



EGL-6150

Gaming Logic System

User Manual

Version 1.1

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Revision History

Revision	Date	Description
1.0	20-04-2021	First edition
1.1	01-07-2021	Update product specification

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About Manual

This User Manual contains essential information, such as detailed descriptions and explanations on the product's hardware, specifications, dimensions, and jumper/connector settings/definitions, to help users in setting up their product.

Packing List

Before setting up your product, please ensure the following items have been included in the box:

- ◆ 1x EGL6150
- ◆ 1x Power cable

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Safety Instructions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references.

1. Make sure the power source matches the power rating of the device.
2. Always completely disconnect the power before working on the system's hardware.
3. No connections should be made when the system is powered on as a sudden rush of power may damage sensitive electronic components.
4. If the device will not be used for a long period of time, disconnect it from the power supply to avoid damage by transient over-voltage.
5. Always disconnect this device from any AC supply before cleaning.
6. While cleaning, use a damp cloth instead of liquid or spray detergents.
7. Make sure the device is installed near a power outlet and is easily accessible.
8. Keep this device away from humidity.
9. Place the device on a solid surface during installation to prevent falls.
10. Do Not cover the openings on the device to ensure optimal heat dissipation.
11. Do Not touch the heat sink or heat spreader when the system is running.
12. Never pour any liquid into the openings. This could cause fire or electric shock.
13. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in static-shielded containers.
14. If any of the following situations arises, please contact our service personnel:
 - I. Liquid intrusion to the device.
 - II. Exposure to moisture.
 - III. Device is not working as expected or in a manner as described in this manual.
 - IV. The device has been dropped or damaged.
 - V. Any obvious signs of damage displayed on the device.
15. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -15°C (+5°F) OR ABOVE +85°C (+185°F) TO PREVENT DAMAGE.**

Index

Chapter 1	1
Product Specification	2
Chapter 2	5
Front Panel I/O	6
2.1 Display interface.....	6
2.2 USB ports.....	6
2.3 LAN ports.....	6
2.4 Serial ports	7
2.5 Audio	7
2.6 LED indication.....	7
Chapter 3	8
Rear and Side I/O	9
3.1 I/O Type description connector	9
3.2 JAMMA 72-Pin connector	9
3.3 Jumper settings for JAMMA connector	11
3.4 20-Pin connector (power input).....	11
3.5 SPI connector	12
3.6 Disable audio amplifier output	12
Chapter 4	13
GPIO Hardware Attributes	14
4.1 O-OD (Open Drain Output)	14
4.2 I-ISO (GPI- Isolated Input)	14
4.3 Intrusion.....	15
4.4 Auxiliary power monitor	15
Chapter 5	16
Electrical characteristics.....	17
Chapter 6	18
Quick Access Door.....	19
6.1 Introduction	19
6.2 Installation and removal of the Quick Access Door	19

Chapter 7	20
Chassis and Dimension	21
7.1 Top side	21
7.2 Front side	21
7.3 Rear side.....	21
7.4 Left side.....	22
7.5 Right side.....	22

Chapter 1

Product Specification

Item	Description
CPU	AMD Ryzen™ Embedded R1305G Processor (2C/4T 1.5GHz, Boost to 2.8GHz, L2= 1MB, L3=4MB, TPD =8-10W)
Main Memory	1x DDR4 SO-DIMM socket, maximum to 16GB. Supports DDR4-2400.
GPU	Integrated: AMD Radeon™ Vega 3, max. 1000MHz
Display	Maximum output support for 3 displays <ul style="list-style-type: none"> ● VGA port D-Sub 15. Maximum resolution is 1920x1080 ● Digital Output 1. Maximum resolution is 1920x1080 ● Digital Output 2. Maximum resolution is 1920x1080
Ethernet	<ul style="list-style-type: none"> ● 1x RJ45 LAN port (10/100M/1000M bps). ● REALTEK RTL8111G controller with PXE support
Storage	<ul style="list-style-type: none"> ● 1x SATAIII connector with pin#7 power <ul style="list-style-type: none"> ■ 1x Power connector (JST 2.5mm 1x3 pin) supports +5V/GND/+3.3V ● 1x M.2 2280 PCIe 3.0 x4 SSD
USB	<ul style="list-style-type: none"> ● 2x USB 2.0 Port on front panel ● 2x USB 3.0 Port on front panel ● 1x Internal USB 2.0 Port (top layer only)
Serial Ports	3x RS232 <ul style="list-style-type: none"> ● COM1, COM2 and COM4 are RS232 ● COM1 supports 5V/12V/RI selectable (pin#9), current limit 1A ● COM4 can be adapted to golden finger or D-SUB9, 4-wire type.
Audio	<ul style="list-style-type: none"> ● Realtek ALC888 audio codec controller ● 1x 3.5Ø audio jack stereo line-out on front panel ● 1x 5.5W Stereo Class-AB audio power amplifier to JAMMA connector. <ul style="list-style-type: none"> ■ Amplifier output for 8 Ohms Speakers ■ Jumper selection to disable amplifier audio output

Backup Battery	<ul style="list-style-type: none"> ● 1x Li-Ion Battery CR2032* 3V for system RTC ● 2x Li-Ion Battery CR2032** 3V for SRAM and EIT controller. <ul style="list-style-type: none"> ■ Application <ul style="list-style-type: none"> ◆ SRAM data maintenance ◆ Intrusion logger ◆ Secure RTC <p>*Battery life is over 5 years without system power supply **Battery life is longer than 300 days without system power supply</p>
Gaming I/O Hub	<p>Controller: GPC3800-E-B256</p> <ul style="list-style-type: none"> ● ESD protection (contact - 2KV, air - 4KV) for all connectors and headers. ● 23-bit isolated digital input <ul style="list-style-type: none"> ■ Photo-coupler isolation input ■ Operating voltage range: -24V - +48V ● 27-bit high current output <ul style="list-style-type: none"> ■ Open-Drain topology ■ Maximum to 3A sink current ■ Operating voltage range: -0.8V - +24V
Auxiliary Gaming Controller	<p>Controller: EIT020E</p> <ul style="list-style-type: none"> ● Secure RTC ● 6x Intrusion detection <ul style="list-style-type: none"> ■ 5x I/O pin ■ 1x Power on/off ● 4 events with time stamp for every bit ● Event by edge changed ● Refer to secure Real Time Clock
Secure RTC	<ul style="list-style-type: none"> ● Supports each year from 1970-2032 ● Count unit: 1 second
Intrusion Logger	<ul style="list-style-type: none"> ● Batteries will keep data over 300 days ● ESD protection ● TTL level 3V pulled up input
NVRAM	<p>SRAM with backup battery supply</p> <ul style="list-style-type: none"> ● SRAM works for more than 300 days ● SRAM size (on-board): default 1MB, maximum to 4MB

LED strip controller	<ul style="list-style-type: none"> ● 4x Independent LED strip controllers ● Supports 1 or 2-wire signals. ● Internal power support: +5V (default) / 2A.
I/O on Board Edge	<ul style="list-style-type: none"> ● 1x VGA D-Sub 15-pin display output ● 2x Video digital outputs ● 1x RJ45 dual USB 3.0 integrated connector ● 1x Two-layer USB 2.0 connector ● 3x DB9 connectors ● 1x 3.5Ø audio jack ● 1x JAMMA 72-pin golden finger connector ● 1x 20-pin golden finger connector for DC input ● 4x JST 2.5mm 1x4 header for LED strip controllers
Operating System	Windows 10 Professional or IoT 64bit Linux Kernel 4.10. +
Power Requirement	DC +5V & +12V
Power Consumption	Maximum 25 watts (excluding USB and LED strips)
Operating Temperature	0°C (+32°F) to +50°C(+122°F)
Storage Temperature	-15°C (+5°F) to +85°C(+185°F) / 0% to 95% RH

Chapter 2

Front Panel I/O

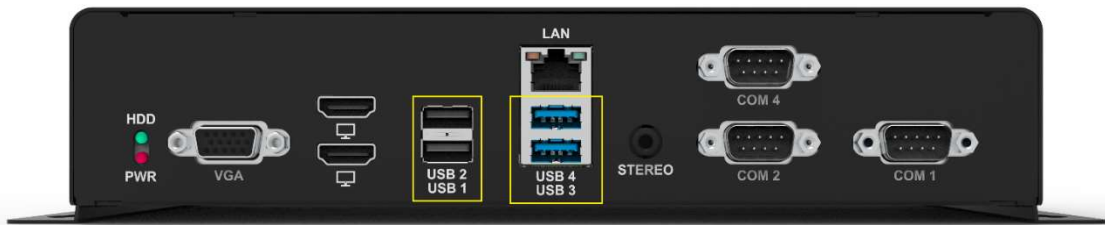
2.1. Display interface

One VGA D-Sub 15 + Two digital output



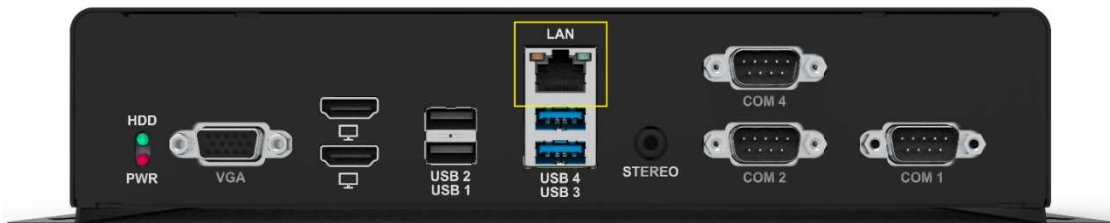
2.2. USB ports

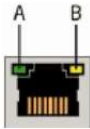
- Two USB 3.0 + Two USB 2.0



2.3. LAN port

One RJ45 (LAN1). Supports 10/100/1000Mbps Ethernet.



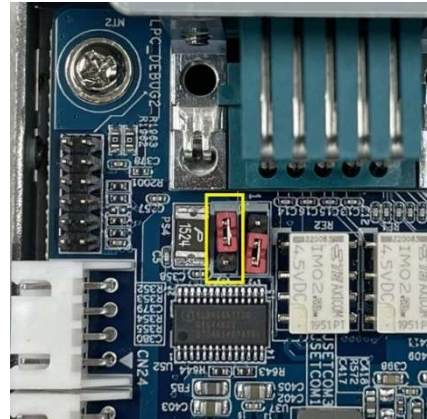
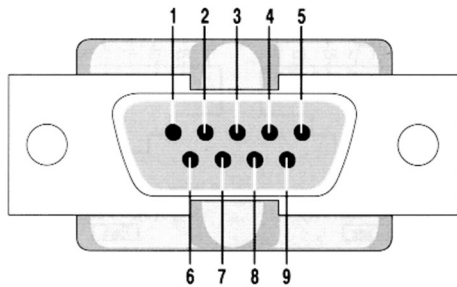
10Mbps/ 100Mbps/ 1Gbps Speed/ Activity LED Scheme			
		LED A (SPEED)	LED B (Link/Activity)
			
No Link		Off	Off
10Mbps	Link	Off	Solid Yellow
	Activity		Blinking Yellow
100Mbps	Link	Solid Green	Solid Yellow
	Activity		Blinking Yellow
1Gbps	Link	Solid Orange	Solid Yellow
	Activity		Blinking Yellow

2.4. Serial ports

COM1 and COM2 are full RS232. COM4 is 4-wire RS232.



- COM1 pin#9 is 5V/12V selectable by JSETCOM1.

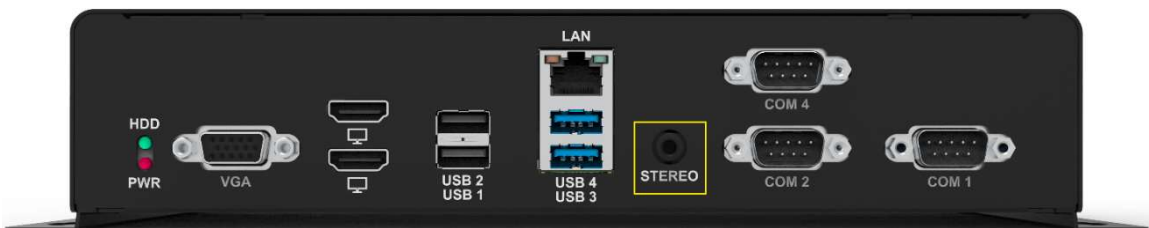


Pin	Signal	Pin	Signal
1	Data Carrier Detect	6	Data Set Ready
2	Received Data	7	Request to Send
3	Transmitted Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicator
5	Signal Ground		

Jumper Setting	Description
Open	Pin9 on COM port is floating
Jumper on 1-2	Pin9 on COM port is 12V supply(default)
Jumper on 2-3	Pin9 on COM port is 5V supply

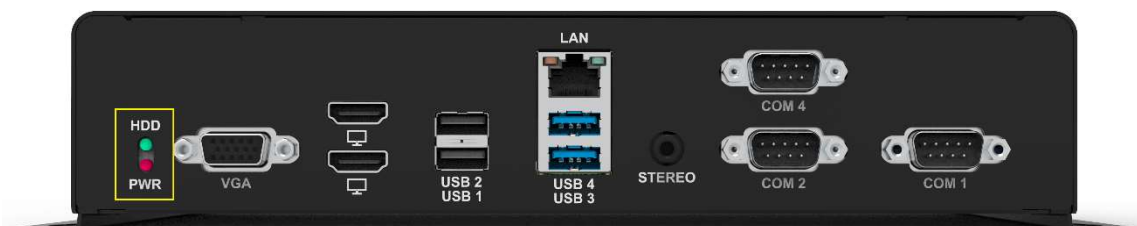
2.5. Audio

One Stereo Line-Out



2.6. LED indication

One Power LED (Red) + One HDD LED (Green).



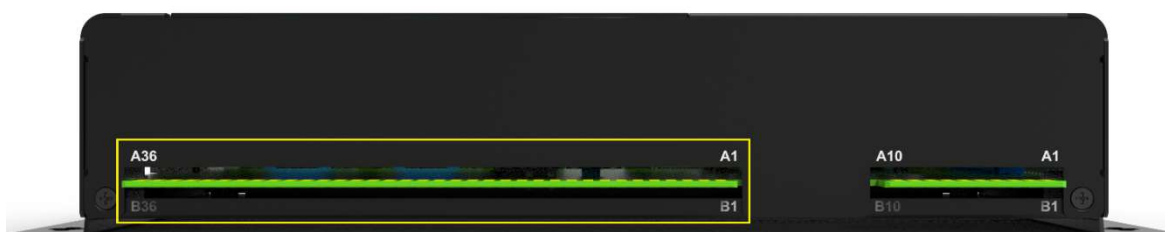
Chapter 3

Rear and Side I/O

3.1. I/O Type description

Type	Description
I-TTL	TTL voltage level input
I-ISO	Isolation protected input
O-OD	Open-Drain output
O-AA	Amplified audio output signal
P	Power or Ground

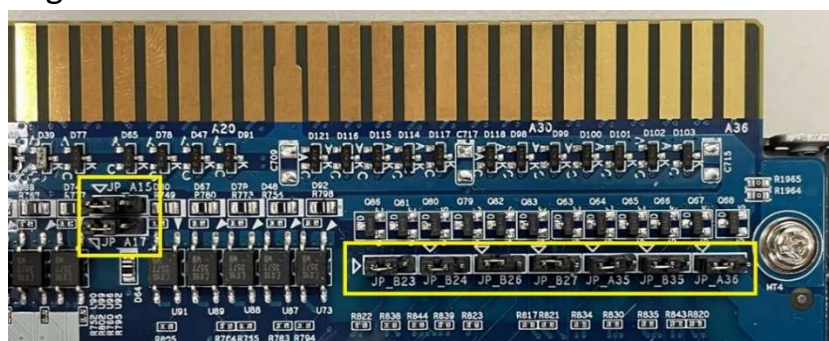
3.2. JAMMA 72-Pin connector



Pin#	Component Side(A) Definition		Type	Solder Side(B) Definition		Type
	Physical	Logical		Physical	Logical	
1						
2						
3	Speaker Right+		O-AA	Speaker Right-	A-GND	P
4	Speaker Left+		O-AA	Speaker Left-	A-GND	P
5	Button 2	GPI_A1	I-ISO	Speaker Left-	A-GND	P
6	Button 3	GPI_A2	I-ISO			
7	Button 4	GPI_A3	I-ISO			
8	Button 5	GPI_A4	I-ISO			
9	Button 6	GPI_A5	I-ISO	Door SW5	INTR 4	I-TTL
10	Button 7	GPI_A6	I-ISO	Play Button	GPI_C3	I-ISO
11	Button 8	GPI_A7	I-ISO	Max Bet Button	GPI_C4	I-ISO
12	Button 9	GPI_B0	I-ISO	Speaker Left+		O-AA
13	Button 10	GPI_B1	I-ISO	Cash Door SW	INTR 1	I-TTL
14	Door SW1	INTR 0	I-TTL	Logic Door SW	INTR 2	I-TTL
15	Bill Door SW/ GPI_C1	INTR 0/ GPI_C1	I-TTL/ I-ISO	Main Door SW	INTR 3	I-TTL
16	Button 11	GPI_B2	I-ISO	Collect Lamp	GPO_D0	O-OD

17	Door SW1 / DC +5V	INTR_0 / Power	I-TTL/ P			
18	Slot One	GPI_D0	I-ISO	Slot Three	GPI_B3	I-ISO
19	Slot Two	GPI_D2	I-ISO	Bill Acceptor	GPI_D1	I-ISO
20	Clear Error	GPI_C2	I-ISO	Menu	GPI_C0	I-ISO
21	Button 14	GPI_B5	I-ISO	Collect Button	GPI_B4	I-ISO
22	GND		P	Hopper/Ticket-CT	GPI_D3	I-ISO
23	Credit in Meter	GPO_C7	O-OD	Lamp 13 / GND	GPO_B4 /	O-OD/ P
24	Credit Played Meter	GPO_C2	O-OD	Meter 6 / Serial Edge CTS	GPO_C5 /	O-OD/
25	Spare Meter	GPO_C1	O-OD	Meter 7	GPO_C6	O-OD
26	Credit Won Meter	GPO_C0	O-OD	Lamp 14/ Serial Edge RTS	GPO_B5 /	O-OD/
27	Call Attendant Button	GPI_C5	I-ISO	Lamp 15/ Serial Edge TXD	GPO_B6 /	O-OD/
28	Credit Out Meter	GPO_C4	O-OD	Win Bell Output	GPO_B7	O-OD
29	Lamp 1	GPO_A0	O-OD	Lamp 7	GPO_A6	O-OD
30	Lamp 2	GPO_A1	O-OD	Lamp 8	GPO_A7	O-OD
31	Lamp 3	GPO_A2	O-OD	Play Lamp	GPO_B0	O-OD
32	Max Bet Lamp	GPO_A3	O-OD	Lamp 10	GPO_B1	O-OD
33	Lamp 5	GPO_A4	O-OD	Tower Lamp High	GPO_B2	O-OD
34	Tower Light Middle	GPO_A5	O-OD	Tower Lamp Low	GPO_B3	O-OD
35	Attendant Lamp / GND	GPO_C3/	O-OD/ P	Serial Edge RXD/ GND		P
36	Speaker Right- / GND	A-GND/	P/ P	GND		P

3.3. Jumper settings for JAMMA connector.



I/O Pin#	Jumper#	Jumper on 1-2 (default)	Jumper on 2-3
A15	JP_A15	GPI_C1	Bill Door SW (INTR 0)
A17	JP_A17	Door SW1 (INTR 0)	DC +5V
A35	JP_A35	Attendant Lamp (GPO_C3)	GND
A36	JP_A36	Speaker Right-	GND
B23	JP_B23	Lamp 13 (GPO_B4)	GND
B24	JP_B24	Meter 6 (GPO_C5)	Serial Edge CTS
B26	JP_B26	Lamp 14 (GPO_B5)	Serial Edge RTS
B27	JP_B27	Lamp 15 (GPO_B6)	Serial Edge TXD
B35	JP_B35	GND	Serial Edge RXD

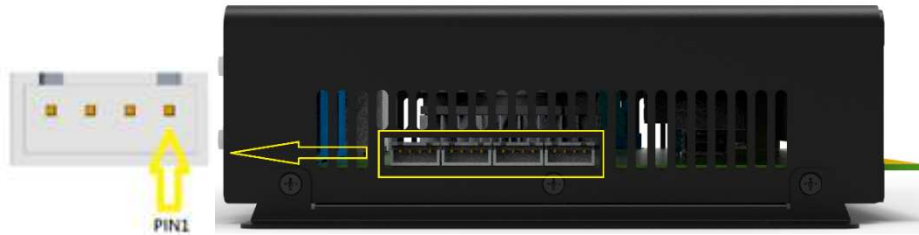
3.4. 20-Pin connector (power input)



Pin#	Component Side(A) Definition		Type	Solder Side(B) Definition		Type
	Physical	Logical		Physical	Logical	
1	GND		P	GND		P
2	GND		P	GND		P
3	DC +5V	Power	P	DC +5V	Power	P
4	DC +5V	Power	P	DC +5V	Power	P
5	DC +12V	Power	P	DC +12V	Power	P
6	DC +12V	Power	P	DC +12V	Power	P
7	Hopper Enable	GPO_D2	O-OD			
8	Ticket Enable	GPO_D3	O-OD			
9	GND		P	GND		P
10	GND		P	GND		P

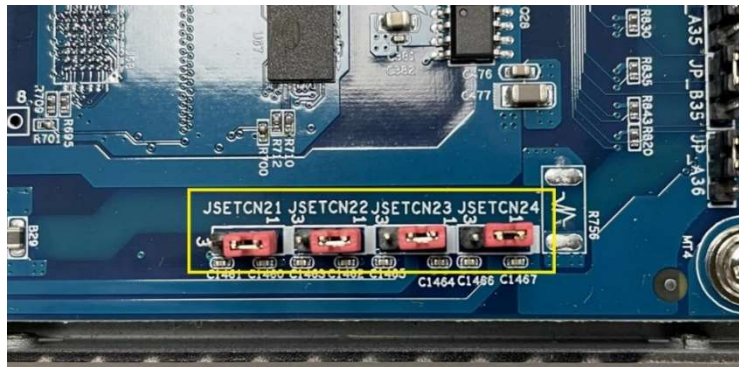
3.5. SPI connector

- Four SPI connector (JST 1x4 pin) support for LED strips.



Pin #	Description
1	+5V (default)
2	SPI_CLK
3	SPI_MOSI
4	GND

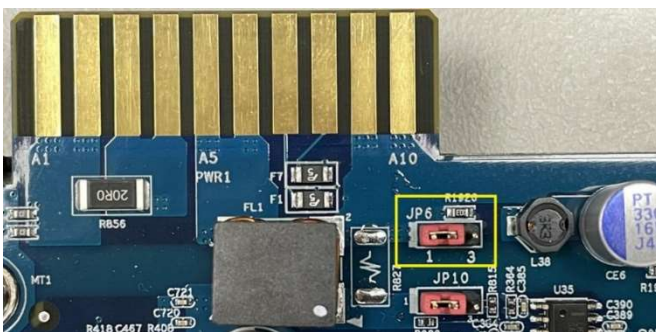
- Pin1 power is 5V/12V selectable by JSETCN21 to JSETCN24.



Jumper Setting	Description
Open	No power on pin1
Jumper on 1-2	Power on pin1 is 5V supply(default)
Jumper on 2-3	Power on pin1 is 12V supply

3.6. Disable audio amplifier output

The amplifier audio output on the JAMMA connector can be disabled by the jumper setting JP6.



Jumper Setting	Description
Jumper on 1-2	Audio output is enabled (default)
Jumper on 2-3	Audio output is disabled

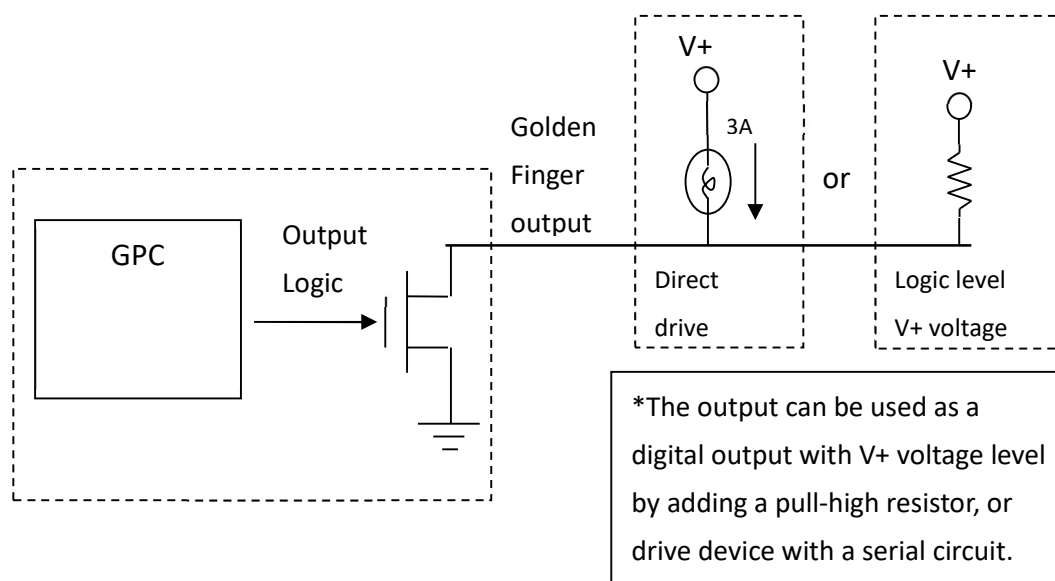
Chapter 4

GPIO Hardware Attributes

In general, the gaming devices such as Meter, Hopper, Coin acceptor, Bill acceptor and Key lock are controlled by GPIO. This helps the user focus on APP program development. Below is the descriptions of hardware behaviors.

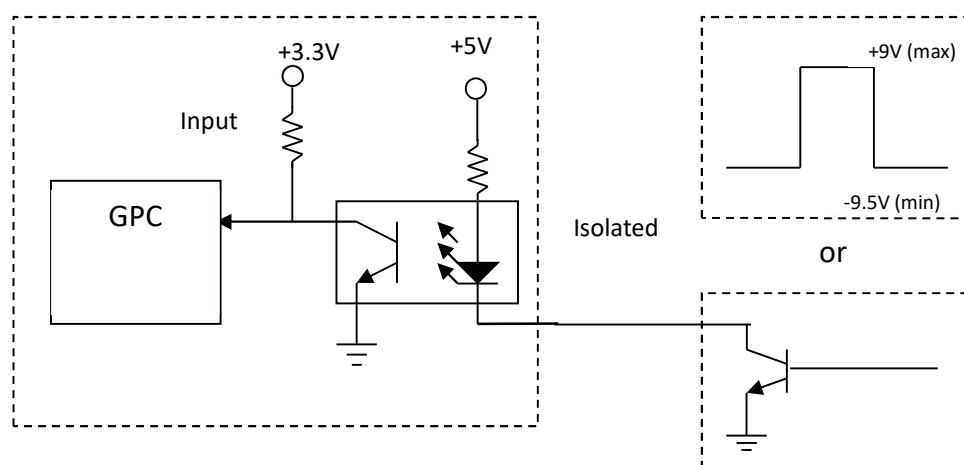
4.1. O-OD (Open Drain Output)

Each output pin on the golden finger is designed to be an open drain output. The driving ability is up to 3A sink current. The open drain outputs are listed on the table below.



4.2. I-ISO (GPI- Isolated Input)

To make the GPC input a high logic level, set the isolated input to floating or increase voltage to greater than +5V but less than +9V. To make the GPC input a low logic level, drop the isolated input to GND or reduce the voltage to less than +1.5V but no lower than -9.5V.



4.3. Intrusion

Provides power to the unit from either the system or auxiliary power port.

- ♦ The intrusion detection is controlled by the EIT controller. When the system power is turned on, the EIT operates via system power. Once the system power is turned off, the EIT power source will switch to the auxiliary power which is provided by a backup battery and the EIT will continue to operate.

Intrusion event

- ♦ If there is any edge change on the detection pins, the EIT will record the event. The record includes event status (0.1.0.1....) and time (Year, month, date, hour, minute and second). Each intrusion pin will keep the last 4 recorded events.

4.4. Auxiliary power monitor

Low power threshold setting:

- ♦ The voltage value of the low power threshold can be set with the EIT register.

Low power event setting:

- ♦ When the power voltage is under a configured value, a low power event will be recorded. When the main power switches on, the EIT will alert the event to the system.

Chapter 5

Electrical characteristics

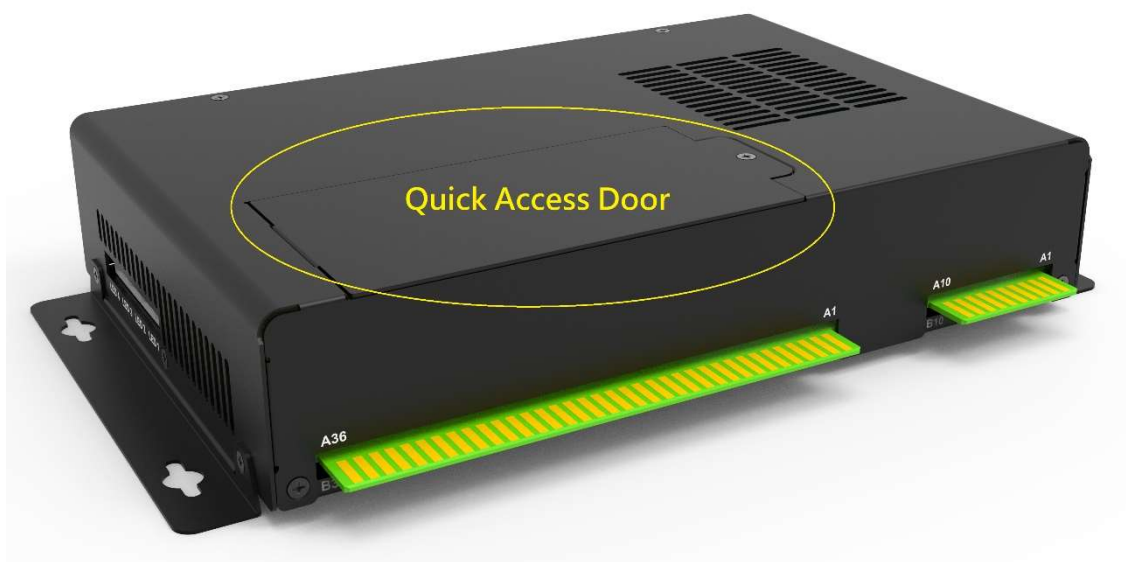
Electrical Characteristics					
Symbol	Description	Value			Unit
		Min.	Typ.	Max.	
V_I-ISO_H	Isolation input logic high voltage (not included Coin in , Bill in & Hopper sensor)	4.5	--	48	V
V_I-ISO_L	Isolation input logic low voltage	-9.5	--	1.5	V
I_ISO_L	Isolation input logic low current.	5	20	50	mA
V_O-OD_PH	Open-Drain pull-high voltage	--	--	30	V
I_O-OD	Open-Drain sink current		--	1	mA
V_I-CMOS33_H	3.3V CMOS input logic high voltage	2.0		3.6	V
V_I-CMOS33_L	3.3V CMOS input logic low voltage	-0.3		0.8	V
I_O-CMOS33_L	3.3V CMOS output logic low current			12	mA
I_O-CMOS33_H	3.3V CMOS output logic high current			-12	mA
5V	Power output voltage	4.5		5.5	V
12V	Power input voltage	10.8	12	13.2	V
I_12V	Power input current (USB devices not included)			3	A

Chapter 6

Quick Access Door

6.1 Introduction

The mechanical design is a more convenient way to access the SATADOM when it needs to be replaced.



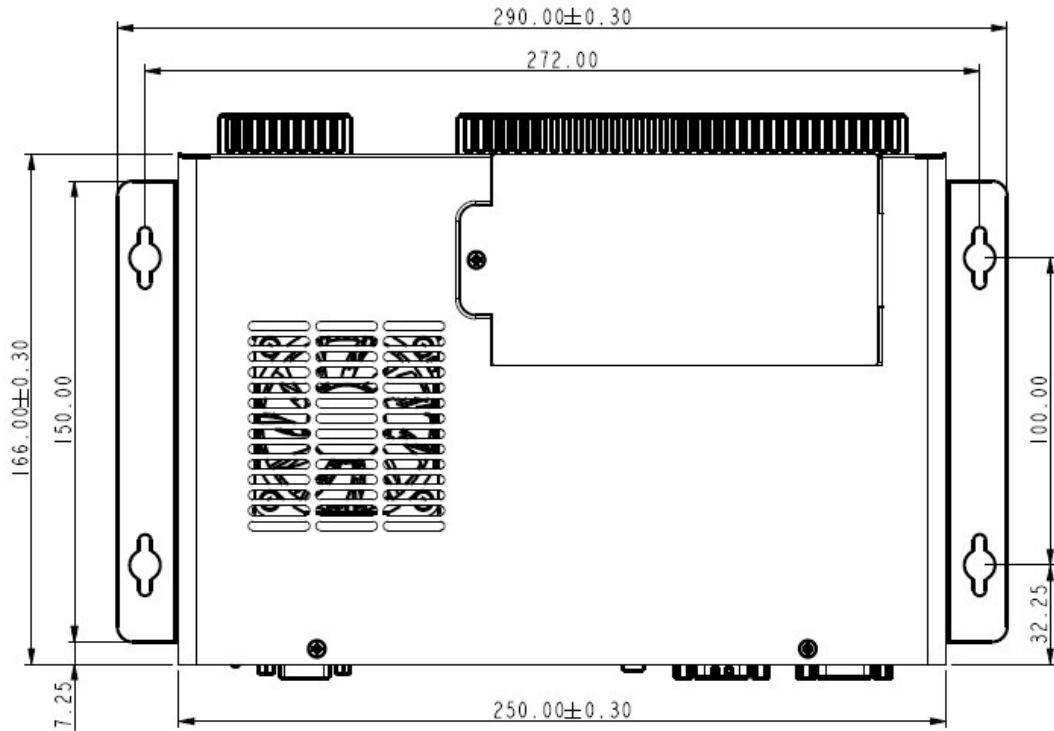
6.2 Installation and removal of the Quick Access Door

Before the Quick Access Door can be removed, the user MUST switch off the external power source to prevent a circuit short and electrostatic discharge. Unfasten the screw on Quick Access Door then remove this cover.

Chapter 7

Chassis and Dimension

7.1 Top side



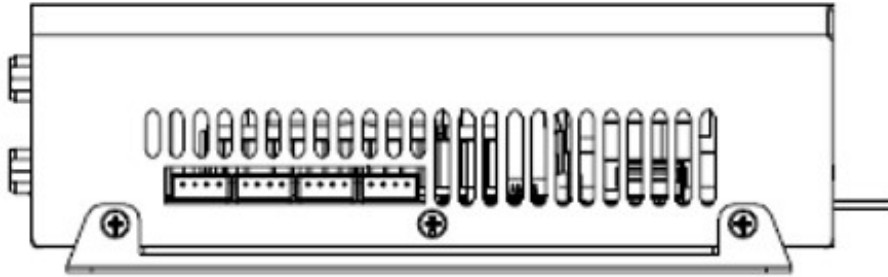
7.2 Front side



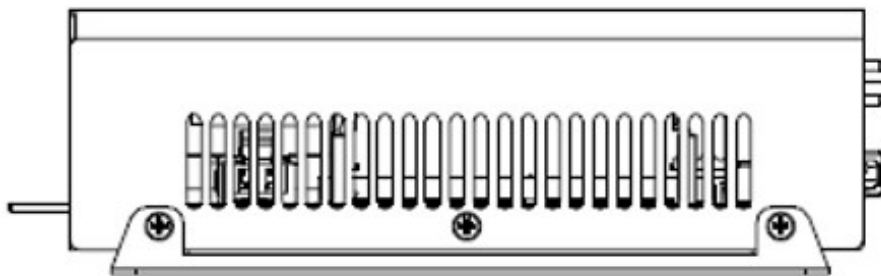
7.3 Rear side



7.4 Left Side



7.5 Right side



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