Card Cage (Signal Distribution System)

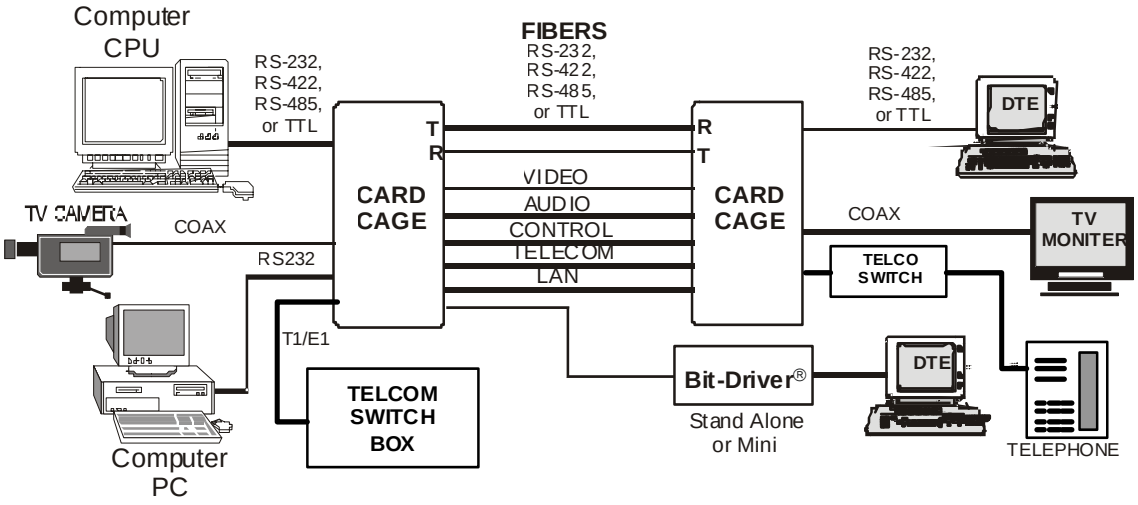
02/12/14

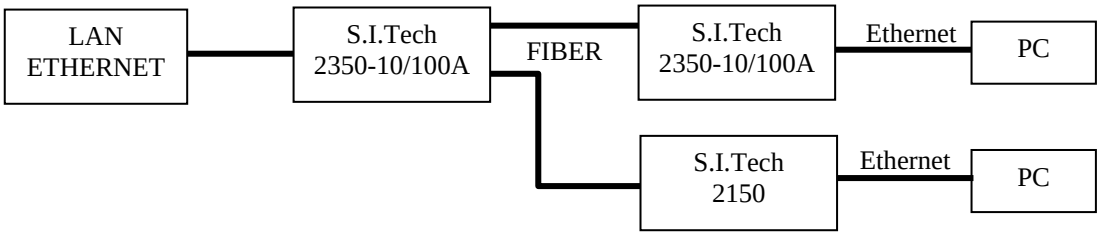
Series 3001 Rack

USA & International Headquarters
1101 N. Raddant Road
Batavia, IL 60510
Phone: (630) 761-3640 Fax: (630) 761-3644
Web Site: http://www.sitech-bitdriver.com

SIGNAL DISTRIBUTION SYSTEMS

SIGNAL DISTRIBUTION SYSTEMS





S.I. Tech Inc., Batavia, IL 60510 Phone: (630) 761-3640 Fax: (630) 761-3644
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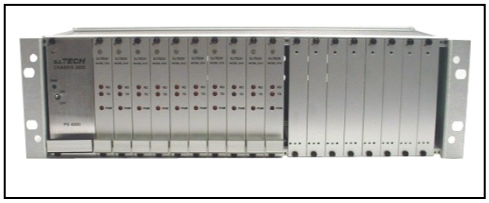
SIGNAL DISTRIBUTION SYSTEMS

SERIES 1000 NON-MUXED

- Card cage to mount in standard 19 inch rack to support various Bit-Driver® products
- Designed to hold up to 12 Eurocard size interface cards plus 2 power supply cards
- Supports Video, Analog, TTL, RS232, RS422, and MIL-188-114 Bit-Drivers®. See individual categories for card details
- Overall height 7 inches, overall depth 15 inches
- Configuration is Point to Point
- 110 VAC or 230 VAC Input Power

SERIES 3000

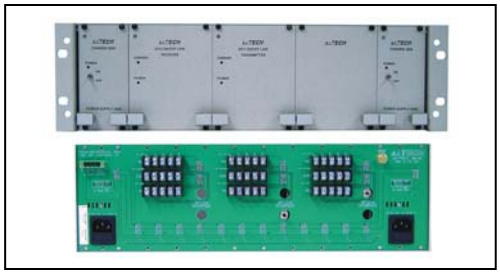


- Card cage to mount in standard 19 inch rack to support various Bit-Driver® products
- Model 3000 A is 9 inches deep and 4.5 inches tall to accommodate up to 16 Eurocard size cards plus 2 power supplies
- Model 3000 B is 12 inches deep and 4.5 inches tall to accommodate up to 16 American Standard Size cards plus 2 power supplies
- Supports RS232, RS422, RS485, Video, and several proprietary configuration Bit-Drivers®. See individual categories for card details – Point to Point Configuration
- 110 VAC or 230 VAC Input Power

MODEL 3001*

- Card cage to mount in standard 19” rack to support various Bit driver products such as RS232/T1/E1/Ethernet/Video various power supplies.
- 3001 rack holds a total of 12 Eurocard size cards with 1 or 2 power supplies. Cards can be mix or match.
- All connectors on back of rack for easy access
- Power supply with alarm for failure
- Power – 110/230VAC or 48VDC

MODEL 3000 AESFOT*



- The model 3000 AESFOT card cage is special designed to allow the use of fiber optics for ON/OFF control in a rack. Each individual Bit-Driver card is fully compatible with stand-along Bit-Drivers.
- 2311 – ON/OFF Link Transmitter
- 2312 – ON/OFF Link Receiver

FIBER CLUSTER®

9024

- 4 to 24 Port Passive Optical Star to distribute signals up to 24 workstations
- Totally Passive Optical Network
- 19” Rack Mountable
- Bi-directional or unidirectional

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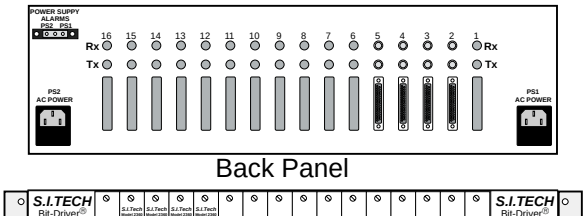
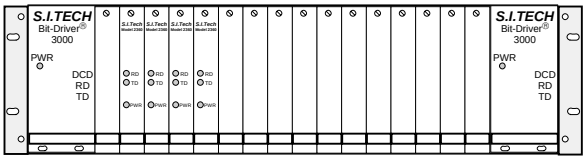
Model 3000

S.I.TECH

Fiber Optic or Metallic Bit-Driver® Card Cage



Back Panel



Front Panel

S.I.Tech Model 3000 Card Cage is a unique concept that allows the use of fiber optic and metallic Bit-Drivers®, either asynchronous or synchronous, in a single rack. Each individual Bit-Driver card is fully compatible with stand-alone Bit-Drivers. For performance specifications, see stand-alone model shown in the product chart below.

A total of 16 cards can be used in the 3000 Card Cage along with a power supply. Models 2330 and 2331 cards allow one or two Bit-Drivers on a card for up to 32 metallic Bit-Drivers in a cage. The rack power supply has AC or DC power with failure alarm built-in. Optionally, a redundant power supply can be added.

Each modem is equipped with a status indicator for Transmit Data (TXD), Receive Data (RXD), Data Carrier Detect (DCD), and a multiple DCD indicator for modems in a digital multi-drop configuration.

Operation Mode: Asynchronous or Synchronous; fiber optic or metallic; simplex or full duplex; individual cards compatible with stand-alone Bit-Drivers®

Input/Output Interface: See table

Transmission Line Interface: ST or SMA fiber optics, Balanced two-pair metallic circuit

Transmission Distance: Up to 20,000 ft. metallic, fiber optics matched to customer requirements up to 5 miles (8 Km)

Operating Temperature: 0 ^{o}C to 50 ^{o}C

Power Supply: 110 or 230 VAC, 50 or 60 Hz option, or 24 to 72 VDC option, redundant power supply option. UL, CSA, and IEC listed

19"(48.3 cm) Metal 16 Slot Card Cage Size: A) 9" deep x 2" to 4.5" height adjustable, Eurocard (23 x 5 to 11.4 cm)
B) 12" deep x 2" to 4.5" height adjustable, American Standard (30.5 x 5 to 11.4 cm)

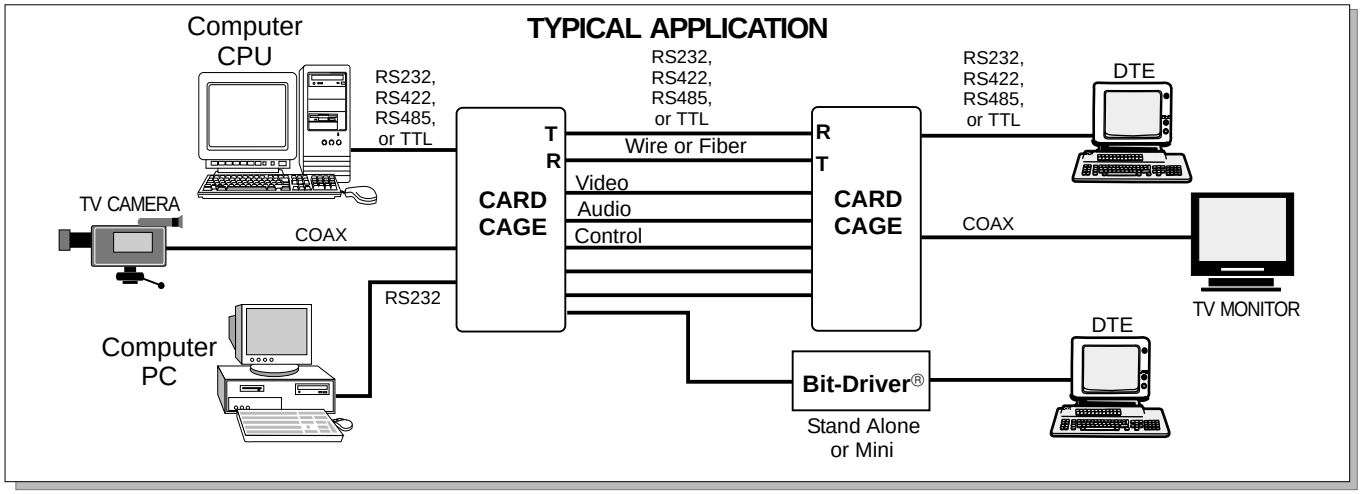
Meets or exceeds FCC requirements of Class A, Part 15 Computing Device Standard.
Specifications subject to change without notice.

BIT-DRIVER® CARD CHOICES

Model #	Description	Rack #	Card Size	Stand-Alone Model #
Fiber				
2304	RS-232 Synchronous	B	AS	2004
2305A	RS-232 Asynchronous	A	E	2005 (2505-mini)
2310	RS-485 Async. - JCI	A	E	2110-mini
2314	Video TR-2 Channel	B	AS	
2315	Video REC-2 Channel	B	AS	
2316	RS485 Asynchronous	A	E	2616
2322	RS-422 Asynchronous	A	E	2012 (2106-mini)
2336	IBM Twinax to Fiber	B or A	AS or E	2836
2345	RS-485 Async. - JCI	A	E	2110-mini
2353	ARCNET to Fiber	B or A	AS or E	2853
2360	RS-232 Async	A	E	2560
2361	RS-422 Async	A	E	2561
2362	RS-485 Async	A	E	2562
2370	IBM Coax to Fiber	B or A	AS or E	2870
2376	RS-422 Asynchronous	A	E	2176-mini
2385	RS-485 Asynchronous	A	E	2110-mini
Metallic				
2325	RS-232 Asynchronous	B	AS	2025 (2526-mini)
2330	RS-232 Async - 2 CH	A	E	2025 (2526-mini)
2331	RS-232 Asynchronous	A	E	2025 (2526-mini)

Card Size: AS - American Standard 4.5" X 10" (11.4 X 25.4 cm),
E - Eurocard 3.9" X 6.8" (9.9 X 17.3 cm)
Mother Board Model #3500: Different mother boards are required depending upon cards chosen
#3520: Used only with 2310 Bit-Driver
Power Supply Model #4000: A - 110 VAC 60 Hz, B - 230 VAC 50 Hz, C - 48 VDC

TYPICAL APPLICATION

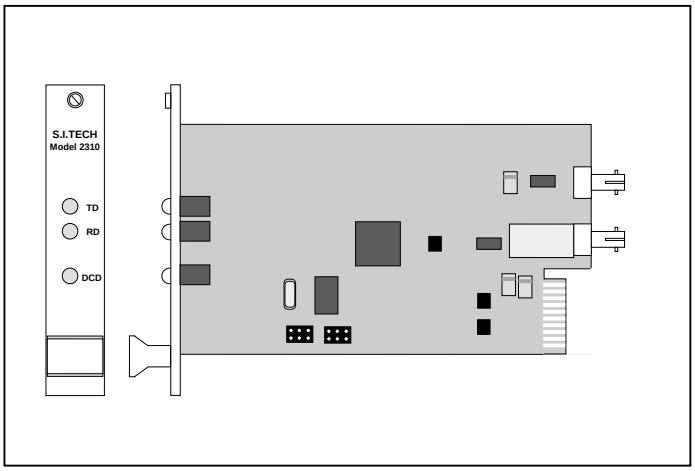


For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2310

S.I.TECH

Optical Asynchronous Bit-Driver® Point to Point



Features:

- 0 to 56 Kbps asynchronous half duplex operation
- 6600 ft. (2 Km) distance capability
- 0 ^{O} C to + 50 ^{O} C operating range
- ST connector receptacle (SMA option)
- Designed to work with Johnson Controls System and with S.I.Tech Model 2110
- To be used with bussed motherboard 3520, power supply 4000, and series 3000 rack

Operation Mode: Asynchronous, half duplex RS-485

Input/Output Interface: Asynchronous at 0 to 56 Kbps (data rate must be set at factory)

Transmission Line Interface: ST connector is standard for interfacing with fiber optic cable (SMA option)

Transmission Distance: 6600 ft. (2 Km)

Optical Power into a 50 Micron Core Optical Fiber: 5 microwatts, 10 dB power budget @ 880 nanometers (High power option)

Receiver Sensitivity: 250 nanowatts at less than 10 $^{-9}$ bit error rate

Operating Temperature: 0 ^{O}C to 50 ^{O}C

Enclosure: 19" rack

Card Size: Eurocard 3.9" x 6.8" (9.9 x 7.3 cm)

Weight: 0.5 lb (200 grams)

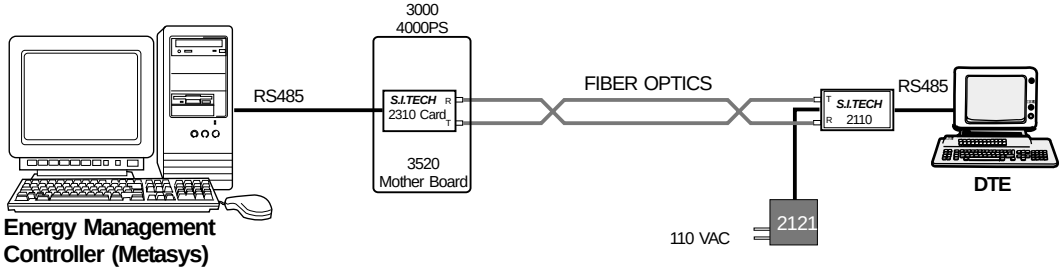
Termination: Last device on RS-485 bus should be terminated

OPERATING DISTANCE FOR FIBER OPTIC CABLE

Fiber Size (Microns)	Attenuation dB/Km	Distance Meters*	Distance Feet*
50	3.0	2000	6600
62.5	4.0	2000	6600
100	5.0	2000	6600
10 SM**	1.0	7000	23000

* High power option available
** Single Mode 1300 nm option

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



Metasys is a registered trademark of Johnson Controls Inc.

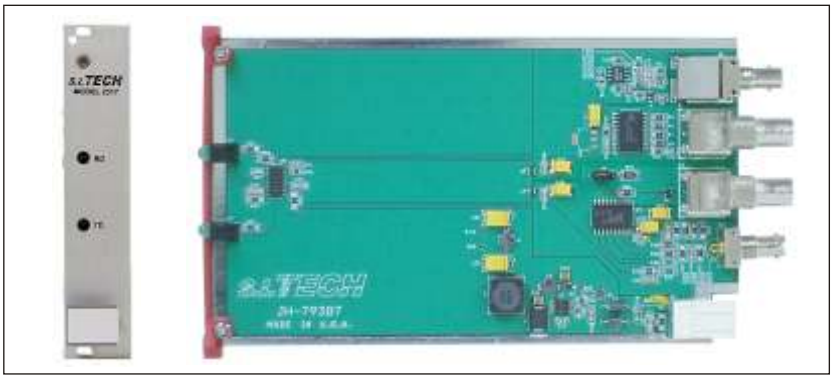
TYPICAL APPLICATION

For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2317

S.I.TECH

TTL to Fiber Optic Transmitter/Receiver



SYSTEM

Transmission: Up to 6500 ft. (2 Km) with suitable graded index fiber optic cable or 10 Km using single mode fiber

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

ELECTRICAL SIGNAL INPUT/OUTPUT FOR TRANSMITTER AND RECEIVER

Format: TTL

Connector: BNC

Data Rate: Up to 50 Mbps

Input Impedance: TTL levels 10 KΩ or 75Ω*

Output Impedance: TTL levels into 50Ω

Input Power: 10-32 V 1W Max.
Optional 5VDC 1W

*Jumper J4
Position 1: 75Ω (Default)
Position 3: 10 KΩ

OPTICAL TRANSMITTER

Power: 30 microwatts (-15 dBm) into 62.5 micron fiber

Wavelength: 820 nanometers (1300nm or 1550nm option)

Emitter Type: LED

Optical Connector: ST

OPTICAL RECEIVER

Wavelength: 820 nm (1300 & 1550 nm option)

Minimum Sensitivity: (BER ≤ 10^{-9}) 3 microwatt (-25 dBm) @ 820 nanometers

Maximum Sensitivity: 10 microwatts

Optical Connector: ST

Operating Temperature: 0 ^{o}C to 50 ^{o}C (optional extended temp for multimode)

Size: 3.9" X 6.8" (9.9 X 17.3cm) Eurocard

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

TRANSMISSION LINE INTERFACE

Operating distance is dependent upon optical fiber core diameter and the cable's optical attenuation. The table below indicates three 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 â .

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

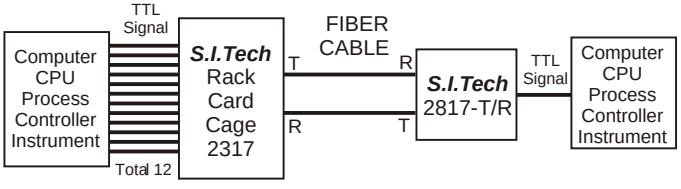
* Single mode (1300 and 1550 nm) option

Optical unit connection: Connect the optical transmission line to the T and R receptacles. Note which cable channel goes to T or R by noting cable imprint. On the other end, reverse the connection.

RELATED PRODUCTS

Model Numbers	
2317	TTL to Fiber, Transmitter/Receiver, Multimode, ST Connector
2317-SM	TTL to Fiber, Transmitter/Receiver, Single mode, ST Connector
2817	TTL to Fiber, Transmitter/Receiver, Multimode, ST Connector
2817-SM	TTL to Fiber, Transmitter/Receiver, Single mode, ST Connector
2817-T	TTL to Fiber, Transmitter, Multimode, ST Connector
2817-R	TTL to Fiber, Receiver, Multimode, ST Connector
2817-T-SM	TTL to Fiber, Transmitter, Single mode, ST Connector, 1300nm
2817-R-SM	TTL to Fiber, Receiver, Single mode, ST Connector, 1300nm

TYPICAL APPLICATION



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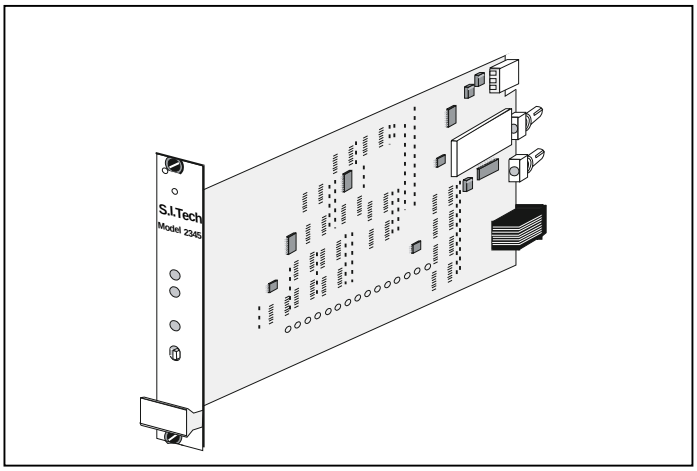
Model 2345

S.I.TECH

Optical Asynchronous Bit-Driver® Point to Point



Features:

- 9.6 Kbps asynchronous half duplex operation
- 6600 ft. (2 Km) distance capability
- 0 ^{O}C to + 50 ^{O}C operating range
- ST connector receptacle (SMA option)
- Designed to work with Johnson Controls System and with S.I. Tech Model 2110

Operation Mode: Asynchronous, half duplex RS-485 (8-pin RJ-45)

Input/Output Interface: Asynchronous at 9.6 Kbps

Transmission Line Interface: ST connector is standard for interfacing with fiber optic cable (SMA option)

Transmission Distance: See distance chart

Optical Power into a 50 Micron Core Optical Fiber: 5 microwatts, 10 dB power budget @ 820 nanometers (High power option & 1300nm option)

Receiver Sensitivity: 250 nanowatts at less than 10 $^{-9}$ bit error rate

Operating Temperature: 0 ^{O}C to 50 ^{O}C

Enclosure: 19" rack

Card Size: Eurocard 3.9" x 6.8" (9.9 x 7.3 cm)

Weight: 0.5 lbs (200 grams)

Termination: A switch is provided to terminate RS-485 line

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

OPERATING DISTANCE FOR FIBER OPTIC CABLE

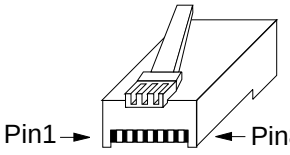
Fiber Size (Microns)	Attenuation dB/km	Distance Meters*	Distance Feet*
50	3.0	2000	6600
62.5	4.0	2000	6600
10**	1.0	7000	23000

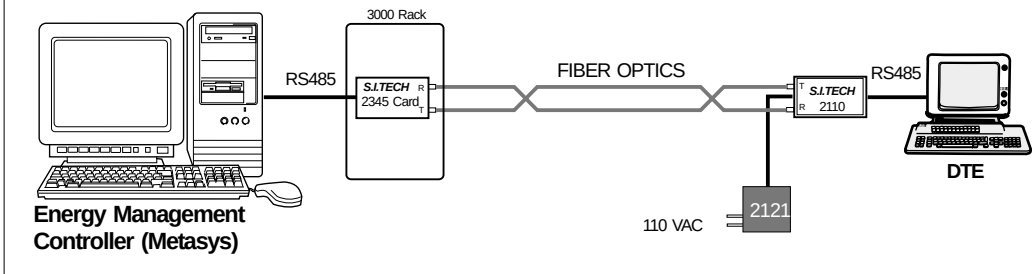
* High power option available
** Single Mode - 1300 nm option (Order 2345-SM)

RS - 485 PINS UTILIZED BY 2345 CARD
RJ-45 CONNECTOR (FEMALE)

Pin No.	Description	Symbol
1	No Connection	N/C
2	No Connection	N/C
3	No Connection	N/C
4	Data (Positive)	D +
5	Data (Negative)	D -
6	No Connection	N/C
7	Ground	GND
8	No Connection	N/C

RJ-45 Connector (Male)





Metasys is a registered trademark of Johnson Controls Inc.

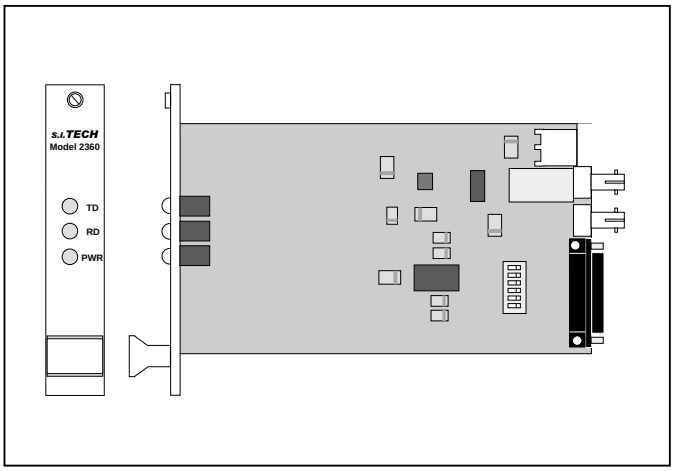
TYPICAL APPLICATION

For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2360

S.I.TECH

Optical Asynchronous Bit-Driver® Point to Point



Features:

- Up to 115 Kbps asynchronous operation on fiber optic cable, simplex or full duplex operation with handshaking
- 2 full duplex control signals
- See distance chart
- –40 °C to +80 °C operating range (–20 to +60 °C SM)
- Metal ST connector receptacle (SMA option)
- LED indicators for transmit and receive data and Power
- Female RS-232C (V.24) connectors
- Complies with IEEE C37.90.1
- IEC 801 Surge Protection

Operation Mode: Asynchronous, simplex or full duplex

Input/Output Interface: RS-232-C, asynchronous with 2 control lines

Transmission Line Interface: Metal ST connector is standard for interfacing with fiber optic cable (SMA option)

Transmission Distance: See Chart

Optical Power into a 50 Micron Core Optical Fiber: 30 microwatts, 10 dB power budget* @ 820 nanometers *(High power & 1300nm options)

Receiver Sensitivity: 3 microwatts at less than 10^{-9} bit error rate

Operating Temperature: -40 °C to +80 °C (-20 to +60 °C SM)

Enclosure: 19" rack holds 16 cards

Card Size: Eurocard 3.9" x 6.8" (9.9 x 7.3 cm)

Weight: 0.5 lb (200 grams)

Mini Version: S.I.Tech # 2560

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

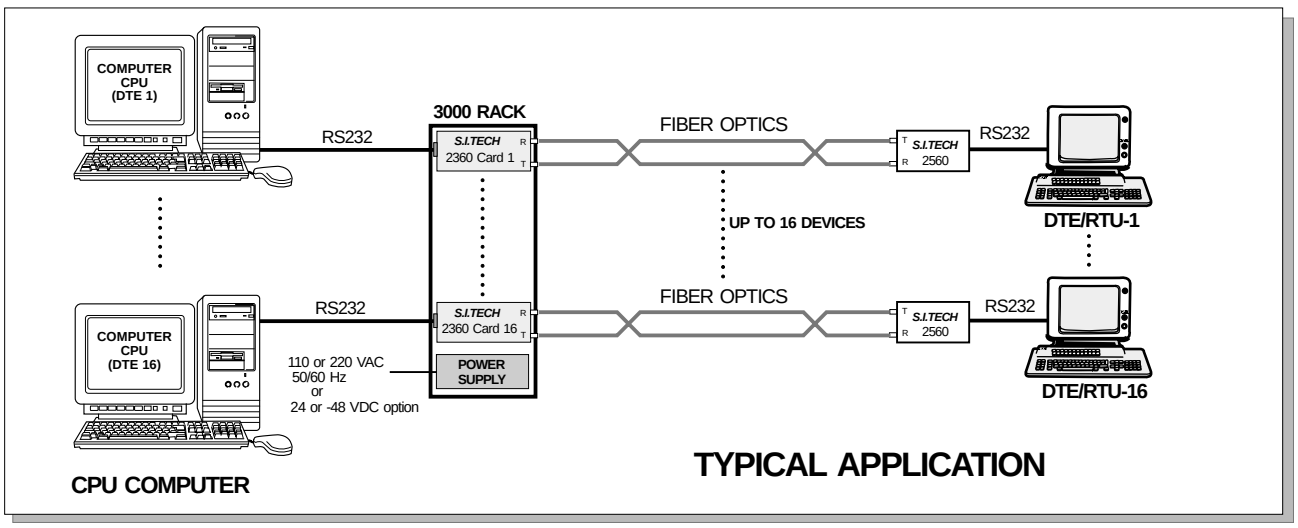
RS - 232 CONNECTOR PINS UTILIZED BY 2360 CARD (FEMALE)

Pin No.	EIA DESIG.	Description	Symbol	DTE DCE
1	AA	Protective Ground	Chassis Ground	◄►
2	BA	Transmitted Data	TXD	►
3	BB	Received Data	RXD	◄
4	CA	Request to Send	RTS	►
5	CB	Clear to Send	CTS	◄
6	CC	Data Set Ready	DSR	◄
7	AB	Signal Ground	Sig. Gnd.	◄►
20	CD	Data Terminal Ready	DTR	►

OPERATING DISTANCE FOR FIBER OPTIC CABLE

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

* High power option available. SM - Single Mode option (1300nm)
Optical unit connection: Connect the optical transmission line to the T and R receptacles. Note which cable channel goes to T or R by noting cable imprint. On the other end, reverse the connection.



TYPICAL APPLICATION

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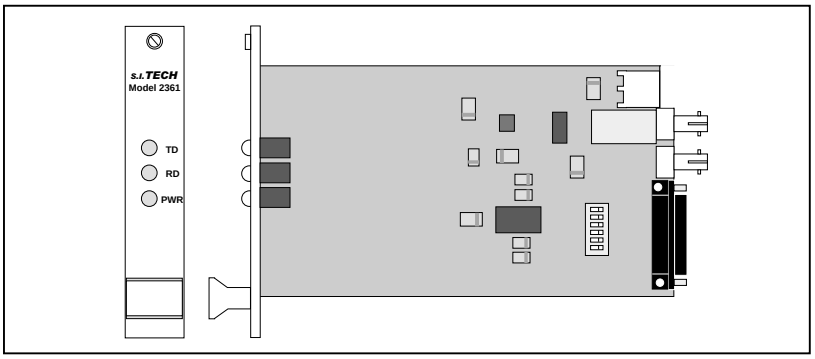
Model 2361

S.I.TECH

Optical Asynchronous Bit-Driver ®



Features:

- Up to 115 Kbps asynchronous operation on fiber optic cable, simplex or full duplex operation
- –40 ^{O}C to + 80 ^{O}C operating range**
- Metal ST connector receptacle (SMA option)
- LED indicators for power, transmit, and receive data
- Female DB25 connector
- Complies with IEEE C37.90.1
- IEC 801 Surge Protection
- Panel Mounting Brackets, two mounting locations
- Conformal coating
- See distance chart

Operation Mode: Asynchronous, simplex or full duplex

Input/Output Interface: RS-422, DB25F connector

Transmission Line Interface: Metal ST connector is standard for interfacing with fiber optic duplex cable (SMA option, SC and FC option for SM)

Transmission Distance: See Chart

Optical Power into a 62.5 Micron Core Optical Fiber: 30 microwatts, 10 dB power budget @ 820 nanometers (1300 nm Option)

Receiver Sensitivity: 3 microwatts at less than 10^{-9} bit error rate

Operating Temperature: -40 ^{O}C to +80 ^{O}C for Multimode
-20 ^{O}C to +60 ^{O}C for Single mode

Humidity: 0 to 90% Non Condensing

Enclosure: 19" Rack holds 16 cards

Card Size: Eurocard 3.9" X 6.8" (9.9 X 7.3 cm)

Weight: 0.5 lb. (200 grams)

Mini Version: S.I.Tech# 2561

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

RS - 422 CONNECTOR PINS UTILIZED BY 2561 MINI BIT - DRIVER (FEMALE)

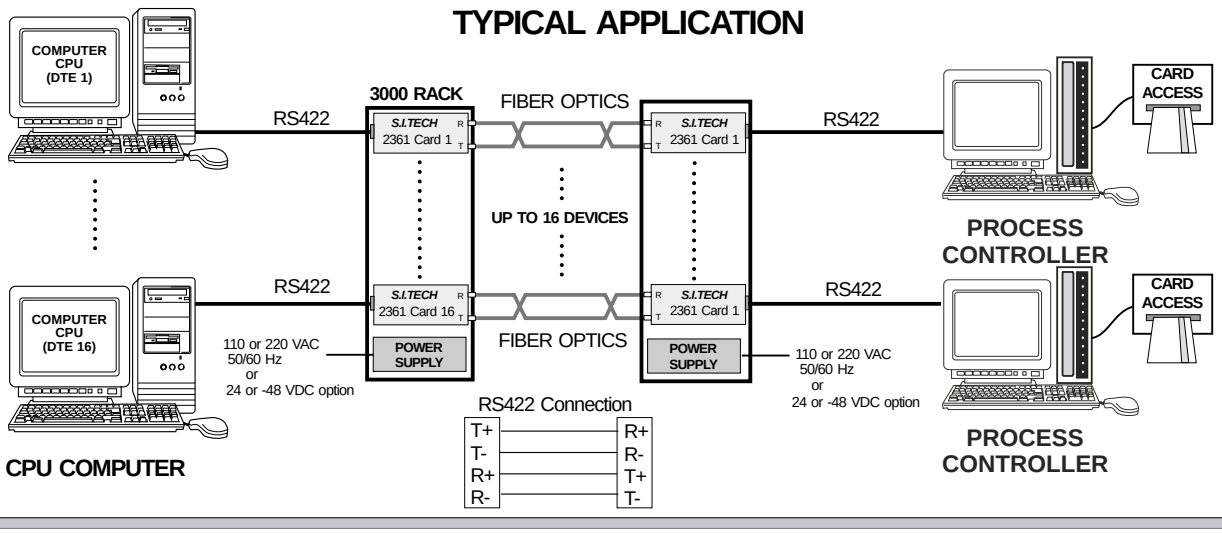
Pin No.	Description	Symbol
1	Protective Ground	Chassis GND
7	Signal Ground	Sig. GND
14	Transmit Data +	T+
15	Transmit Data -	T-
21	Receive Data +	R+
22	Receive Data -	R-

OPERATING DISTANCE FOR FIBER OPTIC CABLE

Fiber Size (Microns)	Attenuation dB/Km	Distance* Meters	Distance* Feet
50	3.0	2000	6600
62.5	4.0	2000	6600
10 SM**	1.0	10000	33000

* High power option available. SM - Single mode (1300nm) option
Optical unit connection: Connect the optical transmission line to the T and R receptacles. Note which cable channel goes to T or R by noting cable imprint. On the other end, reverse the connection.
** SM - Temperature Rating: -20 ^{O}C to +60 ^{O}C

TYPICAL APPLICATION

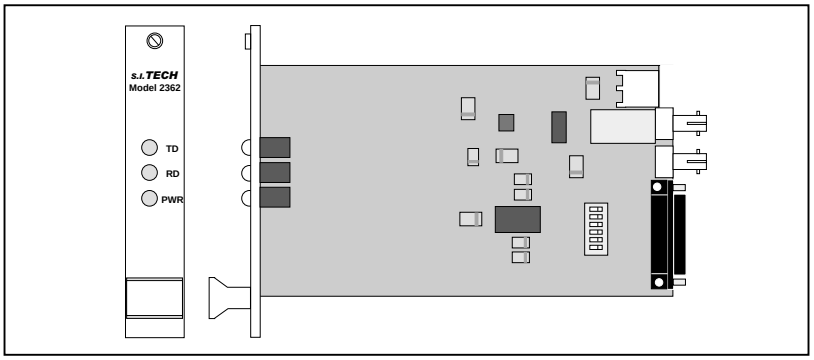


For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com

Model 2362

S.I.TECH

Optical Asynchronous Mini Bit-Driver ®



Operation Mode: Asynchronous, half duplex
Input/Output Interface: RS-485, DB25F connector
Transmission Line Interface: Metal ST connector is standard for interfacing with fiber optic duplex cable (SMA option, SC and FC option for SM)
Transmission Distance: See Chart
Optical Power into a 62.5 Micron Core Optical Fiber: 30 microwatts, 10 dB power budget @ 820 nanometers (1300 nm Option)
Receiver Sensitivity: 3 microwatts at less than 10^{-9} bit error rate
Operating Temperature: -40 ^{O}C to +80 ^{O}C for Multimode
-20 ^{O}C to +60 ^{O}C for Single mode
Humidity: 0 to 90% Non Condensing
Enclosure: 19" rack holds 16 cards
Card Size: Eurocard 3.9" X 6.8" (9.9 X 7.3 cm)
Weight: 0.5 lb. (200 grams)
Mini Version: S.I.Tech #2562

DATA SPEEDS (bps) (DIP Switch)-RS485

Data Rate	SW1	SW2	SW3	SW4
300	UP	DOWN	UP	DOWN
1200	DOWN	UP	UP	DOWN
2400	UP	UP	UP	DOWN
4800	DOWN	DOWN	DOWN	UP
9600	UP	DOWN	DOWN	UP
14.4K	DOWN	UP	DOWN	UP
19.2K	UP	UP	DOWN	UP
28.8K	DOWN	DOWN	UP	UP
38.4K	UP	DOWN	UP	UP
57.6K	DOWN	UP	UP	UP
115.2K	UP	UP	UP	UP

Features:

- Up to 115 Kbps asynchronous operation on fiber optic cable, half duplex operation
- –40 ^{O}C to + 80 ^{O}C operating range**
- Metal ST connector receptacle (SMA option)
- LED indicators for power, transmit, and receive data
- Female DB25 connector
- Complies with IEEE C37.90.1
- IEC 801 Surge Protection
- Panel Mounting Brackets, two mounting locations
- Conformal coating
- See distance chart

RS - 485 CONNECTOR PINS UTILIZED BY 2562 MINI BIT - DRIVER (FEMALE)

Pin No.	Description	Symbol
1	Protective Ground	Chassis GND
7	Signal Ground	Sig. GND
14	Data +	D+
15	Data -	D-

OPERATING DISTANCE FOR FIBER OPTIC CABLE

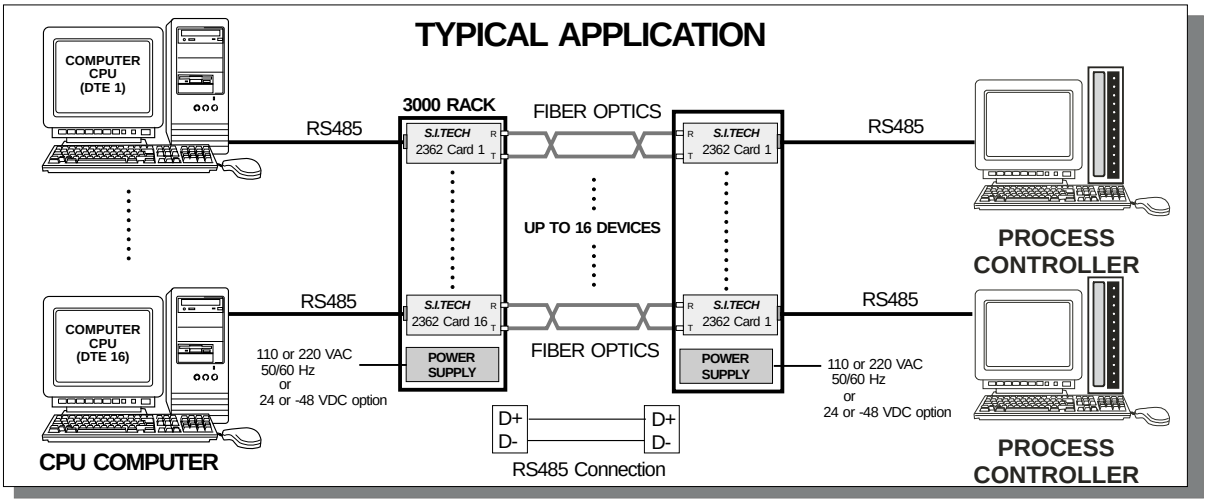
Fiber Size (Microns)	Attenuation dB/Km	Distance* Meters	Distance* Feet
50	3.0	2000	6600
62.5	4.0	2000	6600
10 SM**	1.0	10000	33000

* High power option available. SM - Single mode (1300nm) option
Optical unit connection: Connect the optical transmission line to the T and R receptacles. Note which cable channel goes to T or R by noting cable imprint. On the other end, reverse the connection.
** SM - Temperature Rating: -20 ^{O}C to +60 ^{O}C

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

UL CE

TYPICAL APPLICATION



For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com

Model 3001

Fiber Optic Card Cage

Back Panel

Front Panel

S.I.Tech Model 3001 Card Cage is a unique concept that allows the use of various RS232, E1/T1, or Ethernet fiber optic Bit-Driversâ in a single rack. Each individual Bit-Driver card is fully compatible with stand-alone Bit-Drivers. For performance specifications, see stand-alone model shown in the product chart below.

A total of 12 cards can be used in the 3001 Card Cage along with 1 or 2 power supplies. The rack power supply DC power has "No output" alarm. Optionally, a redundant power supply can be added. AC power supplies are optional.

Each modem is equipped with a status indicator for Transmit Data (TXD), Receive Data (RXD), Fiber Link Detector indicator. Alarm contacts from modems are wired in parallel to common connector. Alarm contacts from power supplies are wired in parallel to common connector.

CCTV video cards are 1 or 2 CH. TR or REC or 1 TR and 1 REC CH.

Operation Mode: Asynchronous or Synchronous; simplex or full duplex; individual cards compatible with stand-alone Bit-Driversâ

Input/Output Interface: See table

Transmission Distance: Fiber optics matched to customer requirements up to 10 Km (6 miles)

Operating Temperature: 0^{O}C to 50^{O}C

Power Supply: 48 VDC, 110/230VAC UL, CSA, and IEC listed, 50W max. Redundant PS optional

19"(48.3 cm) Metal 12 Slot Card Cage Size: 8.0D X 5.25H X 17.2W in (20.3 X 13.34 X 43.7 cm)

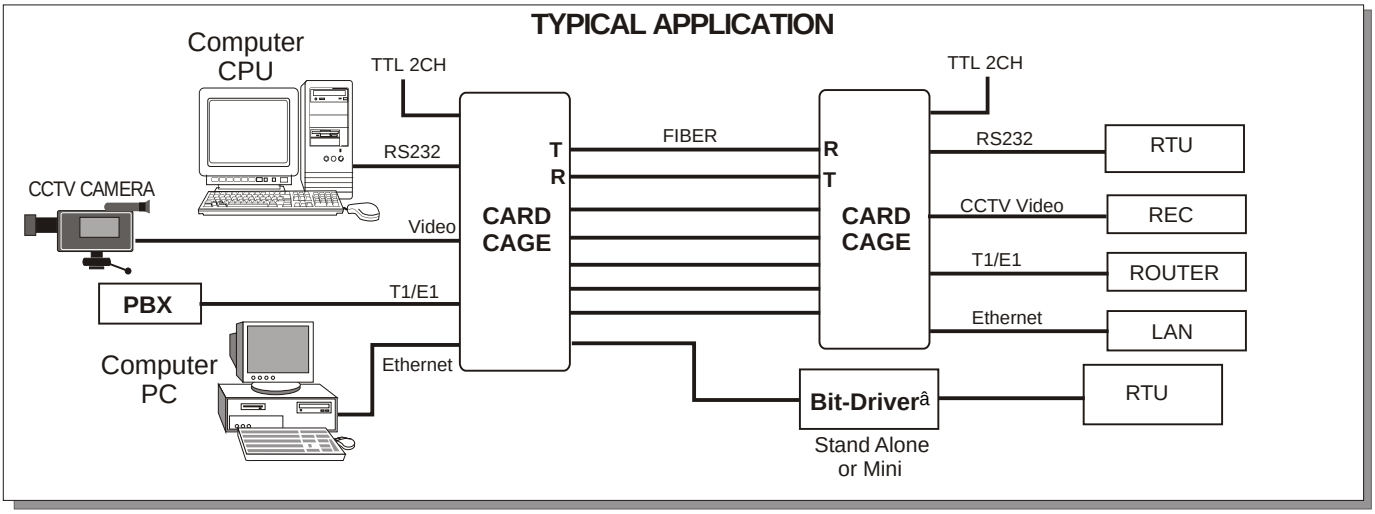
Meets or exceeds FCC requirements of Class A, Part 15 Computing Device Standard.
Specifications subject to change without notice.

BIT-DRIVERâ CARD CHOICES

Model #	Description	Card Size	Stand-Alone Model #
2317	TTL to Fiber	E	2817
2332	RS232 Async/Sync	E	2036
2365	GIGIBit Ethernet	E	2160
2379	CCTV Video TR 2 CH	E	2809 or 2509
2379-1	CCTV Video TR 1 CH	E	
2380	CCTV Video REC 2 CH	E	2810
2380-1	CCTV Video REC 1 CH	E	
2381	CCTV Video TR/REC 1CH	E	
2391	E1 to Fiber	E	2891
2390	T1 to Fiber	E	2890 or 2896
2350-10/100A	10/100Mbps Ethernet	E	2150 10/100A
2351	Industrial Ethernet	E	2151
2815-T-SM-WDM	TTL Card TR	E	2815
2815-R-SM-WDM	TTL Card REC	E	2815
4001 A	110VAC Power Supply	E	
4001 B	230VAC Power Supply	E	
4001 C	48VDC Power Supply	E	
23813-SM	2 Ch. Digital Alarm	E	22813-DIN-SM

E - Eurocard 3.9" X 6.8" (9.9 X 17.3 cm)
Mother Board Model #3501

TYPICAL APPLICATION

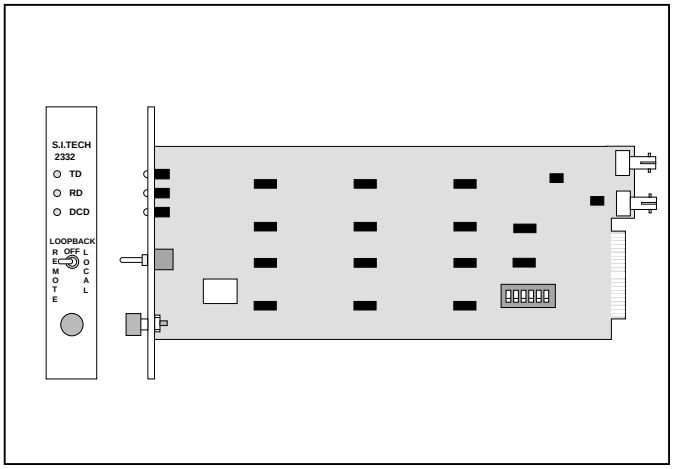


For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2332

S.I.TECH

Optical Async/Sync Bit-Driver® Point to Point



Features:

- 2.4, 4.8, 9.6, 19.2 Kbps
- Syncnchronous, simplex, or full duplex operation
- 6600 ft. (2Km) distance capability
- 0 ^{O}C to + 50 ^{O}C operating range
- ST connector receptacle (SMA option)
- Designed to work with S.I.Tech 2503/2232 RS232 Bit-Driver
- Requires 3001

Operation Mode: Synchronous, simplex, or full duplex

Input/Output Interface: RS-232, DB25 Female, Synchronous 2.4, 4.8, 9.6, and 19.2 Kbps.

Transmission Line Interface: ST connector is standard for interfacing with fiber optic cable (SMA option)

Transmission Dictance: 6600 ft. (2 km)

Optical Power into a 50 Micron Core Optical Fiber: 5 microwatts, 10 dB power budget @ 880 nanometers (High power option)

Receiver Sensitivity: 250 nanowatts at less than 10 $^{-9}$ bit error rate

Operating Temperature: 0 ^{O}C to 50 ^{O}C

Enclosure: 19" rack holds 16 cards

Card Size: Eurocard

Weight: 0.5 lb (200 grams)

OPERATING DISTANCE FOR FIBER OPTIC CABLE

Fiber Size (Microns)	Attenuation dB/km	Distance Meters*	Distance Feet*
50	3.0	2000	6600
62.5	4.0	2000	6600
100	5.0	2000	6600
10	1.0 **	7000	23000

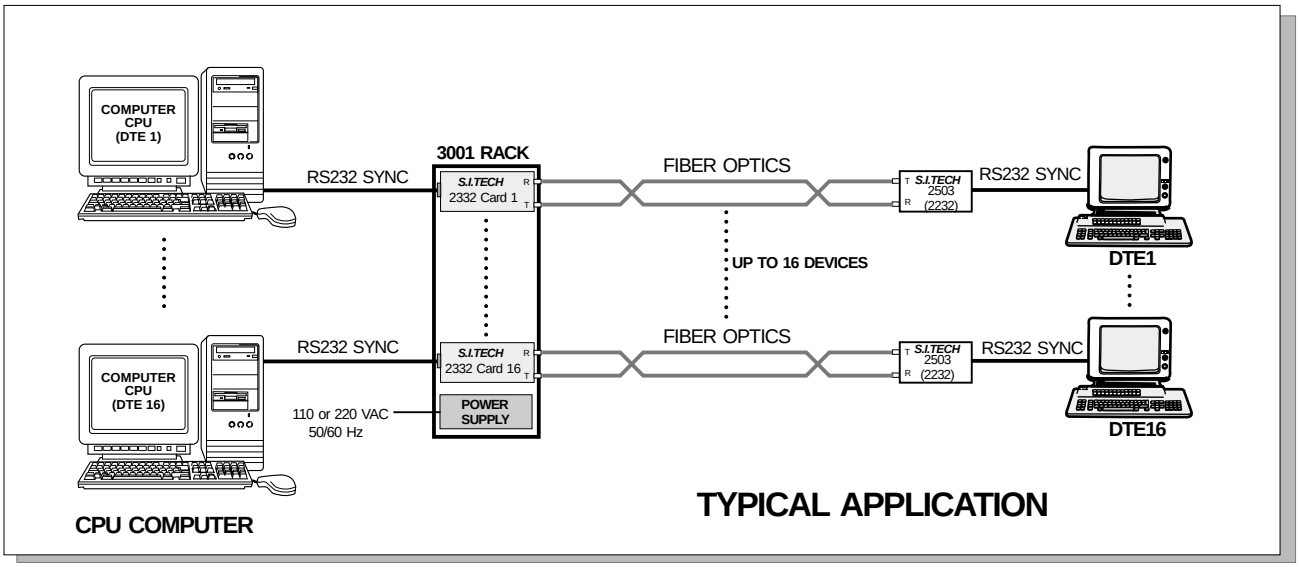
* High power option available
** Single Mode 1300 nm option

RS - 232 PINS UTILIZED BY 2332 CARD DB25 CONNECTOR (FEMALE)

Pin No.	Description	EIA
1	Protective Ground	AA
2	Transmitted Data	BA To Bit-Driver
3	Received Data	BB From Bit-Driver
4*	Request to Send	CA To Bit-Driver
5	Clear to Send	CB From Bit-Driver
7	Signal Ground	AB
8	Data Carrier Detect	CF From Bit-Driver

* Optional signal not required for normal operation.

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



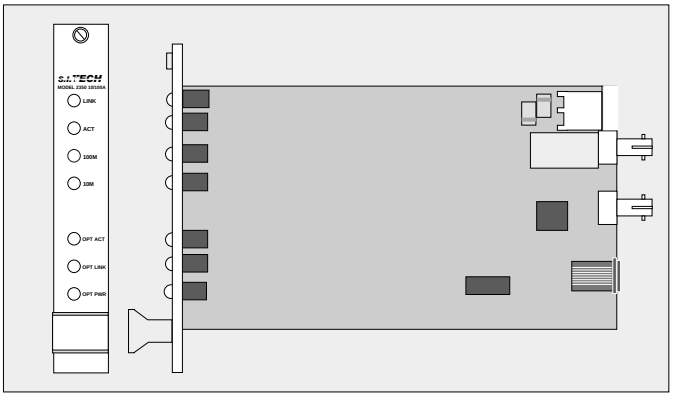
TYPICAL APPLICATION

For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2350 - 10/100 A

S.I.TECH

Ethernet RJ45 to Fiber Optic Media Converter



Features:

- Supports 10 Base-T/100 Base-TX and 10 Base-FL/100 Base-FX Standard
- Eurocard, 3001 rack holds 12 cards
- Power, Link Status, Activity, and Collision LED indicators
- ST or SC optical connections (ST, SC, or FC options for Single Mode)
- Auto senses between 10 and 100 Mbps speeds
- Plug & Play - No Setup Required

S.I.Tech 2350-10/100A Ethernet media converter is a card version of 2150-10/100A for connection of Ethernet based equipment over fiber optic cable at 10 Base-T/100 Base-TX and 10 Base-FL/100 Base-FX. It uses ST or SC for Multimode fiber and ST, SC, or FC for Single mode fiber. Model 2350-10/100A auto senses and switches between 10 and 100 Mbps. The unit contains LED indicators to provide visible verification of transmission status and media converter functions.

Operation Mode:	10 Base-T/100 Base-TX and 10 Base-FL/100 Base-FX, Auto 10/100 Sensing
Input/Output Interface:	Shielded RJ45
Transmission Line Interface:	ST optical connector is standard (SC Option), (ST, SC, or FC for SM)
Transmission Distance:	6600 ft. (2 Km)
Transmitter Output Power:	30 Microwatts into 62.5/125 micron fiber
System Wavelength:	1300 nm Multimode (Single mode Option)
Data Rate:	10/100 Mbps
Bit Error Rate:	10^{-9}
Receiver Sensitivity:	10 Microwatts @ 1300 nanometers
Operating Temperature:	0 ^{O}C to 50 ^{O}C
Weight:	0.5 lb (225 grams)
Input Power:	110VAC/230VAC (Rack)
Card Size:	Eurocard 3.9" X 6.8" (9.9 X 17.3 cm)

Note:
The 2350-10/100A and 2150-10/100A auto negotiates between 10 Base-T and 100 Base-Tx ports and chooses the best mode of operation (half/full duplex, 10/100 Mbps). If one of the connecting ports also supports operation at 1000 Base-T - Gigabit (e.g., 10/100/1000 Mbps NIC), the 2150-10/100A pair will auto negotiate to the best mode of operation not exceeding 100 Mbps - however, one of the connecting ports must be limited to 10 or 100 Mbps operation.

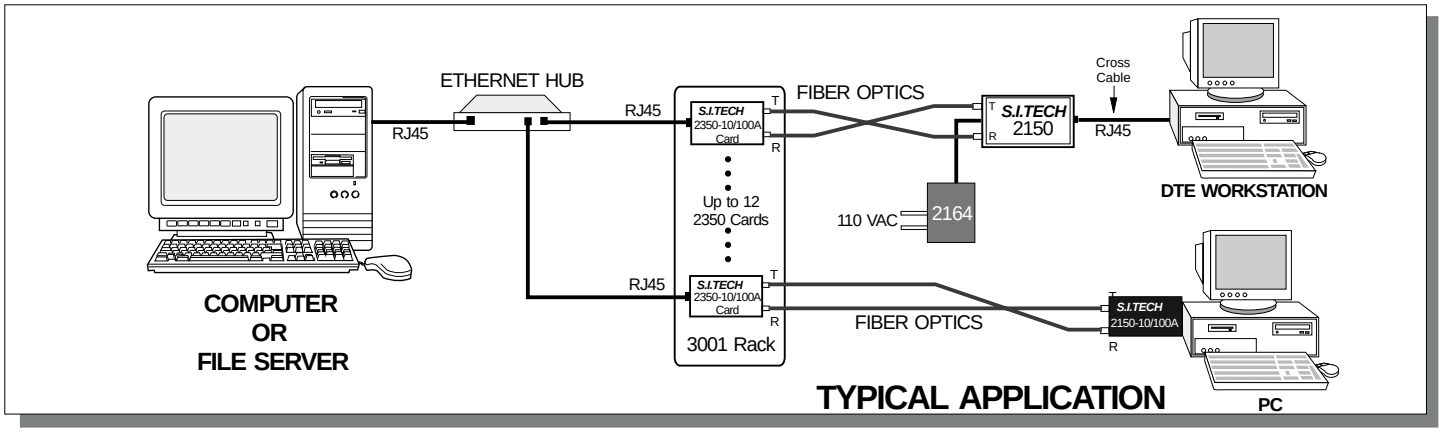
Operating Distance for Fiber Optic Cable

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**	1.0	0.35	0.25	-	10000	12000	-	33000	40000

** Single mode option - 1300nm (for longer distances, high power, contact factory)

Optical Unit Connection: Connect the optical transmission line to the T and R receptacles. Note which cable channel goes to T or R by noting cable imprint. On the other end, reverse the connections.

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

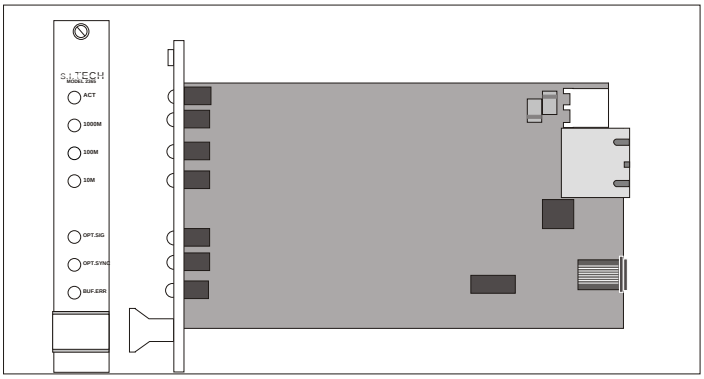


For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2365-10/100/1000

S.I.TECH

Ethernet to Fiber Bit-Driverâ



Operation Mode: 10/100/1000Base-T to Fiber
Ethernet Interface: Shielded RJ-45
Fiber Interface: SC Connector Std. (LC option)
Transmission Distance: See distance chart
System Wavelength: 850, 1310 nm or 1550 nm
Data Rate: 10/100/1000 Mbps
Bit Error Rate: 10^{-12}
Operating Temperature: 0 to 70 ^{o}C
Input Power: 100/240VAC 50/60Hz (Rack)
UL, CSA, CE
Metal Enclosure: Eurocard 3.9" X 6.8"
(9.9 X 17.3cm)
Weight: 0.5 lb. (225 grams)

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

Features:

- Supports IEEE 802.3x 10/100/1000Base-T/1Gbps twisted pair link
- Meets IEEE 803.3x clock jitter and frequency variation specifications.
- Automatic speed detection and adjustment 10/100/1000
- Full duplex operation
- Auto MDI/MDI-X (Automatic detection of straight or crossover twisted pair cables)
- Automatic master/slave determination
- Compatible with 2160-10/100/1000
- SC optical connectors standard (LC for SM)
- LED Indicators:
  - Optical Sync
  - Optical Signal
  - 10/100/1000 Operation
  - Activity
  - Buffer Error
- Available with 850nm multimode or 1310nm or 1550nm single mode optics
- Multiple optical power configurations to support 5, 10, 20 to 80 Km fiber runs (single mode only)

The S.I.Tech 2365 Bit-Driver card is intended to extend the length of Ethernet links to up to 80Km for long haul backbone applications. Once installed the 2365's are completely transparent to the system. Units must be installed in pairs or with 2160-10/100/1000. Network timing limitations and fiber attenuation and bandwidth may limit maximum transmission distance to less than maximum.

Note: The PC, Switch, or Hub to which S.I. Tech 2365 is attached must support "Auto Negotiation, i.e. Auto 1000, Auto 100 or Auto 10 Mbps."

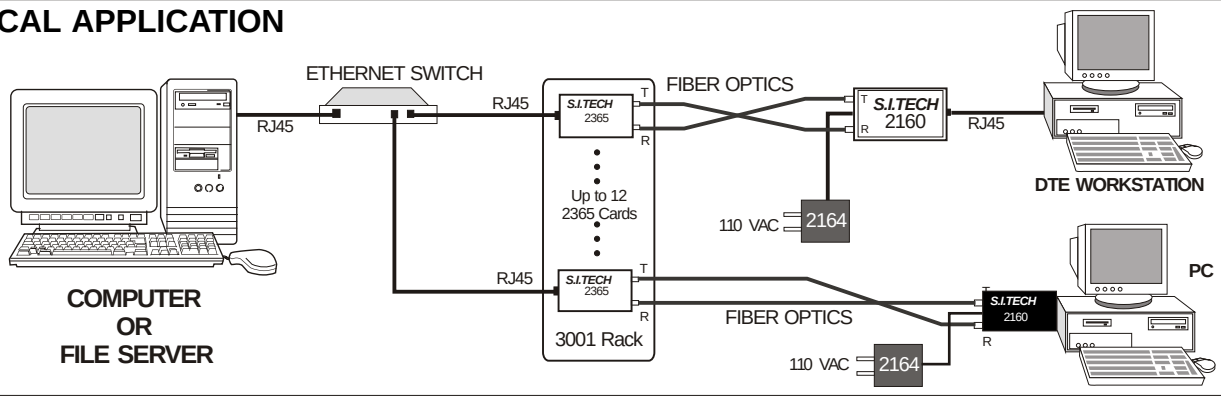
Optical Unit Connection: Connect the optical transmission line to the T and R receptacles. Note which cable channel goes to T or R by noting cable imprint. On the other end, reverse the connections.

OPERATING DISTANCE FOR OPTIC CABLE

FIBER SIZE (Microns)	ATTENUATION dB/Km		BANDWIDTH MHz/Km		DISTANCE Meters*		DISTANCE Feet*	
	850 nm	1310 nm	850 nm	1310 nm	850 nm	1310 nm	850 nm	1310 nm
50	3.0	1.0	600	600	500	600	1600	1800
62.5	3.5	1.0	200	600	200	600	660	1800
10 SM	Unspecified	0.4	Unspecified	Unspecified		20000		66000

SM - Single mode (High power - long distance option)
* At gigabit data rate, both attenuation and bandwidth of the fiber should be considered to determine distance limit.

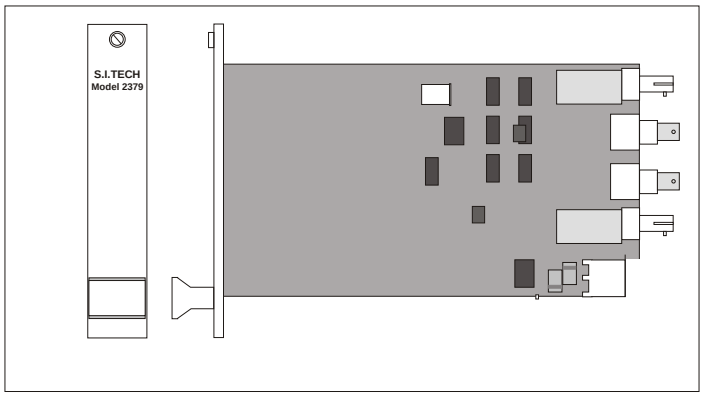
TYPICAL APPLICATION



For application engineering assistance: 630-761-3640 Fax: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2379

Video Transmitter - 2CH. 3001 Chassis PC Board



Operation Mode: CCTV video - color or black and white, 2 CH Transmitter
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 receptacle
Operating Temperature: 0 ^{o}C to 50 ^{o}C
Enclosure: 19" Rack holds 12 cards
Card Size: Eurocard 3.9" X 6.8" (9.9 X 17.3 cm)
Weight: 0.4 lbs. (182 Grams)
Input Power: 110/220 VAC 50/60 Hz

Notes: 19" Rack 3001 - 110/230 VAC Power Supply 4001
UL Approved
* 1300 nanometers is an option for 5 Km or longer system

Related Products

Model Numbers

2810	1 Ch. Receiver, Multimode, 110VAC, ST
2810-SM	1 Ch. Receiver, Single mode, 110VAC, ST
2810-V	1 Ch. Receiver, Multimode, 220VAC, ST
2380	2 Ch. Receiver, Multimode
2380-SM	2 Ch. Receiver, Single mode
2380-1	1 Ch. Receiver, Multimode

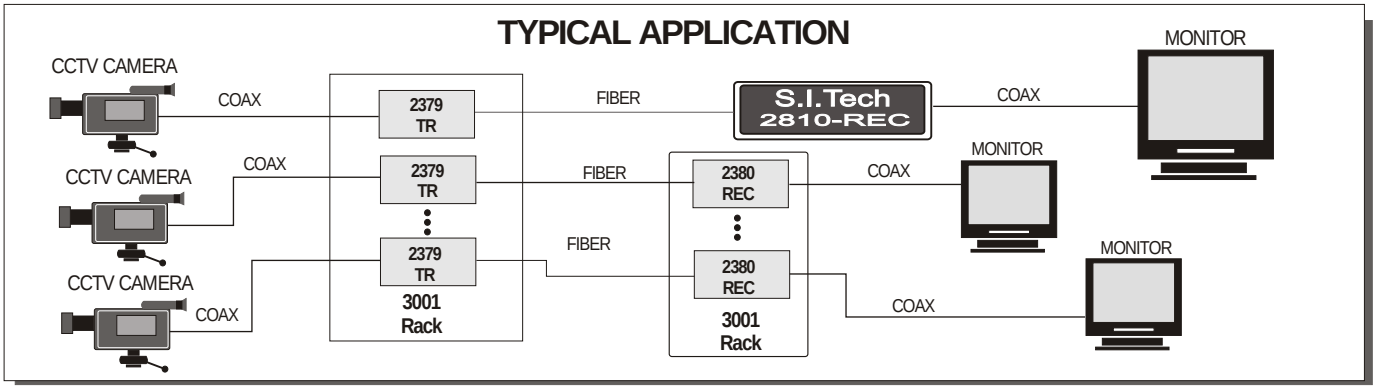
Operating Distance for Fiber Optic Cable

Fiber Size (Microns)	Attenuation dB/Km	Maximum Feet/Meters**
62.5	4.0	6600/2000
50	3.0	6600/2000
10 SM	0.35	33000/10000

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 is 10dB.

Specifications subject to change without notice.

TYPICAL APPLICATION

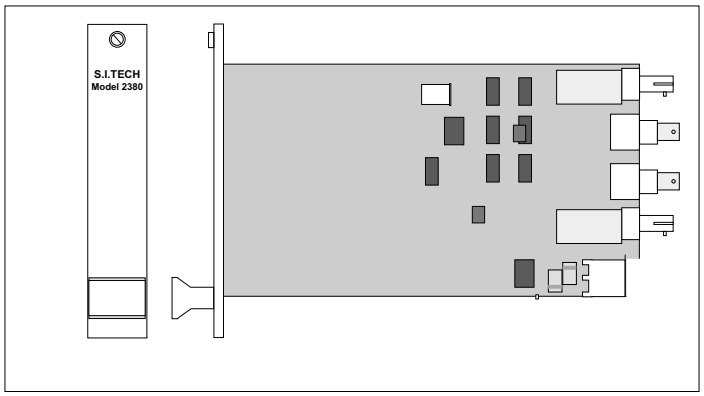


For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

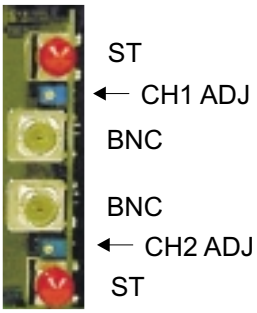
Model 2380

S.I.TECH

Video Receiver - 2CH. 3001 Chassis PC Board



S.I.Tech 2380 Fiber Optic Receiver Adjustments



Note: Adjust (ADJ) gain in receiver CH1 and CH2 preamp for desired output (clips at 2 Vpp with 75 ohm load 4 Vpp open circuit)

Operation Mode: CCTV video - color or black and white, 2 CH Receiver
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 receptacle
Operating Temperature: 0 ^{o}C to 50 ^{o}C
Enclosure: 19" Rack holds 12 cards
Card Size: Eurocard 3.9" X 6.8" (9.9 X 17.3 cm)
Weight: 0.4 lbs. (182 Grams)
Input Power: 110/220 VAC 50/60 Hz

Notes: 19" Rack 3001 - 110/230 VAC Power Supply 4001
UL Approved
* 1300 nanometers is an option for 5 Km or longer system

Related Products

Model Numbers

2809	1 Ch. Transmitter, Multimode, 110VAC, ST
2809-2	2 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-V	1 Ch. Transmitter, Multimode, 220VAC, ST
2379	2 Ch. Transmitter, Multimode
2379-SM	2 Ch. Transmitter, Single mode

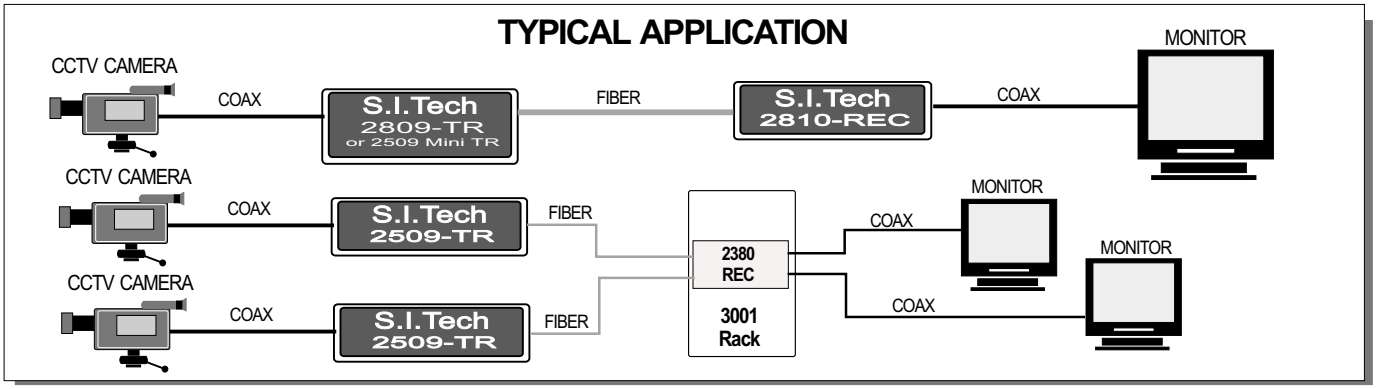
Operating Distance for Fiber Optic Cable

Fiber Size (Microns)	Attenuation dB/Km	Maximum Feet/Meters**
62.5	4.0	6600/2000
50	3.0	6600/2000
10 SM	0.35	33000/10000

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 is 10dB.

Specifications subject to change without notice.

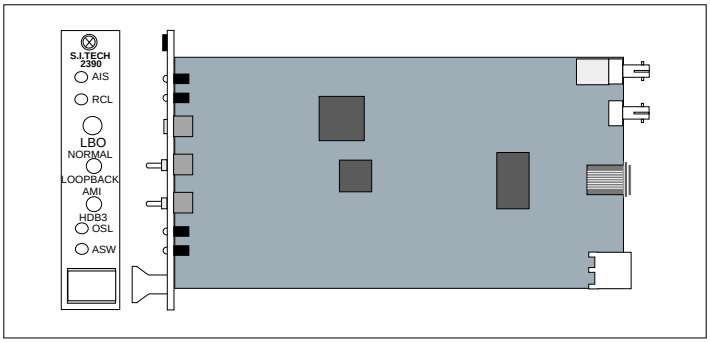
TYPICAL APPLICATION



For application engineering assistance: 630-761-3640 FAX: 630-761-3644 S.I.Tech, P.O.Box 609, Geneva, Illinois 60134 U.S.A. Web site: http://www.sitech-bitdriver.com.

Model 2390 (T1) / 2391 (E1)

T1/E1 to Fiber Bit - Driver ®



Features:

- T1 AMI or B8ZS, E1 AMI or HDB3
- Status indicators and alarms for ease of use and maintenance
- Twisted pair (T1 and E1) or BNC (E1 only) electrical interface options
- AMI or zero suppression line codes
- Multimode or single mode fiber interface options
- Toggle switches for most control settings and rotary switches for T1 line build out settings
- Up to 10 Km at low cost

Operation Mode:	Synchronous, half/full duplex 1.544 Mbps, T1 2.048 Mbps, E1
Input/Output Interface:	T1 - RJ48C 100Ω Twisted Pair E1 - BNC 75Ω Coax E1 - RJ48C 120Ω Twisted Pair
Transmission Line Interface:	2 ST fiber optic receptacles
Connector Options:	ST, SC, and FC
Transmission Distance:	See distance chart
Distance Options:	5 km, 10 km, or 20 km
Transmitter Output Power:	30 Microwatts into 50 Micron fiber (820nm & 1300nm options)
Receiver Wavelength:	820 nm or 1300 nm
Minimum Sensitivity:	3 Microwatts @ 820 nanometers
Bit Error Rate:	10^{-9}
Operating Temperature:	0 ^{o}C to 50 ^{o}C
Mean Time Between Failure:	MTBF @ 25 ^{o}C = 800,000 Hours MTBF @ 50 ^{o}C = 300,000 Hours [Bellcore test method used]
Enclosure:	19” Rack holds 12 cards
Card Size:	Eurocard 3.9” x 6.8” (9.9 x 17.3 cm) 3001 Rack
Weight:	1/2 lb.(200.grams)
Input Power:	3 Watts Max
Related Products:	2890 (T1) 2891 (E1)

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

The S.I.Tech 2390/2391 Bit-Driver® is designed to work with T1 or E1 systems. Model 2390/2391 is a T1 or E1 to fiber optic transmitter/receiver full duplex product implementing T1 or E1 protocol. Nominal operating data rate is 1.544 Mbps ±32PPM. (E1 - 2.048 Mbps ±50PPM)

This fiber optic Bit-Driver® product eliminates many disadvantages of metallic T1 and E1 signals, especially EMI/RFI, ground loops (electrical isolation with fiber), high attenuation (high signal loss), limiting distance between nodes of system, and potential lightning damage outdoors between buildings.

S.I.Tech Model 2390/2391 is a stand alone or rack mount product allowing easy change from T1 or E1 to fiber. Simply connect T1 or E1 cable to model 2390/2391 input/output port.

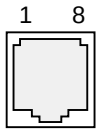
OPERATING DISTANCE FOR FIBER OPTIC CABLE

Fiber Size (Microns)	Attenuation dB/Km	Distance Meters	Distance Feet
50	3.0	2000	6600
62.5	4.0	2000	6600
10 SM*	1.0	7000	23000

* Single mode (1300nm) option
(High power option available for longer distances)

FEMALE RJ48 I/O CONNECTIONS

Pin #	Name	Function
1	R	T1/E1 receive ring
2	T	T1/E1 receive tip
4	R1	T1/E1 transmit ring
5	T1	T1/E1 transmit tip
7		Transmit drain wire
8		Receive drain wire



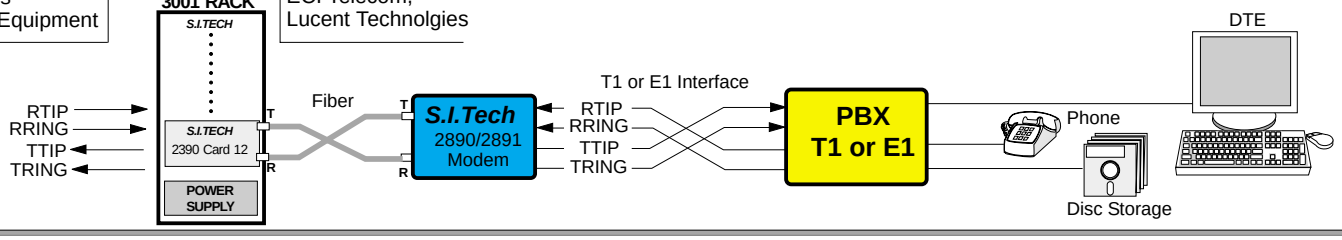
RJ48C

Tested to work with:
PBXs
Switches
Key Systems
& Other T1 Equipment

- Made/Used by -

NEC, Samsung, Panasonic, Verizon, AT&T, Tadiran, ECI Telecom, Lucent Technolgies

TYPICAL APPLICATION



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