AMT — *advanced media technologies*®

Key Features*

- High-definition video decoder for MPEG-4 (H.264) and MPEG-2 programming
- Flexible DVR options for storing up to 300 hours of HD programming
- Four QAM tuners allow viewers to watch one show while recording up to three more
- CableCARD enables compatibility with legacy conditional access systems
- Integrated DOCSIS 3.0 modem supports video over IP and interactive applications
- MoCA 1.1 for in home connectivity at speeds up to 175 Mbps
- Seamless support for analog, digital and hybrid cable systems
- H.264 encoder enables space efficient recording for analog programs

Entone's Magi family of hybrid CATV media gateways sets a new standard for interactive cable services. The Magi 400 is a two-way DVR optimized for digital cable operators. The Magi 450 adds a fourth tuner and MoCA support. The Magi 450a is designed for system operators who need to support analog recording. All three models feature dual-core CPUs and 3D-graphics acceleration to tackle even the most demanding user interfaces and software applications. To minimize truck rolls and reduce support costs, Magi provides automatic configuration and remote administration via TR-069.

Magi 400

The Magi 400 is a value packed workhorse for digital system operators. Its three digital tuners can be used for TV viewing, recording, DOCSIS downstream and combinations of these activities. CableCARD enables the Magi 400 to be compatible with legacy encryption, provisioning and authorization systems. The integrated DOCSIS 3.0 modem makes it an ideal device for interactive environments that becomes a cost-effective DVR equipped with a hard disk drive.

Magi 450

Magi 450 is Entone's most advanced interactive platform for digital system operators. It incorporates a DOCSIS 3.0 modem for video over IP streaming and interactive applications. MoCA 1.1 provides in-home connectivity at speeds up to 175 Mbps. Magi 450 incorporates two digital QAM-only tuners and two multi-standard tuners with ATSC, NTSC** and QAM support.

Magi 450a

Magi 450a is a full-featured DVR for system operators that need to support analog program recording. In addition to all the features of the Magi 450, the 450a adds a hardware H.264 encoder capable of simultaneously digitizing and compressing two analog channels. Viewers can record one program while watching another and have full control to pause live TV even for analog channels.

	Magi 400	Magi 450	Magi 450a
Digital QAM-only Tuners	3	2	2
Multi-standard Tuners (ATSC/NTSC/QAM)	—	2**	2
CableCARD	✔	✔	✔
Optional Hard Disk Drive	320GB	500GB	500GB
DOCSIS 3.0 Modem	✔	✔	✔
MoCA 1.1 Modem	—	✔	✔
Touch Panel	—	✔	✔
LED Clock Display	✔	✔	✔

Security Features

Magi offers several features to protect operators from service theft and content piracy, such as integrated DVB-CSA, DES, AES and Multi-II descrambling in addition to CableCARD support. It supports a wide range of conditional access solutions from leading DRM vendors such as Latens, Nagravision, SecureMedia, Verimatrix and Widevine. Rovi technology provides anti-taping support that is fully endorsed by major studios and content owners.

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* Some features optional, see each model's specifications for more detail
** NTSC recording is only supported on 450a

Technical Specifications

Supported Media Formats

Audio	• AAC LC, AAC LC+SBR Level 2, AAC+ Level 2, AAC+ Level 4 • Dolby Digital, Dolby Digital Plus • MPEG I Layer 1, 2 and 3 (MP3)
Video	• High Profile up to Level 4.1 H.264/AVC streams (up to 40 Mbps) at 30 fps • High or Main Profile Level 3.1 H.264/AVC streams at 60 fps • VC-1 Advanced Profile @ Level 3 • VC-1 Simple and Main Profile • HD MPEG-2 4:2:0 streams (up to 125 Mbps) at 30 fps • SD MPEG-2 4:2:0 streams at 60 fps • MPEG4 P2 SP/ASP L5 SD Progressive/Interlaced
Graphics	• Supports 32, 16 and 8-bit color models with Alpha blending over video • Video resolutions 576i, 576p, 720p, 1080i, 1080p • 2D and 3D hardware acceleration • JPEG, GIF and PNG picture formats

Security

Encryption Support	• AES/1DES/3DES/CPRM/CPPM/CSS/DTCP copy protection algorithms/standards • DVB, ARIB and DC2-compliant transport demux with 1DES/3DES/DVB/Multi2/AES descramblers
CAS/DRM Support	• Latens • Verimatrix VCAS • Conax • Widevine • CableCARD
Content Protection	• HDCP 1.1 over HDMI • Rovi 7.1 Analog Copy Protection

DOCSIS 3.0 Standard for Magi 400/450/450a

Downstream	QAM 64/256
Symbol Rate	5.0569 or 5.3605 Msym/s
Input Level	−17 ~ 15 dBmV (QAM 64) −15 ~ 17 dBmV (QAM 256)
Upstream	QPSK, QAM 8/16/32/64/128
Frequency Range	5 ~ 42 MHz
Symbol Rate	TDMA: 160, 320, 640, 1280, 2560, 5120 Ksym/s S-CDMA: 1280, 2560, 5120 Ksym/s
Output Level	8 ~ 58 dBmV (QPSK) 8 ~ 55 dBmV (QAM 8/16) 8 ~ 54 dBmV (QAM 32/64) 8 ~ 53 dBmV (S-CDMA)
Output Level Control	1 dB

Internal Networking for Magi 400

Wi-Fi (802.11 b/g/n)

Tuners	Magi 400	Magi 450/450a
Number of Tuners	3	2
Frequency Range	85 ~ 862 MHz	85 ~ 862 MHz
Channel Bandwidth	5, 6, 7, 8 MHz	5, 6, 7, 8 MHz
Input Level	−15 ~ 15 dBmV (QAM 64), −12 ~ 15 dBmV (QAM 256)	−15 ~ 15 dBmV (QAM 64), −12 ~ 15 dBmV (QAM 256)
Demodulator	QAM 16/64/128/256	QAM 16/64/128/256
Input Symbol Rate	1 ~ 7 Msym/s	1 ~ 7 Msym/s
Roll-off Factor	0.15	0.15
FEC	ITU-T J.83 Annex A, B and C	ITU-T J.83 Annex A, B and C

Technical Specifications (continued)

Multi-standard Tuners	Magi 450/450a
Number of Tuners	2
Frequency Range	45 ~ 1000 MHz
Channel Bandwidth	5, 6, 7, 8 MHz
Input Level	–18 ~ 15 dBmV (QAM 64), –15 ~ 15 dBmV (QAM 256)
Demodulator	NTSC, BTSC, ATSC, QAM 16/64/128/256
Input Symbol Rate	1 ~ 7 Msym/s
Roll-off Factor	0.15
FEC	ITU-T J.83 Annex B

Inputs and Ouputs

Front Panel	Magi 400	Magi 450/450a
Standby button with bi-color status indicator	✔	✔
USB 2.0 Host Type A	✔	✔
Function keys (▼,▲,▶,◀ , Menu, Back, Enter)	—	✔
IR receiver	✔	✔
Indicators for DVR, Network and HD	✔	✔
4 digit, 7-segment display	✔	✔

Rear Panel

Rear Panel	Magi 400	Magi 450/450a
Ethernet (RJ45)	✔	✔
Cable input (F-type)	✔	✔
Loop-through output (F-type)	✔	✔
Component video (RCA Red, Green, Blue)	—	✔
Composite video (RCA Yellow)	✔	✔
Analog audio (RCA Red, White)	✔	✔
Digital audio (S/PDIF)	✔	✔
USB 2.0 host Type A	✔	✔
HDMI 1.3	✔	✔
DC power jack	✔	✔

Physical	Magi 400	Magi 450/450a
Power Supply	100 ~ 250 VAC, 50/60 Hz (input) 12V @ 2.5A (output)	100 ~ 250 VAC, 50/60 Hz (input) 12V @ 3A (output)
Power Consumption	25W (on), 1W (standby)	30W (on), 1W (standby)
Environmental	10 ~ 35 °C, 25 ~ 95% humidity (non-condensing)	10 ~ 35 °C, 25 ~ 95% humidity (non-condensing)
Dimensions	10 x 6.5 x 2 in	14 x 11 x 2.2 in
Certifications	FCC Part 15, IEC-60065	FCC Part 15, IEC-60065

Magi 400

Magi 450

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