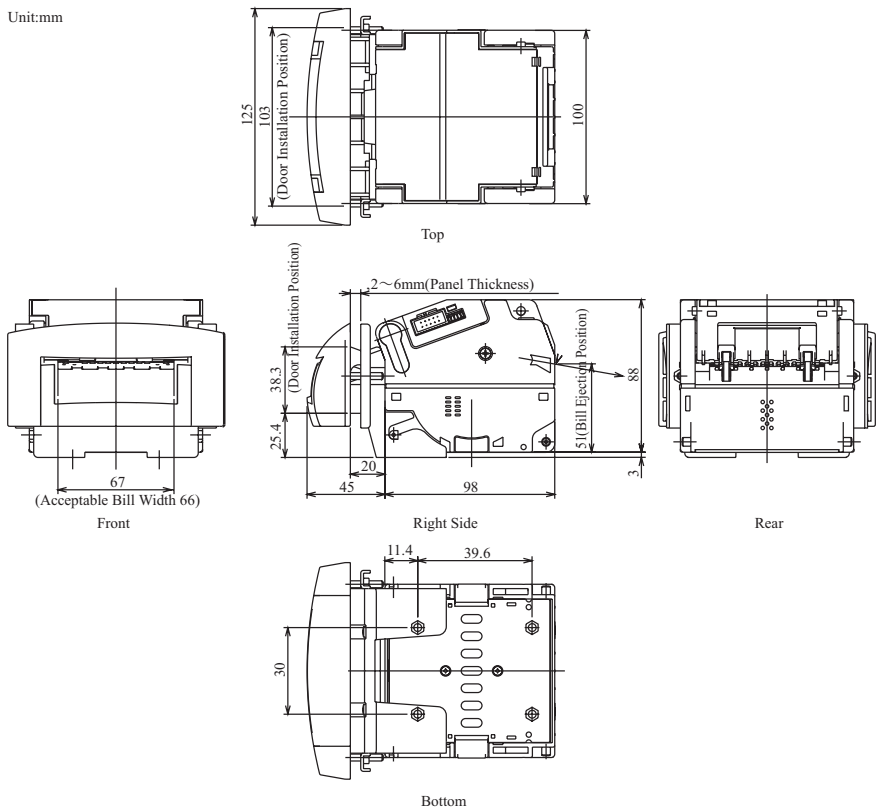
7-5-1. External Dimensions when installing Type1/Type2/Type3 Faceplate

Unit:mm



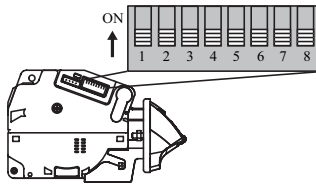
7-5-2. External Dimensions when installing Type5 Faceplate

Unit:mm



7-6. DIP Switch Settings

The communication method and various functions of the TAIKO unit can be set with the DIP switches on the left side of the unit.



Left Side

7-6-1. Basic Settings

SW#	Setting Item		
	ON		OFF
1	Test Mode *1		Normal Mode
2	Double-Scan Mode *2		Normal Mode
3	Reserved		
4	Five (5) drum cycle (fishing prevention)		Normal operation
5	Refer to the Software Specifications		
6	SW#		
	6	7	8
7	OFF	OFF	OFF
	ID-003		
	ON	OFF	OFF
8	MDB		
	OFF	ON	OFF
	ccTalk (Not Encrypted)		
	ON	ON	OFF
8	ccTalk (Encrypted)		
	-	-	ON
	Pulse *4		

*1 For details about the TEST mode, refer to the TAIKO Service Manual.

*2 The acceptance rate will be improved but operation time will be increased if a banknote is rejected.

*3 Fishing prevention will be improved but operation time will be increased.

*4 For details on the Pulse I/F, refer to the Software Information Sheet.

7-6-2. Denomination Setting Mode

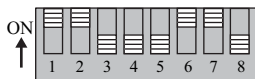
Perform the accept/Inhibit Setting of the banknote denomination based on the software for your country. The default settings are to accept all denomination.

■ Accept Setting



To perform the accept setting, set DIP switch Nos.1 and 6 to ON and then turn on the power to the TAIKO unit. After the LED flashes white, set DIP switch No.1 to OFF to enter the setting mode. Insert the denomination of banknote that you want accepted into the insertion slot. The setting is registered if the LED remains lit light blue and the banknote is returned. Insert the next denomination of banknote that you want accepted.

■ Inhibit Setting



To perform the inhibit setting, set DIP switch Nos.1, 6 and 7 to ON and then turn on the power to the TAIKO unit. After the LED flashes white, set DIP Switch No.1 to OFF to enter the setting mode. Insert the denomination of banknote that you want inhibited into the insertion slot. The setting is registered if the LED remains lit orange and the banknote is returned. Insert the next denomination of banknote that you want inhibited.



- The accept/inhibit setting for banknote denominations can be confirmed with the LED lamp.

After the initial operation is performed, the LED will flash a number of times equal to the total number of banknote denominations. Blue indicates an accept setting and yellow means a inhibit setting.

Example: If 5, 10 and 20 euro notes are set to be accepted and 50 and 100 euro notes to be inhibited, the LED will flash the corresponding 5 times as follows: blue, blue, blue, yellow and yellow.

7-6-3. LED Pattern Setting Mode

The LED pattern can be changed according to your preference. Select between pattern 1 and pattern 2. The default setting is pattern 1.

■ Define Pattern 1



Set DIP switch Nos.1, 2 and 7 to ON and then turn the power to the TAIKO unit. Set DIP switch No.1 to OFF to set the LED pattern to pattern 1.

■ Define Pattern 2



Set DIP switch Nos.1, 3 and 7 to ON and then turn on the power to the TAIKO unit. Set DIP switch No.1 to OFF to set the LED pattern to pattern 2.

7-6-4. Encryption Code Initializing Setting Mode

When using ccTalk Communication (Encryption) Mode and the encryption code is unknown, perform the Encryption Code Initializing Setting to initialize the Encryption Code to the last 6 digits of the TAIKO serial number.

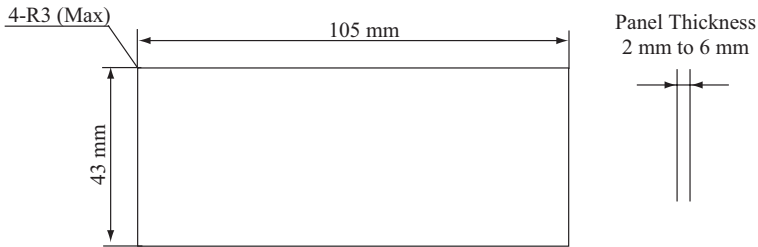


Set DIP switch Nos. 1 to 6 to ON (Set DIP switch Nos. 7 and 8 to OFF) and then supply the power to the TAIKO unit. Set DIP switch No. 1 to OFF to initialize the encryption code.

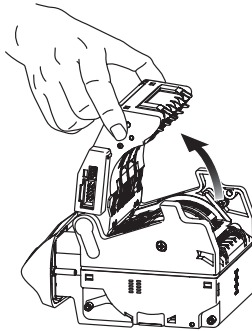
8. Installation/Removal

Perform the following procedure when installing the TAIKO unit.

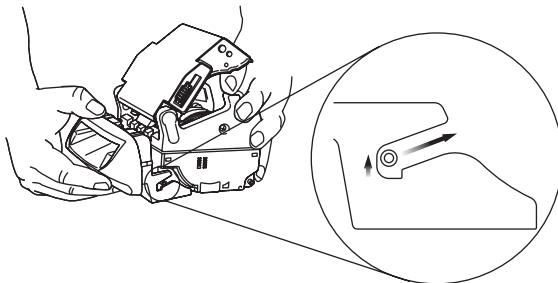
1. Use the panel cutting dimensions given below and create the correct size of opening required for installing the TAIKO unit to the door.



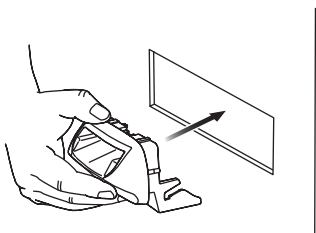
2. Hold in the upper lid open/close buttons on both sides of the TAIKO unit and open the upper lid in the direction of the arrow.



3. Grasp the TAIKO unit with your hand under the upper lid.
4. Press down slightly on the faceplate and raise up on the TAIKO unit. Slide the TAIKO unit up and back to detach it from the faceplate.



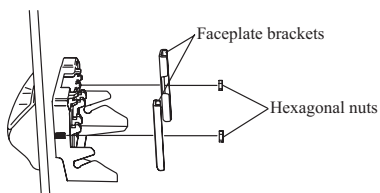
5. Remove the faceplate brackets (2) and the hexagonal nuts (2) from the faceplate, then insert the faceplate into the cutout from the front side of the door.



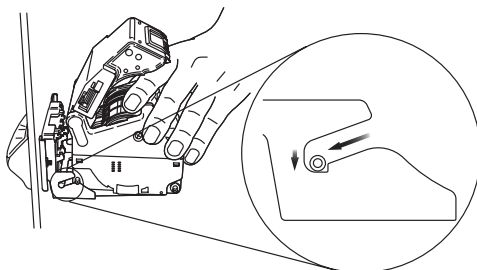
6. Fix the faceplate onto the door using the faceplate brackets (2) and the hexagonal nuts (2).



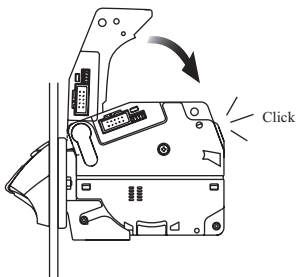
- **Tightening the nuts with too much force can damage the faceplate.**
The required torque is 0.7 Nm.



7. Hold in the upper lid open/close buttons once again, open the upper lid, and grasp the TAIKO unit with your hand under the upper lid.
8. Insert the faceplate installation guide pin into the faceplate guide, and slide the TAIKO unit all the way into the guide and then push down, as indicated by the arrows.



9. Close the upper lid firmly until it clicks into place.



- Be careful not to get your finger caught when closing the upper lid.
- Confirm that the TAIKO unit and faceplate are installed securely to the door.



Note

- To remove the TAIKO unit, perform the procedure shown above in reverse order.

9. Wiring

Connect the power harness to the TAIKO unit.



- When installing the TAIKO unit or connecting the wiring the harness, make sure that the power harness is unplugged from the power terminal.
- The TAIKO unit is designed to use only 12V DC (+5%) input. Any other power level can damage the unit.
- Do not pull on the power harness with undue force, as that may cause the power socket to become disconnected.

9-1. Recommended Parts

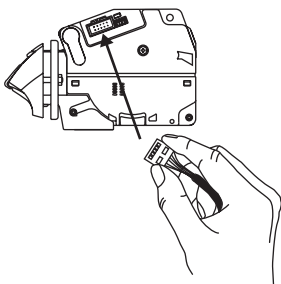
We recommend the following parts for wiring.

Socket	Rock Lever Socket XG5M-1032-N (Omron)	Socket for flat cable XG4M-1030-T (Omron)
Semi Cover	XG5X-0501 (Omron)	-
Rock Lever II	XG4Z-0002 (Omron)	-
Applicable Wires	UL1061 AWG24	1.27 mm pitch Flat Cable AWG28 UL2651/UL20012

9-2. Wiring Procedure

Perform the following procedure when connecting the power harness.

1. Confirm that there is no power being supplied to the power harness.
2. Connect the power harness to the TAIKO unit's interface connector.
3. Turn on the power and confirm that the TAIKO unit operates properly.



10. Clearing a Banknote Jam

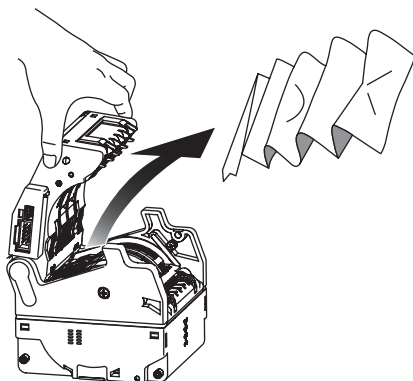
When a banknote becomes jammed inside the TAIKO unit, follow the instructions below to remove the jammed banknote.



- Be sure to turn off the power to the TAIKO unit when opening the upper and lower lids. Failure to do so may result in your fingers becoming caught in the moving roller.

■ Open the upper lid

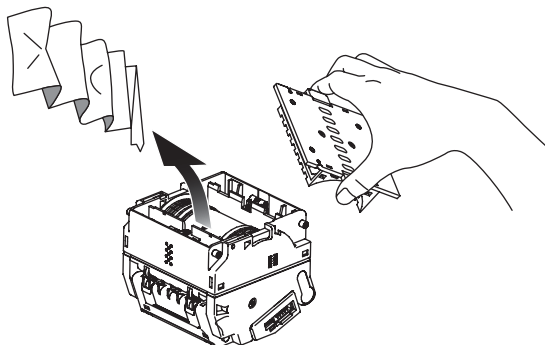
1. Confirm that the power to the Taiko unit is turned off.
2. Hold in the upper lid open/close buttons and open the upper cover, then pull out the jammed banknote.



- Be careful not to get your finger caught when closing the upper cover.

■ Open the lower lid

1. Confirm that the power to the TAIKO unit is turned off.
2. Remove the faceplate from the TAIKO unit. See => “6. Installation/Removal”
3. Hold in the lower cover lock release buttons and remove the lower lid, then pull out the jammed banknote.



11. Error Codes

The number of times the LED lamp flashes red indicates the type of error that has occurred in the TAIKO unit. The LED lamp is located in the middle of the faceplate. See=> “4. Names of Parts”

# of times LED flashing	Description
Red 2	ROM error
Red 3	Banknote remains inside ejection slot
Red 4	Banknote remains inside transport path
Red 5	EEPROM read/write error
Red 6	Motor error
Red 8	Entrance solenoid sensor error
Red 9	Exit solenoid sensor error
Red 12	Fraud detected

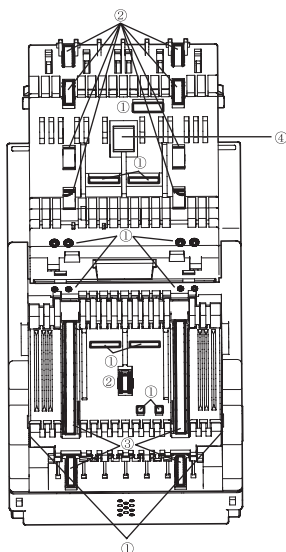
12. Cleaning

If paper or other type of dust or a foreign object adheres to the validation-related parts, the acceptance rate may drop. Thus, it is recommended that validation-related parts be cleaned once a month. Wipe any dirt off the sensors with lint-free cloth or cotton bud. Completely remove all paper or the other type of dust, as well as any foreign objects, from the rollers.

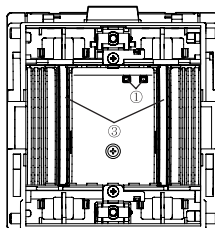


- Do NOT wipe the TAIKO unit with organic solvents such as a thinner or benzene.

■ Sensors/Rollers Location



With the upper lid open



With the lower lid open

- ① Optical/Transparency Sensors
- ② Pinch Rollers
- ③ Feed Rollers
- ④ MAG Sensor (PUB-11 Only)

13. Product Support

If you happen to experience any problems or errors with your TAIKO unit, or have any inquiries regarding your unit, consult with your nearest JCM contact as shown below. Please be sure to make a note of the problem points and symptoms, or the content of your inquiry, prior to making contact.

■ Japan

Japan Cash Machine Co., Ltd. (Headquarters)

No. 3-15, Nishiwaki 2-Chome, Hirano-ku, Osaka 547-0035

Japan

Phone: +81-66-703-8406

Fax: +81-66-704-7843

URL: www.jcm-hq.co.jp

■ America, Oceania

JCM American Corporation

925 Pilot Road

Las Vegas, NV 89119

U.S.A.

Phone: +1-702-651-0000

Fax: +1-702-644-5512

e-mail: customerservice@jcm-american.com

URL: www.jcmamerican.com

■ Europe, Russia, Middle East, Africa

Japan Cash Machine Germany GmbH

Mündelheimer Weg 60

D-40472 Düsseldorf

Germany

Phone: +49-211-530645-0

Fax: +49-211-530645-65

e-mail: support@jcm-germany.com

URL: www.jcm-germany.com

■ UK, Ireland

JCM United Kingdom Ltd.

Unit B, Third Avenue, Denbigh West Business Park

Bletchley, Milton Keynes, Buckinghamshire MK1 1EJ,

UK

Phone: +44-870-770-2863

Fax: +44-190-837-7834

e-mail: info@jcm-uk.com

URL: www.jcm-uk.com

■ Asia (Other than Japan)

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