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Radio cellullar connectivity Add-ons

Radio connectivity upgrade kit

IK4-C4-GL

IK5-NR-GL

Datasheet

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RADIO CONNECTIVITY UPGRADE KIT

IK4-C4-GL KIT and **IK5-NR-GL** are the expansion kits designed to enhance the cellular radio connectivity of the Levanto 5xx8 router series, providing all the advantages of a Dual SIM – Dual Active solution: thanks to kit configuration the router can manage two active radio cellular connections simultaneously, improving reliability, service continuity, and bandwidth availability.

IK4-C4-GL – 4G add-on kit

Upgradable models: Levanto 5218 – Levanto 5518

The kit includes: 1 radio cellular 4G module, 2 RF cables with pre-installed SMA connectors, 2 screws for securing the module, cable retainers.

N°	Type	Details
1	**Features**	- LTE FDD Cat.4. 3GPP release 10 compliant - Rx Diversity and MIMO DL 2x2 - WCDMA up to DC HSPA+, Rel.9
	Frequency bands	- **4G:** B1, B2, B3, B4, B5, B7, B8, B8_US B9, B12, B13, B14, B18, B19, B20, B25, B26, B28 - **3G**: B1, B2, B4, B5, B6, B8, B19 - **2G**: B2, B3, B5, B8
	Data Rate	- **4G**: 150 Mbps(DL) / 50 Mbps (UL)
2	**Antenna connectors**	SMA female connector
2	**SIM cards**	- **SIM form factor**: 2FF mini SIM card - SIMs cards are mutually exclusive - Optionally, SIM n. 2 can be replaced with a SIM-on-chip - E-SIM supported - A management API enables switching and configuration of both SIM cards and IMEIs.

IK5-NR-GL – 5G add-on kit

Upgradable models: Levanto 5218 – Levanto 5518

The kit includes: 1 radio cellular 5G module, 4 RF cables with pre-installed SMA connectors, 1 screw for securing the module, cable retainers.

N°	Type	Details
1	**Features**	- RF performance in 5G, LTE and WCDMA radio access technologies conforms to 3GPP specifications. - Supports FR1(Sub 6G), Rel 16
	Frequency bands	- **5G:** n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n28/n29(SDL)/n30/n38/n40/n41/n48/n66/n71/n75(SDL)/n76(SDL)/n77/n78/n79 - **4G:** B1/B2(B25)/B3/B4(B66)/B26(B5,B18,B19)/B7/B8/B12(B17)/B13/B14/B20/B28/ - B29(SDL)/B30/B32(SDL)/B34/B38/B39/B40/B41/B42/B43/B46(SDL)/B48/B71/B106 - **3G:** B1/B2/B4/B5/(B6,B19 Japan)/B8
	Data Rate	- **NSA** up to: 4.1Gbps on DL, 0.55Gbps on UL - **SA** up to: 4.1Gbps on DL, 0.9Gbps on UL - **4G**: CAT. 20 (2Gbps) on DL, CAT. 18 (211Mbps) on UL, Rel 16 - **3G**: HSPA+ Rel9 up to 42/5.7Mbps in DL/UL)
	MIMO	- **1Tx / 4Rx (4x4 DL MIMO)** **5G**: n1/n2/n3/n7/n25/n30/n38/n40/n41/n48/n66/n75/n77/n78/n79 **4G**: B1/B2/B3/B4/B7/B25/B30/B32/B34/B38/B39/B40/B41/B42/B43/B48/B66 - **2Tx (2x2 UL MIMO) / 4Rx (4x4 DL MIMO):** 5G: n38/n41/n48/n77/n78/n79 - **1Tx / 1Rx (2nd Rx Diversity)**: 3G/4G all operating bands
	Receiver Sensitivity	- **5G NR Sub-6** Throughput >95% - **4G LTE** Throughput >95% - **3G WCDMA** BER <0.1% 12.2 Kbps
4	**Antenna connectors**	SMA female connector
2	**SIM cards**	- **SIM form factor**: 2FF mini SIM card - SIMs cards are mutually exclusive - Optionally, SIM n. 2 can be replaced with a SIM-on-chip - E-SIM supported

The images are for illustrative purpose only

UPGRADING LEVANTO 5218 IN-FIELD

Upgrading any Levanto 5xx8 is very easy thanks to their modular architecture and the upgrading radio cellular kits.

1) Remove the content of the kit from the package. Depending on the specific kit you'll find:

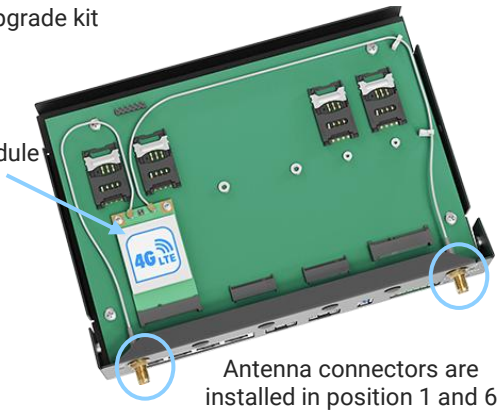
- 1 radio cellular module
- Screws
- RF cables with SMA connector already installed.
  Note: Depending on the bundle, external washer and nut for each SMA connectors could be in a separate plastic bag in the kit
- Cable retainers

2) Untighten the screws fastening the product cover, after that, remove the product cover

Levanto 5218

3) Follow the instruction below for your upgrade kit

1 4G radio cellular module factory mounted

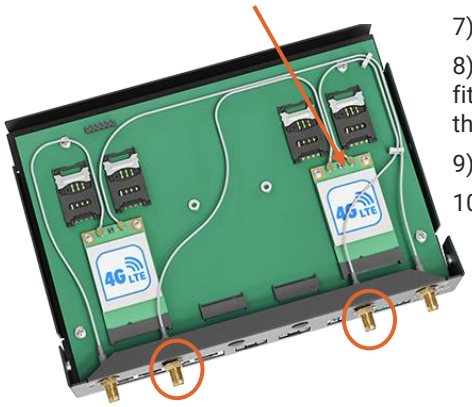


Antenna connectors are installed in position 1 and 6

Levanto 5218 + IK4-C4-GL – 4G add-on kit

4G radio cellular module - mounted in-field

4) Install the modem module as shown below and secure it with the two screws.



5) Remove the caps from positions 2 and 5 on the front panel

6) If the SMA connectors are already fitted with a washer and nut, remove them (they may be supplied separately in a small bag in the kit).

7) Insert the retainers in the holes on the board surface

8) Insert the SMA connector of the RF Main cable into position 2. From the front panel side, fit the washer and securely tighten the nut until the connector is properly fastened. Repeat the same procedure with the RF Div cable, using position 5.

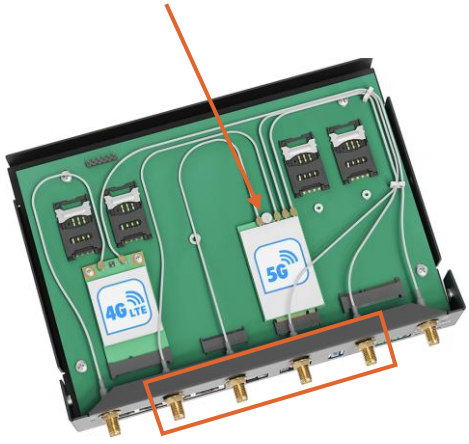
9) Insert the cables into the retaining clips to secure their position

10) Install the product cover and secure it with the four screws previously removed.

Levanto 5218 + IK5-NR-GL – 5G add-on kit

5G radio cellular module - mounted in-field

4) Install the modem module as shown below and secure it with the screw.



5) Remove the caps from positions 2, 3, 4 and 5 on the front panel

6) If the SMA connectors are already fitted with a washer and nut, remove them (they may be supplied separately in a small bag in the kit).

7) Insert the retainers in the holes on the board surface

8) Insert the SMA connector of the RF cable into position 2, 3, 4 and 5. From the front panel side, fit the washers and securely tighten the nuts until the connectors are properly fastened.

9) Insert the cables into the retaining clips to secure their position

10) Install the product cover and secure it with the four screws previously removed.

The images are for illustrative purpose only

UPGRADING LEVANTO 5518 IN-FIELD

Upgrading any Levanto 5xx8 is very easy thanks to their modular architecture and the upgrading radio cellular kits.

1) Remove the content of the kit from the package. Depending on the specific kit you'll find:

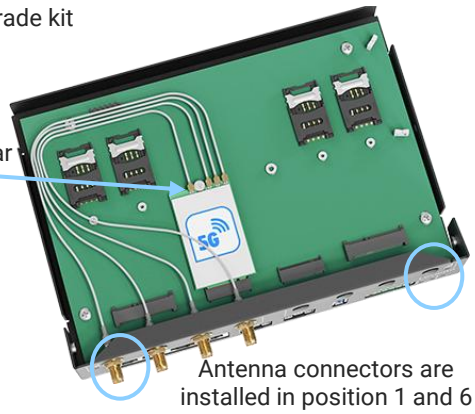
- 1 radio cellular module
- Screws
- RF cables with SMA connector already installed.
  Note: Depending on the bundle, external washer and nut for each SMA connectors could be in a separate plastic bag in the kit
- Cable retainers

2) Untighten the screws fastening the product cover, after that, remove the product cover

Levanto 5518

3) Follow the instruction below for your upgrade kit

1 5G radio cellular module
factory mounted

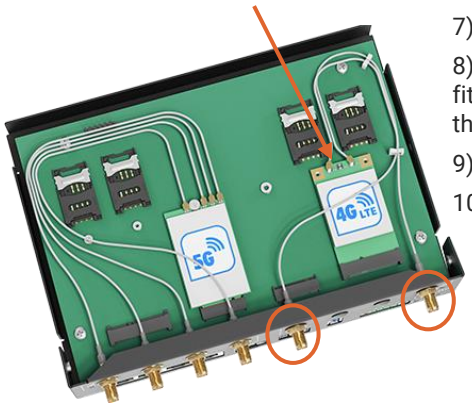


Antenna connectors are installed in position 1 and 6

Levanto 5518 + IK4-C4-GL – 4G add-on kit

4G radio cellular module - mounted in-field

4) Install the modem module as shown below and secure it with the two screws.



5) Remove the caps from positions 1 and 4 on the front panel, on the right.

6) If the SMA connectors are already fitted with a washer and nut, remove them (they may be supplied separately in a small bag in the kit).

7) Insert the retainers in the holes on the board surface

8) Insert the SMA connector of the RF Main cable into position 1. From the front panel side, fit the washer and securely tighten the nut until the connector is properly fastened. Repeat the same procedure with the RF Div cable, using position 4.

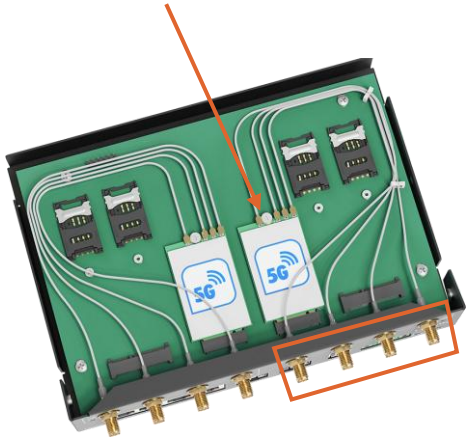
9) Insert the cables into the retaining clips to secure their position

10) Install the product cover and secure it with the four screws previously removed.

Levanto 5518 + IK5-NR-GL – 5G add-on kit

5G radio cellular module - mounted in-field

4) Install the modem module as shown below and secure it with the screw.



5) Remove the caps from positions 1 to 4 on the front panel, right side

6) If the SMA connectors are already fitted with a washer and nut, remove them (they may be supplied separately in a small bag in the kit).

7) Insert the retainers in the holes on the board surface

8) Insert the SMA connector of the RF cable into position 1 2, 3 and 4. From the front panel side, fit the washers and securely tighten the nuts until the connectors are properly fastened.

9) Insert the cables into the retaining clips to secure their position

10) Install the product cover and secure it with the four screws previously removed.

LEVANTO UPGRADE KIT: SECONDARY 4G/5G MODULE EXPANSION

Levanto 5xx8 can be upgraded to a dual radio cellular module, dual-SIM solution through a dedicated add-on kit, which adds a second module, providing two independent radio cellular connections.

Each module supports dual-SIM functionality, with both 2FF Mini-SIM / sim-on-chip and eSIM technology, ensuring maximum flexibility and connectivity resilience.

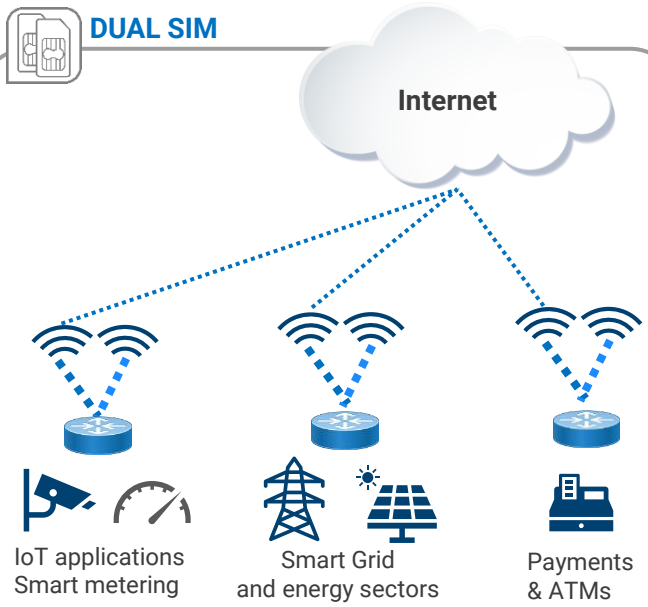
The add-on kit can be installed directly in the field, enabling:

- Automatic carrier failover
- Load balancing across multiple connections
- Increased bandwidth potential (where supported)

The result is maximum service availability and enhanced network resilience.

KEY FACTOR of a DUAL RADIO MODULE VERSION

DUAL SIM



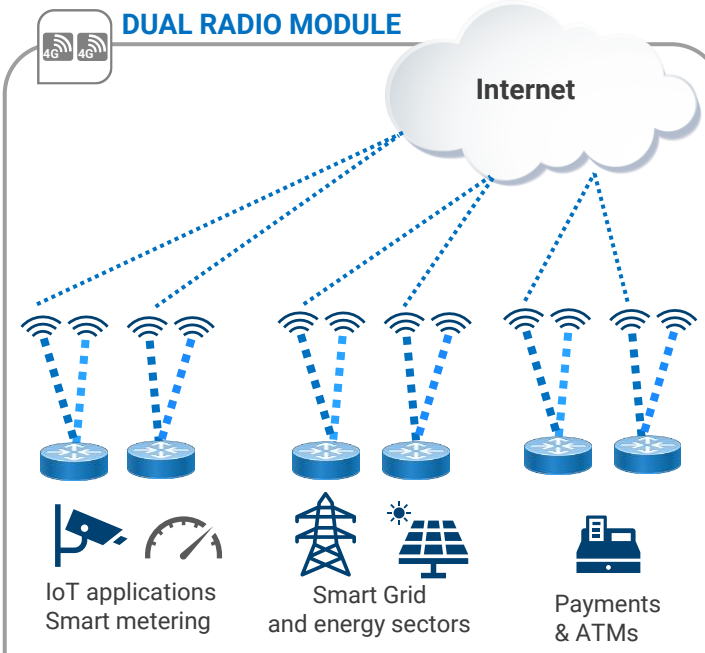
Key benefits

- **Carrier redundancy & Business continuity**
  If one operator experiences an outage or poor performance, the router automatically switch to the second SIM.
  Downtime is minimized thanks to the availability of the second SIM as a backup
- **Improved coverage**
  The best available network can be chosen depending on the location and on the signal quality
- **Cost optimization**
  One SIM can be used for the primary connection, while the second can be used as a backup for additional data capacity

Notes

- One SIM active at a time
- Overall bandwith is not increased simply by having two SIM Cards and two different operators.

DUAL RADIO MODULE



Key benefits

- **Concurrent connections**
  Both radio cellular connections are active at the same time
- **Load balancing**
  Traffic can be distributed across two concurrent connections to improve performance and capacity
- **Instant failover**
  Having two connections, if one fails, the second radio cellular module mantains the network operation with minimal or zero interruption
- **Higher reliability**
  Ideal for mission-critical applications such as industrial automation, video surveillance, retail, POS systems, and remote monitoring

Notes

- All SIMs active at a time
- Overall bandwith is increased

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Further information on Tiesse solutions can be found on the company website www.tiesse.com.

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