

Interdiction Technology

Addressable Taps

Interdiction is an addressable signal security system, which provides jamming of designated channels using an off-premise device. Programming is sent "in the clear" to the Interdiction Field Units where jamming signals are introduced to non-subscribers. The jamming signals are generated by frequency agile oscillators and combined with the RF signal. These oscillators obscure the picture elements and heavily distort the accompanying audio.

Compatibility with Other Formats and Services

The interdiction system does not require the use of headend scramblers to protect services. Instead, all channels are transmitted in the clear and unauthorized services are jammed prior to entering the home. Due to the fact that jamming is based on frequencies and not channels, this approach ensures compatibility with various video transmission formats. Additionally, analog and digital services, such as video, data, and telephony, can pass transparently through the interdiction unit in both the forward and reverse path.

Reduced Costs and Increased Revenues

Since subscriber connects, disconnects, and service level changes are controlled remotely, the cable operator experiences fewer truck rolls. Also, with the elimination of set-top terminals for cable-ready televisions, the problem of set-top theft is solved. Both benefits greatly reduce maintenance and product replacement costs.

Ultimate in Signal Security

Instead of scrambling, the interdiction device jams an unauthorized channel by inserting an interfering carrier above the video signal. This jamming carrier obliterates the picture and in many cases masks the audio. The level of jamming can be varied to increase the amount of protection for premium, PPV, and adult programming services.

Different Interdiction Products

The Interdiction products are very similar from a command and control point of view. However, they have very different architectures which result in strengths in different applications (summarized in the following table):

- The VMI contains jammer modules that share the oscillators over multiple subscribers.
- The TVCB utilizes interdiction technology to block unwanted channels, it is a fully integrated unit for a single subscriber.
- The SMI is based on a subscriber module that contains all of the oscillators for one subscriber.

○ Interdiction Product Comparison

	VMI	SMI	TVCB
Number of Ports	4	4 or 8	1
Number of Oscillators	2-14	5	8
Oscillator Configuration (see diagram)	Jammer Modules	Subscriber Modules	Completed Integrated
Oscillator Jamming Range	54-650 MHz in Predefined Bandwidths	120-550 MHz	54-600 MHz
Mounting Configuration	Pedestal, Wall or Strand	Pedestal, Wall or Strand	Pedestal, Wall or Strand
Recommended Application	High Density, High Churn MDUs	Lower Density, Lower Penetration MDUs or Suburban Communities	Single-Family Home Blocks Unwanted Channels
Bandwidth	5-40 MHz Return 54-860 MHz Forward	5-40 MHz Return 54-860 MHz Forward	5-40 MHz Return 54-860 MHz Forward
FSK Transmitter	ITX	ATX	ITX or ITXC
Independent Control of Return Path	As a Group of 4 Ports	Yes	Yes

Addressable Multi-Tap Control System

iCentral & AMT-Central Series



Addressable Subscriber Products are controlled with a Subscriber Management System that consists of a control computer that resides at the cable office and an FSK Transmitter located in the headend. The system provides the means of remotely controlling multiple cable television headends and distribution networks utilizing Interdiction or Addressable Multi-Taps (AMTs).

The Interdiction Subscriber Management System consists of an iCentral computer system and an FSK transmitter to control the following interdiction products: VMI, SMI, and TVCB. The AMT may be controlled either with an iCentral, AMT-Central or Sentinel Software.

The iCentral and AMT-Central are complete Subscriber Management Systems that interface with billing systems via a standard interface (System Manager I/O).

They interface with many billing systems including Cable Data, CSG, Great Lakes Data and Azar. The iCentral may control Interdiction products as well as AMT units. The AMT-Central only controls AMT units.

The iCentral or AMT-Central interfaces directly with the billing system. Either direct RS-232 connections or dial-up modems are used to communicate to the FSK transmitter (the ITX for TVCB or VMIU and the ATX for SMI), providing system configuration for each headend, and subscriber services.

○ Features & Benefits

- Scalable Configuration to Meet Varying Needs
- System Administration-Remote Terminal Access via Service Modem, Multiple Password Levels, Database Reporting Capability
- Standard Billing System Interface Specification
- Ability to Network (TCP/IP) Multiple Computers via Ethernet for Increased Capability
- Subscriber Management- Service Levels, Parental Control, PPV Management for Interdiction Products

○ Specifications

Computer Hardware - Minimum

- Pentium Based PC Compatible
- 64 MB RAM
- 4 GB Hard Drive (SCSI)
- 4mm (DAT) 4 GB Tape Drive (SCSI)
- CD-ROM (SCSI)
- 1.44 MB, 3.5" Floppy Drive
- PCI SCSI Controller
- Digiboard
 - PC/16 em - 16 Port Module
 - 1 with iC108,
 - 2 with iC200,
 - 4 with iC400
 - PC/8 em - 8 Port Module
 - 1 with iC104 only
- SVGA Monitor
 - 15" Non-Interlace,
 - .28 mm dp, Color Monitor
- Mouse
- Keyboard
- Cables
 - DigiBoard 44 Pin Cable (1 per Port Module)
 - Power Cables

Included Hardware

- 28.8 External Modem with Serial Cable

Included Software

- UnixWare Operating System
- iCentral Application

Optional Hardware

- Cables
 - Null Modem Cable
 - Parallel Printer Cable

Intelligent Transmitter

ITX



The Intelligent Transmitter (ITX) provides the data link between the iCentral and the VMI and TVCB Addressable Interdiction Field Units. It also is used with the AMT-Central to control Addressable Multi-Taps.

The ITX accepts control data from the iCentral and transmits the control and maintenance data to the Interdiction Field Units via an FSK modulated data carrier. The ITX maintains the Interdiction Field Unit configuration and complete subscriber database for that headend without the need for direct/continuous communication with the iCentral. The iCentral to ITX data link may be configured for dial-up or direct line connection.

○ Features & Benefits

- Controls VMI, TVCB Interdiction Units, and AMT Addressable Taps
- FSK Modulated Data Carrier Output Available in 4 Different Frequencies

○ Specifications

General

Single Board Computer Interfaces:
Two Serial Communication Ports
iCentral to ITX @19.2 k Baud
ITX to Field Units @9.6 k Baud
Custom Communications Protocol

Power Requirements
Voltage: 117 ±10%VAC

Frequency: 60 Hz
(Uninterrupted Power Supply Recommended)

Temperature Range: 0° to 50° C

Electrical

ITX Carrier Level
(Relative to Video): -10 dB
Carrier Guard Band: ±300 KHz
FM Deviation: ±60 KHz
Carrier Frequencies:
53.0 MHz
104.75 MHz
105.40 MHz
108.90 MHz
112.70 MHz

Mechanical

Dimensions (W x H x D):
483 x 44 x 369 mm

Weight: 2.73 kg

Connectors (Rear Panel)

RF Output: "F" Type Female
Serial Port 1: RJ-9 Male
Serial Port 2: RJ-9 Male

Controls (Front Panel)

RF Level: Control

Indicators (Front Panel)

Data: LED Red
Power: LED Green

Addressable Multi-Tap Unit

Sentinel Series



The Addressable Multi-Port Tap (AMT) is a low cost addressable tap that provides individual on/off control for each tap port. It is controlled with the AMT-Central Subscriber Management System that interfaces with an operators billing system and the Intelligent Transmitter in the headend. It may also be controlled locally with Sentinel Software running on a Windows® PC. The Blonder Tongue addressable lid (AMTL) mates with the Lindsay base (LGTB). The unit uses the same plug-in directional coupler as in the Lindsay LGT Tap product line.

○ Features & Benefits

- 2, 4 or 8 Ports Available
- 1 GHz Bandwidth
- Nine-Inch Housing
- Aerial or Pedestal Mounting
- Addressable Retrofit of Lindsay Electronics LGT Passives
- Plug-In Directional Coupler Module
- RF/AC Bypass Feature
- 37 to 90 VAC Powering

○ Specifications

Electrical

Tap Loss (Lid Only with 0 dB Coupler)

MHz	2 Port	4 Port	8 Port	Unit
5-550	5	9	13	dB
550-750	5.5	9.5	13.5	dB
750-1000	6	10	14	dB

Tap Loss (Complete Unit with 0 dB Coupler)

MHz	2 Port	4 Port	8 Port	Unit
5-550	5.5	9.5	13.5	dB
550-750	6	10	14	dB
750-1000	7	11	15	dB

Return Loss (In, Out) Average:

5-550 MHz: 16 to 18 dB

550-750 MHz: 16 dB

750-1000 MHz: 17 dB

Return Loss (Tap) Average:

5-550 MHz: 16 to 18 dB

550-1000 MHz: 16 dB

Return Loss Minimum:

Avg. -2 dB for All Frequencies

Tap to Tap Isolation

5-750 MHz: 24 dB

750-1000 MHz: 22 dB

On/Off Isolation

5-50 MHz: 70 dB

50-350 MHz: 65 dB

350-550 MHz: 60 dB

550-750 MHz: 55 dB

750-1000 MHz: 50 dB

RFI Shielding: 100 dB min

Hum Modulation

@10 Amps: 70 dB min

@12 Amps: 68 dB min

Data Carrier Frequency Options*:

53.0, 104.75 MHz

Data Carrier Level:

Typ. -10 dBc Relative to Video

0 dBmV @ Tap Output

Mechanical

Dimensions LxWxH:

229 x 89 x 76 mm

Weight:

1.4 kg

Operating Temperature Range:

-40 to +60 °C

Power

Operating Voltage: 37 to 90 VAC

Current Consumption:

2 Port: 27 mA

4 Port: 28 mA

8 Port: 30 mA

Continuous Thru Current:

15 A, @ 90 VAC

Surge Voltage Protection

Hardline: 6 kV @ 3 kA

Dropline: 6 kV @ 200 A

* Please call for availability of other data carrier frequency

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