GEMINI-CDU

USER'S MANUAL

REV 0

January 2022

GENMEGA INC

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Revision History

Rev#	Date	Description
0	January 2022	• Daft release
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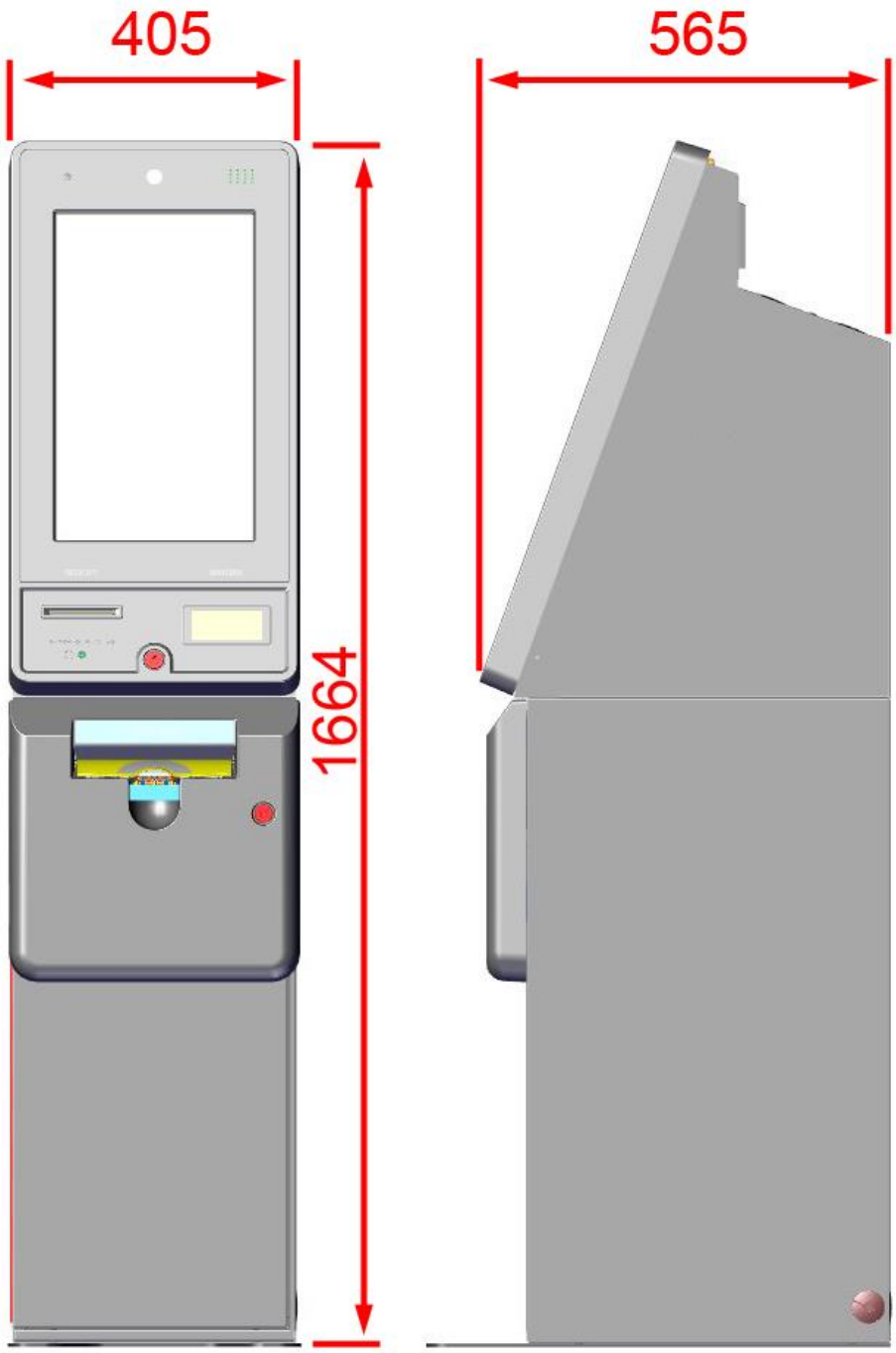
1. GEMINI-CDU System Specifications

GEMINI-CDU system specifications are

- System vault with two compartments, bottom safe and top cabinet
- Receipt printer 3”
- PC unit with Windows 10 Professional installed, 6 COM ports, dual LANs, 7 USB ports, HDMI/DP, Pentium CPU, 4GB memory
- LCD and touch screen of 21.5-inch wide in vertical installation
- HCDU with 2000-note cassette, up to max four
- ADA earphone jack
- HD Camera
- Speaker
- Barcode scanner
- Microphone, optional
- Main power supply PSU2100
- UPS
- Three indicators
    - Receipt printer
    - Cash dispensing unit (CDU)
    - Barcode scanner
- Door switch
    - Bill safe

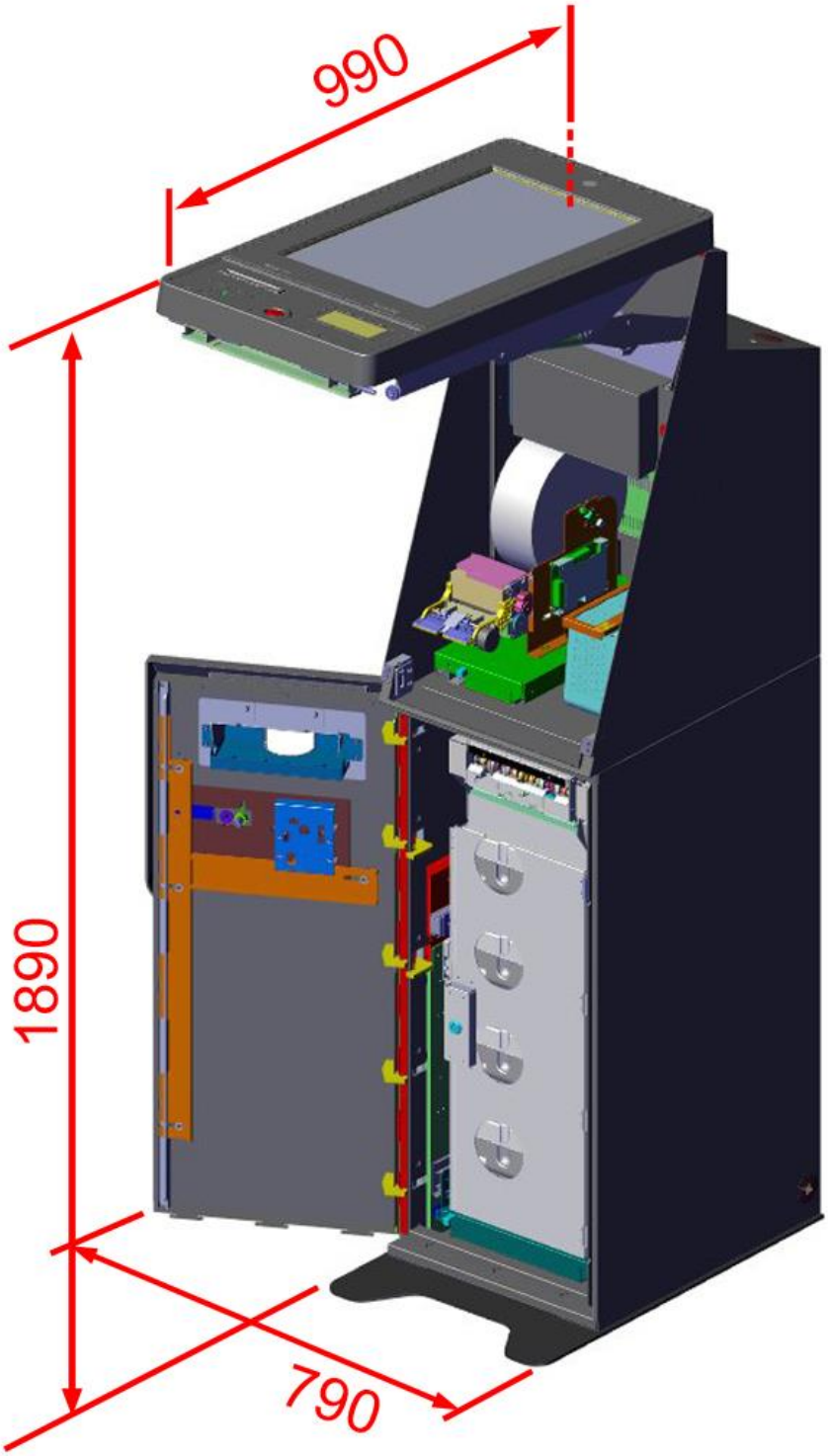
Overall system dimensions are

- Height: 1664mm (65 inch)
- Width: 405mm (16 inch)
- Depth: 565mm (22 inch)



Overall system dimensions for door operation are

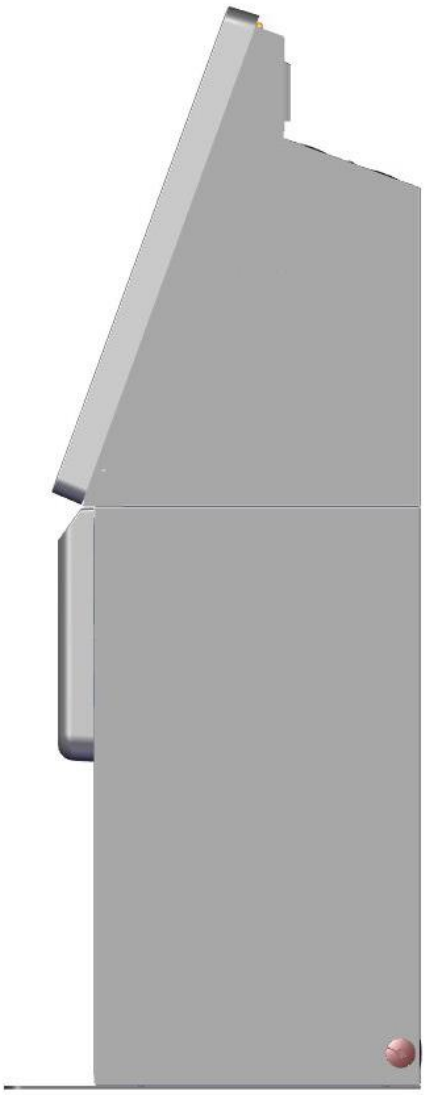
- Height: 1890mm (74 inch)
- Width: 790mm (31 inch)
- Depth: 990mm (39 inch)



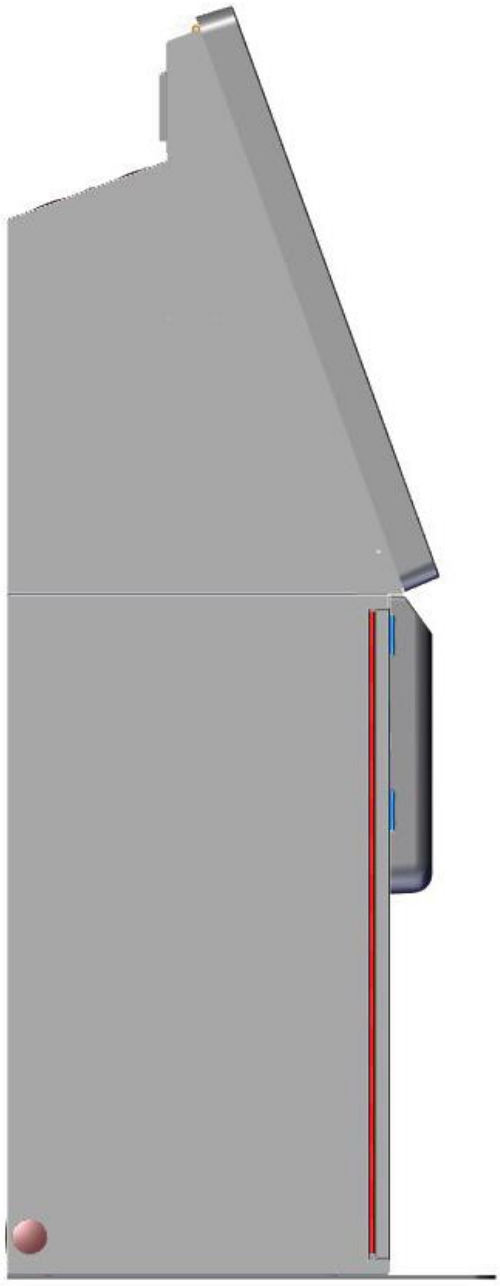
2. GEMINI-CDU System Details

GEMINI-CDU comes with two sections, top cabinet and bottom safe.

FRONT VIEW



RIGHT VIEW

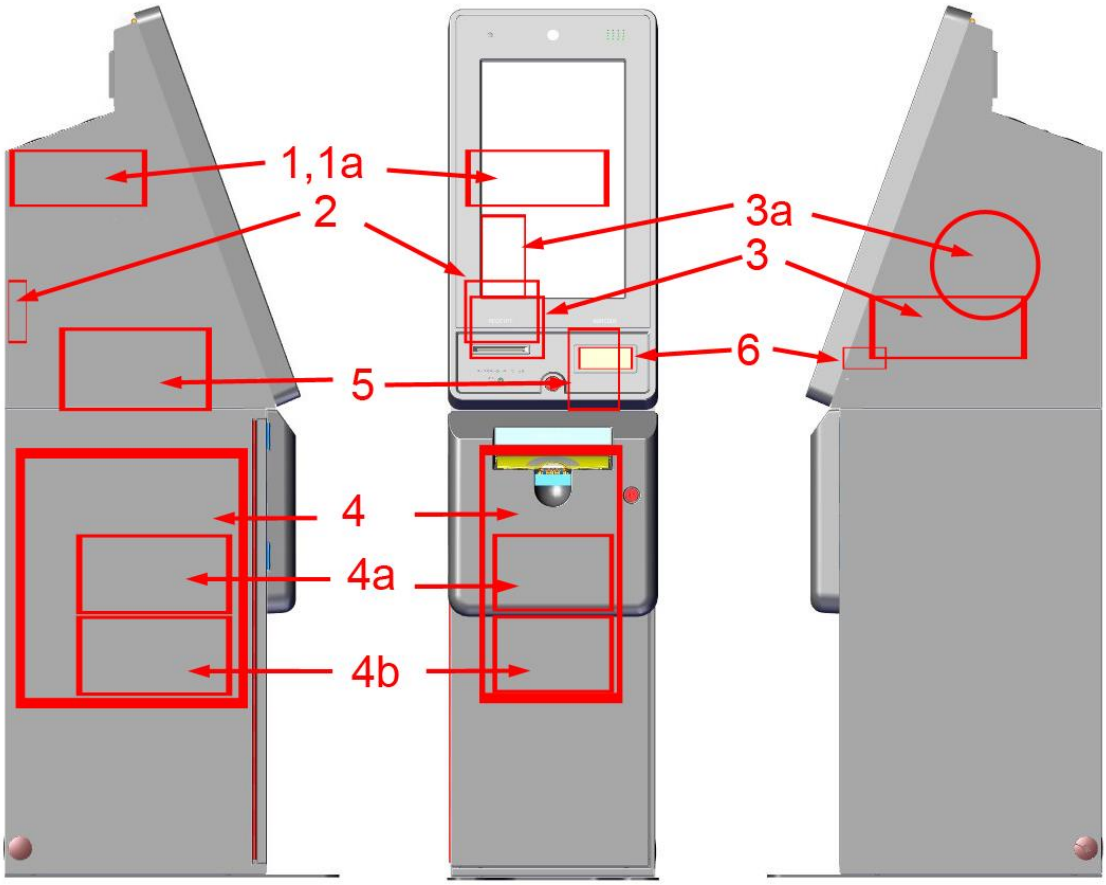


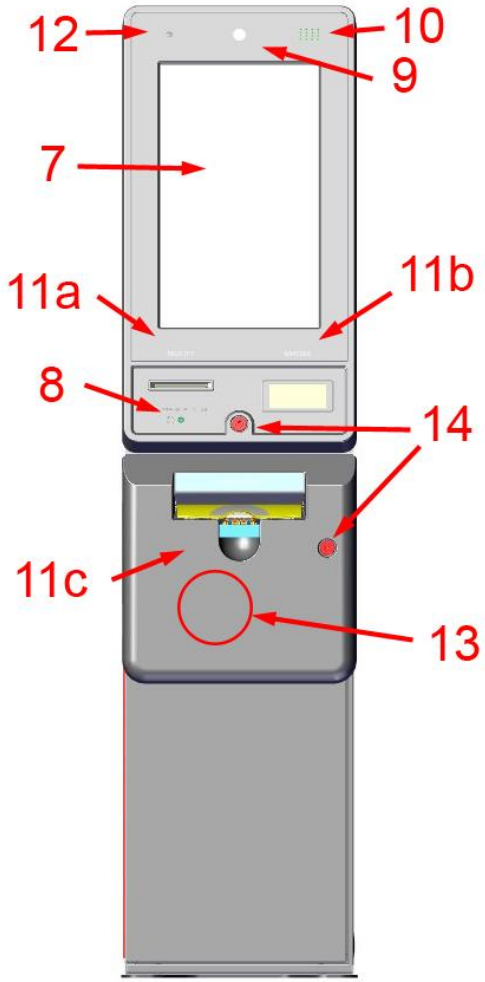
LEFT VIEW

2.1 GEMINI-CDU Devices

GEMINI-CDU comes with following components (9-digit Genmega part number):

1. Pentium PC unit (161124531)
    a. PC locker, optional ()
2. Main power supply PSU2100 (251118791)
3. Receipt printer 3" (271110141)
    a. Paper (170315031)
4. 2high HCDU (151110451)
    a. 1st CST, 2000note (141139101)
    b. 2nd CST, 2000note (141139111)
5. UPS APC600 (111210271)
6. Barcode scanner (111150221)
7. LCD panel and Touch Assembly ()
    a. LCD panel
    b. Touch screen
    c. A/D board
    d. SIC board
    e. Inverter board
    f. OSD board
8. ADA earphone jack (110250691)
9. Camera (180217251)
10. Speakers (110209471)
11. Flicker light
    a. Receipt (ID#1) (180250601)
    b. Barcode (ID#2) (180250601)
    c. CDU (ID#3)(180250601)
12. Microphone, optional (110209501)
13. Safe lock ()
14. Bezel lock ()

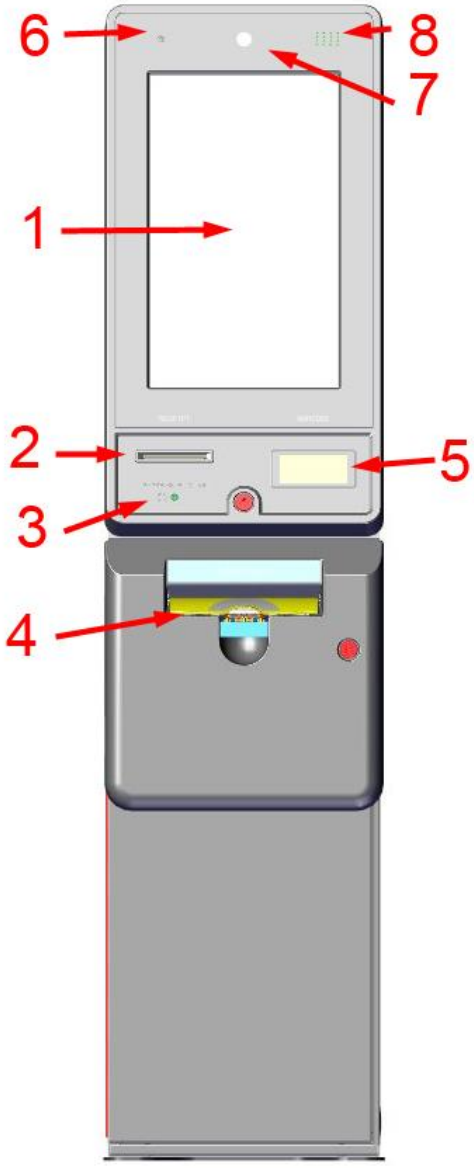



12
10
9
7
11a
11b
8
14
11c
13

2.2 User Interfaces

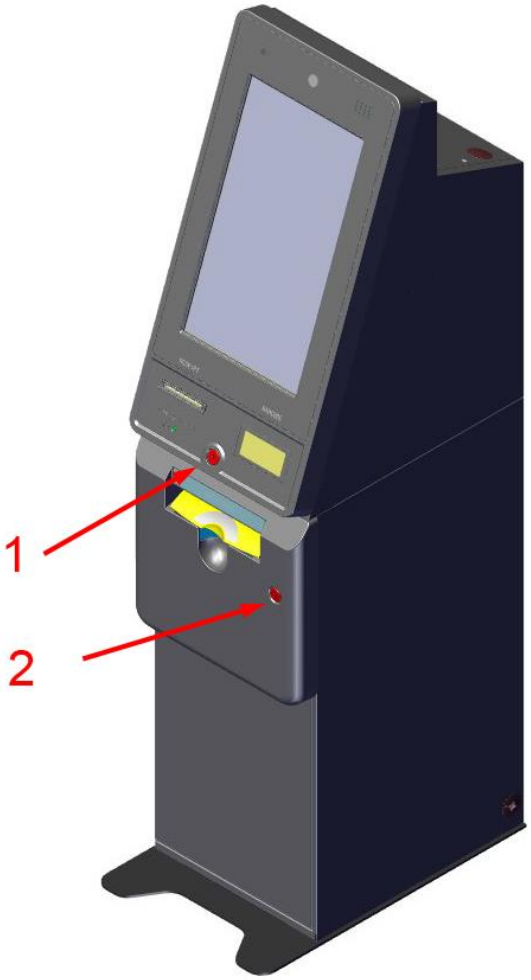
GEMINI-CDU comes with following user interfaces:

1. LCD panel and touchscreen
2. Receipt
3. ADA earphone jack
4. Cash tray
5. Barcode
6. Microphone, optional
7. Camera
8. Speaker



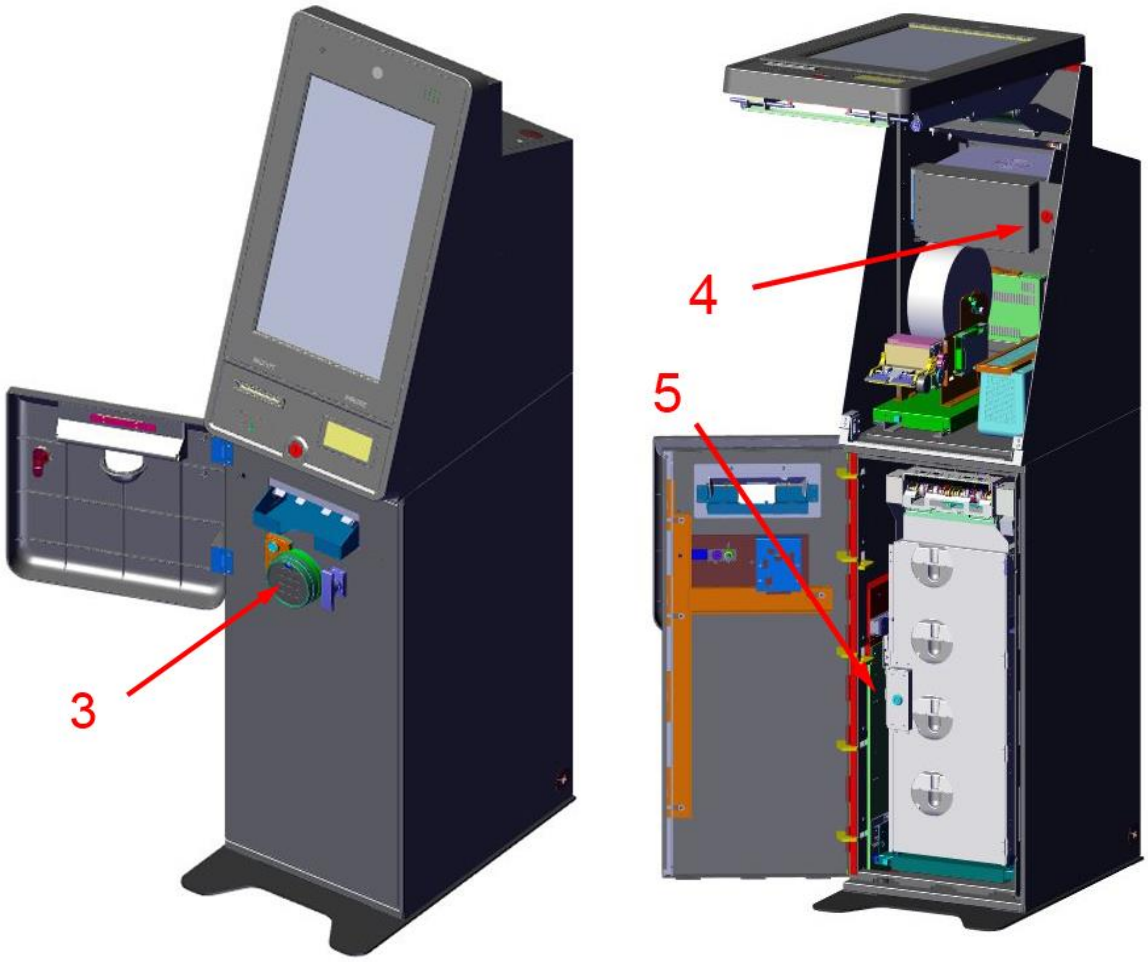
For the access to internal area, the lock should be opened

1. Lock to top cabinet
2. Bezel lock to the safe door



For the access to devices inside the safe and PC unit (w/ PC locker) inside the top cabinet, additional locks are required to be opened

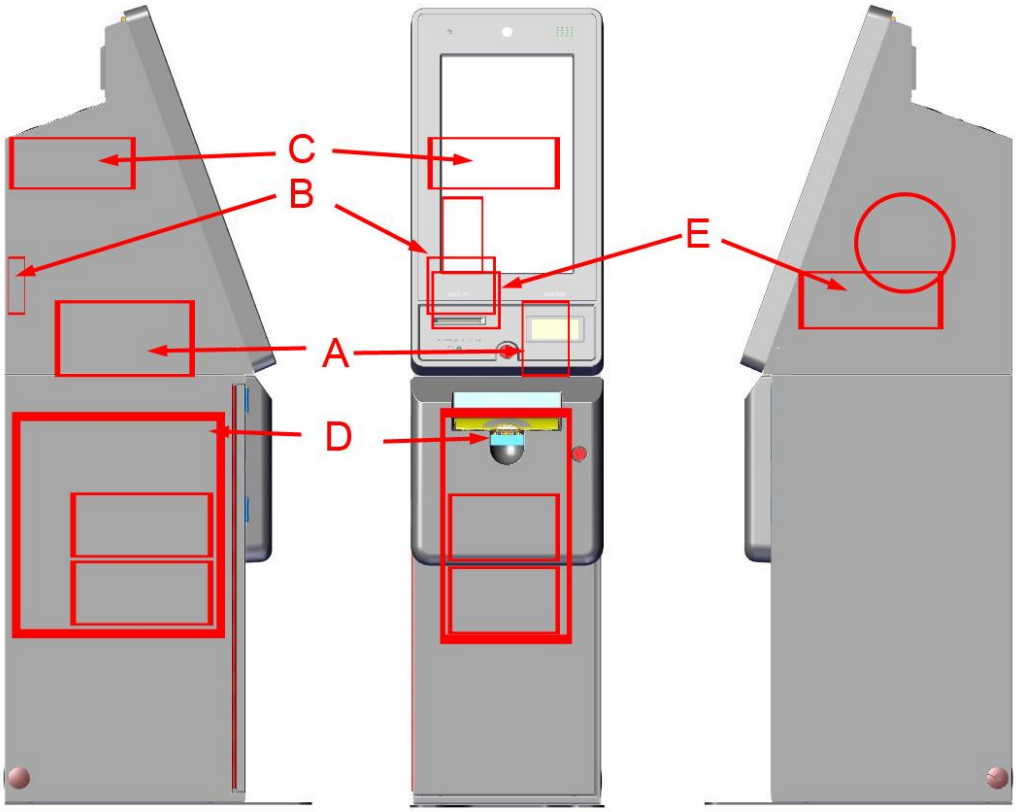
3. Lock to the safe door and T-handle
4. Lock to the PC locker (optional)
5. Lock to the CDU (optional)



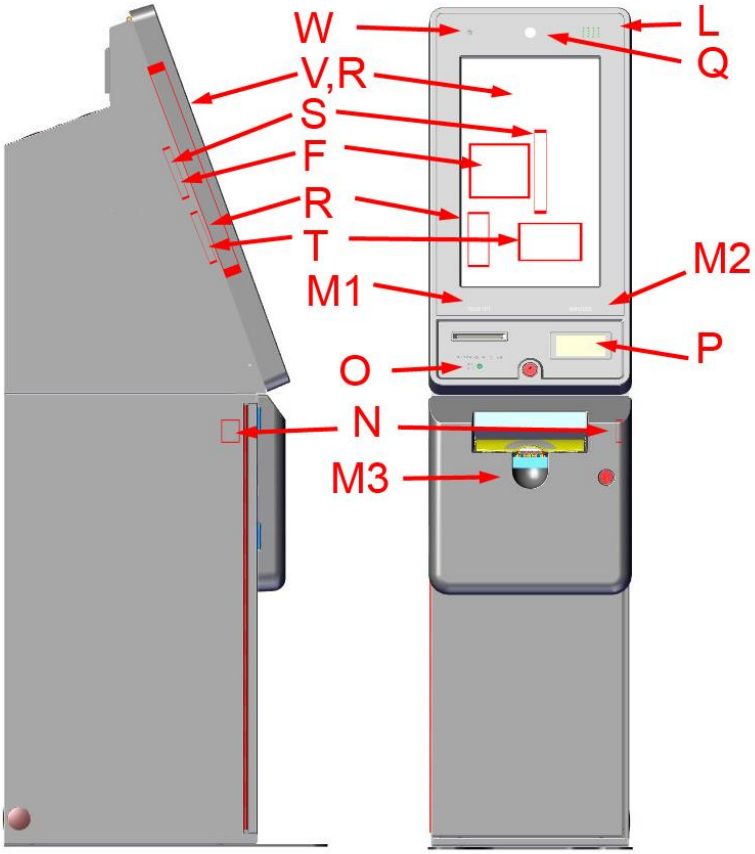
2.3 Devices Power Connection Diagram

The diagram below shows GEMINI-CDU devices are connected to main power supply and also to PC unit to get its DC power:

- 110V AC line:
  - Wall outlet -> A -> B -> C
    - A: UPS
    - B: Main power supply
    - C: PC unit
- Main DC line (Main power supply):
  - B: Main power supply -> (D,E)
    - D: CDU
    - E: Receipt printer



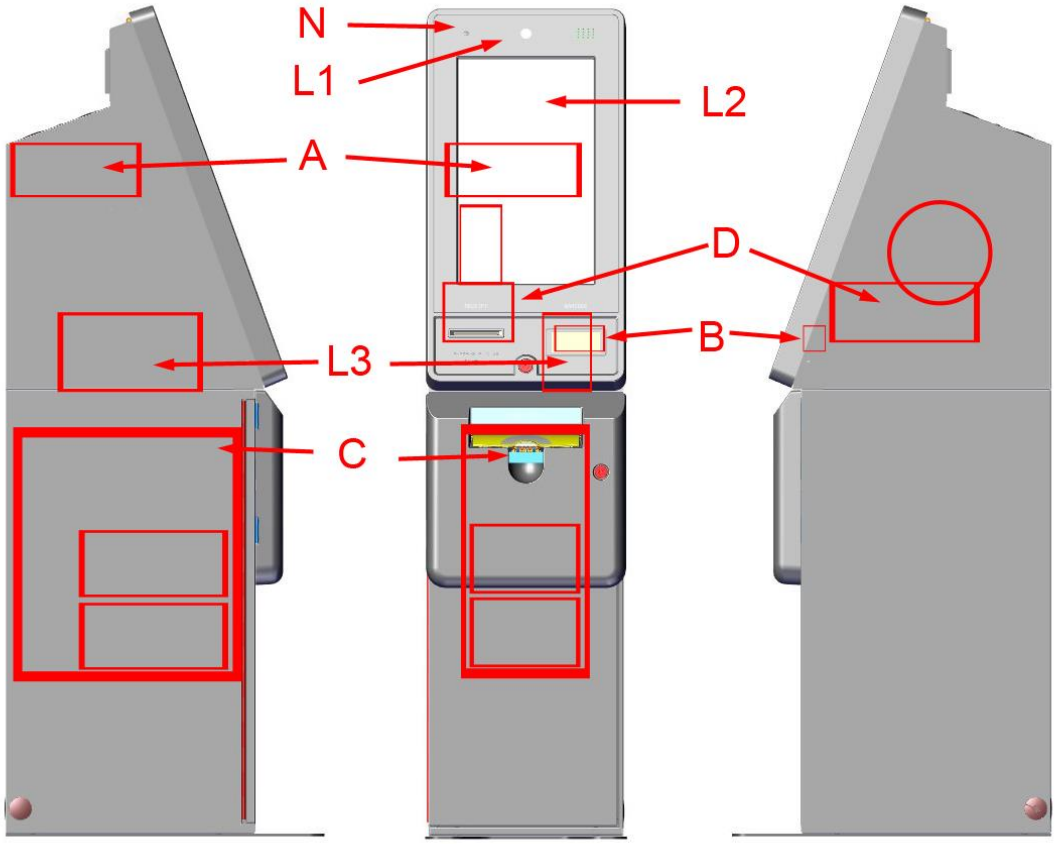
- Sub DC line (from power supply inside PC unit):
    - C: PC unit -> F: VGA board-> (R,S,T)
        - R: Inverter -> V: LCD panel
        - S: OSD board
        - T: SIC board
    - T: SIC board -> (L,M,N,O)
        - L: Speaker
        - M: Flickers (M1-receipt printer, M2-barcode, M3-CDU)
        - N: Switch (safe door)
        - O: ADA earphone jack
    - C: PC unit -> USB ports -> (P,Q,R)
        - P: Barcode scanner
        - Q: Camera
        - R: Touch
    - C: PC unit -> W: Microphone

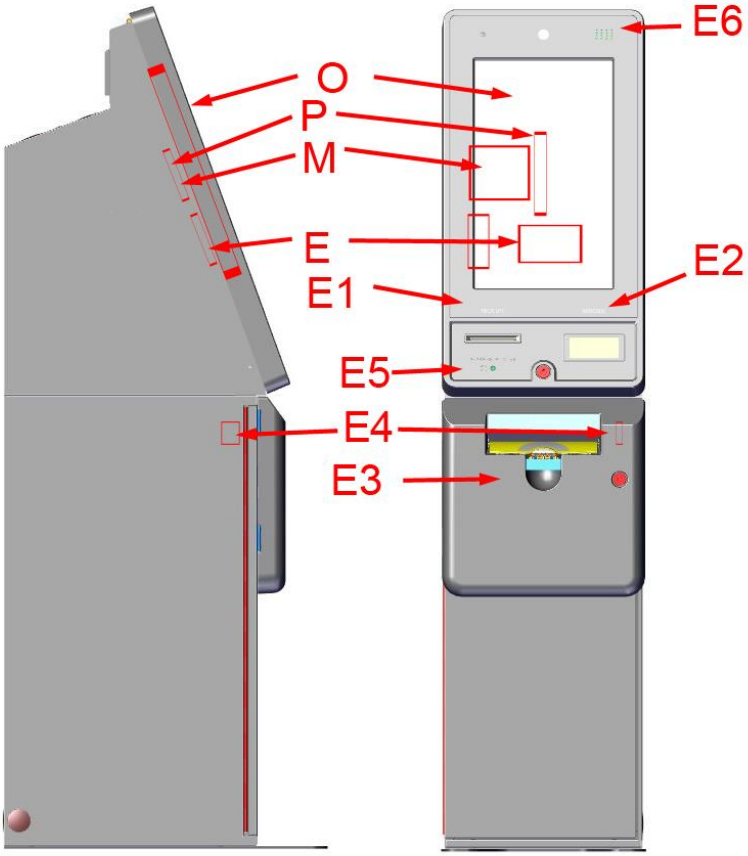


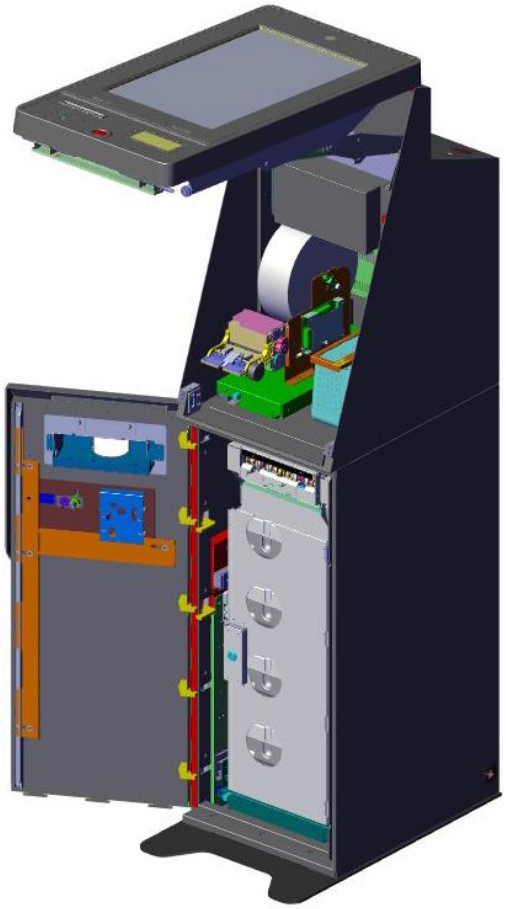
2.4 Devices Communications Connection Diagram

The diagram below shows GEMINI-CDU devices communication with PC unit and also with sub-devices:

- A: PC unit -> (B,C,D,E,L,M,N)
  - B: Barcode scanner (COM1)
  - C: CDU (COM4)
  - D: Receipt printer (COM5)
  - E: SIC board (COM6)
    - E1: Flicker, receipt (FID#1)
    - E2: Flicker, barcode (FID#2)
    - E3: Flicker, CDU (FID#3)
    - E4: Switch, CDU safe door (SID#1)
    - E5: ADA earphone jack
    - E6: Speaker
  - L: USB ports
    - L1: Camera
    - L2: Touchscreen
    - L3: UPS
  - M: VGA board -> (O,P)
    - O: LCD panel
    - P: OSD board
  - N: Microphone




E6
O
P
M
E
E1
E2
E5
E4
E3



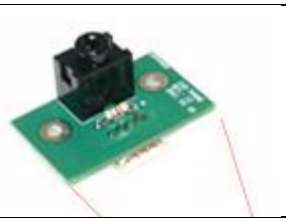
Section	Parts List and Genmega Part Number
System overall	• System body without doors () • Top cabinet door () • Safe door () • System cable harness () • Dome plug without cable opening (180215181) • Dome plug with cable opening (180215191)
Top cabinet	• LCD/Touch assembly (211135471)

- LCD panel
- Touch screen
- A/D board
- SIC board
- Inverter board
- OSD board

- Camera, optional (180217251)

- Speaker (110209471)

- ADA earphone jack (110250691)

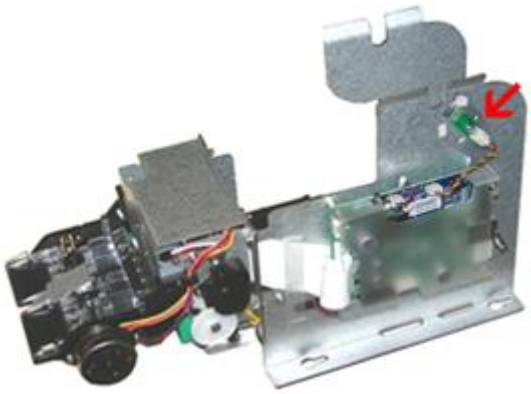


- Pentium PC unit, MI08, with 6xCOM (161124531)
    - Motherboard ()
    - Hard drive, 250GB SATA SSD (160209521)

    - Memory DDR4, 4GB (160206941)
    - PCIe-to-serial card, 2xCOM, EXAR (160218851)
    - PC power supply (251107361)
    - Video out: HDMI (DP available)
- PC locker ()

- Main power supply PSU2100 (251118791)

- Receipt printer, 3” (3-1/8”), w/ paper-low sensor (271210201)

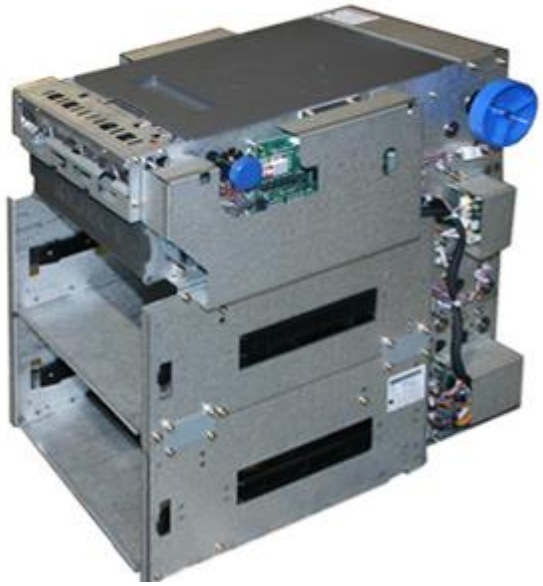


- Paper roll x8 (170315031)

- Spindle (270212671)

- Printer slide base with rails ()
- Barcode scanner (111150221)

  - Mounting bracket ()
- Flickers
  - Receipt printer ()

	○ Barcode ()
	• Microphone (110209501)  ○ Microphone cable (130209511) • Mounting bracket ()
	• UPS APC600 110V (111210271)  • UPS APC600 mounting bracket ()
Bottom safe	• 2high HCDU (151110451)  ○ 1st cassette, 2000 note (141139101)

- 2nd cassette, 2000 note (141139111)

- Cassette key (230203801)

- CDU slide base with rails ()

- Flicker
  - Bill acceptor ()
- Safe door switch (290204731)

#1: + OR RED LINE
#2: GND OR BLACK LINE
#3: NOT USED

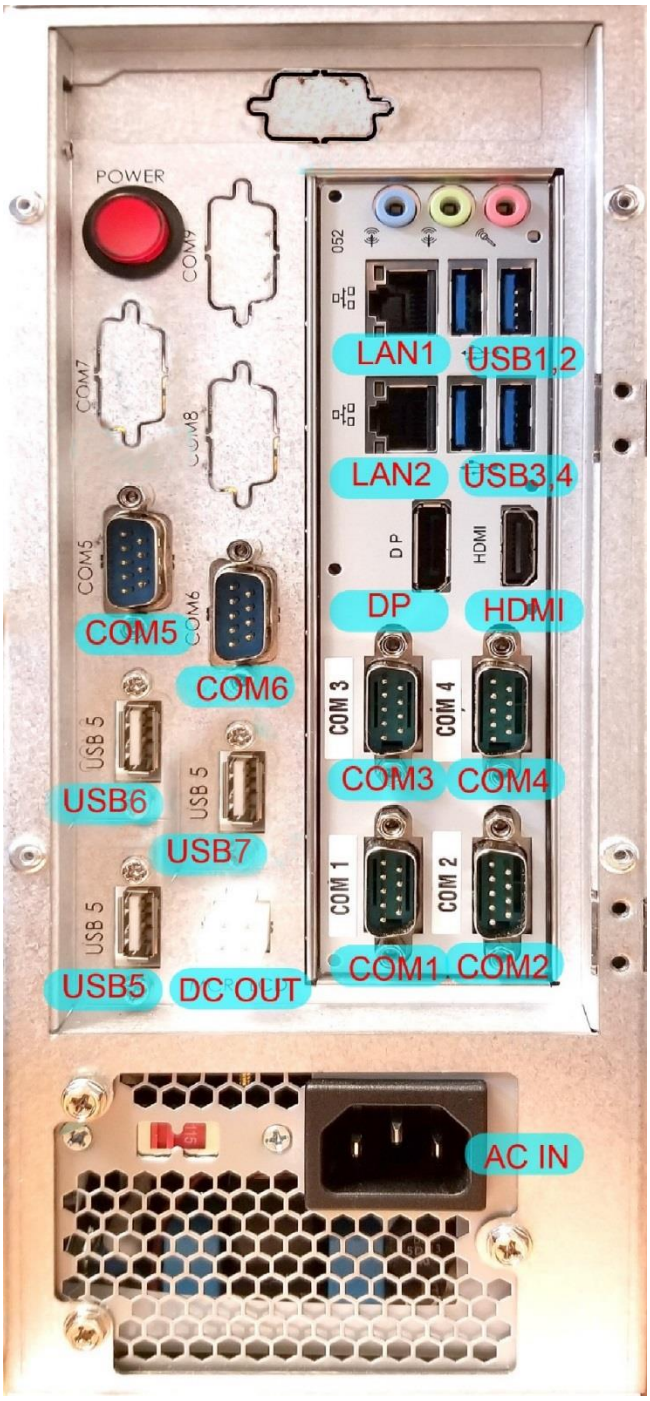
- E-lock (231114341)

- A-series lock (231114441)

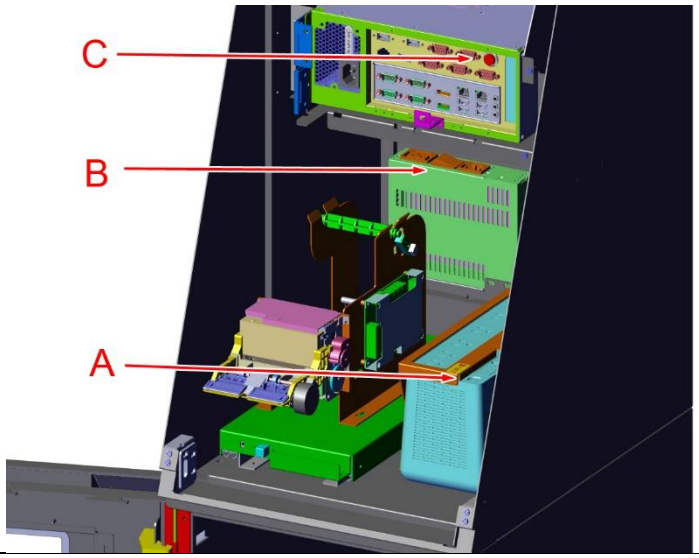
- Cencon lock (231106591)

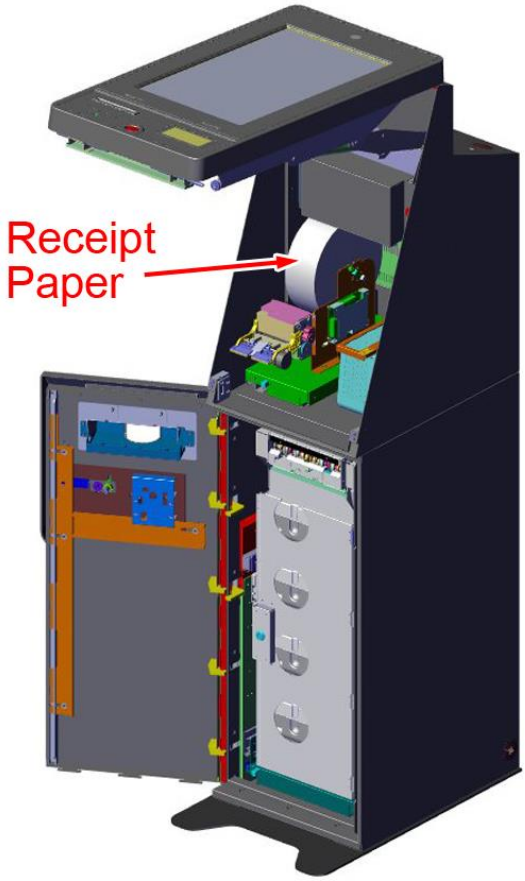
Devices COM/USB Ports Assignment

Port	Device
COM1	Barcode scanner
COM2	Not in use
COM3	Not in use
COM4	Cash Dispensing Unit (CDU)
COM5	RECEIPT PRINTER
COM6	FLICKER LIGHTS #1 RECEIPT PRINTER #2 Barcode #3 Bill acceptor Switch #1 Bill safe
USB1	Camera
USB2	UPS
USB3	Barcode scanner DC
USB4	Touchscreen
USB5	Not in use
USB6	Not in use
USB7	Not in use



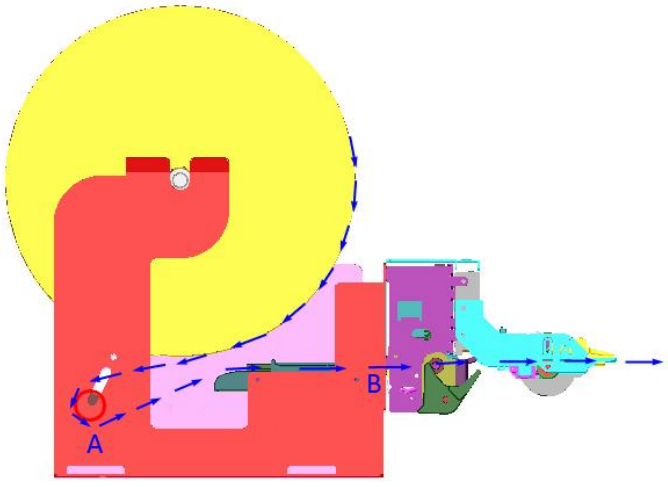
5.1 Switching On System Power

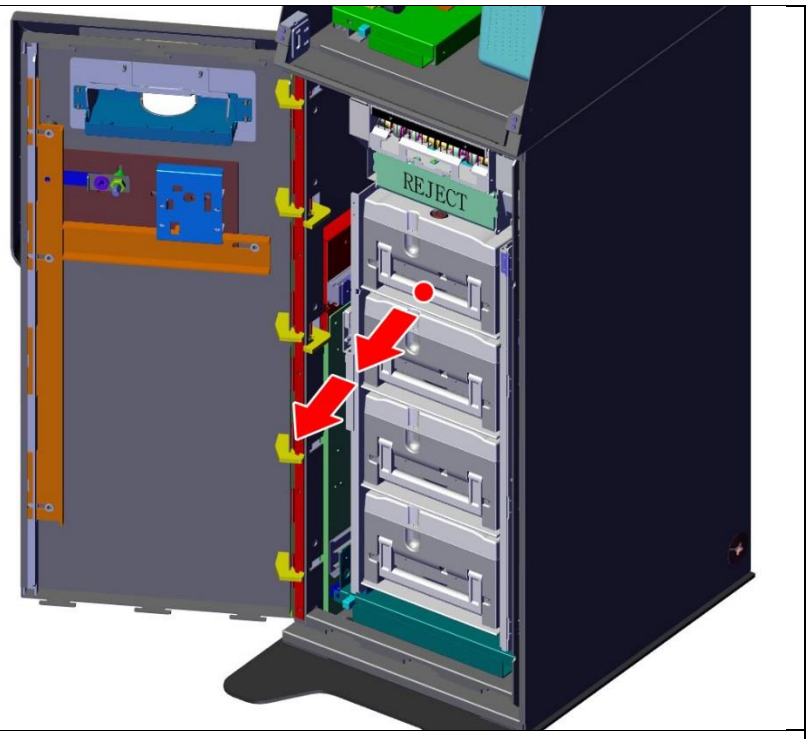
• Connect AC power cord from system (surge protector) to the wall outlet	
• Switch on the UPS (**A**)	• Press the switch button to turn it on 
• Switch on the main power switch (**B**)	• LED light of switch is in solid red is when it is switched on
• Switch on the PC unit (**C**)	• LED ligh of switch is in solid red is when it is switched on
• All other devices should be automatically powered on, unitialize itself and be ready for operation	



- Use the paper roll of CSO (coated side out) type

- How to load paper:
  1. Pisition paper roll with a spindle on top
  2. Pull loose end of paper to the rear in clockwise direction
  3. Turn around flexible shaft “A” and move forward
  4. Intert the tip into printer head and cutter module “B”
  5. Printer will feed the paper and dischage after cutting

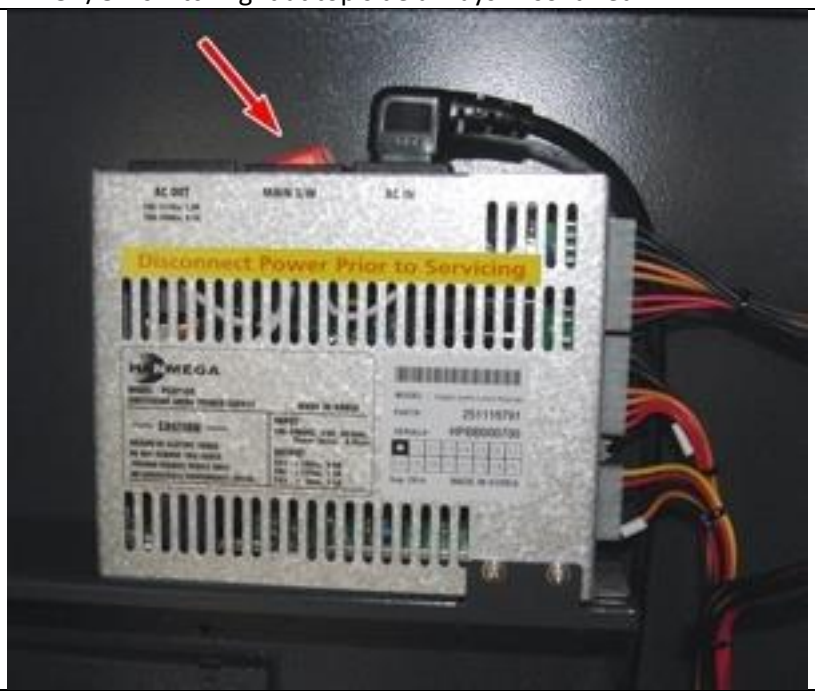


• To detach the cassette out of the CDU body **Step 1** Pull the cassette by holding the handle out of the CDU body	

6. Device Settings and Indicators at Normal Operation

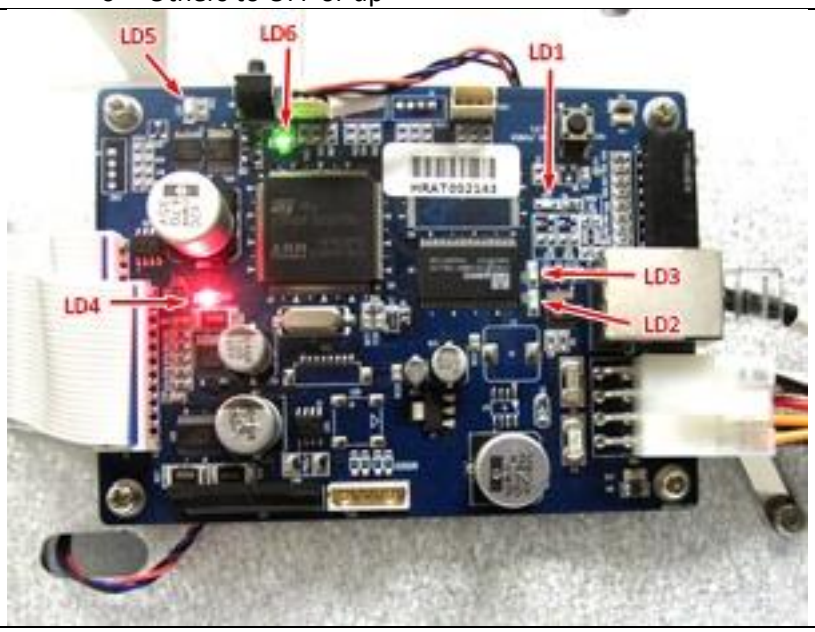
It shows the settings and displays of device at normal operation of followings

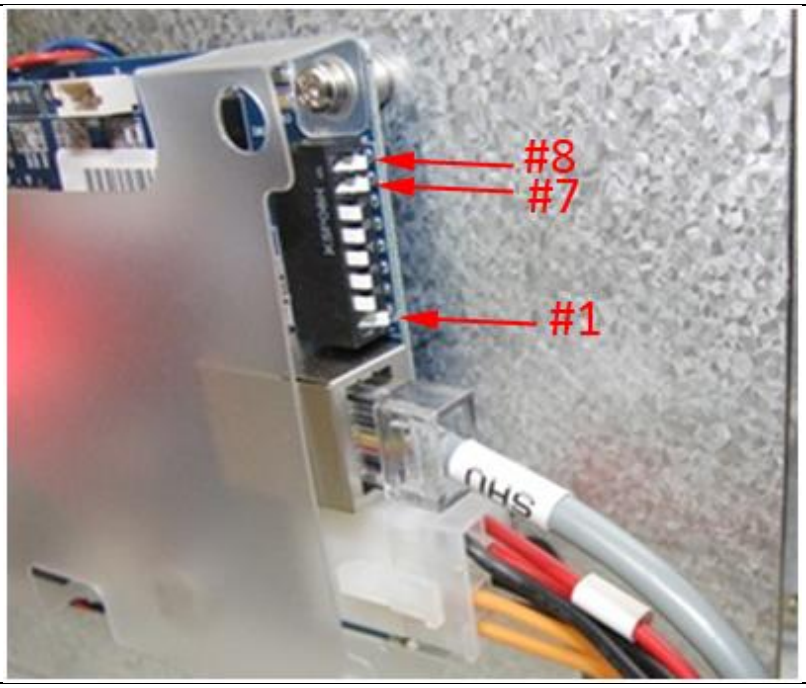
6.1Main Power Supply

Power, AC input	• On/Off switch light at top side always in solid red
	

Settings and Indicators	Description
Power, DC input	• LED LD4 on control board always in solid red • LED LD6 always in solid green
Control board CPU	• LED LD1 on control board blinking always in green
Communication	• LEDs LD2 and LD3 on control board: no light at idle state, but blinking in green during communication
Thermal printing	• LED LD6 on control board: no light at idle state, but in solid green during printing

DIP switches	• Connect printer data cable to PCI-to-Serial port for high-speed communication
	• Set to baud rate of 460800 bps (8 switches)
	  ○ #1/#7/#8 to ON or down
	  ○ Others to OFF or up

Printer control board and its LEDs	

Printer control board and its DIP switches	

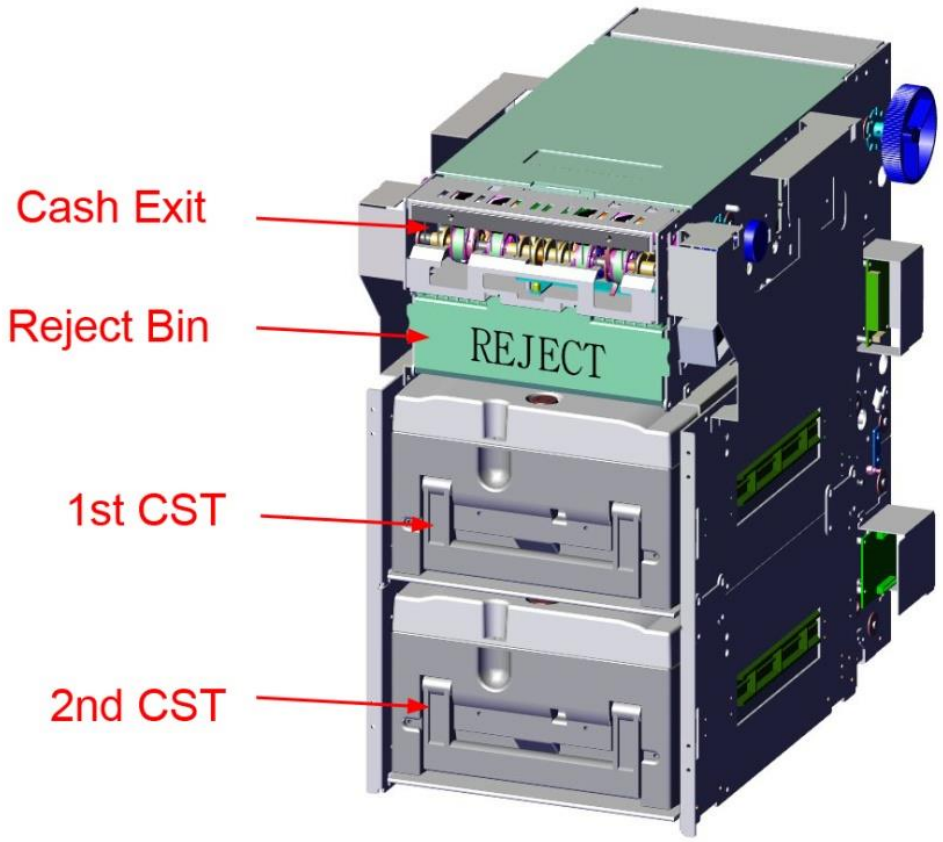
6.3 PC Unit

AC Power input	• ON/OFF switch on rear side in solid red when switched ON; no light when switched OFF
	

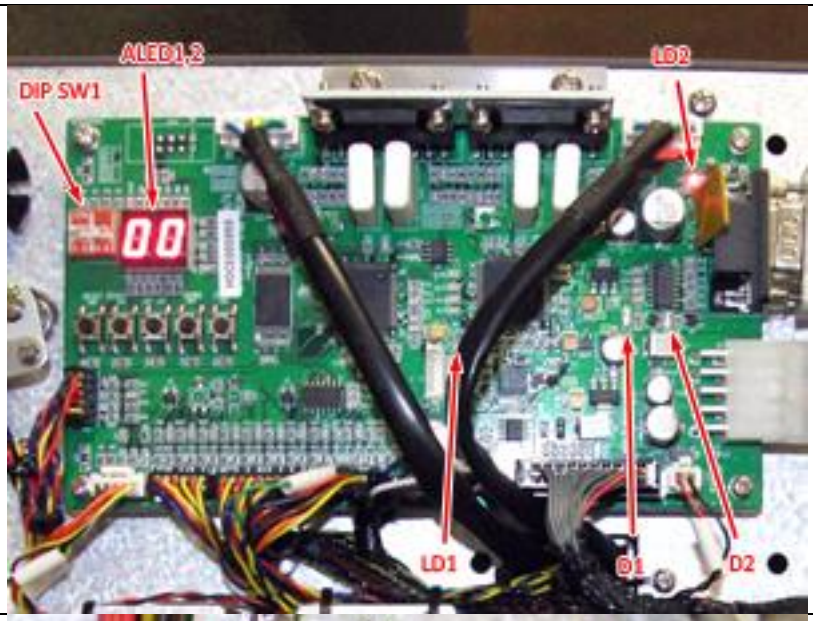
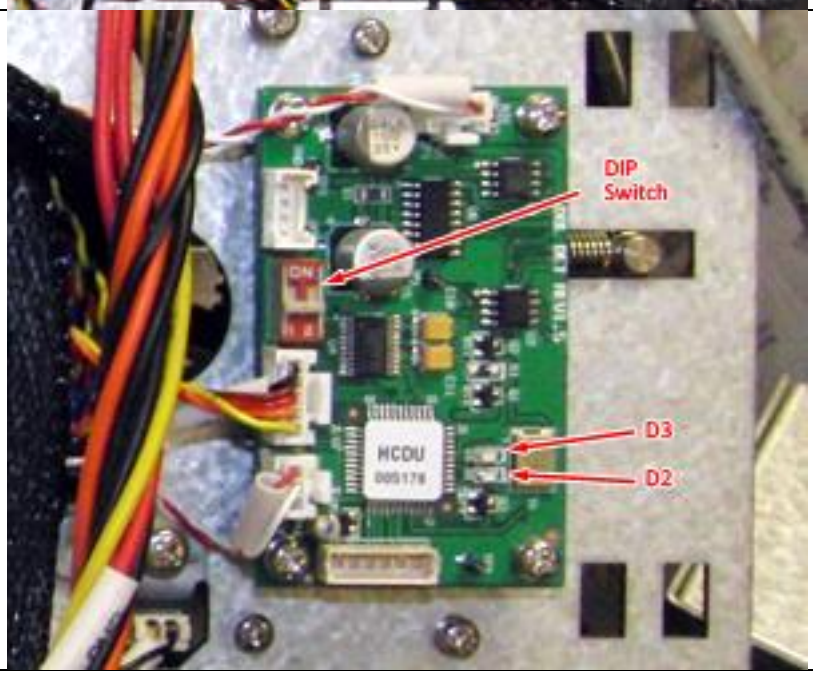
6.4 LCD/Touch

Settings and Indicators	Description

6.5 Cash Dispensing Unit



Settings and Indicators	Description
Power, DC input	• LED LD2 on main control board always in solid red
HCDU control board CPU	• LED LD1 on main control board always blinking in red
Communication	• LEDs D1 and D2 on main control board: no light at idle state, but blinking in green during communication
Two-digit Number Segment	• LEDs ALED1 and ALED2 on main control board displaying two zeros (00)
HCDU control board DIP switches	• Set to online mode (4 switches) on main control board o #1 to ON or down

	○ Others to OFF or up
Double detection CPU	• LED D2 on double board always blinking in green
Double detection double note	• LED D3 no light during idle state or for single note; solid green for two or more notes (called double note)
Double detection DIP switches	• Double board switches position ○ Both #1 and #2 to OFF or Down
HCDU control board and its LEDs and DIP switch	
Double board LEDs and DIP switches	

6.6 Flickers and Lights

Settings and Indicators	Description
Flicker, EMV card reader	• No light at idle state; blinking in RGB color while accepting card
Flicker, Receipt printer	• No light at idle state; blinking in RGB color while presenting receipt
Flicker, EPP	• No light at idle state; in solid RGB color while accepting key action
Flicker, Cash dispenser	• No light at idle state; blinking in RGB color while presenting cash
Flicker, Bill acceptor	• No light at idle state; blinking in RGB color while accepting bill/ticket
Light, Cash tray	• No light at idle state; solid in RGB color while presenting cash
Light, Coin tray	• No light at idle state; solid in RGB color while presenting coins
	•

7. Quick Troubleshooting

7.1 System Power

Problem	Procedure
No power to system``	• Check the surge protector for its switch position • Check the main power supply to make sure that the power switch is pressed to ON position, i.e., ***the light on switch button is ON*** • Check power cords from wall to main power supply to make sure that cable connector is securely plugged • Check the AC extension cord to make sure that it is securely plugged

8. Problem Diagnostics

8.1 System Power

Problem	Diagnostics
Failure to switch on when its power button is pressed	• Check the AC cord connection to its power source
Failure to get power from UPS to devices	• Check AC output cord on UPS rear for loose connection • Check power switch on main power supply ○ Switch should be depressed at left side when it is switched ON

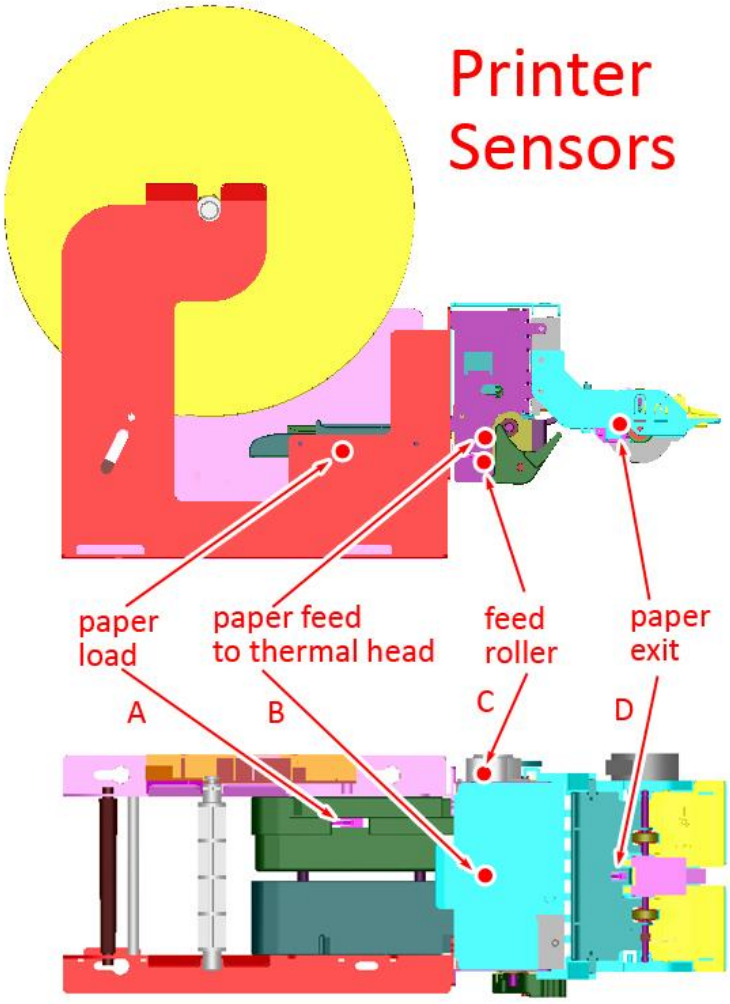
System power switches instantly OFF as soon as AC cord of UPS is removed from its AC power source	• Check the power cord of main power if it is plugged into battery backup side (at right side when seen from front)
	• Check the internal battery for its connection
	  ○ Access to internal battery locates at rear bottom
	  ○ Open the cover
	  ○ Check for connection of battery terminal

8.2 PC Unit

Problem	Diagnostics
Failure to boot	• Press power switch on PC rear • Check AC cable at PC rear for loose connection • Check AC cable at main power supply for any loose connection
Failure to start Windows	•

8.3 LCD and Touch

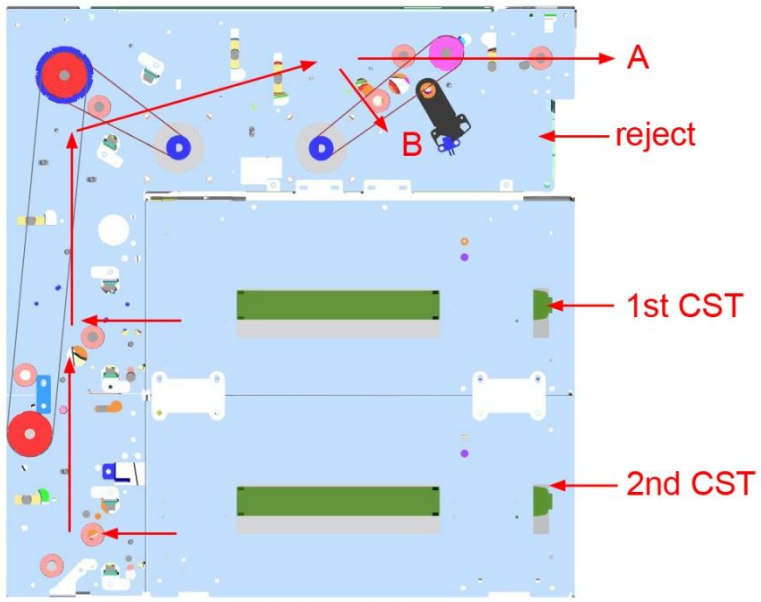
Problem	Diagnostics
Blank screen	• Check the PC unit for its proper working • Check video cable for its connections at PC rear and AD board • Check power LED of OSD board for green light
Touch not responding	• Reseat USB cable to touch at PC •



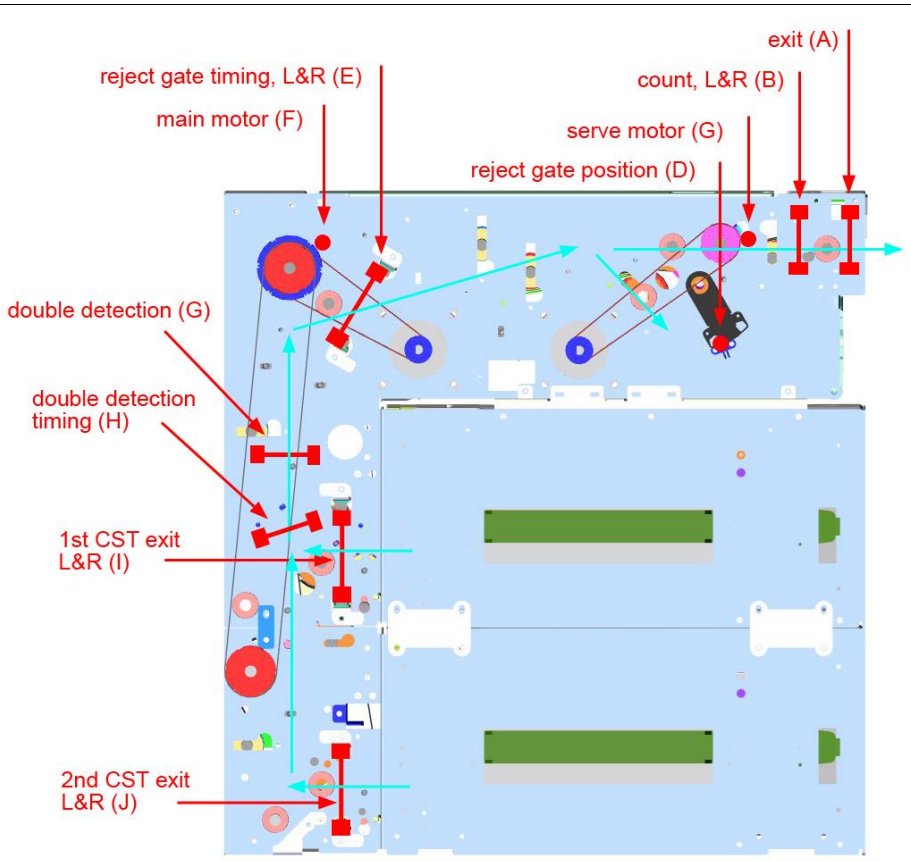
Problem	Diagnostics
Failure to detect paper	• Check the paper load sensor (A) if the sensor is displaced or dislocated from its mounting base • Check the sensor cable to control board for any loose connection
Failure to print message	• Check the paper for its correct loading • Thermal coated side of paper faces up while feeding (paper type of CSO) • Check the ribbon cable from control board to thermal head for any loose or skewed connection • Check the thermal head for its proper working and replace it
Failure to feed paper	• Check the paper feed roller and cutter lower support for loose lever • Check the feed roller sensor (C) for its proper working • Check the sensor cable to the control board • Check the motor of feed roller for its proper working, i.e., gear of the roller rotating • Check cables from the control board to sub-board for any loose connection • Remove paper fully out of its path by releasing the paper feed and cutter

	lower support ○ Lock the paper feed and cutter lower support in position ○ Cut the paper end straight ○ Feed the paper • Check the paper feed sensor (B) for any loose connection
Failure to discharge receipt	• Check exit path for any paper jam • Check paper exit sensor (D) for its proper working • Check the roller of exit motor for its proper working • Check cables from motor/sensor to sub-board and all the way to control board for any loose connection
Thermal head overheating	• Check the thermal head
Cutter failure to cut paper	• Check the cutter module for its proper working • Check the movement of cutter blade by manually rotating the gear mechanism for any interference
Cutter failure to return to home position	• Check the movement of cutter blade by manually rotating the gear mechanism for any interference •

8.5 Cash Dispensing Unit

Problem	Diagnostics
• Note path from cassette to cash tray (**A**) or reject (**B**)	

- Sensors along the note path



Error Code	Error Description and Diagnostics
C0000	Normal
C0012	Reject gate timing sensor (E) blocked
	1. check the sensor RIGHT/LEFT for any blockage 2. Check the sensor for its proper working 3. check cable from the sensor to MAIN B/D for any damage or loose connector 4. measure sensor voltage - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace GATE sensor when the voltage is not in the normal range 5. replace Main B/D
C0021	Double detection timing sensor (H) blocked
	1. check the sensor for any blockage 2. Check the sensor for its proper working 3. Check the cable from sensor to MAIN B/D for any damage or loose connector 4. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace DBL sensor when the voltage is not in the normal range 5. replace Main B/D
C0022	1st CST exit sensor (I) blocked

	1. check the sensors RIGHT/LEFT for any blockage and belt for any interference 2. check sensor for its proper working 3. check cable from Inlet sensor to MAIN B/D for any damage or loose connector 4. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Inlet sensor when the voltage is not in the normal range 5. replace Main B/D
C0028	CDU presenter exit sensor (A) to cash tray blocked at dispensing
	1. check the sensor for nay blockage 2. Check sensor for its proper working 3. Check cable from Outlet sensor to MAIN B/D for any damage or loose connector 4. Measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Outlet sensor when the voltage is not in the normal range 5. Replace Main B/D
C0030	Main motor (F) failure to run
	1. check the belt for proper engagement 2. check cable for any damage or loose connector 3. Checkencoder for any blockage 4. Checkencoderslit for any damage 5. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty <YELLOW CABLE> - normal range of 2~5 V when blocked <YELLOW CABLE> replace encoder when the voltage is not in the normal range 6. replace Main B/D
C0031	Serve motor (G) failure to run
	1. check the belt for proper engagement 2. check cable for any damage or loose connector 3. Checkencoder for any blockage 4. Checkencoderslit for any damage 5. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty <YELLOW CABLE> - normal range of 2~5 V when blocked <YELLOW CABLE> replace encoder when the voltage is not in the normal range 6. replace Main B/D
C0032	2nd CST exit sensor (J) blocked
	1. check the sensors RIGHT/LEFT for any blockage and belt for any interference 2. check sensor for its proper working 3. check cable from Inlet sensor to MAIN B/D for any damage or loose connector 4. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Inlet sensor when the voltage is not in the normal range 5. replace Main B/D
C0035	Notes detected at reject gate (D) after retracting action.(Jamming at Reject gate during retracting)

C0036	CDU presenter exit sensor (A) to cash tray blocked at initializing
	1. check the sensor for any blockage 2. Check sensor for its proper working 3. Check cable from Outlet sensor to MAIN B/D for any damage or loose connector 4. Measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Outlet sensor when the voltage is not in the normal range 5. Replace Main B/D
C0037	Double detection sensor (G) failure to run
	1. checkdouble detection B/D LED for ON/OFF flickering <normal when LED 1 is ON> 2. when LED 2 is OFF: check cable from MAIN B/D to ULTRASONIC B/D for any damage or loose connector - when LED 2 is ON: check the sensor for any blockage 3. Replacedouble detection B/D 4. Replace Main B/D
C0039	Reject gate (D) failure to run
	1. checksolenoid for any interference 2. Checkgate for any damage or interference 3. Checksensor for any blockage and swinging lever for any damage or interference 4. check cable from main B/D to solenoid for any damage or loose connector 5. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty <YELLOW CABLE> - normal range of 2~5 V when blocked <YELLOW CABLE> replace sensor when the voltage is not in the normal range 6. replace Main B/D
C003A	More than 4 notes requested in test mode
	1. replace Main B/D
C003B	2nd CST exit sensor blocked when initializing or dispensing
C0041	Fails to dispense in 5 retrials
	1. check note inside cassette for any interference by foreign object 2. check gears inside cassette for any debris between gear teeth 3. check rollers inside cassette for any damage 4. check push plate for any interference 5. check cassette exit path for any blockage 6. replace cassette
C0043	Number of rejected notes exceeded 20 notes
	1. check sensor cable for any loose connector - receiver: YELLOW, BLACK cables - transmitter: RED, BLUE cables 2. replace double B/D 3. replace Main B/D
C0044	10 notes rejected consecutively
	1. check sensor cable for any loose connector - receiver: YELLOW, BLACK cables

	- transmitter: RED, BLUE cables 2. replace double B/D 3. replace Main B/D
C0045	Note miscount detected (#note requested <# note counted)
	1. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace sensor when the voltage is not in the normal range 2. Replace Main B/D
C0046	Exit sensor (A) blocked when initializing (Note jam at Exit when initializing)
C0047	1st cassette failure to pickup
	1. check note inside cassette for any interference by foreign object 2. Check gears inside cassette for any debris between gear teeth 3. Check rollers inside cassette for any damage 4. Check push plate for any interference 5. Check cassette exit path for any blockage 6. Replace cassette
C0048	Note-jam occurs at Reject gate (D) during initializing. (Note jam at Reject when initializing)
C0049	Zero note requested
	1. CDU ROM VERSION CHECK. - 1 CST CDUU11V normal - 2 CST CDUU21V normal - 3 CST CDUU31V normal - 4 CST CDUU41V normal 2. replace Main B/D
C004A	Jam is detected at 1st cassette exit (I) during dispensing (Note jam at Inlet(I) of 1st cassette)
	1. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 Mv at empty - normal range of 2~5 V when blocked replace sensor when the voltage is not in the normal range 2. Replace MAIN B/D
C004D	1st cassette not detected
	1. check 1st CST for its home position 2. check cable from MAIN B/D to 1st CST for any damage or loose connector 3. replace cassette 4. replace Main B/D
C004E	2nd cassette not detected
	1. check 2nd CST for its home position 2. check cable from 2nd feed module B/D to 2nd CST for any damage or loose connector 3. check cable from 2nd feed module B/D to main B/D for any damage or loose connector 5. replace cassette 6. replace Main B/D
C004F	More than 65 seconds passed at dispensing
	1. CDU ROM VERSION CHECK. - 1 CST CDUU11V normal

	- 2 CST CDUU21V normal - 3 CST CDUU31V normal - 4 CST CDUU41V normal 2. replace Main B/D
C0050	Power failure during dispense
	1. check power cable for any damage or loose connector 2. Replace Main B/D 3. Replace MAIN POWER SUPPLY
C0051	Dispense of more than 150 notes requested
	1. check if more than 150 notes are requested
C0052	1st CST exit sensor (I) blocked after dispensing
	1. checksensors RIGHT/LEFT for any blockage 2. check sensor for its proper working 3. check cable from sensor to main B/D for any damage or loose connector 4. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Inlet sensor when the voltage is not in the normal range 5. replace Main B/D
C0054	Double note detected
	1. check notes for being sticking together 2. Check gears inside cassette for any debris between gears 3. Check rollers inside cassette for any damage 4. Check note exit slit for any sticky surface 5. Replace cassette 6. Replace Main B/D
C0056	Reject gate (D) failure
	1. checksolenoid for any interference 2. Checkgate for any damage or interference - check encoder for any blockage and swinging lever for any damage or interference 4. check cable form main B/D to solenoid for any damage or loose connector -check cable from main B/D to encoder for any damage or loose connector 5. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty <YELLOW CABLE> - normal range of 2~5 V when blocked <YELLOW CABLE> replace encoder when the voltage is not in the normal range 6. Replace Main B/D
C0058	Note count mismatch (# note at CST exit<# note at count)
	1. check cables from main B/D to sensor for its proper connection 2. replace Main B/D
C0059	Note jam occurred while initializing
	1. check note path for any jam 2. Check note for any interference or blockage 3. Check belt for its proper engagement 4. Replace CDU

C005B	2nd cassette failure to pickup
	1. check note inside cassette for any interference by foreign object 2. Check gears inside cassette for any debris between gear teeth 3. Check rollers inside cassette for any damage 4. Check push plate for any interference 5. Check cassette exit path for any blockage 6. Replace cassette
C006A	Note from 2nd CST not arriving at double timing sensor (H)
	1. checksensor (H) for any blockage 2. check sensor for its proper working 3. check cable from sensor to main B/D for any damage or loose connector 4. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Inlet sensor when the voltage is not in the normal range 5. replace Main B/D
C0080	2nd cassette exit sensor (J) blocked after dispensing
	1. checksensors RIGHT/LEFT for any blockage 2. check sensor for its proper working 3. check cable from sensor to main B/D for any damage or loose connector 4. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Inlet sensor when the voltage is not in the normal range 5. replace main B/D
C0081	Double detection timing sensor (H) blocked during dispensing
	1. checksensor for any blockage 2. check cable from DBL sensor to main B/D for any damage or loose connector 3. Measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace sensor when the voltage is not in the normal range 4. Replace main B/D
C0082	Note from cassette not arriving at double timing sensor (H)
	1. check cables from cassette exit to double timing sensor for any damage of loose connector 2. Check belt for its proper engagement 3. Check cable from sensor to feed module B/D for any damage or loose connector 4. Measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Inlet sensor when the voltage is not in the normal range 5. Replace Main B/D
C0083	Reject gate timing sensor(E-LEFT), blocked during dispensing
	1. checksensor LEFT for any blockage 2. check cable from sensor to main B/D for any damage or loose connector 3. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked

	replace Gate sensor when the voltage is not in the normal range 4. replace Main B/D
C0084	Reject gate timing sensor(E-RIGHT), blocked during dispensing
	1. checksensor RIGHT for any blockage 2. check cable from sensor to main B/D for any damage or loose connector 3. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace Gate sensor when the voltage is not in the normal range 4. replace Main B/D
C0085	Note not arriving at reject gate timing sensor (E-LEFT)
	1. check note path for any jam 2. check note for any interference or blockage 3. check belt for its proper engagement 4. replace CDU
C0086	Note not arriving at count sensor (B) during dispensing
	1. check note path for any jam 2. check belt for its proper engagement 3. check note path structure for any damage 4. Checkreject gate for any interference or damage 5. Checkbelt and gear for its proper engagement 6. measure sensor voltage <transmitter normal range of 1~3V> - normal range of 50~250 mV at empty - normal range of 2~5 V when blocked replace sensor when the voltage is not in the normal range 7. replace Main B/D

8.6 Main Power Supply

Problem	Diagnostics
No light on ON/OFF switch	• Check AC input cable to power supply for any loose connection • Check AC input cable connection to the wall outlet or UPS
No AC power to PC unit	• Check AC OUT cord on top of power supply for any loose connection • Check AC IN cord to PC rear for any loose connection • Check power switch on both power supply and PC unit
No DC power to devices	• Replace power

8.7 Indicator Lights

Problem	Diagnostics
No light	• Check cable connection from SIC board to flicker board • Check the light signal with flicker board of working condition

8.8 Speakers

Problem	Diagnostics
No sound	• Check cable of sound out at PC rear • Check sound cables at SIC board • Replace speaker

8.9 ADA Earphone Jack

Problem	Diagnostics
No sound	• Check cable from SIC board to ADA board • Replace ADA board

9. Device Replacement

It describes a procedure of replacing individual device from the system. Replacing module itself is easy and simple in overall procedure and takes less time than diagnosing the problem deep into component level.

In most cases, it involves with

- Disconnecting power and data cable from the device
- Removing screws from its device mounting bracket or base
- Testing the device for its normal operation

10. Component Replacement

It describes a procedure of replacing components from individual device. Replacing component is more difficult and complicated in details than replacing device itself. Therefore, the component replacement will be limited to certain devices in which (1) the component replacement is pretty easy and simple, (2) the failure of component is clearly identified and (3) shipping and handling of device is vulnerable to damage.

In most cases, it involves with

- Disconnecting main power and data cable from the device
- Disconnecting cables in components
- Removing screws from its component mounting bracket or base
- Checking configuration settings of component
- Adjusting alignment of component to the device body or case
- Testing the device for its normal operation