# PRODUCT SPECIFICATION D2300 SERIES
# RS-485 DROP AND REPEAT DATA TRANSCEIVER (2-WIRE)

## DESCRIPTION

The IFS D2300 series data transceivers provide drop and repeat transmission of half-duplex (2-wire) EIA RS-485 data signals over one or two optical fibers. The transceivers feature optical "drop & repeat" capability that allows the user to easily configure the network operation. The transceivers are transparent to data encoding allowing for broad-range compatibility. The D2300 series transceivers can be used as line-terminating devices with these modules. Models within this series are available for use with multimode or single mode optical fiber. Plug-and-play design ensures ease of installation requiring no electrical or optical adjustments. Each transceiver incorporates power and transmit/receive data status indicating LED's for monitoring proper system operation. The modules are available in either stand-alone or rack mount versions.

## APPLICATION EXAMPLES

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

## FEATURES

- Meets EIA RS-485 Specifications
- Meets NEMA TS-1/TS-2 & Caltrans Specifications (Temperature/Humidity, Shock/Vibration, and Voltage Transient Protection)
- Transparent to Data Encoding / Compatible with Major Data Protocols
- No In-field Electrical or Optical Adjustments Required
- Automatic Resettable Solid-State Current Limiters
- Drop and Repeat Network Architecture
- Power, Transmit and Receive Data Status LED Indicators
- Data rates up to 200 kbps NRZ
- Hot-Swappable Rack Modules
- 2-Wire (Half-Duplex)
- True Tri-State Output
- Data Re-clocking
- Distances up to 25 Miles (40 km)
- Comprehensive Lifetime Warranty

Available at: www.ifs.com

- A & E Specifications, (CSI)
- AutoCAD Drawings
- Operation Manuals
- Technical Bulletins

## ORDERING INFORMATION

| | PART NUMBER | DESCRIPTION | FIBERS REQUIRED | OPTICAL PWR BUDGET | MAX. DISTANCE* |
|---|---|---|---|---|---|
| MULTIMODE 62.5/125µm** | D2300 | RS-485, 2 Wire Repeater (850 nm) | 2 In/2 Out | 13 dB | 2 miles (3.5 km) |
| | D2320 | RS-485, 2 Wire Repeater (1310 nm) | 2 In/2 Out | 13 dB | 8 miles (13 km) |
| SINGLEMODE 9/125µm | D2325 | RS-485, 2 Wire Repeater (1310 nm) | 2 In/2 Out | 14 dB | 25 miles (40 km) |
| ACCESSORIES♦ | PS-12VDC 12 Volt DC Plug-in Power Supply (Included)<br>PS-12VDC-230 12 Volt DC Plug-in Power Supply, 230 VAC AC Input. (Included if specified at time of order) | | | | |
| OPTIONS | Add '-R3' to Model Number for R3 Rack Mount (Requires R3 Rack purchased separately)<br>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.**

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# TECHNICAL SPECIFICATION — D2300 SERIES
# RS-485 DROP AND REPEAT DATA TRANSCEIVER (2-WIRE)

## SPECIFICATIONS

### DATA

| | |
|---|---|
| Data Interface: | RS-485 (2 wire) |
| Data Rate: | DC - 200 kbps |
| Total Network | |
| Pulse Distortion: | <1µsec |

### WAVELENGTH

| | |
|---|---|
| D2300: | 850 nm, Multimode |
| All Others: | 1310 nm, Multimode or Singlemode |

### NUMBER OF FIBERS

2 In/2 Out

### CONNECTORS

| | |
|---|---|
| Optical: | ST |
| Data and Power: | Terminal Plug with screw clamps |

### ELECTRICAL & MECHANICAL

| | |
|---|---|
| Power: | |
| Surface Mount: | 12 VDC @250 mA |
| Rack: | From Rack |
| Current Protection: | Automatic Resettable Solid-State Current Limiters |
| Circuit Board: | Meets IPC Standard |
| 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 1.0 in., 17.8 x 12.5 x 2.5 cm. |
| Shipping Weight: | < 2 lbs./0.9 kg |

### ENVIRONMENTAL

| | |
|---|---|
| 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)† |

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

### AGENCY COMPLIANCE

FCC PART 15 COMPLIANT CE cUL UL GSA

*Federal Supply Schedule Contract No. GS-07F-0049M*

### MADE IN THE USA

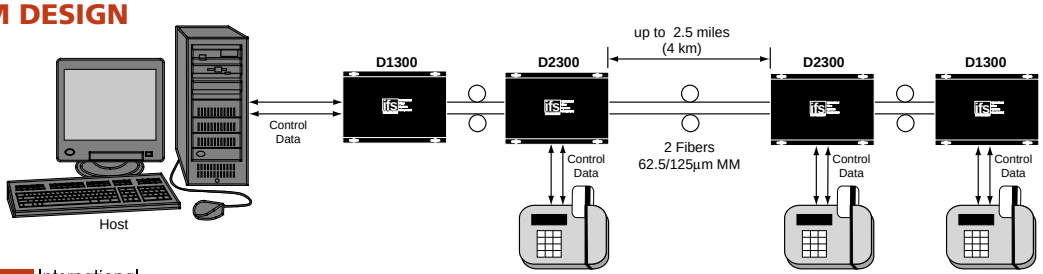
**Complies with FDA Performance Standard for Laser Products, Title 21, Code of Federal Regulations, Subchapter J**

## OPTICAL POWER BUDGET

| FIBER | WAVELENGTH | TRANSCEIVER | | | OPTICAL PWR BUDGET | MAX. DISTANCE* |
|---|---|---|---|---|---|---|
| | | MODEL | OUTPUT PWR | SENSITIVITY | | |
| Multimode 62.5/125µm** | 850 nm | D2300 | 20 µw (-17 dBm) | 1 µw (-30 dBm) | 13 dB | 2.5 miles (4 km) |
| | 1310 nm | D2320 | | | | 8 miles (13 km) |
| Single-mode 9/125µm | | D2325 | 25 µw (-16 dBm) | | 14 dB | 25 miles (40 km) |

*** 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.**

## SYSTEM DESIGN





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