

## Overview

The IFS D9100E series consists of fully-digital transceiver units designed for implementing point-to-point or star traffic signalization/communications data networks. These environmentally hardened units are ideal for use in unconditioned out-of-plant or roadside installations and may also be utilized in channelized linear drop-and-repeat communications networks as either the local end-of-line transceiver unit or as the master beginning-of-channel device. Optional battery back-up capability provides the highest level of network reliability in the event of loss of local 115 VAC prime operating power. Plug-and-play design ensures ease of installation and no electrical or optical adjustments are ever required. LED indicators are provided for rapidly ascertaining equipment operating status, and these units are available in either stand-alone or rack mount configurations.

## Application Examples

- Access Control Systems
- Building Automation and Environmental Control Systems
- Computer/Data Equipment
- Fire & Alarm Systems
- ITS Traffic Signalization Networks

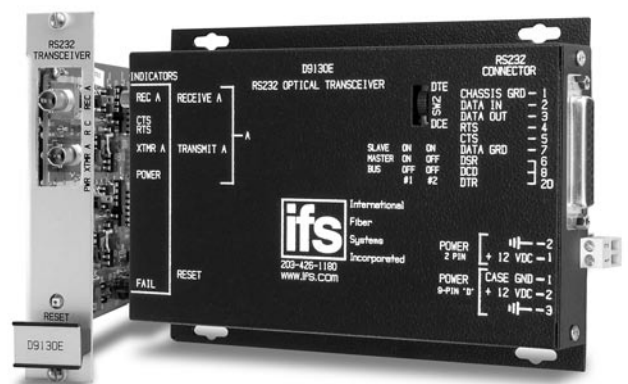
# RS-232/422 Point-to-Point Line Terminating Data Transceivers

For implementing point-to-point or star traffic signalization communication data networks.



## Standard Features

- One or Two Fiber Versions Available
- Optional Internal Battery Back-up Provides a Minimum of 12 Hours Operating Time in the Event of Loss of 115 VAC Prime Operating Power, and Maintains Continuous Channel Communications
- LED Status Indicators Provide Rapid Indication of Critical Operating Parameters
- User-Selectable DTE or DCE Interface Ensures Ease of Installation and Maximum Versatility
- Solid-State Current Limiters on all Power Lines Provide Unconditional Equipment Protection
- Wide Optical Dynamic Range: Optical Attenuators are Never Required
- NTCIP Compatible
- Tested and Certified by an Independent Testing Laboratory for Full Compliance with the Environmental Requirements (Ambient Operating Temperature, Mechanical Shock, Vibration, Humidity with Condensation, High-Line/Low-Line Voltage Conditions and Transient Voltage Protection) of NEMA TS-1/TS-2 and the Caltrans Specification for Traffic Signal Control Equipment.
- Robust Design Ensures Extremely High Reliability In Unconditioned Out-of-Plant/Roadside Environments
- User-Configurable Optical and Electrical Anti-Streaming Provides Network Protection Against Faulty Streaming Controller Operation
- Comprehensive Lifetime Warranty



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Specifications subject to change without notice

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## Agency compliance



## Made in the USA

Complies with FDA Performance Standard for Laser Products, Title 21, Code of Federal Regulations, Subchapter J

## Specifications

<b>Data</b>	
Data Interface:	RS-232 C/D, or RS-422
Data Rate:	DC - 100 Kbps
Operating Mode:	Asynchronous Simplex or Full-Duplex
Bit Error Rate:	<1 in 10 <sup>7</sup> @ Maximum Optical Loss Budget
Anti-Streaming Time-out:	4, 8, 16, 32, 64 seconds, or infinity (disabled)
<b>Wavelength</b>	
	850 or 1310 nm, Multimode 1310 nm, Single Mode
<b>Number Of Fibers</b>	
	1 or 2 (see ordering information)
<b>Connectors</b>	
Power:	Terminal Block with Screw Clamps*
Data:	Type DB-25S
Optical:	ST, SC or Fc (see ordering information)
<b>Optical Emitter</b>	
	850 or 1310 nm, Multimode: LED 1310 nm, Single Mode: Laser Diode
<b>Electrical &amp; Mechanical</b>	
Power:	12 VDC @ 250 mA
Surface Mount:	From Rack
Rack:	1 (2 slots required for units with '-B' Battery back-up option)
Number of Rack Slots:	Automatic Resettable Solid-State Current Limiters
Current Protection:	Meets IPC Standard
Circuit Board:	
Size (in./cm.) (LxWxH)	
Surface Mount:	7.0 x 4.9 x 1.0 in., 17.8 x 12.5 x 2.5 cm
Rack Mount:	7.0 x 4.9 x 2.0 in., 17.8 x 12.5 x 5.0 cm (with '-B' Battery option)
Shipping Weight:	< 2 lbs./0.9 kg
<b>Environmental</b>	
MTBF:	> 100,000 hours
Operating Temp:	-40° C to +74° C
Storage Temp:	-40° C to +85° C
Relative Humidity:	0% to 95% (non-condensing)†

## Battery Back-up Option▲

Internal, Rechargeable Nickel Metal Hydride Battery, Operating Period: 12 Hours Minimum

†May be extended to condensation conditions by adding suffix '-C' to model number for conformal coating.

\*Optional type DB-9P (specify at time of order)

▲Add suffix '-B' to model number for battery back-up

## Ordering Information

	Part Number	Description	Fibers Required	Opt. Pwr. Budget	Max. Distance*
Multimode 62.5/125µm**	D9110E	Data Transceiver (850 nm)	2	14 dB	2.5 miles (4 km)
	D9110EWDMA	Data Transceiver (850/1310 nm)	1		
	D9110EWDMB	Data Transceiver (1310/850 nm)	1		
	D9120E	Data Transceiver (1310 nm)	2		
Single Mode 9/125µm	D9130E	Data Transceiver (1310 nm)	2	23 dB	42 miles (69 km)
	D9130EWDMA	Data Transceiver (1310 nm)	1		
	D9130EWDMB	Data Transceiver (1550 nm)	1		
Accessories♦	PS-12VDC	12 Volt DC Plug-in Power Supply (Included)			
	PS-12VDC-230	12 Volt DC Plug-in Power Supply, 230 VAC Input (Included if specified at time of order)			
Options	Add '-R3' to Model Number for R3 Rack Mount - No Charge (Requires R3 Rack purchased separately)				
	Add '-C' for Conformally Coated Printed Circuit Boards (Extra charge, consult factory)				

\*Optical transmission distance is limited to optical loss of the fiber and any additional loss introduced by connectors, splices and patch panels. Distance can also be limited by fiber bandwidth. \*\*For 50/125 Fiber, subtract 4 dB from Optical Power Budget. ♦All accessories are third party manufactured.

## System Design

