7 Communication Protocol

Communication between the PC and the Master **VS-1202YC** is performed using 2 bytes of information, as Table 5 defines. The rate of data transfer is 1200 baud, with no parity, 8 data bits and one stop bit.

Table 5: Structure of the Protocol

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

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

Where:
$N7 = 0$ (continue bit).

$N6N5N4N3 = 0111$. These bits are only relevant for transmission from the machine to the PC, but are not required when transmitting from the PC 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 to and from the PC.

$N13$ is to be high if the data $N12N11N10N9N8$ is an opcode (see below).

$N12N11N10N9N8$ is data related to the status of the machine (for the case where $N13$ is low). When the machine sends its status, the value of the presently selected input is sent; when the PC instructs the machine to change state, the value of the input to be selected is sent.

The value is calculated using the formula:
$N12N11N10N9N8 = 2 * INPUT + OUTPUT - 2$
To disconnect input 1, $N12N11N10N9N8 = 11001$;
To disconnect input 2, $N12N11N10N9N8 = 11010$.

For example, to connect input 5 to output 1:
$N12N11N10N9N8 = 2 * 5 + 1 - 2 = 9$ (i.e. 01001 binary)

To connect input 8 to output 2:
$N12N11N10N9N8 = 2 * 8 + 2 - 2 = 16$ (i.e. 10000 binary)

When $N13$ is high, the following opcodes are defined:

$N12N11N10N9N8 = 00001$ instructs machine to send its present status.
$N12N11N10N9N8 = 00010$ success code (change in status was performed).
$N12N11N10N9N8 = 00011$ non-successful (change in status was not performed).

NB: The success/non-success codes are only used when instructing a machine that is present to change its status. The code returned in this case depends on whether the operation requested is valid or not.

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