

MN410 (C-band) MN420 (Ku-band)

MENOS TV Satellite Interactive Terminal (SIT)

MENOS

Description

The MENOS SD TV SIT is one of the terminal types that can be used within the MENOS satellite network environment. The terminal is intended for network members who need to exchange or distribute professional television content with remote sites in a fast, reliable and efficient way. It also provides high-speed Internet, VPN and VoIP services independently of the availability of terrestrial links. The core of the SD TV SIT is the Multimedia Exchange Unit (MMX), which processes both live video signals and video files. The MMX of the SIT exchanges video content with the MMX of the MENOS hub for:

- live TV streaming: live video contribution through bandwidth reservation with guaranteed QoS
- play to air and local play facilities: live streaming from local storage to local video decoder or to remote terminal
- store and forward: Best effort video file transfers

These exchange sessions are synchronized and activated automatically by the hub's Multimedia Reservation Server (MRS). The SD TV SIT is connected to the MENOS hub via two satellite subsystems: a MF-TDMA (Multiple Frequency and Time Division Multiple Access) broadband subsystem for data and voice communication, and a RAMA (Reservation Assignment Multiple Access) subsystem for video and fast file transfers.

The SD TV SIT is designed such that it can be upgraded very cost-effectively to a full HD TV SIT. The upgrade kit effectively transforms the MN420 SD TV SIT to a MN426 HD TV SIT.

The MENOS concept starts with the end-users in mind. The terminals require little maintenance, are easy to install and operate and are configured for specific applications while being made of common building blocks using standardized technologies.

Applications

Television Contribution and Distribution:

The MENOS TV SIT can be used to contribute digital master video content from a remote station to the MENOS hub where it can be stored in a central repository for distribution or archiving. The TV SIT can also be used to receive and store locally a signal distributed from the hub's central archive to the remote stations. Users can access the central archive to browse, preview and request content. The store and forward capability allows the contributor/distributor to use low bandwidth channels or to schedule the exchange of the TV content at a time when the load of the network is lower, thereby saving on the cost of transmission. The content can be digitally secured to limit access to specified MENOS stations.

IP access services:

As an integrated satellite IP access platform, the MENOS TV SIT provides an 'always-on' high-bandwidth Intranet and Internet connection, both for unicast and multicast traffic. Network members also use this connection for capacity reservations, access to the central archive, and VoIP collaboration.

Secure IP VPN Operation:

Professional users have the ability to create IP Virtual Private Networks connections among several SIT's to allow secured access for exchanging private data. The Virtual Private Networks are implemented by the tunnel mode IPSec Internet standard, encrypting and authenticating the entire IP packet contents for maximal security.

VoIP collaboration channels:

The VoIP collaboration channels enable cost-effective SIT to SIT voice communication and multi-party conferences for daily operations, while consuming very little satellite bandwidth. The embedded Quality of Service (QoS) features ensure high quality VoIP.

Features

- Fully integrated, easy to install turn-key terminal system
- Sat3Play MF-TDMA IP Broadband Access
- DVB-S2 SCPC Return Channel for high bandwidth contributions/distributions
- High speed IP connection with embedded acceleration
- Two satellite frequency bands supported (Ku / C-band)
- Integrated video encoder/decoders (max 5 decoders per SIT)
- Video Multimedia Exchange Services (MMX):
 - MPEG-2 4:2:0MP@ML, 4:2:2P@ML
- Automated interface with Multimedia Reservation Server (MRS)
- Supports IP broadband unicast and multicast applications
- Integrated encryption on sessions and data available
- Secure Virtual Network Operation
- Fully integrated VoIP services
- Quality of Service (QoS) (dynamic & constant bit rate)
- Remote monitoring and diagnostics
- Remote software upgradeable

Related Products And Documents

Other MENOS products

- MN421 low bandwidth SD TV exchange SITs
- MN426 HD TV exchange SITs
- MN610 and MN620 IP SITs
- MN510 and MN520 Radio exchange SITs

Application notes

- MENOS applications – broadband access
- MENOS applications – Real time TV exchange



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Specifications – MN410/420

SATELLITE INTERFACE

MF-TDMA Broadband access system

- Forward Channel:
 - Modulation: DVB-S2 QPSK/8PSK CCM
 - Rates: 3 to 30 Mbaud
- Return Channel:
 - Modulation: 4CPM
 - Rates: 256 kHz for IP rate of 191 kbps

RAMA system

- DVB-S2 Return Channel:
 - up to 16 APSK up to 30 Mbaud
- DVB-S2 Forward Channel:
 - Q/8PSK-16APSK up to 45Mbaud
 - 32APSK up to 33Mbaud

MN410 Outdoor units:

- MF-TDMA broadband system ODU:
 - TX Frequency: 5.85 to 6.425 GHz
 - TX Output power: 5 W
 - RX Frequency: 3.7 to 4.2 GHz
 - Polarisation: circular (Tx/Rx opposite)
 - Antenna: 2.4m offset – Tx Gain: 41.95 dBi @ 6.1375 GHz – Rx Gain: 38 dBi @ 3.95 GHz
- RAMA system ODU:
 - TX Frequency: 5.85 to 6.425 GHz
 - TX Output power: 10 W
 - RX Frequency: 3.7 to 4.2 GHz
 - Polarisation: circular (Tx/Rx orthogonal)
 - Antenna: 2.4m offset – Tx Gain: 41.95 dBi @ 6.1375 GHz – Rx Gain: 38 dBi @ 3.95 GHz

MN420 Outdoor unit:

- TX Frequency: 13.75 to 14.25 GHz
- TX Output power:
 - 4 W (MF-TDMA Broadband access system)
 - 4 W (RAMA system)
 - RF coupling of 4W MF-TDMA BUC and 4W RAMA BUC with a 10 dB coupler
- RX Frequency: 11.7 - 12.75 GHz (optional 10.7 - 11.8 GHz)
- Polarisation: linear (Tx/Rx orthogonal)
- Antenna: 2.4m dual optics – Tx Gain 49 dBi @ 14 GHz – Rx Gain 47.8 dBi @ 12 GHz

VIDEO SUBSYSTEM

- Video encoder:
 - video: MPEG-2 4:2:2P@ML, bitrates from 2 to 6 Mbps, CBR+VBR streaming
 - audio: MPEG-1 Layer II, 128 kbps
- Video Decoder (default 1 max 5 decoders per SIT):
 - video: MPEG-2 4:2:2P@ML, bitrates from 2 to 6 Mbps, CBR+VBR streaming
 - audio: MPEG-1 Layer II, 128 kbps
- Multimedia Exchange Server (MMX):
 - 250 GB HDD for local storage of video content
 - MPEG-TS over UDP (IETF RFC 2250)

TELEPHONY

SIP Phone:

SIP VoIP phone, G.729 codec

IP PERFORMANCE

- IP data Throughput broadband access system:
 - Forward: Max. 2 Mbps Unicast, 16 Mbps Multicast
 - Return: Max 191 kbps (4CPM modulation)
- IP data Throughput RAMA:
 - Return: 2 - 6 Mbps
 - Forward: 30 Mbps
- Collaboration Channel: 1 VoIP channel

STANDARDS AND PROTOCOLS

STANDARDS

EN 301790 (DVB-RCS (partially)), EN 302307 (DVB-S2), EN 301421 (DVB-S), IEEE 802.3 (10 Base-T Ethernet), IEEE 802.3u (100 Base-T Ethernet), ISO/IEC 13818-1 (MPEG-2)

IP PROTOCOLS

RFC 768 (UDP), RFC 791 (IP), RFC 792 (ICMP), RFC 793 (TCP), RFC 826 (ARP), RFC 959 (FTP), RFC 2131 (DHCP)

STREAMING PROTOCOLS

RFC 2250 (MPEG-TS over UDP)

ENVIRONMENT

- Mechanical - 19" rack (20 U)
 - Housing: 60cm W x 80cm H x 108cm D
 - IDU Weight: - minimum configuration (MN420): 130 kg
 - maximum configuration (MN420/AI-04): 160 kg
- Temperature (indoor unit)
 - operational: 0 to 40 degC – non condensing
 - storage: -40 to 70 deg C up to 95% condensing
- Temperature (outdoor unit): -30 to 55 deg C
- Power Supply: 230V / 6A
 - Power consumption (including BUC power consumption):
 - Minimal configuration (MN420): max. 520W
 - Maximum configuration (MN420/AI-04): max. 700W

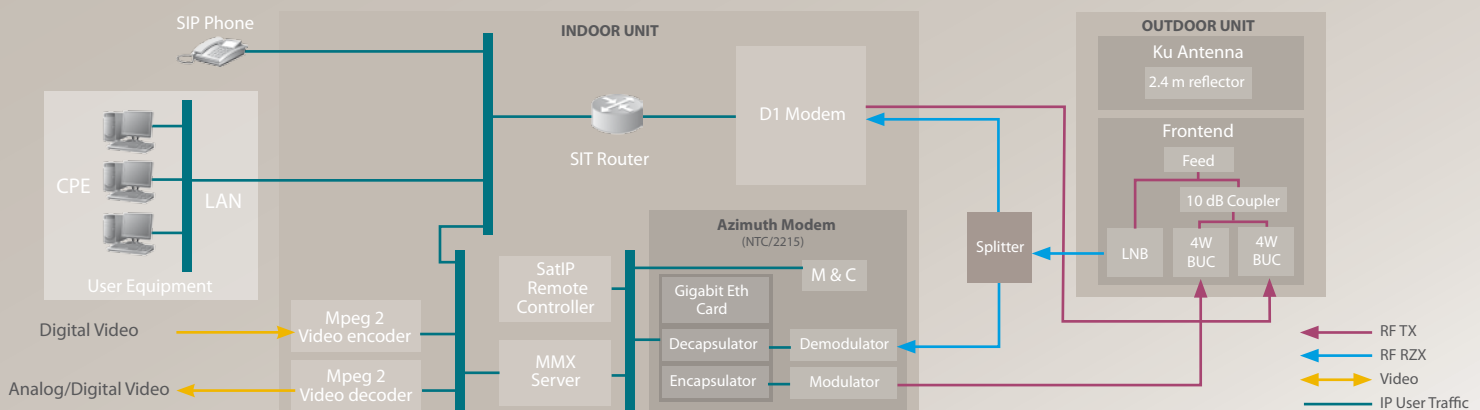
ORDERING INFORMATION

- MN410: TV SIT C Band - 1 decoding channel / 1 encoding channel (*)
- MN410/AI-01: TV SIT C Band - 2 decoding channels / 1 encoding channel (*)
- MN410/AI-02: TV SIT C Band - 3 decoding channels / 1 encoding channel (*)
- MN420: TV SIT Ku Band - 1 decoding channel / 1 encoding channel (*)
- MN420/AI-01: TV SIT Ku Band - 2 decoding channels / 1 encoding channel (*)
- MN420/AI-02: TV SIT Ku Band - 3 decoding channels / 1 encoding channel (*)
- MN420/AI-04: TV SIT Ku Band - 5 decoding channels / 1 encoding channel (*)
- MN420/AR-03/AM-01: High powered TV SIT Ku - 1 decoding channel / 1 encoding channel / 4W+20W / 16 APSK- 33Mbaud (*)

Options:

- AN-03: non-penetrating mount 2.4 m
- AL-01: 2 x 100 m L-band cable
- AS-01: LNB RF range: 10.7 - 11.7 GHz
- AS-02: LNB RF range: 11.7 - 12.75 GHz
- AF-x: License upgrade of MN4x0 to support FNG service
- AU-02 Decoder software upgrade to support MPEG-4 SD and HD 4:2:0
- AU-03 Encoder software upgrade to support MPEG-4 HD 4:2:0
- AV-01 Grandstream ATA HT-502 as a replacement for the VoIP IP phone

(*) Mounts are not included



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