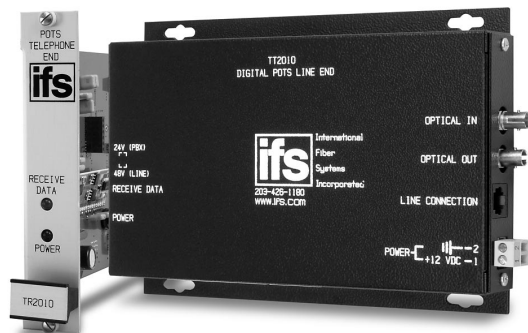




PRODUCT SPECIFICATION

TOUCH-TONE TELEPHONE INTERFACE

TT/TR2000 SERIES



DESCRIPTION

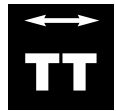
The IFS TT/TR2000 Series Touch-Tone Telephone Digital Interface provides extended transmission to be used with analog systems over one or two optical fibers using the latest in digital transmission technology. The modules also support many enhanced telephone services offered by telephone providers, such as Caller ID, Call-Waiting, and 3-way Calling. Models within this series are available for use with multimode or singlemode optical fiber. Plug-and-play design ensures ease of installation. The module incorporates power and carrier detect status indicating LED's to monitor proper system operation. The module is available in either stand-alone or rack mount versions.

APPLICATION EXAMPLES

- Extend The Distance Of Remote Telephone Extensions
- Intercom Systems That Utilize A Touch-Tone Interface
- Use for Controlling Remote Equipment That Utilizes Touch-Tone Signaling For Control.
- Screen-Room Applications Where Non-Metallic Cables Are Required

FEATURES

- Digital Fiber Transmission
- User-Selectable for 48-Volt and 24-Volt Systems, to be used with Analog Systems
- Supports 90-Volt Ringer Voltage
- Continuous Line Monitoring for Supporting Caller ID
- Plug and Play Design Ensures Ease of Installation
- Industry Standard RJ-11C Connector
- Power and Carrier Detect Status Indicating LED's to Monitor System Performance
- Automatic Resettable Fuses on All Power Lines
- Compatible with Talk-A-Phone™♦, Code Blue™, Trigon™ and Valcom™
- Hot-Swappable Rack Modules
- Distances up to 41 Miles (66 Km) Without Repeaters
- Comprehensive Lifetime Warranty



ORDERING INFORMATION

	PART NUMBER	DESCRIPTION	FIBERS REQUIRED	OPTICAL PWR BUDGET	MAX. DISTANCE*
MULTIMODE 62.5/125µm**	TT2010	Touchtone Telephone Interface (850 nm)	2	13 dB	2 miles (3.5 km)
	TR2010	Touchtone Telephone Interface (850 nm)			
	TT2010WDM	Touchtone Telephone Interface (850/1310 nm)	1	13 dB	2 miles (3.5 km)
	TR2010WDM	Touchtone Telephone Interface (1300/ 850 nm)			
SINGLEMODE 9/125µm	TT2030	Touchtone Telephone Interface (1310 nm)	2	23 dB	41 miles (66 km)
	TR2030	Touchtone Telephone Interface (1310 nm)			
	TT2030WDM	Touchtone Telephone Interface (1310/1550 nm)	1	23 dB	41 miles (66 km)
	TR2030WDM	Touchtone Telephone Interface(1310/1550 nm)			
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) ♦Add ‘-T’ for Talk-A-Phone™ Add ‘-V’ for Valcom™ (Call IFS for compatible models)				

* 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.



TECHNICAL SPECIFICATION TOUCH-TONE TELEPHONE INTERFACE

TT/TR2000 SERIES

SPECIFICATIONS

AUDIO

Audio Input/Output: Standard Touchtone Telephone
Bandwidth: 150 Hz - 5 kHz
Signal-to-Noise: >60 dB
I/O Impedance: 600 ohms balanced

WAVELENGTH

TT/TR2010: 850 nm, Multimode
TT/TR2010WDM: 850/1310 nm, Multimode
TT/TR2030: 1310 nm, Singlemode, Laser
TT/TR2030WDM: 1310/1550 nm, Singlemode, Laser

NUMBER OF FIBERS

TT/TR2010, TT/TR2020: 2
TT/TR2030: 2
TT/TR2010WDM: 1
TT/TR2030WDM: 1

CONNECTORS

Optical: ST
Power: Terminal Block with Screw Clamps
Data: RJ-11

ELECTRICAL & MECHANICAL

Power: TT: 12 VDC @ 200 mA
Surface Mount: TR: 12 VDC @ 500 mA
Rack: From Rack
Number of Rack Slots: 2
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: 7.7 x 5.0 x 1.0 in., 19.6 x 12.7 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



MADE IN THE USA

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

Non Compliance:

This product does not comply with FCC Part 68.

OPTICAL POWER BUDGET

FIBER	WAVELENGTH	TRANSMITTER		RECEIVER		OPTICAL PWR BUDGET	MAX. DISTANCE*
		MODEL	OUTPUT	MODEL	SENSITIVITY		
Multimode 62.5/125µm**	850 nm	TT2010	20µw (-17 dBm)	TR2010	1 µw (-30 dBm)	13 dB	2 miles (3.5 km)
	850/1300 nm	TT2010WDM		TR2010WDM			
Singlemode 9/125µm	1300 nm	TT2030	200µw (-7 dBm)	TR2030		23 dB	41 miles (66 km)
	1300/1550 nm	TT2030WDM		TR2030WDM			

* 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

