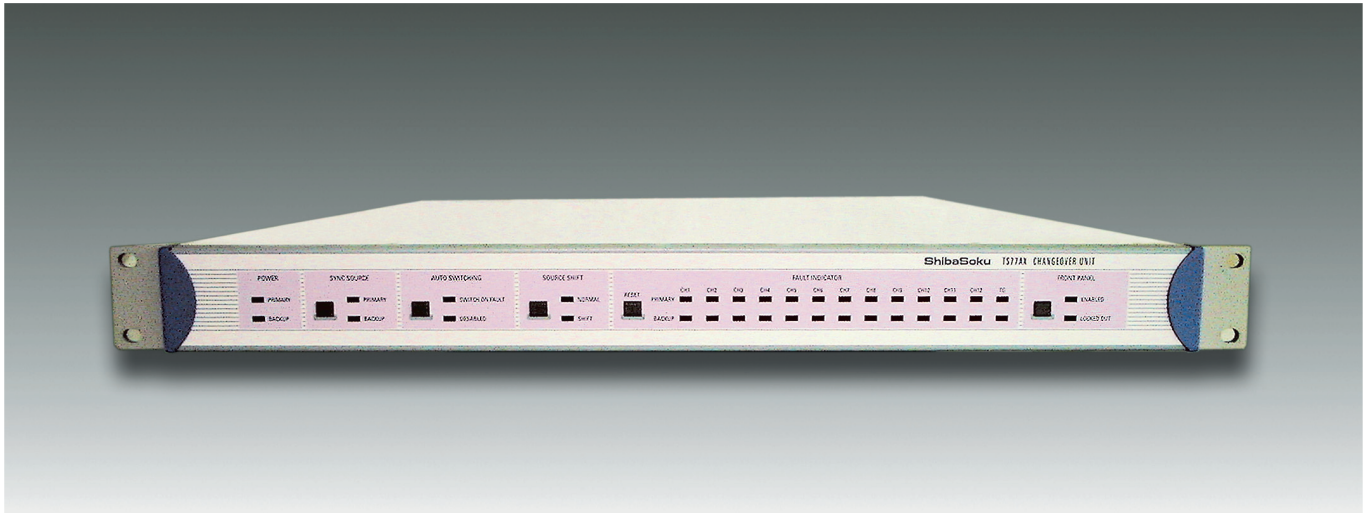


TS77AX

BROADCAST INSTRUMENTS

CHANGEOVER UNIT



General

Main sync signal generator and Sub sync signal generator can be connected to the TS77AX changeover unit, allowing the changeover unit to automatically switch to the sub sync generator in the event of a breakdown or error. Designed with sync signal stability as the highest priority, interruption in the synchronization of the signal during switching is minimized.

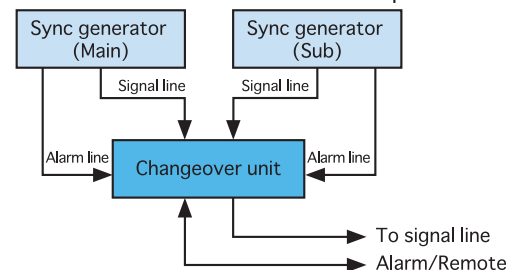
Features

- Standard equipped with 6 channels for reference signals. Maximum of 12 channels can be changed over with the addition of a 6 channels optional unit.
- Auto changeover based on detection of input signal amplitude (using reference signal)
- Supports both auto switching and manual switching
- Equipped with alarm output terminal, enabling monitoring of changeover status
- User-definable error detection values (2 lines)
- Supports TG77AX alarm output, enabling changeover triggered by alarm signal from the sync signal generator
- Supports duplicated power source

Specifications

● System configuration

Two sync signal generators, a main unit and a sub unit, can be connected to the TS77AX which monitors amplitude of the input signals from the main and sub units. When the amplitude level of the main unit falls by 2 to 4 dB and the sub unit is working normally, the signal source is automatically switched to the sub unit. Manual switching is also possible from the front panel or a remote terminal. When the TG77AX is used as the sync signal generator, changeovers can also occur in the event of error output.



● Input/Output section

- Channels 1 to 6 Input/output terminals for reference signals, used for detecting changeover errors.
 - Connector type BNC, 75 Ω
 - Input return loss 48 kHz to 6 MHz, 30 dB
 - Output return loss 48 kHz to 6 MHz, 30 dB
- Remote input / Alarm output
 - Connector type D-sub 15 pins, female (mm screw)
 - Connection port Standard attachment (connector, housing)

- Error detection The TS77AX detects an error when the reference signal (NTSC/PAL blackburst, tri-level HDTV sync) drops 2 to 4 dB below normal. Test signals (D1/D2, HD-SDI, AES/EBU digital audio) are not detected.

Specifications

- Reference signals
 - NTSC blackburst error value
180 to 225 mV (factory default)
 - PAL blackburst error value
190 to 235 mV (factory default)
 - Tri-level HDTV sync error value
150 to 210 mV (factory default)
 - User definable values
Approx. 50 to 600 mV (adjustable using built-in knob)
- TG error detection
Changeover is possible when an error detection value is received from an external unit (TG77AX, etc) connected to a terminal on the rear panel. In this case, changeover performance is dependent on the ability of the external unit to detect errors. User-defined value can be used to turn this function on/off.
- Reference signal line
A semiconductor switch is used to switch between NTSC blackburst, PAL blackburst, and tri-level HDTV sync signals.
 - Error detection time
Max. approx. 2 ms
 - Signal switching time
 - Following NTSC blackburst signal error detection $\leq 1 \mu s$
 - Following PAL blackburst signal error detection $\leq 1 \mu s$
 - Following tri-level HDTV sync signal error detection $\leq 1 \mu s$
- Test signal line (option) $\leq 1 \mu s$
The optional unit uses a high-frequency relay to switch between D1, D2, HD-SDI, and AES/EBU digital audio signals. As a result, signal interruptions or signal disorders occur at the relay operation interval during switching. Error detection does not occur on test signal lines.
 - Error detection time
Errors not detected
 - Signal switching time
 - Following NTSC blackburst signal error detection $\leq 10 ms$
 - Following PAL blackburst signal error detection $\leq 10 ms$
 - Following tri-level HDTV sync signal error detection $\leq 10 ms$
- Signal standards
 - Test signal input/output
 - Standards conformance for HD-SDI SMPTE 292M
 - Standards conformance for SD-SDI SMPTE 259M
 - Standards conformance for AES/EBU digital audio (75 Ω) SMPTE 276M
 - Reference input/output
 - Standards conformance for tri-level HDTV sync SMPTE 240M/274M/296M
 - Standards conformance for NTSC blackburst EIA RS-170A
 - Standards conformance for PAL blackburst ITU 624-4
 - Standards conformance for Fault reporting SMPTE 269M

- Options
 - Reference unit (TS77AX001)
 - Equipped with 6 channels of reference input/output (CH7 to CH12)
 - Connector type BNC, 75 Ω
 - Input return loss 48 kHz to 6 MHz, $\geq 30 dB$
 - Output return loss 48 kHz to 6 MHz, $\geq 30 dB$
 - Input/output signal specifications NTSC-BB, PAL-BB, Tri-level HDTV sync, CW CW/Vp-p, 48 kHz to 6 MHz
 - Input impedance 75 Ω , $\pm 1\%$
 - Test signal unit (TS77AX002)
 - Equipped with 6 channels of test input/output (CH7 to CH12).
 - Connector type BNC, 75 Ω
 - Return loss 48 kHz to 10 MHz, $\geq 30 dB$
 - 10 to 750 MHz, $\geq 15 dB$
 - 750 MHz to 1.5 GHz, $\geq 10 dB$
 - Insertion loss 48 kHz to 10 MHz, $\geq 0.2 dB$
 - 10 MHz to 1.5 GHz, adjusted to optimum value for Belden 1694A cable 20 m equivalent
 - Input/output signal specifications HDTV-SDI, SD-SDI(D1, D2), AES/EBU, CW CW/Vp-p, 48 kHz to 1.5 GHz
 - Input impedance 75 Ω , $\pm 1\%$
 - Mixing unit (TS77AX003)
 - Equipped with 2 channels of reference input/output (CH7, CH8), and 4 channels of test input/output (CH9 to CH12). Characteristic of CH7 and CH8 is the same as TS77AX001 options.
 - Characteristic of CH9 to CH12 is the same as TS77AX002 options.
- General Specifications
 - Power supply AC 100 to 240 V $\pm 15\%$, 48/62 Hz
 - Power consumption Max. 35 VA
 - Operating temperature range 0°C to 40°C
 - Relative humidity 20% to 90%RH (non-dewing)
 - Dimension 435(W) x 44(H) x 521(D) mm, 1U rack size
 - Weight Approx. 4 kg (Optional units is not included)

