

Changeover Unit

► ECO422D SD/HD



The ECO422D is a highly versatile sync changeover unit designed for use in a serial SD/HD digital television environment. The ECO422D changeover unit will accommodate component or composite serial digital video signals, AES/EBU digital audio, tri-level sync and analog black burst signals. This flexibility makes the ECO422D changeover unit ideal for both the mixed-format and all-digital television facility.

The ECO422D changeover unit provides 11 user-configured channels, each channel consisting of primary and backup inputs and an output.

- 11 channels can be set for standard definition serial digital video, AES/EBU digital audio, tri-level sync and PAL or NTSC analog black burst
- 6 of the 11 channels can be set for high-definition serial digital video

Channel configuration is by internal DIP switch.

Signal amplitude fault detection level follows the setting of the channel configuration switches.

Detection on individual channels may be disabled, giving the option of disabling changes to the backup unit on failure of signals not critical to the facility operation.

When operated in the switch-on-fault mode, the ECO422D changeover unit will automatically select the backup sync source should any of the primary inputs fail. However, in the unlikely event both sync sources are faulty, the ECO422D changeover unit will not alternate between the two sources. If necessary, this function may be overridden with the manual sync source selection. Manual source selection also facilitates periodic testing of the changeover function. Switching is by mechanical relay with all channels switched simultaneously. Front panel controls are provided for source selection, operating mode, resetting the fault indicators and for disabling the front panel controls. LED indicators are also provided. Indication of fault and unit on line is also available via the remote connector.

► Features & Benefits

Switches Analog Black and Serial Digital Video, Both Standard and High-Definition, and Digital Audio

Eleven User-configurable Signal Channels

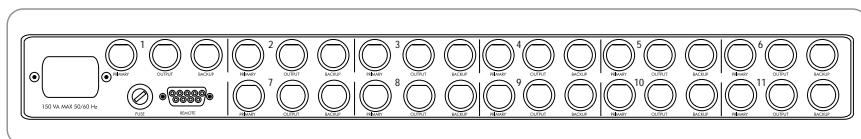
Amplitude Detection on All Channels

Automatic or Manual Operation

Fault and Operating Mode Front Panel Indicators

► Applications

Provides Complete Fault Tolerance When Used as a Switch Between Primary and Back Up SPGs or TSGs



Changeover Unit

▶ ECO422D SD/HD

▶ Characteristics

Inputs and Outputs

Return Loss –

Channels 1-6:

- 30 dB, 0 to 10 MHz.
- 15 dB, 10 to 750 MHz.
- 10 dB, 750 MHz to 1.5 GHz.

Channels 7-11:

- 30 dB, 0 to 10 MHz.
- 15 dB, 10 to 270 MHz.
- 12 dB at 360 MHz (15 dB typical) when selected.

Insertion Loss –

Channels 1-6: 0.2 dB, DC to 10 MHz.

In a frequency range of 10 MHz to 1.5 GHz, the instrument approximates less than 20 meters of Belden 1694A cable.

Channels 7-11:

- 0.2 dB, DC to 10 MHz.
- 0.5 dB, 10 to 200 MHz.
- 1.0 dB, 200 to 360 MHz.

Maximum Switched Voltage – ± 5 V.

Maximum Switched Current – 100 mA.

Crosstalk (unselected input to output or channel to channel) –

Channels 1-6:

- 60 dB to 10 MHz.
- 30 dB to 1.0 GHz.
- 20 dB to 1.5 GHz.

Channels 7-11:

- 60 dB to 10 MHz.
- 30 dB to 200 MHz.
- 15 dB to 360 MHz.

Relay Switch Time – Time that it takes for the relays to switch and settle. Approximately 10 ms.

Amplitude Detection

The ECO422D will determine a fault condition exists when the input signal is less than 2 dB from the nominal level.

The following are the amplitude ranges for the various types of input signals that will result in a fault condition.

Black Burst –

NTSC: 180 to 225 mV between 2-4 dB.

PAL: 190 to 235 mV between 2-4 dB.

Tri-level: 150 to 210 mV between 3-6 dB.

Serial Digital Video – 505 to 630 mV between 2-5 dB.

AES/EBU Digital Audio – 630 to 790 mV.

Power Source

Mains Ranges –

Voltage: 100 to 240 VAC, $\pm 10\%$.

Frequency: 48 to 62 Hz.

Power Consumption: 25 W maximum.

Environmental

Temperature –

Operating: 0°C to +40°C, IEC1010-1 compliance.

Nonoperating: -40°C to +65°C.

Altitude –

Operating: to 6562 feet (2000 meters),

IEC1010-1 compliance.

Certifications

EMC – Certified to the EMC Directive 89/336/EEC.

Safety –

Approved to: UL3111-1, CAN/CSA-C22.2 No.1010.1.

Complies with: EN61010-1, IEC1010-1.

Physical Characteristics

Dimensions	mm	in.
Height	44	1.734
Width	483	19.0
Depth	561	22.1
Weight	kg	lbs.
Net	4.9	10.8
Shipping	8.3	18.3

▶ Ordering Information

ECO422D

Changeover Unit.

Measurement Service Options

Opt. C3 – Three years of Calibration Services.

Opt. R3 – Repair warranty extended to cover three years.

Contact Tektronix:

ASEAN Countries (65) 356-3900

Australia & New Zealand 61 (2) 9888-0100

Austria, Central Eastern Europe,

Greece, Turkey, Malta & Cyprus +43 2236 8092 0

Belgium +32 (2) 715 89 70

Brazil and South America 55 (11) 3741-8360

Canada 1 (800) 661-5625

Denmark +45 (44) 850 700

Finland +358 (9) 4783 400

France & North Africa +33 1 69 86 81 81

Germany +49 (221) 94 77 400

Hong Kong (852) 2585-6688

India (91) 80-2275577

Italy +39 (2) 25086 501

Japan (Sony/Tektronix Corporation) 81 (3) 3448-3111

Mexico, Central America, & Caribbean 52 (5) 666-6333

The Netherlands +31 23 56 95555

Norway +47 22 07 07 00

People's Republic of China 86 (10) 6235 1230

Poland (48) 22 521 5340

Republic of Korea 82 (2) 528-5299

South Africa (27 11) 651-5222

Spain & Portugal +34 91 372 6000

Sweden +46 8 477 65 00

Switzerland +41 (41) 729 36 40

Taiwan 886 (2) 2722-9622

United Kingdom & Eire +44 (0)1344 392000

USA 1 (800) 426-2200

For other areas, contact: Tektronix, Inc. at 1 (503) 627-1924

For the most up-to-date product information visit our web site at www.tektronix.com



Copyright © 2001, Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks or registered trademarks of their respective companies.

04/01 HB/XBS

20W-7236-2