



TVU networks®

# TVUPack® TM8200

## Flexible, versatile and lightweight 3G/4G/LTE uplink backpack



*"As a global news organization, the ability to deliver live video from any location at any time is essential. TVUPack enables our correspondents to not only report on breaking stories, no matter where they happen, but to report on them in interesting and innovative ways." - Mr. Naoki Yazawa, Nippon Television Network Corporation.*

TVUPack® is winning over broadcasters around the world with its portable lightweight design, support for multiple 3G/4G/LTE wireless uplink connections, ease-of-use, and low latency transmission. With TVUPack, you can capture and transmit a broadcast quality picture from locations your ENG or OB van cannot reach.

### Multiple 3G/4G/LTE Connections

TM8200 features an easily accessible and removable external modem module that supports up to eight 3G/4G/LTE, microwave, satellite, WiFi and BGAN data connections. The TM8200 simultaneously aggregates up to nine connections including Ethernet to broadcast live in SD or HD.

### Simple One Button Set Up

TVU pioneered the single-button-start on a backpack style transmitter. No manual in-field configuration is required. Just plug in your camera and push the green button to go live. The TVUPack boots in less than 20 seconds and automatically establishes all wireless connections, giving you the ability to go live in no time.

### Flexible Modular Design

TM8200 features a flexible modular design with a removable transmitter, giving broadcasters the flexibility to use the pack in studios, fly-packs, vans and helicopters. With TVUPack's detachable modem tray, users can optimally station the modems in different spots, including the exterior of moving vehicles.

### Resilient Video Quality

TVUPack features TVU's proprietary IS+ technology, advanced Forward Error Correction and enhanced H.264 encoding for stable, reliable and resilient live transmission - even at low and rapidly changing bandwidths. The result is a superior quality picture.

### Low Latency & Smart VBR

TVUPack can transmit with as low as sub-second delay. TVU also makes managing the TVUPack live transmission easy with Smart VBR. Just set your desired latency, and TVU automatically determines the optimal bit-rate based on the current bandwidth.

### Store and Forward Functionality

TVUPack offers store and forward functionality for on-demand video retrieval. TVUPack is capable of capturing 7 hours of continuous video footage in HD, ensuring that a full quality recording is available when you need it.

# Features You Need



## Modular Design with Removable Components

TM8200 features a one piece modular mount frame that holds the encoder, two batteries and a detachable modem tray. The mount frame can be easily removed from the backpack for use in studios, fly-packs, vans and helicopters. TM8200 also features a removable modem module that connects to the encoder via a USB interconnect cable, providing users the flexibility to station the modems for optimal wireless signal strength. TVU also offers a custom-built modem module that can be attached to the exterior of moving vehicles.

## Encrypted Transmission

TVUPack features a proprietary protocol that delivers a secure and encrypted transmission between the TVUPack and the TVUPack Receiving terminal. Each TVUPack Transmitter is paired with a specific Receiving Terminal, ensuring that there is no way to receive the video signal without authorization.

## Hotspot Functionality

TVUPack not only delivers live HD signal back to the broadcast facility, it can also act as a gateway to the Internet. With the optional hotspot feature, any laptop computer or wireless device can access the Internet through TVUPack's wireless connections. The Hotspot feature enables video crews to edit a finish story on a laptop in the field and send the finished story back to the broadcast facility over the pack's wireless Internet connections. Additionally, the TVUPack TM8200 supports multiple WiFi connections, which allows the Pack to connect to numerous HotSpots while out in the field.

## Dual Hot Swappable Batteries

TVUPack uses a dual battery system. Batteries can be hot-swapped while the unit is operating, allowing for continuous operation and effectively providing TVUPack users with unlimited running time.

## IFB (Interruptible Feedback)

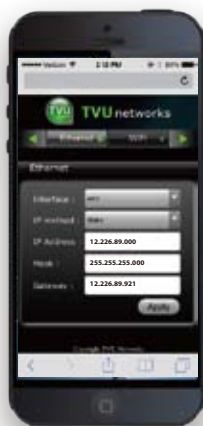
TM8200 has IFB capabilities, enabling news operations centers to speak directly to a headphone equipped cameraman or talent in the field and avoid the disruption of using a cell phone.

## Field Monitoring and Control

TVUPack provides an option for wireless monitoring and control from a variety of wireless mobile smart devices, including Android, iPod, and iPhone. This enables camera operators to monitor the transmission, line quality, battery level, and other pack statuses from the field in real time. Operators in the field can also use TVUPack's Auto Sync feature which aggregates multiple connections to quickly and easily transfer files to and from the studio. Broadcasters can also download recorded content directly to a USB drive connected to the Pack.

## Supports TVU Social

In conjunction with TVU Anywhere, broadcasters in the field can post captured still images from TVUPack's live video stream automatically to their Twitter or Facebook account with just the push of a button.



# Broadcast Quality Picture You Want

## Proprietary IS+ Technology

With IS+, a single source is reverse multiplexed across multiple channels for transmission. The transmission is then re-aggregated at the receiving end. Most importantly, IS+ uses an advanced FEC algorithm that produces superior transmission performance. IS+ is able to use minimal data overhead without latency introduced by packet retransmission. The result of transmitting over multiple channels simultaneously and better FEC is a dependable and stable HD quality transmission at sub-second latency.

## Dual Transmission Encoding

TVUPack is the original mobile backpack to offer unique dual transmission encoding. With this feature, users can take advantage of simultaneous live streaming transmission over IP and also HD SSD video recording for future retrieval and transmission.



TM8200 Encoder



Standard 9" Tablet

TVUPack TM8200 encoder weighs just 1.5kg and is only 21.5cm long.

## Advanced H.264 Video Encoding Engine

TVUPack features TVU264, an advanced proprietary video encoding engine to ensure that the best picture quality is delivered in the 3G/4G/LTE environment. With TVU264, TVUPack is capable of delivering a vivid broadcast-quality video with low latency, even in conditions with limited bandwidth.

## Smart Variable Bit-Rate Encoding Technology

TVUPack offers proprietary Smart VBR technology for managing encoding. With Smart VBR, you select the latency, and TVUPack dynamically manages the bit-rate. Smart VBR adapts quickly and efficiently to extreme fluctuations in bandwidth during live transmissions.

## Advanced Performance and Stability

TVUPack TM8200 features advanced hardware to ensure the success of transmissions even in the most challenging network environments. Built with a high-performance processor, the TVUPack TM8200 reacts quickly to changes in network conditions, managing encoder and transmission performance in real time and making necessary adjustments when conditions change. Additionally, TVUPack 8200 is designed with an enhanced and optimized modem interface that provides better stability for all modems. The result is a more stable, resilient transmission that translates to superior picture quality.

## Support for Microwave Technologies

The TVUPack TM8200 supports Vislink Hybrid Microwave Technology as well as MIMO Microwave Mesh radios in order to deliver an even more reliable live HD video picture quality on the go. By combining cellular with various microwave technologies, the TVUPack can aggregate all of the available connections for maximum transmission throughput. The result is an increased ability to deliver HD quality live video transmission in challenging wireless environments.

## FCC and CE Compliance

TVUPack has completed testing outlined for ENG mobile systems and holds a certificate of compliance. Additionally, the data modems used in TVUPack are commercially available modems that have been FCC and carrier certified.



# TVUPack TM8200 Technical Specifications\*

|                                   |   |
|-----------------------------------|---|
| Video Input Resolution            | HD/SD-SDI or HDMI<br>1080i 59.94/50, 720p 59.94/50, 576i 50, 480i 59.94   |
| Audio Input                       | Embedded 2 channel  |
| Audio/Video Encoding              | Enhanced H.264 encoder  |
| Return Video Feed                 | Pack feed; SDI input at TX; Requires hotspot  |
| Start-up Time                     | Less than 20 seconds  |
| Supported Data Connections        | Simultaneously aggregates up to 9 data connections including WiFi and Ethernet. System supports cellular 3G/4G/LTE, Wi-Fi, 802.11ac Wi-Fi, 5GHz Wi-Fi, WiMax, Microwave and KaBand, KuBand, BGAN Satellite connections. |
| Glass-to-Glass Latency            | As low as sub-one second  |
| Video Recording                   | 7 hours of continuous recording   |
| External Interface Connectors     | SDI, HDMI, Ethernet, IFB  |
| Power Source                      | Dual hot swappable Gold Mount Anton Bauer batteries or optional V Mount batteries<br>External Power Adapter: 100V to 240V AC  |
| Battery Run Time                  | Can run up to four hours in two battery configuration   |
| Transmitter Controls              | One button start<br>On-pack monitoring and management<br>Remote monitoring and management using mobile smart device or laptop   |
| Sony XMPilot Metadata Integration | Supports Sony XMPilot Metadata for supported Sony camcorders  |
| Encoder Hardware Dimensions       | 2 1/4" (D) x 7.25" (W) x 8.5" (H) /<br>5.5 cm (D) x 18.4 cm (W) x 21.5 cm (H)   |
| Backpack Dimensions               | 7 3/4" (D) x 11" (W) x 13.5" (H) /<br>19.6 cm (D) x 27.9 cm (W) x 34.2 cm (H)   |
| Weight                            | 13.5 lb/6.12 kg without batteries   |
| Operating Temperatures            | 0°C to 40°C (32°F to 104°F)   |

\*"SONY", "XDCAM", and "XMPilot" are trademarks of Sony  
Specifications and features are subject to change.

3/11/15