

# MIO-CCE-4K/3G

SMPTE ST 2110/4K/3G/HD/SD Closed Caption Encoder  
with Media-to-IP Streaming



The MIO-CCE-4K/3G is a closed caption encoder for SMPTE ST 2110/4K/3G/HD/SD-SDI video signals that can be housed in any SCORPION frame. MIO modules provide native support for numerous captioning interfaces, such as captioning over dial-up phone line, captioning over IP and captioning over serial RS-232/RS-422.

MIO-CCE-4K/3G supports many advanced applications such as on-screen display for real-time monitoring of the encoded closed captions. Applications such as “translating” captions from CEA-608 to CEA-708 or “transcoding” CEA-608 between SD line-21 and HD VANC carriage are natively supported.

The onboard storage may be used for both caption file capture and insertion. With the capture function, the unit can record and store captions that are being actively encoded or already present on the incoming video. The stored files may be retrieved from storage and are useful in cases such as editing/correcting captions from existing content, avoiding complete re-authoring, or for verifying compliance. The insertion function allows files in storage to be directly encoded to video, convenient where an external transfer station is not available.

Taking advantage of the availability of IP connectivity, the MIO-CCE-4K/3G is able to generate a low latency, low bandwidth media-over-IP stream from the embedded tracks in the incoming video. This media may be streamed to the remote captioner, facilitating a complete bi-directional link and negating the need for a POTS/dialup connection.

The MIO-CCE-4K/3G is VistaLINK® PRO-capable, which allows for control and configuration via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz' VistaLINK® PRO locally or remotely.

## Features & Benefits

- Simultaneously encodes new CEA-608 and CEA-708 captions onto 4K/3G/HD/SD-SDI video
- Supports caption encoding on dual video paths to simultaneously apply the same captions to two video sources (e.g. to both SD and HD signals)
- Built-in CEA-608 and CEA-708 closed caption decoders
- Closed caption shifting to avoid overwriting emergency alert messages
- Support for SMPTE ST 334M/CEA-708 and CEA-608 captions onto 4K/3G/HD/SD-SDI video
- Supports control and insertion of captions over Ethernet TCP/IP, RS-232/RS-422 serial and telephone modem
- Save or insert captions directly to or from a file (CEA-608, Procap, SCC, CDP) on a local storage and are accessible via FTP

# MIO-CCE-4K/3G

SMPTE ST 2110/4K/3G/HD/SD Closed Caption Encoder  
with Media-to-IP Streaming



## Specifications

### Electrical Inputs:

Reclocked Standards: SMPTE ST 2081 (12G-SDI),  
SMPTE ST 424M (3G),  
SMPTE ST 292M (1.5G),  
SMPTE ST 259M (270Mb)  
DVB-ASI  
Connector: HD-BNC  
Impedance: 75Ω (nominal)  
Equalization: Automatic to 80m @ 3G,  
100m @ 1.5G, 250m @ 270Mb  
(with Belden 1694A or equivalent)  
Return Loss: > 15dB up to 1.5GHz,  
> 10dB up to 3GHz,  
> 7dB up to 6GHz,  
> 4dB up to 12GHz

### Electrical Outputs:

Connector: HD-BNC  
Impedance: 75Ω (nominal)  
Signal Level: 800mV (nominal)  
DC Offset: 0V ±0.5V  
Rise and Fall Time: Reclocked SFPs only  
12G: <45ps  
3G/HD: <135ps  
SD: <900ps  
Overshoot: <10% of amplitude  
(reclocked SFPs only)  
Alignment Jitter: Reclocked SFPs only;  
<0.2UI to 1.485GB/s,  
<0.3UI to 2.97GB/s,  
<0.3UI to 12GB/s

### Physical:

Power Consumption: 20W  
Requires: Dual-slot MIO  
Operating Temp.: 0-70°C

## Ordering Information

**MIO-CCE-4K** SMPTE ST 2110/4K/3G/HD/SD-SDI dual-slot MIO module for use in any SCORPION chassis. Includes closed captioning encoder software with non-media streaming; requires additional MIO modules for modem and serial, requires +MS license to add media streaming.

**MIO-CCE-3G** SMPTE ST 2110/3G/HD/SD-SDI dual-slot MIO module for use in any SCORPION chassis. Includes closed captioning encoder software with non-media streaming; requires additional MIO modules for modem and serial, requires +MS license to add media streaming.

### Ordering Options:

**+MS** Media streaming license enabling media (audio/video) over IP streaming

**MIO-CCE-AUX-IO** Dual-slot MIO module adding support for up to 8x GPIO and 3x serial RS-232/RS-422 data I/O

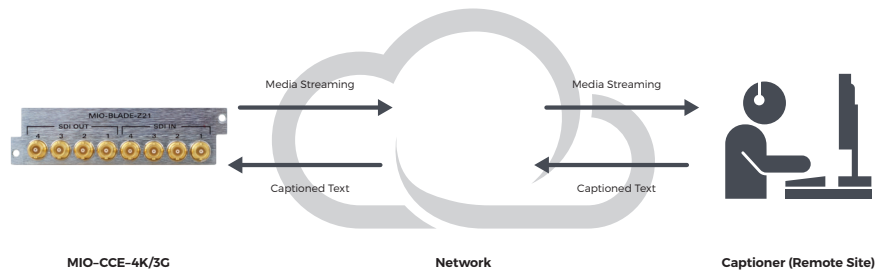
### Enclosures:

**SCORPION-2** SCORPION miniature frame, holds 2x single- or 1x dual-slot modules

**SCORPION-4** SCORPION standalone frame, holds 4x single- or 2x dual-slot modules

**SCORPION-6** SCORPION standalone frame, holds 6x single- or 2x dual-slot modules

**SCORPION-X18** SCORPION multiframe, holds 18x single- or 8x dual-slot modules



Sample Application: Captioning and Streaming Media Over IP

Copyright © Evertz Microsystems Ltd., all rights reserved. Information contained in this document is confidential, privileged and only for the information of the intended recipient; this file may not otherwise be used, published or redistributed without the prior written consent of Evertz Microsystems. Please consider the environment before printing this proprietary document.