Multi - Xs

Serieller Multiplexer
für USV-Schnittstellen

User Manual

Multi-XS is an active RS232 data switch, designed to handle serial communications of one ups with up to 5 / 10 computers.

Properties:

Input (ups side):	9 pin d-sub male
output (PC side):	9 pin, d-sub female
power supply:	7,5 VDC through attached plug-in power supply
connect speed:	600 - 14400 baud
handshake:	Xon / Xoff

package content:	multiplexer Multi-XS-5 / Multi-XS-10
	external power supply 7,5VDC / 500 mA
	5 / 10 RS232 cables, 9 pin, 5 meters, m/f
	manual in German / English

Display:	LEDs for RxD, TxD activities, ups side
	LEDs for RxD, TxD activities, PC side
	(blinks when self test is activated)
	POWER LED

controls:	DIP switches for auxiliary voltage, time-out and self test

hardware installation:

1. Check package for completeness
2. switch off computers and ups
3. Connect the multiplexer with the ups' RS232 port, using the cable that comes with the ups software / hardware.
4. connect the PC with the multiplexer, using the standard cables supplied with the multiplexer or any other 1-1 connected cable.
5. Connect the multiplexer and the power supply. **Always use a power socked that is supplied by the ups!**
6. start ups and PCs and install / run ups software.

Function:

general function:

After the mechanical installation and start of the PCs the ups software on each PC connects to the ups through the Multi-XS. The multiplexer ensures that the requested data is only transferred to the PC that sent the request. The connection is always established for the PC that polls for data first. The connection remains as long as the computer or the ups transfer data. In the meantime the access to the ups is blocked for the other PCs. Request for data are being ignored.
After an adjustable time-out without data transmission from either side, the connection is terminated and the next PC can access the ups.
A special software routine makes sure that static high signals from a PC (i.e. when a PC is switched off) are suppressed after 600 milliseconds to avoid that the ups is mistakenly shut down.

Directions:

In order to avoid unnecessarily long use of the ups serial port by one PC, it is recommended to set the transfer rate to the highest value that is supported by the ups software and hardware. It is also highly recommended to set the poll rate for different computers to different values, to minimize the risk of data collisions. (i.e. 10, 11, 12, 13... seconds).

Options:

Some ups systems require a high level auxiliary voltage on pin 4 or 7 of the RS232 port as power supply for the serial communication port. This voltage can be activated by setting the DIP switches 1 - 2 (factory setting = OFF). When DIP 1 or 2 are switched off, the respective pin of the ups connector are volt free.

The DIP switches 3-5 set the time-out for the termination of a data connection. The factory setting (all switches OFF) terminates a connection after there was no data flow for 50 milliseconds.
Normally this setting works fine with all UPS's and PCs. In case a ups requires a longer time to reply or a computer needs to send multiple requests in order to get a reply, these times can be increased to a maximum of 500 milliseconds. Choose the settings for different times from Table 1.

The settings may be hot changed but changes for time-outs only take effect after the multiplexer has been rebooted or the DIP switch 6 has been set to ON (self test) for a moment. When DIP switch 6 is set, the LEDs for TxD and RxD (PC connection) blink.

Table 1:

DIP 3	DIP 4	DIP 5	Time-out PC → USV	Time-out UPS → PC
OFF	OFF	OFF	50 ms	50 ms
OFF	OFF	ON	20 ms	20 ms
OFF	ON	OFF	50 ms	20 ms
OFF	ON	ON	100 ms	50 ms
ON	OFF	OFF	150 ms	50 ms
ON	OFF	ON	250 ms	100 ms
ON	ON	OFF	500 ms	250 ms
ON	ON	ON	500 ms	500 ms

Other DIP switch functions:

DIP 1 ON = auxiliary voltage on pin 4
DIP 2 ON = auxiliary voltage on pin 7
DIP 6 ON = multiplexer self test (LEDs blink)

Pin functions of outputs 1-5 / 1-10

Pin 2 - TxD
Pin 3 - RxD
Pin 5 - GND
Pin 1, 4, 6, 8 - internally connected

Pin functions of ups input:

Pin 2 - RxD
Pin 3 - TxD
Pin 4 - auxiliary voltage (option)
Pin 5 - GND
Pin 7 - auxiliary voltage (option)