



HORITA SERIAL INTERFACE PROTOCOL (HSIP) REV-F 11-04-98

Comm Data Format

RS-232, 9600 baud, 1 start bit, 8 data bits, 1 stop bit, LSB first.

SERIAL OUTPUT

Byte Structure

Time code: Packed BCD; Tens |Units

User bits: Packed HEX; MSN | LSN

Message Structure

Continuously sent data stream of 10 bytes per video frame, requiring approximately 10mS of real time, leaving about 23mS of frame time remaining for NTSC video, 30mS for PAL. Five byte time code packet is output during video Field-1, five byte user bit packet is output during video Field-2, as follows:

Field-1; Time code: | TC ID | T/U Frm | T/U Sec | T/U Min | T/U Hrs |
Field-2; User bits: | UB ID | UB 21 | UB 43 | UB 65 | UB 87 |

ID Bytes

The start of the time code and user bit packets are preceded by a special "ID" byte. The time code ID byte can have one of four values, the user bit ID byte has one value.

Time code ID Byte

The time code ID byte is binary 111100XX, which in HEX is F0, F1, F2, or F3. The significance of the "X" bits of the time code ID byte is as follows:

Byte bits	7	6	5	4	3	2	1	0	
Binary value	1	1	1	1	0	0	X	X	Bit Significance
							0	0	= Reverse direction time code = VITC field-1 data (optional)
							1	1	= Forward direction time code = VITC field-2 data (optional)
						0		0	= Non-drop frame time code
						1		1	= Drop frame time code

User bit ID Byte

The user bit ID character is binary 11111111, or HEX FF

SERIAL INPUT

Byte Structure

Time code: Packed BCD; Tens |Units

User bits: Packed HEX; MSN | LSN

Message Structure

NUL byte of all zeros followed by either a single command byte or by a command byte and four additional bytes of time code or user-bit preset information.





HORITA HSIP cont.

Command Bytes

Note that some HORITA PC units do not support all commands

Binary Bit Value

Bit-	7	6	5	4	3	2	1	0	Hex Value	Command Action
Standard commands for TRG-50PC										
	0	0	0	0	0	0	0	0	00(NUL)	Stop time code generator
	0	0	0	0	0	0	0	1	01	Start/select time code generator
	0	0	0	0	0	0	1	0	02	Preset drop frame time code
	0	0	0	0	0	1	0	0	04	Preset non-drop frame time code
	0	0	0	0	1	0	0	0	08	Preset user bits
	0	0	0	1	0	0	0	0	10	Turn display OFF
	0	0	1	0	0	0	0	0	20	Turn display ON

Additional commands for enhanced TRG-50PC and standard VLR-100PC

0	1	0	0	0	0	0	0	0	40	Start/select time code reader
0	1	0	0	0	0	0	0	1	41	Display time code
0	1	0	0	0	0	2	0	0	42	Display user bits

Additional VLR-100PC commands

0	1	0	1	0	0	0	0	0	50	Read LTC
0	1	0	1	0	0	0	0	1	51	Auto read LTC/VITC
0	1	0	1	0	0	1	0	0	52	Read VITC
0	1	0	1	0	0	1	1	0	53	Translate VITC-to-LTC
0	1	0	1	0	1	0	0	0	54	Display hold
0	1	0	1	0	1	0	1	0	55	Display run

Preset Data

Time code preset: | T/U Frm | T/U Sec | T/U Min | T/U Hrs |
 User bits preset: | UB 21 | UB 43 | UB 65 | UB 87 |

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