

# ENC-400-HDMI

HD/SD HDMI H.264 and MJPEG Encoder

## PRODUCT DESCRIPTION

This HD/SD H.264 fanless video encoder is able to deliver multiple streams in multiple bitrates and protocols to multiple destinations. The built-in frame synchronizer guarantees stable signal processing. Both inputs provide loop through outputs and can be used for redundancy switching or as sources for two individual encodings. Besides the well approved H.264 encoding technology, the ENC-400 features MJPEG for legacy as well. Both for live streaming and recording.

The compact fanless and lightweight aluminium PORTABLE unit is ideal for broadcast contribution, IPTV and webcasting.

The ENC-400 encoders can also be placed in FR-620-EXT. This compact 1RU chassis houses up to 6 encoder blades and provides redundant power supplies.



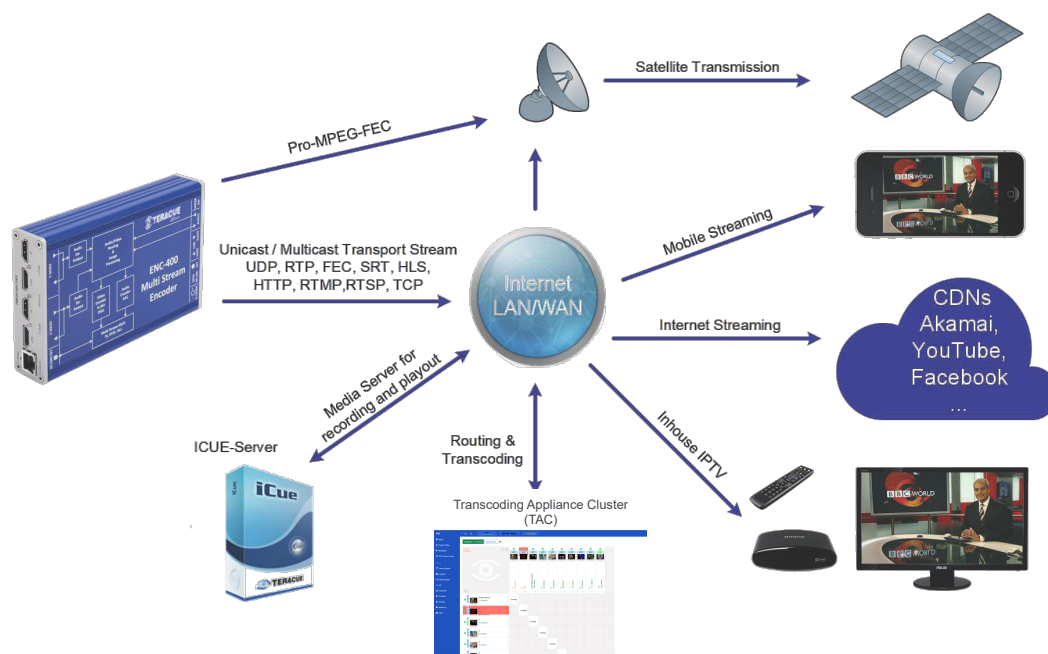
## KEY FEATURES

- H.264 Baseline, main, high profile and MJPEG
- Up to 1920x1200@p60, 3440x1440@p24 or 4K@p15
- Embedded and analog audio input
- Custom logo, text and time inserter
- Adjustable frame rate and auto scaler
- Up- and downscaling with cropping
- Frame synchronizer for seamless switching
- AES-256 encryption
- Pro MPEG FEC and SRT streaming
- UDP, RTP, RTSP, RTMP and TCP streaming
- HLS with adaptive bitrate support
- Simultaneous stream & record in various formats
- Fanless, lightweight aluminum chassis
- Low power consumption (< 5 Watt, 5-12 Volt)
- Web GUI, Telnet and SNMP configuration

## APPLICATION

- IPTV solutions
- AV over IP streaming
- Broadcast contribution
- Event webcasting & internet streaming
- Digital signage streaming
- Training & education
- Medical & campus TV
- Remote desktop streaming
- Wireless & mobile streaming
- Networked conference room
- Control room & HQ surveillance

## WORKFLOW INTEGRATION



## VIDEO I/O & ENCODING

|                              |   |
|------------------------------|---|
| HDMI video input:            | Dual or Single HDMI 1.4 input, RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2, loop through (without HDCP)   |
| Compression standard:        | H.264 (MPEG-4 AVC Part 10) and MJPEG, 4:2:0, 8-Bit  |
| Profiles:                    | Baseline, Main Profile, High Profile, signal can be scaled up to 3 instances  |
| Video encoding bit rate:     | 300Kb/s – 16Mb/s, low delay support, adaptive CBR 4KUHD*  |
| Supported video resolutions: | (3840x2160) @15p 1080i (1920x1080) @60i UWQHD*<br>(3440x1440) @24p 1080i (1440x1080) @60i WQXGA*<br>(2560x1600) @30p 720p (1280x720) @60p 1200p (1920x1200)<br>@60p PAL (720x576) @50i 1080p (1920x1080) @60p NTSC<br>(720x480) @59,94i<br>*ENC-400-HDMI2-(Portable) Only |

## AUDIO I/O & ENCODING

|                          |   |
|--------------------------|---|
| Audio input:             | 1x Stereo (2 channel) embedded per HDMI input 1x Stereo, unbalanced, AC-coupled, mini-jack 3.5, 10 kOhm MIC/LINE level: +4/0/-3/-6 dBu selectable |
| Compression standard:    | MPEG-4 AAC LC   |
| Sampling rate:           | Sample rate 48 kHz, 16Bit, 32-320 kbit data rate  |
| Audio output (TALKBACK): | 1x Stereo, unbalanced, AC-coupled, via mini-jack 3.5, Output gain: -78 dB to +9 dB 16 bit stereo, PCM, sample rate 48/44,1/32/16/8 kHz            |

## TS PROCESSING & OUTPUT

|                  |   |
|------------------|---|
| TS Multiplexer:  | ISO/IEC 13818-1 Transport, ISO/IEC 14496-10 NAL (Network Abstraction Layer)   |
| Streaming types: | Up to 3 simultaneous unicast or multicast streams TS over UDP, TS over RTP, TS with Pro-MPEG FEC, TS video only, TS audio only, TS over TCP, RTP/RTSP (UDP or interleaved, RFC 3984), RTMP push, SRT, HLS |
| IP protocols:    | HTTP, TCP/IP control protocol, UDP/RTP/TCP streaming, IGMP, SAP, unicast/multicast, SNMPv2, DHCP, IPV4, DNS, NTP  |
| Network:         | 10/100/1000 TX Ethernet, RJ45, half/full duplex, auto sensing   |

## ADDITIONAL FEATURES

|                                 |  |
|---------------------------------|--|
| serter:                         | serter for Logo, Text, Time and Date   |
| Error correction:               | (Forward-) Error correction with Pro-MPEG FEC and Secure Reliable Transport (SRT)  |
| Scaling and frame synchronizer: | Up- and downscaling and cropping for each encoder, adjustable frame rate divider, auto scaling for seamless switching and fixed resolution or output follows input                             |
| Recording:                      | USB host device for recording Simultaneous streaming and recording to USB drive (TS and MP4)   |
| RS-232:                         | RS-232 console mode for local control, com-server mode for RS-232 IP bridging  |
| GPIO:                           | 1x GPIO in TTL level, 1x GPIO out 10mA TTL   |
| Management and security:        | Web browser, SNMP, SSH/Telnet and RS-232, software updates via web browser fault measurement with log generation, authorization via user password , IEEE802.1X, RTC, (Real Time Clock) support |

| GENERAL                                 |  |   |
|---|--|---|
| Housing:                                | PCB-Board or 100% lightweight closed aluminium case, fanless                         |   |
| Temperature & humidity                  | 0 to +45°C, Up to 90% RH, non-condensing   |   |
| Agency approvals:                       | CE, RoHS   |   |
| Dimensions and weight:                  | (H/W/D) 30mm x 105mm x 170mm, approx. 400 grams                                      |   |
| Power:                                  | 5-12 VDC ≤ 5W per unit   |   |
| Limited warranty:                       | 1 year standard limited warranty. Warranty extensions for up to 5 years available.   |   |
| FEATURE OVERVIEW                        | ENC-400-HDMI   | ENC-400-HDMI2   |
| HDMI input:                             | 1x In + 1x loop through output   | 2x In + 2x loop through outputs   |
| Supports up to:                         | 1x 1920x1200p60  | 1x 3840x2160p15 1x 3440x1440p24 or 1x 2560x1600p30 or 1x 1920x1200p60 or 2x 1920x1080p60 or   |
| Simultaneous encoding up to:            | 1x 1920x1200p60 or 1x 1920x1080p30, 1x 1280x720p60 or 1x 1920x1080p60, 1x 720x480p30 | 1x 3840x2160p15 or 1x 2560x1600p30 or 1x 1920x1200p60 or 2x 1920x1080p30, 1x 720x480p30 or 1x 1920x1080p30, 1x 1280x720p60, 1x 720x480p30 or 1x 1920x1080p60, 1x 720x480p30 |
| Simultaneous encodings video/audio:     | 2/1  | 3/2   |
| Simultaneous streams:                   | 3  | 3   |
| Telnet/SSH/SNMP:                        | ✓/✓/✓  | ✓/✓/✓   |
| A/V multiplexer, stream container:      | HLS, RTSP, RTMP, SRT, TS, TCP up   | HLS, RTSP, RTMP, SRT, TS, TCP   |
| Resolution:                             | to 1920x1200   | up to 4K  |
| Pro-MPEG FEC:                           | option   | option  |
| USB recording:                          | option   | option  |
| Logo insertion:                         | ✓  | ✓   |
| Adaptive bitrate:                       | ✓  | ✓   |
| Transport stream with constant bitrate: | ✓  | ✓   |
| AES encryption:                         | ✓  | ✓/✓   |
| Stream synchronisation, time stamping:  | NTP  | NTP   |

## CHASSIS OVERVIEW ENC/DEC SERIES

| Type / Number of blades | 400-Portable | FR-620-EXT |
|-------------------------|--------------|------------|
| DEC-400-HDMI            | 1            | 6          |
| DEC-400-HDSDI           | -            | max. 4     |
| ENC-400-HDMI/HDMI2      | 1            | 6          |
| ENC-400-HDSDI           | 1            | 6          |

## SPECIFICATION

|                         |   |                                  |
|-------------------------|---|----------------------------------|
| Redundant power supply: | x   | ✓                                |
| Power supply:           | 5-12 V DC ≤ 5W  | 100-240V AC 60W                  |
| Weight:                 | ca. 0,4 kg  | 2,36 kg (3,52 with power supply) |
| Dimensions (HxWxD):     | 30mm x 105mm x 170mm (HDMI)<br>39mm x 105mm x 190mm (HDSDI) | 45mm x 485 mm x 185 mm           |



FR-620-EXT front view

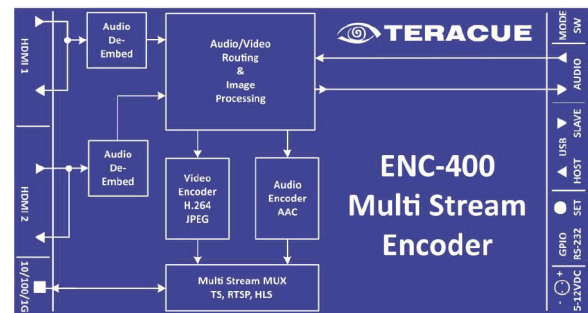


FR-620-EXT rear view

## REAR VIEW & BLOCK DIAGRAM



ENC-400 rear view



ENC-400-HDMI2 block diagram

## ORDER INFORMATION

|                          |  |
|--------------------------|--|
| ENC-400-HDMI-(PORTABLE)  | H.264 and MJPEG HD/SD (portable) encoder with single HDMI input with embedded audio and loop through output. |
| ENC-400-HDMI2-(PORTABLE) | H.264 and MJPEG HD/SD (portable) encoder with dual HDMI input with embedded audio and loop through outputs.  |
| 400-OPT-FEC              | Upgrade option for Pro-MPEG FEC.   |
| 400-OPT-REC              | Upgrade option for USB recording.  |
| FR-620-EXT               | 1RU Rack mount chassis for max. 6 boards.  |

## COMPLEMENTARY PRODUCTS

|            |   |
|------------|---|
| XPLAYER    | PC Live stream playback software. License packages are available.   |
| AMINET-140 | Multi-format and multi-resolution Set Top Box for MPEG-2 SD/HD & H.264 SD/HD, compo-site, S-Video or component video and analog audio output. |