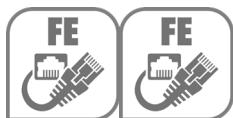




Levanto 520-D

**M2M/IoT devices, cellular
connectivity for remote control and
industrial applications**





Levanto 520-D

**IoT/M2M dual SIM device
with cellular connectivity for
remote control and industrial applications**

LEVANTO SERIES

Levanto is a IoT devices series that provides connectivity between remote devices and centralised control systems via a cellular mobile radio network, guaranteeing continuity of service.

LEVANTO 520-D

Levanto 520-D, It is equipped with two SIM slots (mutually exclusive) to support failover and backup scenarios.

Thanks to the Dual SIM functionality, it is possible to choose the operator with the best network coverage depending on the installation location, increasing the reliability of the end-to-end solution.

KEY FACTORS



Rugged, robust and reliable

For reliable operation in industrial environments and under the most challenging environmental conditions.

Designed for long-term operation: hardware and software offering maximum reliability and durability..



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



Always-On

Levanto maintains always-on connections, eliminating the need for operators to intervene at peripheral locations.

In particular, it supports:

- control messages (SMS)
- inactivity timers
- asynchronous notifications
- integrated external antenna to improve signal quality



Secure by design

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



Smart value

Maximum value for your business thanks to excellent performance/price ratio.



Utility certified

Certified by leading distribution network operators for use in primary and secondary energy substations



Install them anywhere

Thanks to their compact and small size, they can also be accommodated in small spaces.



Eco-efficient

Minimal consumption, lower environmental impact and higher operating cost savings.



Levanto 520-D - IoT/M2M dual SIM devices

Mobile connectivity for remote control and remote reading in industrial environments

LEVANTO 520-D



2 Fast Ethernet
ports



Radio cellular
connection

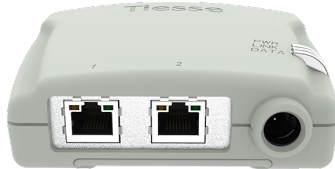


Dual SIM



Front view

*Antennas may vary
depending on the bundle*



Ports view



Back view

with the dual SIM
compartment open



Back view

With DIN rail bracket
(optional add-on) mounted

RECOMMENDED SCENARIOS AND APPLICATIONS

Levanto 520-D is particularly suitable for business applications in the industrial and energy sectors, where safety, service continuity, reliability and durability are of primary importance for installations in disturbed environments.

- ✓ Smart metering
- ✓ Remote reading, remote control and remote management of remote assets
- ✓ Environmental monitoring
- ✓ Backup of the main network
- ✓ Smart cities
- ✓ Industry 4.0 and 5.0
- ✓ Video surveillance
- ✓ Points of sale
- ✓ Totems, vending machines, ATMs
- ✓ Temporary and/or outdoor installations
- ✓ Digital signage

... wherever the installation is

Ruggedness

Rugged industrial-grade design. Levanto is designed to operate in extreme conditions, temperatures and disturbed environments.

Access

Whatever the location, Levanto accesses the public network (Internet) with the appropriate level of security.

The connection can be activated using the TCP-IP/GPRS/EDGE/HSPA/LTE protocols

Configuration and Management

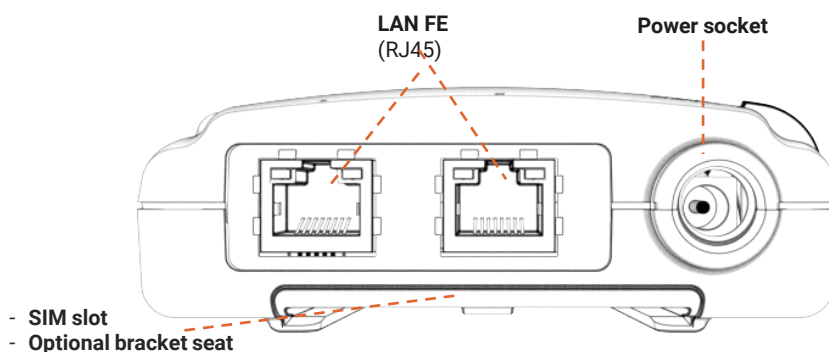
- Easy and immediate configuration both locally and remotely.
- Possibility of factory pre-configurations or subsequent configuration via download from the management center.
- Risk Free configuration system against any incorrect configurations that compromise remote accessibility.



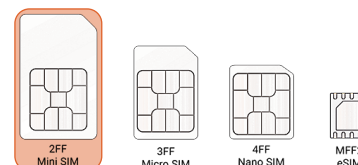
Levanto 520-D - IoT/M2M dual SIM devices

Mobile connectivity for remote control and remote reading in industrial environments

HARDWARE INTERFACES



| Ports | N° | Type | Details |
|----------------|----|-----------|--|
| LAN | 2 | FE | 2 Ethernet 10/100 Mbps ports, RJ45 connector |
| RADIO CELLULAR | 1 | Bandwidth | <ul style="list-style-type: none"> - LTE FDD: B1/B3/B7/B8/B20/B28 - WCDMA: B1/B8 - GSM: B3/B8 |
| | | GSM | <ul style="list-style-type: none"> - EDGE: max 296 Kbps (DL) - max 236.8 Kbps (UL) - GPRS: max 107 Kbps (DL) - max 85.6 Kbps (UL) |
| | | UMTS | <ul style="list-style-type: none"> - DC-HSDPA: max 42 Mbps (DL) - HSUPA: max 5.76 Mbps (UL) - WCDMA: max 384 Kbps (DL) - max 384 Kbps (UL) |
| | | LTE | <ul style="list-style-type: none"> - Support up to Cat. 4 - LTE FDD: 150 Mbps (DL) - Max 50 Mbps (UL) |
| | 2 | ANTENNAS | <ul style="list-style-type: none"> - Bundle: Note: the number of antennas and type may vary depending on the bundle - The Levanto 520-D TC and Levanto 520-D TL bundles use a single antenna, as the connection is 2G or 3G (where still available). - Frequencies: 700-960 / 1710-2700 - Outdoor antennas (omnidirectional and directional), high gain and vandal-proof (optional) are also available. - Features: <ul style="list-style-type: none"> - 2 removable external antenna (SMA male connectors) - VSWR less than 2.2 - Impedance 50 ohms - Vertical polarization - 2.14 dBi gain - Optional antennas: <ul style="list-style-type: none"> - Various antenna models are available for specific requirements. - Supports both directional and omnidirectional high-gain external antennas (optional), connectable via cable with male SMA connector. - The complete accessories datasheet is available on the website www.tiesse.com. |
| | 1 | SIM | 1 SIM slot for mini SIM card, external access |



4G mobile radio power and sensitivity

| POWER | SENSIBILITY |
|---|---|
| <ul style="list-style-type: none"> - Class 3 (23 dBm ± 2 dB) for LTE-FDD - Class 3 (24 dBm + 1/-3 dB) for WCDMA - Class 4 (33 dBm ± 2 dB) for EGSM900 - Class 1 (30 dBm ± 2 dB) for DCS1800 - Class E2 (27 dBm ± 3 dB) for EGSM900 8-PSK - Class E2 (26 dBm ± 3 dB) for DCS1800 8-PSK | <ul style="list-style-type: none"> - LTE FDD B1: -101.4 dBm (10M) - LTE FDD B2: -102.1 dBm (10M) - LTE FDD B3: -101.5 dBm (10M) - LTE FDD B4: -102.1 dBm (10M) - LTE FDD B5: -103.1 dBm (10M) - LTE FDD B7: -101.3 dBm (10M) - LTE FDD B8: -101.2 dBm (10M) - LTE FDD B12: -102.7 dBm (10M) - LTE FDD B13: -102.6 dBm (10M) - LTE FDD B20: -101.3 dBm (10M) - LTE FDD B28A: -101.4 dBm (10M) - WCDMA B1: -112.5 dBm - WCDMA B2: -109.7 dBm - WCDMA B4: -109.6 dBm - WCDMA B5: -110.2 dBm - WCDMA B8: -112.5 dBm - EGSM900: -108.6 dBm - DCS1800: -109.4 dBm |



Levanto 520-D - IoT/M2M dual SIM devices

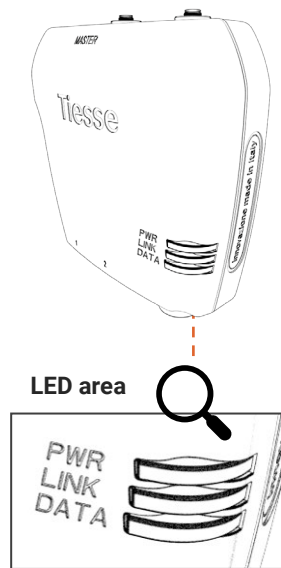
Mobile connectivity for remote control and remote reading in industrial environments

LED

Levanto 520-D models are equipped with 2 LEDs for the Ethernet port to indicate their operating status plus three LEDs located on the front:

- 1 x power / operative state (LED PWR)
- 1 x connection status on cellular radio link (LED LINK)
- 1 x data activity on cellular radio connection (LED DATA)

The following table summarizes the LEDs behaviour when the device is turned on for the first time (the font color is the same as the LED color).



| LED | Behaviour | Meaning |
|------|---|----------------------------------|
| PWR | Blinking (500ms ON/ 500 ms OFF) | Booting |
| | Blinking fast (100ms ON/ 100 ms OFF) | Self-test |
| | On | Booting completed |
| Data | On | PDP active |
| | Blinking | Data exchange active |
| | Off | Modem not registered |
| Link | Blinking 2 times / 1 sec off (100ms ON/ 100 ms OFF) | Modem registered over 2G network |
| | Blinking 3 times / 1 sec off (100ms ON/ 100 ms OFF) | Modem registered over 3G network |
| | Blinking 4 times / 1 sec off (100ms ON/ 100 ms OFF) | Modem registered over 4G network |
| | Red | Signal quality: poor |
| | Yellow | Signal quality: average |
| | Green | Signal quality: good |

SOFTWARE

Note: the list below is indicative; features depend on NoS version and update

| | | |
|---------------------------------------|---|---|
| NETWORKING | <ul style="list-style-type: none"> - IPv4 (RFC 791), IPv6 - TCP (RFC 793) - UDP (RFC 768) | <ul style="list-style-type: none"> - ICMP - ARP - 801.q (VLAN) |
| ROUTING & MULTICAST | <ul style="list-style-type: none"> - Static routing | <ul style="list-style-type: none"> - Dynamic routing protocols RIPv1, RIPv2 |
| SECURITY | <ul style="list-style-type: none"> - Non-interruptible boot - NAT/PAT - PAP, CHAP - IPSEC, GRE - ACLs, Stateful Firewall | <ul style="list-style-type: none"> - Port forwarding - Enabling/disabling services - Multi-level security access - Password encryption |
| SERVICES | <ul style="list-style-type: none"> - DHCP client, DHCP server - HTTPS - Ping, Traceroute - NTP Client and Server support | <ul style="list-style-type: none"> - DNS - Option to disable network services when not in use - Timestamp service |
| MANAGEMENT & CONFIGURATION | <ul style="list-style-type: none"> - SNMPv2, SNMPv3 - Telnet client and server - SSHv2 - sFTP client - Syslog server - Event logging - Multiple logging levels | <ul style="list-style-type: none"> - Radius support - Local TACACS authentication - Configuration via Command Line Interface (CLI) - Option to implement custom commands - Remote scripting for firmware updates |



Levanto 520-D - IoT/M2M dual SIM devices

Mobile connectivity for remote control and remote reading in industrial environments

SYSTEM FEATURES

| | | | |
|--------------|-------------------|---------|---|
| PROCESSOR | ARM up to 400 MHz | CHASSIS | Thermoplastic material Color white papyr (RAL 7035) |
| MEMORY | DRAM 128 MB | | Chassis e accessori (come la staffa per barra DIN o la staffa a L per installazione a muro) sono in materiale termoplastico: resina sintetica con caratteristiche autoestinguenti V0-UL94 |
| FLASH MEMORY | 256 MB | | |
| FORM FACTOR | | | Desktop |
| | | | Wall or DIN rail using special add-ons |

ADD ONS



Images for illustrative purposes only

Optional accessories are available, such as antennas for both indoor and outdoor omnidirectional and directional installations, wall mounting kits or DIN rail mounting kits.

Please refer to the relevant datasheets, which can be downloaded from www.tiesse.com.



MEC204-01

Self-extinguishing thermoplastic bracket for DIN rail mounting



MEC015-I

L-shaped bracket made of self-extinguishing thermoplastic material for wall mounting



FURTHER INFORMATION AND SUPPORT

SUPPORTO.TIESSE.COM



- Technical documentation, assembly instructions, quick start guides, initial access data
- Firmware updates
- EMC, RED, RoHS compliance declarations, etc.
- Technical support requests
- Information on end-of-sale and end-of-support products
- Warranty repairs and product reconditioning

WIKI.TIESSE.COM



- Website dedicated to software documentation
- User manuals
- First-time access guides
- Case studies, tutorials and other useful resources for using the products



SUSTAINABILITY

SYSTEM

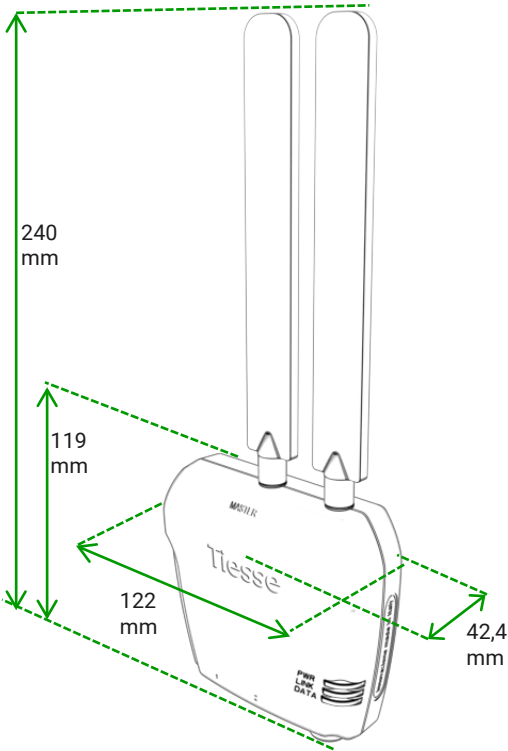
| | |
|------------------------------------|---|
| Power | - 9-30 Vcc - AC/DC 12V power adapter version available |
| Cooling | Fanless |
| Consumptions (full functions) | < 3 W |
| EEE (Energy-Efficient Ethernet) | Tiesse products comply with the EEE (802.3az) standard, which saves energy by automatically reducing the consumption of Ethernet ports during periods of low traffic, without altering their performance. |
| 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) | ≈ 2522880 hours |

ENVIRONMENTAL DATA

| | |
|------------------------|----------------------|
| Operating temperature | -25° C / +55° C |
| Operating range limit | -40° C / +70° C |
| Storage temperature | -40° C / +70° C |
| Max operating humidity | 93% (non condensing) |

SIZE and WEIGHT

| | | | |
|--------------|---|-------------|-----------|
| Machine body | 122 x 42,4 x 119 (L x P x A mm) | | |
| | ≈ 785 gr (maximum weight including packaging and accessories) | | |
| Total weight | Product | Accessories | Packaging |
| | ≈ 185 gr | ≈ 480 gr | ≈ 120 gr |



OTHER INFORMATION

| | |
|------------------------|---|
| Packaging and wrapping | The packaging material of this product is 100% paper/cardboard. 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

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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