4RF

Now with 5G

Anterix ACTIVE

OnGo alliance

Aprisa LTE

SMART, SECURE LTE CELLULAR ROUTER

Smart, secure, industry-leading performance 3GPP LTE communications for critical infrastructure monitoring and control for the electricity, water, oil and gas industries. Hardened LTE for both mission and business critical applications with enhanced broadband data rates and reduced latency.

- **Secure:** with its vetted defense in depth approach, including AES encryption, strict authentication, L2 / L3 filtering, GRE, IPSec, and DMVPN support, the Aprisa LTE protects against vulnerabilities and malicious attacks.

- **Interfaces:** the Aprisa LTE supports serial and Ethernet with SFP support for additional electrical and optical connections in a single, compact form factor.

- **Adaptable:** the Aprisa LTE integrates into a wide range of industrial and utility applications with redundant carrier connections for public and private networks. New Aprisa Power Control (APC) feature delivers ultra-low power sleep mode for solar applications.

- **Advanced mobility and Wi-Fi:** supports advanced remote visibility in vehicle networks with GNSS location / navigation service and 2x2 MIMO Wi-Fi AP/client mode for workforce mobility communication. Wi-Fi not presently available with 5G [Note 5].

- **Advanced L2 / L3 capabilities:** selectable L2 or L3 modes with VLAN, QoS, NAT, IPv4, and IPv6 transition support to maximize performance and prioritize mission critical traffic while meeting tough security and IP network policy imperatives.

- **Reliable and robust:** the Aprisa LTE requires no manual component tuning and maintains its performance over a wide temperature range using full specification industrially rated components and shared Aprisa family heritage.

- **Easily managed:** an easy to use GUI supports local element management via HTTPS or via CLI with remote element management over the air via SNMP and NETCONF support to allow network-wide monitoring, control, and orchestration via a variety of supported third party network management systems. Innovative Configurator low touch bulk provisioning tool simplifies deployments.

- **Failover:** single radio, dual SIM with switch over, and interface failover to provide alternate path routing on WAN or FAN failure.

Connect with 4RF. Please contact 4RF to hear more about Aprisa LTE and 5G connectivity with a full range of accessories including antennas, engineering advice, and ongoing support.
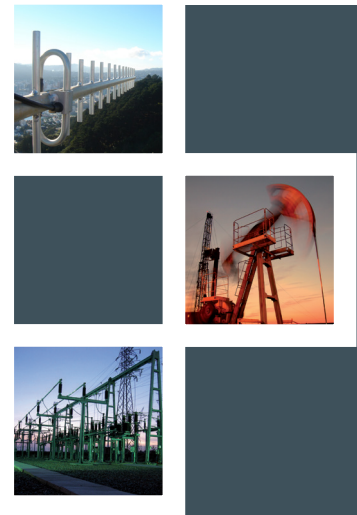
Connected
- 4G Cat-6, Cat-7 / 13, and Cat-12 options for 50 / 150 Mbps uplink and 300 / 600 Mbps downlink
- 5G NSA 3.4 Gbps DL / 0.46 Gbps UL 5G SA 2.5 Gbps DL / 0.9 Gpbs UL (maximum)
- Support for US Band 8 & 106, FirstNet® Band 14, and CBRS Band 48
- HPUE PC1.5 support option for 5G TDD bands n41, n77, n78, and n79
- High performance dual core CPU
- Dual SIM LTE for active / standby and roaming LTE connectivity
- Optional IEEE 802.11ac client and AP mode with 2x2 MIMO for workforce mobility
- SFP slot for optional optical fibre / GPON / additional electrical Ethernet port
- Multi-standard serial RS-232 / RS-422 / RS-485

Flexible
- Global Navigation Satellite System (GNSS) GPS, GLONASS, BeiDou, Galileo, and optional QZSS real time location tracking
- Full routing and firewall between all ports including Wi-Fi
- AT&T® Dynamic Traffic Management (DTM)
- Verizon® Private Network Traffic Management (PNTM)

Secure
- IPSEC / VPN
- Protected key storage option
- MEMS accelerometer motion sensing anti-tamper option

Robust
- SGS certified Class 1, Division 2 for operation in hazardous areas
- IEC 62368-1 safety standard
- IEEE 1613 and IEC 61850-3 utility substation hardening
- Ruggedized protection for operation in vehicles and other high temperature / vibration environments
- Industrial –30 to +70 °C operating temperature range [Note 6]

Applications
- Electricity grid: distribution automation, control and protection
- Smart grid: DA, DFA, cap bank control
- Smart cities: traffic control, video surveillance
- Oil & gas: production metering, lift pump automation
- AMI / AMR: high density data concentrator backhaul
- Renewables: DER, solar and wind farms, hydro automation
- Water and wastewater: flow, level, pump, and valve automation
- Public safety, utility, mining: fleet management, vehicle tracking, workforce mobility

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SYSTEM SPECIFICATION

GENERAL

NETWORK INTEGRATION	4G LTE , NR 5G, Wi-Fi, Serial, Ethernet, bridge and router on a per port basis

PROTOCOLS

ETHERNET	IEEE 802.3, 802.1d/q/p, VLAN, STP, ARP Ethernet 10/100/1000BASE-T and 100/1000Base-X
SERIAL	RS-232 / RS-422 / RS-485, and Terminal Server support
VPN	IPsec, GRE, mGRE, and DMVPN
ROUTING	BGP / MP-BGP, OSPF, EIGRP, NHRP, VRF, RIPv1/v2, IPv4 / IPv6, static, and IP-SLA
IPv4 / IPv6 SERVICES	VLAN L3 interface, DHCP server / client, DNS, DDNS, and NAT
QoS	Hierarchical QoS, cellular TFT / QCI, classification (L2-L4), ingress policing with two rate three colour marking, shaping, priority assignment, strict priority, fair queue, and prioritised schedulers

LTE 4G and NR 5G

LTE [Note 3]	Downlink LTE Cat-6 (300 / 50 Mbps) / Cat-12 (600 / 150 Mbps) Uplink LTE Cat-6 / 7 / 12 / 13
LTE BAND OPTIONS SUPPORT [Note 2]	B1, B2, B3, B4, B5, B7, US B8, B9, B12, B13, B14, B17, B18, B19, B20, B21, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71, and B106
5G [Note 5]	5G SA/NSA, 120 MHz max channel size, 2CC CA DL, R16, 4x4 MIMO DL and 2x2 MIMO UL (selected bands)
5G BAND OPTIONS SUPPORT [Note 2]	n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29, n30, n38, n40, n41, n48, n66, n71, n75, n76, n77, n78, and n79
SIM	Dual Micro SIM

GNSS

POSITIONING and TIMING	GPS, GLONASS, Beidou, Galileo, and QZSS (option)
MAX CHANNELS	30 (16 GPS, 14 GLONASS) simultaneous tracking
PROTOCOL	NMEA 0183 V3.0

Wi-Fi

STANDARDS (2.4 / 5 GHz)	IEEE 802.11 a/b/g/n 2x2 MIMO / IEEE 802.11 n/ac 2x2 MIMO
FREQUENCY RANGE	2.4 to 2.495 GHz, 5.15 to 5.825 GHz
CHANNEL (2.4 / 5 GHz)	2.4 GHz (20 / 40 MHz) / 5 GHz (20 / 40 / 80 MHz)
PERFORMANCE	Up to 866.7 Mbps
SECURITY	WPA / WPA2 / WPA3 Personal / Enterprise, WEP / TKIP, AES-CCMP, 802.1x
MODES	Access Point, Client and Access Point / Client

SECURITY

FIREWALL	Stateful firewall, zone-based policy, VRF-aware, dynamic, and static
SYMMETRIC ENCRYPTION	3DES AES 128, 192, or 256 CBC / CTR / CCM8-CCM16 / GCM8-GCM16
AUTHENTICATION	MD5 / SHA-1 / SHA-256 / SHA-384 / SHA-512
DH GROUP	DH-1 / DH-2 / DH-5 / DH-14 / DH-15 / DH-16 / DH-19 / DH-20 / DH-21
IKE	IKEv1 and IKEv2 (authentication via PSK or certificate) PFS option
FIPS	FIPS 197 (AES) and FIPS 140-2: Security Requirements
HARDENING	NIST SCAP, IDS, processes monitoring
TAMPER	MEMS high-performance 3-axis accelerometer

INTERFACES

ETHERNET PORTS	2 ports RJ45 IEEE 802.3, 802.1d/q/p
SERIAL PORTS	1 port RJ45 RS-232 / RS-422 / RS-485, 300 - 230,400 bit/s
SFP	1 port Small Form-factor Pluggable (SFP) supporting both optical and copper SFP modules
MANAGEMENT	1 port USB-C rotationally-symmetric
ANTENNAS	4G 2x QMA female Main and Diversity 5G 4x QMA female ANT 0-3 Wi-Fi 2x QMA female Main and Diversity (Wi-Fi not presently available with 5G) [Note 5] GNSS QMA female [Note 4]
I/O PINS	1 input pin and 1 output pin (on power supply connector)
LEDs	Status: OK, AUX Diagnostics: SFP, TX, RX and Wi-Fi Ethernet / Serial Ports: Active and Link

POWER

INPUT VOLTAGE	9 to 32 VDC negative earth			
SLEEP POWER	< 0.04 W			
STANDBY POWER (no Wi-Fi, no USB-C, no I/O)	< 3.6 W			
TYPICAL POWER	3.6 W to 5.7 W			
ELEMENT MAXIMUM POWER	USB-C accessories	<4.5 W	Wi-Fi	<1.5 W
	I/O	<2.0 W	GPS Bias	<0.3 W
	SFP	<1.0 W	LTE and CPU both at 100%	<5.7 W

MECHANICAL

DIMENSIONS (not including connectors)	177 mm (W) x 110 mm (D) x 41.5 mm (H) 6.97" (W) x 4.33" (D) x 1.63" (H)
WEIGHT	740 g (1.67 lbs)
MOUNTING	Wall, Rack or DIN rail

ENVIRONMENTAL

OPERATING TEMPERATURE	−30 to +70 °C (−22 to +158 °F)
STORAGE TEMPERATURE	−40 to +85 °C (−40 to +185 °F)
HUMIDITY	Maximum 95 % non-condensing

MANAGEMENT & DIAGNOSTICS

LOCAL MANAGEMENT	SSH and HTTP/S web servers with full control / diagnostics Software upgrade via HTTPS / SFTP from PC or management system
NETWORK MANAGEMENT	SNMPv3 and TRAP security support for integration with external network management systems
ORCHESTRATION	NETCONF (RFC 6241) [Note 5]

COMPLIANCE

LTE	PTCRB, CBRS End Device, AT&T, Verizon Wireless, UScellular™, T-Mobile® with others pending
ANTERIX	Anterix approved Network Assigned Duplex 47 CFR Part 27 Band 8 and Band 106 LTE operation
CBRS / OnGo	FCC Part 96 for 3.5 GHz CBRS spectrum
Wi-Fi	47 CFR Parts 15C and 15E
EMC	47 CFR Part 15B
SAFETY	EN / UL / IEC 62368-1, CB Certified, Class 1 division 2, Groups ABCD for hazardous locations.
ENVIRONMENTAL	Substation hardened to IEEE 1613 class 2 and IEC 61850-3 ETSI EN 300 019-2-3 Ingress Protection IP41
VEHICLE	ISO 7637-2, ISO 16750-2 (12V Code D 24V Code E) Shock & Vibration: SAE J1455 EMC: EN 301 489

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Notes:

1. This datasheet is subject to change
2. Band availability model dependent
3. Uplink / downlink UE Category model dependent
4. DC bias present on this connector (switchable) for active GPS antenna operation
5. Please consult 4RF for availability. 5G compliance pending.
6. 1,000 hours of continuous operation at this temperature independently tested by Bureau Veritas

GCF Certified

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