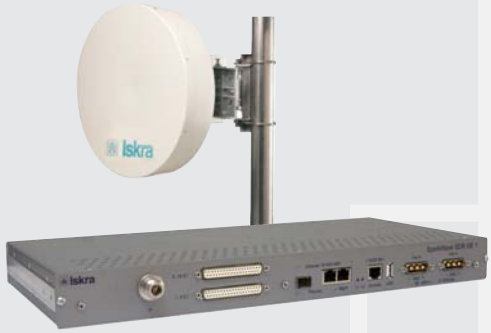
SparkWave SDR GE

High Capacity Ethernet Radio



SPARKWAVE
digital microwave radio

SparkWave SDR GE is a high-performance, easy-to-use split-mount, point-to-point wireless microwave RF radio link, designed for high capacity Gigabit Ethernet applications.

Operating frequency ranges from 5 to 38 GHz, modulation up to QAM256 and bandwidth up to 56 MHz can assure effective, flexible and scalable connections even for very long distances and/or for very high capacities.

ACM (Adaptive Coding & Modulation) in combination with QoS (Quality of Service) guarantees maximal spectral efficiency, while preserving transmission of real-time critical services without latency variation, even in case of bad weather or other propagation conditions.

Beside Ethernet interface up to 16 E1 interfaces could be configured. This enables smooth transition from TDM mode to packet transmission mode.

SparkWave SDR GE provides interconnection between remote LAN segments at very high speed and utilizes Gigabit Ethernet protocols with very low latency.

SparkWave SDR GE is ideal solution for network operators who require high-capacity GE transmission in combination with some legacy TDM.

SparkWave SDR GE is designed to provide high-capacity wireless IP connectivity for the most demanding networks including triple play applications, mobile and fixed wireless technologies such as CDMA, WiMAX, Wi-Fi, LTE, HSPA+ and more...

Applications:

- Backbone networks for packet service providers
- Cellular/WiMAX backhaul networks
- Fixed wireless networks
- Enterprise/corporate campus/business park LAN extension
- Replace carrier leased lines, eliminate expensive recurring costs
- Wireless IP/Ethernet Video Streaming/Surveillance
- Access networks for Enterprises
- Multi-service private wireless networks for energy, traffic, utilities operators.

Features:

- Split-mount or optional all-indoor architecture.
- Frequency bands: 5, 6, 7, 8, 11, 13, 15, 18, 23, 38 GHz
- Modulation up to QAM256
- Bandwidth up to 56MHz
- Bitrate up to 400Mb/s
- SFP for GE interface optical/electrical
- Ethernet 10/100/1000 electrical interface
- Up to 16 E1 interfaces
- Indoor unit 1U high
- Redundant power feeding
- Adaptive coding and modulation

Benefits:·

- Quick and easy deployment and operation
- Software-defined architecture, for easy adaptation to changing conditions and future needs.
- Easily upgrade throughput as you need it, with no hardware replacements
- Forward Error Correction technique LDPC (Low Density Parity Code) increases the link system gain
- Effective management integration using Java Web Start GUI and SNMP protocol transported by an embedded IP/OSPF telemanagement network.
- Compact solutions improves place and energy efficiency that can help lower operating expenses
- Easy migration from TDM to IP or all-IP backbone/backhaul.
- Low OPEX/CAPEX.

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Technical data

Frequency Bands		5 GHz	6 GHz	6 GHz	7 GHz	8 GHz	11GHz
	Op. Freq. Range (GHz)	4.4-5.0	5.9-6.4	6.4-7.1	7.1-7.9	7.7-8.5	10.7-11-7
	RF Ch. Spacing (MHZ)	28; 40	29.65/59.3	40	7/14/28/56	7/14/28/56; 29.65/59.3	40

Frequency Bands		13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	38 GHz
	Op. Freq. Range (GHz)	12.7-13.3	14.4-15.35	17.7-19.7	21.2-23.6	24.25-26.5	37-39.5
	RF Ch. Spacing (MHZ)	7/14/28/56	7/14/28/56	13.75/27.5/55	7/14/28/56	7/14/28/56	7/14/28/56

RF Parameters		Frequency	5-11 GHz	13-15 GHz	18-26 GHz	38 GHz
	Tx Power (dBm)	QAM4	26/30	24	22	17
		QAM16/32	24/28	22	20	15
		QAM64/128	22/26	20	18	13
		QAM256	21/25	19	17	11
	Rx Sensitivity (dBm)	QAM 4/7 MHz	-94	-93	-92	-91
		QAM4/14 MHz	-93	-92	-91	-90
		QAM4/28 MHz	-88	-87	-86	-85
		QAM4/56 MHz	-86	-85	-84	-83
		QAM16/7 MHz	-86	-85	-84	-83
		QAM16/14 MHz	-86	-85	-84	-83
		QAM16/28 MHz	-81	-80	-79	-78
		QAM16/56 MHz	-78	-77	-76	-75
		QAM32/7 MHz	-83	-82	-81	-80
		QAM32/14 MHz	-83	-82	-81	-80
		QAM32/28 MHz	-77	-76	-75	-74
		QAM32/40 MHz	-75			
		QAM32/56 MHz	-76	-75	-74	-73
		QAM64/40 MHz	-72			
		QAM128/14 MHz	-77	-76	-75	-74
		QAM128/28 MHz	-71	-70	-69	-68
		QAM128/40 MHz	-69			
		QAM128/56 MHz	-68	-67	-66	-65
		QAM256/28 MHz	-67	-66	-65	-64
		QAM256/56 MHz	-66	-65	-64	-63
	Frequency stability		±10 ppm			
	Frequency setting step		0.25 MHz			
	ATPC output power adjusting range		20 dB in 1 dB step			

PDH	Interface	Up to 16 x E1, G.703 point 6., 2.048 kbit/s 120/75 Ohm - SW defined
Ethernet	Interface	1 x electrical 10/100/1000BaseT RJ45 or 1 x 1000Base-SX/LX/CX SFP module
	Frame lenght	Up to 9600 byte
	QoS	2 Tx priority queues based on VLAN ID

Throughput		bandwidth	56 MHz	40 MHz	28 MHz	14MHz	7MHz
	Bitrate (Mbit/s)	QAM256	351		174		
		QAM128	298	225	154	77	
		QAM64		191			
		QAM32	196	155	92	53	26
		QAM16	157		73	43	20
		QAM4	78		37	21	9
	Max Bitrate for ACM		367	266	183	90	45

Latency		bandwidth	56 MHz	40 MHz	28 MHz	14MHz	7MHz
	64 byte frame (µs)	QAM256	174		367		
		QAM128	184	127	184	356	
		QAM64		127			
		QAM32	151	107	174	300	588
		QAM16	187		210	355	729
		QAM4	356		387	676	1362

Management	Protocols	SNMP, CLI, Telnet
	Interfaces	10/100/1000BaseT, RS-232
	Data Communications Network	Embedded service channel and OSPF router
Environmental	Operation climatic conditions	IDU: -5°-+40°C/8%-95% ETSI EN 300 019 class 3.1E ODU: -33°-+50° C/5%-100% ETSI EN 300 019 class 4.1 ODU: -50°C - +50° C optional
	Storage/transport conditions	ETSI EN 300 019 class 1.1/class 2.3
	EMC compatibility	ETSI 301 489-4
Power	Power Supply	-40 V to -58 V (option: -36 V to -72 V)
	Power consumption	IDU: <25 W; ODU: <30 W (tipically), <45 W (high power option)
Mechanical	Dimensions (HxWxD)	IDU: 45x442x240 mm ODU: 200x150x80 mm/F305x120 mm
	Weight	IDU: <2,5 kg; ODU: <6 kg

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