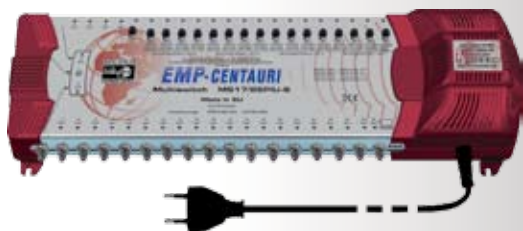




## **Satellite Multiswitch**

### **Instructions for Use**



MS 13/4 PIU-6  
MS 13/8 PIU-6  
MS 13/12 PIU-6  
MS 13/16 PIU-6  
MS 13/26 PIU-6  
MS 17/4 PIU-6  
MS 17/8 PIU-6  
MS 17/12 PIU-6  
MS 17/16 PIU-6  
MS 17/26 PIU-6

Dear Customer,

Thank you for buying the EMP-Centauri satellite product. Before installing and operating the product read carefully these instructions for use. Keep these instructions for use in a safe place. The product may be installed and connected only in strict compliance with these instructions for use and applicable standards.

#### Field of product application, warranty

The product (multiswitch, amplifier, etc.) is designed for the distribution of television and radio signals, both satellite and terrestrial, in home installations. The warranty does not apply to products used for other purposes than those specified herein. The user shall be responsible for any injury or loss of property incurred as a result of any use which was not in agreement with these instructions for use.

The product uses technologies protected by copyrights and patents. Any disassembling of the product and any changes thereof are prohibited. To ensure quality warranty and after-warranty services, please keep all documents about your purchase and repairs of the product, if any. We recommend keeping the original packaging of the product throughout the warranty period.

#### Product takeover

Make sure the following accessories are enclosed to the product:

- Screws and dowels to fix the product on the wall (4 pcs)



- F connectors designed for installation on the coaxial cable (the number corresponds to the number of product input and output connectors)



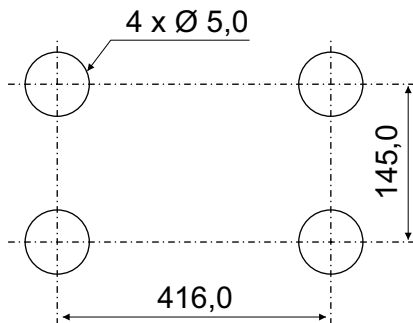
If some accessories are missing, please contact your dealer.

#### Product placement

Fix the product firmly on a wall or another hard and inflammable surface. The product shall be in no case held only with the connected cables. Place the product in a dry environment, do not expose it to rain or excessive humidity or dropping or running water. Do not place any containers with liquids (vases etc.), naked flame source (lighted candle etc.) on the product nor place them near the product. Do not install the product close to heat sources such as radiators or air ventilators, in places exposed to direct sunshine or in places with high dust pollution, mechanical vibrations or impacts. Use the product only in moderate climates (not in tropical climate). Choose an installation place where the product is protected against liquids (water) or foreign objects. Make sure that the product and its electric connections are out of the reach of children. Make sure that the ventilation openings on the product are not covered or blocked, e.g. with a newspaper, tablecloth or curtains and that the space around the product is sufficiently ventilated. The free space on sides should be at least 20 cm and the space over its top at least 50 cm. The mains plug shall remain readily operable for product disconnection if needed!

## Product installation

Use the enclosed screws and dowels for installation. Drill holes for the screws as shown in the drawing:

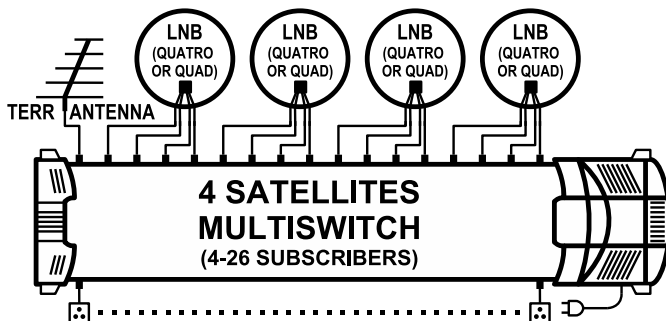


To connect the product inputs and outputs use high-quality coaxial cable designed for satellite reception and F connectors. Use a high-shielding coaxial cable, min. 90dB. If F connectors are not attached onto the cables, remove first the outer cable sheath in the length of approx. 15 mm. Then roll up the metal shielding braid and the shielding foil underneath and cut the shielding with scissors to ca. 5 mm. Then remove ca. 10 mm of the inner plastic insulation so that ca. 5 mm of the insulation remains in place.



Then carefully screw on the F connector on the cable end until the plastic insulation levels with the connector opening. Prevent short circuit between the inside conductor and the shielding. The short circuit prevents reception, it is difficult to identify and in extreme cases it may even damage the product or satellite receiver! The coaxial cables shall not be broken, the minimum bending radius shall be 5 cm.

Use the following or similar connection diagram to install the product



Connect the cables from the antennas and satellite converters (LNB) to the multiswitch connectors identified with LNB symbols. **When making connections pay close attention to identification of converters connectors!**

- Connect the input marked 13V / 0kHz (LNB A) with the output of **Vertical** converter in case of the Twin or Dual converter, or with the output of **Vertical Low** in case of the Quatro converter.
- Connect the input marked 18V / 0kHz (LNB B) with the output of **Horizontal** converter in case of the Twin or Dual converter, or with the output of **Horizontal Low** in case of the Quatro converter.

- Connect the input marked 13 V / 22 kHz (LNB C) with the output of **Vertical** converter in case of the Twin or Dual converter, or with the output of **Vertical High** in case of the Quatro converter.
- Connect the input marked 18 V / 22 kHz (LNB D) with the output of **Horizontal** converter in case of the Twin or Dual converter, or with the output of **Horizontal High** in case of the Quatro converter.
- Connect the input marked 13 V / 0 kHz (LNB E) with the output of **Vertical** converter in case of the Twin or Dual converter, or with the output of **Vertical Low** in case of the Quatro converter.
- Connect the input marked 18 V / 0 kHz (LNB F) with the output of **Horizontal** converter in case of the Twin or Dual converter, or with the output of **Horizontal Low** in case of the Quatro converter.
- Connect the input marked 13 V / 22 kHz (LNB G) with the output of **Vertical** converter in case of the Twin or Dual converter, or with the output of **Vertical High** in case of the Quatro converter.
- Connect the input marked 18 V / 22 kHz (LNB H) with the output of **Horizontal** converter in case of the Twin or Dual converter, or with the output of **Horizontal High** in case of the Quatro converter.

Connect the remaining inputs of the multiswitch similarly as the above-mentioned 8 inputs.

Also Quad-type converters can be used (with an integrated multiswitch) or Twin Universal for reception of the High Band. The multiswitch is provided with four miniature lever switches situated close to the multiswitch output connectors. If the switch 4 is in the OFF position the multiswitch continually transmits to LNB inputs C and D a signal of 22 kHz which switches the corresponding LNB outputs to the High Band. If the switch 3 is in the OFF position the multiswitch continually transmits to LNB inputs G and H a signal of 22 kHz which switches the corresponding LNB outputs to the High Band. Similarly, switch 2 controls 22 kHz tone to inputs K and L, switch 1 controls 22 kHz tone to inputs O and P (MS17 series only). Further the multiswitch transmits 13 V DC to LNB inputs A, C, E, G, I, K, M, O and 18 V DC to LNB inputs B, D, F, H, J, L, N, P. (Note: product series MS13 do not include inputs M to P.). The Quad converter then operates as Quatro converter and the Twin Universal converter operates as Dual converter for High Band reception.

In case of Quad or Twin Universal LNB, it doesn't matter how the LNB is interconnected with input of the multiswitch, provided that all outputs from particular LNB are connected as one satellite system.

Switching between the satellite systems A, B, C (type MS13) or satellite systems A, B, C, D (type MS17) is done with commands DiSEqC Position A, B, C (type MS13) or A, B, C, D (type MS17) from the satellite receiver.

Connect the multiswitch input marked TERR IN with the antenna output for reception of terrestrial TV and radio. This input additionally enables to power supply the antenna pre-amplifier with the current up to 150 mA / 12 VDC. Provided the current consumed by the pre-amplifier exceeds 150 mA an internal fuse disconnects the power supply of the pre-amplifier. The antenna may be also connected directly to the Terr. Antenna multiswitch input; in this case the power supply voltage is short-circuited and disconnected at the multiswitch input, however the signal quality for terrestrial TV and radio is not affected.

The attenuation controller at the TERR IN input may regulate the level of signals from the terrestrial TV and radio antenna or from the pre-amplifier. If the knob is turned to counterclockwise stop position, the internal amplifier of the terrestrial TV and radio is switched off and the multiswitch operates as a passive hub for terrestrial TV and radio. In this case the multiswitch is able to transmit the so-called reverse channel.

All satellite multiswitch inputs are provided with attenuation controllers which provide the option to equalize signals of various strength at the inputs. This, however, requires adequate measuring instruments.

The output connectors of the multiswitch are identified with OUT symbols. Run cables from the multiswitch outputs into terminal subscriber outlets or hubs for satellite and terrestrial signals. If the TERR IN input is not connected, the cables from outputs may run directly into satellite receivers.

## Technical parameters

SPECIFICATIONS	MS13/4 PIU-6	MS13/8 PIU-6	MS13/12 PIU-6	MS13/16 PIU-6	MS13/20 PIU-6	MS13/26 PIU-6	MS17/4 PIU-6	MS17/8 PIU-6	MS17/12 PIU-6	MS17/16 PIU-6	MS17/20 PIU-6	MS17/26 PIU-6
Number of Inputs	13						17					
Number of Outputs	4	8	12	16	20	26	4	8	12	16	20	26
Frequency Range	TERR 5-862 MHz (passive), 40-862 MHz (active), SAT 950-2300 MHz											
Insertion Loss TERR active (avg)	5 dB gain	2 dB gain	0 dB		6 dB		5 dB gain	2 dB gain	0 dB		6 dB	
Insertion Loss TERR passive (avg)	22 dB	24 dB	26 dB		30 dB		22 dB	24 dB	26 dB		30 dB	
Insertion Loss SAT (avg)	0 dB				7 dB		0 dB				7 dB	
Isolation	20 dB min (between V/H polarisations), 20 dB min (between L/H bands), 25 dB min (between satellites)											
Maximum Input Level*	TERR 85 dBuV avg (active), TERR 110 dBuV avg (passive), SAT 85 dBuV avg											
Max. Output Level* TERR active (avg)	90 dBuV	87 dBuV	85 dBuV		79 dBuV		90 dBuV	87 dBuV	85 dBuV		79 dBuV	
Max. Output Level* TERR passive (avg)	88 dBuV	86 dBuV	84 dBuV		80 dBuV		88 dBuV	86 dBuV	84 dBuV		80 dBuV	
Max. Output Level* SAT (avg)	85 dBuV				78 dBuV		85 dBuV				78 dBuV	
Control	DiSEqC 2.0 (or 1.0)											
Power Consumption	75 mA (18 V) from each receiver, 4.5 W (TERR passive), 8 W (TERR active) + LNB from an internal power supply											
Dimensions (w,d,h)	47.0 x 15.2 x 8.7 cm (power cord length 130 cm)											
Temperature Range	-30°C - +70°C											
* TERR: EN 50083-3/60dB IMA <sub>3</sub> [dBuV]; SAT: EN 50083-3/35dB IMA <sub>3</sub> [dBuV]												

SPECIFICATIONS	P3U27
Input Voltage	90-265 V AC, 50/60 Hz
Output Voltage	18,12,5 V DC
Maximal Output Current	1 A (18 V), 0.5 A (12V), 0.5 A (5 V)
Efficiency	75% min
Dimensions	12.6 x 15.2 x 8.7 cm (power cord length 130 cm)
Temperature Range	-30 - +70 °C

## Safety

The product shall be properly grounded for safety reasons. Use the earthing terminal to ground the product identified with the symbol of grounding. **WARNING! Connect product into the grid only after it is completely connected and checked.** Make sure the antennas are grounded properly. **Never open the powered product as this may result in an electrical accident! Never work on the product, TV set or other powered products during or before a storm! A lightning stroke into the antenna may cause dangerous overvoltage in the product metallic parts. If you have any doubts about proper grounding of the feeder turn to a qualified electrician for help because antennas and their feeders are subject to earthing regulations.**

The product uses an alternate current, see product specifications. Make sure the local grid voltage corresponds to the operating voltage of the product. Ensure sufficient air circulation to prevent internal overheating of the product. Use the product in dry conditions only. If the product gets into contact with liquids (e.g. dropping water or spilled drinks) it shall be disconnected from the grid immediately. Do not place any objects on the power supply line to prevent its damage or constriction and make sure it is not in contact with hot objects. **To prevent an electric accident the cover can be opened, the product can be installed or cleaned only when disconnected from the power grid. Use only dry cloth to clean the product and do not use any liquid agents.** The product should be disconnected from the grid also if it is not to be used for a long period of time. When disconnecting the product, never pull the cable but always the plug to prevent damage of the cable. Make sure the plug is firmly inserted into the outlet. Wobbly plugs and outlets result in fire risks. **The product shall be serviced by qualified experts only.**

## Troubleshooting

1/002314

**Disconnect plugs of the product, satellite receiver and TV set from the grid whenever working with the antenna connectors or antenna equipment.** Any work on energized equipment may result in a fatal electric accident! If you have to enter places with a risk of fall, pay attention to your safety.

In case of a failure, check systematically for potential defects. Make sure the satellite antenna is properly fixed, connected and adjusted and that the satellite receiver is installed, connected and switched on according to the available instructions.

The product operation is indicated with a LED diode on the power supply. There may be several reasons why the LED diode is off:

A frequent defect is short-circuit on the product input, which prevents power supply of converters. Check whether the connectors are carefully and correctly connected on the product, converters as well as satellite receiver. The most frequent defects are in connector joints, e.g. if the central conductor is too short and fails to make contact in the connector. Also the shielding braid shall make good contact with the connector coat. Broken or interrupted coaxial cables may cause defects as well. If this is the case, disconnect the product from the grid and then find and remove the short-circuit on the product input. Then re-plug the product into the grid.

Power supply can fail temporarily in case of overload or overheating. Disconnect the product from the grid, let it cool off for several minutes and re-plug the product into the grid.

Sometime a reset of the multiswitch microprocessor is enough to fix the problem: pull out the power plug of the satellite receiver and of the multiswitch and then re-plug them a few seconds later. If you are unable to remove the defect yourselves, contact your distributor.

## Product maintenance

**Always disconnect power supply cables of all installed products when performing any maintenance on the product installation or antenna equipment!**

Check regularly the ventilation openings on the product power supply for blocking or fouling. Use only dry cloth for cleaning.

Coaxial cables installed outdoors should be replaced once in a few years, because they are exposed to climatic conditions. Not only the cables quality but also their age is of essence, particularly for receipt of weak satellite signal. Check regularly connection cables in the installation. Every 2 years unscrew the coaxial cable and clean connector contacts or shorten the coaxial cable by approx. 2 cm and screw on the F connector again because this is where corrosion occurs most frequently.

Regularly check the power supply condition and its line connector. If the line is damaged or worn on the surface, have the product serviced. Any damage of the power supply cover shall be serviced as well.

## Explanation of symbols on the product



conformity marking



grounding



DC power supply



for indoor use only



class II device



fuse protected



safety transformer



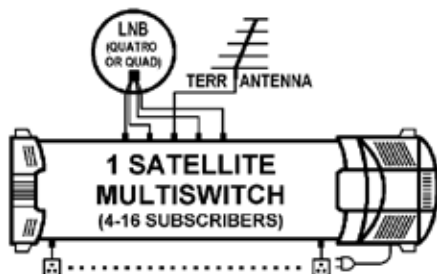
DiSEqC – digital satellite equipment control, number (1.0, 1.1, 1.2 or 2.0) determines the DiSEqC version



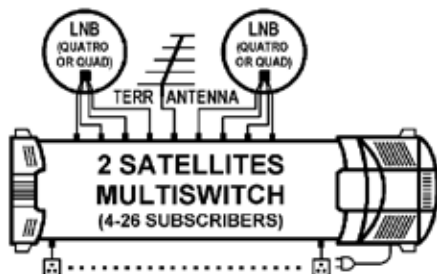
According to the EU Directive, electric and electronic products marked with one of the following symbols shall not be disposed of together with municipal waste. Use local waste collection and recycling systems to return retired products.

We also offer the following products from our production program:

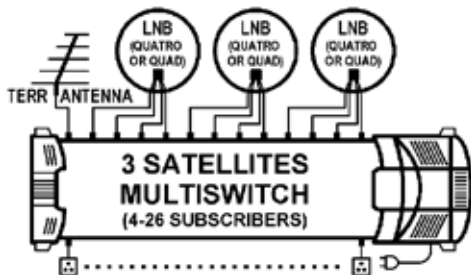
P.142-UP, P.143-UP, P.146-UP, P.147-UP (MS5/4PIU-4, MS5/8PIU-4, MS5/12PIU-5, MS5/16PIU-5)



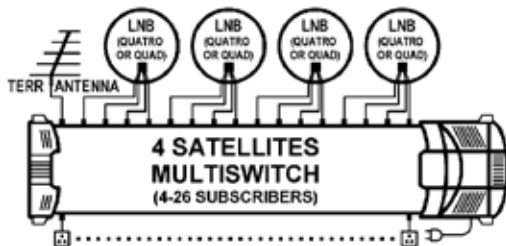
MS9/4PIU-5, MS9/6PIU-5, MS9/8PIU-5, MS9/10PIU-6, MS9/12PIU-6, MS9/16PIU-6, MS9/20PIU-6, MS9/26PIU-6



MS13/4PIU-6, MS13/8PIU-6, MS13/12PIU-6, MS13/16PIU-6, MS13/20PIU-6, MS13/26PIU-6



MS17/4PIU-6, MS17/8PIU-6, MS17/12PIU-6, MS17/16PIU-6, MS17/20PIU-6, MS17/26PIU-6



**EMP-CENTAURI s.r.o.**  
5. května 690, 339 01 Klatovy  
Czech Republic  
info@emp-centauri.cz • www.emp-centauri.cz