Tiesse
Innovation made in Italy®

Router
Lipari series

Lipari 5100

FE

4G LTE

Datasheet

WWW.TIESSE.COM

Lipari 5100

LAN/Serial connection to the LTE radio cellular network

LIPARI SERIES

Lipari is an innovative series of routers that provides LTE connectivity to the user accessing the public or private data network (Internet/Intranet) with the appropriate level of security.

Using the operator with the best network coverage, depending on the installation location, also increases the reliability of the end-to-end solution.

IEC 61850-3

The Lipari 5100 is also compliant with the IEC 61850-3 standard for communication and automation functions for equipment that can be installed inside power systems and substations and similar environments.

M2M/IoT

The reliability features and power supply options provided by Lipari 5100 make it particularly suitable for installation and use in industrial environments, as well as in machine-to-machine application scenarios.

KEY FEATURES

Robust
Designed to withstand and function for long periods in industrial and disturbed environments.

Certified
Validated for inclusion in business offering profiles and use within the networks of major telecom operators.

Secure by design
Right from the design phase for robust and natively secure solutions.

Future proof
Safeguarding the investment with future technologies

Eco-efficient
Minimal consumption, lower environmental impact and higher operating cost savings.

Zero Touch Provisioning
Zero Touch Provisioning facilitates remote management and agile configuration of the installed base.

Factory pre-configurations
Receive your product pre-configured according to your specific case.

100% factory-tested
We test all our equipment, including SIM cards for models with a cellular radio connection.

LIPARI 5100

The Lipari 5100 is a 4G LAN router, particularly suitable for installation in industrial environments and M2M application scenarios.

It complies with the IEC 61850-3:2014-12 standard for communication and automation of systems in power substations, remote control and remote monitoring.

Desktop mounting

- 2 LAN Fast Ethernet ports
- Console port DB9 serial type
- Cellular radio connection up to LTE cat. 4
- Zero Touch Provisioning
- Rack-mountable with optional kit

SUGGESTED SCENARIOS AND APPLICATIONS

Where a mobile network is needed
- Temporary installations
- Outdoor installations
- Disadvantaged locations, not reached by a fixed network

As a connection to/from…
- Totem
- Vending machines
- ATM
- Digital signage
- Energy power systems and substations

Service continuity and Mission Critical applications
- Backup to the core network
- Video surveillance
- Telecontrol
- Telelemetry
- Remote Monitoring
- M2M/IoT applications in industrial environments

DIGITAL DIVIDE and MOBILITY…. Wherever the user is

Access
- It is possible to access company data from any external location even on the move (agents, branch offices, temporary offices in fairs or construction sites).
- It is possible to guarantee immediate access to the network without waiting for the activation of the fixed line
- In case of temporary or itinerant installations (fairs, events, events, seasonal services)
- Access to the network is immediate and does not require special equipment or infrastructure
- It is the ideal and optimized solution for single unattended workstations (Kiosk) for payment services, advertising, information points, gaming.

Security

Guaranteed secure VPN communication even over public networks. IPSEC with 3DES - Data protection

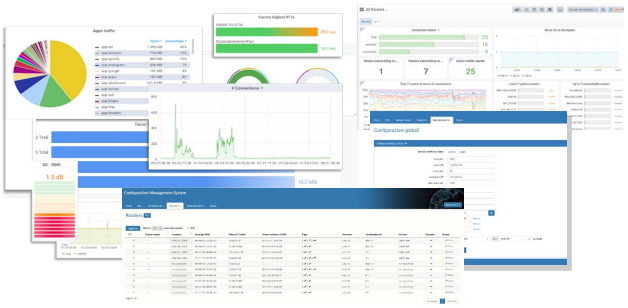
Installation

Easy and straightforward installation, plus the possibility of factory configuration

Performances

Optimisation of mobile channel use to control traffic costs and improve transmission quality: asynchronous notifications, control messages, downtime, removable antenna to allow use of high-gain or outdoor antennas.

ZERO TOUCH PROVISIONING



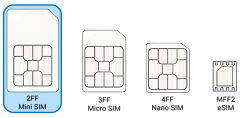
Tiesse's router are integrated in the **TNA (Tiesse Network Architecture)** suite.

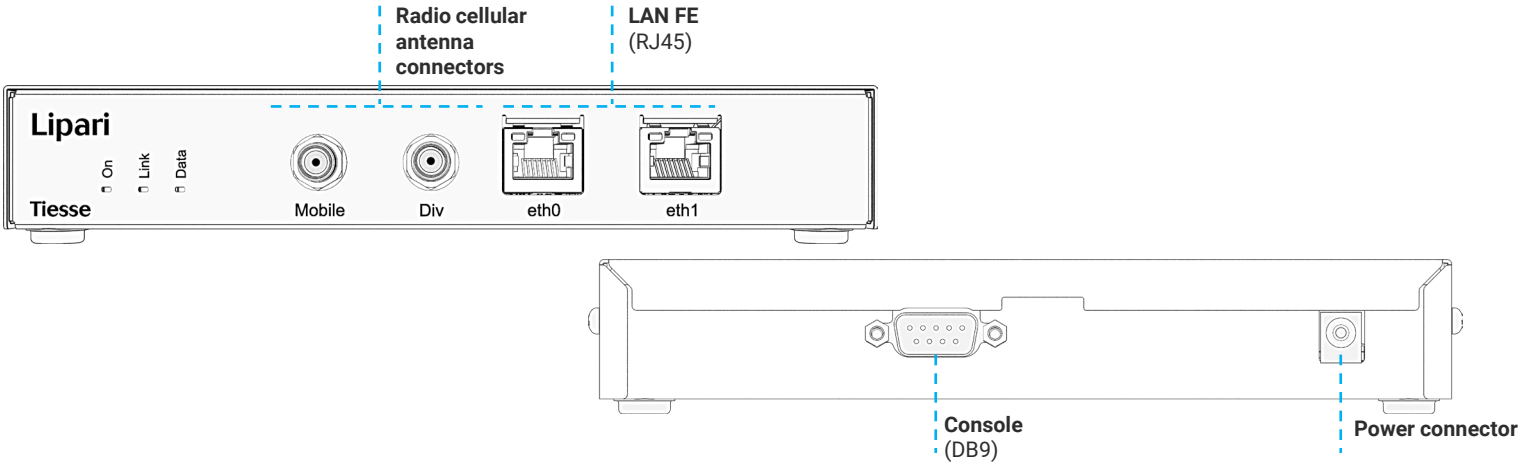
TNA is the modular software suite that enables Zero Touch Provisioning network architecture, including monitoring, remote and automated web-based management of configurations and firmware releases of the installed fleet; it enables traffic engineering, network overlays, and many other functionalities.

A complete datasheet of the solution is available at www.tiesse.com.

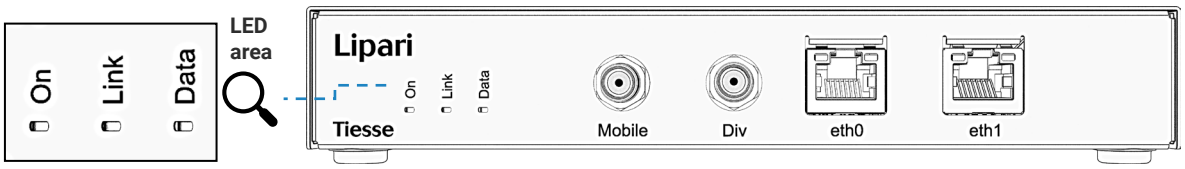
HARDWARE INTERFACES

Port	N°	Type	Details
LAN	2	**FE**	10/100 Mbps, with or without auto-negotiation and configurable
RADIO CELLULAR *Note: the throughput value depends on the network configuration, bandwidth allocated to the UE, number of users and RF signal conditions*	1	**GSM GPRS EDGE**	- Frequency bands: GSM 850 MHz, EGSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz - EDGE throughput up to 236 kbps
		UMTS HSDPA HSUPA HSPA+	- Frequency bands: B1 (2100 MHz), B2 (1900 MHz), B5 (850 MHz), B6 (800 MHz), B8 (900 MHz) - HSPA+, with data rates of 21.1 Mbps in Downlink and 5.7 in Uplink with EDGE / GPRS fallback - Dual Cell HSPA mode support - Possibility of configuring and activating two APNs simultaneously
		LTE WCDMA	- LTE frequency bands: 800 / 900 / 1800 / 2100 / 2600 Mhz - WCDMA frequency bands: 900 / 2100 Mhz - Data rate category 4, MiMo - Peak speed 150 Mbps DL, 50 Mbps UL
	2	**ANTENNAS**	- 2 removable antennas, male SMA connector, product front - Multiple Input/Multiple Output (MiMo) support - Outdoor version antennas (omni-directional and directional), high-gain and vandal-proof (optional) are also available
	1	**SIM**	- 1 SIM slot for 2FF mini SIM cards, internal and pre-installed at the factory





LED DESCRIPTION



LED	Color	Position	Details
Power	**Green**	LED area	Indicates power supply operating status
LAN	**Yellow**	On the LAN port	One for each ETH port, indicating operational status 100 Mbps connection
	Green	On the LAN port	Indicates data traffic
Radio cellular	**Green**	LED area	Link LED: indicates mobile radio link status
	Green	LED area	Data LED: indicates data activity on cellular radio connection

SOFTWARE

Note: the following list is purely indicative, active features depend on version and software update (NOS).

NETWORKING	- TCP-UDP IPv4 - QoS
LAYER 2	- Layer 2 Protocol Tunneling (L2PT) v3 - VLAN 802.1q over Ethernet - Pseudowire Ethernet to extend layer-2 circuits over IP networks
ROUTING & MULTICAST	- Static, RIPv1, RIPv2 - BGP-4, BGP-4+ - OSPFv2 - VRRP (Virtual Routing Redundancy Protocol) - IGMP proxying - Multicast routing with PIMv2 sparse-mode and PIMv2 dense-mode
SECURITY	- NAT/PAT - ACLs, Stateful Firewall - GRE Tunnelling with keep alive and key sequence numbering (cellular network optimization) - VPN with IPSEC - Easy VPN, DMVPN, Open VPN - 3 DES Encryption
SERVICES	- DHCP client, DHCP server and relay - Traceroute - DDns
MANAGEMENT AND CONFIGURATION	- SNMP v1, SNMPv2, SNMPv3 - Telnet server - SSH server with multiple simultaneous sessions (SSHv2) - Fault management Syslog local and remote - Radius Support, TACACS+ - SAA (service Assurance Agent) - SMS - Configuration via command Line Interface (CLI), Text/Menu oriented and Telnet - Configuration via web interface on HTTP protocol - TNA (Tiesse Network Architecture) suite for auto-provisioning and remote automated management

OTHER INFORMATION AND SUPPORT

SUPPORTO.TIESSE.COM	- Technical documentation, installation instructions, quick start guide, first access data - Firmware updates - Declaration of conformity EMC, RED, RoHS, ... - Technical support request - End of sale and end of product support information - Warranty repair and product reconditioning
WIKI.TIESSE.COM	- Website dedicated to software documentation - User manuals - First access guides - Case studies, tutorials and other useful resources for product use

Compliance to EMC standards (Electromagnetic Compatibility) IEC 61850-3:2014-12

IEC Basic Standard	Description	Ports
IEC 61000-4-8	Magnetic Field	Enclosure Ports
IEC 61000-4-3	Radiated RFI	Enclosure Ports
IEC 61000-4-2	ESD	Enclosure Ports
IEC 61000-4-4	Burst (Fast Transient)	Signal/Control Port DC Low Voltage Power Supply Input/Output port AC Low Voltage Power Supply Input/Output port
IEC 61000-4-5	Surge	Signal/Control Port DC Low Voltage Power Supply Input/Output port AC Low Voltage Power Supply Input/Output port
IEC 61000-4-6	Induced (Conducted) RFI	Signal/Control Port DC Low Voltage Power Supply Input/Output port AC Low Voltage Power Supply Input/Output port
IEC 61000-4-16	Mains Frequency Voltage	Signal/Control Port Low voltage DC power supply input/output port
IEC 61000-4-17	Ripple on D.C Power Supply	DC Low Voltage Power Supply Input/Output port
IEC 61000-4-18	Dumped oscillatory	Signal/Control Port DC Low Voltage Power Supply Input/Output port AC Low Voltage Power Supply Input/Output port
IEC 61000-4-29	Voltage Dips and Interrupts	DC Low Voltage Power Supply Input/Output port
IEC 61000-4-11	Voltage Dips and Interrupts	AC Low Voltage Power Supply Input/Output port

SYSTEM FEATURES

PROCESSOR	- Network processor @400 Mhz
MEMORY	Default 128 MB
FLASH MEMORY	256 MB
CHASSIS	Metal material, colour black
FORM FACTOR	Desktop
	Rack 1 U (optional kit)

ADD-ONS

Optional accessories such as antennas for both indoor and outdoor omnidirectional and directional installations, and rack-mount kits with power supply (ALIDCDC110Vdc - DCDC power supply 40-160Vdc single input isolated) are available.

Please refer to the relevant datasheets downloadable from www.tiesse.com.

Images for illustrative purposes

SUSTAINABILITY

SYSTEM

Power	- 5 V - Optional: 9-36 VDC
Cooling	Fanless
Consumption (full functions)	≈ 3W
EEE (Energy-Efficient Ethernet)	Tiesse products comply with the EEE (802.3az) standard, which saves energy by automatically reducing the consumption of Ethernet ports during periods of low traffic, without altering their performance.
Dynamic Power Scaling	Tiesse products use control mechanisms to automatically reduce power consumption by lowering the CPU clock frequency when the load is low.

ENVIRONMENT DATA

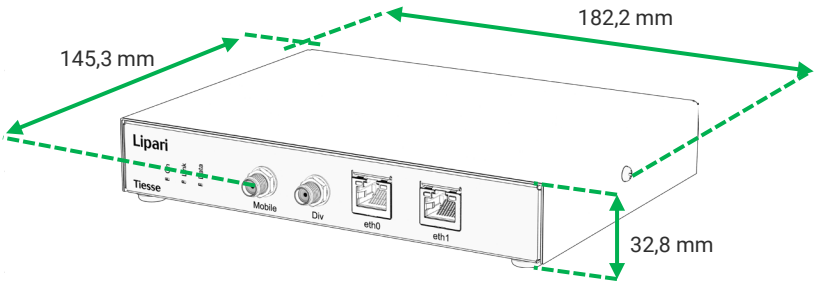
Operating temperature	–25° C / +70° C (96 hours)
Storage temperature	–40° C / +70° C (4 hours)
Maximum relative operating humidity	93% (non condensing)
Protection grade	IP40

SIZE and WEIGHT

Machine body	182,2 x 145,3 x 32,8 (L x P x A mm)		
Total weight	≈ 958 gr *(maximum weight including packaging and accessories)*		
	Product	**Accessories**	**Packaging**
	≈ 567 gr	≈ 275 gr	≈ 116 gr

OTHER INFORMATION

Packaging and wrapping	The packaging of the individual Lipari 5100 product is 86% paper/cardboard and the incidence of plastic packaging is 14% or less.
	100% of Tiesse's packaging material is recyclable
RAEE waste	For the correct disposal of Waste Electrical and Electronic Equipment (WEEE), pursuant to Article 26 of Legislative Decree No. 49 of 14 March 2014 'Implementation of Directive 2012/19/EU': contact raee@tiesse.com



Tiesse

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Tiesse is a totally Italian company with more than 25 years of experience in the design, development and production of network equipment and IoT devices, suitable for use in mission-critical and industrial scenarios. Tiesse's most successful series, Imola, Lipari and Levanto, are innovative, competitive and certified, and are present in the networks of the major telecommunications operators, in the energy sector, large-scale distribution and vertical sectors, both in the Italian and foreign markets.

Further information on Tiesse solutions can be found on the company website www.tiesse.com.

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