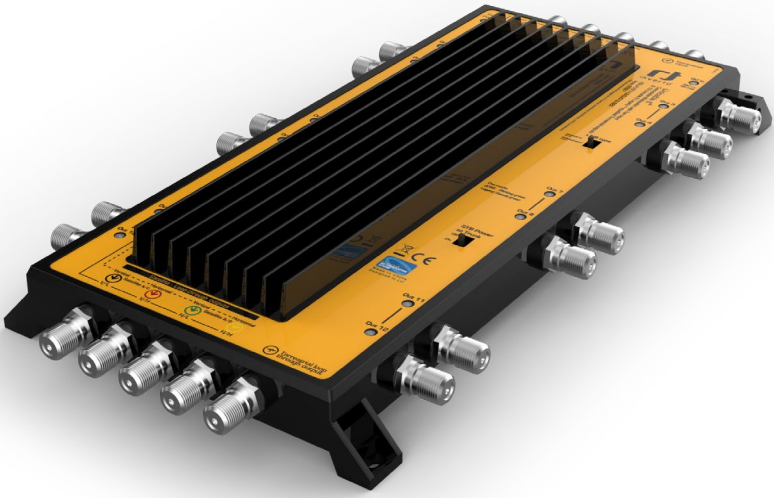


Unicable II® Multiswitch

Cascadable Multiswitch with Terrestrial input
& 12 Unicable II/Legacy + equalized Terrestrial outputs
IDLU-UST112-CUO12-32S
Item:6597

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

To distribute the best signal quality across your installation we recommend connecting the product inputs and outputs using 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.

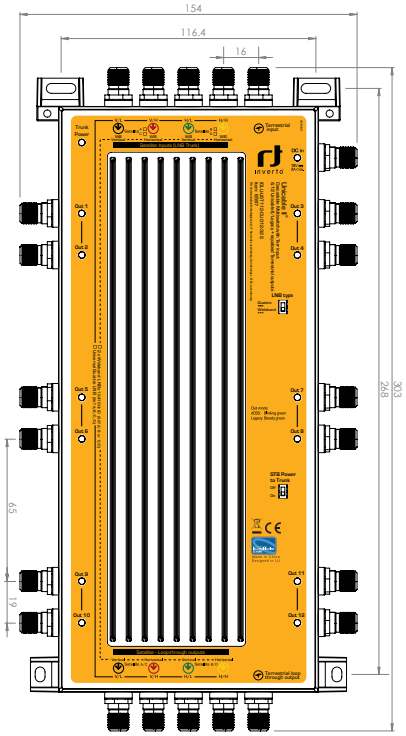
The satellite input ports can be connected directly to a Quattro/Wideband LNB (pay attention to the port designations and the correct position of the LNB type switch SW1) or cascade to another Multiswitch unit.

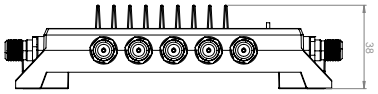
The DC-input port of the Multiswitch unit powers the satellite trunk lines to power the connected LNB. It also powers the unit's built-in Terrestrial amplifier as well as the Terrestrial amplifier of cascaded units. The Trunk power LED will turn green when the Trunk lines are powered.

The output ports are powered by the connected STBs to enable super low power consumption of the unit and allow to power the maximum number of cascaded switches through a single power supply unit. If a connected STB is not able to power the port, a power inserter can be utilized*.

For optimal performances, unused trunk RF output ports used shall be terminated with a 75Ω DC-block termination.

Note: It is also recommended to terminate unused STB output ports with 75Ω terminating resistors.

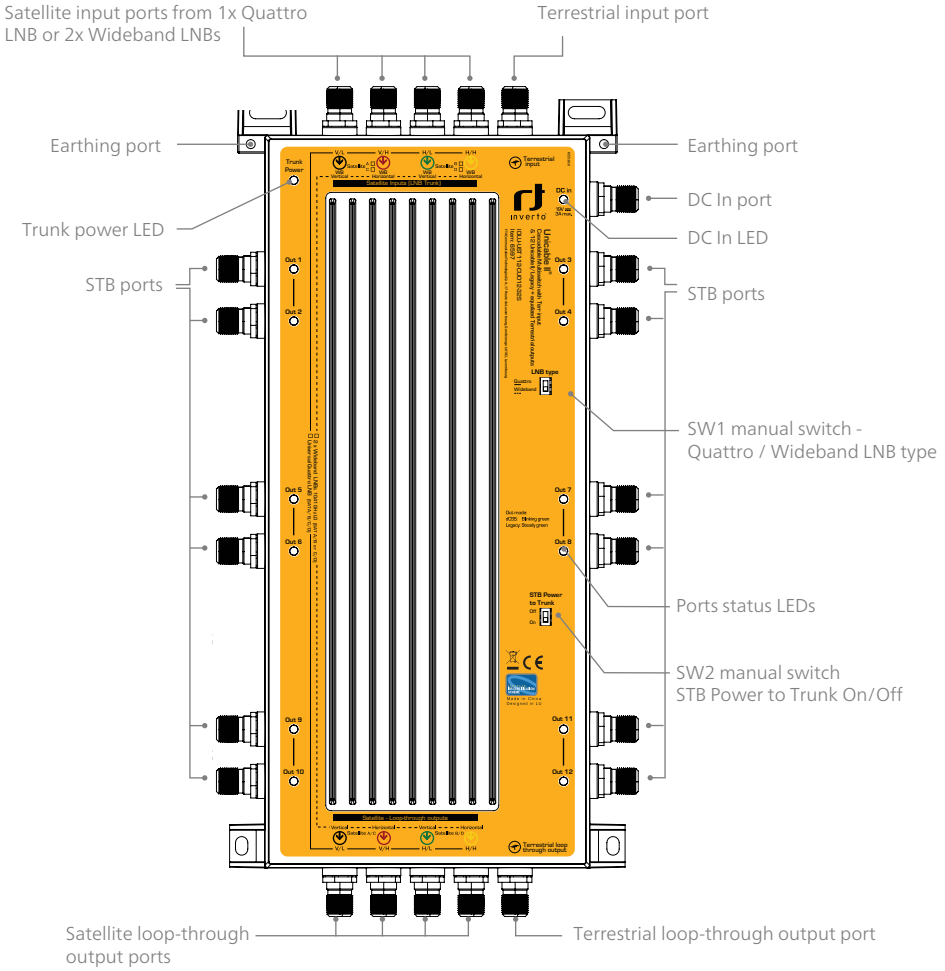




* Power Inserter and AC/DC power adapters are not included and can be purchased separately.

The manual switch SW2 - STB Power to the Trunk On/Off - allows the trunk lines to be powered via the STB output ports by the connected STBs. If the connected STBs are not able to provide sufficient power, a power inserter can be utilized*. This is useful in installations having no power supply available next to the multiswitch unit in order to power its trunk lines and the connected LNB via the DC-in port.

IMPORTANT: Ground the multiswitch device using its earthing terminals.



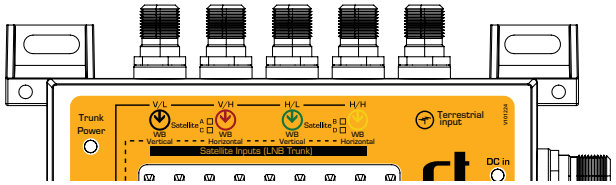
Product configuration

Each of the twelve 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 it. By default, each port supports 16 User Bands (see list of default User Bands on page 4). There is a Port Status LED next to each STB port which identifies the mode of the port:
- Solid Green = Legacy mode.
- Blinking Green = Unicable (SatCR, EN50494) or Unicable II (dCSS, EN50607).
- Off = no voltage detected on the port (only terrestrial signal available on the port)

All the twelve 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.

Connect the cables from the Quattro/Wideband LNB to the input connectors (pay attention to identification of the connectors and the correct position of the LNB type switch) and connect the Terrestrial antenna to Terrestrial input port:



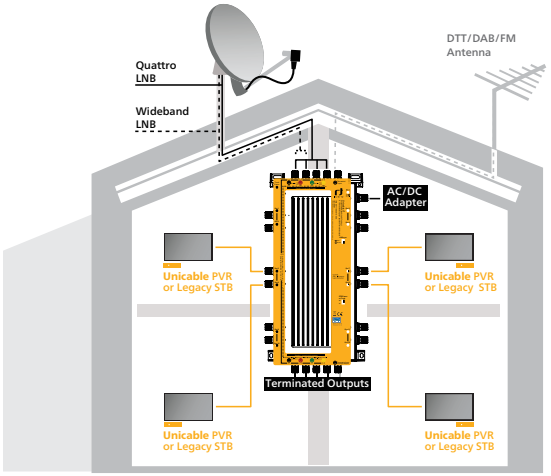
The number and frequency of the 16 default User Bands available over each STB output port are the following:

Default Unicable II dynamic user bands per output port

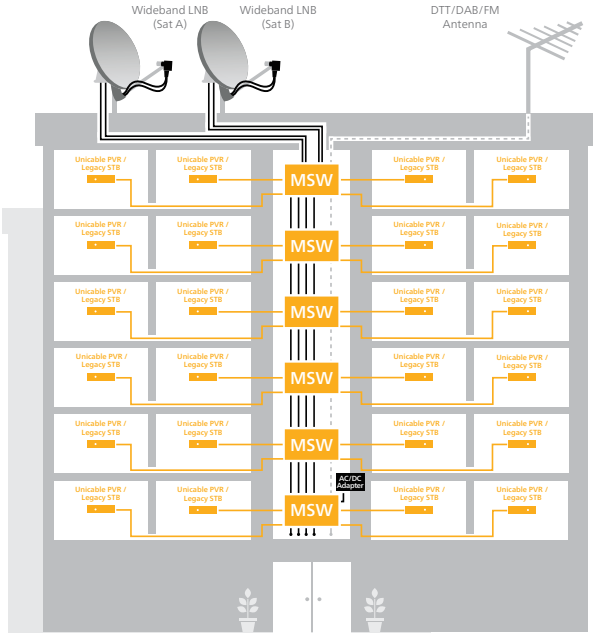
EN50607+EN50494 (dCSS+SatCR):		EN50607 (dCSS):	
UB1=1210MHz	UB5=985MHz	UB9=1340MHz	UB13=1745MHz
UB2=1420MHz	UB6=1050MHz	UB10=1485MHz	UB14=1810MHz
UB3=1680MHz	UB7=1115MHz	UB11=1550MHz	UB15=1875MHz
UB4=2040MHz	UB8=1275MHz	UB12=1615MHz	UB16=1940MHz

Default UB bandwidth: 46MHz

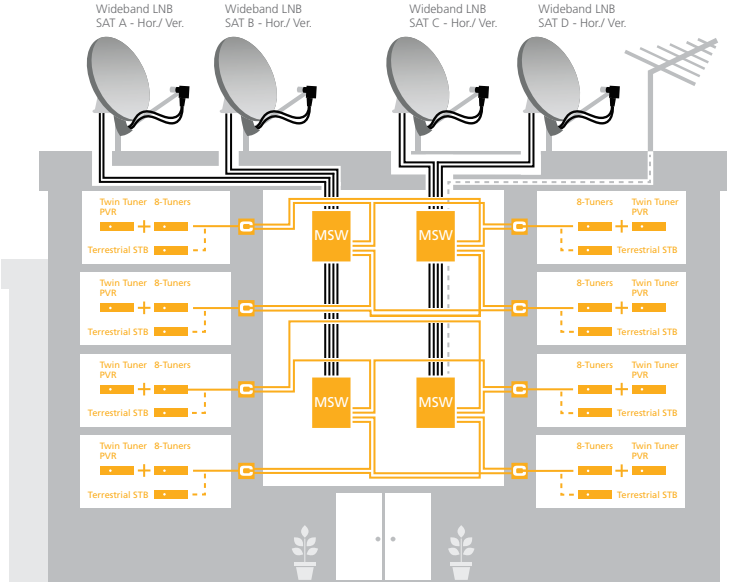
The following diagram describes a typical single household installation of the product:



The following diagram illustrates a typical MDU/building installation with two Wideband LNBs receiving 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:



Technical parameters

Inputs	4 x Satellite IF inputs: - From 1x Quattro LNB - 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 12 x EN50494 (SatCR) /EN50607 (dCSS) / Legacy auto-detect ports with combined Terrestrial signal
Frequency range	Satellite: - Quattro LNB: 950-2150MHz - Wideband LNB: 300-2350MHz Terrestrial: VHF 174-230 MHz / UHF 470-790 MHz
Loop-through loss	Satellite: 6dB max. (loss) Terrestrial: 0 +/-1dB
Gain (without AGC)	Satellite (Trunk to Tap, outside of AGC): 25dB min. Terrestrial (TERR in to Tap): 0 +/- 2dB
Input power level (aggregated)	Satellite AGC: -32dBm to -4dBm (76dBuV to 104dBuV) Terrestrial: 100dBuV max.
Output power level	Satellite (AGC output): -25dBm (83dBuV)
Isolation	Trunk satellite/satellite (input): >30dB Trunk satellite/terrestrial (input): >30dB Trunk satellite (input) / Tap (output): >26dB
Control protocol	Legacy 13/18V + 0/22kHz, DiSEqC1.x/DiSEqC2.0, EN50494, EN50607
Power consumption	Output port: 365mA max. @11-20V DC, (supplied by the connected STB) DC in port (no LNB load): 100mA max. @18V DC
Power supply to LNB	500mA max., 18VDC
Dimensions (W x H x D mm)	W=154 H=303 D=38
Temperature range	-20°C ~ +50°C
Ingress Protection	IP54

Optional accessories (not supplied, sold separately):

MDU AC/DC power adapter (EU plug) Model no.: IDLU-ADPT04-19342-EPM Item no.: 5582	Input voltage: 100-240VAC, 50/60Hz Output power: 19VDC, 3.42A Short circuit protection: Yes
Unit AC/DC power adapter (EU plug) Model no.: IDLU-ADPT01-19WOO-EPM Item no.: 5639	Input voltage:100-240VAC, 50/60Hz Output power: 19VDC, 940mA Short circuit protection: Yes
Power Inserter 5-2400MHz, 1000mA max Model no.: IDLU-PINS03-OOOOO-OBT Item no.: 5958	
Unicable II 2-way splitter, 5-2400MHz Model: IDLU-USP1O5-OUO2O-OBT Item: 5660	
Unicable II 4-way splitter, 5-2400MHz Model: IDLU-USP1O5-OUO4O-OBT Item: 5709	
Unicable II 8-way splitter, 5-2400MHz Model: IDLU-USP1O5-OUO8O-OBT Item: 5710	
SatPal controller Model: IDLU-SPAL03-OOOBT-OPP Item: 5415	

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 overvoltage over the product's metallic/conductive parts.
- Make sure the local electricity network corresponds to the operating voltage of the AC/DC adaptor. 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.

Compliance

FTA Communication Technologies S.á r.l declares that the Multiswitch product is in compliance with Directive 2014/53/EU (RED). The full text of the EU declaration of conformity is available at: www.inverto.tv/support_dc

CE

*DiSEqC™ is a registered trademark of Eutelsat

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

FTA Communication Technologies S.a r.l Tel. +352 264 367 1 Fax. +352 264 313 68
17 Route de Luxembourg, Gonderange, L-6182, Luxembourg

V010726