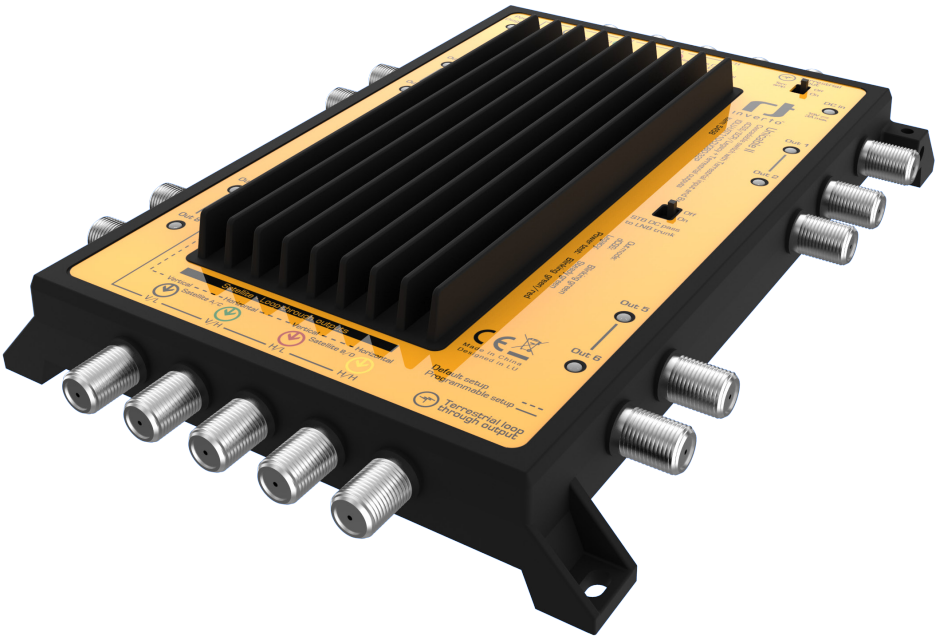


Unicable™ II Multiswitch

Unicable II Cascadable switch with Terrestrial input and 8x dCSS/ SCR/Legacy+Terrestrial outputs

IDLU-UST110-CUO80-32P

Item: 5458

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

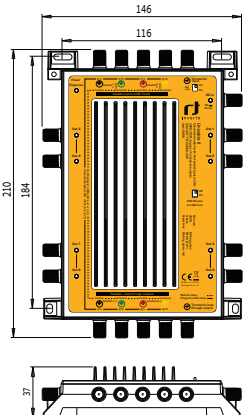
This Unicable II multiswitch is designed for the distribution of satellite and terrestrial television and radio signals in home installations. The warranty does not apply for products used for other purposes than those specified herein. The user/installer shall be responsible for any damage incurred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

Installation location

⚠ IMPORTANT: The Multiswitch unit shall be installed in vertical orientation to allow optimal heat dissipation through its cooling fins (see diagram on the right side below).
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).

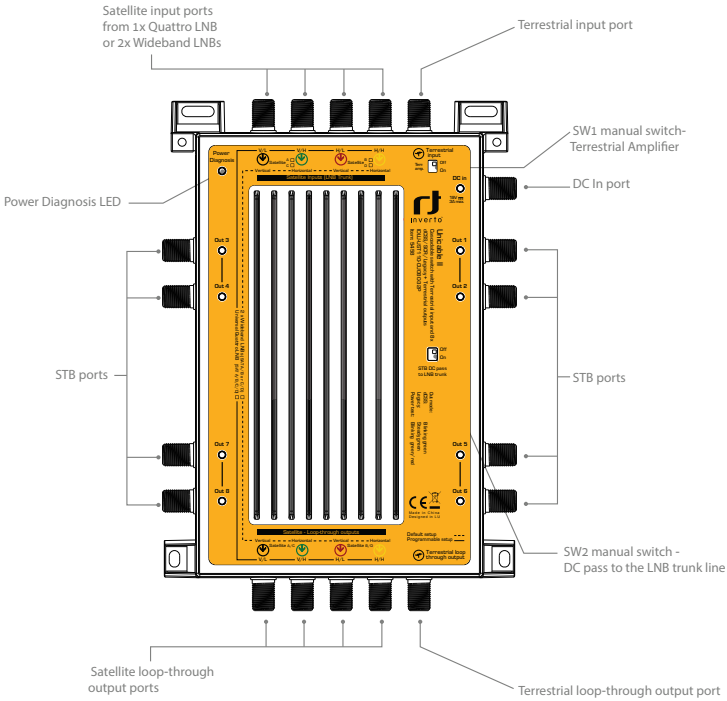
In installations that require only one Multiswitch unit, power supplied over the STB output ports can be passed on to power the LNB by setting the manual switch (SW2) to ON. The switch shall be set to OFF in cascade installations otherwise the connected STB will have to power all the units it cascades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

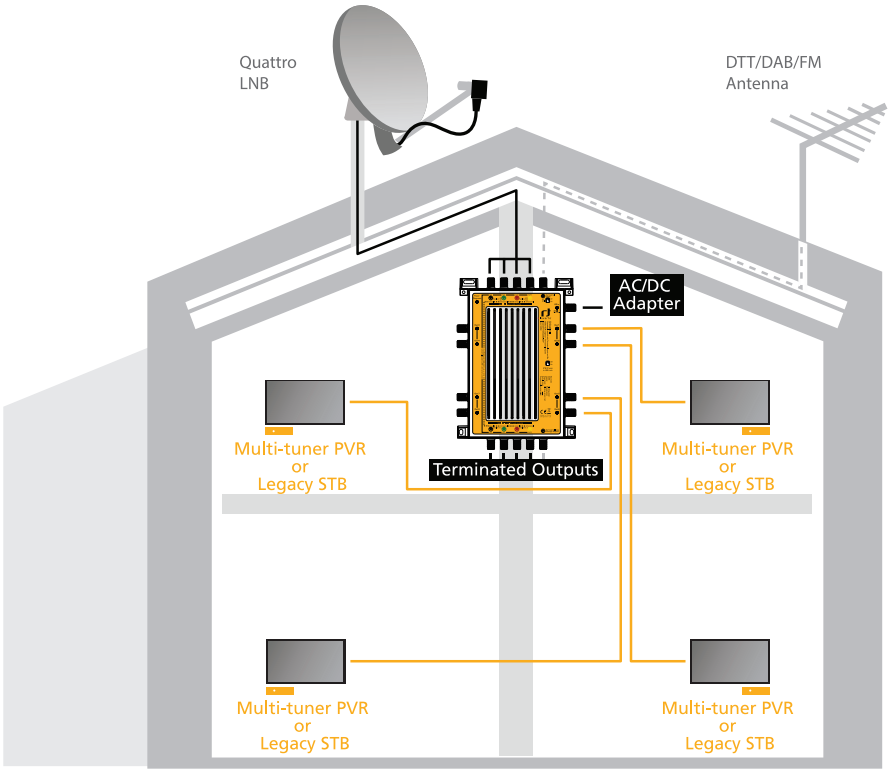
Each of the eight STB output ports is compatible with either Legacy (13/18VDC, 0/22kHz), DiSEqc1.x/2.0, EN50494 or EN50607 control standards and can detect automatically what type of STB (receiver) is connected to each port. By default, each port supports 16 User Bands. The list of the User Bands' default parameters appears on the next page.

The Multiswitch unit has a Port Status LED next to each of the eight 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)

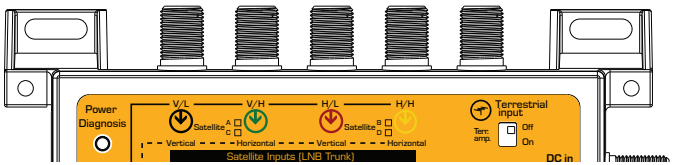
All the eight STB output ports combine the Terrestrial input signal.

Note: The default configuration of the Multiswitch can be updated using Inverto's SatPal or Unicable II 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.

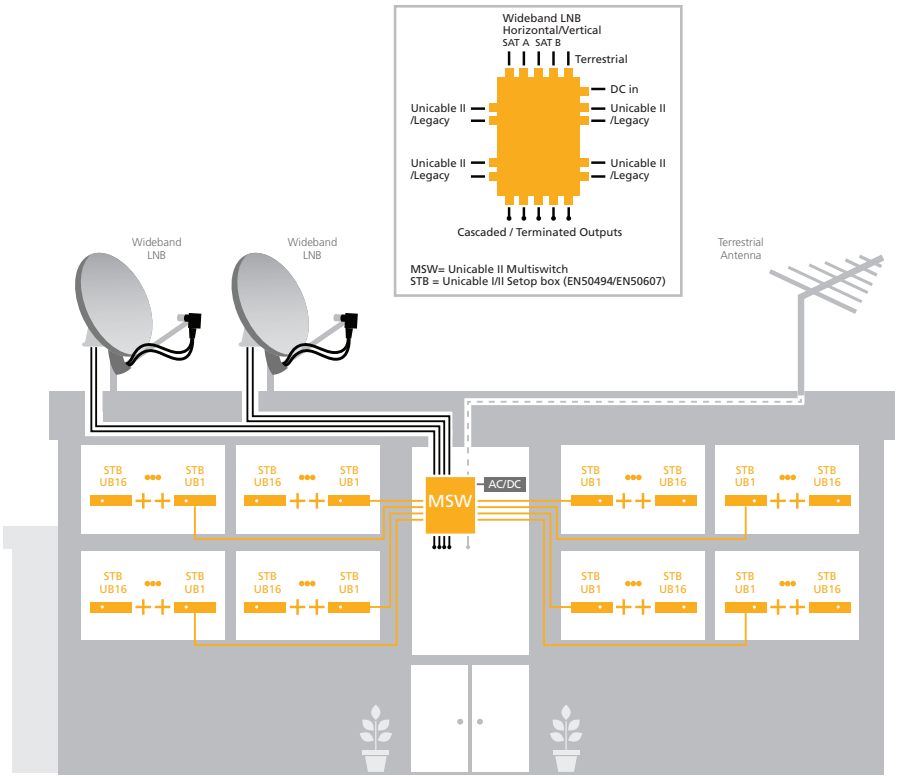
The following diagram describes a typical single household installation based on the default configuration of the product:



Connect the cables from the Quattro LNB to the input connectors marked with LNB V/L, V/H, H/L and H/H inputs respectively
(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.

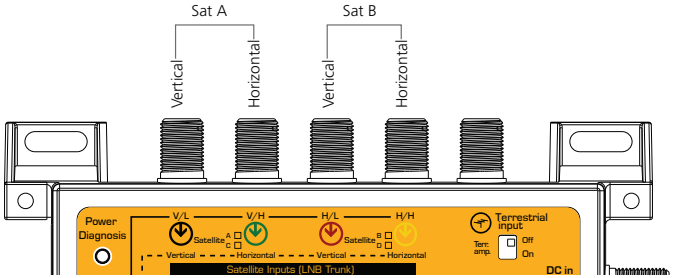


The following diagram illustrates reception of two satellites using wide-band LNBs. Each STB can access any transponder on any of the two satellites:

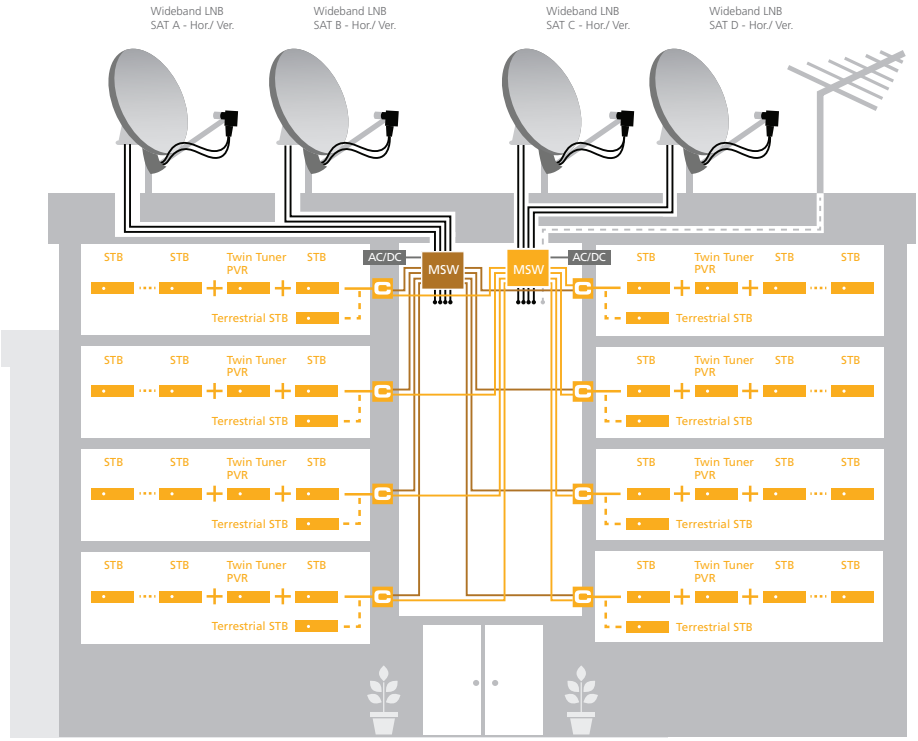


MSW = Multiswitch

Connect the cables from the Wideband LNBs to the input connectors marked Satellite A/C (or B/D) Vertical and Horizontal respectively inputs (pay attention to identification of the Wideband LNB connectors). The multiswitch is equipped with Terrestrial input. Connect the Terrestrial antenna to the Terrestrial input port.



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

Technical parameters

Frequency range: satellite	Quattro LNB: 950 MHz ~ 2150MHz (default) Wideband LNB: 300 MHz ~ 2350MHz "
Frequency range: terrestrial	47 MHz ~ 862 MHz
Inputs	4x IF inputs: - From 1x Quattro LNB (default) - From 2x Wideband LNBs 1 x UHF/VHF input from Terrestrial antenna
Outputs	4x Loopthrough satellite IF outputs* 1x Loopthrough terrestrial output 8x auto-detect Unicable II / Legacy output ports with combined Terrestrial signal. Default behavior: Legacy mode on power up, auto-switch to Unicable II dynamic mode upon receiving an EN50494/EN50607 command.
Input/Output impedance	75 Ω (F-type)
Input power range	-50 dBm ~ -5 dBm
Output signal level (AGC)	2.5 : 1
RF isolation: satellite/satellite (input)	30 dB min.
RF isolation: satellite/terretsrial (input)	30 dB min.
RF isolation: satellite ch/ch (UBs, output)	30 dB min.
Loop-through loss: satellite	4dB max. (loss)
Loop-through loss: terrestrial	8 dB @ 400~600 MHz (12 dB max.) (loss) [amplification=OFF] +11 dB @400~600 MHz (+7 dB min.) (gain) [amplification=ON]
Integrated phase noise	1.5° max.
Output signal level (AGC)	-25 dBm (83 dBuV)
Gain: Unicable II™ (dCSS) output (out of AGC)	25 dB min.
Gain: terrestrial signal	-19 dB @ port 4 over 400~600MHz (-25 dB min.) [amplification = OFF] +1 dB @ port 4 over 400~600MHz (-9 dB min.) [amplification = ON] * 1dB difference between adjacent ports, -1 dB from port 1 through to port 8
Control protocols	EN50494 (SatCR), EN50607 (dCSS), DiSEqC1.0/2.0, 13 V/18 V + 0 kHz/22 kHz
Legacy port switching	V/L => 13 V/0 kHz , V/H => 13 V/22 kHz H/L => 18 V/0 kHz , H/H => 18 V/22 kHz"

LNB power supply	500 mA max. @ 18 VDC
Power consumption	1200 mA @ 19 VDC (no load)
Working temperature	-20 °C ~ +50 °C
IP protection	IP54
Product dimensions (H x W x D)	210 mm x 146 mm x 37 mm
Weight	500 g

Unicable II™ (dCSS) port specifications

User band (channel) bandwidth	46 MHz, programmable 10 MHz ~ 80 MHz
User band (channel) gain ripple	3 dB max.
User band (channel) frequencies	Default Unicable II™ dynamic user bands per output port:

CH1: 1210MHz EN50607+EN50494
CH2: 1420MHz EN50607+EN50494
CH3: 1680MHz EN50607+EN50494
CH4: 2040MHz EN50607+EN50494
CH5: 985MHz EN50607+EN50494
CH6: 1050MHz EN50607+EN50494
CH7: 1115MHz EN50607+EN50494
CH8: 1275MHz EN50607+EN50494

(dcss+SatCR)

CH9: 1340MHz EN50607
CH10: 1485MHz EN50607
CH11: 1550MHz EN50607
CH12: 1615MHz EN50607
CH13: 1745MHz EN50607
CH14: 1810MHz EN50607
CH15: 1875MHz EN50607
CH16: 1940MHz EN50607

(dcss)

* Unused ports need to be terminated by 75 Ohm DC-blocked terminators

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-OOOOO-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-OOOOO-OPP Item: 5344	
SatPal Controller Model: IDLU-SPAL03-OOOBT-OPP Item: 5415	
Unicable II 2-way Combiner, 5-2400MHz Model: IDLU-UCM103-OOO2O-OPB Item: 5398	
Unicable II 2-way splitter, 5-2400MHz Model: IDLU-USP104-OUO20-OOB Item: 5389 Unicable II 4-way splitter 5-2400MHz Model: IDLU-USP101-OUO40-OPB Item: 5355 Unicable II 8-way splitter 5-2400MHz Model: IDLU-USP101-OUO80-OPB Item: 5356	

Safety

The device shall be properly grounded for safety reasons. Use the earthing terminals (identified on the drawing on page 3) to ground the multiswitch. Consult a qualified electrician if you have any doubt on proper grounding.

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 wore 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.

Notes

For further details contact: **sales@inverto.tv**

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