

Features

- Single Channel RS232 or TTL Logic
- Powered from Station Battery Bus
- Operates reliably at temperatures of -40°C to 85°C
- Extended distances of 5km over Multi-mode fiber and 30km over Single-mode fiber.
- Multiple Mounting choices with built-in mounting brackets and optional mounting shelf
- Packaged in rugged, industrial-quality Galva Neal and powder coated shells
- 4 Diagnostic LEDs for easier debug of installation
- Conformal coated PC boards
- Compatible with all earlier 5843/5844 versions of Dymec Link/Repeaters
- Certified to IEEE 1613 and Class 1 Div 2



Dymec models 5843 and 5844 are hardened fiber optic Link/Repeaters that convert RS232 or TTL level copper to amplitude based fiber output. Supports data rates from dc to 250k bps, DCE or DTE port configuration and a diagnostic/test mode that allows testing of the copper and fiber connections before the connected IED is active in the network.

By simply setting a few switches, the Dymec 5843 and 5844 Link/Repeaters can be configured for point-to-point, star, optical bus, or loop networks, and permit quick, easy connection of devices. For example, an extensive multi-drop network—where two or more intelligent electrical devices are connected and communicating—can be constructed simply by connecting the devices through Link/Repeaters.

Dymec 5843 and 5844 Link/Repeaters may optically connect devices of different formats, eliminating the need for format converters. For example, an RS232 IED may be connected to a model 5844 which is optically connected to a model 5846, which, in turn, can communicate electrically to its IED in EIA 485.



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Optical Parameters @ Max Temp		Multimode	Single-Mode
Optical Budget Typical		19.5dB	19dB
Output Power Typical		-10.5 dBm peak	-14.5 dBm peak
Receiver Sensitivity Typical		-30 dBm peak	-33.4 dBm peak
		(62.5µ/125 Multimode)	(9µ/125 Single-mode)
Wavelength		850nm	1310nm
Connector Type		ST	
Compatible Fiber Type		Multimode (50-200µm)	Single-Mode (9-13µm)
Configuration (Switches)		DTE/DCE	
		AC/DC Coupled	
		Link/Repeat	
		Pin 8 Drive Current	
		Pin 6 +5 Vdc (DSR or CTS pull up)	
		Diagnostic Mode	
Data Rate		DC to 250kbps	
Data Transmission		Asynchronous, simplex	
		Or Full Duplex	
Transmission Distance		Up to 5000 meters	Up to 30K meters
		(62.5µ/125 Cable@3dB/km)	(9µ/125 Cable@.5dB/km)
Bit Error Rate		10-E9 Max.	
Point to Point Latency		4µS	
Repeat Latency		400 nsec Max	
Electrical Parameters			
Inputs			
I/O Data Format		EIA RS232; CCITT v.24	
Data Connector		9 pin D-Type Female	
Input Impedance		>3000Ohms	
Input voltage		+/-30 Volts Max	
Outputs			
Output Impedance		>300Ohms	
Driver Output		+/-5Volts into 3000Ohms	
Pin 8 Output		0 to 5V	
		67 or 207 Ohm Source Impedance	
Ambient Temperature			
Operating Temperature		-40 to +85 C	-40 to +70 C
Storage Temperature		-40 to 85 C	
Power Required			
5844		4.0 Watts	5.5 Watts
		35 mA @ 90-250 V	50 mA @ 90-250 V
		250 mA @ 18-60 V	340 mA @ 18-60 V
5943		3.0 Watts	4.1 Watts
		250mA @ 12Vdc	340mA @ 12Vdc
Power Dissipation BTU/H			
5844		10.9 BTU/hr	12.3 BTU/hr
5843		8.2 BTU/hr	10.2 BTU/hr
Physical Parameters			
Weight			
5844		17 oz.	
5843		9 oz.	
Dimensions Inches			
5844		4.1W x 5.1L X 1.3H	
5843		2.0W x 5.1L X 1.3H	
Indicators			
		Power	
		Transmit Fiber	
		Transmit Electrical	
		Receive Fiber	
		Receive Electrical	

Ordering Information			
Model	Input	Fiber Type	Input Power Rating
5843HRT	RS-232/TTL	Multi-Mode	9-15 Vdc
5844HRT-H	RS-232/TTL	Multi-Mode	90-250Vdc/90-250Vac
5844HRT-L	RS-232/TTL	Multi-Mode	24-48 Vdc
5843SHRT	RS-232/TTL	Single-Mode	9-15 Vdc
5844SHRT-H	RS-232/TTL	Single-Mode	90-250Vdc/90-250Vac
5844SHRT-L	RS-232/TTL	Single-Mode	24-48 Vdc
ACC-LCS	Link Cantilever Mounting Bracket		
ACC-CBL1	DB9 Male/Tinned Lead 10 Foot Cable/Pigtail		



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Features

- Signal protection and electrical isolation for data connections and devices
- Certified to IEEE 1613 and Class 1 Div2
- Operates at -40°C to 85°C
- Extended distances of 5km over Multi-mode fiber and 30km over Single-mode fiber.
- Diagnostic LEDs for easier debug of installation
- Built-in mounting brackets and optional mounting shelf
- Packaged in rugged, industrial-quality Galva Neal and powder coated shells
- Conformal coated PC Boards
- Powered from Station Battery Bus
- Compatible with all earlier 5845/5846 versions of Dymec Link/Repeaters



Dymec model 5845 and 5846 Serial Fiber Links are link/repeaters for EIA 422 and 485 data connections. The 5845/5846 Links provide reliable serial data connectivity over fiber optic facilities in harsh environments where immunity and signal isolation are critical. Optical connectivity provides flexibility, extended-distance, operational safety, reduced equipment outages due to electrical surges, and improved signal quality and network performance.

5845/5846 Links support signal rates from DC to 2 Mbps and operate either full- or half-duplex over single- or multimode fiber. Links are easily field-configurable for point-to-point, master/slave, loop, bus or star topologies. The 5845/5846 also interoperate with 5843/5844 RS232 Links, the Dymec Network Integration System and Optical Star products to cost-effectively create highly scaleable data networks with minimum electrical signal exposure.

Dymec Links are substation-hardened to IEEE 1613 specifications. They operate in an extended temperature range and optionally take DC power directly from station battery. Flexible mounting options, diagnostic LEDs and integrated optical and electrical signal test features make turning up Link networks simple.

Optical Parameters @ Max Temp		Multimode	Single-Mode
Optical Budget Typical		19.5dB	19dB
Output Power Typical		-10.5 dBm peak	-14.5 dBm peak
Receiver Sensitivity Typical		-30 dBm peak	-33.5 dBm peak
		(62.5µ/125 Multimode)	(9µ/125 Single-mode)
Wavelength		850nm	1310nm
Connector Type		ST	
Compatible Fiber Type		Multimode (50-200µm)	Single-Mode (9-13µm)
Configuration (Switches)		Half/Full Duplex	
		AC/DC Coupled	
		Link/Repeat	
		Biasing Resistors In/Out	
		Data Inversion Mode	
		Enable Holdover (4 settings)	
		Diagnostic Mode	
Data Rate		DC to 2M bps	
Data Transmission		Asynchronous, simplex	
		Or Full Duplex	
Transmission Distance		Up to 5000 meters	Up to 30K meters
		(62.5µ/125 Cable@3dB/km)	(9µ/125 Cable@.5dB/km)
Bit Error Rate		10-E9 Max.	
Point to Point Latency		500 nsec Max	
Repeat Latency		400 nsec Max	
Electrical Parameters			
Inputs			
I/O Data Format		EIA 422/485	
Data Connector		9 pin D-Type Female	
Input Impedance		750Ohms	
Input Voltage		+12 to -7 Volts Max referenced to signal common +/-6 Volts differential Max	
Outputs			
Output Impedance		>250 Ohms	
Driver Output		50 mA	
Ambient Temperature			
Operating Temperature		-40 to +85 C	-40 to +70 C
Storage Temperature		-40 to 85 C	
Power Required			
5846		6.0 Watts	8.0 Watts
		45 mA @ 90-250 V	60 mA @ 90-250 V
		250 mA @ 18-60 V	340 mA @ 18-60 V
5845		3.0 Watts	4.0 Watts
		250mA @ 12Vdc	340mA @ 12Vdc
Power Dissipation BTU/H			
5846		20 BTU/hr	27 BTU/hr
5845		10 BTU/hr	14 BTU/hr
Physical Parameters			
Weight			
5846		17 oz.	17 oz.
5845		9 oz.	9 oz.
Dimensions Inches			
5846		4.1W x 5.1L X 1.3H	
5845		2.0W x 5.1L X 1.3H	
Indicators			
		Power	
		Transmit Fiber	
		Transmit Electrical	
		Receive Fiber	
		Receive Electrical	

Ordering Information			
Model	Input	Fiber Type	Input Power Rating
5845HRT	RS-422/485	Multi-Mode	9-15 Vdc
5846HRT-H	RS-422/485	Multi-Mode	90-250Vdc/90-250Vac
5846HRT-L	RS-422/485	Multi-Mode	24-48 Vdc
5845SHRT	RS-422/485	Single-Mode	9-15 Vdc
5846SHRT-H	RS-422/485	Single-Mode	90-250Vdc/90-250Vac
5846SHRT-L	RS-422/485	Single-Mode	24-48 Vdc
ACC-LCS	Link Cantilever Mounting Bracket		
ACC-CBL1	DB9 Male/Tinned Lead 10 Foot Cable/Pigtail		



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Features

- In most applications, one pair of 5940 links will replace 8 standard links and 3 fiber pairs lowering capital and installation costs.
- Packaged in rugged, industrial-quality Galva Neal and powder coated shells
- Conformal coated PCBs
- Powered from Station Battery Bus
- Operates reliably at temperatures of -40°C to 85°C
- Extended distances of 5km over Multi-mode fiber and 25km over Single-mode fiber.
- Multiple Mounting choices with built-in mounting brackets and optional mounting shelf
- Continuous monitoring of Link Status via status LED or built-in logic annunciator
- Each channel has its own diagnostic LED's for easier debug when installing
- Certified to IEEE 1613 and Class 1 Div2



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Dymec 5941 and 5942 Data Links are designed as full duplex four channel devices. Four channels have bandwidth of DC to 64k bps (D4 version), and on the (D1 version) three of the channels have bandwidth of DC to 4k bps. Used in point-to-point RS-232 application, 5941 and 5942 Data Links are designed to pass handshaking or flow control signals along with data. These links do not utilize the flow signals for their operation. Like all Dymec digital-to-fiber optic products, they are passive to all software protocols, and simply send the communications signals from one node to the other.

- Sending four RS-232 non-handshaking signals together on a single pair of fibers (provided at least three of the signals are at 4000 baud or slower for the D1 version).
- Interfacing RTUs to radios that require push-to-talk control
- Passing up four contacts bi-directionally or KYZ meter contacts.
- Transmitting data and IRIG-B timing signals with a single Link.
- 1 or 2 Synchronous data ports (D4 model only).

5941 and 5942 Data Links feature a power-on light, a "SYNC" LED, and eight diagnostic LEDs.

Optical Parameters @ Max Temp		Multimode	Single-Mode
Optical Budget Typical		19.5dB	19dB
Output Power Typical		-10.5 dBm peak	-14.5 dBm peak
Receiver Sensitivity Typical		-30 dBm peak	-33.5 dBm peak
		(62.5µ/125 Multimode)	(9µ/125 Single-mode)
Wavelength		850nm	1310nm
Connector Type		ST	
Compatible Fiber Type		Multimode (50-200µm)	Single-Mode (9-13µm)
Configuration (Switches)		Channel 3 IRIG-B Output/Standard	
		Channel 3 Drive Current Select	
		Channel 4 Sync Indicator/Data Out	
Data Rate	D1 Version	DC to 64kbps Channel 1	
		DC to 4kbps Channels 2,3,4	
	D4 Version	DC to 64kbps all 4 channels	
Data Transmission		Asynchronous, simplex	
		Half or Full Duplex	
Transmission Distance		Up to 5000 meters	Up to 30K meters
		(62.5µ/125 Cable@3dB/km)	(9µ/125 Cable@ .5dB/km)
Bit Error Rate		10-E9 Max.	
Point to Point Latency		25µS	
	D1 Version Only	100µS Channels 2,3,4	
		1µS	
	D4 Version Only	12µS Channels 2,3,4	
Electrical Parameters			
Inputs			
I/O Data Format		EIA RS232; CCITT v.24	
Data Connector		9 pin D-Type Female	
Input Impedance		>3000Ohms	
Input voltage		+/-30 Volts Max	
Outputs			
Output Impedance		>3000Ohms	
Driver Output		+/-5Volts into 3000Ohms	
Channel 3		0 to 2.5V @10mA	
		0 to 3V @ 20mA	
Ambient Temperature			
Operating Temperature		-40 to +85 C	-40 to +70 C
Storage Temperature		-40 to 85 C	
Power Required			
	5942	2.4 Watts	3.6 Watts
		35 mA @ 90-250 V	40 mA @ 90-250 V
		170 mA @ 18-60 V	200 mA @ 18-60 V
	5941	2.4 Watts	3.0 Watts
		200mA @ 12Vdc	250mA @ 12Vdc
Power Dissipation BTU/H			
	5942	10.9 BTU/hr	12.3 BTU/hr
	5941	8.2 BTU/hr	10.2 BTU/hr
Physical Parameters			
Weight			
	5941	17 oz.	
	5942	9 oz.	
Dimensions Inches			
	5942	4.1W x 5.1L X 1.3H	
	5941	2.0W x 5.1L X 1.3H	
Indicators			
		Power	
		Sync Status	
		Transmit Each Channel	
		Receive Each Channel	

Ordering Information

Model	EIA Standard	Fiber Type	Input Power Rating	64K Baud Data Rate
5941D1HRT	RS-232/TTL	Multi-Mode	9-15 Vdc	1Channel
5942D1HRT-H	RS-232/TTL	Multi-Mode	90-250Vdc/90-250Vac	1Channel
5942D1HRT-L	RS-232/TTL	Multi-Mode	24-48 Vdc	1Channel
5941SD1HRT	RS-232/TTL	Single-Mode	9-15 Vdc	1Channel
5942SD1HRT-H	RS-232/TTL	Single-Mode	90-250Vdc/90-250Vac	1Channel
5942SD1HRT-L	RS-232/TTL	Single-Mode	24-48 Vdc	1Channel
5941D4HRT	RS-232/TTL	Multi-Mode	9-15 Vdc	4 Channels
5942D4HRT-H	RS-232/TTL	Multi-Mode	90-250Vdc/90-250Vac	4 Channels
5942D4HRT-L	RS-232/TTL	Multi-Mode	24-48 Vdc	4 Channels
5941SD4HRT	RS-232/TTL	Single-Mode	9-15 Vdc	4 Channels
5942SD4HRT-H	RS-232/TTL	Single-Mode	90-250Vdc/90-250Vac	4 Channels
5942SD4HRT-L	RS-232/TTL	Single-Mode	24-48 Vdc	4 Channels

ACC-LCS	Link Cantilever Mounting Bracket
ACC-CBL2	DB9 Male/4 DB9 Female 1 X 4 Interface Cable 1 Foot



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