RS-232 Four-port Mini Smart Switch / Port Combiner

Model BB-232MSS2

B+B SmartWorx
Powered by ADVANTECH
www.advantech-bb.com

FEATURES

- Connect up to 4 RS-232 devices to 1 RS-232 port
- 1200 to 115.2 Kbps baud rate
- Quick, inline installation
- Configure DB25 Master as DTE or DCE
- (4) RS-232 DB9 female Slave ports
- Automatic Transmit and Receive data control
- Requires 12 VDC external power (not included, sold separately)

Model BB-232MSS2, RS-232 4-Port Mini-Smart Switch/Port Combiner, allows one RS-232 host device to connect to up to four RS-232 devices. Model BB-232MSS2 can function as a software and/or hardware controlled switch.

There are four LEDs that indicate which port is connected to the master port. The master port can be configured as a DTE or DCE port by an internal switch setting (see Table 1). If the master port is configured as a DTE port, the four slave ports automatically become DCE ports. Handshake lines DSR and DTR are connected together and are not passed through to the master port. There is no delay through the device and data is not buffered. The communication format is set via dipswitch 1 (SW1 -- see Table 1).

NOTE: The data format and rates mentioned are used to switch Model BB-232MSS2. Communication between the devices can use any format or data rate.

Table 1. Communication & Port Set Up

SETTING	DIP SWITCH SW1							
	1	2	3	4	5	6	7	8
1200 Baud	0	0	0	X	X	X	X	X
2400 Baud	1	0	0	X	X	X	X	X
4800 Baud	0	1	0	X	X	X	X	X
9600 Baud *	1	1	0	X	X	X	X	X
19.2K Baud	0	0	1	X	X	X	X	X
38.4K Baud	1	0	1	X	X	X	X	X
57.6K Baud	0	1	1	X	X	X	X	X
115.2K Baud	1	1	1	X	X	X	X	X
Enhanced Disabled *	X	X	X	0	X	X	X	X
Enhanced Enable	X	X	X	1	X	X	X	X
8 Data Bits *	X	X	X	X	0	X	X	X
7 Data Bits	X	X	X	X	1	X	X	X
Parity Disabled *	X	X	X	X	X	0	X	X
Parity Enabled	X	X	X	X	X	1	X	X
Smart Switch Mode *	X	X	X	X	X	X	0	X
Port Combiner Mode	X	X	X	X	X	X	1	X
DCE Master Port *	X	X	X	X	X	X	X	0
DTE Master Port	X	X	X	X	X	X	X	1

* Factory Defaults 0 = OFF 1 = ON X = DO NOT CARE

ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
BB-232MSS2	RS-232 4-port Smart Switch / Port Combiner

ACCESSORIES - sold separately

BB-SMi6-12V-P230C1 – Power Supply, 12 VDC, 6W, 2.5mm plug, International AC Input, International AC Blades

As a **software controlled switch** (referred to as **Smart Switch Mode**) the device connected to the master port of the BB-232MSS2 has control over which one of the four ports it is connected to. As a **hardware controlled switch** (referred to as **Port Combiner Mode)**, the handshake lines of the devices connected to the four ports are used to gain access to the master port.

In **Smart Switch Mode**, the switch is controlled by sending a programmable three-character preamble code to the "Master" port. The *first* character of the preamble code must be the ASCII "Escape" character (decimal 27). The *second* character is user programmable by setting Dipswitch 2 (SW2 -- see Table 2). The *third* character should be the ASCII upper case letters A, B, C, or D to select the appropriate port. The third character can also be the ASCII "EOT" (decimal 4) character, which will turn off all ports.

Example: To select port "A", send the ASCII "ESC" character, the programmable character and the "A" character. When the BB-232MSS2 receives this code, the master port will be connected directly to port "A".

Table 2. Programmable Character Setting

DIP SWITCH SW2 *	WEIGHT
1	1
2	2
3	4
4	8
5	16
6	32
7	64
8	128

*Factory Default -- ASCII "STX" character (decimal 2), SW2 position is only one ON.

All product specifications are subject to change without notice.
232MSS2_4818ds

B+B SmartWorx
Powered by ADVANTECH
orders@advantech-bb.com
eSales@advantech-bb.com
Headquarters: 707 Dayton Rd, PO Box 1040 Ottawa, IL 61350 USA (815)433-5100 or **(800)346-3119**/Toll Free Fax (815)433-5104
European Office: Westlink Commercial Pk, Oranmore Co. Galway Ireland +353 91 792444 Fax +353 91 792445

RS-232 Four-port Mini Smart Switch / Port Combiner

Model BB-232MSS2

In **Port Combiner Mode**, a slave port can gain access to the master port by asserting a handshake line (CTS for DTE slave ports or RTS for DCE slave ports). If a slave port asserts its handshake line and no other slave ports have their handshake line asserted, the master port will then be connected directly to the slave port with the asserted handshake line. Once a slave port is connected to the master port, the connection will remain until the slave disasserts its handshake line. If multiple slave ports have their handshake lines asserted, access will be granted on a first-come-first-serve basis. If none of the slave ports have their handshake line asserted, the switch can be controlled using the preamble codes.

> **Example:** Initial conditions: no slave ports with handshake lines asserted. In chronological order, Port C asserts its handshake line, Port A asserts its handshake line, Port D asserts its handshake line and then Port C disasserts its handshake line.
>
> When Port C asserts its handshake line, a connection is made between the master port and Port C. When Port C disasserts its handshake line, Port C will be disconnected and Port A will connect to the master port. When Port A disasserts its handshake, Port A will be disconnected and Port D will connect to the master port.

Timer Features

Model BB-232MSS2 has an enhanced mode with special timer features that can be used to prevent: slave devices from receiving preamble commands, inadvertent switching from binary/graphic file transfers, and inactive slave devices from holding control of the master port.

Timer Modes

The timer has two different modes: **Inactivity Mode** and **Inadvertent Switch Mode**.

In **Inactivity Mode**, the BB-232MSS2 monitors the data lines. If there is no activity for the specified time, the selected slave port will disconnect from the master port.

In **Inadvertent Switch Mode**, the BB-232MSS2 will ignore switching commands for the specified time. After this time has expired, the selected slave port will be disconnected from the master port.Timer functions are enabled via dipswitch setting and through software commands. Software commands follow the same format as preamble codes used for switching.

Timer Commands

Two commands are used to set timer functions: **Set Timer Mode** and **Set Timer Value**. These commands require an additional byte for data.

Set Timer Value command requires the *third* byte to be an ASCII "T" character. The data byte (*fourth* byte) must be a value between ASCII "0" and ASCII "9". A value of "0" is used to disable the timer. Refer to Table 3 for timer values.

Set Timer Mode command requires the *third* byte to be an ASCII "M". If the data byte (*fourth* byte) is an ASCII "0" (default), the timer will be configured as an *inactivity timer*. As an inactivity timer, Model BB-232MSS2 will monitor data lines TD and RD for data. If there is no activity for the specified timer value, the slave port that is connected to the master port will be disconnected.

In *smart switch mode*, the *inactivity timer* can be used to prevent the preamble codes from being received by the slave devices. In *port combiner mode*, the inactivity timer can be used to prevent devices from tying up the master port.

> **Example: Port Combiner Mode**
> All slave ports have their handshake lines asserted. The device on Port C has its handshake line asserted and is currently connected to the master port, but has not been transmitting or receiving data. When the inactivity timer expires, Port C will be disconnected and the next slave port will be connected to the master port (following the first-come-first-serve rule). Port C will then be placed at the "end of the line".

Table 3. Timer Values

DATA BYTE	VALUE
0	Timer Disabled
1	10 ms
2	25 ms
3	100 ms
4	500 ms
5	1 sec.
6	5 sec.
7	30 sec.
8	1 min.
9	5 min.

If the data byte of the *Set Timer Mode* command is an ASCII "1", the timer will be set up to ignore switching commands. When the timer is configured in this mode, Model BB-232MSS2 will not accept any switching commands ("A", "B", "C", "D", or "EOT") for the specified timer value. After the timer has expired, the slave port that is connected to the master port will be disconnected. This feature is useful to prevent inadvertent switching during binary/graphic type file transfers.

> **Example: Smart Switch Mode**
> The timer is configured to ignore switching commands for 5 seconds. The select Port D command is sent to the BB-232MSS2. Once Port D is connected, a file of unknown data type (so file may or may not contain a switching command sequence) is to be transferred through the BB-232MSS2. For a period of 5 seconds after Port D is connected, no switching commands will be accepted. As long as the file transfer takes less than 5 seconds, there is no chance the BB-232MSS2 will inadvertently switch ports.

Software & Instruction Manual

Model BB-232MSS2 comes with an instruction manual and software media. An IBM PC or compatible terminal stay resident (TSR) program is supplied. The program allows the user to select the Smart Switch ports either through the command line or by pressing a sequence of keys referred to as "hot keys." The TSR requires 1K of memory. Also included is a program written in Visual Basic that allows you to switch ports in Windows 95, 98, NT4.0 or XP with service pack installed.

SPECIFICATIONS

SERIAL COMMUNICATIONS	
Connectors	(1) Master: DB25 female (4) Slaves: DB9 female (RS-232)
Signals Supported	TD, RD, RTS, CTS
Baud Rate	1200 to 115.2 kbps; 7 or 8 data bits; even, odd or no parity; 1 or 2 stop bits (7, N, 1 not allowed)
LEDs	2.5mm power jack, Plug tip = Positive, Plug sleeve = Ground
POWER *(external power source required, not included, sold separately)*	
Input	12 to 16 VDC @ 10 mA
Connector	2.5mm power jack, plug tip = positive, plug sleeve = ground
PHYSICAL	
Dimensions	12.2 x 7.1 x 2.3 cm (4.8 x 2.8 x 0.9 in)
MEANTIME BEFORE FAILURE (MTBF)	
MTBF	1250400 hours
MTBF Calc. Method	ML217F Parts Count Reiliability Prediction
APPROVALS, DIRECTIVES, STANDARDS	
FCC, CE	
Standards	EN 55032 EN 55024 EN 61000-6-2