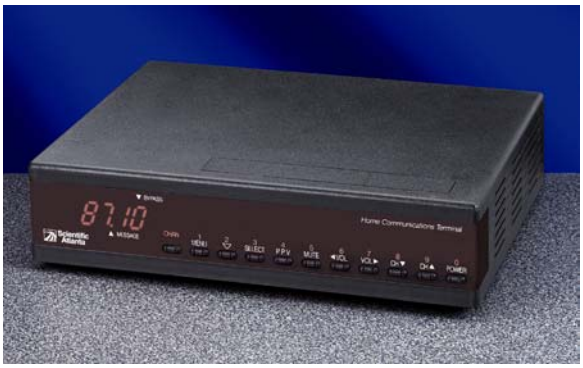
Advanced Subscriber Networks

Model 8710^{x} Home Communications Terminal

Description

Scientific-Atlanta continues to provide the market's most secure advanced analog technology with the introduction of the 8710^{X} Home Communications Terminal (HCT). While offering all of the features and options found in its predecessor, the 8600^{X}™ HCT, the 8710^{X} HCT includes several design improvements.

The advanced analog 8710^{X} HCT is the perfect complement for future migration to digital HCTs. System operators can deploy the 8710^{X} HCT as an economical strategy for introducing subscribers to interactive services while generating new revenue opportunities.



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Features	Benefits
WorldGate Internet services (software option) • Web browsing • E-mail • Chat rooms • Software downloadable	• Increases service tiering for cable operators • Differentiates services from competition • Provides new revenue opportunities • Provides subscribers with access to Internet services through television • Prepares subscribers for future digital migration
Optional factory integrated or manually inserted Genius™ Card (Genius Card sold separately)	• Expanded memory enables third-party applications • Protects investment by extending life of HCT • Installs easily into the top of the terminal • Prevents obsolescence
Fast dynamic scrambling mode	Improves scrambling obliteration of video images
Anti-piracy locking pin, factory installed, standard	Increases security for cable operators
Baseband options: 1 video, 2 audio	• Easily integrates with subscribers' home entertainment centers • Increases subscriber satisfaction
256 K FLASH memory, standard	• WorldGate ready • Eases deployment of future applications
Switching regulated power supply	• New design improves efficiency and lowers power consumption • Supports international configurations
PPV (pay-per-view) and RF-IPPV (impulse pay-per-view)	• Increases revenue opportunities • Simple to use interface for subscribers
Virtual channels, text and graphics	• Provides advertising revenue opportunities • Furnishes subscribers with information on demand • Requires no additional bandwidth by using VBI (vertical blanking interval) • Increases service tiering for cable operators • Reinforces cable provider's image with branding • Increases subscriber satisfaction • Helps retain existing subscribers

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Features	Benefits
Fully integrated IVG (interactive viewing guide)	• Simplifies VCR recording for subscribers with optional VCR Commander™ • Icons identify PPV programs, favorite channels, parental control channels, and program timers • Provides on-screen program information
Downloadable operating system and applications Software	• Eases deployment of software downloads • Eliminates necessity of costly truck rolls • Simplifies staging process
On-screen messaging	• Sends global, group, and personalized messages to subscribers • Enhances cable provider's good will and image
SoundProtect™ audio masking option	• Increases signal security for cable providers • Prevents cable-ready sets from passing program audio • Effectively conceals audio of programming services that may be controversial or offensive to some subscribers
Customizable barkers and welcome logo	• Reinforces cable provider's name and image with logo and welcome barker • Writes in custom text messages for barkers "not authorized," PG controlled channels, disconnect barker, etc.
Clock display	• Useful subscriber feature • Provides added value

Enhanced Security

The 8710^{X} HCT offers the highest signal security available for analog CATV transmission. Dynamic sync suppression with random video inversion modes makes the 8710^{X} HCT security virtually unbeatable. In addition, signal authorization is transmitted in a fully encrypted format, preventing unauthorized communications with the HCT.

VBI Data Transmission

The 8710^{X} HCT receives conditional access, as well as virtual channel and IVG data that is transmitted in the vertical blanking interval (VBI) of any number of video services on the cable system. The unit utilizes up to ten of the VBI lines to receive data, which significantly increases throughput and performance. Of the ten VBI lines, one is reserved for sending descrambling transactions.

Bitmapped Graphics Capability

The 8710^{X} HCT's On-Screen Display (OSD) supports bitmapped graphics with a resolution of 320 x 200 pixels offering a total of 16 colors from a palette of over 1,208 shades.

The OSD consists of a header, option fields, and instructions at the bottom of the screen that allow the subscriber to easily navigate through menu functions and features. This easy access increases the probability of utilizing all of the available on-screen features such as the IVG, messaging, PPV purchasing, program recording and other interactive services.

Impulse Pay-Per-View (IPPV)

The 8710^{X} HCT supports a factory integrated RF-IPPV module option. This module enables Scientific-Atlanta's store-and-forward technology that allows subscribers to order PPV events without contacting an automatic response unit (ARU), automatic number identification (ANI), or customer service representative.

The 8710^{X} HCT impulse pay-per-view system supports automatic calibration of RF return modules, allowing immediate purchasing of IPPV events. Event purchases are stored in the RF module until a request for data is received from the System Manager Control Computer. The data is retrieved via the RF return path between 15.5 MHz and 17.7 MHz.

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The data retrieval method maximizes return efficiencies while minimizing contention. In addition, the 8710^{X} HCT purchases are stored in non-volatile memory and the system includes secure transmission of data to ensure protection of PPV revenues.

Interactive Viewing Guide – Native Guide

The 8710^{X} HCT provides the operator with a fully integrated native IVG.

IVG data can be supplied by a number of Information Providers. Scientific-Atlanta's Information Services Processor (ISP) receives the IVG data at the headend and then transmits it to the 8710^{X} HCT.

The native guide on-screen interface displays 1.5 hours of programming for six channels on one page per screen. Up, down, left, and right arrow keys on the remote control allow the subscriber to navigate easily through the channels and times. The "look ahead" for the IVG varies, depending on memory size, number of channels, the amount of information provided for each program title, and other system configuration parameters.

Navigator Menu System

Scientific-Atlanta's 8710^{X} HCT uses the Navigator Menu as the main user interface to assist subscribers in accessing the value-added services that you plan to offer. Examples include the Interactive Viewing Guide, Favorite Channels, Parental Control, and pay-per-view services.

Virtual Channel Graphics

Virtual channels are self-generated text and/or graphics services supported by the 8710^{X} HCT, requiring no additional system bandwidth. Virtual channels provide sports information, financial services, news, etc. Content for virtual channels originates from information providers via Scientific-Atlanta's Information Services Processor (ISP) in the cable headend.

The virtual channel data is transmitted to the 8710^{X} HCT in the VBI on an existing channel. This enables operators to provide information services without using additional bandwidth. Multiple virtual channels can be transmitted on a single video channel's VBI with up to 99 pages per virtual channel.

When the 8710^{X} HCT is tuned to an authorized virtual channel, the HCT automatically tunes to the data channel and displays information in real time. Each virtual channel can be any combination of graphics and/or text characters with operator-selected background colors. Virtual channels are addressably controlled in the same way as other video services and can be added to a tier or video service code just as if the virtual channel was a regular video channel.

On-Screen Messaging

The 8710^{X} HCT offers the most advanced on-screen messaging in the industry, creating a variety of marketing opportunities for the cable operator. Operators can send payment information, outage reminders, and even birthday greetings to subscribers.

Addressably Renewable Operating System

The 8710^{X} HCT comes standard with Scientific-Atlanta's operating system and native applications. This technology allows the operator to download new software to the 8710^{X} HCT over the cable network for a variety applications.

Internet Services (option)

The 8710^{X} HCT provides access to the WorldGate Internet TV Over Cable services. The WorldGate service enables your subscribers to participate in chat rooms, send and receive e-mail, and surf the Internet using a medium they are familiar with—the television. WorldGate Channel Hyperlinking, a feature of the WorldGate application, lets your subscribers instantly access Web sites that correspond to programs they are currently viewing. Subscribers can receive all these Internet services without using a phone line or investing in expensive PC equipment. Access to the Web is up to four times faster than traditional dial-up Internet access.

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SoundProtect Audio Masking (option)
The 8710^{X} HCT offers optional audio masking to enhance signal security. The audio is masked in the Model 8656 XEU Scrambler. The scrambler inserts a continuous tone or an alternate barker audio input in place of the normal program audio. When a subscriber tunes a cable-ready TV to a masked channel, only the tone or barker audio is received. The channel audio is heard only when the channel is tuned using an authorized 8710^{X} HCT.

VCR Commander (option)
The VCR Commander is an optional infrared transmitter device that allows the user to set up the VCR for recording through the 8710^{X} HCT on-screen menus and IVG screens.

The VCR Commander attaches to the 8710^{X} HCT using the X-Port serial connector and transmits the IR commands to the subscriber's VCR. The 8710^{X} HCT has an easy-to-use on-screen set-up function that allows you to select the model of VCR you want to control. The VCR records the output channel from the 8710^{X} HCT at the appropriate time for the duration of the program or PPV event.

Baseband Video and Audio Outputs (option)
The chassis's back panel includes audio/video baseband connectors as an option: one video output and two mono audio output RCA jacks. Subscribers will appreciate the convenience these baseband outputs provide when integrating the 8710^{X} HCT in their home entertainment centers.

Upgradeable Hardware using Genius Card (option)
The 8710^{X} HCT comes with either a factory-integrated or manually inserted Genius Card. The Genius Card provides operators with an upgradeable architecture to meet subscribers' growing demands, while preventing obsolescence. Subscribers simply insert the card into the top of the terminal, just as if they were inserting a game cartridge into a game player. The Genius Card gives operators the ability to increase the memory of the 8710^{X} HCT, which enables a variety of applications. For instance, the operator can increase the amount of DRAM for additional IVG storage (longer look-ahead), or the Genius Card expansion bus can support other future applications. A new secure processor can be added to renew security if the HCT is compromised. Furthermore, all this upgrading can be done by the subscriber, often without a costly truck roll.

Specifications

Environmental

Temperature
    5°C to 45°C
Relative humidity
    5% to 95% (noncondensing)

Electrical

Input bandwidth
    50 MHz to 750 MHz
Output channel
    3/4
Output level
    9 dBmV nominal
Noise figure
    9 dB typical (including baseband circuitry)
Return loss
    Input: 6 dB typical
    Output: 10 dB min
Spurious response
    Output: -57 dBc in channel
Frequency accuracy
    ±100 kHz max
Frequency stability
    ±100 kHz max

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AC input
    103.5 V to 126.5 V
Surge protection
    AC input, tested at 3.5 kV from 10µ F cap
    RF input, tested at 3.5 kV from 10µ F cap
Distortion at 15 dBmV 80 channel loading
    Flat input, second order: -57 dB max
    Cross modulation: - 57 dB max
    Composite triple beat: -63 dB max
Input level
    -7 dBmV to 20 dBmV (operational)
Audio distortion
    THD 2.5% max
Audio signal-to-noise
    50 dB min
Aural carrier
    4.5 MHz ±5 kHz — offset from visual carrier

Mechanical
Chassis keyboard type
    Individual push-button switches
    Front location
Weight
    2.4 lbs

User Interface
Display type
    LED, 4 digits, clock display
On-screen display
    16 lines x 40 columns
Graphics capability
    320 pixels x 200 pixels x 16 colors palette of 1208 colors

X-Port
Transmit/receive line voltage
    TTL logic levels
Baud rate
    14.42 kbps (nominal)

RF Return Transmitter
Frequency range
    15.5 MHz to 17.7 MHz
Modulation rate
    20 kbps
Modulation technique
    BPSK
Maximum output power
    55 dBmV (transmission peak)

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Model	Part Number
8710^{X}-512 256 K Flash, 128 K DRAM	594709
8710^{X}-552, 256 K Flash, 128 K DRAM with audio demasking	594717
8710^{X}-518, 256 K Flash, 512 K DRAM	594708
8710^{X} 558, 256 K Flash, 512 K DRAM with audio demasking	594707
8710^{X} 568, 256 K Flash, 512 K DRAM with audio demasking & BB A/V outputs	594700
8710^{X}-E58, 256 K Flash, 512 K DRAM, with audio demasking and Zenith Z-TAC	594718
8710^{X}-X58, 256 K Flash, 512 K DRAM, with audio demasking and TOCOM Z-TAC	594719
Required Components	
System Manager 10/20 (SR 4.6 or later) with Micro Channel secure card	Call SA*
SM 30 (SR4.6 or later) with network secure card	Call SA
Information Services Processor (Version 3.6 or later)	714910
Headend Controller (Version 6.6.5d or later)	714909
Scrambler (HCT software version 2.1, build 27)	
• Model 8656XEU-AM Scrambler	546582
• Model 8656XEU-AMC Scrambler	564687
Optional Accessories	
AllTouch 2000 Four Function Remote Control Unit	590184
Model 8650-XT Remote Control Unit	502976
AllTouch® 2000 Wireless Keyboard	588347
RF Bypass Switch	511360
VCR Commander II (ac powered)	573840
VCR Commander (battery powered)	538007
Related Equipment/Applications	
Logos for Branding	Call SA
Virtual Channel Express™	573647
Virtual Channel Express Starter Pak	713324
WorldGate	Call SA

*Scientific-Atlanta

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