Introducing smartbox from DISH, a revolutionary new video platform for the FTG market. smartbox is the single solution for your entire property portfolio, delivering energy efficiency, flexibility, redundancy and requiring less space.

- Deliver HD at the lowest cost per channel. All guests can now experience HD where they once had to be satisfied with watching SD analog.
- Bring the best possible experience to every TV on your property from a single device. For example, HD for the guest rooms and public-viewing areas and analog for the treadmill.
- Allows accommodation in existing equipment rooms with a physically small size of 5RU. The chassis can be wall-mounted or rack-mounted, depending on your needs.
- More than 40 possible system configurations can be created using a single smartbox.
- Monitoring power, system health and configuration are implemented with the integrated wireless modem. Remote management is also fulfilled with the same integrated wireless modem.
- Quick and efficient installations through the integration of all input and output signal processing normally associated with FTG video platforms.
- 40 channels of HD digital FTG TV require fewer than 300 watts of power. That is up to 90% less power consumption than current systems. The low power consumption combined with an operating temperature range of up to 122°F alleviates the need to upgrade cooling systems.

smartbox technical diagram

- Satellite receivers
- Off-air receivers
- Guide channel
- Welcome channel
- Transcode (optional)
- QAM modulation (annex B)
- IP output
- NTSC modulation
- MPEG-2 or MPEG-2/h.264 TV
- Local program(s)

smartbox functionality
### Chassis

**General:**
- Dimensions (H x W x D): 8.7 x 17.6 x 15.8
- Line Voltage: 90 to 264 VAC, 47 to 64 Hz
- Power Consumption: MAX 1500W
- Operating Temperature: 0 to 50 C

**Blade Options:**
- Satellite Receiver Blade: 1 to 12 blades
- ATSC Receiver Blade: 0 to 3 blades
- QAM16 Blade: 0 to 2 blades
- NTSC Analog Blade: 0 to 3 blades

**Satellite Inputs (from LNB):**
- Frequency Range: 950 to 2150 MHz (Stacked LNB)
- Input Level Per Carrier: -65 to -25 dBm to aggregate
- Return Loss: >15 dB
- Connectors: 4 x F-Female

**IP Input/Output:**
- Connections (4): RJ-45, GbE, Full Duples, Auto-Neg
- Addressing: Unicast, Multicast (IGMP v1/2/3)
- Transport Protocol: UDP/IP
- Transport Format: SPTS
- IP Management: HTTP, TR-069
- Local User Interface: Web browser

**Wireless Interface:**
- Connector: SMB
- Impedance: 50Ω
- Receiver Sensitivity: -105 dBm (typical)
- Transmit Power: +24.5 dBm (typical)
- CDMA EV-DO Rev A: 800/1900 MHz - 3.1 Mb/s (forward link), 1.8 Mb/s (reverse link)
- SMS: MT/MO PDU / Text mode

**Satellite Receiver Blade**
- Dimensions (H x W x D): 7.5 x 0.9 x 14.5
- Power Consumption: 30W (typical)
- Satellite Channels: 8 transponders and/or 8 programs
- Modulation Rates: DVB-S: 1 to 45 Mbps 1/2, 2/3, 3/4, 5/6, 7/8
- QPSK: 1/2, 3/5, 2/3, 4/5, 5/6, 8/9, 9/10
- 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
- Turbo FEC: 2 to 30 Maps
- QPSK: 1/2, 2/3, 3/4, 4/5, 5/6, 7/8
- 8PSK: 2/3, 3/4, 4/5, 5/6, 8/9
- Acquisition Range: ±5 MHz
- Tuner Step Size: 100 kHz
- Optional Modules: Transcoder

**ATSC Receiver Blade**
- Dimensions (H x W x D): 7.5 x 0.9 x 13.5
- Power Consumption: 20W (Typical)
- Connector: F-Female
- ATSC Frequencies: 8 carriers and/or 8 programs
- Frequency Range: 42 to 1002 MHz
- Input Level Per Carrier: -83 to -5 dBm
- Return Loss: >15 dB
- Impedance: 75Ω
- Optional Modules: Transcoder

### QAM16 Blade

**Dimensions (H x W x D):** 7.5 x 0.9 x 13.5
- **Power Consumption:** 25W (typical)
- **Connector:** F-Female
- **Output Frequency:** 45 to 1003 MHz
- **Channel Bandwidth:** 16 channels, 2.24 to 8.05 MHz
- **Modulation:** ITU-T J.83 Annex A, C (16QAM, 32QAM, 64QAM, 128QAM or 256QAM)
- **QAM Symbol Rate:** 2.0 – 7.0 Msps
- **Interleaving:** 128/1 Annex B, 12/17 Annex A,C
- **Channel Plans:** EIA, HRC, IRC, Manual
- **Output Frequency Accuracy:** 125 Hz
- **Baud Rate Accuracy:** <10 ppm
- **Output Level:** 45 dBmV effective pre-combined output power
- **Output Attenuation:** 0 to 10 dB (0.5 dB step)
- **Output Level Flatness:** (45 to 864 MHz) ±1 dB, (45 to 1003 MHz) ±2 dB
- **Spurious:** >60 dBc (in 4MHz)
- **Output Impedance:** 75Ω
- **Output Return Loss:** >11 dB

### NTSC Analog Blade

**Dimensions (H x W x D):** 7.5 x 0.9 x 13.5
- **Power Consumption:** 70W (typical)
- **Connector:** F-Female
- **Maximum Number of NTSC Channels:** 24 NTSC RF with stereo audio
- **Frequency Range:** 54 to 519 MHz
- **Band Plan:** STD, HRC, IRC
- **Output Level 24 NTSC Channels:** 45 dBmV equivalent
- **Output Adjust Range:** 10 dB
- **Attenuation Steps Increment:** 0.5 dB
- **Output Impedance:** 75Ω
- **Output Return Loss In-Band:** ≥-12 dB 54 to 519 MHz
- **RF Flatness Response:** ± 1 dB 54 to 519 MHz
- **Carrier Frequency Stability:** 5 kHz Std channel
- **Audio/Video Ratio:** 15 ±5 dB

### Transcoder Module

**Dimensions (H x W x D):** 6.0 x 0.8 x 4.5
- **Power Consumption:** 30W (typical)
- **Conversions Supported:** MPEG-4 to MPEG-4 either HD or SD with lower output bit rate (transrating) with no format conversion
- **MPEG-4 to MPEG-2 either HD or SD with no format conversion
- **MPEG-2 to MPEG-4 either HD or SD with format conversion
- **MPEG-2 or MPEG-4 HD to MPEG-2 SD with format conversion to 480i with no cropping