



# Imola 5572-SGR



Gigabit



Cellulare



Fiber/GbE

# Imola

## 5572-SGR



### Ultra broadband 5G router with fibre and eVDSL connectivity

**Imola 5572-SGR** is a state-of-the-art 4G/5G router (Release 15).

It is part of the IMOLA series, routers that are certified and used in the networks of the main telecom operators.

Imola 5572-SGR is an all-in-one 5G router with fiber and eVDSL connectivity; it is particularly suitable for use in business applications where security, service continuity and network performance are of primary importance. The 5572-SGR model is also available in a dual Wi-Fi (b/g/n 2.4 GHz and ac 5 GHz) version.

Its high-performance routing, switching, and modem capabilities allow Imola 5572-SGR to take advantage of broadband network speeds for data, voice, and video service applications.

#### KEY BENEFITS

- ⇒ Security
- ⇒ High performance for Giga networks
- ⇒ Carrier grade reliability of hardware and software
- ⇒ Quality of service (QoS)
- ⇒ Robustness (fanless, internal power supply, metal chassis, extended temperature range operation)
- ⇒ Zero touch provisioning
- ⇒ Factory pre-configurations, customer-specific
- ⇒ 100% of the equipment is tested in factory (each SIM included)
- ⇒ Minimal power consumption

#### FIBER ACCESS & GPON CONNECTIONS

- Single or multiple LAN and/or WAN fibre access via fibre and fibre optic cable
- Different models of SFP modules (transceivers) supported
  - Maximum data rate 1000 Mbps (SX, BX, LX, ZX)
  - Supported connectors LC simplex, LC duplex, RJ45

#### APPLICATION SCENARIOS



Thanks to its support for 5G, LTE and WCDMA networks, the Imola 5572-SGR can be deployed globally taking full advantage of 5G and Gigabit 4G networks for high-performance, bandwidth-intensive applications such as broadcasting and streaming.

**Imola 5572-SGR** is designed to support the 5G scenarios described by 3GPP, including standalone 5G NR (SA) non-standalone (NSA), dual LTE-5G NR connectivity (EN-DC) and dynamic spectrum sharing between LTE and 5G.

#### BACKUP: high availability mission critical

**Seamless backup** - The user perceives neither the service interruptions nor the transition to backup. Transitions from normal to backup mode and vice versa are performed considering the operational costs.

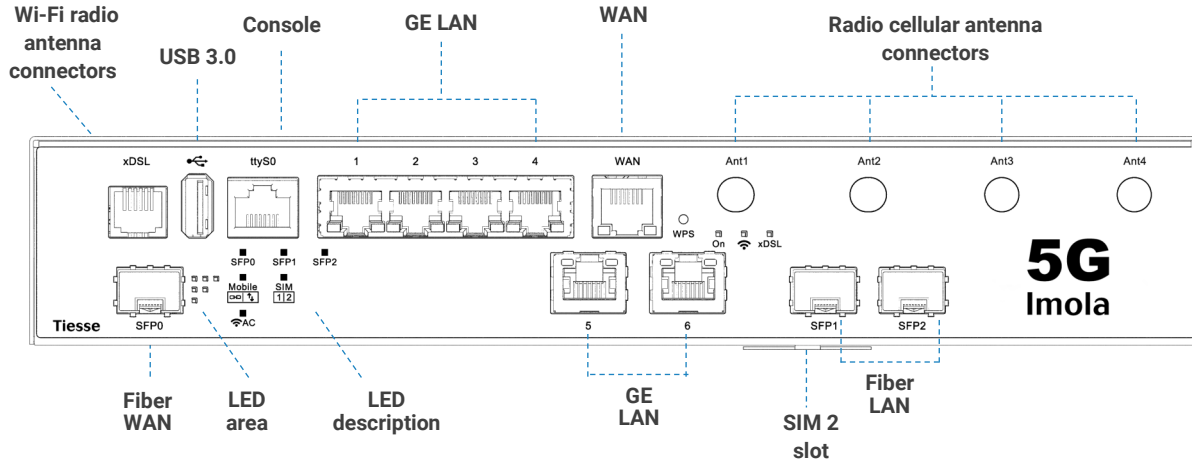
**Multiple backup** - A pair of routers in VRRP performs the physical backup of both the network and the hardware.

**Homogeneous backup** - A single router integrates all ports, wired and mobile.

**Heterogeneous backup** - It can be operated on an installed park by upgrading it, adding a mobile router and using the VRRP (Virtual Router Redundancy Protocol).



## HARDWARE INTERFACES



Port	Description	Details
LAN	GE	– 6 LAN ETH 10/100/1000 Mbps ports, RJ45 connectors
	Wi-Fi	– 1 WLAN 802.11 b/g/n (2.4 Ghz) port
	Fiber	– 2 ports with SFP cage for fiber connections (SFP module not included)
WAN	GE	– 1 combo port GE 10/100/1000 Mbps RJ45 (label WAN) and WAN SFP (label SFP0)
	Fiber	– 1 port with SFP cage for fiber connections and GPON - SFP0 label (SFP module not included)
	ADSL 2/2+	– 1 port Full rate ADSL2/2+ / VDSL2 connector RJ11 <b>ADSL2/2+</b> – Downstream data rate up to 24 Mbps and upstream data rate up to 3.5 Mbps – Conformity to the standards 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
	VDSL	<b>VDSL2</b> – Support of all VDSL2 profiles: 8 MHz up to 30 MHz ITU-T G993.2 – Conformity to the standard G.Vector (ITU-T G.993.5)
	eVDSL	– Conformity to the standard ITU-T G.998.4 G.INP – Compatible with ADSL2 (backward compatibility) <b>eVDSL</b> – Support of 35MHz profile ITU-T G993.2 Annex Q (profiles 35b or Vplus) with aggregate rates up to 400 Mbps
	UMTS / HSDPA / HSUPA / HSPA+	– 3G HSPA+ Release 8 – Throughput 3G: download 42 Mbps and upload 11 Mbps (*)
Radio Cellular	WCDMA	– <b>Frequencies</b> : 5, 8, 3, 4, 2, 1, 9, 19
	LTE	– <b>Transmission rate</b> : 7 CA up to 20 layers in download and 3 CA in upload, 256-QAm in download/upload – <b>Frequencies</b> : 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 – <b>Throughput 4G</b> : up to 1 Gbps in download and 211 Mbps in upload (*)
	5G Sub-6 GHz	– Support of 5G sub-6 FDD and TDD – 5G core network Opt. 3a/3X and Opt 2 – <b>Throughput 5G</b> : up to 1 Gbps in download and 1 Gbps in upload (*) – <b>Frequencies 1 (FR1)</b> : n1, n2, n3, n5, n7, n12, n14, n20, n28, n30, n41, n66, n71, n77, n78, n79
SIM	– 2 SIM slot: 1 internal factory pre-installed, 1 external access (mutually exclusive SIM)	
Console	– 1 console port with RJ45 connector	

\* NOTE: The throughput value depends on the network configuration, the allocated bandwidth, the number of users and the RF signal conditions.

## CELLULAR RADIO FREQUENCIES

### 5G FR1

n1, n2, n3, n5, n7, n12, n14, n20, n28, n30, n41, n66, n71, n77, n78, n79

### 5G LTE

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

### WCDMA

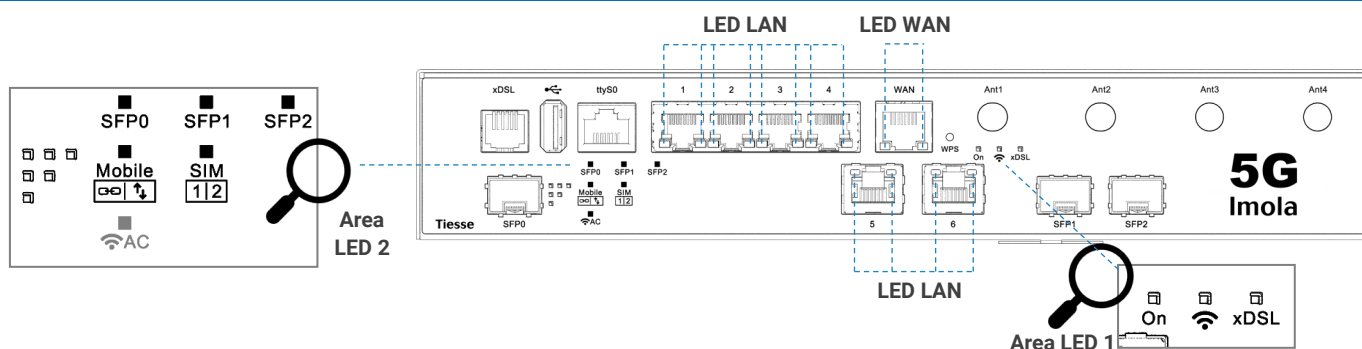
5, 8, 3, 4, 2, 1, 9, 19

## eVDSL

**Imola 5572-SGR** supports next-generation networks (NGNs) and guarantees:

- Support for all VDSL2 profiles: 8 MHz up to 35 MHz in accordance with ITU-T G993.2 Annex Q (35b or Vplus profiles), capable of aggregate rates of up to 400 Mbs
- Compliant with G.Vector standard (ITU-T G.993.5)
- Compliant with ITU-T G.998.4 G.INP standard (impulsive noise protection)
- ADSL2 compatible (backward compatibility)

## LED DESCRIPTION



LED	Color	Description	
<b>Power</b>	Green	– 1 x Power supply / operating status (Area LED 1)	
<b>Ethernet</b>	Green / Yellow	– 2 x operational status - for each RJ45 Ethernet port	
<b>LAN</b>	<b>Fiber</b>	Green	– 1 x operational status for each fibre port (Area LED 2)
	<b>Wi-Fi</b>	Green	– 1 x Wi-Fi b/g/n 2.4 GHz radio signal activity (LED Area 1)
<b>WAN</b>	<b>xDSL</b>	Green	– 1 x xDSL signal activity (LED Area 1)
	<b>Fiber</b>	Green	– 1 x operational status for the fibre port (Area LED 2)
<b>Radio cellular</b>	Green	– 1 x operating status/quality of cellular radio signal (LED area 2)	
	Green	– 1 x cellular radio data activity (LED Area 2)	
	Green	– 1 x operational status of the SIM in use	

NOTE: for an in-depth description of the behaviour of each LED, please refer to the manual available at [wiki.tiesse.com](http://wiki.tiesse.com).

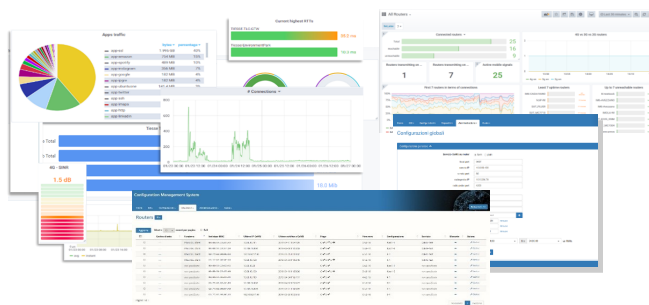
## ZERO TOUCH PROVISIONING



The router **Imola 5572-SGR** are integrated in the **TNA (Tiesse Network Architecture)**.

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

A complete datasheet of the solution is available at [www.tiesse.com](http://www.tiesse.com).





## SOFTWARE

Note: Functionality may depend on the firmware version and update level of the product.

Area	Main features*
<b>Networking</b>	<ul style="list-style-type: none"><li>- TCP-UDP IPv4</li><li>- ARP ICMP</li><li>- IPv4 Path MTU Discovery</li><li>- Support of IPv6: ICMPv6, IPv6 Path MTU Discovery, IPv6 Neighbor Discovery</li><li>- IPv6 Stateless Address Auto Configuration</li></ul>
<b>Layer 2 features</b>	<ul style="list-style-type: none"><li>- LAN Bridging</li><li>- VLAN on LAN on 802.1q interfaces in Access mode, Trunk, native VLAN and Hybrid mode</li><li>- Layer 2 Protocol Tunneling (L2PT)</li><li>- 802.1Q-in-802-1Q</li></ul>
<b>Routing &amp; Multicast</b>	<ul style="list-style-type: none"><li>- Static, Policy routing, RIPv1, RIPv2; BGP-4, BGP-4+, OSPFv2</li><li>- Routing redistribution and tagging</li><li>- IGMP v1-v2-v3, IGMP snooping, IGMP proxying</li><li>- Multicast routing with PIMv2 sparse-mode and PIMv2 dense-mode, MSDP</li><li>- VRRP (Virtual Routing Redundancy Protocol) with IPv4-IPv6 authentication</li><li>- IEEE 802.1d (Spanning Tree Protocol)</li></ul>
<b>QoS</b>	<ul style="list-style-type: none"><li>- 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</li><li>- DiffServ</li><li>- Remarking of IP Precedence, DSCP and CoS</li><li>- QoS over ATM classes</li><li>- Shaping with guaranteed bandwidth allocation and redistribution of excess bandwidth</li><li>- Committed Access Rate and Multicast rate limit</li><li>- Traffic prioritisation mechanisms, definition of an arbitrary number of priority classes</li><li>- IEEE 802.3ad link aggregation</li></ul>
<b>Security</b>	<ul style="list-style-type: none"><li>- NAT/PAT</li><li>- ACLs, Stateful Firewall</li><li>- SSL Tunneling</li><li>- L2TP</li><li>- GRE Tunneling with keep alive and key sequence numbering (cellular network optimisation)</li><li>- VPN with IPSEC/ESP or IPSEC/AH IKEv1/IKEv2</li></ul>
<b>Services</b>	<ul style="list-style-type: none"><li>- DHCP client, DHCP server with anti-spoofing functions, DHCP Layer Discovery Protocol IEEE 802.1ab, DHCP relay</li><li>- Smart DNS proxy, local and remote</li><li>- Traceroute</li><li>- NTP Client and Server support</li><li>- Easy VPN</li><li>- DDns</li></ul>
<b>Management and configuration</b>	<ul style="list-style-type: none"><li>- SNMP v1, SNMPv2, SNMPv3</li><li>- Telnet server with multiple simultaneous sessions</li><li>- SSH server with multiple simultaneous sessions (SSHv2)</li><li>- Netflow</li><li>- IP SLA support for: One Way Delay, Round Trip Delay, Jitter, Packet Loss</li><li>- Fault management Syslog /Trap</li><li>- Radius Support, TACACS+</li><li>- Tracking for backup management, scheduled commands and events</li><li>- Software update via TFTP and FTP</li><li>- Configuration via Command Line Interface (CLI), Text/Menu oriented and Telnet</li><li>- TNA (Tiesse Network Architecture) suite for auto-provisioning and automated remote management</li><li>- Management of an unlimited number of configurations</li></ul>



## SYSTEM FEATURES

<b>POWER</b>	<ul style="list-style-type: none"> <li>AC/DC (internal Universal 100-240 VAC)</li> <li>Optional version with DC/DC 24V-48V</li> <li>Power Switch ON/OFF</li> </ul>
<b>CONSUMPTION</b>	<ul style="list-style-type: none"> <li>≤ 15 W (full configuration)</li> </ul>
<b>ENVIRONMENT</b>	<ul style="list-style-type: none"> <li><b>Operating temperature:</b> -25° C / +70° C (96 hours) -40° C / +70° C (4 hours)</li> <li><b>Storage temperature:</b> -40° C / +70° C</li> <li><b>Max. relative operating humidity:</b> 3% (non condensing)</li> </ul>
<b>PROCESSOR</b>	<ul style="list-style-type: none"> <li>Dual CORE 1 GHz</li> </ul>
<b>MEMORY</b>	<ul style="list-style-type: none"> <li>DRAM 256 MB DDR3</li> </ul>
<b>FLASH MEMORY</b>	<ul style="list-style-type: none"> <li>256 MB</li> </ul>

## EXTERNAL FEATURES

<b>MATERIAL</b>	<ul style="list-style-type: none"> <li>Metal chassis</li> </ul>
<b>COLOR</b>	<ul style="list-style-type: none"> <li>black</li> </ul>
<b>FORM FACTOR</b>	<ul style="list-style-type: none"> <li>Desktop / horizontal plane</li> <li>Rack (optional kit)</li> </ul>
<b>ANTENNAS</b>	<ul style="list-style-type: none"> <li><b>Radio WLAN</b> 2 removable external antennas - SMA male connector</li> <li><b>Radio cellular 5G</b> 4 removable external antennas - SMA male</li> </ul>

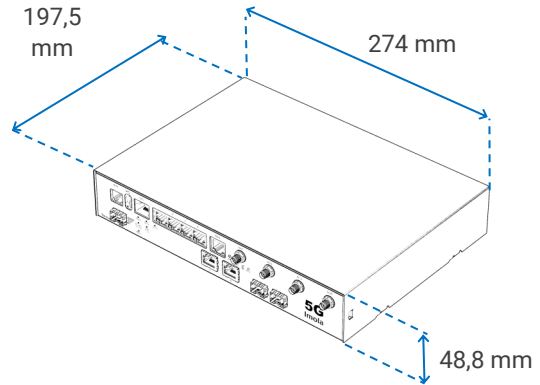
## Technical support

On-line support is available on:

**Supporto.tiesse.com:** the site with technical documentation, assembly instructions, software updates, and how to request technical support.

**Wiki.tiesse.com:** site with manuals and user guides, installation instructions, case studies, scenarios, FAQs, etc.

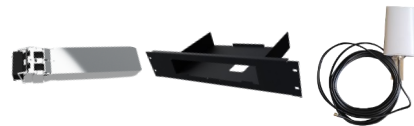
## SIZE



## Add-ons

Various accessories such as SFP modules, rack mounting kits, and omnidirectional and directional antennas, which can also be used outdoors (for models with cellular connectivity), are available.

Please refer to the specific documentation, available on the company website [www.tiesse.com](http://www.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](http://www.tiesse.com).



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