TSI1000 External Interface Protocol

1. The external device will establish an IP socket on one of the following IP ports on each TSI1000 in the system: 10002, 10003, 10006, 10007, 10008, 10009, 10010, or 10011. Only one IP socket may be open at a time on each port.

2. Each message to the TSI1000 consists of ASCII data terminated by an ASCII "End-of-Text" character, also known as CTL-C. The ETX character will be represented here as (3).

3. In order to maintain the IP socket open, an activity message "ZPING(3)" or "ZPING0(3)" can be sent by the tally source device at least once every five seconds, unless other background messages are sent in their stead. Sending "ZPING1(3)" causes the TSI1000 to respond with “ZPING(3)”.

4. To update the TSI1000 with crosspoint status and source names, the tally source device system will send three types of messages:

(a) "ZCMD:TLY0(3)" to start bracketing the tally information
(b) "DO" messages as required to send crosspoint information, as detailed below.
(b) "SN" message as required to send name information, as detailed below.
(d) "ZCMD:TLY1(3)" to end bracket of the tally information

The bracketing is not necessary but guarantees that the entire status packet is processed before the final results are reflected in the tally system. Messages for which status should appear simultaneously should be updated within the same "TLY" bracketing. Transmission of messages within the “TLY” bracketing should occur with as little delay as possible.

5. To transfer source names, use the SN message, which has the format:

SN<Router>(0)<SrcID>(0)0000<ShortName>(0)<LongName>(0)(3)

Ignore and do not use the angle brackets shown in the above description. They are inserted for demarcation of the various message fields for the purpose of this document.

The "SN" message contains name information as follows:

(a) Always starts with the two alphabetic characters "SN".

(a) The "Router" field contains the name of the router input being given new source names.

(b) "SrcID" field contains a null-terminated string used to identify the router input for which the names is being received. This name is referenced within the tally system configuration to identify the input, and may or may not actually be displayed in a UMD. This name should be kept short for efficiency of lookup within the tally processor.

(c) The "SrcID" field is followed by four reserved ASCII zeroes.

(d) The "ShortName" field is an null-terminated string which may be displayed in a UMD.

(e) The "LongName" field is a secondary null-terminated string which may be is displayed in a UMD.

The length of the "SrcID", "ShortName" and "LongName" fields may not exceed 20 characters, including the NUL terminator.

In the following example each (0) represents the ASCII "NUL" character which terminates the "Router", "Dest" and each "Source" field. (3) is the "End of Text" character (ctrl-C).

Example:

SNRTR(0)IN01(0)0000VT1(0)VideoTape1(0)(3)

For router input "IN01" in router device "RTR", the displayable short name will be "VT1", and the displayable long name will be "VideoTape1". A UMD may be configured to show either the source ID, the long name or the short name whenever input "IN01" is displayed.

6. In instances where virtual router inputs are being named with the SN message, and where the 19-character field length is too short, consider breaking the information up amongst a number of different inputs or virtual routers.

For example if the SN message is used to send a time stamp, a name and a description, such as:

14:12:52 / NEWS27 / News At 6:00PM

ZCMD:TLY0(3)

SNEXT(0)01A(0)000014:12:52(0)NEWS27(0)(3)
SNEXT(0)01B(0)0000(0)News At 6:00PM(0)(3)
ZCMD:TLY1(3)

UMDs would then be configured to display long and short names of inputs "01A" and "01B" in device "EXT". Note that the short name of "01B" is left empty in this particular example.

7. To transfer crosspoint information, use the DO message, which has the format:

DOnnn<Router><DestID><SrcID1><SrcID2>...(3).

Ignore and do not use the angle brackets shown in the above description. They are inserted for demarcation of the various message fields for the purpose of this document.

The "DO" message contains tally information as follows:

(a) Always start with the two alphabetic characters "DO".

(b) "nnn" is three decimal numbers counting the number of source fields in the message.

(c) The "Router" field is an arbitrary null-terminated string used to identify the name of the crosspoint device (router) being updated. The string may not be longer than 20 characters, including NUL terminator.

(d) The "DestID" field is an arbitrary null-terminated string used to identify the router destination which is being updated. The string may not be longer than 20 characters, including NUL terminator.

(e) Each "SrcID" identifies a source feeding the given router destination. The string may not be longer than 20 characters, including NUL terminator.

In the following examples each (0) represents the ASCII "NUL" character which terminates the "Router", "Dest" and each "Source" field. (3) is the "End of Text" character (ctrl-C).

Example 1:

DO001RTR(0)005(0)051(0)(3)

Destination "005" has source "051" selected.

Example 2:

DO002RTR(0)05(0)51(0)52(0)(3)

Destination "005" has sources "051" and "052" selected.

8. The DO message should only be used for control purposes, with a limited number of possible crosspoint inputs. The SN message is suitable for direct display control, where entirely arbitrary and unlimited information is expected to appear.