



ECLIPSE

CONNECT



ETSI Datasheet



*Looking for a Better Way
to Get Data Across Town?*

stratex
NETWORKS

Eclipse Connect–High-Speed Wireless Data Transport

Eclipse Connect ES™

Looking for a highly scalable wireless Ethernet solution? Connect ES is designed with an industry leading suite of features to solve your demanding broadband service requirements.

As your need for increased speed grows, throughput capacity can be increased by a simple remotely activated software key, to provide a low cost entry-level solution that is able to deliver additional bandwidth, only when required.



Feature Overview

Delivering professional-grade reliability with a software scalable, high performance Ethernet packet forwarding engine, Connect ES offers an excellent choice for licensed, point-to-point wireless transport over path lengths up to 80 kilometers.

The Connect ES IDU presents four, wire-speed 100BaseT ports, all with the ability to groom multiple applications into a single QoS controlled radio link. Up to eight E1 wayside channels can be independently assigned for TDM/voice support.

Integrated remote monitoring (RMON) enables network traffic status to be viewed at each point in the network. Complete control of Connect ES networks is provided by Stratex Networks element management platform, ProVision™.

Core Benefits

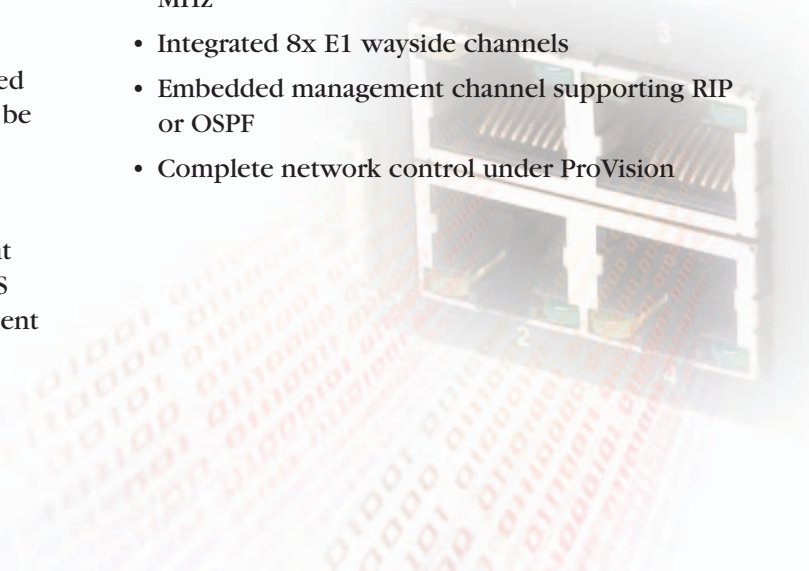
- Asset based, interference-free licensed radio solution
- Dedicated bandwidth, scalable to match ROI considerations
- Comprehensive suite of management options
- Manage the transition from TDM to high speed Ethernet
- Prioritization of application traffic to support high value services

Applications

- High speed broadband access services
- Leased line replacement
- Mobile/Wi-MAX/Wi-Fi base station backhaul
- Enterprise, Health Care, Education, Local Government and Military networks
- DSLAM service backhaul

Key Features Highlights

- Scalable bandwidth from 10 to 200 Mbps, full duplex
- Ultra low latency
- Wire speed 4-port 100BaseT switch with Integrated RMON
- Per port VLAN tagging
- QoS via 802.1p/q and Diffserve
- Radio frequency options of 5 to 38GHz
- User selectable channel bandwidth from 7 to 56 MHz
- Integrated 8x E1 wayside channels
- Embedded management channel supporting RIP or OSPF
- Complete network control under ProVision



General Characteristics					
Operating Frequency Range					5 to 38 GHz
Modulation Options					QPSK, 16, 32, 64, 128 QAM
Error Correction					FEC, Reed Solomon Decoding
Adaptive Equalisation					20 Tap
Configuration Options					Non Protected, 1+0
Ethernet and TDM Traffic Interfaces					
Ethernet Traffic Interface	Interfaces				4x 10/100baseT Fast
	Connectors				4x 8-pin RJ45
	Frame size				64 - 1532 bytes
	Ethernet transport channels				2
E1 Wayside Traffic Interface	Granularity per channel				2 - 98 Mbps, 2 Mbps increments
	Interfaces				8x 2.048 Mbps (E1)
	Line code				G703 HDB3
	Connectors				8x RJ45
	Impedance				75W unbalanced or 120W balanced, configurable
Ethernet Throughput Options (duplex)					
	Modulation	Channel Bandwidth	Nominal Data Throughput, Mbps	Actual Data Throughput ^[1] , Mbps	
Connect 10	QPSK	7 MHz	10	10	
Connect 20	QPSK	13.75 / 14 MHz	20	20	
Connect 20	16 QAM	7 MHz	20	20	
Connect 30	QPSK	27.5 / 28 MHz	30	32	
Connect 30	16 QAM	13.75 / 14 MHz	30	32	
Connect 30	64 QAM	7 MHz	30	32	
Connect 40	QPSK	27.5 / 28 MHz	40	41	
Connect 40	16 QAM	13.75 / 14 MHz	40	41	
Connect 50s	16 QAM	27.5 / 28 MHz	50	65	
Connect 50h	16 QAM	27.5 / 28 MHz	50	65	
Connect 50h	32 QAM	13.75 / 14 MHz	50	55	
Connect 80	16 QAM	27.5 / 28 MHz	80	82	
Connect 100	32 QAM	27.5 / 28 MHz	100	106	
Connect 150	16 QAM	55 / 56 MHz	150	153	
Connect 150	128 QAM	27.5 / 28 MHz	150	153	
Connect 200	64 QAM	55 / 56 MHz	200	198	
Auxiliary Functions and other Interfaces					
Auxiliary Data Channel					1x RS232 or RS422, 1.2
Alarm I/O					2 - TTL inputs, 4 - Form C
NMS LAN interface	Type				10/100baseT Ethernet
Serial Maintenance Interface	Standard				Complies to TIA/EIA-561
IF Cable Connector					N-Type
Configuration memory, removable					32 Mbyte CompactFlash card (rear access)
Power Supply and Environment					
Power Supply	Input Voltage Range				-40.5 to -60.0 VDC
	Power Consumption				60 W max
	Protection Circuit				3A Slow-Blow Fuse
Operating Temperature	Indoor Unit	Guaranteed			-5° to +45° C (23° to +113° F)
	Outdoor Unit	Guaranteed			-33° to +55° C (-27° to +131° F)
		Extended [2]			-50° to +65° C (-58° to +149° F)
Weight and Dimensions	Indoor Unit				44mm (1RU) x 482mm (19in) x 280mm (11.0in), 1.6 kg (3.5 lb)
	Outdoor Unit	ODU300ep			287mm (11.2 in) x 287mm (11.2 in) x 162mm (6.4 in), 8.8 kg (19.4 lb)
		ODU300hp			287mm (11.2 in) x 287mm (11.2 in) x 162mm (6.4 in), 6.4 kg (14 lb)
		ODU300sp			287mm (11.2 in) x 287mm (11.2 in) x 162mm (6.4 in), 6.1 kg (13.5 lb)
Fault and Configuration Management					
Protocol supported					SNMP v2, Static and dynamic routing, RIP I, RIP II, OSPF
Local/remote Configuration and Support Tool					Eclipse Portal
Performance Monitoring					To ITU-T Rec. G.826
Network Management					Stratex Networks ProVision
Engineering Orderwire					Optional VoIP handset
Standards Compliance					
Ethernet					IEEE 802.u, IEEE 802.3u
		Framing			IPv4 and IPv6, IEEE 802.3d
		Flow Control			IEEE 802.3x
		VLAN			IEEE 802.1q
		QoS			Port based, IEEE 802.1p, Diffserv (RFC 2474)
Radio Frequency					EN 302 217
Electromagnetic Compliance (EMC)					EN 301 489
Operation	Outdoor Unit				ETS 300 019, Class 4.1
Operation	Indoor Unit				ETS 300 019, Class 3.2
Storage					ETS 300 019, Class 1.2
Transportation					ETS 300 019, Class 2.3
Safety					EN 60950
Water Ingress	Outdoor Unit				IEC 60529 (IPX6)

[1] Actual throughput available for data transport will be reduced proportionally when wayside E1 channels are used.

[2] Over full Extended Operating Temperature Eclipse may be subject to reduced performance. Contact Stratex Networks for more details.

For additional specifications please refer to the main Eclipse Platform Datasheet.

ODU Specifications

General Specifications												
IF Cable, recommended	IDU to ODU										Belden 9913 (RG-8) 50W	
Maximum IF Cable length [1]	IDU to ODU										300 meters (1,000 ft)	
IF cable connector											N-Type	
AGC monitor point											BNC	
General Transmitter Specifications	Transmit Power Tolerance										± 2 dB	
	Transmitter Source										Synthesized	
	Frequency Stability										± 10 ppm	
Manual Transmitter Power Control range	5, L6, U6 GHz (ODU300ep)										QPSK 16QAM 32QAM 64QAM 128QAM	
	7 to 38 GHz (ODU300sp/hp)										26 dB 25.5 dB 25 dB 24 dB	
Automatic Transmitter Power Control											20 dB 18 dB 17.5 dB 17 dB 16 dB	
General Receiver Specifications	Receiver Source										Configurable over full available manual attenuation range	
	Frequency Stability										Synthesized	
	Receiver Overload, BER = 1x10 ⁻⁶										± 10 ppm	
Residual (Background) Bit Error Rate											-22 dBm	
											Better than 10 ⁻¹³	
System RF Specifications												
Frequency Range, GHz	5 GHz [2]	L6/U6 GHz	7/8 GHz	11 GHz	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	28 GHz	38 GHz	
Frequency Range, GHz	4.4 - 5.0	5.925 - 6.425 6.425 - 7.11	7.125 - 7.9 7.725 - 8.5	10.7 - 11.7	12.75 - 13.25	14.4 - 15.35	17.7 - 19.7	21.2 - 23.632	24.52- 26.483	27.5 - 29.5	37.0 - 39.46	
T-R Spacings supported, MHz	300, 312	252.04 340	154, 161, 245 119, 126, 151.614, 266, 311.32	490, 530	266	315, 420, 490, 644, 728	1010, 1092.5	1008, 1200, 1232	1008	1008	1260	
Maximum Tuning Range (dependent upon T-R spacing), MHz	56	56	56	165	84	245	380	370	360	360	340	
Antenna Interface												
Waveguide Type	N/A	R70 (WR137)	R84 (WR112)	R100 (WR90)	R120 (WR75)	R140 (WR62)	R220 (WR42)	R220 (WR42)	R220 (WR42)	R320 (WR28)	R320 (WR28)	
Flange Type	Coax	UDR70	UDR84	UDR100	UBR120	UBR140	UBR220	UBR220	UBR220	UBR320	UBR320	
Mating Flange Type	7/16 DIN F	PDR70 or CDR70	PDR84 or CDR84	PDR100 or CDR100	PBR120 or CDR120	PBR140 or CBR140	PBR220	PBR220	PBR220	PBR320	PBR320	
System Gain [3]												
Connect 10	7 MHz	QPSK	116.0 dB	113.0 dB	110.5 dB	109.5 dB	107.0 dB	107.0 dB	106.0 dB	105.0 dB	103.5 dB	
Connect 20	13.75 / 14	QPSK	113.0 dB	110.0 dB	107.5 dB	106.5 dB	104.0 dB	104.0 dB	103.0 dB	102.0 dB	100.5 dB	
Connect 20	7 MHz	16 QAM	107.0 dB	104.0 dB	101.5 dB	100.5 dB	98.0 dB	98.0 dB	97.0 dB	96.0 dB	94.5 dB	
Connect 30	27.5 / 28 MHz	QPSK	111.0 dB	108.0 dB	105.5 dB	104.5 dB	102.0 dB	102.0 dB	101.0 dB	100.0 dB	98.5 dB	
Connect 30	13.75 / 14	16 QAM	105.0 dB	102.0 dB	99.5 dB	98.5 dB	96.0 dB	96.0 dB	95.0 dB	94.0 dB	92.5 dB	
Connect 30	7 MHz	64 QAM	104.0 dB	99.0 dB	98.0 dB	97.0 dB	94.0 dB	94.0 dB	94.0 dB	93.5 dB	92.5 dB	
Connect 40	27.5 / 28 MHz	QPSK	110.0 dB	107.0 dB	104.5 dB	103.5 dB	101.0 dB	101.0 dB	100.0 dB	99.0 dB	97.5 dB	
Connect 40	13.75 / 14	16 QAM	104.0 dB	101.0 dB	98.5 dB	97.5 dB	95.0 dB	95.0 dB	94.0 dB	93.0 dB	91.5 dB	
Connect 50s	27.5 / 28 MHz	16 QAM	101.5 dB	99.0 dB	96.5 dB	95.5 dB	93.0 dB	93.0 dB	92.0 dB	91.0 dB	89.5 dB	
Connect 50h	27.5 / 28 MHz	16 QAM	106.0 dB	106.5 dB	106.5 dB	101.5 dB	100.5 dB	99.5 dB	96.5 dB	96.5 dB	96.0 dB	
Connect 50h	13.75 / 14	32 QAM	104.5 dB	105.0 dB	105.0 dB	100.0 dB	99.0 dB	98.0 dB	95.0 dB	95.0 dB	94.5 dB	
Connect 80	27.5 / 28 MHz	16 QAM	104.5 dB	104.5 dB	99.5 dB	98.5 dB	97.5 dB	94.5 dB	94.5 dB	94.5 dB	93.5 dB	
Connect 100	27.5 / 28 MHz	32 QAM	102.0 dB	102.5 dB	102.5 dB	97.5 dB	96.5 dB	95.5 dB	92.5 dB	92.5 dB	91.0 dB	
Connect 150	55 / 56 MHz	16 QAM						93.0 dB	93.0 dB	93.0 dB	92.5 dB	
Connect 150	27.5 / 28 MHz	128 QAM	93.5 dB	94.0 dB	94.0 dB	88.0 dB	88.0 dB	90.0 dB	84.0 dB	84.0 dB	84.0 dB	
Connect 200	55 / 56 MHz	64 QAM						85.5 dB	85.5 dB	85.5 dB	85.0 dB	
Connect 200	55 / 56 MHz	64 QAM						85.5 dB	85.5 dB	85.5 dB	84.0 dB	
Transmitter Performance												
Power Output (nominal)	ODU300sp	QPSK	25.0 dBm	22.5 dBm	20.0 dBm	19.0 dBm	17.0 dBm	17.0 dBm	16.0 dBm	15.5 dBm	15.0 dBm	
		16 QAM	23.0 dBm	20.5 dBm	18.0 dBm	17.0 dBm	15.0 dBm	15.0 dBm	14.0 dBm	13.5 dBm	13.0 dBm	
	ODU300hp/ep	16 QAM	26.5 dBm	26.5 dBm	22.0 dBm	21.0 dBm	20.0 dBm	17.5 dBm	17.5 dBm	17.0 dBm	16.0 dBm	
		32 QAM	26.0 dBm	26.0 dBm	21.5 dBm	20.5 dBm	19.5 dBm	17.0 dBm	17.0 dBm	16.5 dBm	15.5 dBm	
		64 QAM	25.5 dBm	25.5 dBm	21.0 dBm	20.0 dBm	19.0 dBm	16.5 dBm	16.5 dBm	16.5 dBm	15.0 dBm	
		128 QAM	24.5 dBm	24.5 dBm	19.0 dBm	19.0 dBm	21.0 dBm	15.5 dBm	15.5 dBm	15.5 dBm	15.5 dBm	
Receiver Threshold [3]												
Connect 10	7 MHz	QPSK	-91.0 dBm	-90.5 dBm	-90.5 dBm	-90.5 dBm	-90.0 dBm	-90.0 dBm	-90.0 dBm	-89.5 dBm	-88.5 dBm	
Connect 20	13.75 / 14 MHz	QPSK	-88.0 dBm	-87.5 dBm	-87.5 dBm	-87.5 dBm	-87.0 dBm	-87.0 dBm	-87.0 dBm	-86.5 dBm	-85.5 dBm	
Connect 20	7 MHz	16 QAM	-84.0 dBm	-83.5 dBm	-83.5 dBm	-83.5 dBm	-83.0 dBm	-83.0 dBm	-83.0 dBm	-82.5 dBm	-81.5 dBm	
Connect 30	27.5 / 28 MHz	QPSK	-86.0 dBm	-85.5 dBm	-85.5 dBm	-85.5 dBm	-85.0 dBm	-85.0 dBm	-85.0 dBm	-84.5 dBm	-83.5 dBm	
Connect 30	13.75 / 14 MHz	16 QAM	-82.0 dBm	-81.5 dBm	-81.5 dBm	-81.5 dBm	-81.0 dBm	-81.0 dBm	-81.0 dBm	-80.5 dBm	-79.5 dBm	
Connect 30	7 MHz	64 QAM	-78.5 dBm	-78.0 dBm	-78.0 dBm	-78.0 dBm	-77.5 dBm	-77.5 dBm	-77.5 dBm	-77.5 dBm	-77.5 dBm	
Connect 40	27.5 / 28 MHz	QPSK	-85.0 dBm	-84.5 dBm	-84.5 dBm	-84.5 dBm	-84.0 dBm	-84.0 dBm	-84.0 dBm	-83.5 dBm	-82.5 dBm	
Connect 40	13.75 / 14 MHz	16 QAM	-81.0 dBm	-80.5 dBm	-80.5 dBm	-80.5 dBm	-80.0 dBm	-80.0 dBm	-80.0 dBm	-79.5 dBm	-78.5 dBm	
Connect 50s	27.5 / 28 MHz	16 QAM	-78.5 dBm	-78.5 dBm	-78.5 dBm	-78.5 dBm	-78.0 dBm	-78.0 dBm	-78.0 dBm	-77.5 dBm	-76.5 dBm	
Connect 50h	27.5 / 28 MHz	16 QAM	-79.5 dBm	-80.0 dBm	-80.0 dBm	-79.5 dBm	-79.5 dBm	-79.0 dBm	-79.0 dBm	-79.0 dBm	-79.0 dBm	
Connect 50h	13.75 / 14 MHz	32 QAM	-78.5 dBm	-79.0 dBm	-79.0 dBm	-78.5 dBm	-78.5 dBm	-78.0 dBm	-78.0 dBm	-78.0 dBm	-78.0 dBm	
Connect 80	27.5 / 28 MHz	16 QAM	-78.0 dBm	-77.5 dBm	-77.5 dBm	-77.5 dBm	-77.0 dBm	-77.0 dBm	-77.0 dBm	-76.5 dBm	-75.5 dBm	
Connect 100	27.5 / 28 MHz	32 QAM	-76.0 dBm	-76.5 dBm	-76.5 dBm	-76.0 dBm	-76.0 dBm	-75.5 dBm	-75.5 dBm	-75.5 dBm	-75.5 dBm	
Connect 150	55 / 56 MHz	16 QAM						-75.5 dBm	-75.5 dBm	-75.5 dBm	-75.5 dBm	
Connect 150	27.5 / 28 MHz	128 QAM	-69.0 dBm	-69.5 dBm	-69.5 dBm	-69.0 dBm	-69.0 dBm	-68.5 dBm	-68.5 dBm	-68.5 dBm	-68.5 dBm	
Connect 200	55 / 56 MHz	64 QAM						-69.0 dBm	-69.0 dBm	-69.0 dBm	-69.0 dBm	

[1] Maximum IF cable length is for recommended RG-8 cable. Longer distances are possible using higher specification cable, but performance is not guaranteed by Stratex Networks.

[2] For switchable diplexer option, 5GHz system gain is reduced by 4 dB.

[3] System Gain and Rx Threshold values are for BER=10⁻⁶. Values for BER=10⁻³ are improved by 1dB.

All specifications are typical values unless otherwise stated, and are subject to change without notice.