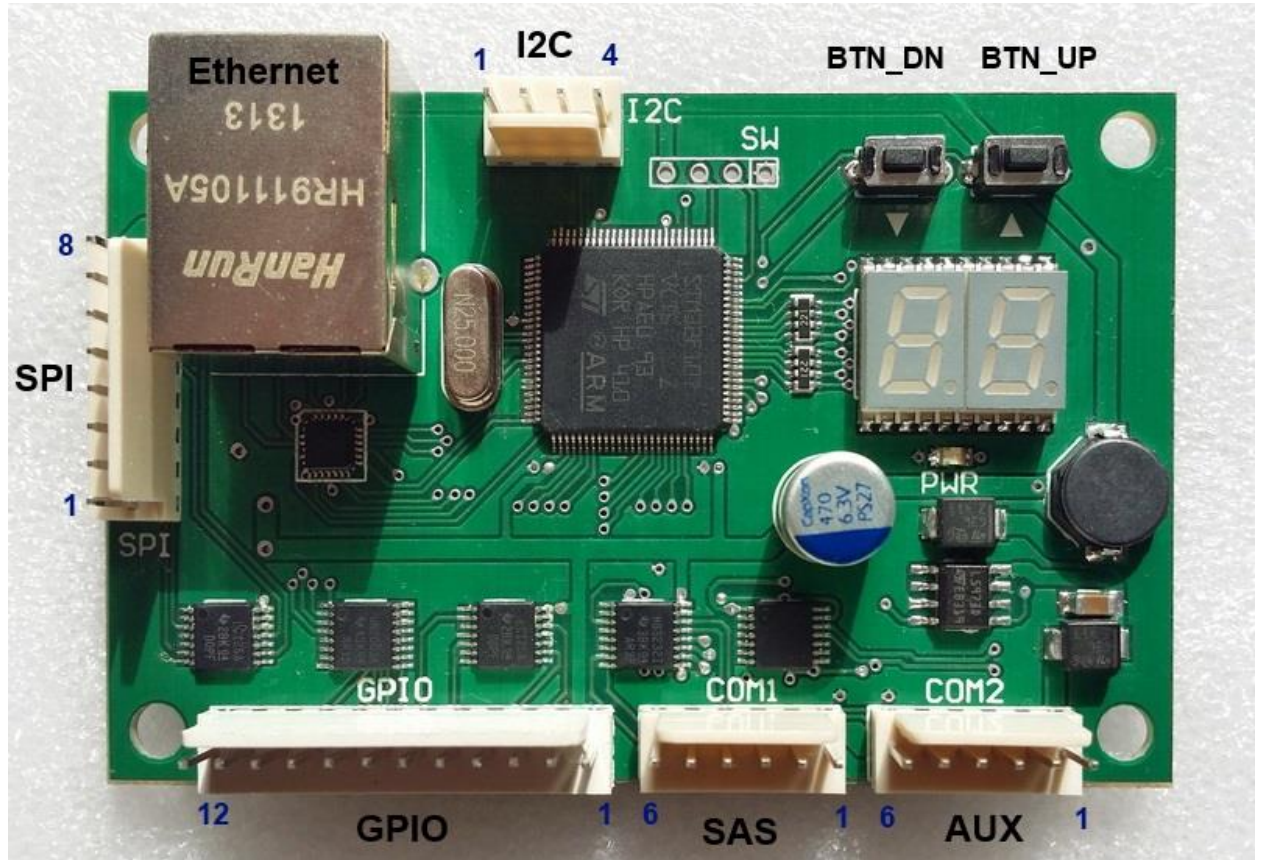


SAS client board (SMIB) with Ethernet interface User Manual

Introduction

SAS client board can be used for slot machine accounting automation purposes and player tracking and bonus system.



Powering the board

Board can be powered with 4.5-24 V power supply. Power can be delivered through the COM1 or COM2 connectors. Board should be powered from the gaming machine's power supply.

Ethernet interface

Ethernet interface is used for board connection to the SAS server. This greatly simplifies building the saloon's SAS network because such standard equipment as switches and patch cords are widely available. Supported Ethernet speeds are 10 and 100 mbit. UDP protocol is used for communication at the transport level. You need to configure IP setup for every SMIB board using the special configuration utility.

Boot loader mode

Boot loader mode is used for firmware upgrade. This mode is indicated by the letters "FU" on the LED display. Firmware can be upgraded either by Ethernet interface or by serial link to a PC. For serial link SAS port is used (connector COM1), either RS232 or TTL RX/TX pair.

Application mode

Application mode is the main mode of the board. In this mode it communicates with a gaming machine through the SAS connection and with a server through the Ethernet connection. When in application mode LED display shows machine's SAS address in hexadecimal (address is selected in the setup menu of a gaming machine). If SAS address is not known (e.g. SAS is not enabled or no connection between SMIB and the machine's main board) then two dashes are displayed "--". According to the SAS standard if SAS is enabled in a game setup and game doesn't see any polls from the SAS server then it starts to "chirp" – means sends its own SAS address. Using this feature SMIB board knows game's SAS address. When game "chirps" decimal point of the rightmost LED digit is blinking.

Gaming machine connection

Before connecting SMIB board to a gaming machine you need to check whether the SAS feature is supported by game's software, whether the possibly additional SAS hardware (like level shifters, optical isolators etc) is installed and whether the SAS feature is enabled in game's setup and SAS address set to a non-zero value. For a physical connection you need to make a cable with 3 wires: RX (data receive), TX (data transmit) and GND (ground). RX/TX signals can be either true RS232 voltage levels (+/-12V) or TTL. SAS port of the SMIB board has corresponding RX/TX pins for both levels. You need to find out the voltage levels used in the gaming machine before connection. You should never connect RS232 and TTL signals – this can damage SMIB board or gaming board.

Additional peripheral

SMIB board has several connectors with various interfaces so additional devices can be connected to the board. For example, magnetic or RFID card reader for player identification. Simple LCD text display to show messages to player (bonus points, mystery jackpot value etc.)

COM1 / COM2 6-pins type WH-6 - Serial port connectors

Pin	Name	Type	Description
1	+12V	Power input	Power supply input (4.5-24V)
2	GND	Ground	
3	TX TTL	Output OC	Serial port transmit, open collector
4	RX TTL	Input	Serial port receive
5	TX RS232	Output	Serial port transmit
6	RX RS232	Input	Serial port receive

Note: use proper level RX/TX pair, 3-4 or 5-6 but not both simultaneously.

GPIO 12-pins type WH-12 – General-purpose I/O connector

Can be used for the sensor / controls connection.

Pin	Name	Type	Description
1	GND	Ground	
2	+3V3	Power output	For powering external device (max 1000 mA)
3	GPI3	Input	(5V tolerant)
4	GPI2	Input	(5V tolerant)
5	GPI1	Input	(5V tolerant)
6	GPI0	Input	(5V tolerant)
7	GPO0	Output OC	

8	GPO1	Output OC	
9	GPO2	Output OC	
10	GPO3	Output OC	
11	n/c		
12	GPO-COM		

SPI 8-pins type WH-8 - Serial peripheral interface connector

Can be used for the external device connection.

Pin	Name	Type	Description
1	GND	Ground	
2	+3V3	Power output	For powering external device (max 1000 mA)
3	nSS	Output	Slave select
4	SCK	Output	Serial clock
5	MOSI	Output	Master Output / Slave Input
6	MISO	Input	Master Input / Slave Output (5V tolerant)
7	n/c		
8	n/c		

I2C 4-pins type WH-4 – I2C peripheral bus connector

Can be used for the external device connection.

Pin	Name	Type	Description
1	GND	Ground	
2	+3V3	Power output	For powering external device (max 1000 mA)
3	SDA	Input/output OC	Serial data (5V tolerant)
4	SCL	Input/output OC	Serial clock (5V tolerant)

Physical characteristics

Length: 85 mm

Width: 55 mm

Weight: 30 gm