

# S.I. TECH

## Video, Audio, and Alarm System Modems

01/07/15



Stand Alone Bit-Driver®



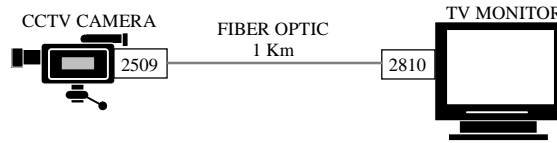
Stand Alone Bit-Driver®

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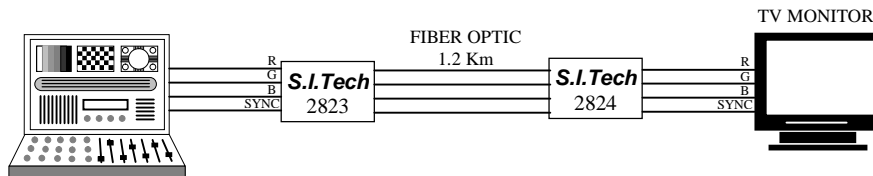
**VIDEO, AUDIO,  
AND  
ALARM PRODUCTS**

## VIDEO, AUDIO, AND ALARM SYSTEMS

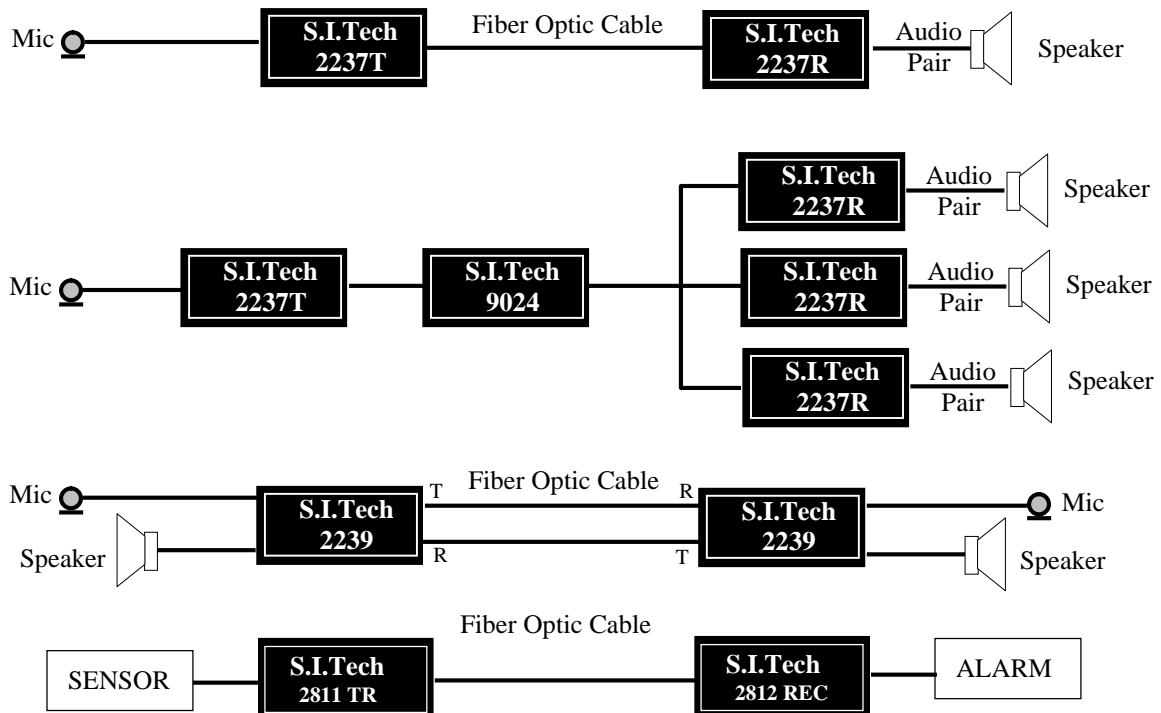
Closed circuit television typically consists of a video camera and a TV monitor that uses a baseband video signal at 6 MHz bandwidth as opposed to broadband video used in cable television or broadcast TV Channels 2 to 900, which uses 950 MHz total bandwidth.



Baseband video is also used with computers. Computer monitors use red, green, blue, and sync pulse schemes. Each color uses a full 6 MHz bandwidth. To remote a computer monitor from a computer, all three colors and sync pulse need to be transmitted from Point A to Point B.



Audio or analog signals are typically low frequency signals usually from 0.03 Hz to 40 KHz range. Voice communications uses these signals. If digitized, audio requires 64 Kbps bandwidth per channel. The standard telephone system uses an analog system. However, all long distance telephone uses digital communication i.e. T1 at 1.54 Mbps (24 Channel voice).



Analog systems are also used for alarm systems or on/off systems such as closing and opening doors. Relay contacts are used.

**TABLE I  
VIDEO, AUDIO, AND ALARM PRODUCTS**

Model No.	Package		Bandwidth bps	Power Option*	Connectors	Fiber Connection		Point to Point	Weight LB/KG	Remarks	
	Stand Alone	Rack Mount				MM	SM				
<b>Video</b>	2379	✓	15M	1,2	BNC	ST	ST	✓	0.4/2	1 or 2 CH, TR Card Video	
	2380	✓	15M	1,2	BNC	ST	ST	✓	0.4/2	1 or 2 CH, REC Card Video	
	2509	✓	15M	6	BNC - F	ST/SMA	ST	✓	.25/1	1 Ch CCTV Xmtr	
	2509IL	✓	15M	6	BNC - F	ST/SMA	ST	✓	.25/1	1 Ch CCTV Xmtr	
	2809	✓	15M	1,2	BNC - F	ST/SMA	ST	✓	2/1	2 to 4 Ch CCVT Video Xmtr	
	2810	✓	15M	1,2	BNC - F	ST/SMA	ST	✓	2/1	2 to 4 Ch CCTV Video Rcvr	
	2823	✓	30M	1,2	BNC - F	ST/SMA	ST	✓	2/1	4 Ch RGB Video Xmtr	
	2824	✓	30M	1,2	BNC - F	ST/SMA	ST	✓	2/1	4 Ch RGB Video Rcvr	
	2829	✓	Digitized Video	1,2	BNC/DB9/RCA	SC	ST	✓	3/1.4	Bi-Directional Video/Audio/Date	
	2830	✓	3.5 Gbps	6	HDMI	SC	SC	✓	.5/2	HDMI to Fiber	
	Kit #6	✓	15M			ST	ST			2809/2810 Kit CCTV	
	Kit #15	✓	Digitized Video			SC	SC			2829 Kit - Security System	
	<b>Audio/ Analog</b>	2237T	✓	40K	1,2	RCA	ST/SMA	ST	✓	3/1.4	Talker - TR Audio
		2237R	✓	40K	1,2	RCA	ST/SMA	ST	✓	3/1.4	Listener - Audio REC
		2239	✓	40K	1,2	RCA	ST/SMA	ST	✓	3/1.4	Two way Audio
Kit #5		✓				ST	ST			Audio Kit - 2237T/2237R/FO Cable	
2311		✓	-	24VDC	Terminal Block	ST	ST	✓	.9/4	Card Version 2811	
<b>Alarm</b>	2312	✓	-	24VDC	Terminal Block	ST	ST	✓	.9/4	Card Version 2812	
	2811	✓	***	+12 VDC	Terminal Block	ST/SMA	ST/SMA	✓	2/1	Transmitter	
	2812	✓	***	+12 VDC	Terminal Block	ST/SMA	ST/SMA	✓	2/1	Receiver	
	2813	✓	***	+12 or 24 VDC	Terminal Block	ST/SMA	ST/SMA	✓	2/1	Transmitter-Receiver	
	Aesfot Kit	✓	-		Terminal Block	ST	ST	✓	6/3	Antenna Control, Military System "Thaad" Program	

\*\*\* 10 Kbps Square Wave

\* Power Options: See "Power Options and How to Order" sheet (p. 106) for options and ordering instructions.

\*\* Pin outs are specified in data sheets

Temperature range 0 - 50 degrees C unless shown otherwise.

Extended Temperature (ET) range available on some products.

**HOW TO ORDER**

Base Model	Power*	Data Connector**	Fiber	
			Multimode (MM)-STD	Temperature
Number XXXX	1. 110 VAC - STD 2. 230 VAC - V 6. See Chart	M or F (F is STD on most models)	ST-STD Other-Specify	0 - 50° C - STD -40 to +80° C - ET Other - Call S.I. Tech

e.g. 2823 = 4 Channel RGB Video Transmitter, 110 VAC, BNC Female, ST Connectors, 0-50 Degrees C

Specifications subject to change without notice.

## CCTV VIDEO TO FIBER OPTIC BIT-DRIVERS®

**2379**



- 1 or 2 CH. CCTV Video Transmitter Card
- Use with 2810 or 2380 Cards
- 3001 rack 19" – hold 12 cards, 24 CH
- Multimode or Single mode

**2380**



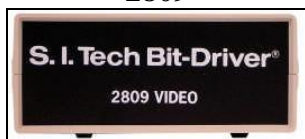
- 1 or 2 CH. CCTV Video Receiver Card
- Use with 2509/2809/2379 Transmitters
- 3001 rack 19" – hold 12 cards, 24 CH
- Multimode or Single mode

**2509**



- Mini Optical CCTV Video Bit-Driver® Transmitter
- System Bandwidth is 10Hz to 15MHz
- Powered by +12VDC from camera or external power supply S.I.Tech 2121 (110VAC/12VDC) or 2164 (230VAC/12VDC)
- Video Connector is 75 ohm BNC Female
- Works with S.I. Tech Model 2810 Receiver
- In Line – Connects to Camera (IL)

**2809**



- Stand Alone Optical CCTV Video Bit-Driver® Transmitter
- System Bandwidth is 10Hz to 15MHz
- Powered by 110V or 230V line cord
- Video Connector is 75 ohm BNC Female
- Works with S.I. Tech Model 2810 Receiver
- Also available as 2809-2, 2809-3 and 2809-4, which are 2, 3 and 4 channels, respectively
- Alternately available in 19 inch Rack

**2810**



- Stand Alone Optical CCTV Video Bit-Driver® Receiver
- System Bandwidth is 10Hz to 15MHz
- Powered by 110V or 230V Line Cord
- Video Connector is 75 ohm BNC Female
- Works with S.I. Tech Model 2509 and 2809 Transmitters
- Also available as 2810-2, 2810-3 and 2810-4, which are 2,3 and 4 channels, respectively
- Alternately available in 19 inch Rack

**2823**



- Stand Alone Optical RGB Video Bit-Driver® Transmitter
- Four Channels; R, G, B and Sync
- System Bandwidth is 10Hz to 30MHz
- Input impedance is 75 ohms. BNC Female Coaxial Connector each channel
- Powered by 115V or 230V Line Cord

## 2824



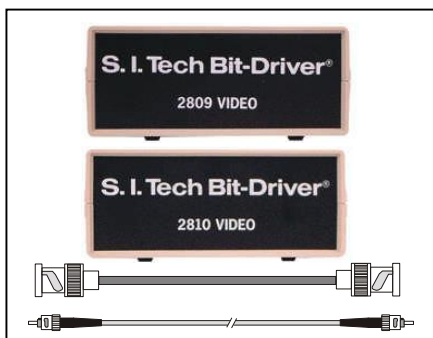
- ❑ Stand Alone Optical RGB Video Bit-Driver® Receiver
- ❑ Four Channels; R, G, B and Sync
- ❑ System Bandwidth is 10Hz to 30MHz
- ❑ Receiver output impedance is 75 ohms. BNC Female Coaxial Connector each Channel
- ❑ Powered by 115V or 230V Line Cord

## 2829



- ❑ Bidirectional Video/Audio/Data to fiber
- ❑ Multimode or Single mode
- ❑ Digitized 8-bit high resolution video Composite, S-Video, or Component
- ❑ Mono or Stereo Audio
- ❑ Data: RS232/422/485/TTL
- ❑ NTSC or PAL Format
- ❑ Color or Black and White
- ❑ Plug and Play
- ❑ AC or DC Power

## Kit #6



- ❑ 1 - 2809 Video Transmitter
- ❑ 1 - 2810 Video Receiver
- ❑ 1 - 5201-010-8255 (10m), 1F multimode, ST/ST FO cable assembly
- ❑ 2 - 75 ohm BNC cable assemblies

## Kit #15



- ❑ Complete CCTV Video Security System Kit
- ❑ 2 - 2829 Bit Driver
- ❑ 1 - 5001-15" LCD TV Monitor
- ❑ 1 - 5010 CCTV Video Color Camera
- ❑ 1 - 7202-300-8264, 300 meter (1000 ft) ruggedized FO cable assembly SC/SC
- ❑ Optional - Camera/TV/Cable length

## HDMI TO FIBER OPTIC BIT-DRIVERS®

### 2830



- ❑ HDMI to Fiber Converter
- ❑ Data rate up to 3.5 Gbps
- ❑ Up to 1000 ft. (300M) with suitable graded index fiber optic cable

## AUDIO (ANALOG) TO FIBER OPTIC BIT-DRIVERS®

### 2237T



- ❑ Stand Alone Optical Audio Transmitter Bit-Driver®
- ❑ System Bandwidth is 10Hz to 20KHz
- ❑ Input impedance is 600 ohms unbalanced
- ❑ Audio terminals on terminal block
- ❑ Powered by 110VAC Line Cord. Add “V” to Model number for 230VAC version, 12-24VDC Option
- ❑ Use with 2237R Audio Receiver

### 2237R



- ❑ Stand Alone Optical Audio Receiver Bit-Driver®
- ❑ System Bandwidth is 10Hz to 20KHz
- ❑ Will drive 8 ohm speaker connected to output terminals
- ❑ Powered by 110VAC Line Cord. Add “V” to Model number for 230VAC version, 12-24VDC Option
- ❑ Use with 2237T and two optical fibers for full-duplex operation

### 2239



- ❑ Two way audio TR/REC Bit-Driver®
- ❑ System Bandwidth is 10Hz to 20KHz
- ❑ Multimode or Single mode
- ❑ AC or DC Power Option

### Kit #5



- ❑ 1 – 2237T Audio Transmitter
- ❑ 1 – 2237R Audio Receiver
- ❑ 1 – 5201-010-8255, 10m 1F ST/ST cable

## ALARM SYSTEM TO FIBER OPTIC BIT-DRIVERS®

### 2311



- Alarm (Sensor) ON/OFF Transmitter
- Card version of 2811
- 3000 Rack
- Multimode or Single mode

### 2312



- Alarm (Sensor) ON/OFF Receiver
- Card version of 2812
- 3000 Rack
- Multimode or Single mode

### 2811



- Stand Alone Optical On-Off Bit-Driver® Transmitter
- Transmits 10KHz Optical square wave when power is applied
- Input power +12VDC to screw terminals
- Must be used with Model 2812 Receiver to complete link
- Multimode or Single mode

### 2812



- Stand Alone Optical On-Off Bit-Driver® Receiver
- Detects 10KHz optical square wave from Model 2811 Transmitter and activates 4PDT relay
- Relay contacts rated 2 Amps, 500VAC between open contacts. Each contact is connected to a screw terminal
- Must be used with Model 2811 transmitter to complete link
- Input power +12VDC to screw terminals
- Multimode or Single mode

### 2813



- Stand Alone Optical On-Off Bit-Driver® Link
- Performs functions of one Model 2811 Transmitter and one Model 2812 Receiver
- Input power +12VDC or +24VDC to screw terminal
- One Model 2813 needed at each end of link

### AESFOT KIT



- Antenna control, Military Systems "THAAD" program
- Multimode or Single mode
- Chassis holds 3 – 2311 or 3 – 2312 and 2 power supplies
- Rack has redundant power supply



# CCTV - Mini Fiber Optic Video Transmitter



Model 2509 is a miniature fiber optic transmitter that attaches directly to a CCTV camera. Power can come from the camera or an optional power supply. (Model 2121)

The Mini 2509 is compatible with 2809/2810 and also with CCTV transmitter/receiver cards in series 1000 and 3001 rack.

- System Bandwidth:** 10 Hz to 15 MHz
- Transmitter Input Impedance:** 75 ohms, BNC bulkhead jack
- Input Voltage:** 1 Vpp
- Receiver Adjustment Range:** 40:1
- Linearity:** 1 percent typical
- Output Load Impedance:** 75 ohms
- Output Voltage:** 2 Vpp into 75 ohm load
- Operating Wavelength:** 820 nanometers\* (1310 nm options)
- Optical Connectors:** ST
- Power Requirements:** 12 volt from camera or external power supply (S.I.Tech #2121)
- Operating Temperature:** 0 °C to 50 °C
- Dimensions:** 1.50" X 1.13" X 0.88"
- Weight:** 0.1 LB (45 grams)

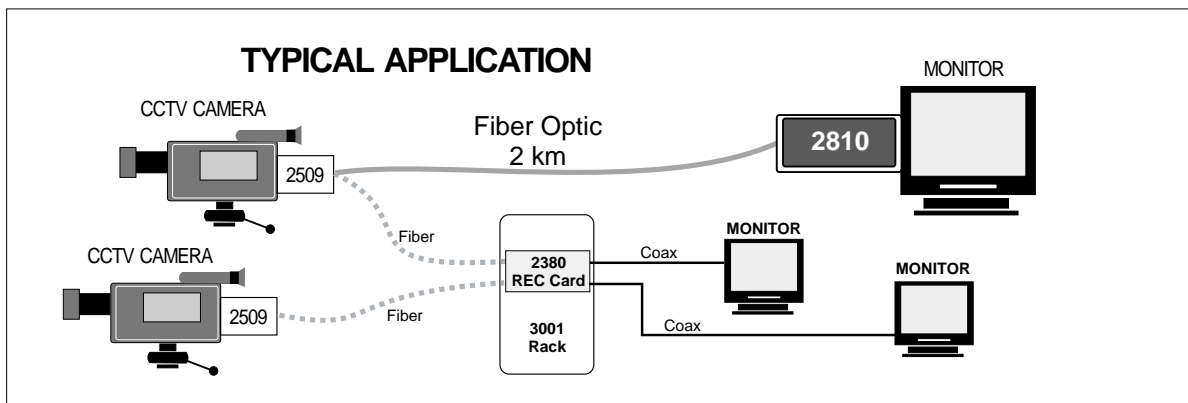
**\*1310 nanometers is an option for long distance mm or sm fiber**

*Specifications subject to change without notice.*

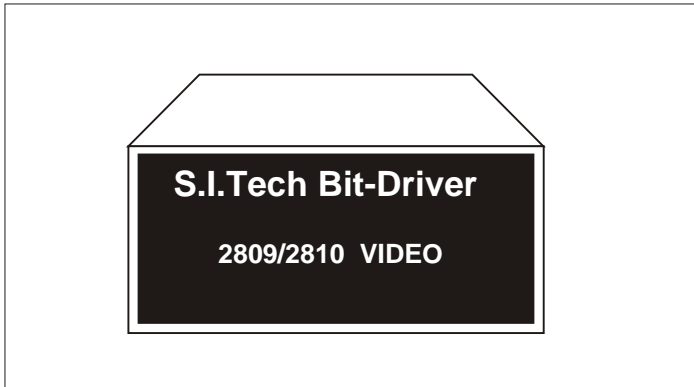
### Operating Distance for Fiber Optic Cable

Fiber Size (Microns)	Attenuation dB/Km	Maximum Feet/Meters
62.5	3.5	6600/2000
50	3.0	6600/2000
10 SM	1.0	33000/10000

SM - Single mode (1300 or 1550 nm option)  
Optical power budget: 10dB typical



## CCTV - Fiber Optic Video System



**Operation Mode:** CCTV video - color or black and white

**System Bandwidth:** 10 Hz to 15 MHz

**Transmitter Input Impedance:** 75 ohms, BNC bulkhead jack

**Input Voltage:** 1 Volt rms

**Receiver Adjustment Range:** 40:1

**Linearity:** 1 percent typical

**Output Load Impedance:** 75 ohms

**Operating Wavelength\*:** 820 nanometers (1300 nm options)

**Optical Connectors:** ST or SMA receptacle

**Operating Temperature:** 0 °C to 50 °C

**Plastic Enclosure:** 6" X 6.5" X 2.75"  
(15.2 X 16.5 X 7 cm)

**Weight:** 2lbs. (1 kg)

**Input Power:** 110 VAC 50/60 Hz

**220 Volt Version:** Model 2809V TR/2810V REC

**Card Version:** 2379/2380 (3000 Rack)

\*1300 nanometers is an option for 5 km or longer system

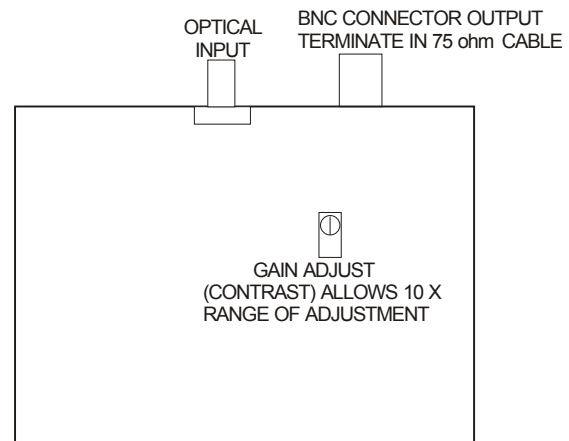
Operating Distance for Fiber Optic Cable

Fiber Size (Microns)	Attenuation dB/Km	Minimum Feet/Meters**	Maximum Feet/Meters
62.5	4.0	0/0	3300/1000
50	3.0	0/0	4000/1200
10 SM	1.0	0/0	66000/10000

SM - Single mode (1300 or 1550 nm option)

\*\* Short lengths of some fiber types can overload the receiver. Longer distance can be used if less bandwidth or higher noise is acceptable. Typical power budget 10dB.

### S.I. Tech 2810 and 2310 Fiber Optic Adjustments



Note: Adjust gain in receiver preamp for desired output (clips at 2 Vpp with 75 ohm load 4 Vpp open circuit)

### How to Order

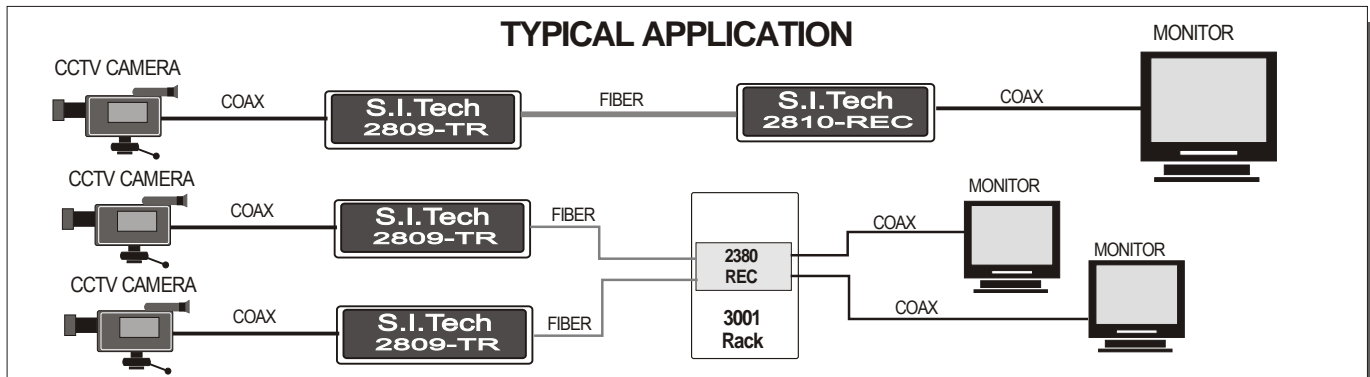
#### Model Numbers

2809	1 Ch. Transmitter, Multimode, 110VAC, ST
2809-2	2 Ch. Transmitter, Multimode, 110VAC, ST
2809-3	3 Ch. Transmitter, Multimode, 110VAC, ST
2809-4	4 Ch. Transmitter, Multimode, 110VAC, ST
2809-SM	1 Ch. Transmitter, Single Mode, 110VAC, ST
2809-2-SM	2 Ch. Transmitter, Single Mode, 110VAC, ST
2809-3-SM	3 Ch. Transmitter, Single Mode, 110VAC, ST
2809-4-SM	4 Ch. Transmitter, Single Mode, 110VAC, ST
2809-V	1 Ch. Transmitter, Multimode, 220VAC, ST
2810	1 Ch. Receiver, Multimode, 110VAC, ST
2810-SM	1 Ch. Receiver, Single Mode, 110VAC, ST
2810-V	1 Ch. Receiver, Multimode, 220VAC, ST

All units are in the same size enclosure. Typically 4 channel units are used for R,G,B, & Sync applications.

*Specifications subject to change without notice.*

### TYPICAL APPLICATION



# Model 2237



## Fiber Optic Audio Link



Models 2237-T and 2237-R provide one-way stereo audio over a single fiber. Typical applications include paging systems, music distribution, and control with audio tones.

The 2237-T has 1/8" (3.5mm) microphone input and stereo line level phono jack inputs. The 2237-T digitizes the audio input into 16-bit samples at 48KHz rate. The microphone input is copied to both channels, the two line inputs remain in respective channels. The digitized stereo audio is transmitted across a single fiber and received at the 2237-R. The 2237-R converts the digitized audio back to analog. The 2237-R has 1/8" headphone jack, line level phono jacks, and speaker phono jacks.

The 2237-T has volume adjustment to maximize the use of the digitized channel. The 2237-R has optical signal loss LED. Both the 2237-T and 2237-R have mute buttons.

Several 2237-R units can be connected to a single 2237-T with the use of a fiber splitter, S.I.Tech Model 9024.

- Audio Bandwidth:** 10 Hz to 20 KHz
- THD:** Better than 1%
- MIC Input:** 350mV rms max into 6 Kohms
- Line Input:** 2V rms max into 10 Kohms
- Headphone Output:** 1V rms max
- Line Outputs:** 0.9V rms into 10 Kohms,  
0.7V rms into 600 ohms
- Speaker Outputs:** 1W max into 8 ohms
- Optical Power Budget:** 10 dB
- Operating Wavelength:** 820 nanometers (1300nm optional)
- Optical Interface:** ST (SMA optional)
- Operating Temperature:** 0°C to 50°C
- Input Power:** 110 VAC 50/60 Hz,  
Optional 230 VAC  
Optional 12-24 VDC
- Metal Enclosure:** 7.375" X 7.625" X 1.875"  
(18.7 X 19.4 X 4.8 cm)
- Weight:** 2lbs. (1 kg)

### Operating Distance for Fiber Optic Cable

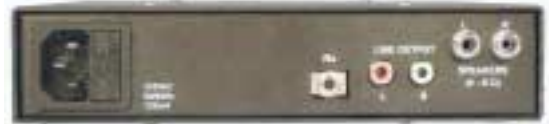
Fiber Size (Microns)	Attenuation (dB/Km)			Distance (Meters)			Distance (Feet)		
	Wavelength (nm)			Wavelength (nm)			Wavelength (nm)		
	850	1300	1550	850	1300	1550	850	1300	1550
50	3.0	1.0	-	2000	6000	-	6600	20000	-
62.5	4.0	1.0	-	2000	6000	-	6600	20000	-
10 SM	-	0.35	0.25	-	10000	12000	-	33000	40000

SM - Single mode option - 1300nm

2237-T Back Panel



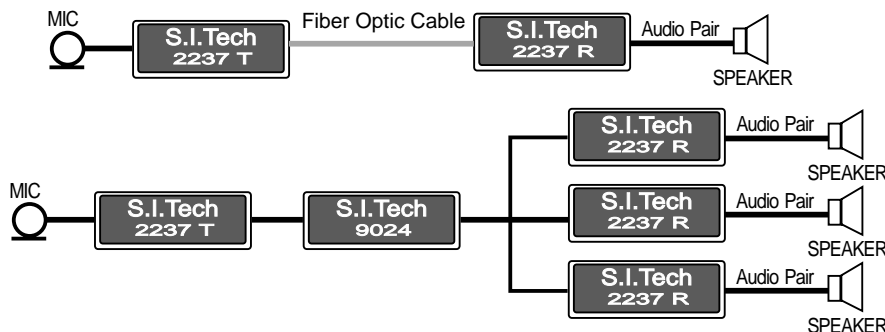
2237-R Back Panel



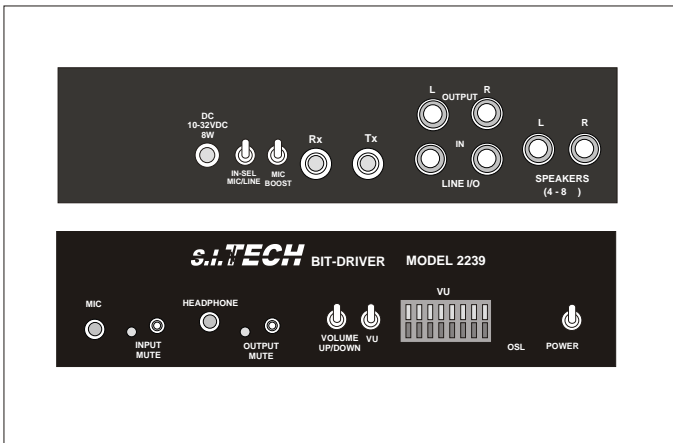
Meets FCC requirements of Class A, Part 15 Computing Devices Standard.  
Specifications subject to change without notice.



### APPLICATION EXAMPLES



# Fiber Optic Two Way Audio Link



Models 2239 provides two-way stereo audio over fiber. Typical applications include paging systems, music distribution, and control with audio tones, two way audio communication.

The 2239 has 1/8" (3.5mm) microphone input and stereo line level phono jack inputs. The 2239 digitizes the audio input into 16-bit samples at 48KHz rate. The microphone input is copied to both channels, the two line inputs remain in respective channels. The digitized stereo audio is transmitted across fiber and received at the 2239. The 2239 converts the digitized audio back to analog. The 2239 has 1/8" headphone jack, line level phono jacks, and speaker phono jacks.

The 2239 has line input volume adjustment to maximize the use of the digitized channel and speaker/headphone volume adjustment. The 2239 has optical signal loss LED. Local and remote 2239 have mute buttons.

- Audio Bandwidth:** 10 Hz to 20 KHz
- THD:** Better than 1%
- MIC Input:** 350mV rms max into 6 Kohms
- Line Input:** 2V rms max into 10 Kohms
- Headphone Output:** 1V rms max
- Line Outputs:** 1.8V rms into 600 ohms
- Speaker Outputs:** 1W max into 8 ohms
- Optical Power Budget:** 10 dB
- Operating Wavelength:** 820 nanometers (1300nm optional)
- Optical Interface:** ST (SMA optional)
- Operating Temperature:** 0°C to 50°C
- Input Power:** 110 VAC 50/60 Hz, Optional 230 VAC, Optional 12-24 VDC, 8 W Max.
- Metal Enclosure:** 7.375" X 7.625" X 1.875" (18.7 X 19.4 X 4.8 cm)
- Weight:** 2lbs. (1 kg)

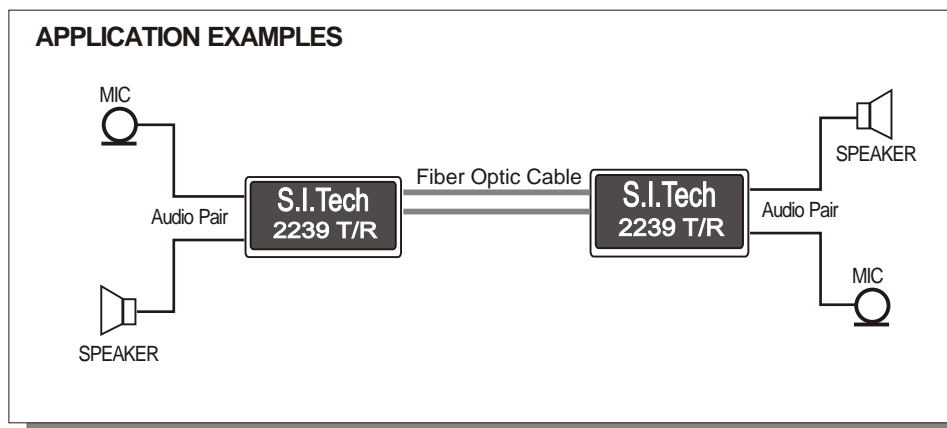
Operating Distance for Fiber Optic Cable

Fiber Size (Microns)	Attenuation (dB/Km)			Distance (Meters)			Distance (Feet)		
	Wavelength (nm)			Wavelength (nm)			Wavelength (nm)		
	850	1300	1550	850	1300	1550	850	1300	1550
50	3.0	1.0	-	2000	6000	-	6600	20000	-
62.5	4.0	1.0	-	2000	6000	-	6600	20000	-
10 SM	-	0.35	0.25	-	10000	12000	-	33000	40000

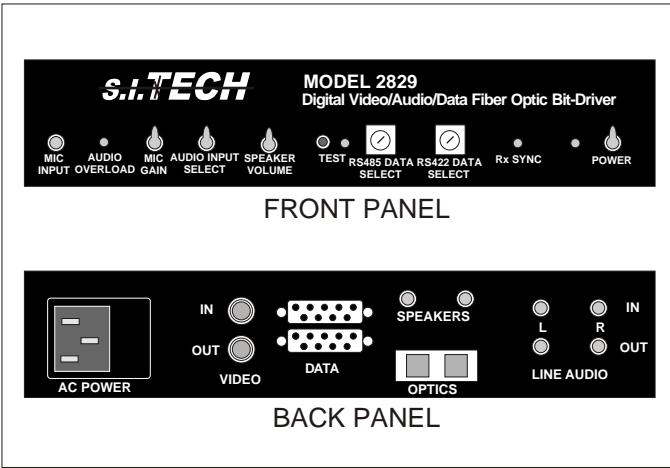
SM - Single mode option - 1300nm

Meets FCC requirements of Class A, Part 15 Computing Devices Standard.

Specifications subject to change without notice.



# Digital Video/Audio/Data Fiber Optic Bit-Driver



**Features:**

- Digitized 8-bit high resolution video
- Mono or stereo audio - digitized audio (24 KHz sampling)
- Digital data links, TTL, RS232, RS422, RS485
- Data rate - TTL: <150KHz, RS232: 0 - 115.2Kbps, RS422, RS485: 1200 - 115.2Kbps
- Options: NTSC, PAL video standards  
Video formats: Composite(CVBS), S-Video, Component(YPrPb)
- Full color or black & white
- Plug and play
- Status indicators PWR, Audio Overload, Receiver Sync, Test
- Long distance capability - see table
- Video: SNR > 40dB
- Audio: Mic or line input, line and speaker output
- Bidirectional video, audio and data
- Can be bidirectional on one fiber
- Multimode or Single mode optics

**Operation Mode:** CCTV Video/Audio/Data

**Video Format:** NTSC or PAL

**Transmitter Input Impedance:** 75 ohms bulkhead jack  
Composite: BNC  
S-Video: Mini-DIN  
Component: RCA Style

**Input Voltage:** 0.5 to 1.6 Vpk-pk

**Linearity:** 1% Typical

**Output Load Impedance:** 75 ohms

**Operating Wavelength:** 820 nanometers (1300 nm option)

**Optical Connectors:** SC receptacle

**Operating Temperature:** 0 °C to 50 °C

**Metal Enclosure:** 7.25" X 7" X 2.0"  
(18.4 X 17.8 X 5.1 cm)

**Weight:** 3lbs. (1.4 kg)

**Input Power:** 110VAC, 220VAC 50/60 Hz, 10-32VDC

**220 Volt Version:** Model 2829V

**Operating Distance for Fiber Optic Cable**

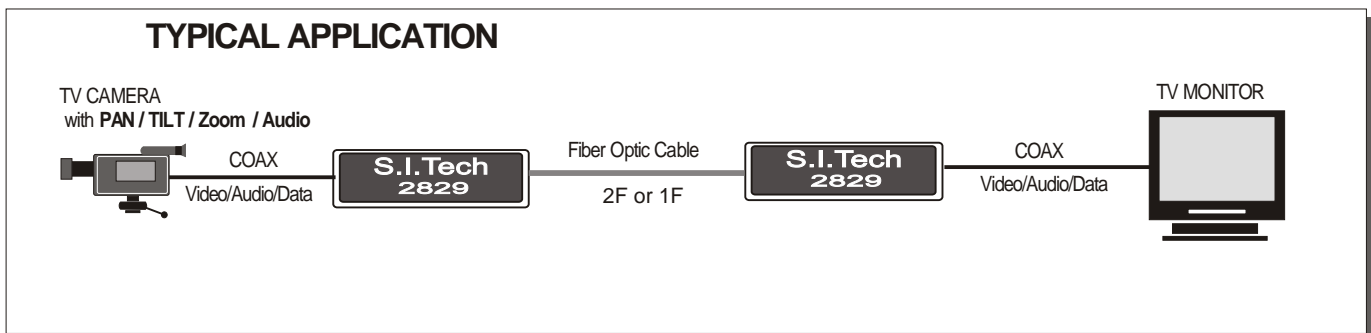
Fiber Size (Micron)	Attenuation dB/Km		Bandwidth MHz/Km		Distance Meters*		Distance Feet*	
	825 nm	1310 nm	825 nm	1310 nm	825 nm	1310 nm	825 nm	1310 nm
50	3.0	1.0	600	1000	1000	2000	3300	6600
62.5	4.0	1.0	200	600	400	1200	1300	4000
10 SM	Unspecified	0.4	Unspecified	Unspecified	----	20000	----	66000

SM - Single mode (1300nm) option

\* At high data rate, both attenuation and bandwidth of the fiber are considered to determine distance limit.

*Specifications subject to change without notice.*

**TYPICAL APPLICATION**



# Model 2830T/R



## HDMI to Fiber Optic Transmitter/Receiver



### SYSTEM

**Transmission:** Up to 1000 ft. (300 M) with suitable graded index fiber optic cable

**Typical Bit Error Rate:** Better than  $10^{-9}$

### ELECTRICAL SIGNAL INPUT/OUTPUT FOR TRANSMITTER

**Format:** HDMI

**Connector:** HDMI

**Data Rate:** Up to 3.5 Gbps

**Input Impedance:** 120

**Input Power:** 5VDC

**System Wavelength:** 850 nm

**Optical Interface:** Transmitter is disabled when fiber is removed

**Optical Connector:** SC

**Operating Temperature:** 0 °C to 50 °C

**Humidity:** 0 to 90% Non-Condensing

**Metal Enclosure Size:** 2.56" X 3.56" X 1.13"  
(6.5 X 9.0 X 2.9 cm)

**Weight:** 0.5lb. (225 grams) Each Unit

### TRANSMISSION LINE INTERFACE

Operating distance is dependent upon optical fiber core diameter and the cable's optical attenuation fiber bandwidth at given data rate. The table below indicates cables that may be used at any data rate.

These cables are available in connectorized assemblies to meet the exact configuration of your application.

S.I.Tech offers complete links including fiber optic cable, connectors, cable assemblies, and Bit-Drivers .

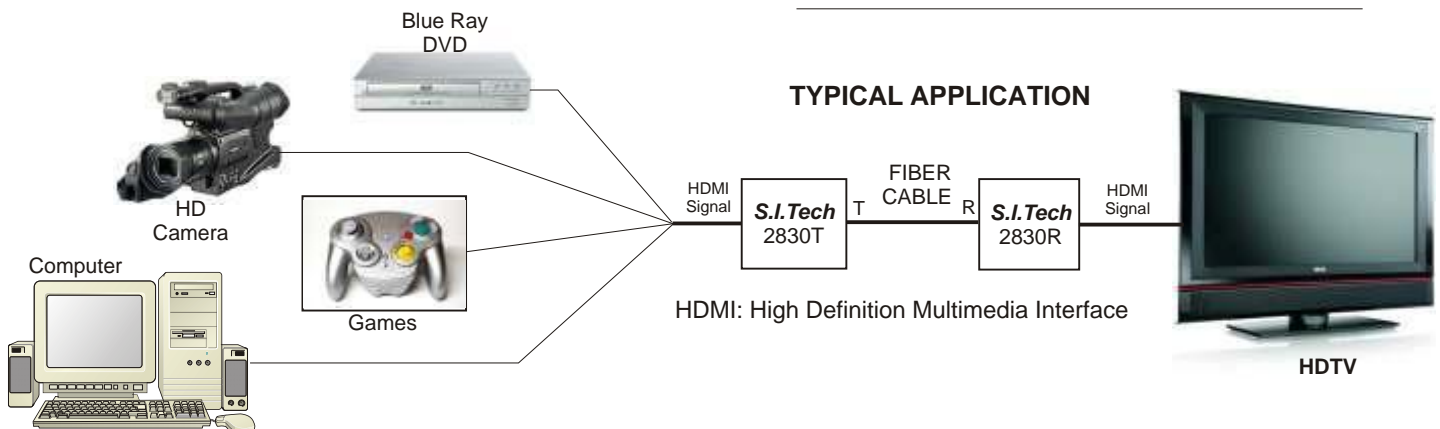
### HDMI to Fiber Bit-Driver Cable Chart

Operating Distance for Fiber Optic Cable				
Data Rate	OM1 fiber (62.5 micron, 160MHz/km) Meters (Feet)	OM2 fiber (50 micron, 500MHz/km) Meters (Feet)	OM3 fiber (62.5 micron, 1000MHz/km) Meters (Feet)	OM4 fiber (50 micron, 1100MHz/km) Meters (Feet)
1.65 Gbps	61 (200)	122 (400)	305 (1000)	344 (1100)
	61 (200)	122 (400)	122 (400)	245 (800)
3.50 Gbps	30.5 (100)	61 (200)	152 (500)	152 (500)
	30.5 (100)	61 (200)	122 (400)	122 (400)
	30.5 (100)	61 (200)	70 (294)	122 (400)

*Meets FCC requirements of Class A, Part 15 Computing Devices Standard.  
Specifications subject to change without notice.*



### TYPICAL APPLICATION



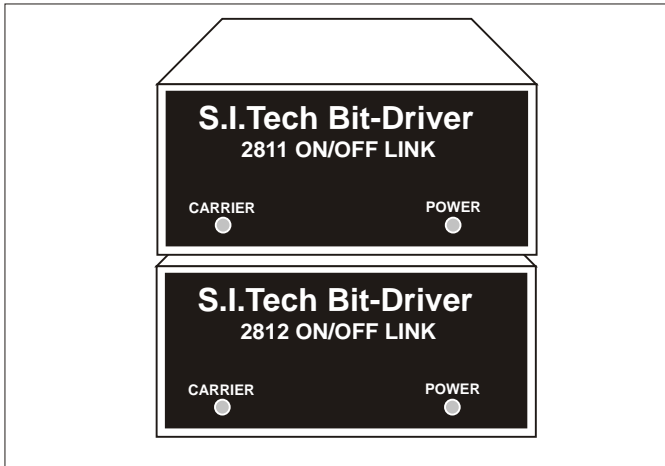
HDMI: High Definition Multimedia Interface

HDTV

# Model 2811 TR/2812 REC



## ON-OFF Fiber Optic Link



The S.I.Tech Model 2811 TR transmits a 10 KHz optical square wave over optic fiber when power is applied and control input shorted. The 2812 receiver detects this optical square wave and turns ON a 4PDT relay. If the fiber cable is removed, broken, or the remote transmitter or local receiver loses power, the relay in the local receiver will turn OFF.

The 4 sets of Form C (4PDT) relay contacts are provided on the rear panel via screw terminal blocks. The power input (+12 VDC or +24VDC) is also via screw terminals.

The fiber optic input/output is provided on the rear panel via ST receptacles, 905/906 compatible SMA receptacles are available as an option.

The front panel contains 2 indicator LEDs, a power ON indicator and a CARRIER (10 KHz detected) indicator.

- Operation Mode:** Simplex
- Operating Wavelength:** 820 nanometers (1300 nm option)
- Optical Connector:** ST or SMA
- Power Requirements:** See Chart 1
- Input/Output:** See Chart 2
- Optical Power Budget:** 10<sub>dB</sub>
- Operating Temperature:** 0 °C to 50 °C
- Altitude:** Less than 10,000 ft.
- Plastic Enclosure:** 6" X 6.5" X 2.75"  
(15.2 X 16.5 X 7 cm)
- Weight:** 2 lbs. (1 kg)
- Mean Time Between Failure:** MTBF @ 25°C = 800,000 hours  
MTBF @ 50°C = 300,000 hours  
[Calculated using Belcore method]

*Meets FCC Requirements of Class A, Part 15 Computing Device Standard.  
Specifications subject to change without notice.*

Operating Distance for Fiber Optic Cable

Fiber Size (Microns)	Attenuation dB/Km	Maximum Distance Feet/Meters
62.5	4.0	6600/2000
50	3.0	6600/2000
10 SM	1.0	16000/5000

SM - Single mode (1300nm) option

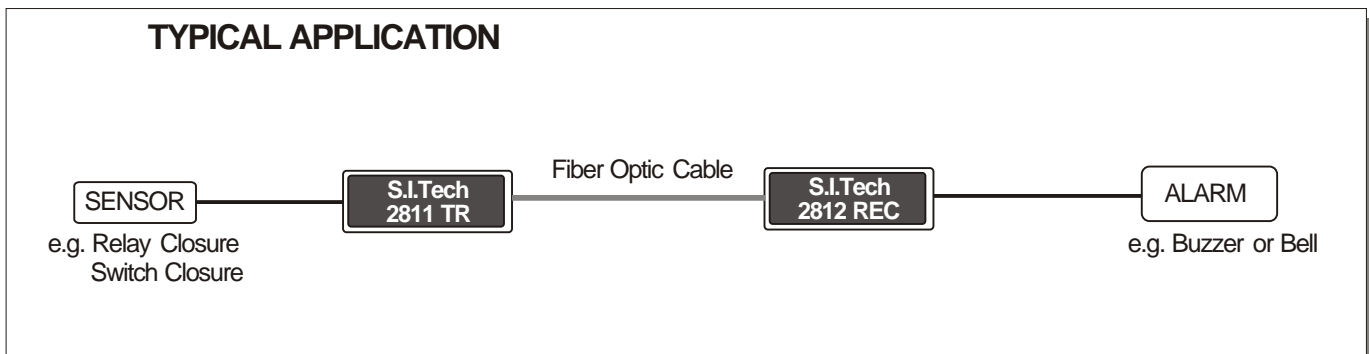
Chart 1: Maximum Power Requirements

Input	2811	2812
+12VDC	50mA	200mA
+24VDC	50mA	200mA

Chart 2: 2811and 2812 I/O Ratings

2811 Control Input	0 to 500 Closure Isolated from Power or Ground
2812 Contact Ratings Resistive Loads	Maximums
Switching Power	60W, 125VA
Switching Voltage	220VDC, 250VAC
Switching Current	2A
Carrying Current	3A

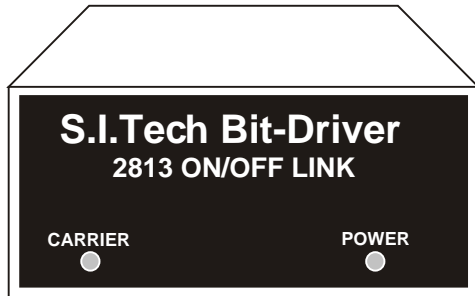
### TYPICAL APPLICATION



# Model 2813



## ON-OFF Fiber Optic Link



The S.I.Tech Model 2813 ON-OFF fiber optic link contains a fiber optic transmitter that generates a 10 KHz optical square wave. The 2813 fiber optic receiver detects a 10 KHz optical square wave and turns ON a relay. The relay provides 3 sets of Form C (3PDT) relay contacts available on the rear panel via screw terminals. The power input (+24 VDC or +12 VDC) is also via screw terminals.

When power is applied to the Model 2813, the receiver becomes active. If the receiver detects the optic signal it will operate the relay. The transmitter is turned on by an external switch across the input screw terminals. If the fiber cable is broken or removed, the relay will release. The fiber optic input/output is provided on the rear panel via ST receptacles, 905/906 compatible SMA receptacles are available as an option.

The front panel contains 2 indicator LEDs, a green power ON indicator and a green CARRIER (Receiver 10 KHz detected) indicator.

- Operation Mode:** Full duplex or simplex
- Operating Wavelength:** 820 nanometers (1300 nm option)
- Optical Connector:** ST or SMA
- Power Requirements:** +24 VDC or +12VDC @ 250 mA
- Output:** 3 Form C Relay Contacts  
See Chart 1
- Optical Power Budget:** 50 micron fiber, 6 dB  
100 micron fiber, 14 dB
- Operating Temperature:** 0 °C to 50 °C
- Plastic Enclosure:** 6" X 6.5" X 2.75"  
(15.2 X 16.5 X 7 cm)
- Weight:** 2lbs. (1 kg)

Operating Distance for Fiber Optic Cable

Fiber Size (Microns)	Attenuation dB/km	Maximum Distance Feet/Meters
62.5	4.0	6600/2000
50	3.0	6600/2000
10 SM	1.0	16000/5000

SM - Single mode (1300nm) option

Chart 1: Contact Ratings (Resistive Load)

Max Switching Power	60W / 125VA
Max Switching Voltage	220VDC, 240VAC
Max Switching Current	2ADC, 2A AC
Max Carrying Current	3ADC, 3A AC

*Meets FCC Requirements of Class A, Part 15 Computing Device Standard.  
Specifications subject to change without notice.*

### TYPICAL APPLICATION

