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Innovazione made in Italy®

# Routers and switches catalogue

**IMOLA, LIPARI, ELBA  
series**

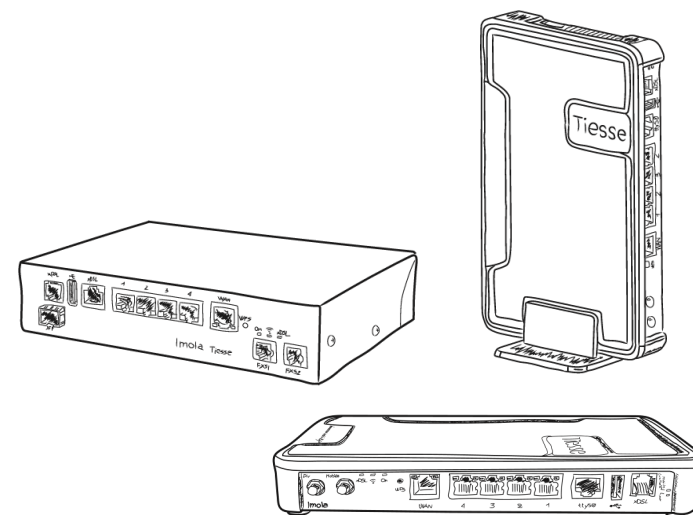
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# Imola LX series



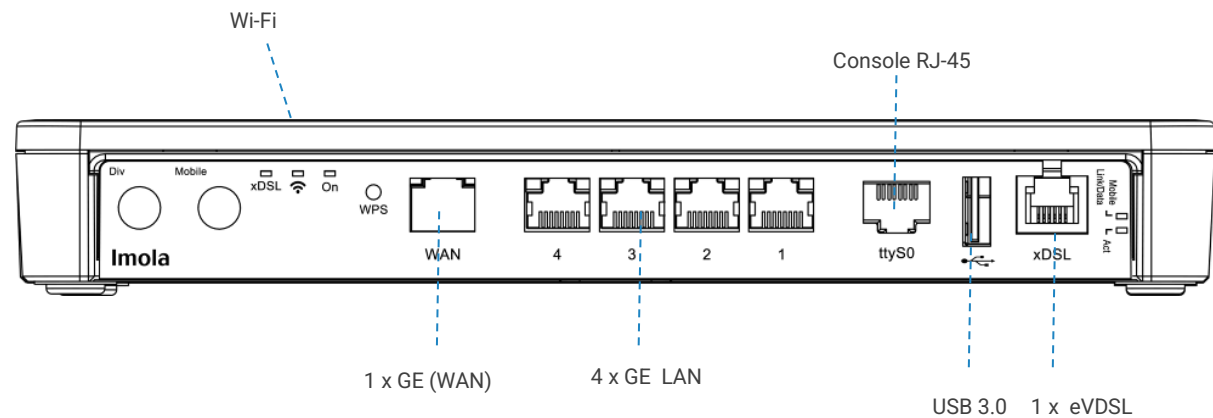
# Imola LX 0272-IKW-V

## VDSL2 only



## Broadband & Cellular Routers

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### Imola LX 0272-IKW-V model

The **Imola LX series** routers are part of the evolution of the IMOLA line, which are certified routers used in the networks of the main telecommunications operators.

Thanks to the **ADSL2 / VDSL2** and WAN Giga Ethernet connectivity, they are particularly suitable for business applications where **security, service continuity** and **network performance** are of primary importance.

#### PORTS FEATURES

LAN	GE	— 4 x 10/100/1000 Mbps ports - RJ45 connectors
	Wi-Fi	— 1 x 802.11 b/g/n port (2.4 GHz) 2x2
	GE-WAN	— 1 x 10/100/1000 port Mbps - RJ45 connector (label WAN)
WAN	ADSL 2/2+	— Full rate ADSL2/2+ / VDSL2
		— ADSL2/2+: downstream data rate up to 24 Mbps — upstream data rate up to 3.5 Mbps
	VDSL	— VDSL2: support for all VDSL2 profiles: 8 MHz to 30 MHz ITU-T G993.2
CONSOLE		— RJ11 connector
		— 1 x RJ45 connector
USB	3.0	— 1 x 3.0 USB port

# Broadband & Cellular Routers - Imola LX 0272-IKW-V

## VDSL only

### SYSTEM FEATURES

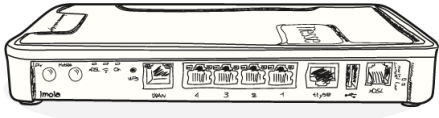
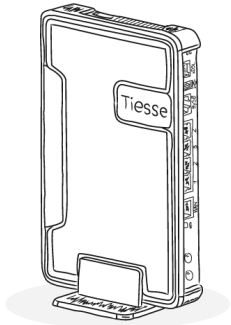
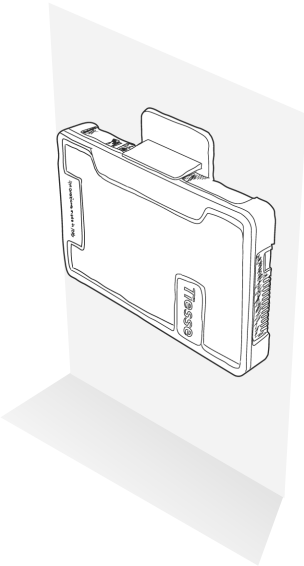
POWER	Power supply	12 V AC/DC Adapter
	Consumption	< = 12W (Full configuration)
ENVIRONMENT	Operating temperature	-5° C / +50° C
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
PROCESSOR		RISC Network processor
MEMORY	DRAM	256 MB - DDR3
	Flash memory	256 MB

### EXTERNAL HARDWARE FEATURES

HOUSING	Material	Plastic - Black color
	Dimensions (W x H x D)	Plastic model: 142,4 x 29,7 x 225,4 mm
	Weight	Plastic model: 520 gr ±10%
ANTENNAS	Radio	Plastic model: internal antennas
		Metal chassis variant: 2 x external and removable antennas, with SMA male connector
MOUNTING	Default	Desktop / horizontal plane
	Optional	Plastic model: vertical positioning and wall mounting (kit included) - not rack mountable
LED	Status LED	1 x power / operational status
	xDSL	1 x connection status
	Radio	1 x radio signal activity
	Ethernet	2 x operational status (for each port)

### Multiple positioning option

This router can be placed on a horizontal surface, such as a desk, but thanks to the supplied bracket, it can be placed vertically on a flat surface, or fixed to a vertical surface such as a wall.





## eVDSL - FTTH (copper) - LTE series



### Broadband & Cellular Routers

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#### Imola LX x272 series - EVDSL, FTTH (copper), LTE routers

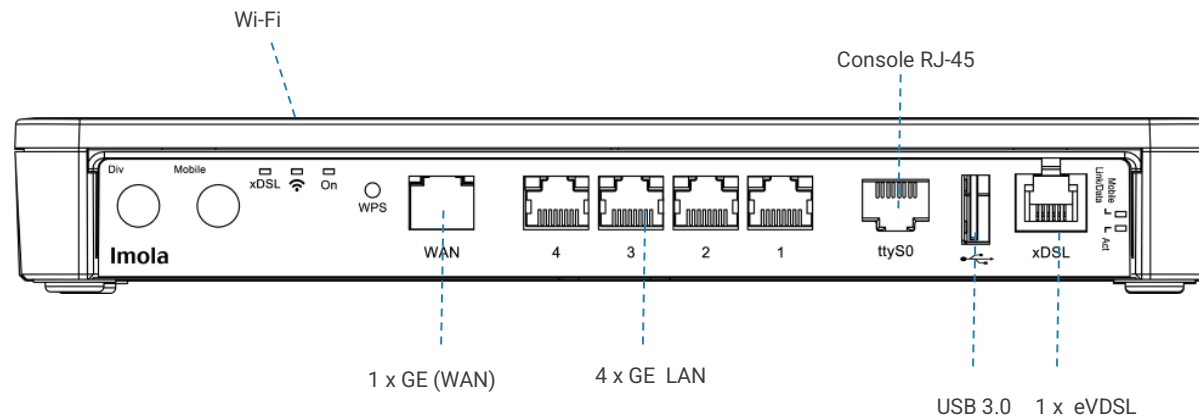
The Imola LX x272 series is part of the Imola product line, which is composed by certified routers, used in the networks of the domestic telecommunication operators.

All models have **eVDSL fixed connectivity**, **GE ports**, the WAN port supports **FTTH (copper wire)** connection.

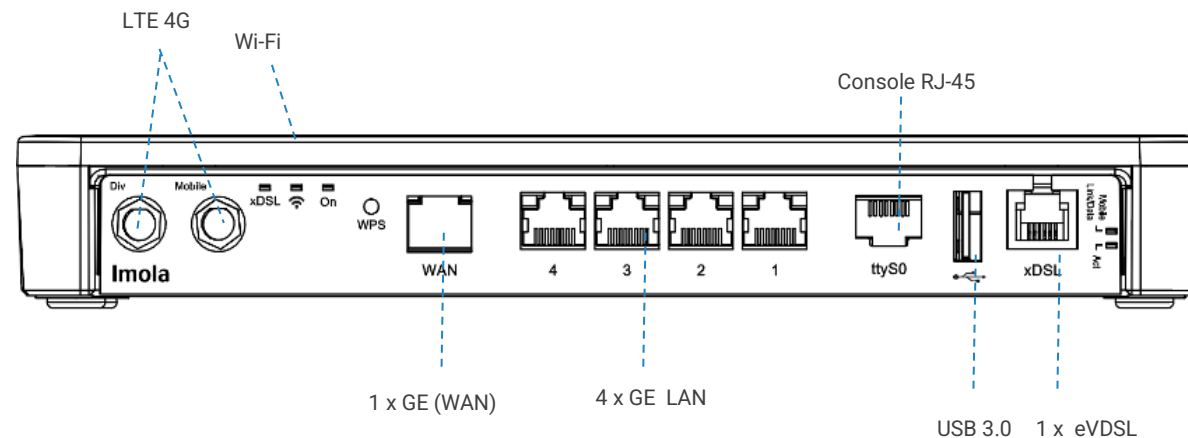
The IKW models have b/g/n Wi-Fi, while the IK2W models have dual Wi-Fi, 2.4 and 5 GHz, which can be used simultaneously.

The 5272 models have an integrated **4G cellular** connectivity.

All Imola LX x272 are integrated with the **TNA suite** (Tiesse Network Automation).



Imola LX 0272-IKW  
Imola LX 0272-IK2W



Imola LX 5272-IKW  
Imola LX 5272-IK2W

# Broadband & Cellular Routers - Imola LX x272

## eVDSL - FTTH (copper) - LTE series

- Imola LX 0272-IKW
- Imola LX 0272-IK2W
- Imola LX 5272-IKW
- Imola LX 5272-IK2W

Hardware FEATURES			LX 0272-IKW	LX 0272-IK2W	LX 5272-IKW	LX 5272-IK2W
LAN	GE	10/100/1000 Mbps ports, RJ45 connectors	4	4	4	4
	Wi-Fi	802.11 b/g/n port (2.4 GHz) 2x2	1	-	1	-
		802.11 b/g/n port (2.4 GHz) 2x2 + 802.11 ac port (5.4 GHz) 3x3	-	1	-	1
WAN	GE-WAN	1 x 10/100/1000 port Mbps - RJ45 connector (label WAN)	1	1	1	1
	ADSL 2/2+ VDSL eVDSL	Full rate ADSL2/2+ / VDSL2, RJ11 connector	1	1	1	1
		ADSL2/2+: downstream data rate up to 24 Mbps — upstream data rate up to 3.5 Mbps VDSL2: support for profiles VDSL2: 8 MHz to 30 MHz				
RADIO CELLULAR	GSM / GPRS / EDGE	Frequency band: 900/1800/1900 MHz GPRS multislot 10, EDGE multislot 12	•	•	•	•
	UMTS / HSDPA / HSUPA / HSPA+	Frequency band: 900/2100 Mhz	•	•	•	•
	DC-HSPA+	DC-HSPA+ (42 Mbps in DL)	•	•	•	•
	LTE	Frequency band: 800 / 900 / 1800 / 2100 / 2600 Mhz Data rates (category 4, MIMO)* - Peek data rates 150 Mbps DL, 50 Mbps UL	•	•	•	•
CONSOLE	RJ45 connector		1	1	1	1
USB	USB 3.0 port		1	1	1	1

SYSTEM FEATURES		
POWER	Power supply	12 V AC/DC Adapter
	Consumption	< = 12W (Full configuration)
ENVIRONMENT	Operating temperature	Plastic model: -5° C / +50° C
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
PROCESSOR	RISC Network processor	
MEMORY	DRAM	256 MB - DDR3
	Flash memory	256 MB

EXTERNAL HARDWARE FEATURES		
HOUSING	Material	Plastic: color black
	Dimensions (W x H x D)	142,4 x 29,7 x 225,4 mm
	Weight	0272 models: 520 gr ±10% - 5272 models: 620 gr ±10%
ANTENNAS	Radio WLAN	Plastic model: internal antennas
	Radio cellular	2 x 4G removable antennas, SMA male connector
MOUNTING	Default	Desktop / horizontal plane
	Optional	See next page
LED	Status LED	1 x power / operational status
	Ethernet	2 x operational status (for each port)
	xDSL	1 x connection status
	Radio cellular	1 x radio signal activity

\* category 6 and 12 available on request

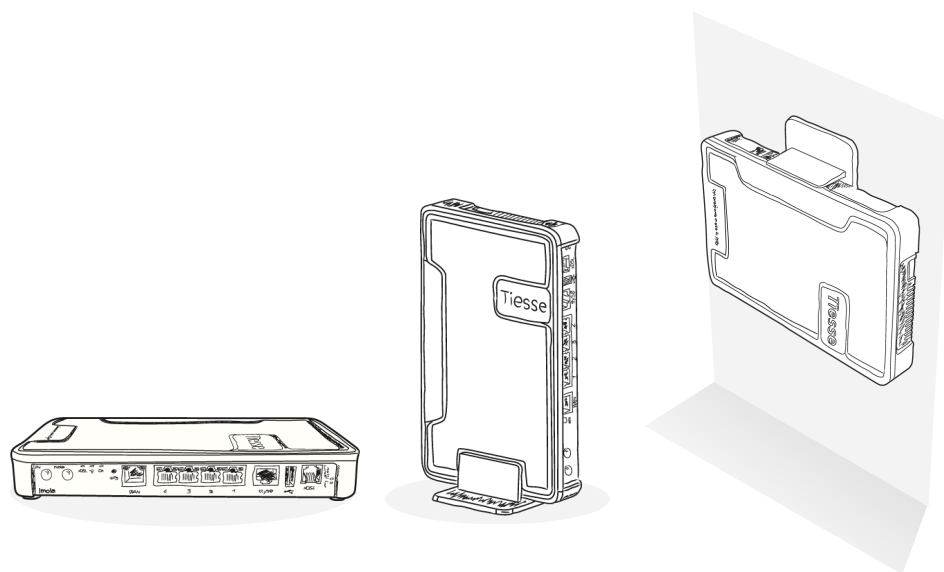
# Broadband & Cellular Routers - Imola LX x272

## eVDSL - FTTH (copper) - LTE series

- Imola LX 0272-IKW
- Imola LX 0272-IK2W
- Imola LX 5272-IKW
- Imola LX 5272-IK2W

### Multiple positioning option

This router can be placed on a horizontal surface, such as a desk, but thanks to the supplied kit, it can be placed vertically on a flat surface, or fixed to a vertical surface such as a wall.



### Metal Chassis and Rugged Variant

Metal chassis variant is available on request for mass production or industrial projects: it has an extended operating temperature range going from -25° C to +70° C.

The metal chassis variant is available for Imola LX x272-IKW only.

It is rack-mountable thanks to the specific rack mount kit, which is optional and not included in the package.





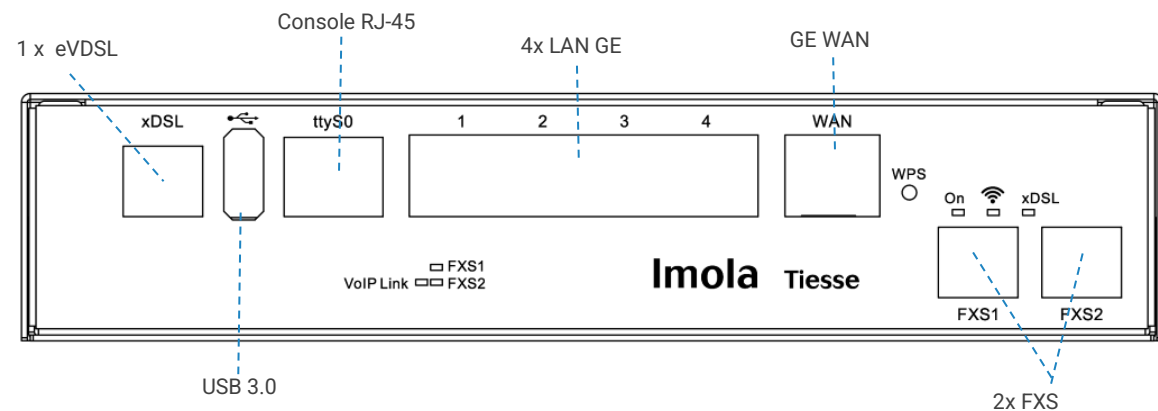
# Imola LX 0272-20

## Voice series



### Broadband & Cellular Routers

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#### Imola LX - Voice series

The Imola LX Voice series is part of the Imola product line, which is composed by certified routers, used in the networks of the main telecommunication operators.

All models have **eVDSL fixed connectivity**, **GE ports**, FXS analogic voice ports (the quantity depends on models) and are integrated with the **TNA suite** (Tiesse Network Automation).

#### PORTS FEATURES

LAN	GE	— 4 x 10/100/1000 Mbps ports - RJ45 connectors
	GE-WAN	— 1 x 10/100/1000 port Mbps - RJ45 connector (label WAN)
WAN	ADSL 2/2+	— Full rate ADSL2/2+ / VDSL2 — ADSL2/2+: downstream data rate up to 24 Mbps — upstream data rate up to 3.5 Mbps
	VDSL	— VDSL2: support for all VDSL2 profiles: 8 MHz to 30 MHz ITU-T G993.2 — RJ11 connector
VOICE	FSX	— 2 x FXS ports - RJ11 connectors
CONSOLE		— 1 x RJ45 connector
USB	3.0	— 1 x 3.0 USB port

# Broadband & Cellular Routers - Imola LX 0272-20

## Voice series

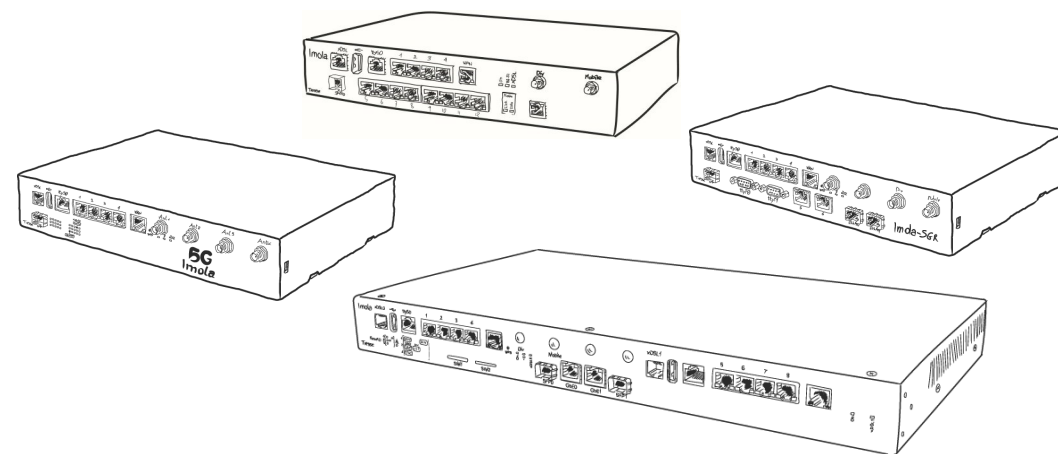
### SYSTEM FEATURES

POWER	Power supply	12V AC/DC adapter - Power Switch ON/OFF
	Consumption	< = 12W (Full configuration)
ENVIRONMENT	Operating temperature	-5° C / +50° C
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
PROCESSOR		RISC Network processor
MEMORY	DRAM	256 MB - DDR3
	Flash memory	256 MB

### EXTERNAL HARDWARE FEATURES

HOUSING	Material	Plastic - Black color
	Dimensions (W x H x D)	Plastic model: 142,4 x 29,7 x 225,4 mm
	Weight	Plastic model: 520 gr ±10%
ANTENNAS	Radio	Plastic model: internal antennas
		Metal chassis variant: 2 x external and removable antennas, with SMA male connector
MOUNTING	Default	Desktop / horizontal plane
	Optional	Plastic model: vertical positioning and wall mounting (kit included) - not rack mountable
LED	Status LED	1 x power / operational status
	xDSL	1 x connection status
	Voice	2 x analogic voice port status
	VoIP	1 x VoIP connection status
	Ethernet	2 x operational status (for each port)

# Imola series



## eVDSL - GbE - Fiber series



## Broadband & Cellular Routers

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### Imola x872 routers - eVDSL, GbE and Fiber

The **Imola x872 series** is an innovative line of routers with VDSL Enhanced ultra broadband and fiber connectivity, with 14 Ethernet ports (5 Gigabit and 9 Fast Ethernet) and Wi-Fi.

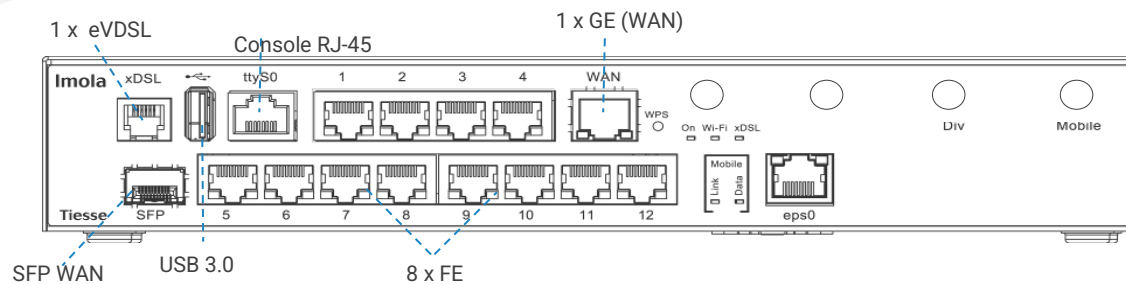
The routers are certified and used in the networks of the main telecommunications operators: they are particularly suitable to be used in business applications where safety, service continuity and network performance are of primary importance.

Imola x872 series support fixed and mobile broadband connectivity in a single **all-in-one device**, integrating routing, switching and modem functionality.

The **IKW models** have b/g/n Wi-Fi, while the **IK2W** models have dual Wi-Fi, 2.4 and 5 GHz.

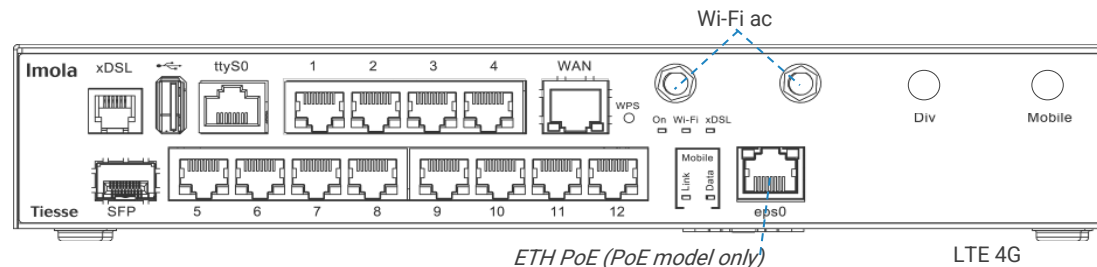
The **5872 models** have an integrated **4G cellular** connectivity.

All Imola x872 are integrated with the **TNA suite** (Tiesse Network Automation).

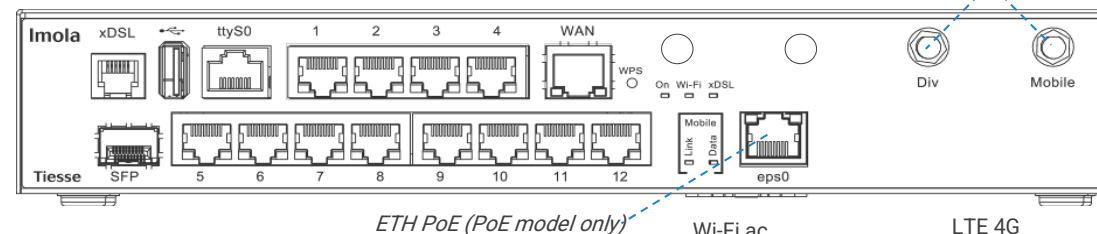


Imola 0872-IKF-IKW

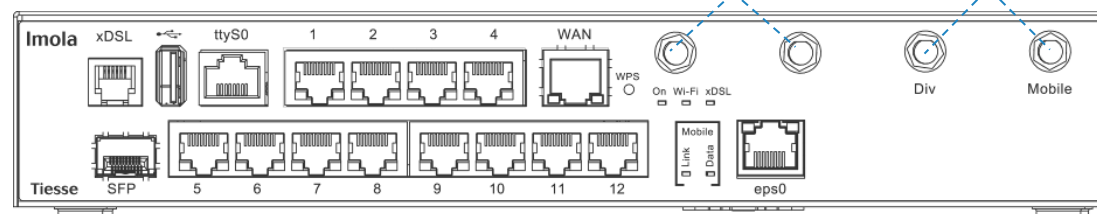
Below we highlight only the different features compared to the Imola 0872-IKF-IKW model



Imola 0872-IKF-IK2W  
Imola 0872-IKF-IKW-PoE



Imola 5872-IKF-IKW  
Imola 5872-IKF-IKW-PoE



Imola 5872-IKF-IK2W

# Broadband & Cellular Routers

## eVDSL - GbE - Fiber series

- Imola 0872-IKF-IKW
  - Imola 0872-IKF-IK2W
  - Imola 0872-IKF-IKW-PoE
- Imola 5872-IKF-IKW
  - Imola 5872-IKF-IK2W
  - Imola 5872-IKF-IKW-PoE

			0872			5872		
HARDWARE FEATURES			IKF-IKW	IKF-IK2W	IKF-IKW-PoE	IKF-IKW	IKF-IK2W	IKF-IKW-PoE
LAN	FE	10/100 Mbps ports, RJ45 connector	8	8	8	8	8	8
	GE	10/100/1000 Mbps ports - RJ45 connectors	4	4	4	4	4	4
	PoE	Poe Port (label eps0)	-	-	1	-	-	1
	Wi-Fi	802.11 b/g/n port (2.4 GHz) 2x2	1	-	1	1	-	1
		802.11 b/g/n (2.4 GHz) 2x2 + 802.11 ac (5 GHz) port 3x3	-	1	-	-	1	-
WAN	GE-WAN	10/100/1000 Mbps WAN port, RJ45 connector	1	1	1	1	1	1
	SFP WAN	SFP Cage for Fiber and GPON connections (SFP module not included)	1	1	1	1	1	1
	ADSL 2/2+	Full rate ADSL2/2+ / VDSL2, RJ11 connector	1	1	1	1	1	1
	VDSL	ADSL2/2+: downstream data rate up to 24 Mbps — upstream data rate up to 3.5 Mbps VDSL2: supports for profiles VDSL2: 8 MHz to 30 MHz ITU-T G993.2						
	eVDSL	eVDSL: support 35 MHz ITU-T G993.2 Annex Q (35b or Vplus) profile with aggregate rates up to 400 Mbps						
RADIO CELLULAR	GSM / GPRS / EDGE	Frequency band: 900/1800/1900 MHz GPRS multslot 10, EDGE multslot 12	-	-	-	•	•	•
	UMTS / HSDPA / HSUPA / HSPA+	Frequency band: 900/2100 Mhz HSDPA data rates up to category 20 HSUPA data rates up to category 6	-	-	-	•	•	•
	DC-HSPA+	DC-HSPA+ (42 Mbps in DL)	-	-	-	•	•	•
	LTE	Frequency band: 800/900/1800/2100/2600 MHz Data rates (category 4, MIMO)* - Peek data rates 150 Mbps DL, 50 Mbps UL	-	-	-	•	•	•
	CONSOLE	RJ45 connector	1	1	1	1	1	1
USB	USB 3.0 port		1	1	1	1	1	1

\* category 6 and 12 available on request



# Broadband & Cellular Routers

## eVDSL - GbE - Fiber series

- Imola 0872-IKF-IKW
  - Imola 0872-IKF-IK2W
  - Imola 0872-IKF-IKW-PoE
- Imola 5872-IKF-IKW
  - Imola 5872-IKF-IK2W
  - Imola 5872-IKF-IKW-PoE

SYSTEM FEATURES		
POWER	Power supply	AC/DC adapter (Internal Universal 100-240 VAC)
	PSU option	DC/DC 12V version - DC/DC 24V-48V version
	Consumption	< = 12W (Full configuration)
ENVIRONMENT	Operating temperature	-25° C / +70° C (96 hours)
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
PROCESSOR		RISC Network processor
MEMORY	DRAM	DRAM 256 MB
	Flash memory	256 MB

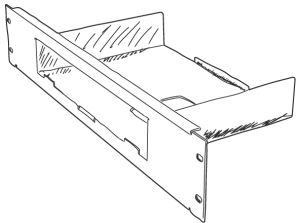
EXTERNAL HARDWARE FEATURES		
HOUSING	Material	Metal
	Dimensions (W x H x D)	274 x 48.8 x197.5 mm
	Weight	1950 gr ±10%
ANTENNAS	Radio WLAN	SMA male connector - External removable antennas
	Radio cellular	2 x 4G external removable antennas SMA male connector
MOUNTING	Default	Desktop / horizontal plane
	Optional	Rack mounting kit (not included)
LED	Status LED	1 x power / operational status
	Ethernet	2 x operational status (for each port)
	xDSL	1 x connection status
	Wi-Fi	1 x radio signal activity
	Radio cellular	1 x radio-cellular connection status 1 x radio-cellular data activity

### Add-ons for Imola products

**IMOLA** series is provided with optional add-ons like omnidirectional outdoor antennas and brackets for mounting on a 2U rack.

The fiber models also support a wide range of SFP transceivers.

Refer to the specific documentation on both add-ons and supported SFP transceiver for more information.

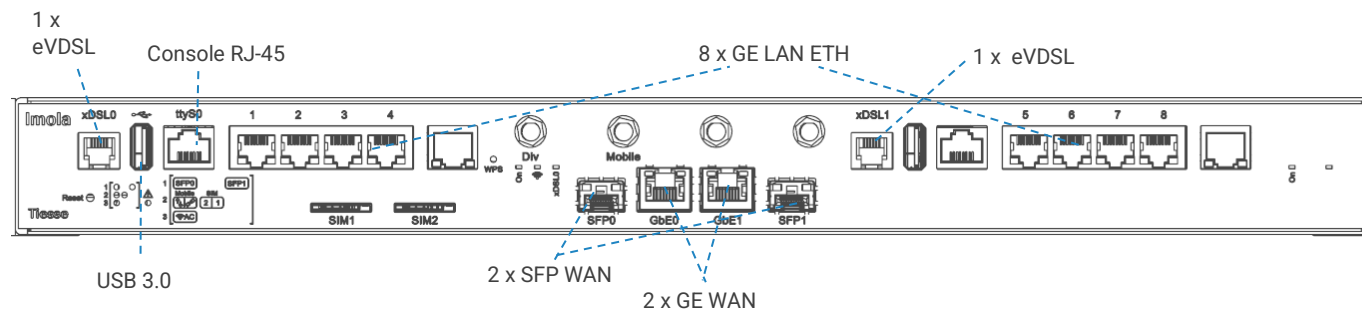
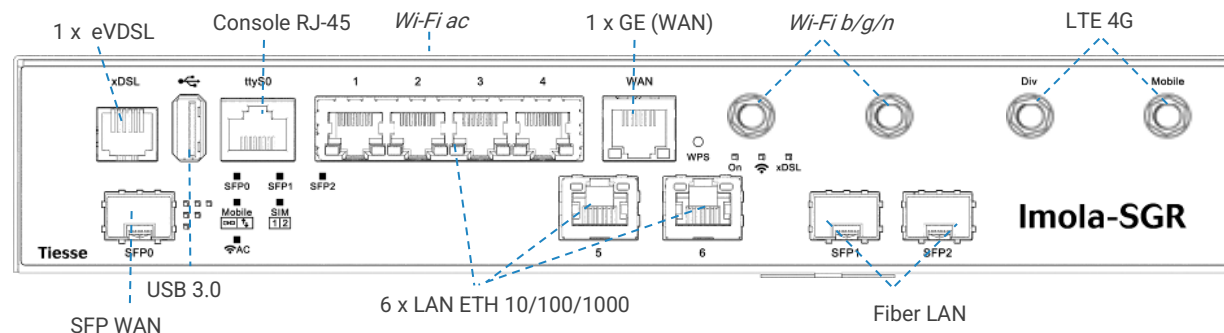
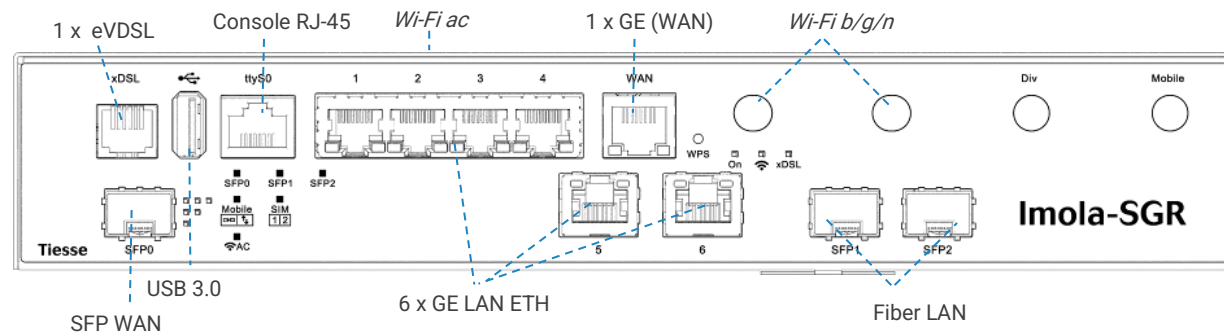


Imola 0272-SGR | Imola 0272-SGR-IK2W  
 Imola 5272-SGR | Imola 5272-SGR-IK2W  
 Imola 0872-IK2V-IK2F

## eVDSL + Multi-fiber ports series



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### Imola Multi-fiber ports series - eVDSL, GbE and Fiber routers

The Imola Multi-fiber series is part of the Imola product line, which is composed by certified routers, used in the networks of the main telecommunication operators.

All models have **eVDSL fixed connectivity**, **GE ports**, and multi fiber connectivity.

The **IK2V-IK2F** models are rack mountable and have two eVDSL ports, as well as two fiber port (SFP cage).

The **SGR models** are also rack mountable using the appropriate kit (optional) and have one eVDSL port and three fiber ports (SFP cage).

The **5xxx models** have integrated **4G cellular** connectivity.

# Broadband & Cellular Routers

## eVDSL + Multi-fiber ports series

- Imola 0272-SGR
  - Imola 0272-SGR-IK2W
  - Imola 0872-IK2V-IK2F
- Imola 5272-SGR
  - Imola 5272-SGR-IK2W

Hardware FEATURES			0272-SGR	0272-SGR-IK2W	5272-SGR	5272-SGR-IK2W	0872-IK2V-IK2F
LAN	GE	10/100/1000 Mbps ports - RJ45 connectors	6	6	6	6	10
	SFP LAN	SFP Cage for LAN side Fiber connection	2	2	2	2	-
		Combo ports 1 Giga Ethernet / SFP	-	-	-	-	-
	Wi-Fi	802.11 b/g/n port (2.4 GHz) 2x2	1	-	1	-	-
		802.11 b/g/n (2.4 GHz) 2x2 + 802.11 ac (5 GHz) port 3x3	-	1	-	1	-
WAN	GE-WAN	Combo port GE 10/100/1000 Mbps - RJ45 connector(label WAN) and WAN SFP port (label SFP0)	1	1	1	1	-
		10/100/1000 Mbps WAN port - RJ45 connector					2
	SFP WAN	SFP Cage for Fiber and GPON connections (SFP module not included)	1	1	1	1	2
	ADSL 2/2+	Full rate ADSL2/2+ / VDSL2 - RJ11 connector					
	VDSL	ADSL2/2+: downstream data rate up to 24 Mbps — upstream data rate up to 3.5 Mbps					
RADIO CELLULAR	eVDSL	VDSL2: supports for profiles VDSL2: 8 MHz to 30 MHz ITU-T G993.2	1	1	1	1	2
		eVDSL: support 35 MHz ITU-T G993.2 Annex Q (35b or Vplus) profile with aggregate rates up to 400 Mbps					
	GSM / GPRS / EDGE	Frequency band: 900/1800/1900 MHz GPRS multslot 10 EDGE multslot 12	-	-	•	•	-
	UMTS / HSDPA / HSUPA / HSPA+	Frequency band: 900/2100 Mhz					
		HSDPA data rates up to category 20	-	-	•	•	-
CONSOLE	DC-HSPA+	HSUPA data rates up to category 6					
		DC-HSPA+ (42 Mbps in download)	-	-	•	•	-
	LTE	Frequency band: 800/900/1800/2100/2600 MHz					
USB		Data rates (category 4, MIMO)* - Peek data rates 150 Mbps DL, 50 Mbps UL - WCDMA	-	-	•	•	-
		RJ45 connector	1	1	1	1	1
		USB 3.0 port	1	1	1	1	1

# Broadband & Cellular Routers

## eVDSL + Multi-fiber ports series

### Imola x272-SGR models

SYSTEM FEATURES		
POWER	Power supply	AC/DC adapter (Internal Universal 100-240 VAC) Power Switch ON/OFF
	PSU option	DC/DC 12V version - DC/DC 24V-48V version
	Consumption	< = 12W (Full configuration)
ENVIRONMENT	Operating temperature	-25° C / +70° C (96 hours) -40° C / +70° C (4 hours)
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
PROCESSOR		Dual core 1 GHz
MEMORY	DRAM	DRAM 256 MB DDR3
	Flash memory	256 MB

### Imola 0872-IK2V-IK2F models

SYSTEM FEATURES		
POWER	External	AC/DC adapter (Internal Universal 100-240 VAC)
	PSU option	DC/DC 12V version - DC/DC 24V-48V version
	Consumption	< = 15 W (full configuration)
ENVIRONMENT	Operating temperature	-5° C / +55° C (96 hours)
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
PROCESSOR		Dual CORE ARM A9 – 1 Ghz
MEMORY	DRAM	Default 256 MB - DDR2
	Flash memory	32 MB up to 1 GB

- Imola 0272-SGR
  - Imola 0272-SGR-IK2W
  - Imola 0872-IK2V-IK2F
- Imola 5272-SGR
  - Imola 5272-SGR-IK2W

EXTERNAL HARDWARE FEATURES		
HOUSING	Material	Metal
	Dimensions (W x H x D)	274 x 48.8 x197.5 mm
	Weight	1900 gr ±10%
ANTENNAS	Radio	SMA male connector - External removable antennas SGR models: 2 antennas - IK2W models: 5 antennas
	Radio mobile	2 x 4G external removable antennas, SMA male connector
MOUNTING	Default	Desktop / horizontal plane
	Optional	Bracket for rack mounting
LED	Status LED	1 x power / operational status
	Wi-Fi	1 x radio signal activity
	xDSL	1 x connection status
	Ethernet	2 x operational status (for each port)
	SFP	3 x fiber connection status
	Radio-cellular	1 x radio-cellular connection status and data activity
		1 x active SIM status

EXTERNAL HARDWARE FEATURES		
HOUSING	Material	Metal - color: black
	Dimensions (W x H x D)	440 x 1U x 239 mm
MOUNTING	Default	Desktop / horizontal plane
	Optional	x872 models: 1U rack mount kit included
LED	Status LED	1 x power / operational status
	Ethernet	2 x operational status (for each port)
	SFP	1 x operational status for each port
	xDSL	2 x connection status

# Imola 5572-SGR

## Ultra broadband 5G router



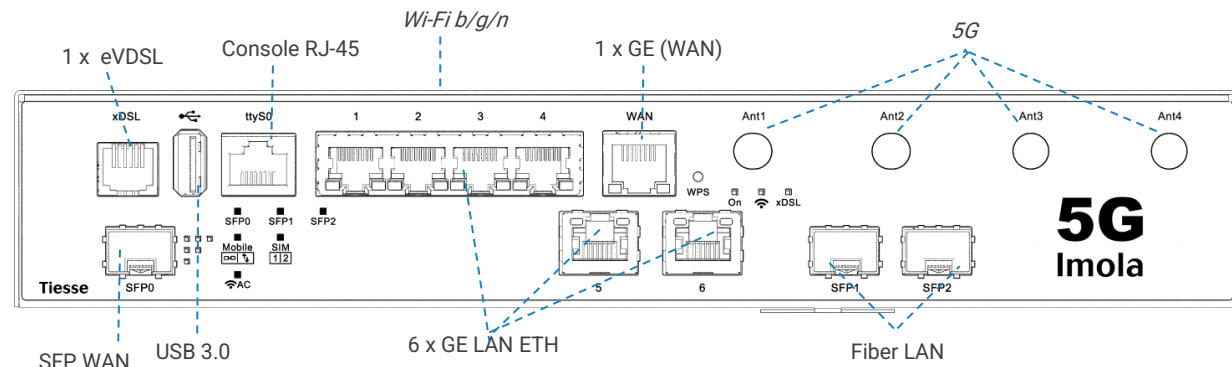
**Imola 5572-SGR** is a latest generation 4G/5G router (release 15). It's an integral part of the IMOLA series, certified routers used in the networks of major telecom operators.

Imola 5572-SGR is an all-in-one 5G router with fiber and eVDSL connectivity; it is particularly suitable to be used 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 version (b/g/n at 2.4 GHz and ac 5ghz). High-performance routing, switching, and modem capabilities allow you to leverage broadband network speeds for data, voice, and video service applications.

### KEY BENEFITS

- ⇒ Safety
- ⇒ High performance for Giga networks
- ⇒ Reliability of hardware and software
- ⇒ Quality of service (Qos)
- ⇒ Ruggedness (fanless, internal power supply, metal chassis, Operation at extended temperature ranges)
- ⇒ Zero Touch provisioning
- ⇒ Factory preconfigurations, differentiated by customer
- ⇒ 100% factory tested equipment (including SIM cards for 4G models)
- ⇒ Minimum energy consumption



### USE SCENARIOS



Thanks to the support for 5G, LTE, and WCDMA 3GPP, including standalone 5G NR (SA), non-standalone (NSA), dual connectivity LTE-5G NR (EN-DC) and dynamic spectrum sharing between LTE and 5G. **Imola 5572-SGR** can be used globally to take advantage of the benefits of 5G and Gigabit 4G networks for high-performance, bandwidth-intensive applications, such as broadcasting and streaming.

Imola 5572-SGR is designed to support 5G scenarios described by



# Broadband & Cellular Routers - Imola 5572-SGR

## GbE + Fiber + eVDSL + 5G

Hardware FEATURES			
LAN	GE	– 10/100/1000 Mbps ports, RJ45 connectors	6
	Fiber	– SFP cage for fiber connections (SFP module not included)	1
	Wi-Fi	– WLAN 802.11 b/g/n (2.4 Ghz) port	2
WAN	GE / SFP	– GE 10/100/1000 Mbps (RJ45 connector) combo port with WAN SFP port (label SFP0)	1
	ADSL 2/2+ VDSL eVDSL	– Full rate ADSL2/2+ / VDSL2, RJ11 connector – – ADSL2/2+: downstream data rate up to 24 Mbps – upstream data rate up to 3.5 Mbps – VDSL2: supports for profiles VDSL2: 8 MHz to 30 MHz ITU-T G993.2 – eVDSL: support 35 MHz ITU-T G993.2 Annex Q (35b or Vplus) profile with aggregate rates up to 400 Mbps	1
	UMTS / HSDPA / HSUPA / HSPA+	– 3G HSPA+ Release 8 – Throughput 3G: 42 Mbps download and 11 Mbps upload (*)	•
	WCDMA	– Frequencies: 5, 8, 3, 4, 2, 1, 9, 19	•
RADIO CELLULAR	LTE	– Data rates: 7 CA up to 20 layers in download and 3 CA in upload, 256-QAM in download/upload – Frequency range : 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 – Throughput 4G: up to 1 Gbps in download and 211 Mbps in upload (*)	•
	5G	– 5G sub-6 FDD and TDD supported – 5G core network Opt. 3a/3X and Opt 2 – Throughput 5G: up to 1 Gbps in download and 1 Gbps in upload (*) – Frequency range 1 (FR1): n1, n2, n3, n5, n7, n12, n14, n20, n28, n30, n41, n66, n71, n77, n78, n79 –	•
CONSOLE		– RJ45 connector	1
USB		– USB 3.0 port	1

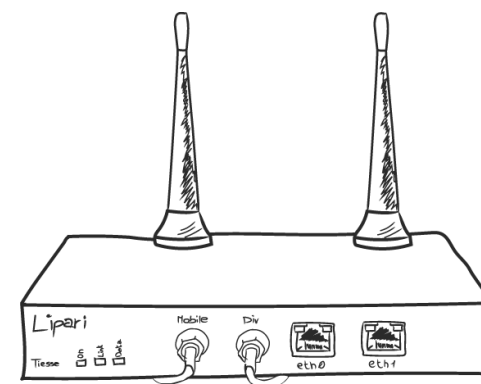
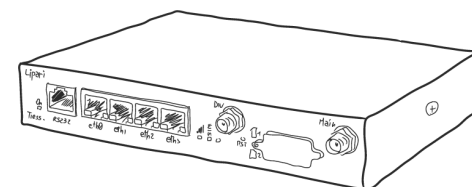
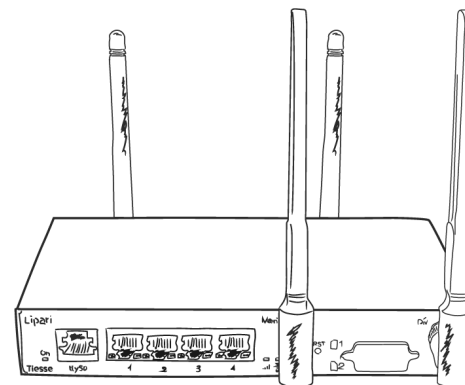
# Broadband & Cellular Routers - Imola 5572-SGR

## GbE + Fiber + eVDSL + 5G

SYSTEM FEATURES		
POWER	Power supply	AC/DC adapter (Internal Universal 100-240 VAC) Power Switch ON/OFF
	Consumption	< = 12W (Full configuration)
ENVIRONMENT	Operating temperature	-25° C / +70° C (96 hours) -40° C / +70° C (4 hours)
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
PROCESSOR		Dual core 1 GHz
MEMORY	DRAM	DRAM 256 MB DDR3
	Flash memory	256 MB

EXTERNAL HARDWARE FEATURES		
HOUSING	Material	Metal
	Dimensions (W x H x D)	274 x 48.8 x197.5 mm
ANTENNAS	Radio WLAN	2 external removable antennas - SMA male connector
	Radio cellular	4 external removable antennas - SMA male connector
MOUNTING	Default	Desktop / horizontal plane
	Optional	Rack mounting kit (not included)
LED	Status LED	1 x power / operational status
	Ethernet	2 x operational status (for each port)
	SFP	1 x operative status - for each port
	xDSL	1 x connection status
	Wi-Fi	1 x 2.4 GHz radio signal activity
		1 x radio cellular connection status
	Radio cellular	1 x radio cellular data exchange activity 1 x operational SIM

# Lipari series



# Lipari series

## Cellular routers



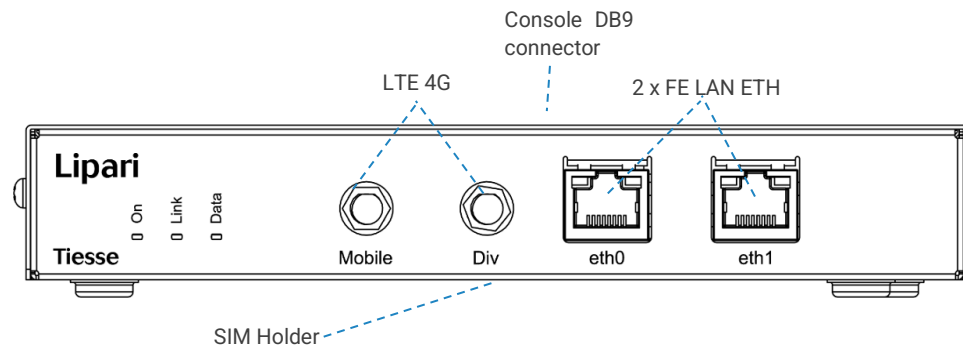
### Lipari, cellular router series

Lipari is an innovative series of routers that provides **cellular 2G/3G/4G connectivity** to the user who accesses the public or private data network (Internet / Intranet) with the appropriate level of security.

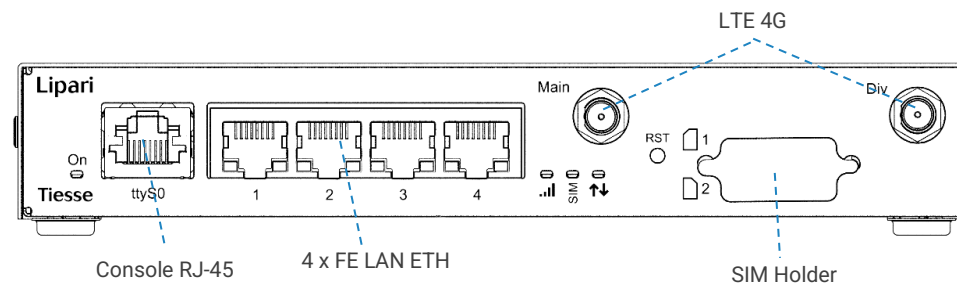
**Lipari 5100** has two Ethernet ports. This router count as an industrial product and is compliant to IEC 61850-3 standard.

All **Lipari 5200** models have four Ethernet LAN ports as well as two SIM slots to support failover and backup configuration.

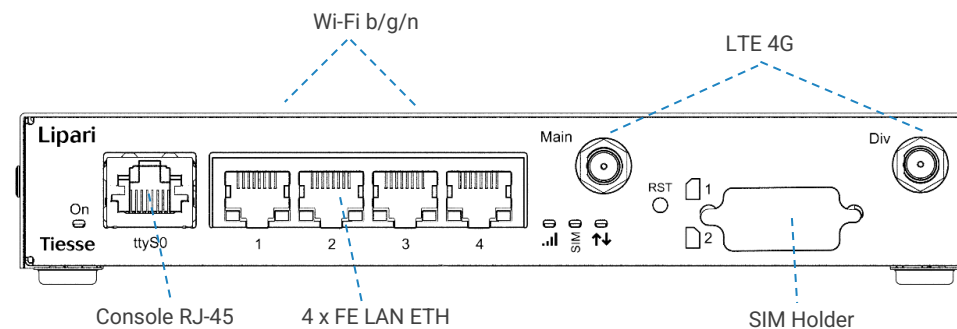
**Lipari 5200-IKW** adds the Wi-Fi 2.4 GHz connection to the base model.



Lipari 5100



Lipari 5200



Lipari 5200-IKW

# Cellular Routers - Lipari series

## 4G cellular only

- Lipari 5100
- Lipari 5200
- Lipari 5200-IKW

Hardware interfaces - Lipari 5100 model			
LAN	FE	– 10/100 Mbps ports - RJ45 connector, with or without auto-negotiation,	2
	GSM	– GSM 850 (850 MHz)	•
	GPRS	– EGSM 900 (900 MHz)	
	EDGE	– DCS 1800 (1800 MHz) – PCS 1900 (1900 MHz) – EDGE throughput up to 236 kbps	
	UMTS (WCDMA)	– Band 1 (2100 MHz) – Band 2 (1900 MHz) – Band 5 (850 MHz)	•
RADIO CELLULAR	HSDPA	– Band 6 (800 MHz) – Band 8 (900 MHz)	
	HSUPA	– HSPA+:	
	HSPA+	rates Downlink: Up to 42 Mbps (category 24), Uplink: Up to 5.76 Mbps (category 6)	
	DC-HSPA+		
	LTE	– Frequency bands: 800 / 900 / 1800 / 2100 / 2600 Mhz – Data rates category 4, MIMO* – Peak data rates 150 Mbps DL, 50 Mbps UL (actual throughput is dependent on network configuration, bandwidth assigned to the UE, the number of users and RF signal conditions) – WCDMA 900/2100 – * Category 6 and 12 available on requests	•
CONSOLE		– DB9 asynchronous connector up to 115.2 Kbps	1

SIM SLOTS 1

Hardware interfaces - Lipari 5200 models			5200	5200-IKW
LAN	FE	– Ethernet ports 10/100 Mbps -RJ45 connector - with or without auto-negotiation, configurable	4	4
	Wi-Fi	– 802.11 b/g/n (2.4 GHz)	-	•
RADIO CELLULAR	Bands	– LTE FDD: B1/B3/B7/B8/B20/B28 – WCDMA: B1/B8 – GSM: B3/B8	•	•
	GSM	– EDGE: max 296 Kbps (DL) - max 236.8 Kbps (UL) – GPRS: max 107 Kbps (DL) - max 85.6 Kbps (UL)	•	•
	UMTS	– DC-HSDPA: max 42 Mbps (DL) – HSUPA: max 5.76 Mbps (UL) – WCDMA: max 384 Kbps (DL/UL)	•	•
	LTE	– Support up to CAT4 * – LTE FDD: 150 Mbps (DL) - Max 50 Mbps (UL) – * Category 6 and 12 available on requests	•	•
	CONSOLE	– RJ45 connector	1	1
SIM SLOTS			2	2



# Cellular Routers - Lipari series

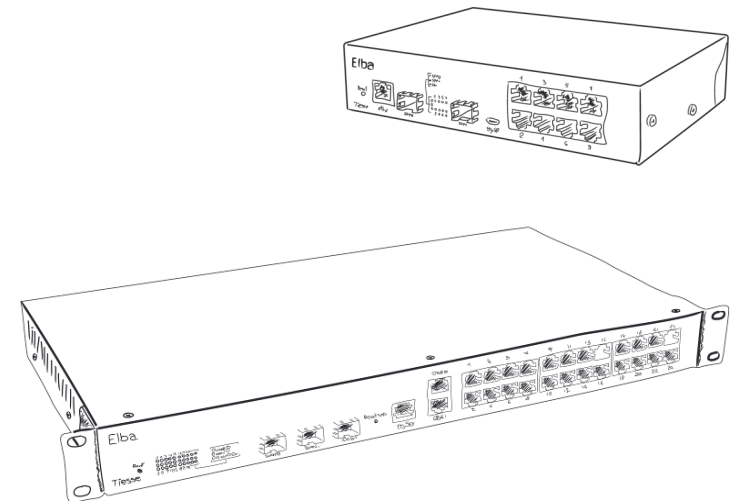
## 4G cellular only

- Lipari 5100
- Lipari 5200
- Lipari 5200-IKW

SYSTEM FEATURES		
POWER	Power supply	<b>Lipari 5100:</b> 5 V <b>Lipari 5200 and Lipari 5200-IKW:</b> <ul style="list-style-type: none"><li>– AC Adapter Desktop 12V 2,5A RoHS3 external power supply</li><li>– 12-24 VDC (range 9-28)</li></ul>
	PSU consumption	<b>Lipari 5100:</b> 9-36 VDC <b>Lipari 5200 and Lipari 5200-IKW:</b> 12-24 VDC (range 9-28)
	Consumption	< 3 W
ENVIRONMENT	Operating temperature	<b>Lipari 5100:</b> -25° C / +55° C <b>Lipari 5200 and Lipari 5200-IKW:</b> -5° C / +55° C -40° C / +70° C - limit range of operation
	Storage temperature	-40° C / +70° C
	Max operating humidity	95% (non condensing)
PROTECTION RATING		<b>Lipari 5200:</b> IP40 <b>Lipari 5200-IKW:</b> IP40
PROCESSOR		Network processor @400 Mhz
MEMORY	DRAM	DRAM 256 MB DDR3
	Flash memory	256 MB

EXTERNAL HARDWARE FEATURES		
HOUSING	Material	Metal - color: black or gray (optional)
	Dimensions (W x H x D)	Plastic model: 180,6 x 29,7 x 135 mm
ANTENNAS	Radio WLAN	<b>Lipari 5200-IKW models:</b> 2 x external removable b/g/n antennas.
	Radio cellular	2 x external removable 4G antennas SMA male connectors
MOUNTING	Default	Desktop / horizontal plane
	Optional	1U Rack mounting kit (not included)
LED	Status LED	1 x power / operational status
	Ethernet	2 x operational status (for each port)
		1 x status/activity radio cellular connection
	Radio cellular	<b>Lipari 5100:</b> 1 x SIM operative status (Lipari 5100)  <b>Lipari 5200 and 5200-IKW:</b> - 1 x reporting which SIM is in use (SIM1 vs SIM2) - 1 x IP address operative state

# Elba series



# Elba 100

## Managed switches



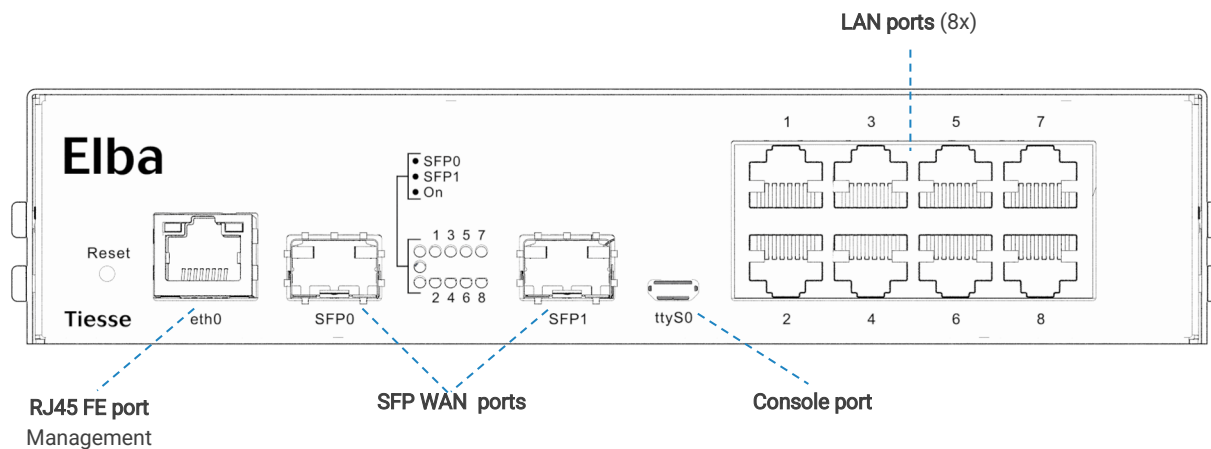
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### Elba switch series

**ELBA series** products are managed Ethernet switches, with fixed configuration and they are part of the line of networking solutions entirely designed and produced by Tiesse, a 100% italian company.

**Elba 100** has 10 ports: 8 are Gigabit Ethernet and 2 are SFP ports up to 10 Gigabit.

**Elba 100** is easy to configure and thus the set-up time within the network is reduced.



#### PORTS FEATURES

LAN	GE	— 8 x 10/100/1000 Mbps ports - RJ45 connectors
WAN	SFP WAN	— 2 x 10 Gb port
CONSOLE		— 1 x RJ45 FE connector
USB	3.0	— 1 x 3.0 USB port

# Switch only - Elba 100

## Managed switch

SYSTEM FEATURES		
POWER	Power supply	External Desktop 12 V (internal Vdc 2.5 A) Power Switch ON/OFF
	Consumption	< = 20 W (Full configuration)
ENVIRONMENT	Operating temperature	-5° C / +55° C
	Storage temperature	-40° C / +70° C
	Max operating humidity	93% (non condensing)
FANS	fanless	
PROCESSOR	ARM Cortex-A7 500 MHz	
RESET	Reset and restore factory functions	

EXTERNAL HARDWARE FEATURES		
HOUSING	Material	Metal
	Dimensions (W x H x D)	195x x 42,1 x 140 mm
MOUNTING	Default	Desktop / horizontal plane
	Status LED	1 x power / operational status
LED	Ethernet	2 x operational status (for each port)
	SFP	1 x operative status - for each port



# Broadband & Cellular Routers

## WAN FIXED LINE - Summary table

Here you find a summary of all our routers with only fixed connectivity.

Series	Model	FE	GE	PoE	VDSL	EVDSL	WiFi	2.4 GHz	2.4 GHz	5 GHz	TNA
Imola LX	0272-IKW-V	-	•	-	•	-	-	•	-	-	•
	0272-IKW	-	•	-	-	•	-	•	-	-	•
	0272-IK2W	-	•	-	-	•	-	-	•	-	•
	0272-20	-	•	-	•	-	-	-	-	•	•
Imola	0872-IKF-IKW	•	•	-	•	•	•	•	-	-	•
	0872-IKF-IKW-PoE	•	•	•	•	•	•	•	-	-	•
	0872-IK2V-IK2F	-	•	-	•	••	••	-	-	-	•
Imola multi fiber	0272-SGR	-	•	-	•	•	•••	•	-	-	•
	0272-SGR-IK2W	-	•	-	•	•	•••	-	•	-	•
	0872-IKF-IK2W	-	•	-	•	•	•	-	•	-	•





# Broadband & Cellular Routers

## FIXED & MOBILE LINE - Summary table

Here you find all our routers which have both fixed and mobile connectivity.

Series	Model	FE	GE	PoE		FIBER	VDSL	EVDSL	3G	4G LTE	5G	2.4 GHz	2.4 GHz + 5 GHz		TNA
Imola 5G	5572-SGR	-	•	-	-	•	•	•	•	•	•	•	-	-	•
Imola LX	LX 5272-IKW	-	•	-	-	-	-	•	•	•	-	-	-	-	•
	LX 5272-IK2W	-	•	-	-	-	-	•	•	•	-	-	-	-	•
Imola	5872-IKF-IKW	•	•	-	-	•	•	•	-	•	-	•	-	-	•
	5872-IKF-IK2W	•	•	-	-	-	•	•	-	•	-	-	•	-	•
	5872-IKF-IKW-PoE	•	•	•	-	•	•	•	-	•	-	•	-	-	•
Imola multi fiber	5272-SGR	-	•	-	-	•••	•	•	•	•	-	•	-	-	•
	5272-SGR-IK2W	-	•	-	-	•••	•	•	•	•	-	-	•	-	•



## Cellular only routers - Summary table

A summary table with all our cellular connectivity products: you will find our router of the Lipari series as well our products for IoT applications.

Router series	Model	FE	WiFi	2.4 GHz	2G	3G	4G cat. 4	SD	TNA
Lipari	5100	•	•	-	•	•	•	-	•
	5200	•	-	-	•	•	•	•	•
	5200-IKW	•	-	•	•	•	•	•	•



# Software features

## General features for Tiesse products

Software features can be slightly different for each series, please refer to the specific datasheet product for detailed information.

### NETWORKING

- TCP-UDP, IPv4
- ICMP
- ARP, CMP, IPv4 Path MTU Discovery
- IPv6 support
- ICMPv6, IPv6 Path MTU Discovery, IPv6 Neighbor Discovery
- IPv6 Stateless Address Auto Configuration
- PVC bonding
- Pseudowire Ethernet to extend layer-2 circuits over IP networks

### LAYER 2 FEATURES

- LAN bridging
- VLAN support on LAN interface 802.1q in Access mode, Trunk, native VLAN and Hybrid mode
- VLAN 802.1q over Ethernet
- Layer 2 Protocol Tunneling (L2PT)
- 802.1Q-in-802.1Q

### ROUTING & MULTICAST

- Static, Policy routing, RIPv1, RIPv2
- BGP-4, BGP-4+
- OSPFv2
- Multicast Routing PIM SM V2, PIM DM
- Routing redistribution and tagging
- VRF Lite
- VRRP (Virtual Routing Redundancy Protocol)
- VRRP (Virtual Routing Redundancy Protocol) with IPv4-IPv6 authentication
- IGMP proxy
- IGMP v1-v2-v3, IGMP snooping
- Multicast routing with PIMv2 sparse-mode and PIMv2 dense-mode, MSDP
- IEEE 802.1d (Spanning Tree Protocol)

### SECURITY

- NAT/PAT
- ACLs, Stateful Firewall
- IP Filtering
- SSL Tunneling
- L2TP
- PPTP
- Generic routing encapsulation (GRE)
- GRE Tunneling, GRE Tunneling with keep alive and key sequence numbering (radio mobile network optimization)
- VPN with IPSEC, VPN with IPSEC/ESP or IPSEC/AH IKEv1/IKEv2
- 3 DES Encryption
- DMVPN
- Wi-Fi with WPA2, Multiple SSID
- OpenVPN

# Software features

Software features can be slightly different for each series, please refer to the specific datasheet product for detailed information.

QoS	SERVICES	MANAGEMENT & CONFIGURATION	VOICE
<ul style="list-style-type: none"> <li>– Traffic classification based on source IP, and based on a combination of source IP, destination IP, protocol (UDP, ICMP, TCP, etc) ports, application recognition, DSCP/IP Precedence</li> <li>– Traffic classification based on source IP, and based on a combination of ToS or Port</li> <li>– DiffServ</li> <li>– Layer 2 remarking CoS</li> <li>– IP Precedence remarking, DSCP and CoS</li> <li>– CoS on VLAN</li> <li>– QoS on ATM class</li> <li>– IPSLA based on QoS</li> <li>– Shaping with guaranteed allocated bandwidth and redistribution of bandwidth excess</li> <li>– Committed Access Rate e Multicast rate Limit</li> <li>– Mechanisms of traffic prioritization, ability to define an arbitrary number of priority classes</li> <li>– Link aggregation IEEE 802.3ad</li> </ul>	<ul style="list-style-type: none"> <li>– DHCP client, DHCP server with antispoofing functions</li> <li>– DHCP Layer Discovery Protocol IEEE 802.1ab</li> <li>– DHCP server, client, relay</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> <li>– SMS</li> </ul>	<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>– IP SLA support for: One Way Delay, Round Trip Delay, Jitter, Packet Loss</li> <li>– SAA (Service Assurance Agent)</li> <li>– Syslog (local and remote)</li> <li>– Fault management Syslog /Trap</li> <li>– User authentication PAP/CHAP</li> <li>– Radius Support, TACACS+</li> <li>– Tracking for backup management, commands and scheduled events</li> <li>– Software update via TFTP and FTP</li> <li>– Configuration via command Line Interface (CLI), text/menu oriented and Telnet</li> <li>– Configuration via HTTP</li> <li>– TNA (Tiesse Network Architecture) suite for auto-provisioning and remote automated management</li> <li>– Management of an arbitrary number of configurations</li> <li>– Support of Network Configuration Protocol (NETCONF)</li> <li>– Support of YANG Data Modeling Language for NETCONF</li> </ul>	<ul style="list-style-type: none"> <li>– SIP registration features, SIP UAC, deregistration, GNR registration</li> <li>– SIP standard compliance: RFC 2327 SDP, RFC 2617 , RFC 3261 SIP, RFC 2833, RFC 2976, RFC 3262, RFC 3264, RFC 3265, RFC 3311, RFC 3323 ,RFC 3325, RFC 3326, RFC 3398, RFC 3578, RFC 3842, RFC 3960, RFC 4566</li> <li>– Registration features SIP, SIP UAC, registration deletion</li> <li>– Codec support and negotiation</li> <li>– OOB DTMF tone management, in-band and announcing tone</li> <li>– Call forwarding unconditional both no answer and busy user</li> <li>– Unconditional call forwarding</li> <li>– Call waiting / hold features</li> <li>– On hold call capability</li> <li>– T.38 fax support</li> <li>– Interworking with PBX</li> <li>– Voice Fallback on POTS (FXO or BRI) interfaces</li> <li>– Line hunting</li> </ul>

# About us

Tiesse is a 100% Italian private SME that designs and manufactures routers and M2M/IoT communication devices since 1998. Tiesse has grown over the years to become one of the best innovative known vendor and reliable partner able to compete in the global networking products market.

With nearly 25 years of experience, Tiesse has been identified as a major provider of fixed and wireless CPE (Customer Premise Equipment) by most of the telecom carriers.

Tiesse products are at the cutting-edge technology thanks to continuous R&D investment and close collaboration with both Telco and University.

Tiesse S.p.A has long-standing expertise in providing - from concept to manufacturing - innovative products and technologies for corporate networks and mission critical infrastructures. Our customers are national and international large companies in sectors such as energy, finance, industry and the public and defence domains.

The company's competence, reliability and experiences have enabled us to jointly develop innovative projects on behalf of our customers who have entrusted the research and development component of some of their products to Tiesse.

Tiesse S.p.A has, since 2016, the Innovative SME status obtained by the Italian Ministry of Economic Development (MISE) as it is characterized by a strong innovation component with a relevant research and development expenditure.

Tiesse implements a quality management system according to the principles of the latest ISO 9001 standard and ensures the quality, safety and efficiency of research, products and services. Tiesse is UNI EN ISO 14001:2015 certified and is also in the process of obtaining UNI EN ISO 14064-1:2019 certification. It is willing to offset CO<sub>2</sub> emissions generated from the production of its products by planting trees.

Tiesse is working for the better durability of its products and to reduce the use of plastic in the packaging process considering the plastic-free goal by selecting recycled and recyclable materials from verifiable and controlled supply chains. And last but not least, it focuses on remanufacturing, refurbishing, upgrading or replacing for new use of its products in the field.

Tiesse is headquartered in Ivrea, in the Northern part of Italy, with branch offices in Turin, Avezzano and Rome.

**Tiesse**  
Innovation made in Italy®



ISO 9001:2015

## QUALITY

We got certified to ensure high quality standards



ISO 14001:2015

## ENVIRONMENT

We care about nature and the environment, we design and produce in their respect



ISO 14064-1

## GREENHOUSE

Because we care about nature, we worked hard to limit the gas emissions that hurt the planet



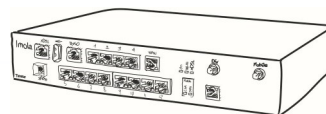
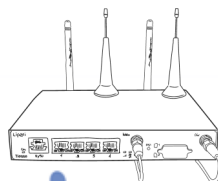
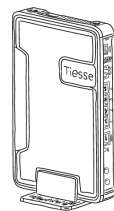
1000 Trees in Italy

## Sustainability

And even before we got the environmental certifications, we had already started planting trees to support the planet

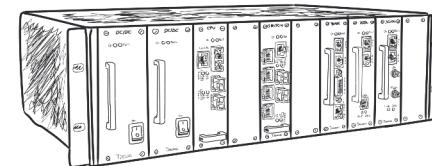
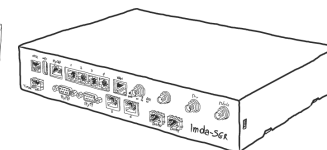
Broadband & cellular routers

**IMOLA and LIPARI**



Industrial routers and gateways

**IMOLA E, IMOLA SGR and TGR**

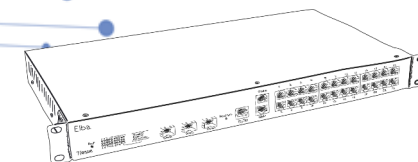


Devices for IoT and M2M

**LEVANTO and kloTo**



Switch  
**ELBA**



**Tiesse**  
Innovation made in Italy®

Product by design

**VERTICAL and CUSTOM**



Automated and agile network management

**TNA** - Tiesse Network Architecture



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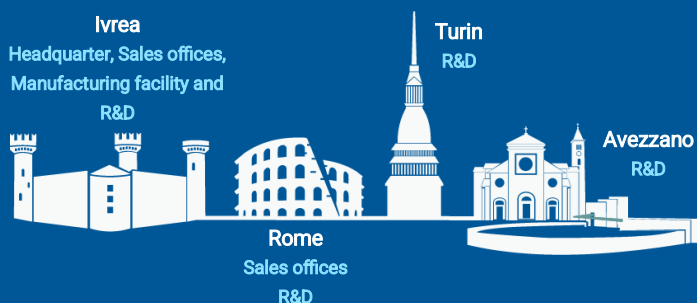
**Tiesse** is a 100% Italian company which has more than 20 years of expertise in designing, developing, and manufacturing M2M/IoT and network devices. The products series **IMOLA**, **LIPARI** and **LEVANTO**, which are innovative, competitive and certified, are present in the largest distributed national networks (from gas stations to large retailers, insurance companies and banks) as well as in the largest networks of the main gaming operators and energy sector.



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