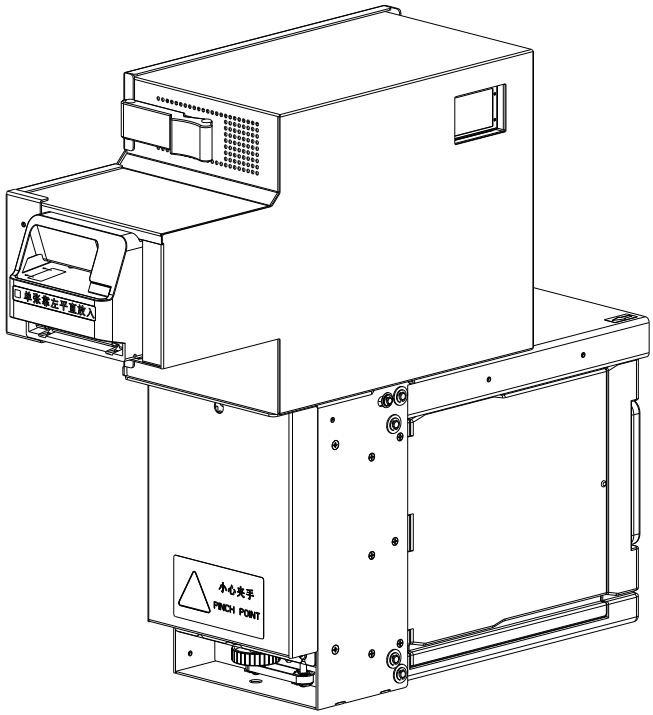
Single note deposit module

BA-15C

Technical Manual



1 . Overview

The single-bank deposit mechanism BA-15C is a core deposit module with independent intellectual property rights and internationally leading technology developed by GRGintech after years of concentrated research and development. It can identify the currency, denomination and authenticity of banknotes. It consists of an upper mechanism, a banknote recognition module, a cash box frame and a cash box. It has high reliability, ease of use and ease of maintenance. It is mainly used in occasions with small amounts of cash transactions, such as automatic ticketing systems, automatic payment systems, vending machines, change devices, parking lot automatic toll machines, bank cash exchange machines, issuance and recharging of stored-value cards and other automatic devices with deposit functions.

2 . Model and meaning

Model:

- ※ **BA-15C** : 1000 notes cash box, post operation
- ※ **BA-15C(F)** : 1000 notes cash box, front operation
- ※ **BA-15C(R2000)** : 2000 notes cash box, post operation
- ※ **BA-15C(F2000)** : 2000 notes cash box, front operation

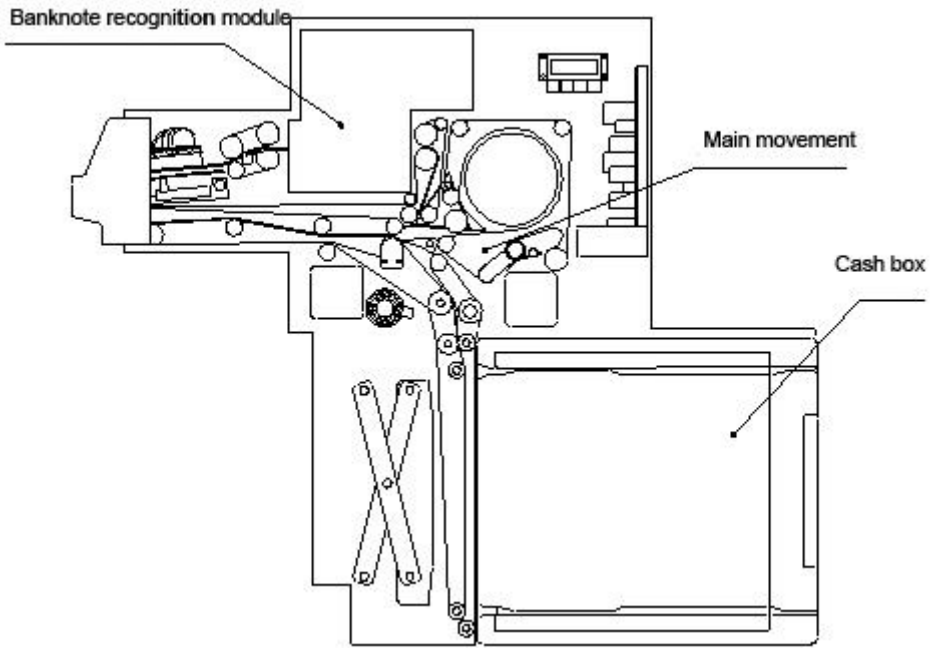
The term: BA——Bill Acceptor

3 . Appearance and composition

3.1Overall appearance

3.2 Module composition

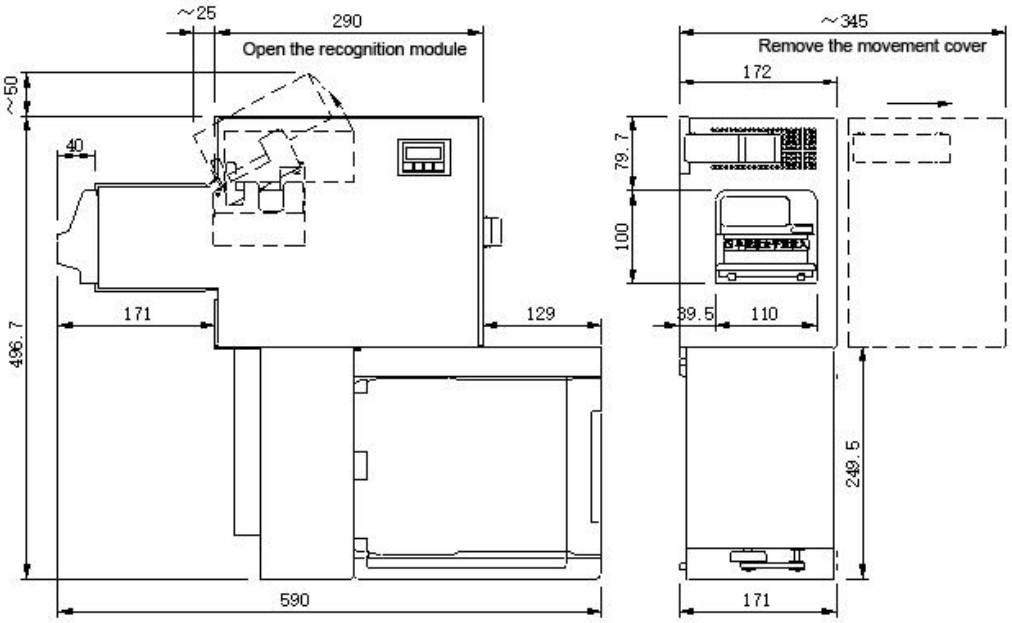
The single-bank deposit machine BA-15C consists of three parts: the main machine, the banknote recognition module and the cash box, as shown in the following figure:



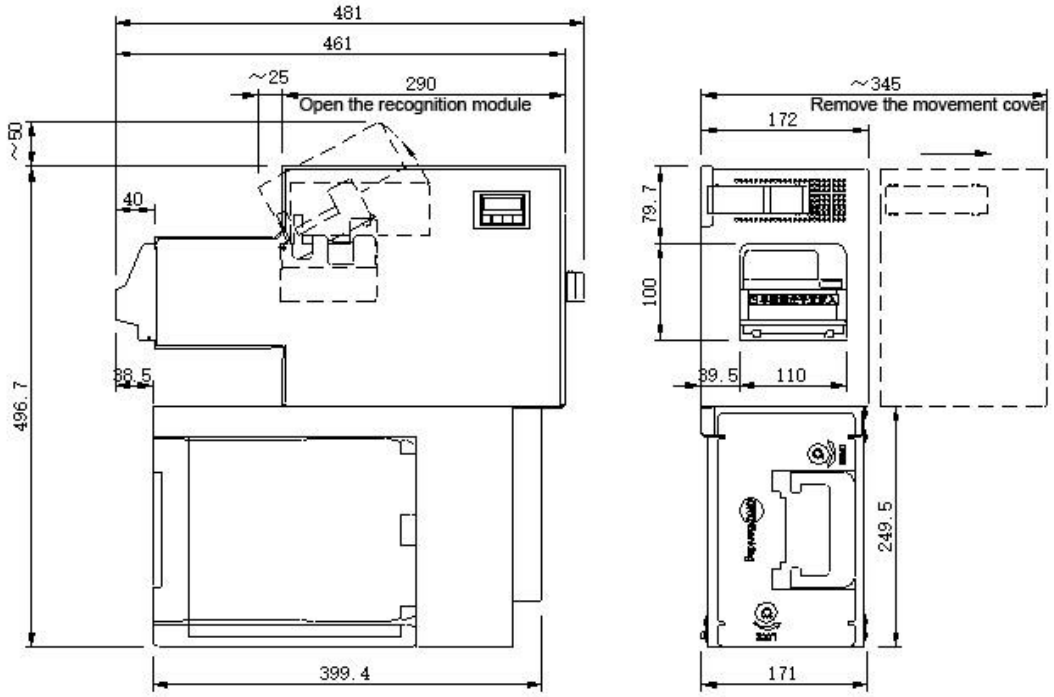
3.3Dimensions

(Unit: mm)

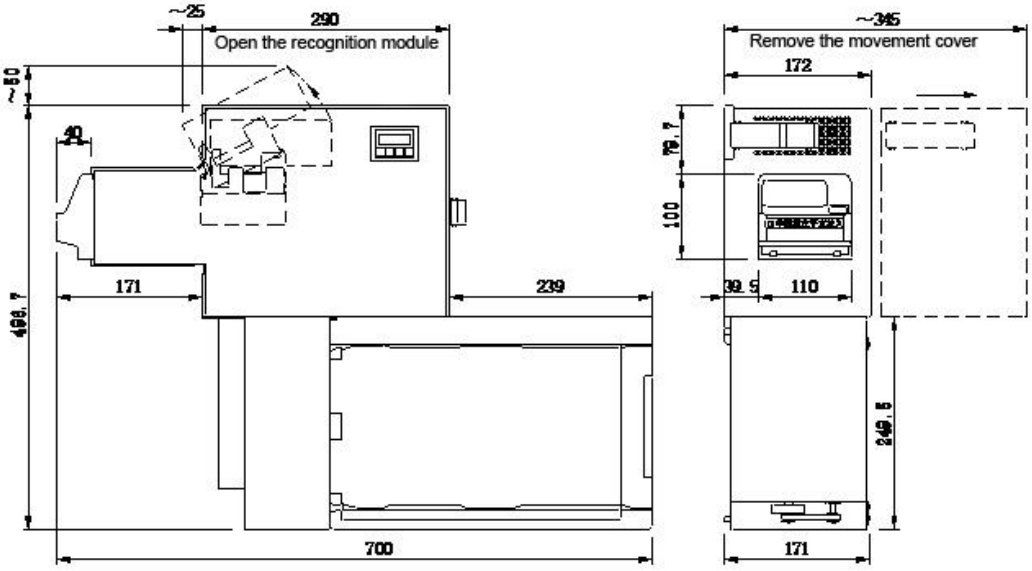
① BA-15C:



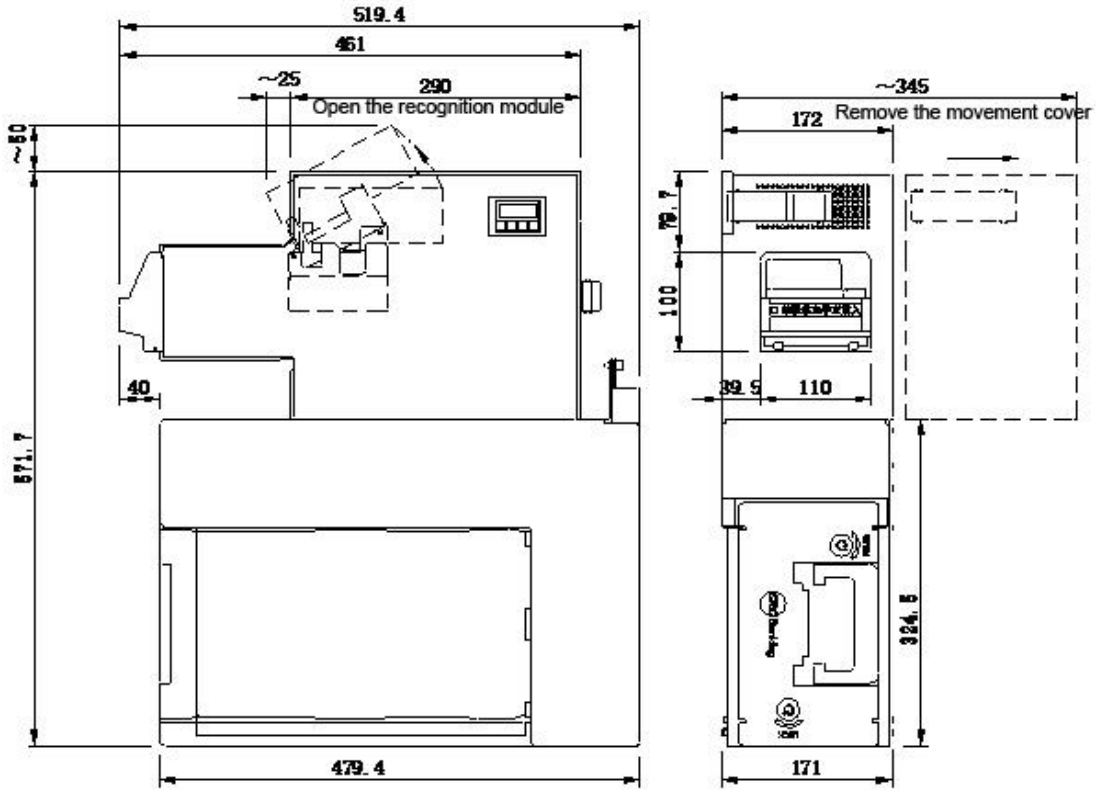
② BA-15C(F):



③ BA-15C(R2000):



④ BA-15C(F2000):



4 . Features

- Vertical single banknote feeding, no restriction on the specific direction of banknotes.
- Supports recognition of more than 100 different denominations of banknotes (one or more countries) at the same time.
- Multiple identification methods.
- Supports banknote serial number recognition.
- Can support both paper money and plastic money.
- High genuine banknote acceptance rate.
- Different cash box locks are used for operation and banknote counting, and there is an interlocking mechanism between them to ensure the safety of cash.
- The cash box comes with an electronic ID for easy automatic identification and management.
- Compact structure, takes up little space.
- Easy to maintain, no tools are needed to quickly eliminate the banknote jamming problem on site.

5 . Features of each module

Upper module:

- Universal entrance indicator lights for passenger convenience.
- Fast banknote reception, the interval between consecutive banknote insertion is less than 2 seconds per banknote
- Automatic correction device for banknote receiving ensures smooth banknote operation
- Give change to passengers for the entire stack at once
- The channel uses 3 pairs of special flat belts to clamp the banknotes throughout the whole process and accurately transport them
- Equipped with entrance and exit gates, high safety
- The whole machine is made of stainless steel, which is strong and durable; the design conforms to ergonomics
- Industrial-grade electronic components, adaptable to various harsh environments such as high and low temperatures, high humidity, etc.

Banknote recognition module:

- Three-line anti-counterfeiting technology, with up to 100,000 identification scanning points
- Multi-spectral full-width image scanning (CIS technology) and full-width magnetic signal detection, high-security banknote recognition
- Specially designed for the domestic banknote usage environment and characteristics (many counterfeit banknotes, poor banknote quality)
- Support banknote serial number recognition

Deposit cash box:

- Sturdy and durable, double lock design (changing the cash drawer and opening the cash drawer) and interlocking mechanism for secure cash drawer
- Electronic identification tag with unique ID
- Independent removable cash box, no electrical connection, high reliability

6 . Technical Parameters

6.1Performance parameters

Item			Performance Specifications
Cash in	Cash input direction		Vertical banknote feeding
	Specific orientation		Unlimited
Identify	Currency		Supports more than 100 different denominations of banknotes (one or more countries) at the same time
	Material		Paper, plastic-based (polymer)
	Real banknote acceptance rate		≥99%
	Banknote size		Length range: 80~180 mm; width range: 60~96 mm.
Detection Methods	Optics		Full-frame image sensor detection, including visible light, infrared light, and ultraviolet light (no less than 100,000 measurement points per banknote)
	Magnetic		Full-width magnetic sensor detection
Speed	Transfer speed		0.61 m/s
	Processing speed		1.5～2 seconds/note
	Cash box deposit time		It takes about 45 seconds to deposit 20 notes into the cash box
Upgrade	Upgrade method		With online download and upgrade function
Capacity	Temporary Storage		20 notes
	Cash box		①1000 notes(Length 270×Width 242×Thickness 140) ②2000 notes(Length 380×Width 242×Thickness 140)
Environment	Operating temperature		0℃～50℃
	Storage temperature		-20℃～60℃
	Humidity		20%RH～90%RH (Non-condensing)
Weight	Banknote recognition module		1.7 kg
	Cash box (empty)		1000 notes: 4.2.kg 2000 notes: 5.5 kg
	Complete Machine	BA-15C	21.5 kg
		BA-15C(F)	21.5 kg
		BA-15(R2000)	22.8 kg
		BA-15(F2000)	23.8 kg
Electromagnetic compatibility			Comply with relevant national standards GB/T 17626

6.2 Electrical technical parameters

Item		Specifications
Power supply	Upper movement power supply	+24VDC±10%，+5A
	Connector socket	4-pin power socket
	Plug	4-pin power plug 4-pin power pin
	Wiring relationship	pin1——+GND pin2——GND pin3——+24V pin4——Not used (Figure 5-2-1)
Communication interface	Communication Protocol	RS232
	Baud rate	9600 bps
	Inspection method	Odd parity/no parity (adaptive)
	Communication parameters	Data bits: 8 bits Start bit: 1 bit Stop bit: 1 bit
	Wiring relationship	pin2 —— PC-RXD (BA-15C sends to the host) pin3 —— PC-TXD (host sends to BA-15C) pin5 —— PC-GND (signal ground) (Figure 5-2-2)

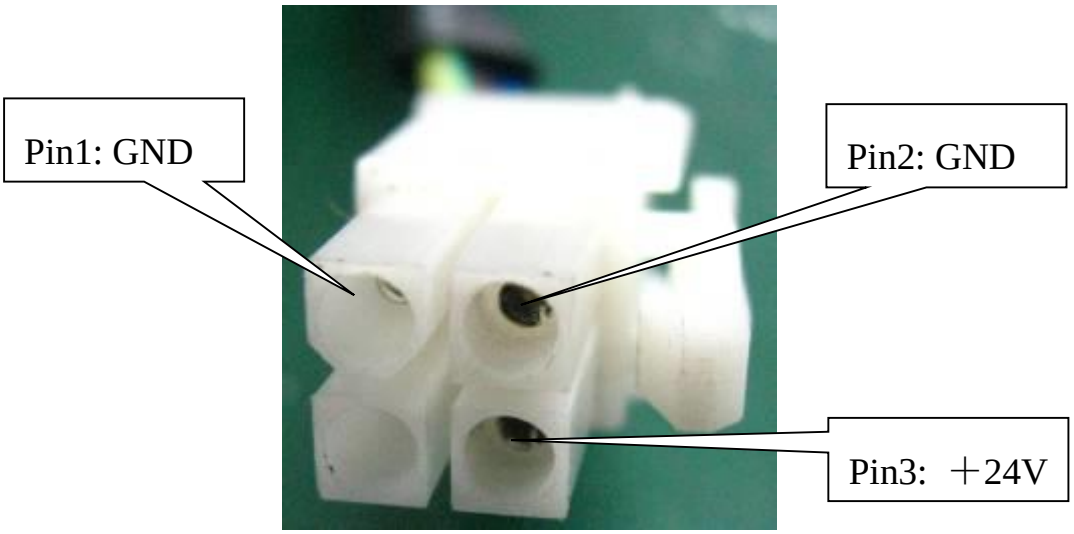


Figure 5-2-1

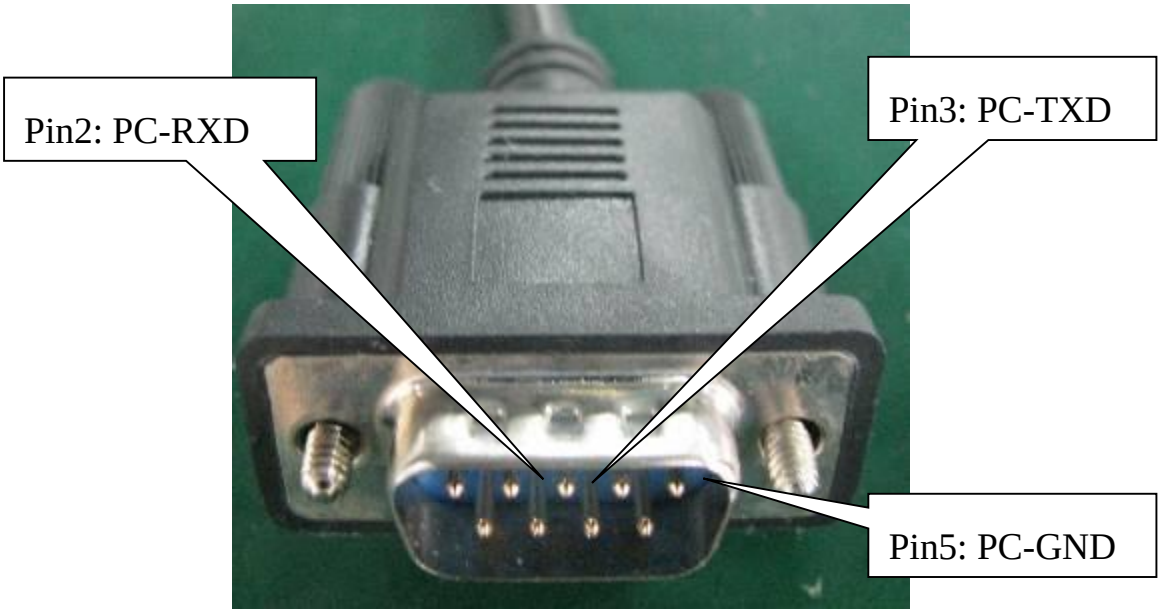


Figure 5-2-2

6.3Movement reliability technical specifications

(RHThe working environment is room temperature 20℃, humidity 50%RH)

Item	Technical indicators	Remark
Banknote jam rate	Less than 3/100000	Banknotes of 70% new or above condition
MTBF(MCBF)	370,000 times	Work in a standard working environment and in accordance with standard specifications (Remark 1)
Working life	10 years	Work in a standard working environment and in accordance with standard specifications

Remark 1: Does not include coin jams or self-recoverable failures