PROTOCOL USED FOR VS-5X4 (VIS-5x4) COMMUNICATION (RS-232) (see footnote)

PROTOCOL USED FOR RS-232 COMMUNICATION

Communication with the VS-5X4 is defined using 2 bytes of information. Data transfer is at 9600 baud, with no parity, 8 data bits and one stop bit.

MSB		1st byte				LSB	
N7	N6	N5	N4	N3	N2	N1	N0

MSB		2nd byte				LSB	
N15	N14	N13	N12	N11	N10	N9	N8

Where:
N7 = 0 (continue bit).

N6N5N4N3 = 1000 (transmitted by the machine (to the PC), but not necessary when transmitting to the machine).
N2N1N0 is the binary value of the machine being addressed (or of the machine sending its data) minus one, e.g.. N2N1N0=000 to address machine #1 (the master);
N2N1N0=101 to address machine #6.
N15 = 1 (continue bit).
N14 = 0 for all communication from the PC.
N13N12 N11N10N9N8 = 10 0001 instructs a machine to send its present status. The machine returns 16 bytes. 4 pairs of bytes are sent for the status of the 4 outputs as defined by the table below, and 4 pairs for the gain settings of the 4 audio outputs as defined below.
N13N12 N11N10N9N8 = 10 0010 success code (the machine acknowledges the requested change in status).
N13N12 N11N10N9N8 = 10 0011 non-success code (the machine cannot perform the requested instruction).
NB:- Success/non-success codes, (according to the validity of the request), are returned from the machine which was instructed to change its status.
N13N12 N11N10N9N8 = 10 01GG set audio gain of output 1
N13N12 N11N10N9N8 = 10 10GG set audio gain of output 2
N13N12 N11N10N9N8 = 10 11GG set audio gain of output 3
N13N12 N11N10N9N8 = 11 00GG set audio gain of output 4 where GG is defined as follows:

00 = 0dB gain
01 = 2dB gain
10 = 4dB gain
11 = 6dB gain

The above gain setting codes are bi-directional, i.e., if the change was made on the machine, then the code is sent to the PC; and if the PC sends the code, then the change is made on the machine.
When N13 is low then N12N11N10N9N8 corresponds to the status (or the required change in status) of the machine, as described in the table below. These are bi-directional codes.

	OUTPUT1	OUTPUT2	OUTPUT3	OUTPUT4	ALL
FROM INPUT 1	1	2	3	4	21
FROM INPUT 2	5	6	7	8	22
FROM INPUT 3	9	10	11	12	23
FROM INPUT 4	13	14	15	16	24
FROM INPUT 5	17	18	19	20	25
OFF	26	27	28	29	30

For example, to connect input 4 to output 2, N12N11N10N9N8 should be set up as 01110 (=14). To connect input 3 to all the outputs, set N12N11N10N9N8 = 11011 (=27). To disconnect output 1, set

N12N11N10N9N8 = 11010 (=26). Similarly, if the front panel switches were pressed to connect input 2 to output 3, then N12N11N10N9N8 would be transmitted as 00111 (=7).

Table of codes for RS-232 Control of VS-5x4

	To Output 1	To Output 2	To Output 3	To Output 4	To All
From Input 1	40H 81H	40H 82H	40H 831H	40H 84H	40H 95H
From Input 2	40H 85H	40H 86H	40H 87H	40H 88H	40H 96H
From Input 3	40H 89H	40H 8AH	40H 8BH	40H 8CH	40H 97H
From Input 4	40H 8DH	40H 8EH	40H 8FH	40H 90H	40H 98H
From Input 5	40H 91H	40H 92H	40H 93H	40H 94H	40H 99H
OFF	40H 9AH	40H 9BH	40H 9CH	40H 9DH	40H 9EH

Note: The VS-5x4 may be operated using one of two protocols. To switch the VS-5x4 to Protocol 2000 set dip-switch #5 to OFF. To switch the VS-5x4 to the old protocol set dip-switch #5 to ON, The machine may be operated via K-switch using the old program, and via K-ontrol using Protocol 2000.