Tiesse
Innovation made in Italy®

5G
Imola

Imola
5572-SGR

GE

EVDSL

FIBER

5G

Imola
5572-SGR

5G ultra-broadband router
with fiber and eVDSL connectivity

IMOLA SGR SERIES

The **Imola SGR series** is an innovative line of routers with ultra broadband VDSL Enhanced and fibre connectivity, with 7 Ethernet ports, Wi-Fi connectivity and cellular radio in a single device.

Imola 5572-SGR model is equipped with 5G cellular connection: its high-performance features allow the Tiesse router to exploit the speed of the broadband network for data, voice and video applications, guaranteeing a reliable and continuous connection, even in remote areas and making it ideal for operations requiring maximum network availability and speed.

Thanks to the optional mounting kit, all products in the Imola SGR series become rack-mountable.

ALL-IN-ONE

FTTC, FTTH, FWA, 4G/5G in a single device for reliable, versatile and scalable connectivity. Our equipment is adaptable to any technology and includes the functionalities of:
• Routing & switching
• Security and VPN
• 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.

Future proof
Safeguarding the investment with future 5G and/or Fibre technologies.

100% factory-tested and factory pre-configurations
We test all our equipment, including SIM cards for models with a cellular radio connection. Factory pre-configurations on your specific customer case

IMOLA x872-IKF-IKW models

The Imola 5572-SGR includes, in a robust, all-in-one device, the functionality described in this datasheet

| 6 Gigabit Ethernet ports | 1 eVDSL port | 3 fiber ports | Wi-Fi b/g/n 2.4 GHz | 1 port 5G Sub-6 GHz | 2 SIM slot for backup link | Zero Touch Provisioning | Rack-mountable with optional kit |

SUGGESTED SCENARIOS AND APPLICATIONS

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

Smart grid & Smart cities
Designed for the power, renewables, gas and water sectors: it is perfect for automation, remote control and Smart Grid management applications.

Service continuity and Mission Critical applications
Business applications requiring always-on links and quality of service

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.
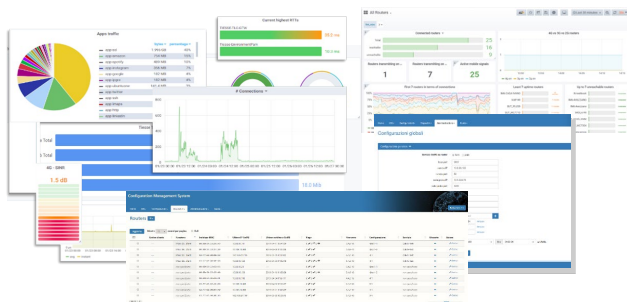
Homogeneous Backup

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.

Tiesse | Router series datasheet

HARDWARE INTERFACES

| Port	N°	Type	Details
LAN	6	**GE**	10/100/1000 Mbps
	1	**Wi-Fi**	- 802.11 b/g/n port (2.4 GHz) 2x2, up to 300 Mbps - 2 removable antennas, male SMA connector, back of product
	2	**Fiber**	SFP cage ports for fiber connections (SFP module not included)
WAN	1	**GE**	1 combo port GE 10/100/1000 Mbps RJ45 (WAN) and WAN SFP (SFP0)

	1	**Fiber**	- SFP port for WAN access with fiber optic cable (SFP0)
			- Supports GPON connections
			- Support for different models of SFP transceiver modules (not included)
			  - Maximum data rate 1000 Mbps (SX, BX, LX, ZX)
			  - Supported connectors: LC simplex, LC duplex

	1	**xDSL**	Full rate ADSL2/2+ / eVDSL, RJ11 connector
		ADSL2/2+	- Velocità di trasmissione dati in downstream fino a 24 Mbps e velocità di trasmissione dati in upstream fino a 3,5 Mbps - Conforme agli 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 - Complies with the 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 accordance with ITU-T G993.2 Annex Q standard (35b or Vplus profiles), capable of aggregate rates up to 400Mbps - G.Vector support (ITU-T G.993.5) - Compliant with ITU-T G.998.4 G.INP standard (protection from impulsive noise) - Compatible with ADSL2 (backward compatibility) - Excellent stability of connections in case of any disturbances on the lines
RADIO CELLULAR	1	**UMTS / HSDPA / HSUPA / HSPA+**	- WCDMA frequencies: 5, 8, 3, 4, 2, 1, 9, 19 - 3G HSPA+ Release 8 - Throughtput 3G: download 42 Mbps and upload 11 Mbps (*)
		LTE	- Throughput: 7 CA up to 20 layers in download and 3 CA in upload, 256-QAm in download/upload - Frequencies: 1, 2, 3, 4, 5, 8, 9, 12, 13, 14, 17, 18, 19, 20, 26, 28, 71, 25, 66, 39, 29 (DL), 30, 32, 7, 38, 40, 41, 42, 43, 46, (LAA), 48 (CBRS), 34, 27 - Throughtput 4G: up to 1 Gbps download and 211 Mbps upload (*)
		5G Sub-6 GHz	- Support of 5G sub-6 FDD and TDD - 5G core network Opt. 3a/3X and Opt 2 - 5G throughtput: up to 1 Gbps download and 1 Gbps upload (*) - Frequencies 1 (FR1): n1, n2, n3, n5, n7, n12, n14, n20, n28, n30, n41, n66, n71, n77, n78, n79
	2	**ANTENNAS**	- 4 removable antennas, male SMA connector, product face - Multiple Input/Multiple Output (MIMO) support - Outdoor version antennas (omnidirectional and directional), high-gain and vandal-resistant (optional) also available
	2	**SIM**	- 2 SIM slots for mini SIM cards, mutually exclusive - 1 factory pre-installed internal slot, 1 external access slot

* NOTE: the throughput value depends on the network configuration, assigned bandwith, number of users and RF signal conditions.
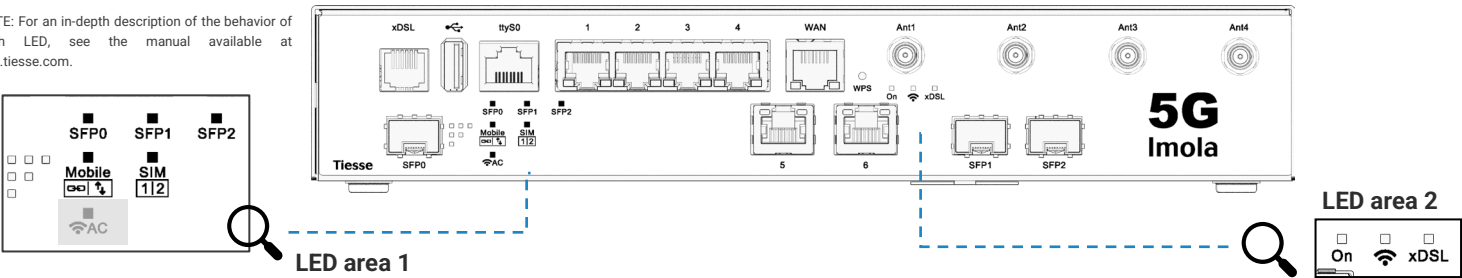
2FF
Mini SIM

3FF
Micro SIM

4FF
Nano SIM

MFF2
eSIM
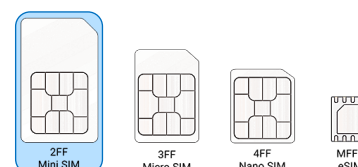
HARDWARE INTERFACES
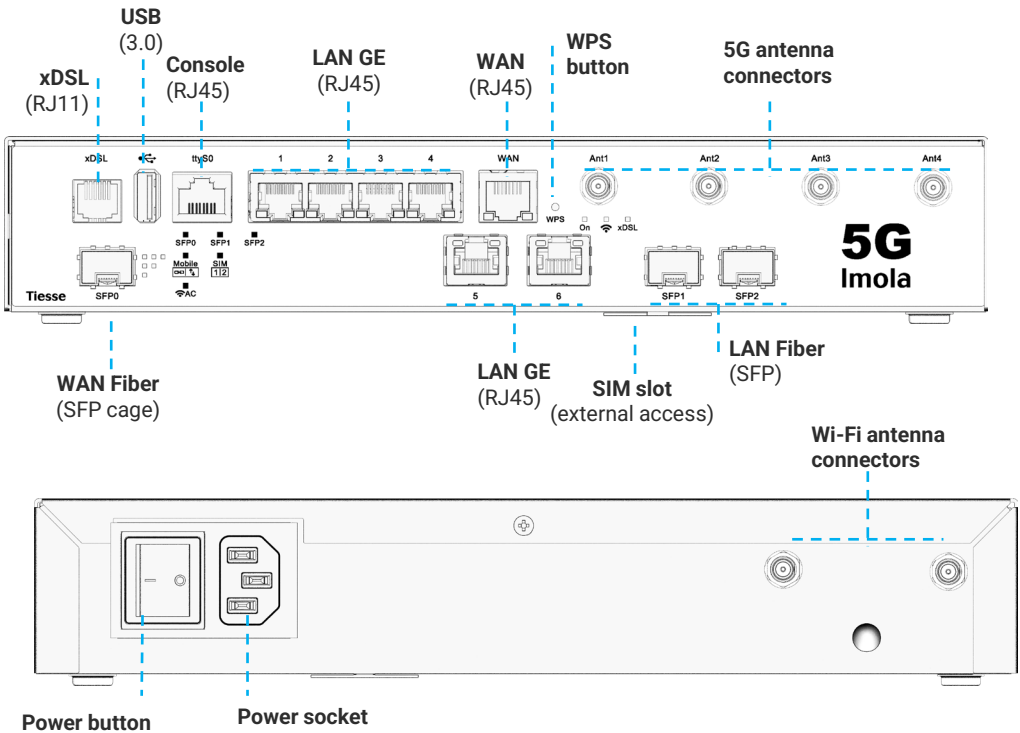
LED DESCRIPTION

NOTE: For an in-depth description of the behavior of each LED, see the manual available at wiki.tiesse.com.

LED area 1

LED area 2

LED		Color	Position	Description
Power		**Green**	LED area 2	Indica stato operativo dell'alimentazione del prodotto
LAN	**Ethernet**	**Green**	On each LAN port	Indicates operational status connection at up to 100 Mbps
	Ethernet	**Yellow**	On each LAN port	Indicates operational status 1Gbps connection
	Fiber	**Green**	LED area 1	LED SFP1 and LED SFP2 : operational status of each fiber port
	Wi-Fi	**Green**	LED area 2	Wi-Fi b/g/n (2.4 GHz) operational status
WAN	**xDSL**	**Green**	LED area 2	xDSL operational status
	RJ45	**Green**	On WAN port	Indicates operational status connection at up to 100 Mbps
		Yellow	On WAN port	Indicates operational status 1Gbps connection
	Fiber	**Green**	LED area 1	LED SFP0: fiber WAN connection operational status
Radio Cellular		**Green/Yellow**	LED area 1	Cellular radio link operational status and data activity
		Green/Yellow	LED area 1	SIM in use - operational status

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Imola 5572-SGR - **5G ultra-broadband router** | 5G, fiber, eVDSL and Gigabit LAN connectivity for business applications

SOFTWARE

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

NETWORKING	- TCP-UDP IPv4 - ARP ICMP - IPv4 Path MTU Discovery - Supporto IPv6: ICMPv6, IPv6 Path MTU Discovery, IPv6 Neighbor Discovery - Configurazione automatica dell'indirizzo IPv6 Stateless
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 - Routing redistribution and tagging - IGMP v1-v2-v3, IGMP snooping, IGMP proxying - routing multicast con PIMv2 sparse-mode e PIMv2 dense-mode, MSDP - VRRP (Virtual Routing Redundancy Protocol) con autenticazione IPv4-IPv6 - IEEE 802.1d (protocollo ad albero di scansione)
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 over ATM classes - Shaping with guaranteed allocated bandwidth and redistribution of excess bandwidth - Committed Access Rate and Multicast rate limitation - Traffic prioritization 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
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 - Fault management Syslog /Trap - Radius Support, TACACS+ - Tracking for backup management, 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 auto-provisioning and automated remote management - Management of an unlimited number of configurations

SYSTEM FEATURES

PROCESSOR	Dual CORE 1 GHz		**Wi-Fi ANTENNAS**	- N. 2 removable external antennas, on the back of the product - SMA male connectors
MEMORY	DRAM 256 MB DDR3			
FLASH MEMORY	256 MB		**5G ANTENNAS**	- N. 4 removable external antennas, on the front of the product - SMA male connectors
CHASSIS	- Metal material, black color			
FORM FACTOR	- Desktop			
	- Rack (optional kit)			

ADD-ONS

Optional accessories such as antennas for both indoor and outdoor omnidirectional and directional installations, SFP transceiver modules and rack-mount kits 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

PRODUCT IMAGES

# Imola 5572-SGR - 5G ultra-broadband router
5G, fiber, eVDSL and Gigabit LAN connectivity for business applications

SUSTAINABILTY

SYSTEM

Power	- Internal 100-240 VAC (IEC socket) - On/Off button
Power (optional version)	DC/DC converter with extended input range (18-75Vdc)
Cooling	Fanless
Consumption (full functions)	≈ 11,5W
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)	67.109 hours

ENVIRONMENT DATA

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

SIZE and WEIGHT - Imola 0872-IKF-IKW

Machine body	274 x 216,4 x 51,8 (W x D x H mm)
Total weight	≈ 2435 gr (maximum weight including packaging and accessories)
Product	≈ 1875 gr
Accessories	≈ 390 gr
Packaging	≈ 170 gr
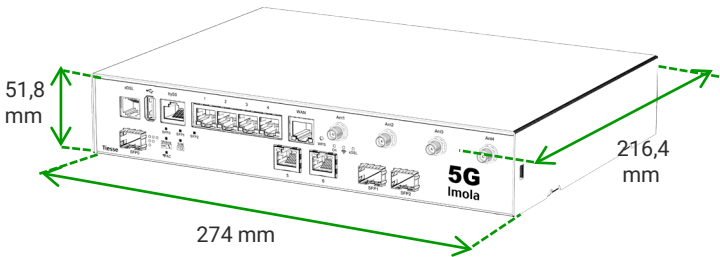
OTHER INFORMATION

Packaging and wrapping	100% of Tiesse's packaging material is recyclable.
	For Imola products, on average, 88% of the packaging material is paper or cardboard and the incidence of plastic packaging is 12% or less.
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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www.tiesse.com

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