

Unicable™ II Multiswitch

Unicable II Cascadable switch with Terrestrial input and
4xUnicable II/Legacy + Terrestrial outputs
IDLU-UST110-CUO40-32P
Item: 5413



Installation manual

Thank you for purchasing Inverto's advanced Unicable II multiswitch and we are certain it will meet your expectations. Before installing and operating the product, please read the following instructions and recommendations. We suggest that you keep this manual for future use.

Warranty

This Unicable II multiswitch is designed for the distribution of satellite and terrestrial television and radio signals in home installations. The warranty does not apply for products used for other purposes than those specified herein. The user/installer shall be responsible for any damage incurred as a result of not using the product according to the instructions in this manual.

Installation location

The product shall be installed on a wall or other hard inflammable surface.

The product shall be in no case held only with the connected cables.

Place the product in a dry environment where it is not exposed to rain or running water.

Do not install the product close to heat sources or in places exposed to direct sunlight.

Product installation

The following diagram may assist you when drilling the holes:

To connect the product inputs and outputs use high-quality coaxial cables and F-connectors designed for satellite TV distribution. Use a highly shielded coaxial cables with minimum shielding of 90dB.

If you use wall sockets to loop-through the STB outputs, make sure the wall sockets were designed for satellite TV distribution allowing bidirectional signal propagation.

The satellite input ports can be connected directly to a Quattro LNB (pay attention to the port designations - Ver/Low, Ver/High Hor/Low, Hor/High) or two wide-band LNBs or cascade to another Multiswitch unit.

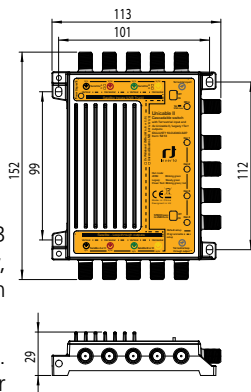
The multiswitch can be powered by STBs connected to its output ports. If the connected STB is not able to supply the required current, a power inserter* can be used. Alternatively, the Multiswitch can be powered over its DC In port* or over any of its output trunk lines (e.g. from a cascaded unit).

In installations that require only one Multiswitch unit, power supplied over the STB output ports can be passed on to power the LNB by setting the manual switch (SW2) to ON. The switch shall be set to OFF in cascade installations otherwise the connected STB will have to power all the units it cascades to.

The Multiswitch features a TERRESTRIAL input with a built-in amplifier. The amplifier can be activated by setting the manual switch SW1 to ON and disabled when set to OFF. The amplifier amplifies the terrestrial signal that passes on to both the STB output ports and the terrestrial loop-through output port.

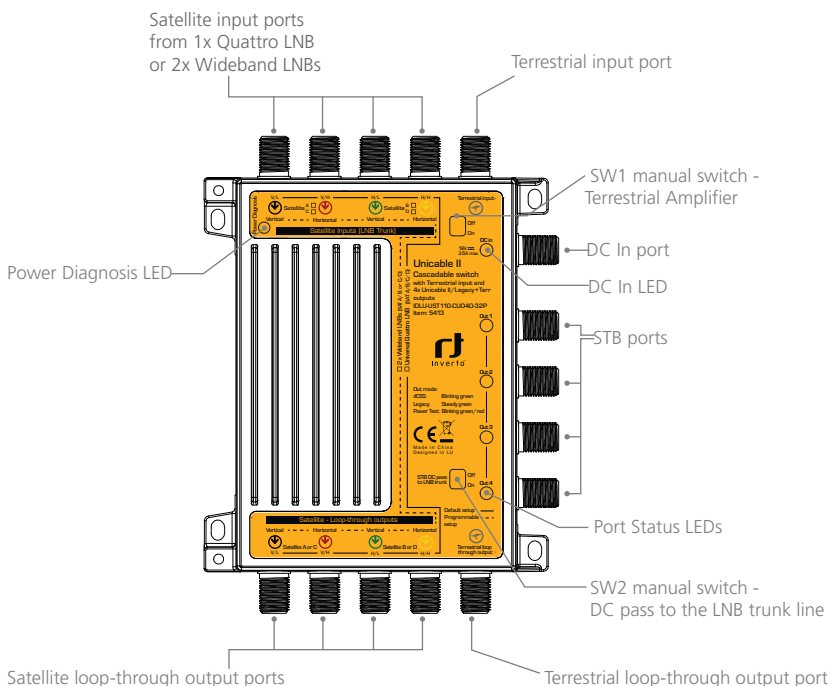
Upon power up and if power is supplied to the unit over its DC In port or any of its trunk output lines (i.e. no power is supplied to any of the STB ports), the unit will enter into a high-power test mode for 15 seconds. The power diagnosis LED will light green if the power supplied to the unit is sufficient to support a full load (i.e. activate all user bands and power the LNB) and will turn orange if not (in this case, connect an AC/DC adapter to the DC In port of the unit).

* Power Inserter and AC/DC power adapters are not included and can be purchased separately.



Notes:

For optimal performances, satellite loop-through outputs that are not used shall be terminated with 75ohm DC-block terminating resistors. The Terrestrial loop-through output port shall be terminated with a 75ohm terminating resistor. It is also recommended to terminate unused STB output ports with 75ohm terminating resistors.



Product configuration and default parameters

Each of the four STB output ports is compatible with either Legacy (13/18VDC, 0/22kHz), DiSEqC1.x/2.0, EN50494 or EN50607 STB models and can detect automatically what type of STB is connected to each port. By default, each port supports 16 User Bands. The list of the User Bands' default parameters appears on page 7.

The Multiswitch unit has a Port Status LED next to each of the four STB ports.

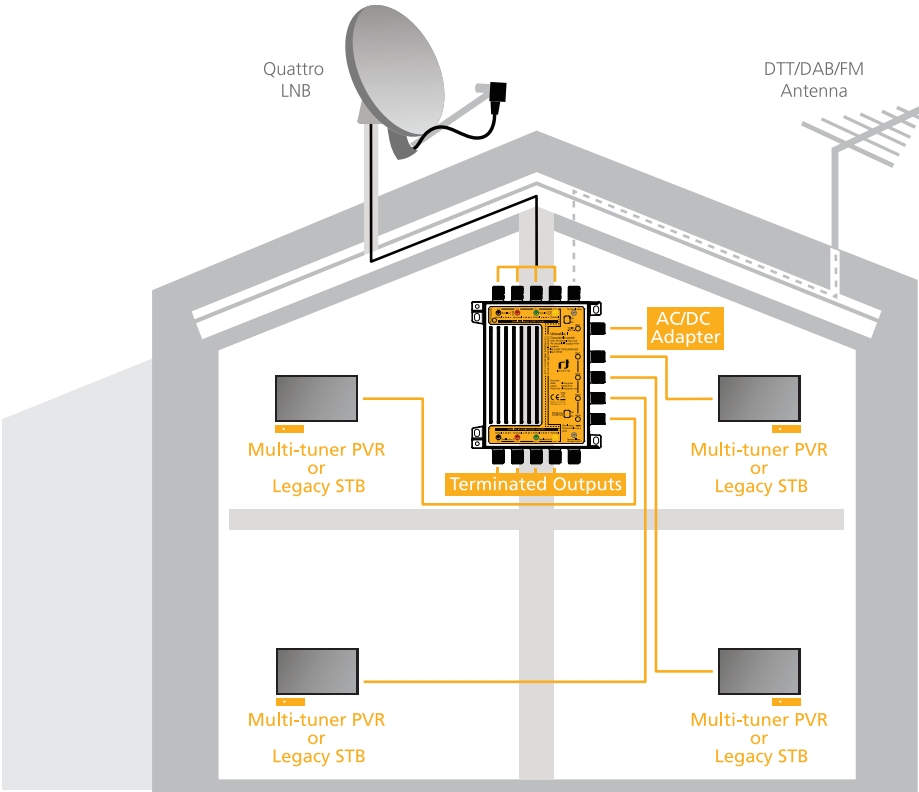
The status LED identifies the mode of the port:

- solid green = Legacy mode.
- blinking green = Unicable (SatCR, EN50494) or Unicable II (dCSS, EN50607).
- blinking red/green - power diagnosis mode.
- off = no voltage detected on the port (only terrestrial signal available on the port)

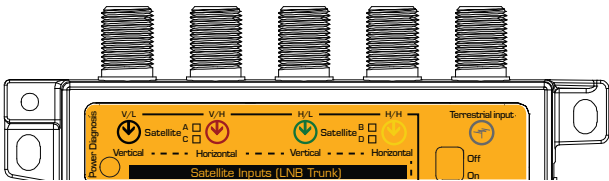
All the four STB output ports combine the Terrestrial input signal.

Note: The default configuration of the Multiswitch can be updated using Inverto's Programmer device (not supplied with the product and sold as a separate accessory) and a PC Windows software that can be downloaded from www.inverto.tv.

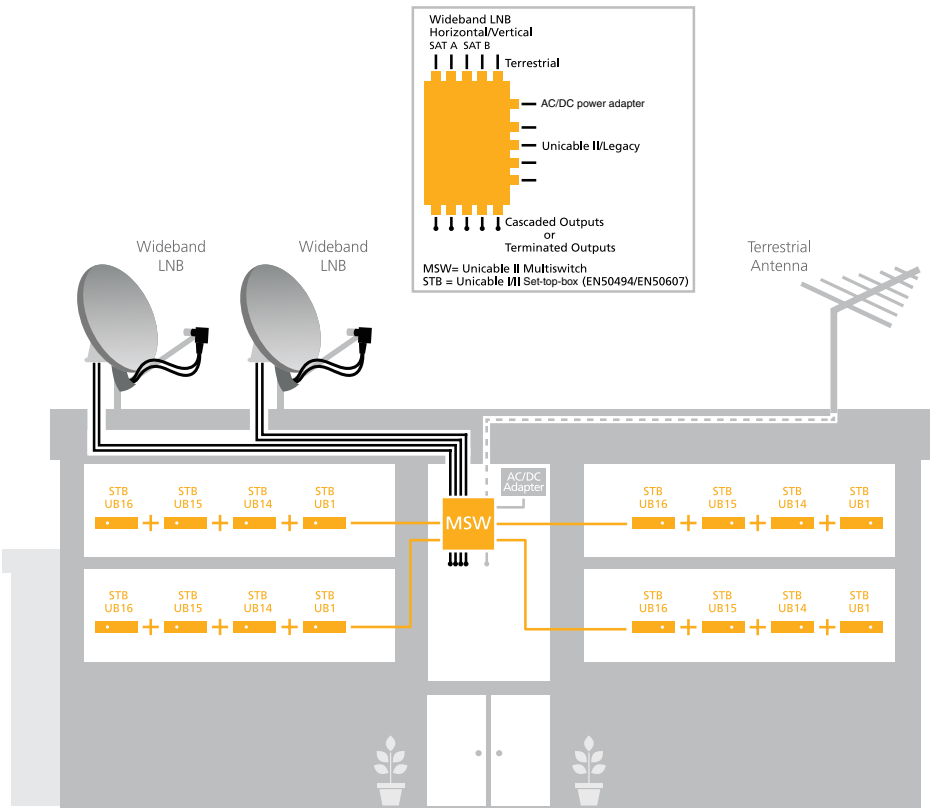
The following diagram describes a typical single household installation based on the default configuration of the product:



Connect the cables from the Quattro LNB to the input connectors marked with LNB V/L, V/H, H/L and H/H inputs (pay attention to identification of the Quattro LNB connectors). The multiswitch is equipped with Terrestrial input. Connect the Terrestrial antenna to the Terrestrial input port.

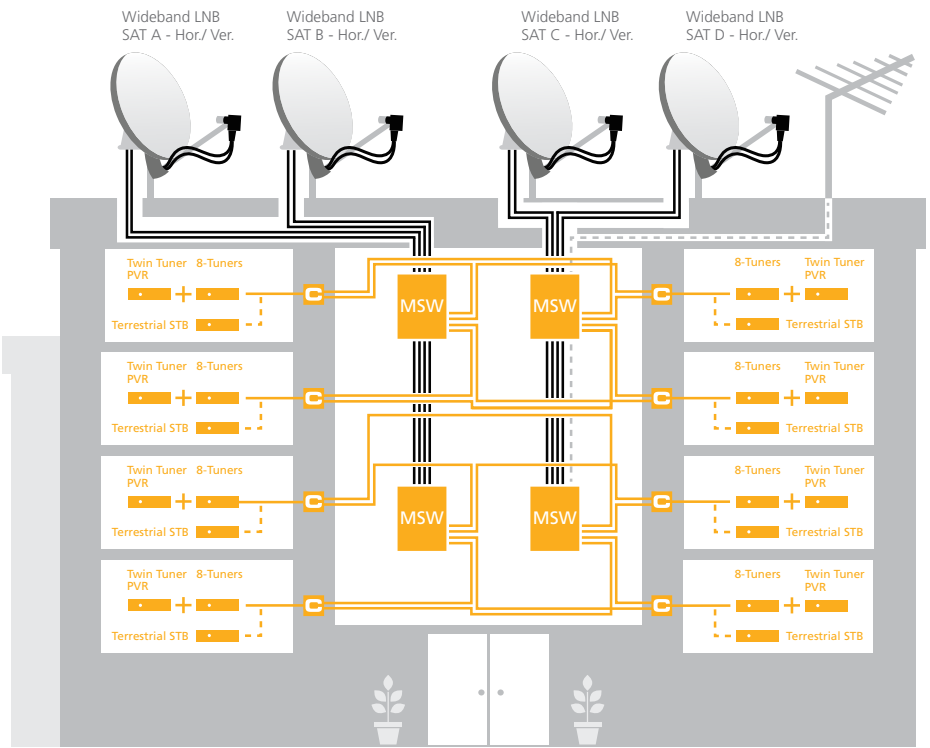


The following diagram illustrates reception of two satellites using wide-band LNBs. Each STB can access any transponder on any of the two satellites:



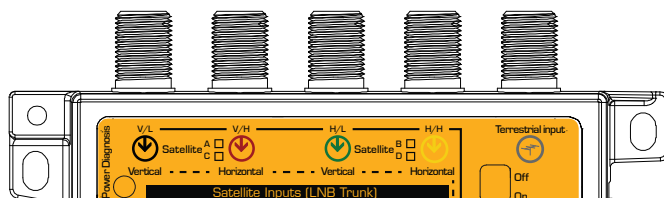
MSW = Multiswitch

The following diagram illustrates reception of four satellites using wide-band LNBs. Each STB can access any transponder on any of the four satellites:



Note: The four satellite installation requires the output ports of the two Multiswitch units to be connected to an external combiner as shown in the diagram (to provide for DiSEqC 2.0 communication, the combiner should support bidirectional pass through for DC and 22kHz signals).

Connect the cables from the Wideband LNBs to the input connectors marked with Satellite A/C Vertical and Horizontal and Satellite B/D Vertical and Horizontal (pay attention to identification of the Wideband LNB connectors). Connect the Terrestrial antenna cable to the Terrestrial input port



The number and frequency of the 16 default User Bands available over each STB output port are the following:

Default Unicable II dynamic user bands per output port

EN50607+EN50494 (dCSS+SatCR):

UB1=1210MHz UB5=985MHz

UB2=1420MHz UB6=1050MHz

UB3=1680MHz UB7=1115MHz

UB4=2040MHz UB8=1275MHz

Default UB bandwidth: 46MHz

EN50607 (dCSS):

UB9=1340MHz UB13=1745MHz

UB10=1485MHz UB14=1810MHz

UB11=1550MHz UB15=1875MHz

UB12=1615MHz UB16=1940MHz

Technical parameters

Inputs	4 x Satellite IF inputs: - From 1x Quattro LNB (default) - From 2x Wideband LNBs 1 x DTT/DAB/FM input from Terrestrial antenna
Outputs	4 x loop-through satellite IF outputs 1 x loop-through terrestrial output 4 x EN50494 (SatCR) / EN50607 (dCSS) / Legacy auto-de- detect ports with combined Terrestrial signal
Frequency range	Satellite: - Quattro LNB: 950-2150MHz (default) - Wideband LNB: 300-2350MHz Terrestrial: 40 - 840MHz
Loop-through loss	Satellite: 4dB max. (loss) Terrestrial: 7dB max. (5dB typ.) (loss) [Amplification=OFF] +12dB min. (gain) [Amplification=ON]
Gain (without AGC)	Satellite (Trunk to Tap, outside of AGC): 25dB min. Terrestrial (Terrestrial in to Tap): -20dB [Amplification=OFF] -5 ~ +5dB [Amplification = ON]
Input power level	Satellite AGC: -50dBm to -5dBm Terrestrial: 100dBuV max. (Amplification=ON)
Output power level	Satellite (AGC output): -25dBm (83dBuV)
Isolation	Satellite channel-to-channel: min. 35dB Satellite-Satellite outputs: min. 25dB Satellite-Terrestrial: min. 25dB
Control protocol	Legacy 13/18V + 0/22kHz (Sky+), DiSEqC1.x/DiSEqC2.0, EN50494, EN50607

Power consumption	500-1100mA @10~20VDC
Power supply to LNB	500mA max., 18VDC
Dimensions (W x H x D mm)	W=110.24 H=151.86 D=26.00
Temperature range	-20°C ~ +50°C
Ingress Protection	IP54

Optional accessories (not supplied, sold separately):

MDU AC/DC power adapter (EU plug)
Model: IDLU-ADPT03-19342-OPP
Item: 5423

Input voltage: 100-240VAC, 50/60Hz
Output voltage: 19VDC
Output current: 3.42A
Short circuit protection: Yes

Unit AC/DC power adapter (EU plug)
Model: IDLU-ADPT01-00000-OPP
Item: 3712

Input voltage: 100-240VAC, 50/60Hz
Output voltage: 19VDC
Output current: 940mA
Short circuit protection: Yes

Power Inserter 5-2400MHz, 750mA max
Model: IDLU-PINS01-00000-OPP
Item: 5344

Unicable II programmer
Model: IDLU-PROG02-00000-OPN
Item: 5393

Unicable II 2-way Combiner, 5-2400MHz
Model: IDLU-UCM103-00020-OPB
Item: 5398

Unicable II 2-way splitter, 5-2400MHz
Model: IDLU-USP104-0UO20-OOB
Item: 5389

Unicable II 4-way splitter 5-2400MHz
Model: IDLU-USP101-0UO40-OPB
Item: 5355

Unicable II 8-way splitter 5-2400MHz
Model: IDLU-USP101-0UO80-OPB
Item: 5356

Safety

Never open a powered product. This may result in electrical hazard.

Never work on the product, TV set or other powered devices during or before a storm. A lightning strike into the antenna may cause dangerous over-voltage over the product's metallic/conductive parts.

Make sure the local electricity network corresponds to the operating voltage of the AC/DC adapter. If the products gets into contact with liquid it must be disconnected from the main power. It is recommended to disconnect the product from the main power if it is not used for long periods of time.

When disconnecting the product don't pull the cable but the plug to prevent damage of the

cable (wobbly plugs and outlets result in fire risk).
The product shall be serviced by qualified experts only.

Troubleshooting

Make sure the satellite antenna and LNB are properly fixed, connected and adjusted and that the satellite receivers are installed, connected and switched on according to available instructions. Ensure there is no short circuit on the product inputs. This will prevent power to the LNB. If this is the case, disconnect the product from the main power, and then find and remove the short circuit on the product inputs. Then re-connect the multiswitch to the main power. Frequent defects are in connector joints i.e. if the central conductor is too short and fails to make contact in the connector. Also the shielding braid should make proper contact with the connector coat. Sometimes a reset to the multiswitch microprocessor is sufficient to remove a fault: simply disconnect the multiswitch from main power for 30 seconds and then reconnect again. If you are unable to remove the fault yourself, please contact your distributor.

Disposal

Following relevant EU directives, this device shall not be disposed of together with municipal waste. Use local waste collection and recycling systems to dispose worn out products.

*DiSEqC™ is a registered trademark of Eutelsat

*For purpose of brevity, some product descriptions in this sheet remain at platform level and may not be referred to as detailed data-sheets of the products. Inverto Digital Labs reserves the right to amend, omit or add products, product-lines, and/ or features without notice.



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