

# IMOLA 0286



Fiber/GbE



SD-WAN

# IMOLA 0286



## EDGE router

**IMOLA 0286** is a next-generation multifunction router equipped with high-availability and scalable 1GE, 2.5 GE and 10GE multiple fiber connectivity.

The product features advanced routing, L7 traffic classification, machine learning algorithms in Network Anomaly Detection and Edge computing.

### KEY FACTORS

- ⇒ Carrier grade multifunction router
- ⇒ Fast connections with multi fiber up to 10GE
- ⇒ Ethernet/Fiber combo ports
- ⇒ Security by design
- ⇒ Hardware and software at the highest levels of reliability

### USE SCENARIOS.

- ⇒ Services and offering profiles of telco operators, internet and digital service providers
- ⇒ Distributed and secure branch and remote office access for banks, insurance companies, dealers, franchises, enterprises, and public administrations
- ⇒ FTTO accesses
- ⇒ Backup and redundancy of ultra-broadband networks



### FIBER and GE ACCESS VIA SFP.

Major fiber and Gigabit Ethernet SFP (transceiver) module standards are supported for LAN/WAN access via SFP.

- 1GE, 2.5GE and 10GE fiber connection (via SFP cage), GPON or Ethernet in case of external ONTs
- Maximum data rate 10 GE
- SFP connectors: LC simplex, LC duplex, RJ45

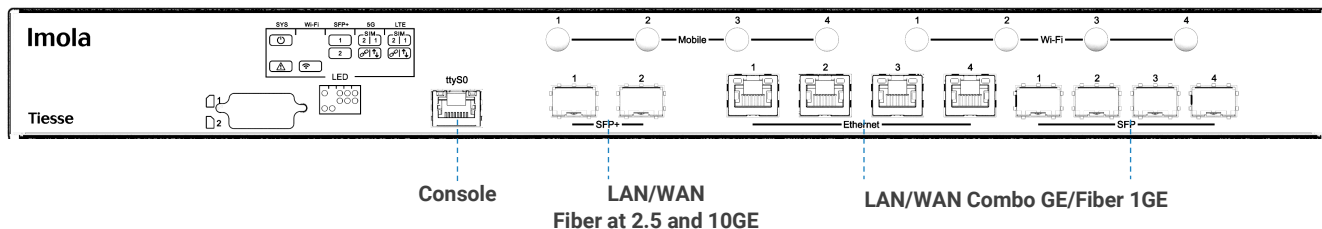
### Multi-function platform

Imola 0286 is based on a multifunctional and scalable platform that can expand its functions by giving rise to additional models equipped with:

- 4G and 5G cellular radio connections
- Wi-Fi b/g/n, ac and ax (Wi-Fi 6) connections



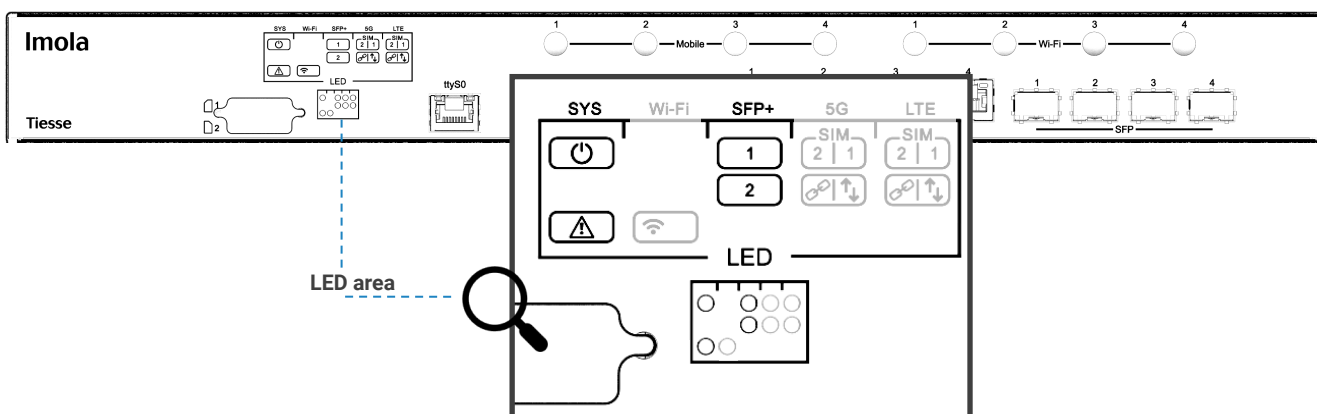
## HARDWARE INTERFACES



Port	Description	Features
LAN/WAN		<ul style="list-style-type: none"><li>4 10/100/1000 Mbps ports (RJ45 connector) combo with 4 SFP 1000 Mbps ports</li><li>2 1GE/2.5GE/10GE ports via SFP cages (transceiver modules not included)</li></ul>
Console	RJ45	<ul style="list-style-type: none"><li>1 RJ45 console port (label ttyS0)</li></ul>



## LED DESCRIPTION



\* NOTE: The use of LEDs depends on the active functionality of each specific model. The figure above highlights the LEDs used in the model covered by this datasheet.

LED	Color	Description
Power	Verde	1 x Power Supply / Correct Power Supply (in LED area)
SYS	Rosso	1 x hardware system problem indication (in LED area)
SFP+	Verde	1 x operational status fiber ports at 2.5 and 10 GE (in LED area)
LAN	Verde/Giallo	1 x for each Ethernet port, indicates operational status



## SOFTWARE

\* Note: Software functionality depends on the version and upgrade level of the product firmware.

Area	Main features
<b>NETWORKING</b>	<ul style="list-style-type: none"> <li>– TCP-UDP IPv4, IPv6</li> </ul>
<b>LAYER 2 FEATURES</b>	<ul style="list-style-type: none"> <li>– LAN Bridging</li> <li>– VLANs on on802.1q LAN interfaces in Access, Trunk, native VLAN and Hybrid modes</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</li> <li>– BGP-4, BGP-4+</li> <li>– OSPFv2</li> <li>– VRF Lite, routing redistribution and tagging</li> <li>– VRRP (Virtual Routing Redundancy Protocol) with IPv4-IPv6 authentication</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>– 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>– Shaping with guaranteed allocated bandwidth and redistribution of excess bandwidth</li> <li>– Committed Access Rate and Multicast rate limitation</li> <li>– Traffic prioritization 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>– GRE Tunneling with keep alive and key sequence numbering (cellular network optimization)</li> <li>– VPN with IPSEC/ESP or IPSEC/AH IKEv1/IKEv2</li> <li>– OpenVPN</li> </ul>
<b>SERVICES</b>	<ul style="list-style-type: none"> <li>– DHCP client, DHCP server with antispoofing functions, DHCP Layer Discovery Protocol IEEE 802.1ab</li> <li>– Intelligent 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>– SNMPv2, SNMPv3</li> <li>– Telnet server with multiple simultaneous sessions</li> <li>– Configuration using CLI (Command Line Interface), text/menu oriented</li> <li>– Unlimited number of configurations management</li> <li>– SSH server with multiple simultaneous sessions (SSHv2)</li> <li>– Fault management Syslog /Trap</li> <li>– Radius Support, TACACS+</li> <li>– Tracking for backup management, commands and event scheduling</li> <li>– Software update via TFTP and FTP</li> <li>– Netflow</li> <li>– TNA (Tiesse Network Architecture) suite for auto-provisioning and automated remote management</li> </ul>



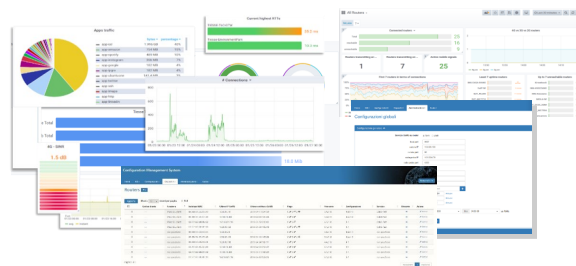
**IMOLA 0286** routers are integrated into the **TNA (Tiesse Network Architecture)** suite, the SD-WAN solution developed by Tiesse in order to make available a dynamic, secure, reliable, high-performance and scalable solution. The TNA solution has at its base the usability of the product and emphasizes the effectiveness and easy realizability of an SD-WAN solution without having to implement complex and expensive architectures and for this adoptable by few and structured end customers.

With highly established and robust use cases, the TNA suite has integrated, with a modular architecture, innovative features to realize a concrete SD-WAN solution that is responsive to market needs.

The TNA is a **modular All-In-One** solution composed of separate entities: **COS**, **MOS**, and **NAD** that work together organically to handle all aspects of managing a network in both IP and Overlay architectures. In this case, the suite is complemented by an additional module called **OVN**.

At the heart of Tiesse's SD-WAN solution is **Intelligent Routing**, which enables the network, whether in overlay scenarios or not, to react to changes in state, being able to operate autonomously at its best even in the presence of congestion, saturation or abnormal traffic.

## TNA Suite DASHBOARD



Through a flexible dashboard, which can also be customized, the SD-WAN can be administered and managed.

*\* Note: Available features may vary by product model.*

Dashboard	Description	Parameters
<b>ROUTER</b>	<b>Monitoring and visualization of key resources for each device (Router, CPE, IoT)</b>	<ul style="list-style-type: none"> <li>— Reachability and connectivity to a target network/internet (primary/backup or other)</li> <li>— Uptime and number of reboots</li> <li>— Round Trip Time last mile or to target Internet</li> <li>— CPU utilization, memory, router load based on current and queued activities</li> <li>— Number of active connections</li> <li>— Throughput inbound/outbound and traffic generated/received by individual interface</li> <li>— Traffic classification by type of application for specific device</li> <li>— Number of devices connected to active Wi-Fi networks</li> <li>— GPON optical connections: uptime, optical power input/output, SFP temperature</li> <li>— Cellular network connections: signal strength for each connection type (5G/4G/3G/2G and SINR, RSRP, RSSI, RSCP, EC/IO), SIM in use</li> <li>— xDSL connection: uptime, signal status and attenuation, noise margin (SNR), redundancy errors (CRC)</li> </ul>
<b>GENERAL</b>	<b>Aggregate monitoring and visualizations</b>	<ul style="list-style-type: none"> <li>— Total number of apparatus: <ul style="list-style-type: none"> <li>— connected, reachable, and unreachable as a function of uptime</li> <li>— transmitting on a specific interface</li> <li>— with an active mobile connection</li> <li>— active grouped by connection type (primary, backup, other)</li> <li>— connected over 5G, 4G, 3G, and 2G networks</li> </ul> </li> <li>— Reachable and unreachable devices, by uptime, over a specified time range</li> <li>— Device classification/sorting: <ul style="list-style-type: none"> <li>— top 5 (active) by number of connections</li> <li>— time order of last connected routers and routers no longer reachable</li> <li>— by response time (highest and lowest RTT) to a given destination</li> </ul> </li> </ul>
<b>OVN</b>	<b>Monitoring and visualizations of data related to the Overlay Network</b>	<ul style="list-style-type: none"> <li>— Total number of apparatus: <ul style="list-style-type: none"> <li>— connected, reachable, and unreachable as a function of uptime</li> <li>— with an active mobile connection</li> <li>— broadcasting on a specific interface</li> <li>— active grouped by connection type (primary, backup, other)</li> </ul> </li> <li>— Reachable and unreachable devices, by uptime, over a specified time range</li> <li>— Device classification/sorting: <ul style="list-style-type: none"> <li>— top 5 (active) by number of connections</li> <li>— time order of last connected routers and routers no longer reachable</li> <li>— by response time (highest and lowest RTT) to a given destination</li> </ul> </li> </ul>





## SYSTEM FEATURES

## POWER

- AC/DC (internal universal 230 VAC)
- On/Off switch

## CONSUMPTION

- < 50W (full configuration)

## FANS

- Fanless

## CPU

- NXP LS1046A quad core
- Arm® Cortex® A72 CPUs Architecture
- Integrated Secure Engine
- Hardware packet acceleration

## MEMORY

- RAM: 4GBytes
- FLASH: 8GBytes eMMC (expandable with SATA M.2 disk with capacity over 1 TBytes)



## EXTERNAL FEATURES

## MATERIAL

- Metal chassis

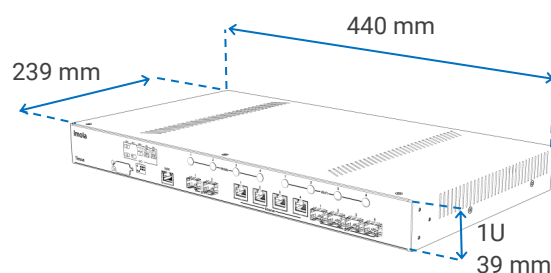
## COLOR

- Black

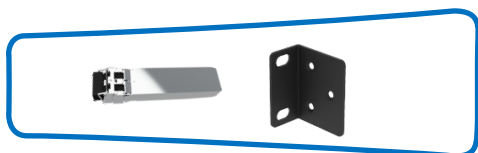
FORM  
FACTOR

- Desktop or on horizontal plane
- Rack mountable (1U) with dedicated

## SIZE



## ADD-ONS



Tiesse products offer a range of optional accessories, available according to the specifications of each model; these include omnidirectional and directional antennas for outdoor use, mounts for various mounting options, and SFP transceiver modules.

Complete documentation on supported accessories can be downloaded directly from [www.tiesse.com](http://www.tiesse.com).



Esempio di Imola 0286 con staffe per montaggio su rack 1 U.

## Technical support

Online support on:



**Supporto.tiesse.com:** portal with technical documentation, assembly instructions, software updates and ways to request technical support.

**Wiki.tiesse.com:** site dedicated to software documentation; includes user manuals, first-time user guides, case studies, tutorials, and other resources useful in using the products.



# 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.

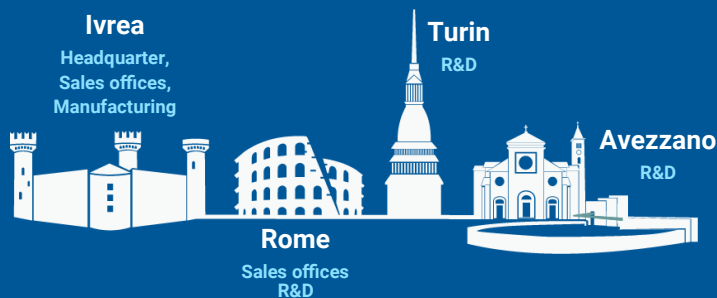
Further information on Tiesse solutions can be found on the company website [www.tiesse.com](http://www.tiesse.com).



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