Tiesse
Innovation made in Italy®

Imola
router series

Imola 0286

GE
SFP 2.5
SFP+ 10
SD-WAN

Datasheet

WWW.TIESSE.COM

Imola 0286

EDGE router

IMOLA 0286 is a next-generation, multifunction EDGE router designed to offer multi-gigabit connectivity over fiber up to 10 Giga Ethernet, providing high performance, continuous availability, and scalability for complex networks.

With carrier-grade hardware and rack-mountable format, it is ideal for applications in professional and industrial environments.

IMOLA 0286 integrates advanced routing, switching, security and traffic management features, supporting both LAN and WAN high-capacity networks, making it ideal for data centers, medium and large offices, telecommunications networks and industrial environments.

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

MULTIFUNCTIONAL PLATFORM

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

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

KEY FACTORS

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

Edge computing and combo ports
For third-party applications that need to operate at the EDGE of the network. Ethernet/Fiber combo ports

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

Fast connectivity
Fast connections with multi fiber up to 10GE

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

Future proof
Safeguarding the investment with future technologies

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.

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

IMOLA 0286

Combo ports:
4 Gigabit Ethernet
and 4 fiber 1000 Mbps

2 fiber optic ports
1GE/2.5GE/10GE

Zero Touch
Provisioning

Rack-mountable
with optional kit

Desktop
mounting

1U rack mounting
with optional kit

SUGGESTED SCENARIOS AND APPLICATIONS

ISP & Telco Ready

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

Distributed access and FTTO

- Distributed and secure access of branches and remote locations of banks, insurance companies, dealers, franchises, enterprises and government
- FTTO accesses

Service continuity and Mission Critical applications

Business applications requiring always-on links, network performance and quality of service, backup and redundancy of ultra-broadband networks.

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.

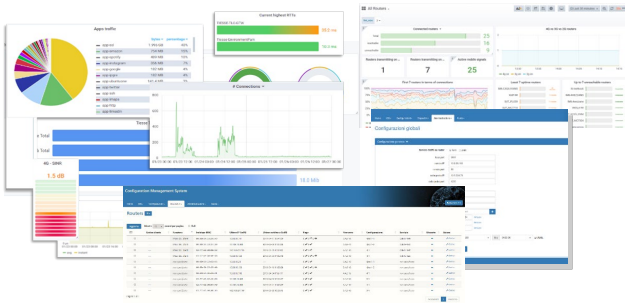
Homogeneous Backup

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



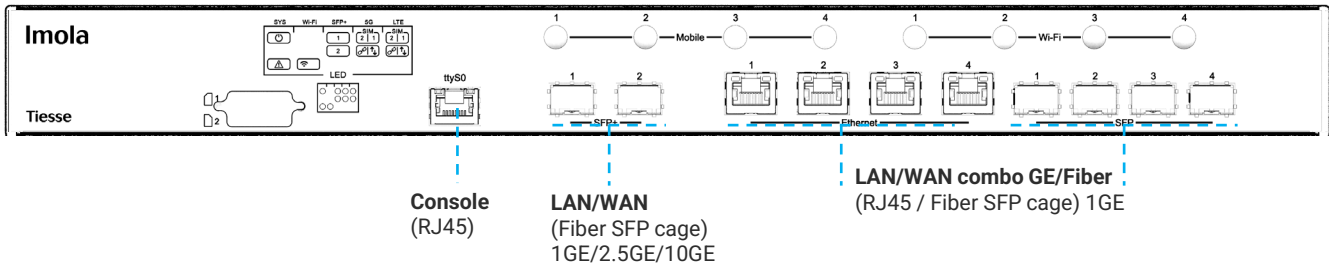
Tiesse's router are integrated in the **TNA (Tiesse Network Architecture)** suite.

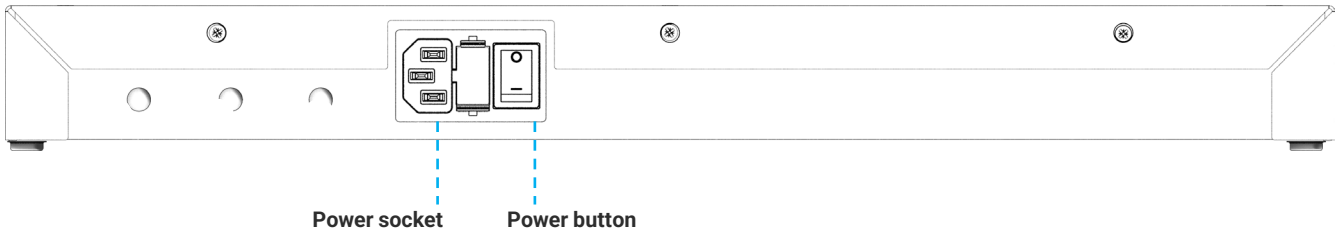
TNA is the modular software suite that enables Zero Touch Provisioning network architecture, including monitoring, remote and automated web-based management of configurations and firmware releases of the installed fleet; it enables traffic engineering, network overlays, and many other functionalities.

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

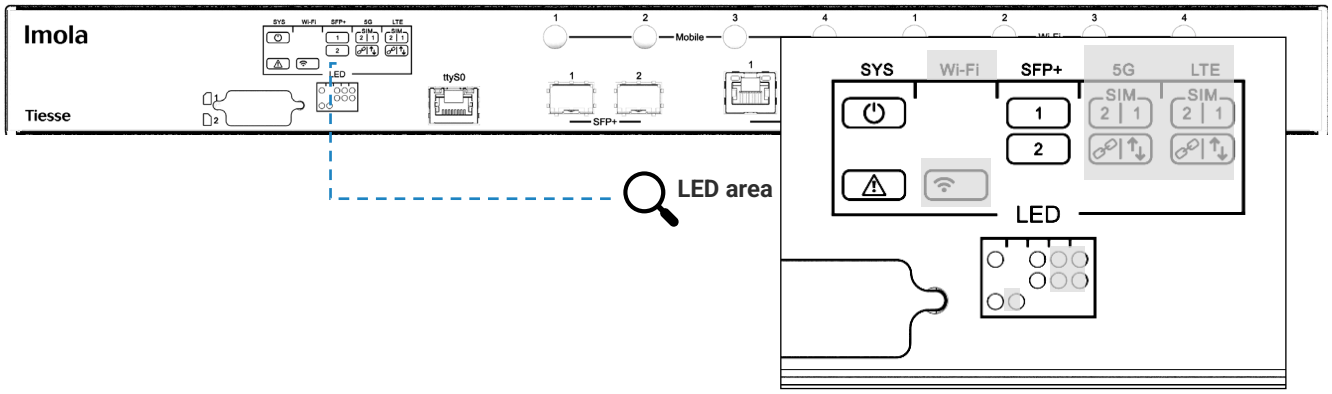
HARDWARE INTERFACES

Porta	N°	Type	Details
LAN/WAN	4+4	GE	4 ports 10/100/1000 Mbps (RJ45) combo with the 4 SFP 1000 Mbps ports
	2	GE -> 10GE	2 ports 1GE/2.5GE/10GE via SFP cages (transceiver modules not included)





LEDs



LED	Color	Position	Description
Alimentazione	Verde	LED area	Indicates operational status of main board power supply
SYS	Rosso	LED area	Indicates hardware system issues
LAN	Giallo	On the LAN port	One for each ETH port, indicates operational status 1Gbps connection
	Verde	On the LAN port	One for each ETH port, indicates operational status up to 100 Mbps connection
Fibra	Verde	LED area	Fiber connection status for ports SFP+ 1 and 2

SOFTWARE

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

NETWORKING	- TCP-UDP IPv4 - IPv6
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 - 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 - IEEE 802.1d (Spanning Tree Protocol)
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 - 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
SICUREZZA	- NAT/PAT - ACL, static firewall - SSL tunneling - GRE Tunnelling with keep alive and key sequence numbering (optimisation of cellular networks) - VPN with IPSEC/ESP or IPSEC/AH IKEv1/IKEv2 - OpenVPN
SERVIZI	- 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
GESTIONE e CONFIGURAZIONE	- SNMPv2, SNMPv3 - Netflow - Telnet server with multiple simultaneous sessions - SSH server with multiple simultaneous sessions (SSHv2) - Fault management Syslog /Trap - Radius Support, TACACS+ - Tracking for backup management, scheduled commands and 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

SD-WAN con TNA Suite

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.

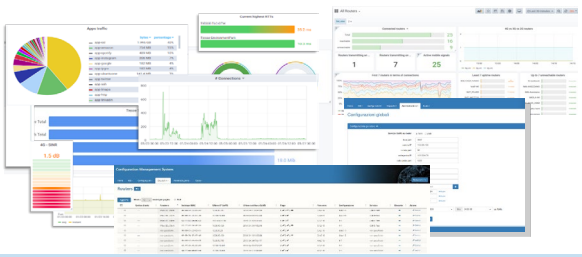
With highly established and robust use cases, the TNA suite has integrated, with a modular architecture, innovative features to realize a concrete SD-WAN solution that is responsive to market needs.

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
ROUTER	**Monitoring and visualization of key resources for each device (Router, CPE, IoT)**	– Reachability and connectivity to a target network/internet (primary/backup or other) – Uptime and number of reboots – Round Trip Time last mile or to target Internet – CPU utilization, memory, router load based on current and queued activities – Number of active connections – Throughtput inbound/outbound and traffic generated/received by individual interface – Traffic classification by type of application for specific device – Number of devices connected to active Wi-Fi networks – GPON optical connections: uptime, optical power input/output, SFP temperature – Cellular network connections: signal strength for each connection type (5G/4G/3G/2G and SINR, RSRP, RSSI, RSCP, EC/IO), SIM in use – xDSL connection: uptime, signal status and attenuation, noise margin (SNR), redundancy errors (CRC)
GENERAL	**Aggregate monitoring and visualizations**	– Total number of apparatus: – connected, reachable, and unreachable as a function of uptime – transmitting on a specific interface – with an active mobile connection – active grouped by connection type (primary, backup, other) – connected over 5G, 4G, 3G, and 2G networks – Reachable and unreachable devices, by uptime, over a specified time range – Device classification/sorting: – top 5 (active) by number of connections – time order of last connected routers and routers no longer reachable – by response time (highest and lowest RTT) to a given destination
OVN	**Monitoring and visualizations of data related to the Overlay Network**	– Total number of apparatus: – connected, reachable, and unreachable as a function of uptime – with an active mobile connection – broadcasting on a specific interface – active grouped by connection type (primary, backup, other) – Reachable and unreachable devices, by uptime, over a specified time range – Device classification/sorting: – top 5 (active) by number of connections – time order of last connected routers and routers no longer reachable – by response time (highest and lowest RTT) to a given destination

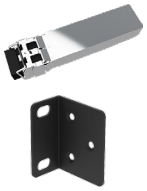
SYSTEM FEATURES

PROCESSOR	- NXP LS1046A quad core - Architecture Arm® Cortex® A72 CPUs - Integrated Security Engine - Hardware packet acceleration
MEMORY	RAM: 4GBytes
FLASH MEMORY	8GBytes eMMC (expandable with SATA M.2 disk with capacity over 1 TBytes)
CHASSIS	Metal material, black color
FORM FACTOR	Desktop Rack (optional kit)

ADD-ONS

Optional accessories such as 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

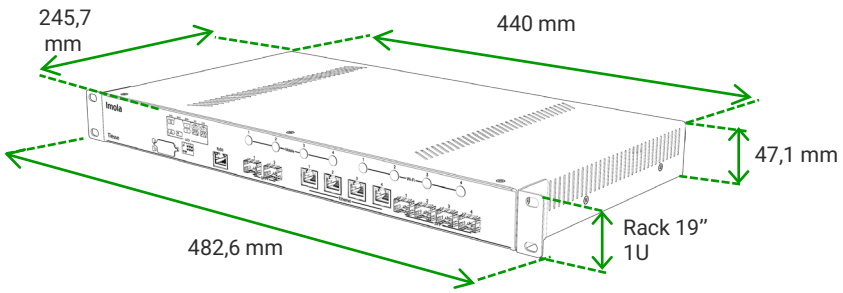
SUSTAINABILTY

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)	≈ 25W
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)	≈ 215496 hours

SIZE and WEIGHT

Machine body	440 x 245,7 x 47,1 (L x P x A mm)
Total weight	≈ 2150 gr (maximum weight including packaging and accessories)
Product	≈ 1520 gr
Accessories	≈ 290 gr
Packaging	≈ 340 gr



OTHER INFORMATION

Packaging and wrapping	The packaging material of this product is ≈91% paper/cardboard, and the incidence of plastic packaging is about 9% 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

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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.

Info: info@tiesse.com

Marketing & sales: marketing@tiesse.com

Tel. +39.0125.230544

www.tiesse.com

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