

Sentinel Management System

User's Manual

V1.0

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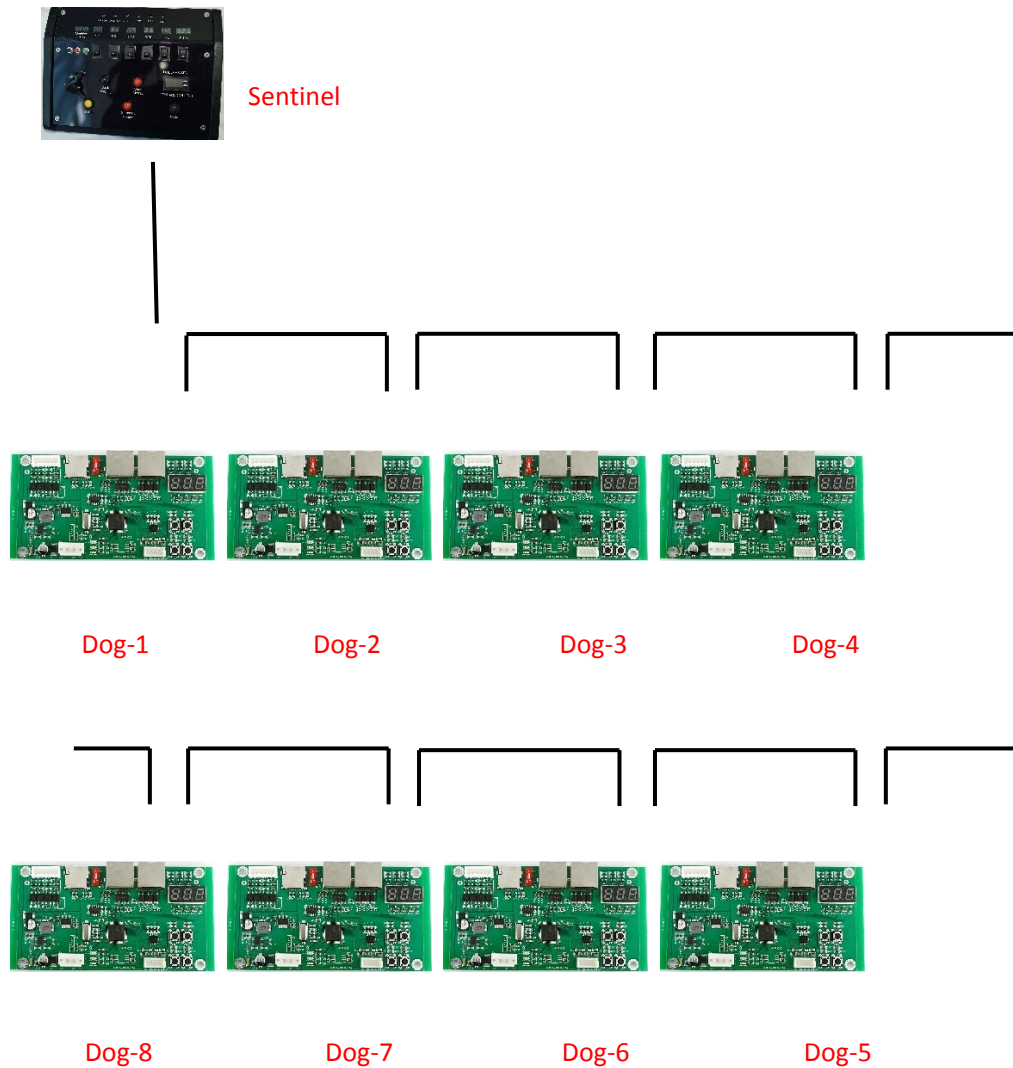
I. Sentinel System Overview

The Sentinel system is developed for efficiently managing coin-op equipment at locations. By networking together, with CAT5 cable, the host unit (Sentinel) and the sub-units (Dogs, up to 247) it can perform the following:

- Send/collect credits from all machines on the network
- Monitor and print the credit in/out ticket.
- Print Daily reports and accumulated reports since last collection
- Remote access accounting via smart phone app

II. Sentinel System Connections

1. Connecting Sentinel, the host unit, with individual Dogs, the sub-units via CAT5 cable



2. Segmented connection via CAT5 HUB

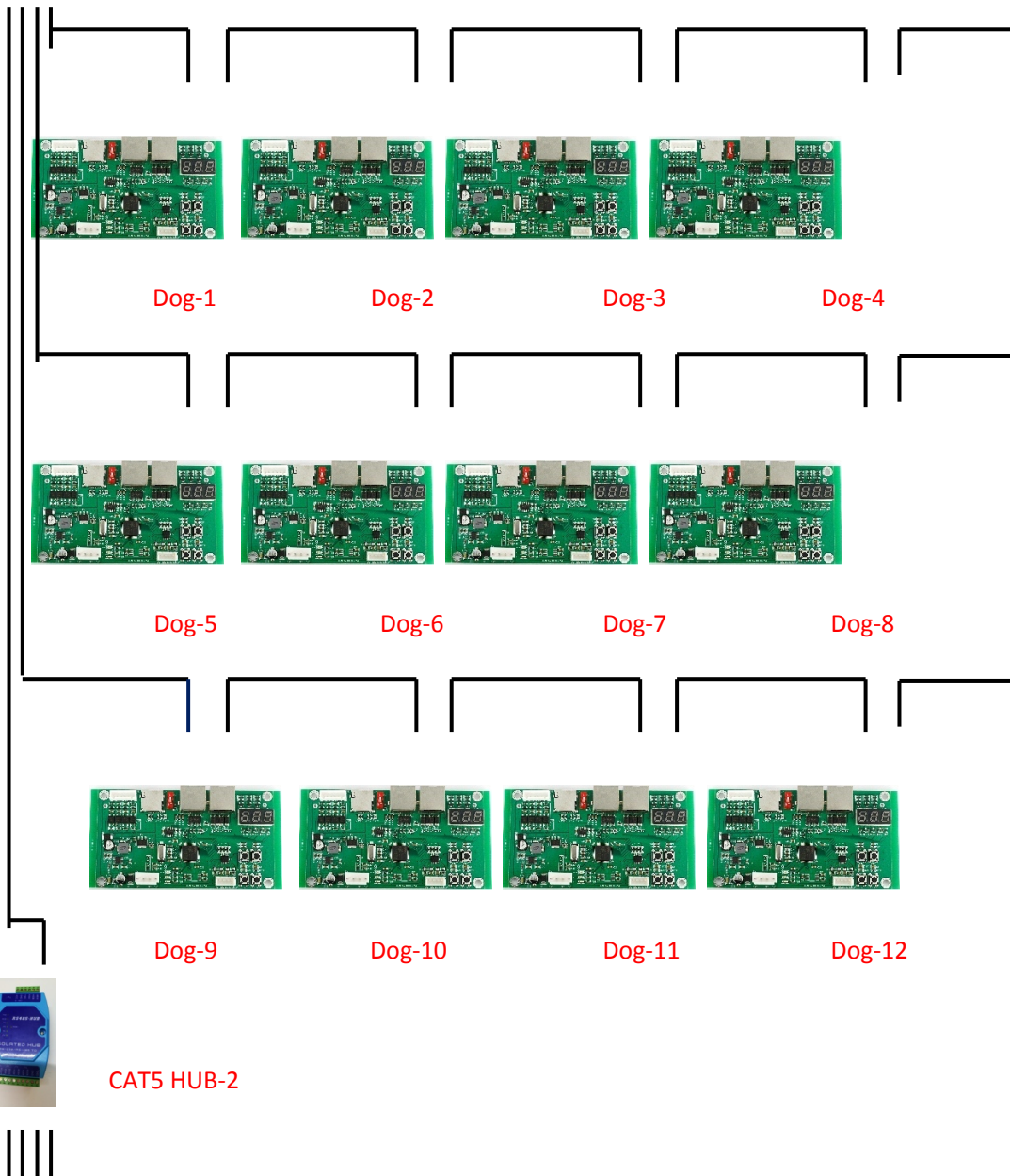
Recommended when more than 64 Dogs to connect. Utilizing the hubs will help signal strength and speed



Sentinel



CAT5 HUB-1



Dog-1

Dog-2

Dog-3

Dog-4

Dog-5

Dog-6

Dog-7

Dog-8

Dog-9

Dog-10

Dog-11

Dog-12

CAT5 HUB-2

III. Sentinel Host

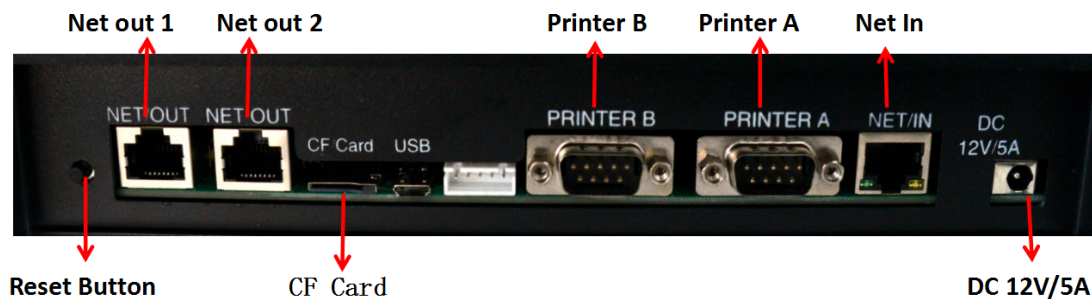
The Sentinel unit provides printing function of all accounting reports, and historical vouchers. It also facilitates the setup of all parameters. Operators can review connection status and historical data at any time.

1.Connection Ports and Panel Layout

A) Connection Ports

Sentinel's PRINTER A Port must be connected to a printer in order for it to work properly. It will beep after power up when no printer is connected.

Looking at the connection ports' side of the Sentinel unit as the picture below shows:



From left to right:

1. Reset Button
2. Net out 1: CAT5 out to Dog board
3. Net out 2: CAT5 out (Not used)
4. CF Card: SD card slot
5. Printer B: (Not used)
6. Printer A: Connect to printer
7. Net In: Connect to internet
8. DC 12V/5A: Power port

B) Sentinel's face panel layout is illustrated in the picture below:



Row by row from the top:

1. Six LED lights as Sentinel's status indicator
2. Machine number LED and dollar value LED
3. Three machine keys (black, red & green) and dollar keys corresponding to above value
4. Enable lock, Book Keeping button, Send Money button credit-in meter and credit-out meter
5. Dailies button, Summary reprint button and Collect button

2. Report Printing – Cashier Level

- 1) To print the Summary of most recent vouchers: Press the Summary Reprint button. It will print out the most recent vouchers (up to 100 vouchers depending on the setting on the setup menu).
- 2) To print the historical credit-in records: Press and hold the Send Money button, and then press the Summary Reprint button to print the historical credit-in (up to 100 records depending on the setting in the setup menu).

Below functions, #3 - #8, require the Enable Key Lock in the On position

3) To print the Sentinel's parameters (and reset them when with SD card): Reset the Machine Number to "000". Turn the Enable Lock to ON position. Hold down the Send Money key and press the green Machine Number key. If a SD card with setup.ini file is inserted in the slot, the location name and currency sign will be updated. (The location name and currency sign are in the last two lines of the setup.ini file, editable.)

4) To print the Daily Accounting of the Sentinel, press the Dailies button.

5) To print the dailies along with each connected machine's dailies: hold down the Send Money button and press the Dailies button once.

6) To print and clear the Daily record, hold the Send Money button, then hold the black Machine Number key, and click the Dailies button. This action will print the current daily report of the Sentinel, clear the sentinel's as well as all Dogs' (must be online) daily report for next shift.

7) To print the accounting of a specific Dog, enter the Dog ID using the three Machine Number keys. Hold down both the Send Money button and the black Machine Number key, then press the Summary Reprint button. It will print the total accounting as well as the daily accounting from the selected Dog.

8) To print a Dog's current configuration settings, enter the Dog ID using the three Machine Number keys. While holding down the Send Money button, press the middle Machine Number key to (red).

3. Report Printing – Operator Level

To Enter Operator Level privilege, leaving the Enable key at Off, perform these steps:

1. Hold down Send Money button and turn Enable key to On. Release Send Money button
2. Use the \$ keys to enter your 6-digit password (default is 532866). Press Send Money key once to enter the operator level of operations.

The Operator can now perform the following functions:

- To print the Total Accounting of the Sentinel, press the Book Keeping button.
- To print the Total Accounting of each Machine, hold down the Send Money key and press the Book Keeping button.
- To print and clear the accounting, holding down both the Send Money key and the black Machine Number key. You then either press the Dailies key or the Book Keeping button. The former prints; the latter will print and clear the corresponding accounting. It will clear the records from the Sentinel as well as all Dogs that are online at the moment.

- To set the Dogs configuration setting by batch and print out:
 - 1) First edit the micro SD card to set the start and ending Dog numbers.
 - 2) Insert the SD card into the CF card slot.
 - 3) Press and hold the Send Money button, and then press the middle Machine Number key (red).
 - 4) The Sentinel will set the parameters through the batch and print them out.

4. Credit in and out functions

Sentinel can send credits to a specific Dog; or, collect money from it and print the voucher.

1) Sending credits

- ①、 Turn the Enable lock to On
- ②、 Select the Machine Number using the machine keys. There are three of them representing hundreds, tens, and single respectively from left to right (or black, red and green). Each with incremental of at 1 and recycle from 0 to 9.
- ③、 Press and hold (keep holding) the desired \$ key such as \$1, \$5...etc. The corresponding LED will lit.
- ④、 While still holding down the \$ key, press the Send Money button, then release all the buttons. At this time -

If the credit sent was successful, the corresponding \$ LED will remain on, and the "DATA OK" indicator will light and remain on.

If the credit sent was unsuccessful, the corresponding \$ LED will be blinking, and the "ERROR" indicator will light and remain on

If the Enable lock did not stay at ON position, the \$ LED will not turn on, credit sent will fail

- ⑤、 To clear all above display, click once a \$ key that doesn't have the LED light on.

2) Process of collecting credits

- ① First select the Machine Number.
- ② Press the "Collect" button. A voucher will be printed

3) About the Credit-in Meter

It records accumulatively the credits-in from the Sentinel, always in dollars.

The local coin input such as DBA on individual machines are not counted by this meter.

4) About the Credit-out Meter

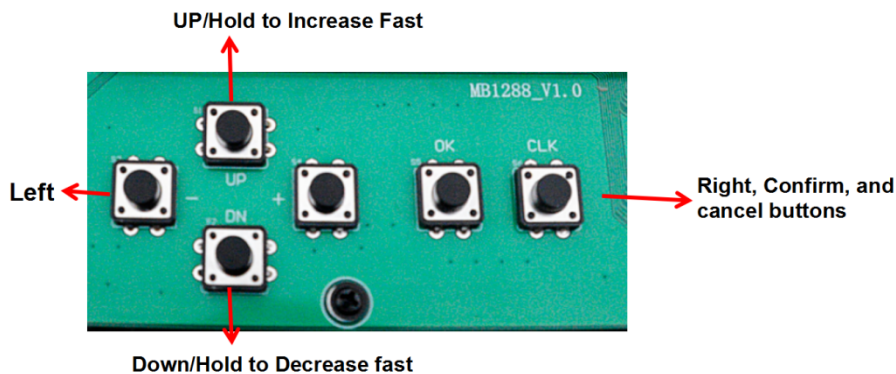
It records cumulatively the credits-out from the Dog to the Sentinel, always in dollars.

5. Setup Menu

There are 6 operational buttons configured on Sentinel's motherboard underneath the face panel. They will be used to access the setup menu, from which the relevant parameters can be set, the online/offline dogs can be displayed, and the historical data of in/out can be requested (most recent 100 records or less).

1) Operational Buttons

Open the cover up of the Sentinel, you will see the motherboard with LCD panel in the middle and the operation buttons under it, as shown here:



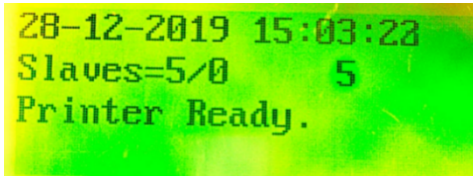
Press the "OK" button to execute any current operation.

Press the "CLK" key to cancel the current operation, or exit to the previous menu;

The backlight of the LCD is normally off. You may turn the backlight on by pressing any button except the "OK" button. You will then see the LCD displaying the system information like below:



2) Normal Display of System information



Line 1 is the Date and time

Line2 - The first value refers to the number of Dogs connected to the Sentinel

The second value refers to the number of connected Dogs that are online.

The third value refers to the number of connected Dogs that are offline

Line 3 is the status of the printer: Ready / Offline

When the PRINTER A port is not connected to a printer, Printer Offline is displayed and a beeping sound can be heard.

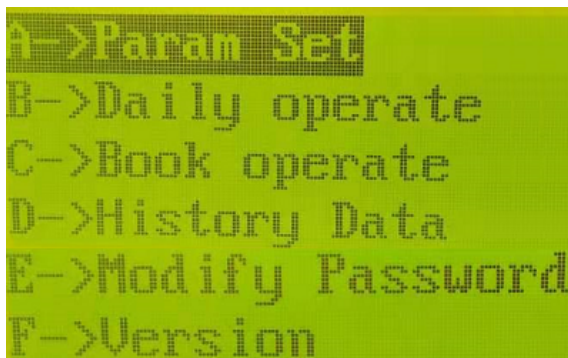
When a printer is connected, Printer Ready is displayed and it will work normally.

Press the "OK" button to enter the main menu.

If no action for 1 minute, it will automatically return to normal, and the LCD backlight will turn off.

3) Setup Parameters

While in the normal display status, press the "OK" button to enter the main setup menu



A->Param Set: Set parameters

B->Daily operate: Display and clear of daily reports

C->Book operate: Display & clear books & daily, restore factory settings, work mode selection

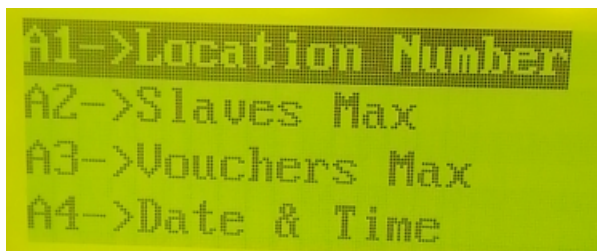
D->History Data: Requesting the most recent 100 In/Out records

E->Modify Password: Change the password for performing Book operate

F->Version: Software version

G->Exit

A-> Parameter set



Using the Up and DN keys to select the value for below parameters

A1-> Location Number: Select a number from 1-255, to uniquely identify the location that the Sentinel is at

A2-> Slave Max: Enter the number of Dogs connected within the network (1-247). Ignore the word "Max"

A3-> Vouchers Max: 1-100 adjustable

A4-> Date & Time: Modify the date and time



A4.1->Network Update: After connecting the network cable, the time can be updated automatically

A4.2->UTC/GMT: you can choose your own international time zone

A4.3->Edit Date & Time: Set the date and time manually

B-> Daily Operation

```
B1->Display Daily
B2->Display Slave Daily
B3->Clear Daily
B4->Timer Clear Daily
B5->Timer Clear Daily En
```

B1-> Display Daily: Display daily report, the unit of money is \$

B2-> Display Slave Daily

B3-> Clear Daily: Clear the Daily from the sentinel and Dogs that are online manually

B4-> Timer Clear Daily: Set a specific time here to auto-clear the daily report everyday

B5-> Timer Clear Daily En: Enable key set to ON to activate the above timer in B4. If OFF to disregard the timer before.

B6-> Exit

C-> Book operation

This sector of operations is password required. The default password is: 532866

```
C1->Display Book
C2->Display Slave Book
C3->Clear Book & Dail
C4->Clear All
C5->FactoryValue Set
C6->Working Mode
C7->Exit
```

C1-> Display Book: Display the general account of the Sentinel, the unit of money is \$

C2-> Display Slave Book: Display the general account of the Dog

C3-> Clear Book & Daily: Clear the general account and daily report at the same time on the Sentinel, same to the all Dogs online (Run this when re-assign the Sentinel to a different location)

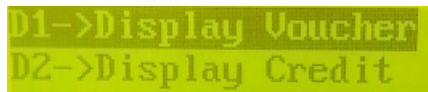
C4-> Clear All: Clear all records, including daily reports, Books, Vouchers, historical In / Out credits

C5-> Factory Value Set: Restore factory settings

C6-> Working Mode: Select either NETWORK or LOCAL mode. In NETWORK mode, the Sentinel must be connected to the Internet. Select NETWORK mode to enable remote monitoring

C7-> Exit

D-> History Data



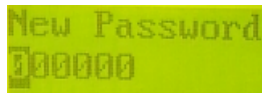
D1->Display Voucher
D2->Display Credit

D1-> Display Voucher: Display the last 100 (if any) Credit-out records in reverse order

D2-> Display Credit: Display the last 100 (if any) Credit-in records in reverse order

E3-> Exit

E-> Change Password



New Password
000000

Change password for entering Book operation. This password is used for Book operations. The default password is: 532866. IMPORTANT, once changed, it can't be recovered unless contact the manufacturer to reset.

6. Software Version Update

With the network cable connected and power plugged, click the Reset button (located on the Sentinel' connection ports). Pay attention to the printer, it will print the following

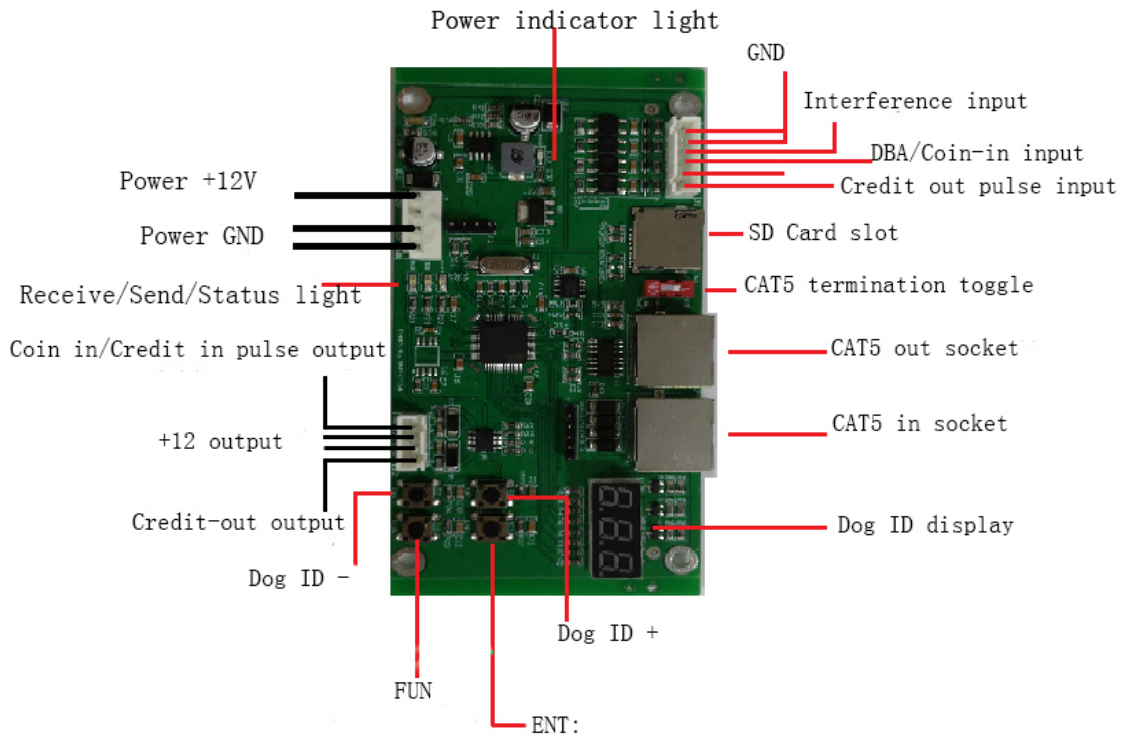
- 1) Alert the update is in progress and will take a few minutes
- 2) When successfully done, the Sentinel will restart itself and print a power up ticket showing the new version number.
- 3) If the process is unsuccessful, a ticket will be printed (after about 10 min) telling you to either re-try or call the distributor.

Warning: do not turn the power off during or after the update.

At any time, if you need to know the current version, simply unplug and re-plug the power line from the Sentinel unit and a power up ticket will be printed showing the current version #.

IV. Dog Board

1. Dog board configuration



From the above illustration, starting from the top and going counterclockwise:

1. Power indicator light
2. Power +12V
3. Power GND
4. Receive/Send/Status light
5. Coin in/Credit-in pulse output
6. +12 output
7. Credit-out output
8. Dog ID -: To reduce the Dog number
9. FUN: Function Key. Hold for 5s to clear all books and restore to factory settings (Run this when re-assigning the Dog to a different machine)

10. ENT: Enter Key, for reading and writing the parameters:

Press ENT to load the parameters from the SD card (when plugged in) into the Dog board. Status light flashing 3 times after finished and the Dog will restart automatically.

While press and hold the FUN key down, press ENT to write the current parameters from the Dog onto the SD card (when plugged in)

11. Dog ID +: To increase the Dog number

12. Dog ID display, will blink when offline

13. CAT5 in socket

14. CAT5 out socket

15. CAT5 termination toggle: Toggle to left at "ON" position if no CAT5 out; otherwise toggle to right at "1" position

16. SD Card slot

17. Credit out pulse input

18. DBA/Coin-in input

19. Interference input (from other optional security devices)

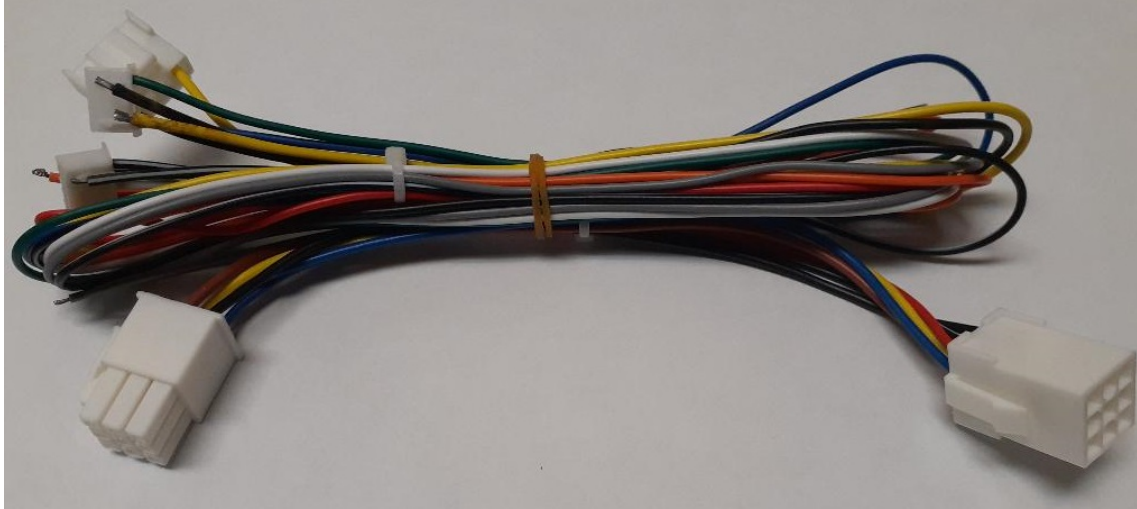
20. GND

Pin Out on 3 connector plugs on Dog board:

<u>Description</u>	<u>Pin Number</u>	<u>Function</u>
Power connector	1	+12v
	2	Blank
	3,4	Power GND
Output connector	1	Coin in/Credit-in pulse output
	2,3	+12 output
	4	Credit-out output
Input connector	1,2	GND
	3	Interference input
	4	DBA/Coin-in input
	5,6	Credit out pulse input

Dog-to-DBA Adaptor Harness (as shown below)

As a part included in the Sentinel package, it enables the communication between DBA and Dog board and is necessary for the DBA to be included with the Sentinel bookkeeping. One 9 pin connector plugs in to the Machine's DBA input. The other plugs into the DBA if you are using one.



2. Network status display

Three network status may be displayed by Receive light, Send light, and Status light.

If the network connection is normal, the Status light will blink intermittently. In the same time, when the baud rate is connected, the Receive light will always blink and the Send light will blink intermittently. The Dog ID is always displayed.

If the network connection is abnormal, the Status light will be off and the Send light will not blink. The Dog ID will flash.

3. Dog ID display

The digital tube on the Dog board will display the number of its assigned ID.

If the network connection is normal, the Dog ID always displayed.

If the network connection is abnormal, the Dog ID is displayed flashing.

4. Dog ID modification

Press the "Dog ID+" key to increase the Dog ID value;

Press and hold the "Dog ID+" key, the Dog ID value will increase fast;

Press the "Dog ID-" key, the Dog ID value decreases;

Press and hold the "Dog ID-" key, the Dog ID value will decrease fast.

After the Dog ID reaches the maximum number, pressing "Dog ID+" will cause it to be 1 again;

When the Dog ID value is at 1, pressing "Dog ID-" will cause it to be the maximum number again.

5. Block interference signal

Dog will identify the interference credit signal and block it. When the incidence was detected 10 consecutive times, the Dog will stop function and send out error message to Sentinel causing alarm sound-off and printing the event record. To recover the Dog, power off then on.

6. Set parameters on Dog

There are two ways to set the parameters on a Dog board:

One is to individually set by using a SD card; the other is batch set, i.e., applying the same set of parameters to a range of Dog boards selected from the Sentinel unit.

1) Setting individual Dog board using SD card

- ① First, locate the setup.ini file, provided in the mini SD card which in turn is put onto a USB key. Plug the USB key into your PC or laptop and open the setup.ini file.

You may need to modify the numbers depending on what coin op machine the Dog is going onto. Please refer to below Sec 7 "Commonly Used Dog Parameters"

- ② 、 Insert the SD card into the slot on the Dog;
- ③、 Power on the Dog board, when power is on, the Dog ID will display;
- ④、 Press the "ENT" key, the dog will read the .ini file setup, parse and execute the settings, then restart, the modified parameters will take effective;

2) Setting Dog parameters by batch

When a consecutive Dog boards were to be set up the same (to be used on the same type of games), you may use the batch setting to do for all at once

- ① First, locate the setup.ini file, provided in the mini SD card which in turn is put onto a USB key. Plug the USB key into your PC or laptop and open the setup.ini file.

The first two lines of the setup.ini (Number_Start and Number_End) are used to select which dogs are to be programmed.

- ② 、 Insert the SD card into the slot on the Sentinel. Power on and enter the operator password.

Default Password: **532866**

- ③ 、 Press and hold the Send Money button, then press the second Machine button (red)
- ④ When the setting is successful, a beep will sound and the resulted settings will be printed

7. Commonly Used Dog Parameters

There are two commonly used sets of parameters:

FG – for multiplayer fish games

8L – for single player game cabinets

The out-of-factory default parameter set, provided on the mini SD card, is of the FG type.

P_On_Time = 15

P_Off_Time = 15

In1_NO_NC = 1

In2_NO_NC = 1

In3_NO_NC = 1

In4_NO_NC = 1

Out1_NO_NC = 1

Out2_NO_NC = 1

RMT_M_P_MUL= 1

RMT_M_P_DIV = 1

Out_P_M_MUL = 1

Out_P_M_DIV = 1

In_P_M_MUL = 1

In_P_M_DIV = 1

In_P_W_MIN = 10

In_P_W_MAX = 150

In1_P_W_MIN = 1

In1_P_W_MAX= 150

Version = 11015

If the Dog board is to be installed on a single player game cabinet, you must edit the first two lines to be (keep the rest unchanged):

P_On_Time = 28

P_Off_Time = 28

8. Clear all book and restore the factory setting on Dog

Press and hold the Function key for 5 seconds, the dog board will clear the daily report and general accounts and restore all parameters to its factory values.

