smartController Simulator Technology Manual

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1. Introduction & Safety

1a. What is the SmartController System?

The SmartController System is the device which controls the game machine mechanics and RFID reader. The SmartController also logs all game activities, capable of storing hours of game data. The game data and log can be retrieved remotely via a standard TCP/IP socket. The SmartController allows remote control of the machine from any computer via a standard TCP/IP socket.
The SmartController is capable of performing an inventory of the balls found in the machine. Balls drawn during gameplay are automatically validated against the stored inventory.

1b. How it works

The SmartController System utilizes RFID technology to identify the number drawn when SmartBalls are used. The SmartController System also transmits information regarding the start and stop of games, the state of the machine during gameplay, and the validity of the ball. Further information regarding messages transmitted can be found in Section 4.

1c. Service Information

The Smartplay SmartController Appliance should only be serviced by Smartplay International inc. Breaking any seals installed by Smartplay will void your warranty or service agreement unless otherwise specified by Smartplay.

For Service and Support Contact:
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2. System Overview

2a. Game States

The SmartController operates by stepping through predefined gamestates.
Each state has a unique number. The state changes can be noted in the game log. Each state only accepts certain input from either the physical buttons, Remote Control Application, or the control stream.

NOTE: Not all game states are used by all machine types.

Game State	#	Input Accepted
Idle	0	START, SELFTEST,RELEASE
Paused	1	START,RESET
Release	2	RESET
WaitForSelect	3	SELECT,RESET
WaitForGate	4	RESET
WaitForEye	5	RESET
WaitForRead	6	RESET
ScanForNoBall	7	RESET
WaitForBallToRoll	8	RESET
WaitForBallToStop	9	RESET
NoReadBallCheck	10	RESET
WaitForBallToPass	11	RESET
Full	12	START,RESET
ReleaseToFull	13	RESET
Reset	100	NONE
Self Test	200	RESET

2b. Log Streams (TCP/IP)

The SmartController provides game data via two types of streams. To obtain the various data streams connect to port 7420 and send a single byte request within 3 seconds of connecting. See the chart below for a list of the available streams and the corresponding command.

Name	cmd	Description
Game Stream	g	Returns gamestream from the current moment on.
System Log	l	Returns System Log from the current moment on.
Game Stream Archive	G	Returns all gamestream data stored in memory.

| System Log Archive | L | Returns all System Log data stored in memory. |
| Game Control | C | Initiates a game control connection. |

The "Game Stream" provides game data in a compact, single character format easy for software to parse. The "Data Stream" can be obtained by connecting to port 7420 and sending an ASCII g. See the "Game Data Message Guide" in section 4a for further information regarding the information tranmitted. The "System Log Stream" provides verbose game information including the inventory report.

System Log entries are in the format of:
###:##:######:Message Data
^   ^ ^ - Seconds since system booted
| |Selection Number
Game Number

3. Protocol Information

3a. Message Guide

All messages transmitted on the game data stream are between 2 and 4 bytes long. Each message includes 1 or 2 data bytes and 1 or 2 control bytes (a comma or a CR and a LF). The chart below outlines the messages the SmartController system transmits. Two sample ball reads are shown at the end of the chart.

NOTE: All messages are not sent by every machine.

Stream Message	System Log Message
##,	BallRead: Ball %d
XX,	WARNING!: FAILEDREAD!!: Jam not detected, likely the ball's RFID chip did not respond. (XX)
y,	WARNING!: The ball failed to release, a hardware failure occured, machine will keep trying (y)
Y,	WARNING!: The ball failed to release, a hardware failure occured, machine will keep trying (y)
f,	ERROR!: The ball checksum failed, ignoring read (f)
z,	ERROR!: The ball returned garbage data, ignoring read (z)
k,	The ball has cleared the antenna (k)
K,	The ball has cleared the antenna (K)
c,	ERROR!: There is indication that the machine has jammed or failed, this is a critical failure.(c)
C,	ERROR!: There is indication that the machine has jammed or failed, this is a critical failure.(C)

q,	WARNING!: We've spent too long waiting for a ball, let's try for another.(q)
Q,	WARNING!: We've spent too long waiting for a ball, let's try for another.(q)
i,	Initial bootup
I,	Idle (I)
r,	A start command was received (r)
N,	Inventory waiting for ball to roll (N)
n,	Waiting for ball to roll (n)
R,	Inventory waiting for ball to stop (R)
O,	Waiting for ball to pass photo eye 2 (O)
o,	Waiting for ball to pass photo eye 2(o)
r,	Waiting for ball to stop (r)
s,	Opening the select (s)
S,	Getting a ball for inventory (S)
h,	Waiting for a select request (h)
w,	Waiting for the photo eye (w)
W,	Waiting for the photo eye (W)
P,	Paused (P)
e\n	Reset (e)
B,	Scanning a ball for inventory (B)
b,	Waiting for a ball read (b)
J,	Waiting for Ball to exit read area (J)
j,	Waiting for Ball to exit read area (j)
M,	WARNING!: No Ball found by RFID Reader, checking for jam with photo eye 2 (M)
m,	WARNING!: No Ball found by RFID Reader, checking for jam with photo eye 2 (m)
T\n	Running a self test (T)

3b. Game Control Message Guide

It is possible to control the SmartController remotely via a standard TCP/IP
socket. Game Control connections are initiated on port 7420 after sending a 0x63.

The chart below outlines the commands and queries accepted.

NOTE: Bytes are processed at a rate of ~8/second (varies by command). Sending unneeded / extra
bytes can cause a delay in processing of subsiquent commands on that socket.

ASCII	Hex	Command	ASCII Response
1	31	Start	1
3	33	Pause	3
4	34	End of Game (RESET)	4
2	32	Select Ball	2
G	47	Return game number	00000 - 99999
U	55	Return machine uptime	00000 - 99999
N	4E	Return selection number	00000 - 99999
S	53	Return game state	00000 - 99999
T	54	Return machine type	eg. Super Bingo
V	56	Return Software Version	eg. 1.2.3

3c. Sample Game Strings

The example game strings below start in the idle state, shows a start command, then picks 12 balls. This example shows the data transmitted via the game data stream.

I
r,m,h,s,b,18,h,s,b,1,h,s,b,69,h,s,b,4,h,s,b,20,h,s,b,32,h,s,b,44,h,s,b,23,h,s,b,88,h,s,b,77,h,s,b,65,h,s,b,28
,
h,s,b,68,h,s,b,37,e
I

3d. Heartbeat

The SmartController Appliance will transmit two bytes every second (Dec 32
then Dec 8) if no other data was transmitted. This assists client software and the SmartController in identifying network connection status while the machine is idle.

The heartbeat is designed to not be visible when using hyperterminal or telnet to test functionality. The heartbeat will not be transmitted if a data byte was transmitted in the last second. The heartbeat will occur on all types of socket connections.

4. Performing Common Tasks

4a. Connecting to the simulator

To access the smartController Simulator use:

HOST: smartplaytechservices.com
PORT: 7420

4b. Testing Connectivity

A standard "ping" test can be used to test basic network connectivity from a client PC to the SmartController appliance. The procedures shown below are intended for Microsoft Windows XP:

> a. Click Start -> Run
> b. type "cmd" and click ok
> c. type "ping smartplaytechservices.com" and press enter. Replace smartplaytechservices.com with the unique ip address of the machine you are testing.
> d. If you see the message which begins with "reply from..." you're network settings are correct.

4c. Viewing the System Log Archive

A standard "telnet" program can be used to view the System Log Archive.
The procedures below are intended for Microsoft Windows XP and utilize "Hyperterminal":

> a. Click Start -> {All Programs} -> Accessories -> Communications -> Hyperterminal
> b. If this is the first time you are using hyperterminal you may be asked to configure
> your dial preferences, if so follow the on screen instructions.
> c. Name your new connection "SmartController" and click ok.
> d. Change "connect using" to "TCP/IP Winsock"
> e. Change Port Number to 7420
> f. Change Host Address to the simulator default smartplaytechservices.com.
> g. Click Ok
> h. Type an L into the terminal.
> i. Run a game on the machine, you should see game data similar to what is show in section 4b.

4d. Viewing the Game Stream Archive

A standard "telnet" program can be used to view the game data stream. The procedures below are intended for Microsoft Windows XP and utilize "Hyperterminal":

> a. Click Start -> {All Programs} -> Accessories -> Communications -> Hyperterminal

b. If this is the first time you are using hyperterminal you may be asked to configure your dial preferences.
c. Name your new connection "SmartController" and click ok.
d. Change "connect using" to "TCP/IP Winsock"
e. Change Port Number to 7420
f. Change Host Address to the unique IP address of your draw machine (default smartplaytechservices.com).
g. Click Ok
h. Type a G into the terminal
i. Run a game on the machine, you should see game data similar to what is show in section 4b.

4e. Running a game via Network Commands.

A standard "telnet" program can be used. The procedures below are intended for Microsoft Windows XP and utilize "Hyperterminal":

a. Click Start -> {All Programs} -> Accessories -> Communications -> Hyperterminal
b. If this is the first time you are using hyperterminal you may be asked to configure your dial preferences, if so follow the on screen instructions.
c. Name your new connection "SmartController" and click ok.
d. Change "connect using" to "TCP/IP Winsock"
e. Change Port Number to 7420
f. Change Host Address to the simulator default smartplaytechservices.com).
g. Click Ok
h. Type a c into the terminal within 2 seconds of connecting
i. Connect to the System Log or Game Data stream to view the progress of the inventory.
j. Type a 1 then press enter in the terminal (Starts game)
k. Type a 2 then press enter in the terminal (Select a ball)
l. Repeat step K for desired number of balls.
m. Type a 4 then press enter in the terminal (End Game)

NOTE: Enter is required by Hyperterminal to send the message on the line. The "carriage return" is not required when programming for the socket.