MRV Communications, Inc.

OPTICAL ACCESS SOLUTIONS

Datasheet

TereScope® 5000

TereScope® 5000

Overview

The Carrier class TereScope® 5000 provides high-speed Free Space Optics (FSO) connectivity for a variety of last-mile applications. Operating at data rates of 1 Mbps to 155 Mbps, TereScope® 5000 systems are deployable rapidly, without requiring right-of-way or government permits for installation, providing you with communication links in hours instead of weeks or months.

Removable power supply

One of the features of the TereScope 5000 is its modular power supply that can be field removed and replaced. No need for dismounting the whole device and taking it to repair, loosing time and money - the power supply can be replaced instantly on site.

Performance

The TereScope® 5000 provides 1 Mbps to 155 Mbps wire speed connectivity for distances of up to 5.5 km.

Reliability

TereScope® 5000 systems are extremely reliable with an MTBF (Mean Time Between Failures) of more than 10 years.

Technology

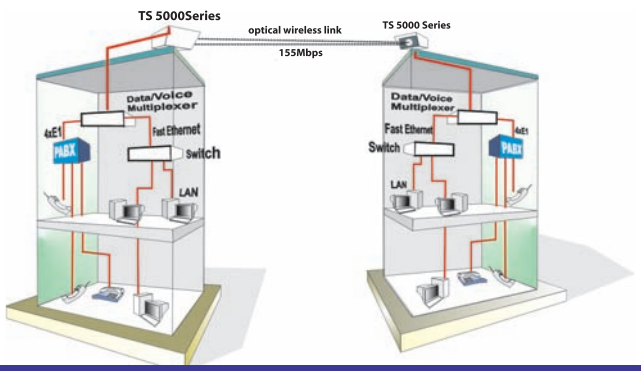
TereScope® 5000 uses multiple transmit aperture technology (3 transmitters) to ensure high performance in adverse weather conditions. The receiver of the long-range TereScope® 5000 has an 8" diameter to overcome scintillation and other atmospheric noises in hot or cold weather.

Heating

TereScope® 5000 is equipped with our special internal air circulation feature, based on dissipation of the power supply heat. This prevents the formation of condensation on the lenses under all weather conditions without the need for additional heating at low temperatures.

Safety

MRV offers this equipment based on low power lasers.
TereScope® 5000 is eye and skin safe at the aperture and complies with eye safety Class 1M.



Features

- Carrier Class
- Accommodates 1 to 155 Mbps networks, for protocols such as E3/T3, Fast Ethernet, FDDI, OC-3, ATM and STM-1
- Distances up to 5.5 km
- Fast deployment
- Supports multiple protocols
- License-free operation
- Visual and receive power measurement alignment functionality
- Remote management options
- Connection to dry contact box (RSM-DC) - optional
- Weatherproofing: IP66
- Secure transmission
- Eyes safety Class 1M
- Modular Power Supply
- Chain multiple connections

Applications

- Last-mile connectivity
- Mesh networking
- LAN/MAN environments
- Temporary or permanent installation
- Cross Border Links
- Disaster Recovery

SNMP Management

TereScope® 5000 is fully managed by using the SNMP option. SNMP monitoring can be done via MegaVision Web®, MRV's SNMP Element Management web-based system or any other SNMP browser.

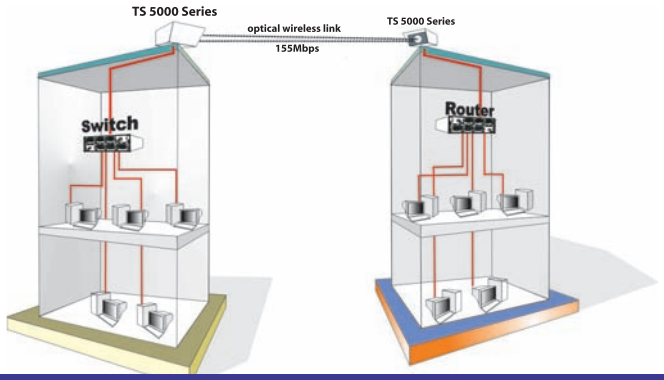
Dry Contacts

TereScope® 5000 can be equipped with a dry contact option that enables interfacing to dry contacts based local and remote management and monitoring systems.

TereScope® Fusion (option for TS155 PS)

Maximizing Link Availability in ALL Weather Conditions

TereScope Fusion option was designed to combine the best features of two transport media, laser light and radio waves, to form a single, seamless, unlicensed wireless communication link between network devices. By leveraging both technologies, we can provide the 99.999% availability that your network requires.
The TereScope Fusion option consists of a TereScope® 5000 system with a built-in link redundancy option with an optical wireless link that provides Fast Ethernet connectivity as the primary link and Ethernet RF (802.11b) as the backup link.



Technical Specifications: TereScope 5000

MODEL/ PROD CODE			TS155/G/XXX/V* or TS155/G/XXX/F*
Applications/ Data Protocol			Fast Ethernet, ATM, OC3, STM1, E3,T3, OC1/STM0 & Open Protocol
Performance	Rate		1-155 Mbps
	Range(1)	@ 3 dB/km	5500 m
		@ 5 dB/km	4100 m
		@10 dB/km	2700 m
		@17 dB/km	1850 m
		@30 dB/km	1200 m
	Minimum Range		1000 m
	Bit error rate		Less than 1E - 12 (unfaded)
	MTBF		more than 10 years
Transmitter	Light source		3 x Lasers
	Wavelength		830 - 860 nm
	Total Output power		100 mW
	Beam divergence		2 mrad
Receiver	Detector		Silicon Photodiode
	Field of view		5 mrad
	Sensitivity		-46 dBm
Interface	Type		Fiber Optic Transceiver - Multimode (Singlemode available upon request)
	Connectors		SC (other connectors available)
	Wavelength		1300 nm (other wavelength available)
	Output power		-17 ± 3 dBm
	Receiver operating range		-14 to - 30 dBm
Power Supply	Voltage range		Factory set: 100 - 240 VAC @50/60 Hz or 24-60 VCD
	Power consumption		22 W
Environmental Information	Operating temperature		-20° C to +50° C
	Storage temperature		-50° C to +70° C
	Humidity		95% non-condensing
	Housing		Weatherproofing: IP66
	Eye safety Class		1M
Mechanical Design	Dimensions (mm)		822 x 384 x 526
	Weight	Unit	9 kg
		Accessories	18 kg
Diagnostics	Indicators		Airlink: Flag, Sync., Fiber Optic: Flag, Sync. Alignment, Loopback, Receive Signal Strength (Digital Display), Lasers status (3 LEDs)
	Selectors		Data Rate, Alignment, Loopback (local)
Management			SNMP protocol - Built-in
Standards Compliance	Jitter Specifications proposed for SONET/SDH equipment defined by the Bellcore Specifications: GR-253-CORE, Issue 2, December 1995 and ITU-T Recommendations: G.958 document. Typical Applications: OC-1, STS-3, ATM, FDDI, E3, Fast Ethernet etc... EN50081-1: 1991; EN50082-1: 1998; EN55022: 1997; EN61000-4-2: 1995; EN61000-4-3: 1995; EN61000-4-4: 1995; EN61000-4-5:1995; ENV50142; EN61000-4-6: 1996/ENV50141; EN61000-4-8: 1993; EN61000-4-11: 1994; EN61000-3-2:1995; IEC950, 1991, A1, A2, A3, A4; EN60950, 1992, A1,A2,A3,A4,A11; FCC part 15 Class A; UL1950,3rd Edition (1995); CSA22.2, No.950 (1995) ;weather proofing IP66		

(1)
@ 3 dB/km = Light rain (5-10 mm/hr) - Light haze
@ 5 dB/km = Light to medium rain (15-20 mm/hr) - Haze
@10 dB/km = Medium to heavy rain (45 mm/hr) - Light snow - Thin fog
@17 dB/km = Cloudburst (100 mm/hr) - Medium snow - Light fog
@30 dB/km = Rain (up to 180 mm/hr) - Blizzard - Moderate fog

Ordering Info

Product	Description
TS155/G/M3C/V*	TereScope 5000/155, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (MM 1310nm, DSC). SNMP-RSM included, Power supply VS or V3*.
TS155/G/S3C/V*	TereScope 5000/155, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (SM 1310nm, DSC). SNMP-RSM included, Power supply VS or V3*.
TS155/G/M3T/V*	TereScope 5000/155, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (SM 1310nm, DST). SNMP-RSM included, Power supply VS or V3*.
TS155/G/S5C/V*	TereScope 5000/155, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (SM 1550nm, DSC). SNMP-RSM included, Power supply VS or V3*.
TS155/G/M3C/F*	TereScope 5000/155F, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (MM 1310nm, DSC). SNMP-RSM and built-in Fusion option included, Power supply FS or F3*.
TS155/G/S3C/F*	TereScope 5000/155F, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (SM 1310nm, DSC). SNMP-RSM and built-in Fusion option included, Power supply FS or F3*.
TS155/G/S3T/F*	TereScope 5000/155F, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (SM 1310nm, DST). SNMP-RSM and built-in Fusion option included, Power supply FS or F3*.
TS155/G/S5C/F*	TereScope 5000/155F, 8 inch receiver Free Space Optics 5400m, Open Protocol 1-155Mbps, Selectable Protocols 34-155Mbit/s, visual alignment (SM 1550nm, DSC). SNMP-RSM and built-in Fusion option included, Power supply FS or F3*.

VS or FS: High voltage: 100 - 240 VAC

V3 or F3: Low voltage: 24 - 60 VDC