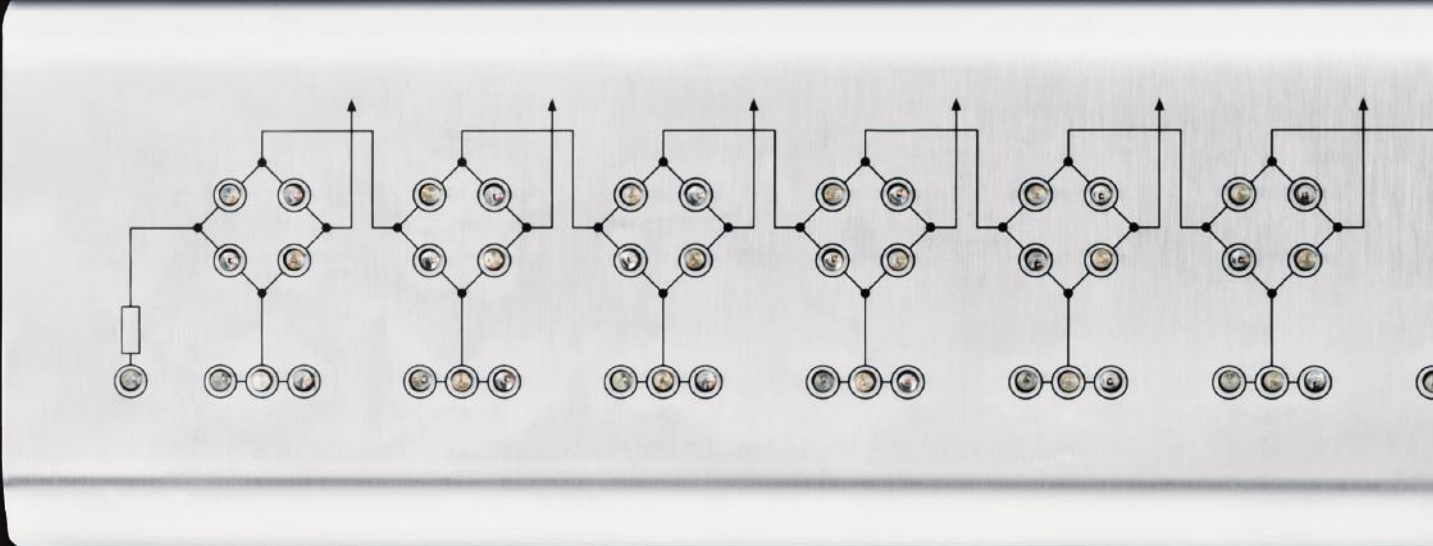
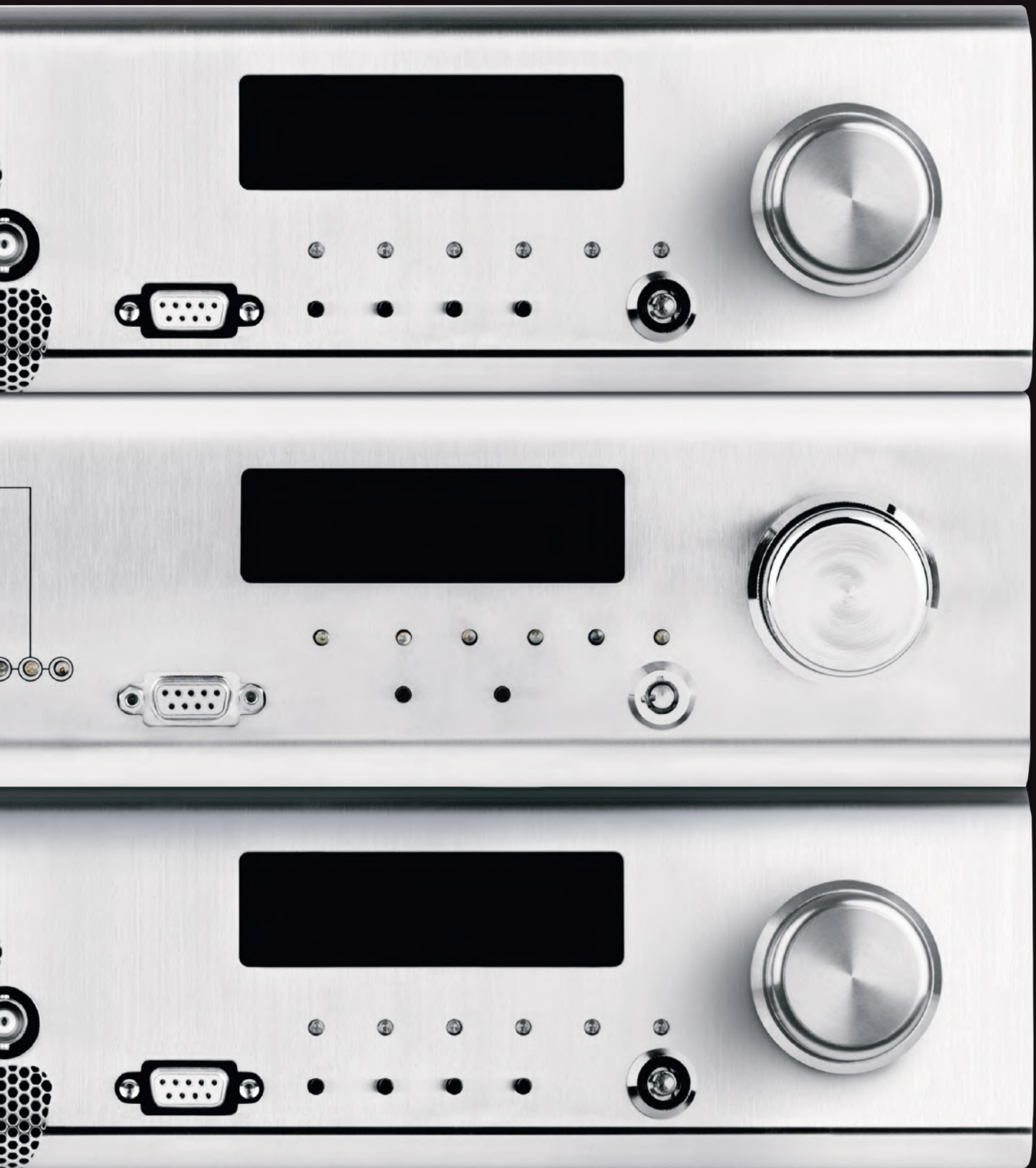


ECOS Systems **N+1**

ELENOS[®]
World Broadcast Experience





our technologies





Brochure

SYSTEMS **N+1**

ECOS SYSTEMS N+1

ECOS (Elenos Change Over System) is a line of Elenos products that includes different versions of N + 1 exchange systems for FM transmitters, in response to the needs of both private radios and international broadcasting companies. Through the ECOS systems, there is a possibility to ensure more transmissions simultaneously and the continuous operation in a single location, with uniform configuration and reduced weight/dimensions. It provides the optimal solution for remote, unattended locations, in critical environmental and climatic conditions: the right choice for those that cannot or will not provide immediate maintenance. If you have an Elenos system, you do not need a N + 1 custom system!

The purpose of the ECOS line systems is to enable the operation of a certain number of transmitters - up to a maximum number of 6-with a further transmitter, available as a substitute. ECHOS6 is the control unit of the system. It does the analysis of the status of different transmitters, of the related antenna relays and of the arrays of audio exchange/MPX. This device is activated when one of the transmitters is in fault and manages the process of switching the RF signal, the audio signal and the MPX signal, in order to activate the substitutive transmitter to replace the one out of service. ECHOS6 provides MPX auxiliary channels, sufficient when the system transmitters are powered exclusively by MPX signal. If even one transmitter of the system requires audio signal (Left and Right) or RDS, the device is completed with AUDIO/MPX MATRIX. The AUDIO MATRIX module is entrusted with the

switching of the audio signal, which takes place by means of an array of electromechanical relays. It is also available in the MPX MATRIX version, which varies based on the different types of connectors (BNC instead of XLR). There is also an antenna relay system that interfaces through standard connectors to the ECHOS6 unit. The N + 1 systems can be installed without opening the rack, as they are supplied fully wired inside, with the I/O connectors positioned on the outer panel. They are equipped with fans in order to bring together the exhaust air out of the rack. The system is "closed" as far as the interference and location issues are concerned, with ad hoc expedients for the best functionality and reliability during the operation. Thanks to the remote control, it is possible to receive data and to send orders to the transmitters and to the exchange unit throughout all the modern communication channels: SMS, GPRS, WEB, SNMP.

Features:

Great flexibility

- | Configurable from N = 1 to N = 6.
- | Ability to assign different priority levels for the use of the substitutive transmitter.
- | Operations to be executed in local or remote, either in automatic or manual mode.
- | User programmed timer for triggering events.
- | Possibility to schedule the switching times.
- | Ability to use (after verification) transmitters of brands different from Elenos.

Easy installation and operation

- | The system is delivered ready to be programmed and operated.
- | The installation does not require a special setup of the location.

Easy to use

- | Front panel with synoptic LEDs and OLED display, for an immediate and intuitive control of the system status.

- | Immediate control of the most important operating parameters with direct access throughout buttons.
- | "Reset" button for a quick recovery of the original system configuration.
- | Maximum switching speed (less than 2 seconds to perform the switching).

Advanced connectivity

- | Remote control through standard parallel interface (TLC/TLS), IEE485/RS232, TCP/IP, Web server and SNMP protocol.
- | SMS sending (external GPRS modem).

Reliability

- | Opto-isolated inputs and outputs to dry contact relays with separate and electrically isolated power supply.
- | Set configuration maintained in case of failure.
- | Intelligent switching management in the event of a power failure during the execution of exchange transactions.



Datasheet

SYSTEMS N+1 | ECHOS6

ECHOS6 | AUDIO MATRIX

GENERAL DATA

Operating band	87.5 ÷ 108 MHz
RS232/RS485	Yes
Adjustments	Through OLED display/PC
Control unit	yes
N° power supplies	2
Dimensions : rack units	2U
Dimension W-H-D	48.5 cm - 8,5 cm - 35.5 cm
Weight	5.2 kg
Mounting in standard rack 19"	yes
Operating type	h24 no stop

CONNECTORS

MPX inputs	BNC Female
MPX output (reserve)	BNC Female
Transmitters control	DB25 Male
Coaxials control	DB9 Male
Telecontrol (TC)	DB37 Female
Telesignal (TS)	DB37 Male
RS232/RS485	DB9 Female
Channel	DB25 Male
Reserve	DB25 Male

INSTALLATION REQUIREMENT

Power supply	100-240 Vac 50-60 Hz Single phase
Power consumption	125 VA Max.
Breaker curve	C
Current consumption @ 220Vac	0,6A Max.
Breaker flow @ 220Vac	2 A
Cable section @ 220Vac	AWG 18 - 0,75 mmq
Current consumption @ 110Vac	1,2 A Max.
Cable section @ 110Vac	AWG 15 - 1,5 mmq
Breaker curve @ 110Vac	4 A

ENVIRONMENT

Temperature range (operating)	-5 ÷ +45 °C, 23 ÷ 113 °F
Temperature range (non operating)	-20 ÷ +55 °C, -4 ÷ 131 °F
Humidity range (operating)	95% @ 40 °C, 104 °F
Humidity range (non operating)	90% @ 55 °C, 131 °F
Altitude range (operating)	<3000 meters / <9840 Feet
Altitude range (non operating)	<15000 meters / < 49200 Feet

TELECONTROL & TELEMETRY

Remote control	yes
Remote control at clean contact	yes
SNMP option	yes (external)

GENERAL DATA

Operating band	87.5 ÷ 108 MHz
Dimensions : rack units	2U
Dimensions W-H-D	48.5 cm - 8,5 cm - 35.5 cm
Weight	3.7 kg
Mounting in standard rack 19"	yes
Operating type	h24 no stop

CONNECTORS

Audio inputs	XLR balanced Female or BNC Female
Audio outputs	XLR balanced Male or BNC Female
Input channels	DB25 Female
Output channels	DB25 Male

INSTALLATION REQUIREMENTS

Power supply	12 Vdc 0,25 A through DB25 connectors (TC/TS)
Power consumption	3 W
Cable section @ 12Vdc	AWG23 - 0,25 mmq

PERFORMANCES

Command presence	every 100 ms
Command time	300 ms
Command type + error recovery	800 ms
Update TS line	500 ms after command or recovery error
Insertion lost @ 50Hz to 100kHz	max 0.02 dB
Harmonic distortion @ 50Hz to 15kHz	max 0.01%
Harmonic distortion @ 100kHz	max 0.03%
Insulation between channels and bus connection to reserve @ 1000hm, 15kHz to 100kHz	103dB
Insulation between channels and bus connection to reserve @ 6000hm, 15kHz to 100kHz	95 dB
Insulation between no near channels @ 1000hm to 6000hm, 15kHz to 100kHz	103 dB
Insulation between near channels @ 1000hm to 6000hm, 100kHz	98 dB
Insulation L/R	> 103 dB

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