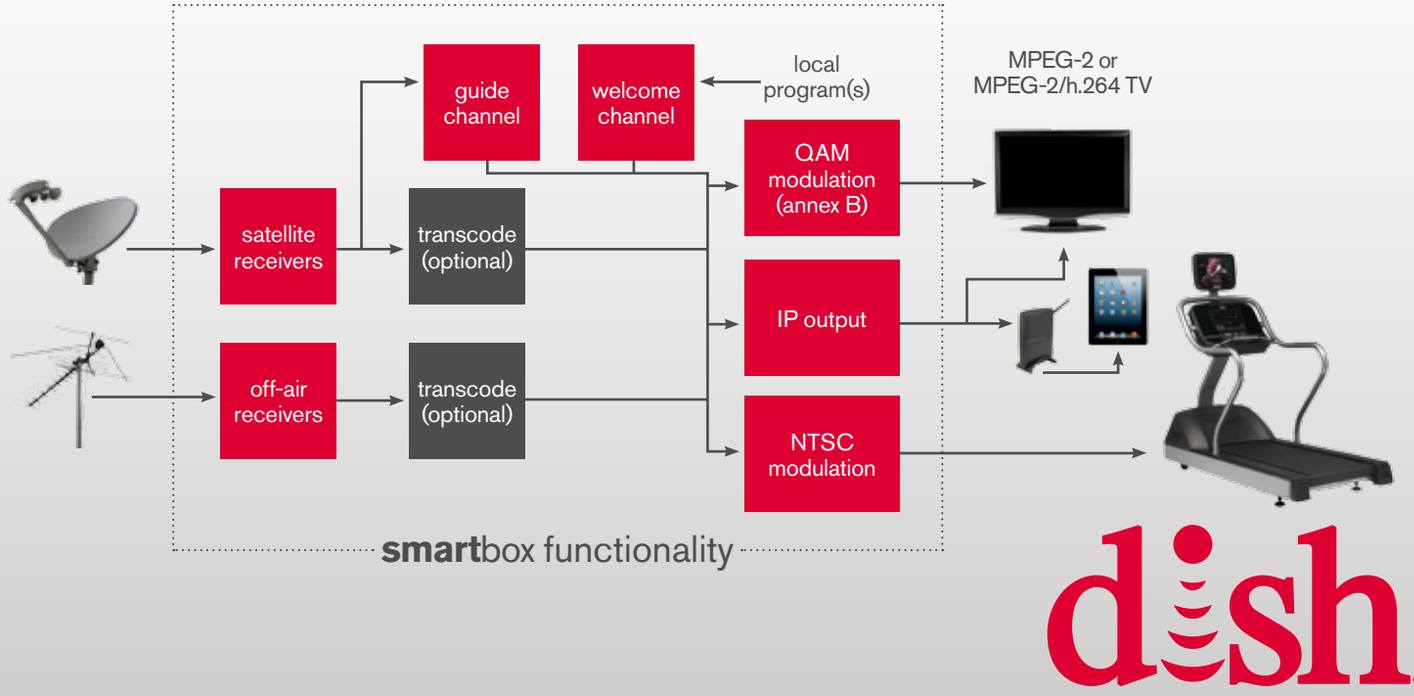
pure genius

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

smart innovation

- 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 **smart**box.
- 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



smartbox technical specs

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
Impedance	75Ω
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 Msps 1/2, 2/3, 3/4, 5/6, 7/8
	DVB-S2: 5 to 33 Msps
	QPSK: 1/2, 3/5, 2/3, 3/4, 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 Msps
	QPSK: 1/2, 2/3, 3/4, 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) ITU-T J.83B Annex B (64,256QAM)
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 no format conversion
	MPEG-2 or MPEG-4 HD to MPEG-2 SD with format conversion to 480i with no cropping

dish®