

K.COM

OPERATION MANUAL

BILL VALIDATOR.(Stackerless)



Many thanks for your consideration of our **K.COM** Bill Validator. Please read this operation manual carefully before using our mechanism.

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- MODEL : KBV-P3100
(Pulse Type)
- POWER : ● +12VDC
● +24VDC (Option)
- POWER CONSUMPTION
 - 150mA (Waiting mode)
 - 700mA (Operating mode)
- DIMENSIONS :
W83.2 X D126.5 X H85.5
- WEIGHT : Approx 1 kg

KOREA COIN MECHATRONICS CO., LTD.

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9. DIMENSIONS

1. SPECIFICATION

1-1). Introduction

K.COM's KCM-P3100 series has various functions and an excellent ability for differentiating a real bill from a counterfeit bill. It is a slim type bill validator of horizontal transfer method

1-2). General Specification

MODEL : KBV-P3100(Pulse Type)

Type	Description
Nation(Code)	RUSSIA (0+007)
Usable bill	5 Rubles,10 Rubles
Communication method	Pulse Interface
Dimension	Width 76m/m ~ 55 m/m
Method of bill inserting	The way of vertical four direction's horizontal insertion, and horizontal ejection
Method of bill validating	Length, Width, Material, Image, Magnetism
Time for bill validating	Approx. 0.5sec
Power	+ 12VDC, + 24VDC(Optional)
Power consumption	Approx. 150mA(Waiting mode) Approx. 700mA(Operating mode)
Temperature range	-10C ⁰ ~ + 60C ⁰
Weight	Approx. 1 Kg
Functions	<ul style="list-style-type: none">▪ Preventing the continuous inserting▪ The function of choosing the usable kinds of bills▪ Preventing the robbery through convert ejecting▪ Escrow (One bill)

1-3) Features

- ⊙ Remarkable ability for validating with the various method of bill validating
- ⊙ Multi kinds of bill's system which can use maximally 6 kinds of bills the same width.
- ⊙ Protection against any system of burglary according to the method of stealing.
- ⊙ Can communicate RS232 for the use of kiosk equipment(*Option)
- ⊙ Instrument systems allowing product attachments and detachments are convenient
- ⊙ By using dip switch, you can choose the kinds of usable bills and adjust optionally the number of pulse from 1 to 31 and use.

1-4) Manual for operation

(1) Prohibiting the bill acceptance

- ① Power off
- ② After accepting the prohibiting signal from the VMC
- ③ Continuous inserting of bill
- ④ In case of acceptance prohibiting
 - Motor operating trouble
 - Sensoring part trouble
 - When a jam happens

(2) Operation after the discrimination

- ① In case of normal bill : Communicate with VMC after the temporarily storing in escrow
- ② In case of the counterfeit : Eject the bill
- ※ After a Jam happens, the bill is transferred to the safe and stacker automatically after about 30 minutes.

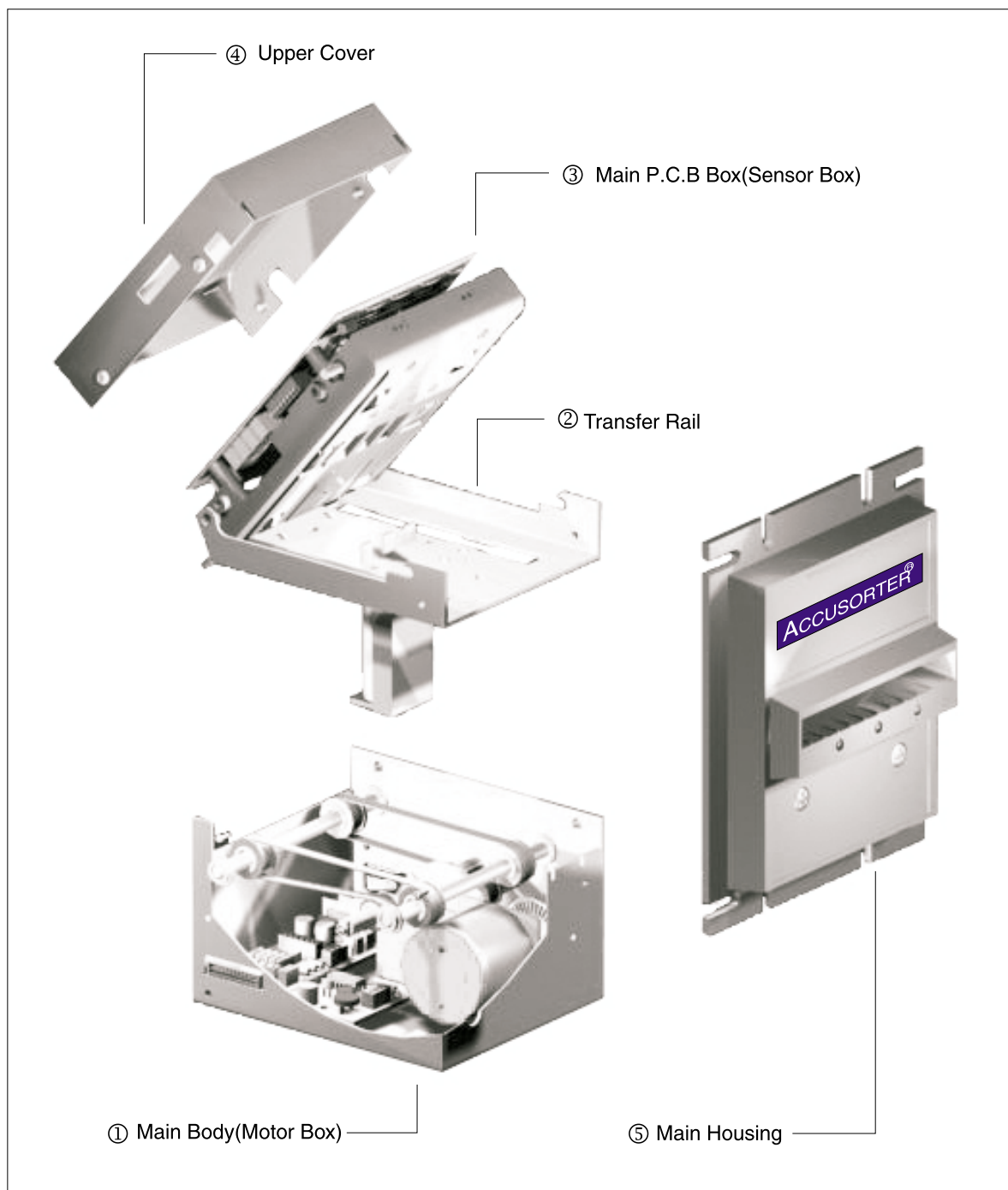
(3) The operating condition of front surface of the LED

- ① The LED which is in a normal operation flickers in a periodicity of about 500ms.
- ② The LED , if not in bill acceptance condition, remains OFF.

2.COMPOSITION OF BILL VALIDATOR

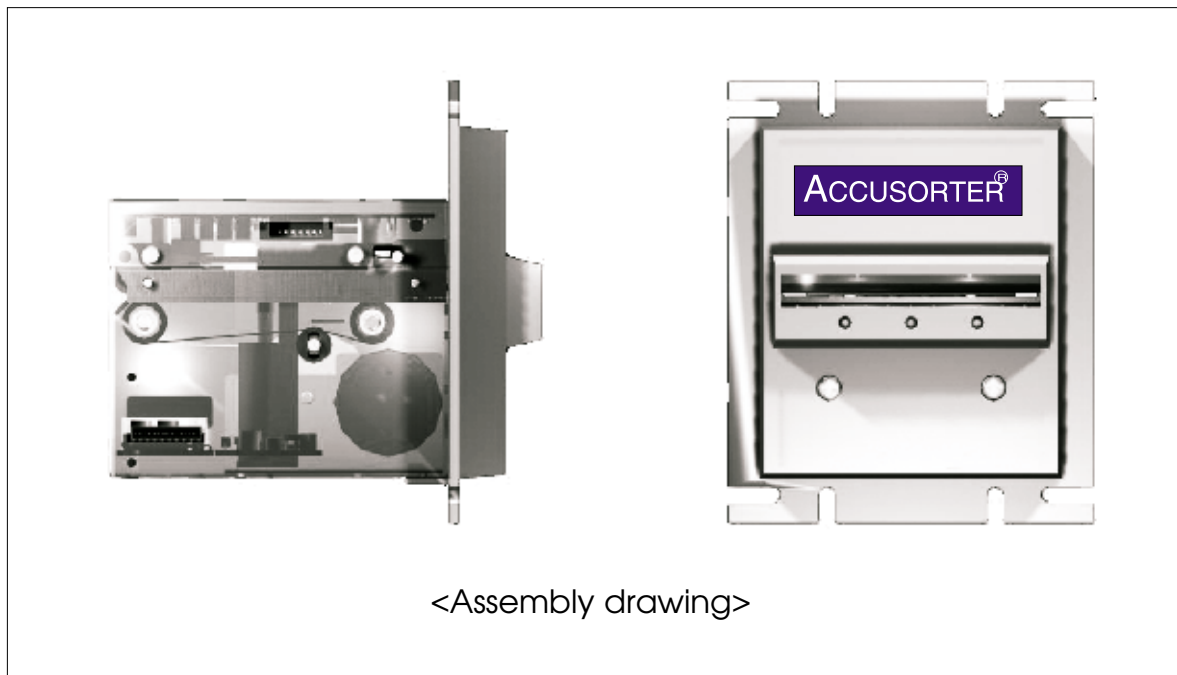
K.COM Bill validator series are composed of five section for easy change, assembly and disassembly.

- ① Main Body(Motor Box)
- ② Transfer Rail
- ③ Main P.C.B Box(Sensor Box)
- ④ Upper Cover
- ⑤ Main Housing

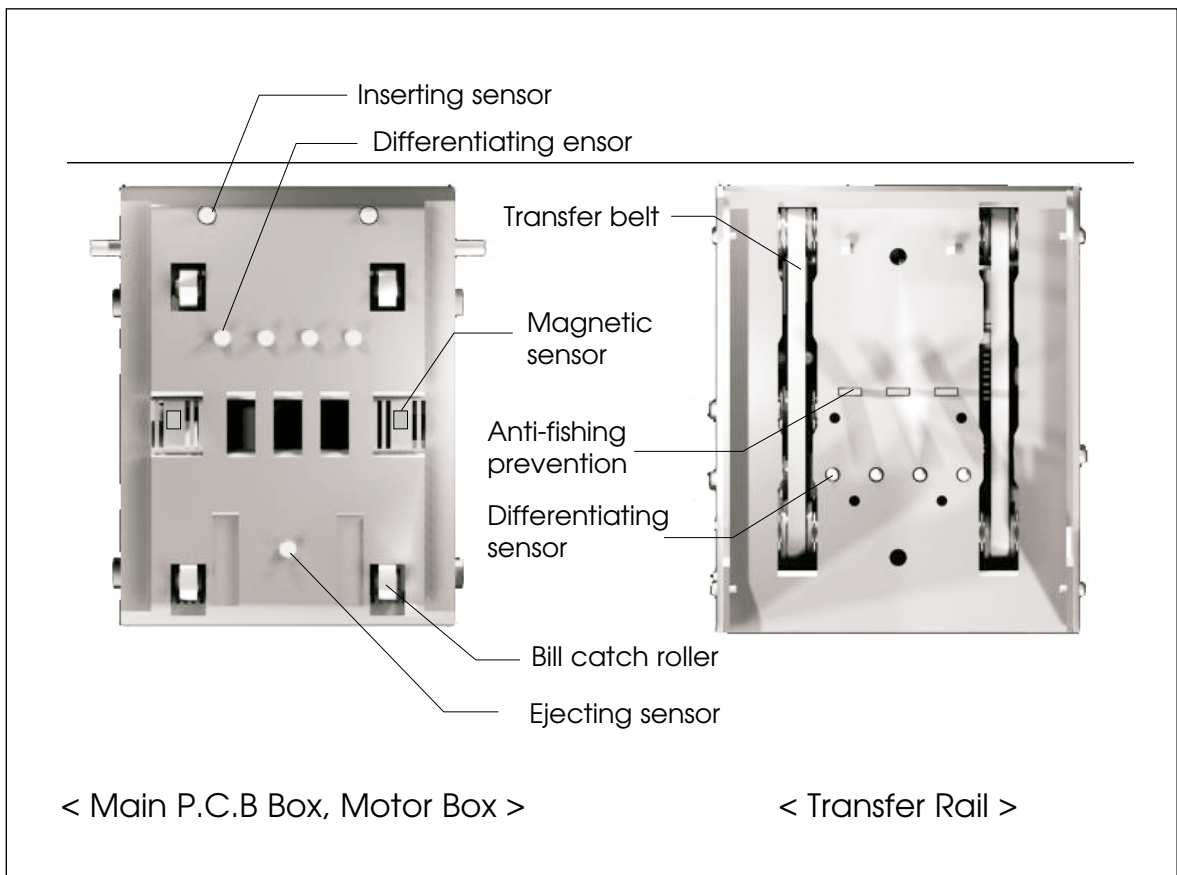


3. ASSEMBLY DRAWING AND DESIGNATION

3-1) Assembly drawing

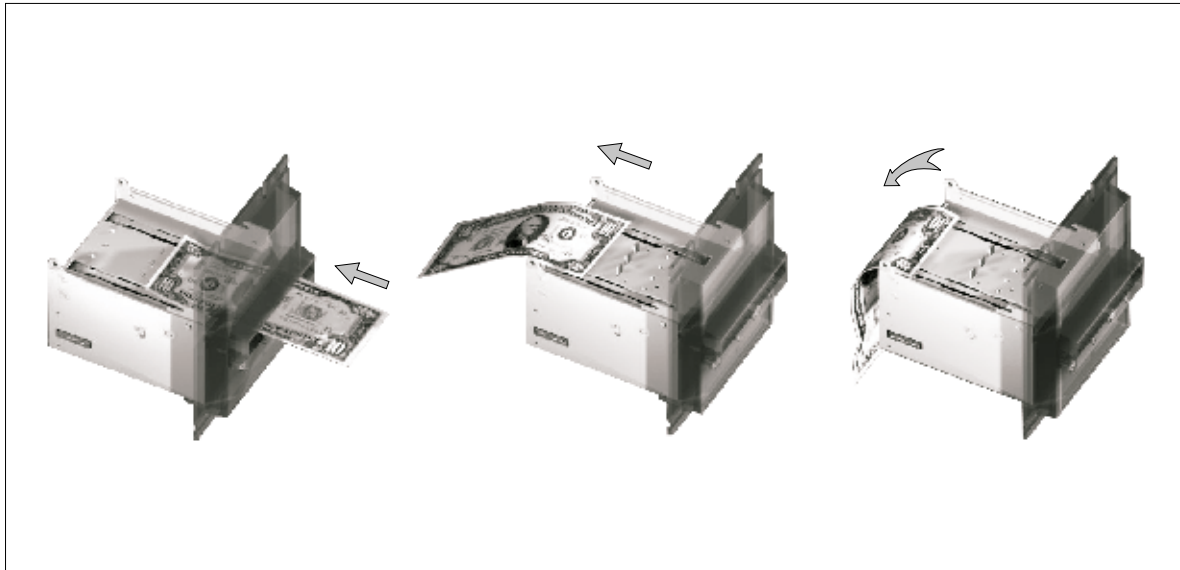


3-2) Internal structure



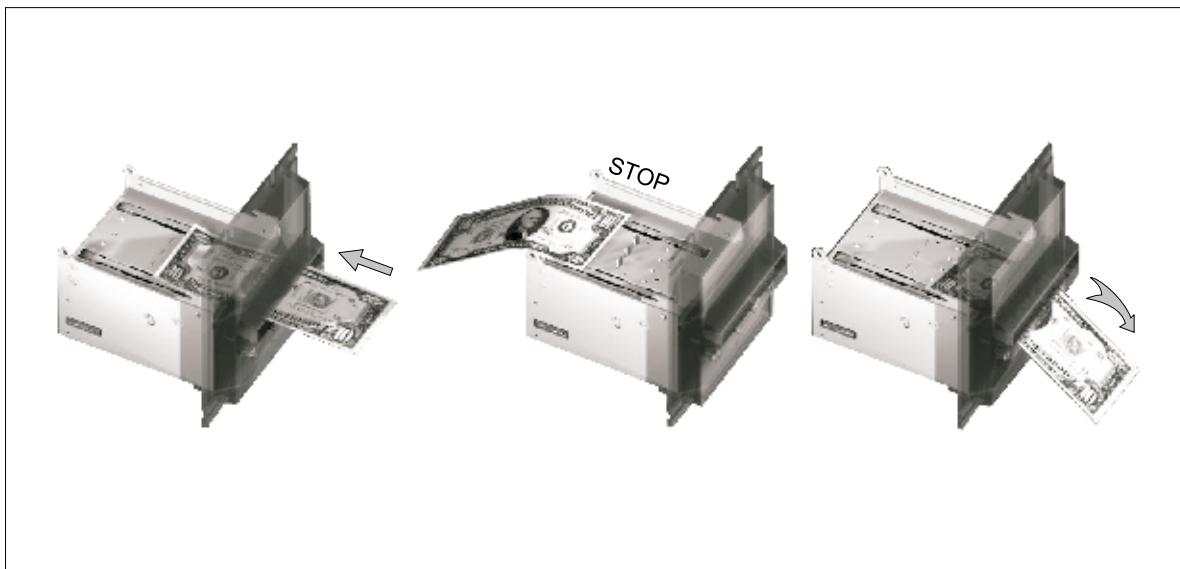
4. ROUTE FOR BILL

4-1) Route for a normal bill



A normal bill which is inserted passes the insertion sensor. Then the bill passes through the distinguishing sensor. If the bill turns out to be a real one, it will be waiting for the condition of selling with the escrow mode. The inserted bill for the purchasing will be dropped to the safe or stacker and then stored in it. And the bill is ejected in case of rejecting in the converse way.

4-2) Route for a counterfeit bill



The inserted counterfeit bill or abnormal bill will be transferred the same way as the real bill . But if the bill turns out to be counterfeit, it is ejected in the opposite direction to insertion. If it turns out to be a real bill for stealing, the anti-fishing prevention device blocks the reverse ejection.

5. MAINTENANCE

5-1) Periodic cleaning



(1) Bill validating part

- In the power "OFF" mode, open the main P.C.B box from the main body's bill-transferring part. Then check and remove any foreign substances which have stained various sensors from the bottom side. Next, clean the dust and other foreign substances with soft brush and alcohol immersed dry towel.
- When there are the decline of Bill Validator's acceptance rate and something wrong in the function of differentiation, you have to clean it regularly more than once a month according to the degree of the pollution because a lot of factors of the foreign substances such as dust which is stained in the various sensor's surfaces influence it.

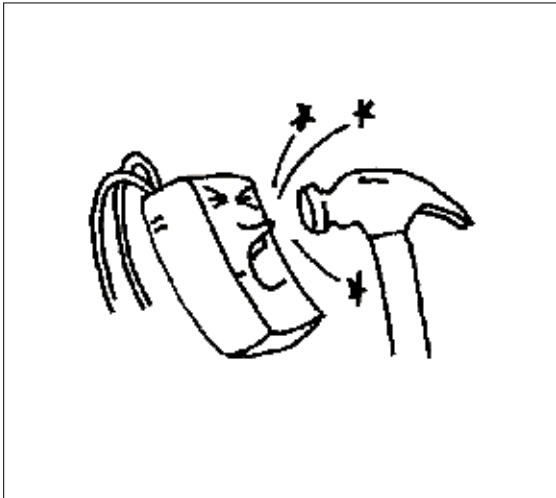
(2) Bill transferring part

- After checking and removing the various foreign substances in the bill transfer rail, rub the sensor clean like above and then check the tension of the bill transfer belt.
- After cleaning, when assembling the product, press main P.C.B box and attach it to the main body and do the trial insertion of the usable bill for 5 to 10 times. After you check it is normal, and then use.

< Attention >

- ▶ In case of using a cleaning agent, avoid using solvents like lubrication oil and thinner. Using alcohol and wipe with a dry cloth.
- ▶ **Don't tighten or untighten any screws fixed to the main body because of their important functions for bill transferring & validating.**
- ▶ **If you assemble or disassemble this product without any pertinent purpose except above listed case, it will not included in free A/S range. So when any problem occurs, you must call to K.COM for repair.**

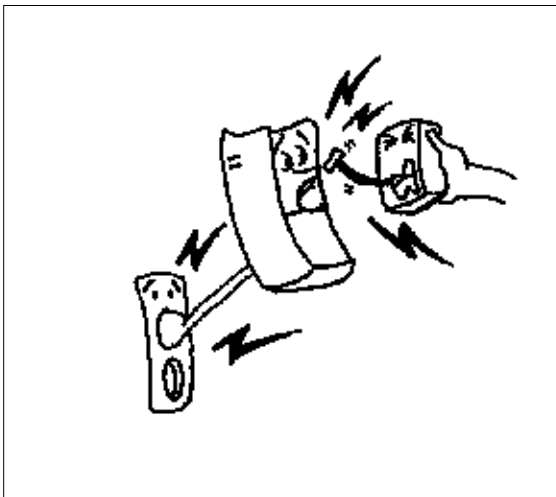
5-2) Matters that demand special attention



Please be careful to do not create any mechanical shock or dropping as it is precise assembly.



Bill validator must be carried not by holding harness but by holding it's body.



Before turning off the power, any connection and disconnection with vending machine is strictly prohibited.



Keep out high temperature and humid places because bill validator has circuit inside.

5-3) Removing method in case of jamming



► **Turn off the power of VMC**

- Pull the lock button on both sides of upper cover. Then lift main P.C.B box and remove jammed bill in the transfer part.
- After removing the bill, press main P.C.B box and attach the box to main body. Then check if there is any problem. If not, then use.

< Attention >

- Completely attach the bill validator part to main body until it makes the sound of clatter.

6. MAIN CONNECTOR

--10 Pin connector

Pin No	Input /Output	Name of the signal	Description
1	Output	BUSY	Open Collector, Active Low
2	Output	VEND 1	Open Collector, Active Low
3	Output	JAM	Open Collector, Active Low
4	Input	COMMON	Photo LED, Anode
5	Input	INHIBIT	Photo LED, Cathode
6	Input	ESCROW	Photo LED, Cathode
7	Output	VEND 2	Open Collector, Active Low
8	Input	POWER	POWER(DC 12V)
9	Input	POWER	POWER(DC 12V)
10	Input	POWER(GND)	POWER(GND)

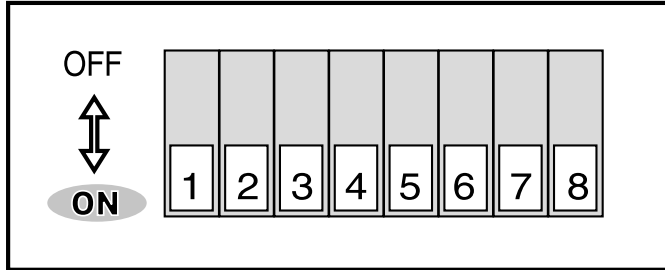
►The condition for input, output and transmission, receiving is standardized by bill validator.

►Housing : 53015-10(Molex)

7. HOW TO USE DIP SWITCH

-- By using dip switch, you can choose the kinds of usable bills and adjust optionally the number of pulse from 1 to 31 and use.

7-1) Function of DIP S/W



- ① No.1~5 : Pulse adjustment
- ② No.6~7 : Set up the usable bill
- ③ No.8 : Set up the pulse width

7-2) Pulse adjustment

- Basic type : When all of Dip switch's 1 to 5 are "OFF", you can use it as a basic module.

1	2	3	4	5	PULSE	1	2	3	4	5	PULSE
OFF	OFF	OFF	OFF	OFF	Basic type	ON	OFF	OFF	OFF	OFF	16
OFF	OFF	OFF	OFF	ON	1	ON	OFF	OFF	OFF	ON	17
OFF	OFF	OFF	ON	OFF	2	ON	OFF	OFF	ON	OFF	18
OFF	OFF	OFF	ON	ON	3	ON	OFF	OFF	ON	ON	19
OFF	OFF	ON	OFF	OFF	4	ON	OFF	ON	OFF	OFF	20
OFF	OFF	ON	OFF	ON	5	ON	OFF	ON	OFF	ON	21
OFF	OFF	ON	ON	OFF	6	ON	OFF	ON	ON	OFF	22
OFF	OFF	ON	ON	ON	7	ON	OFF	ON	ON	ON	23
OFF	ON	OFF	OFF	OFF	8	ON	ON	OFF	OFF	OFF	24
OFF	ON	OFF	OFF	ON	9	ON	ON	OFF	OFF	ON	25
OFF	ON	OFF	ON	OFF	10	ON	ON	OFF	ON	OFF	26
OFF	ON	OFF	ON	ON	11	ON	ON	OFF	ON	ON	27
OFF	ON	ON	OFF	OFF	12	ON	ON	ON	OFF	OFF	28
OFF	ON	ON	OFF	ON	13	ON	ON	ON	OFF	ON	29
OFF	ON	ON	ON	OFF	14	ON	ON	ON	ON	OFF	30
OFF	ON	ON	ON	ON	15	ON	ON	ON	ON	ON	31

7-3) Set up the usable bill

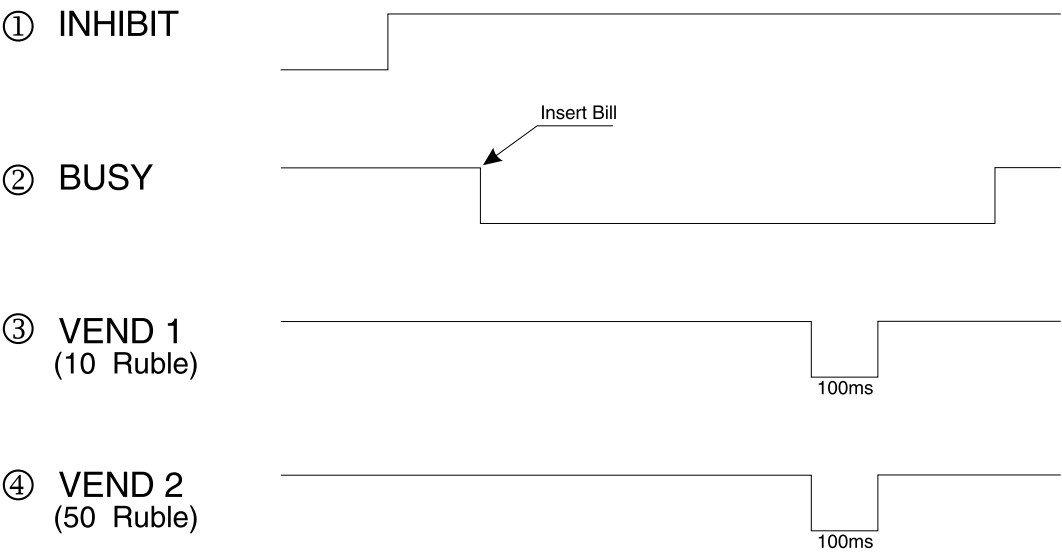
6	7	Usable bill
OFF	OFF	Use bill-1, bill-2, bill-3
ON	OFF	Bill-1 is only
OFF	ON	Bill-2 is only
ON	ON	Bill-3 is only

7-4) Set up the pulse width

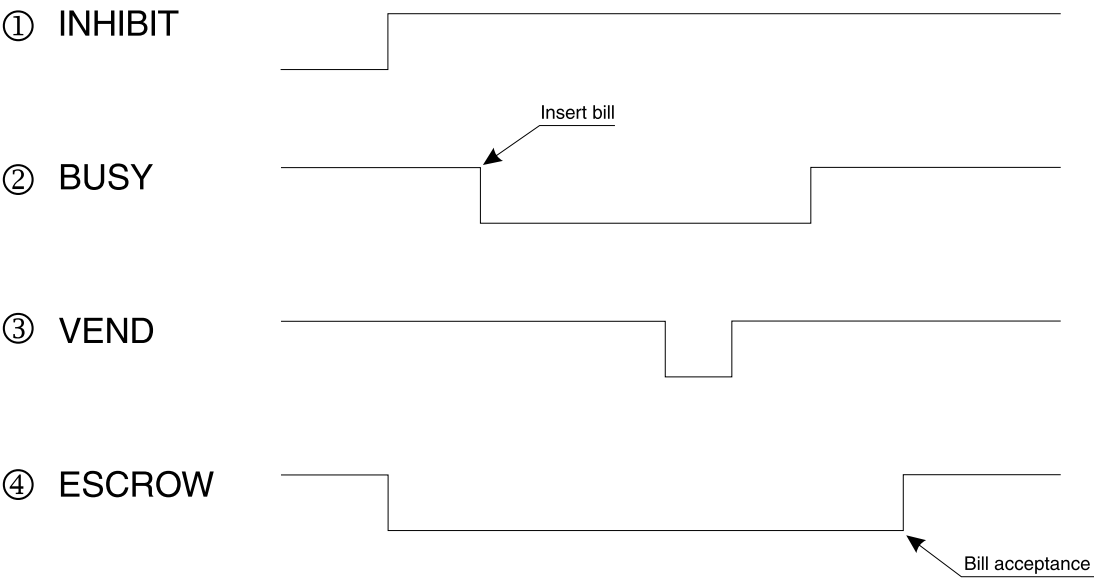
8	Pulse width
OFF	50ms LOW Output
ON	100ms LOW Output

8. PULSE TIMING CHART

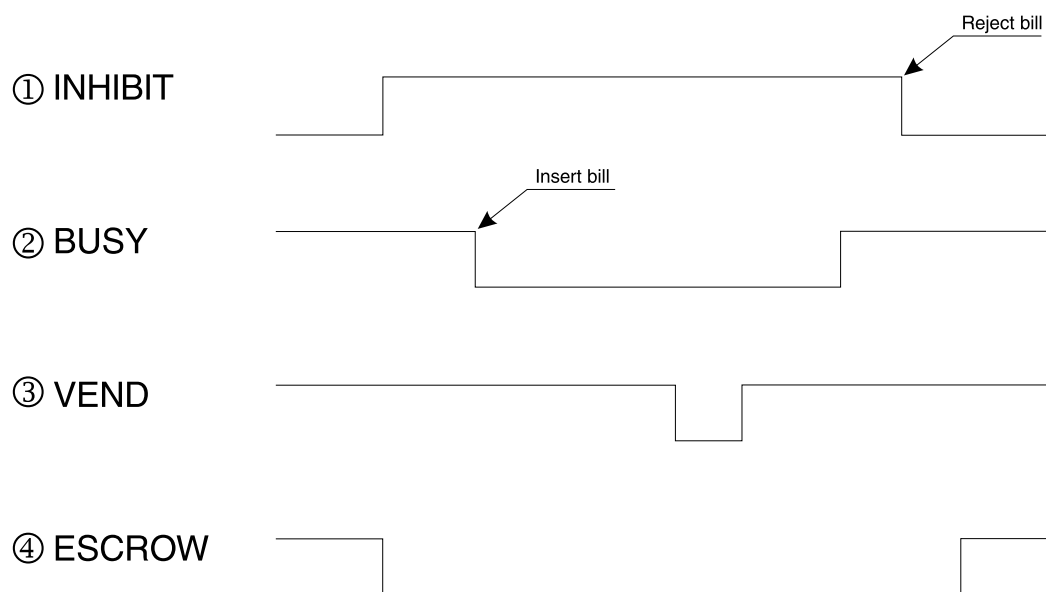
8-1) When inserting the normal bill



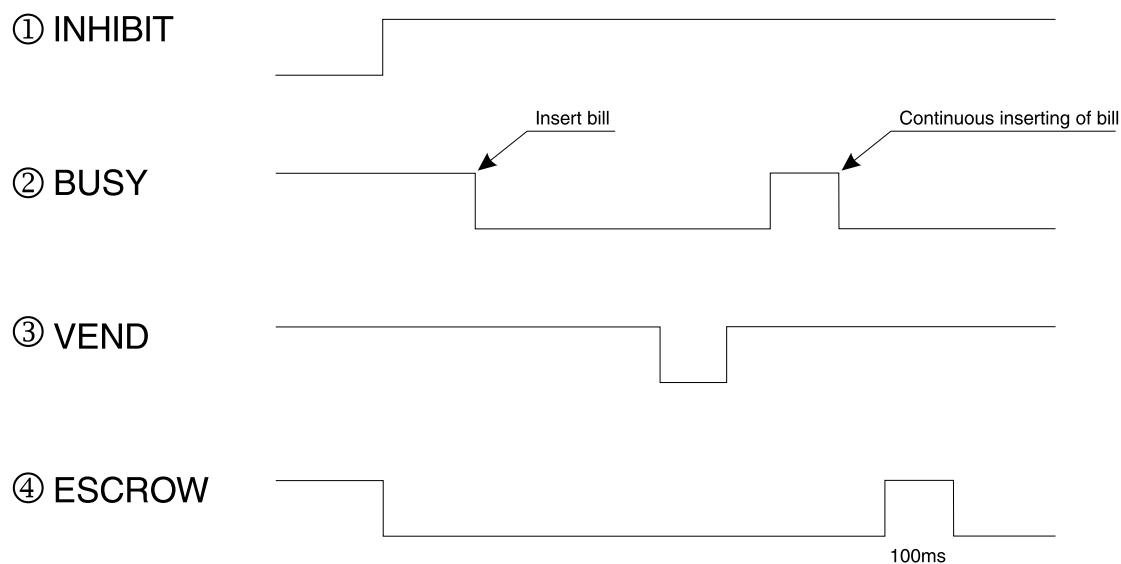
8-2) Escrow operation and acceptance(stacking)



8-3) Escrow operation and reject

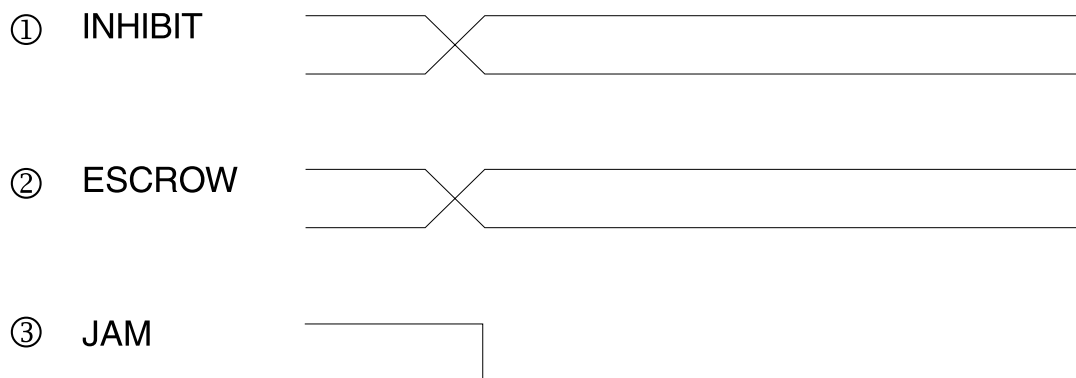


8-4) Escrow operation and continuous inserting



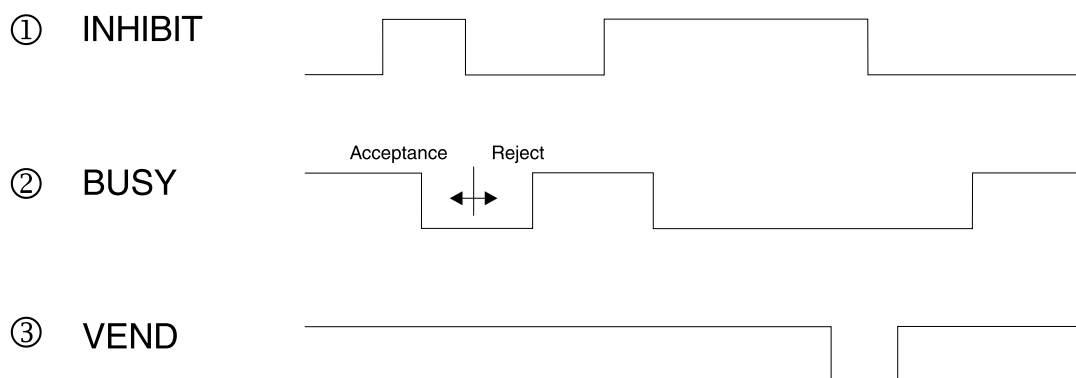
※ When the bill is in temporary holding and the BUSY signal is on, judge if there is VCM's ban of bill acceptance. And the acceptance is possible, send ESCROW signal for 100 ms. The acceptance is impossible, don't send anything and keep the temporary holding condition.

8-5) JAM Signal



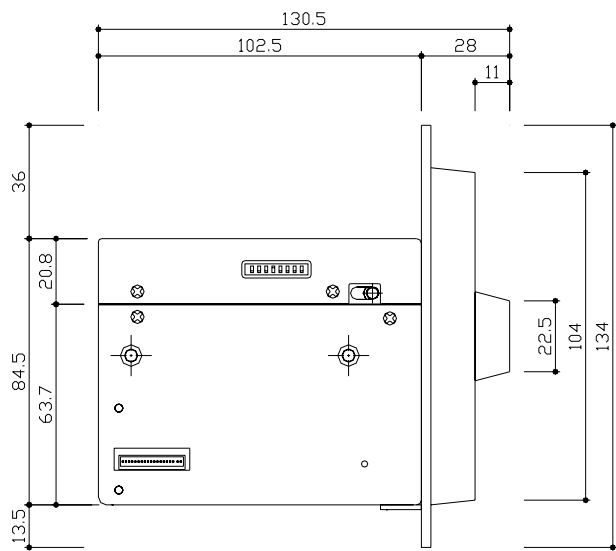
※ When a Jam happens, regardless of input signal, bill validator operations stop.

8-6) INHIBIT Signal

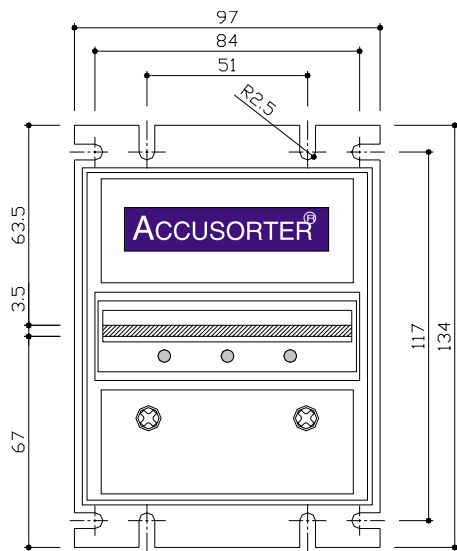


※ In the operation of differentiating the bills, when there is INHIBIT signal, you have to return the bill. But when there is INHIBIT signal after the normal bill's sending the signal, treat it as bill acceptance prohibition after completing the bill acceptance.

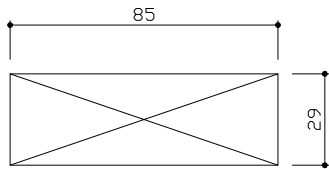
9. DIMENSIONS



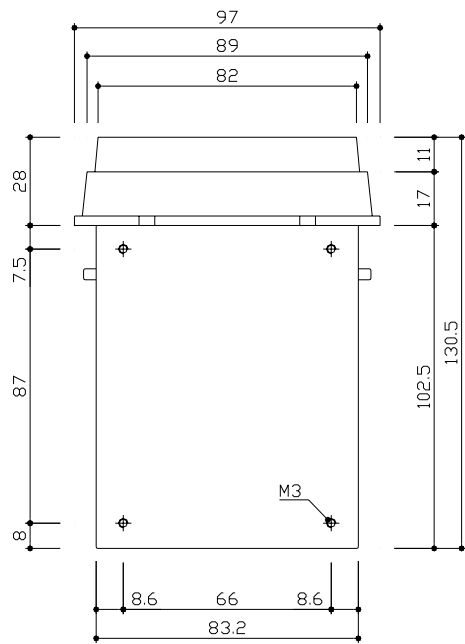
SIDE VIEW



FRONT VIEW



CUTTING SIZE



BOTTOM VIEW