Tiesse
Innovation made in Italy®

Imola LX
Router series

Imola LX x272-IK2W series

Imola LX 0272-IK2W
Imola LX 5272-IK2W

GE

EVDSL

2.4 GHz 5 GHz

4G LTE

Datasheet

WWW.TIESSE.COM

Serie Imola
LX x272-IK2W

Ultra-broadband router
- eVDSL - dual Wi-Fi - LTE

SERIE IMOLA LX x272

The **Imola LX x272** series is an advanced line of routers with eVDSL 35b plus and Gigabit Ethernet WAN connectivity, designed specifically for business applications that require high security standards and optimal network performance.

The compact size and the different mounting (vertical, horizontal and wall-mount) options make the Imola LX x272 models easy to install in any environment, while the low-power design helps reduce operating costs.

ALL-IN-ONE

FTTC, FTTH, Wi-Fi and 4G, in a single device for reliable, versatile and scalable connectivity. Our Imola LX series devices are adaptable to any technology and include the features

- Routing & switching
- Multi fail-over
- QoS

KEY FACTORS

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

Always-On
Stable connections anywhere, with multiple links, transparent backup, and quality of service for uninterrupted business.

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

Rugged and carrier grade
Designed to withstand and operate for long periods in industrial and disturbed environments. Carrier grade reliability.

Smart value
Maximizes business value with an excellent performance-to-price ratio.

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

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

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.

IMOLA LX x272-IKG models

The Imola models of the LX x272 line include the features described in this datasheet in a robust, all-in-one device and are distinguished by the presence of the LTE cellular radio connection. Dual Wi-Fi (b/g/n + ac) variants are also available with the IK2W models

5 Gigabit Ethernet ports

1 eVDSL port

Wi-Fi b/g/n e ac

1 4G cat. 4 port

Zero Touch Provisioning

IMOLA LX 0272-IK2W

IMOLA LX 5272-IK2W

SUGGESTED SCENARIOS AND APPLICATIONS

ISP & Telco Ready
Designed to meet the requirements of service providers, telecom operators, carriers, and system integrators.

Backup and redundancy on multiple links
Optimised products for ultra-connected branches and remote locations

Service continuity and Mission Critical applications
Distributed and secure access of branches and remote locations of banks, insurance companies, dealers, franchises, enterprises and public administrations

BACKUP: high availability mission critical

Seamless backup

The user does not perceive service interruptions and the transition to backup.

Transitions from normal to backup mode and vice versa are performed considering the operational costs.

Multiple Backup

A pair of routers in VRRP performs physical backup of both the network and hardware.

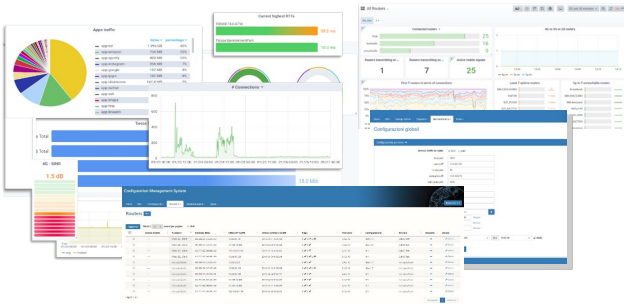
Homogeneous Backup

A single router integrates all ports, wired and mobile.

Heterogeneous backup

An installed base can be upgraded by adding a mobile router and using the VRRP (Virtual Router Redundancy Protocol).

ZERO TOUCH PROVISIONING



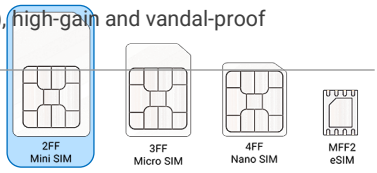
Tiesse's router are integrated in the **TNA (Tiesse Network Architecture)** suite.

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.

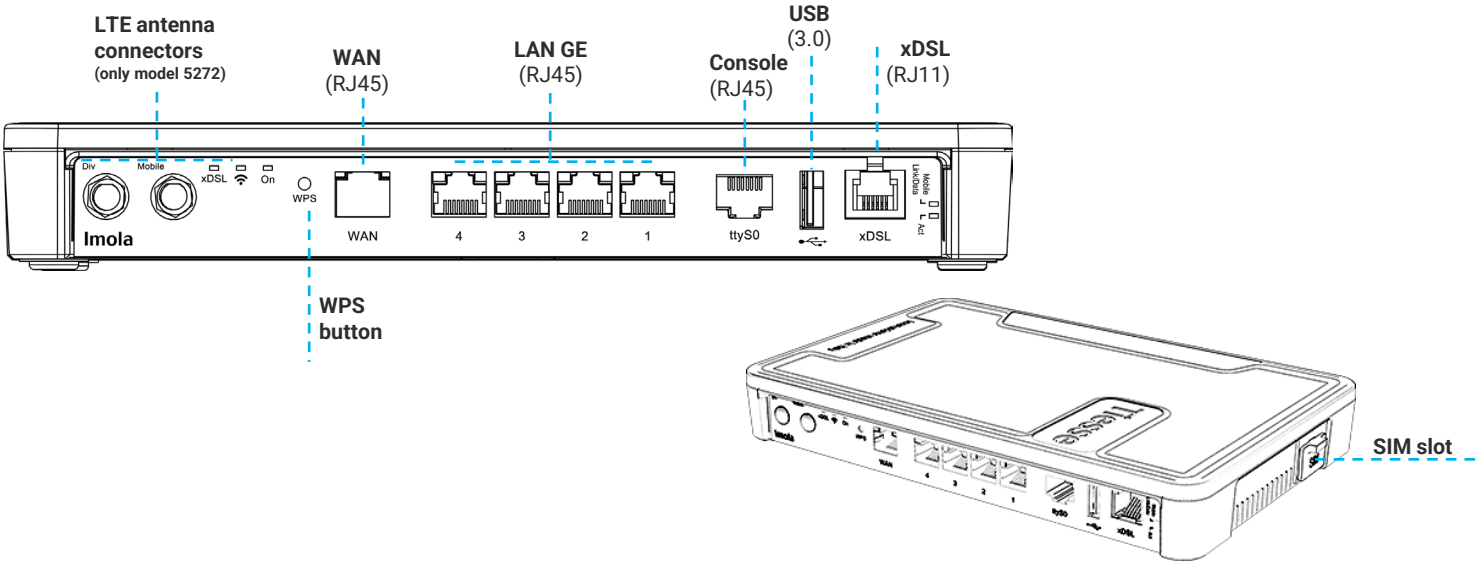
A complete datasheet of the solution is available at www.tiesse.com.

HARDWARE INTERFACES

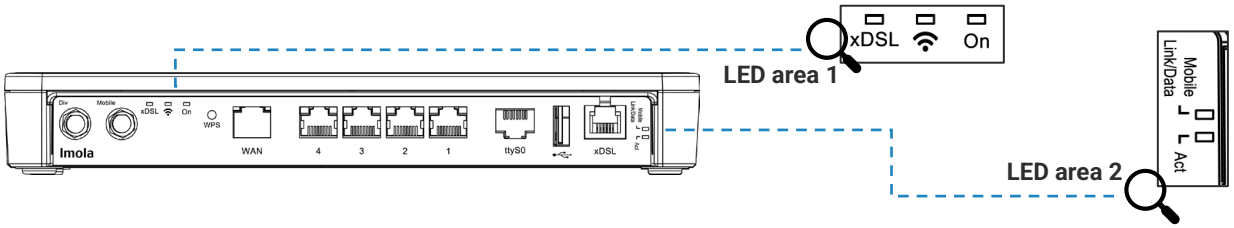
Port	N°	Type	Details
LAN	4	**GE**	10/100/1000 Mbps
	1	**Simultaneous Wi-Fi**	- 802.11 b/g/n port (2.4 GHz) 2x2, up to 300 Mbps - 802.11 ac (5 GHz), up to 1300 Mbps - Internal antennas
WAN	1	**GE**	10/100/1000 Mbps (label WAN)
	1	**xDSL**	Full rate ADSL2/2+ / eVDSL
		ADSL2/2+	- Downstream data rate up to 24 Mbps and upstream data rate up to 3.5 Mbps - Compliant with Standard G.992.1 annex A, B, C & I, G.992.2-g.Lite, G.992.3 annex A, B, I, J, M, G.992.4-g.Lite.bis, G.992.5 annex A, B, C, I, J, M, ANSI T1.413 issue2, ETSI TS 388 - ADSL-over-ISDN, ITU T-I361, ITU T-I.363.5, ITU T-I.432, ITU T-I610, ITU T-I731
		VDSL2	- Support for all VDSL2 profiles: 8 MHz up to 30 MHz ITU-T G993.2 - Compliant with G.Vector standard (ITU-T G.993.5) - Compliant with ITU-T G.998.4 G.INP standard - Compatible with ADSL2 (backward compatibility)
		eVDSL	- Support for all VDSL2 profiles: 8 MHz up to 35 MHz, in compliance with ITU-T G993.2 Annex Q (35b or Vplus profiles), capable of aggregate rates of up to 400Mbps - G.Vector support (ITU-T G.993.5) - Compliant with ITU-T G.998.4 G.INP standard (impulse noise protection) - Compatible with ADSL2 (backward compatibility) - Excellent connection stability in case of line disturbances
RADIO CELLULAR (just on 5272 models)	1	**GSM / GPRS / EDGE**	- Frequency band: 900 / 1800 / 1900 MHz - GPRS multislot 10 - EDGE multislot 12
		UMTS / HSDPA / HSUPA / HSPA+	- WCDMA frequency bands: 900 / 2100 Mhz - HSDPA data transmission rate up to category 20 - HSUPA data rates up to category 6 - HSPA+ data rate: 21.1 Mbps in Downlink and 5.7 in Uplink - Dual Carrier HSPA mode support
		DC-HSPA+	42 Mbps in download
		LTE	- Ability to configure and activate two APNs simultaneously - Two variants available: model with LTE cat. 4 and LTE cat. 6 - **Model with LTE cat.4 modem** - Frequency bands: B1/B3/B7/B8/B20 - Data rate: category 4, MIMO* - LTE data rate: 150 Mbps in Downlink and 50 Mbps in Uplink *(throughput value depends on network configuration, bandwidth allocated to UE, number of users and RF signal conditions)* - **Model with LTE cat.6 modem** - Frequency bands: support RF bands from 1.4MHz up to 40MHz (2xCA) LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32 LTE-TDD: B38/B40/B4 2 x CA (Carrier Aggregation): B1+B1/B5/B8/B20/B28; B3+B3/B5/B7/B8/B28; B7+B5/B7/B8/B20/B28; B20+B32; B38+B38; B40+B40; B41+B41 - MIMO support in download - Data rate: FDD: Max 300Mbps (DL)/50Mbps (UL) TDD: Max 226Mbps (DL)/28Mbps (UL) *(throughput value depends on network configuration, bandwidth allocated to UE, number of users and RF signal conditions)*
	2	**ANTENNAS**	- 2 removable antennas, male SMA connector, on the front of the product - Multiple Input/Multiple Output (MIMO) support - Outdoor version antennas (omni-directional and directional), high-gain and vandal-proof (optional) also available
	1	**SIM**	- 1 mini SIM card slot - One internal and one external access slot



HARDWARE INTERFACES



LED



LED	Color	Position	Details
POWER	**Green**	LED area 1	Power status
Wi-Fi	**Green**	LED area 1	Wi-Fi b/g/n (2.4 GHz) status
	Green	LED area 2	Act: WPS connection status
xDSL	**Green**	LED area 1	xDSL connection status
LAN/WAN	**Yellow**	On LAN port	One for each ETH port, 1Gbps connection status
	Green	On LAN port	One for each ETH port, 100 Mbps connection status
Radio Cellular (model 5272)	**Yellow**	LED area 2	Link: radio cellular connection status
	Green	LED area 2	Data: radio cellular connection activity

INSTALLATION OPTION

Desktop installation

Desktop installation, vertical position

Wall mounting

SOFTWARE

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

NETWORKING	- TCP-UDP IPv4 - IPv6 - PVC bonding
LAYER 2	- LAN Bridging - VLAN on802.1q LAN interfaces in Access mode, Trunk, native VLAN and Hybrid mode - Layer 2 Protocol Tunneling (L2PT) - 802.1Q-in-802-1Q
ROUTING & MULTICAST	- Static, Policy routing, RIPv1, RIPv2 - BGP-4, BGP-4+ - OSPFv2 - VRF Lite, Routing redistribution and tagging - IEEE 802.1d (Spanning Tree Protocol) - VRRP (Virtual Routing Redundancy Protocol) with IPv4-IPv6 authentication - IGMP v1-v2-v3, IGMP snooping, IGMP proxying - Multicast routing with PIMv2 sparse-mode and PIMv2 dense-mode, MSDP
QoS	- Traffic classification based on source IP, destination IP, protocols (UDP, ICMP,TCP, etc.) and ports, and their combinations, on application recognition, on IP Precedence and DSCP - DiffServ - Remarking of IP Precedence, DSCP and CoS - QoS on ATM classes - Shaping with guaranteed bandwidth allocation and redistribution of excess bandwidth - Committed Access Rate and Multicast rate limit - Traffic prioritisation mechanisms, definition of an arbitrary number of priority classes - IEEE 802.3ad link aggregation
SECURITY	- NAT/PAT - ACLs, Stateful Firewall - SSL Tunnelling - L2TP - GRE Tunnelling with keep alive and key sequence numbering (cellular network optimisation) - VPN with IPSEC/ESP or IPSEC/AH IKEv1/IKEv2 - 3 DES Encryption
SERVICES	- DHCP client, DHCP server with anti-spoofing functions, DHCP Layer Discovery Protocol IEEE 802.1ab, DHCP relay - Intelligent DNS Proxy, local and remote - Traceroute - NTP Client and Server Support - Easy VPN - DDns
MANAGEMENT & CONFIGURATION	- SNMP v1, SNMPv2, SNMPv3 - Telnet server with multiple simultaneous sessions - SSH server with multiple simultaneous sessions (SSHv2) - Netflow - IP SLA support for: One-way delay, round trip delay, jitter, packet loss - Syslog /Trap fault management - Radius, TACACS+ support - Tracking for management of backups, commands and scheduled events - Software update via TFTP, FTP, sFTP, HTTP, HTTPS, SCP - Configuration via Command Line Interface (CLI), Text/Menu oriented and Telnet - TNA (Tiesse Network Architecture) suite for self-provisioning and automated remote management - Management of an unlimited number of configurations

SYSTEM FEATURES

PROCESSOR	RISC Network processor
MEMORY	DRAM 256 MB
FLASH MEMORY	256 MB
Wi-Fi ANTENNAS	Internal
4G ANTENNAS	2 external removable antennas on the front SMA male connectors

CHASSIS	Plastic material, black color
	Metal variant available on request, for volume or industrial projects
FORM FACTOR	Desktop
	Rack (optional kit)

ADD-ONS

Optional accessories such as antennas for both indoor and outdoor omnidirectional and directional installations, are available.

Please check the add-ons datasheets, which can be downloaded from www.tiesse.com.

Images for illustrative purposes

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

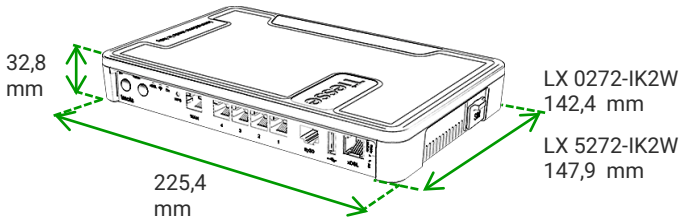
SUSTAINABILTY

SYSTEM

Power	- 12V AC/DC Adapter - On/Off button
Cooling	Fanless
Consumption (full functions)	- Imola LX 0272-IK2W: ≈ 7,5W - Imola LX 5272-IK2W: ≈ 9W
EEE (Energy-Efficient Ethernet)	Tiesse products comply with the EEE (802.3az) standard, which saves energy by automatically switching off Ethernet ports when not in use.
Dynamic Power Scaling	Tiesse products use control mechanisms to automatically reduce power consumption by lowering the CPU clock frequency when the load is low.
Mean Time Between Failure (MTBF)	- Imola LX 0272-IK2W: ≈ 1181724 hours - Imola LX 5272-IK2W: ≈ 958344 hours

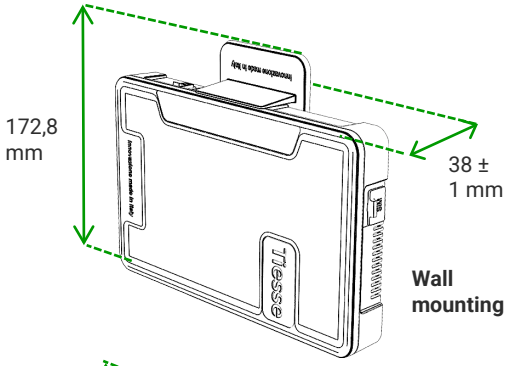
ENVIRONMENT DATA

Operating temperature	–5° C / +50° C
Storage temperature	–40° C / +70° C
Maximum relative operating humidity	93% (non condensing)



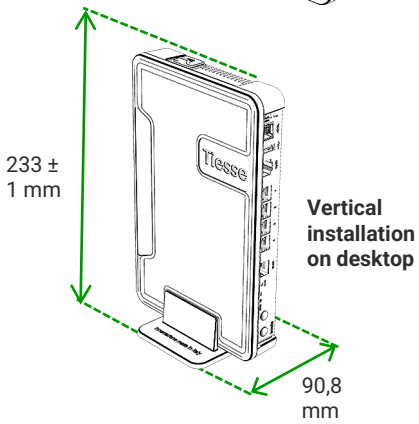
SIZE and WEIGHT – IMOLA LX 0272-IK2W

Machine body	225,4 x 142,4 x 32,8 (L x P x A mm)		
Weight	≈ 805 gr *(maximum weight including packaging and accessories)*		
	Product	**Accessories**	**Packaging**
	≈ 435 gr	≈ 260 gr	≈ 110 gr



SIZE and WEIGHT – IMOLA LX 5272-IK2W

Machine body	225,4 x 147,9 x 32,8 (L x P x A mm)		
Weight	≈ 995 gr *(maximum weight including packaging and accessories)*		
	Product	**Accessories**	**Packaging**
	≈ 500 gr	≈ 385 gr	≈ 110 gr



OTHER INFORMATION

Packaging and wrapping	The packaging material of this product is ≈90% paper/cardboard, and the incidence of plastic packaging is about 10% or less.
	100% of the 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

Innovation made in Italy®

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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