



The Redundant systems are designed to comply with strict requests for a reliable and continuous transmission. Any of our redundant systems is managed by a change over unit that can be friendly set at any time to match the specific characteristics of any transmission system. The change over unit is suitable for different matching and it can be adapted to all our range of products.

## TV SYSTEM

CTE Digital Broadcast systems can be set in cabinets of 19" and 600mm deep, the cooling system is frontal air taking, the equipments stand on guide to permit the autonomous extractability.

### Repeater system

The repeater system is managed by the change over unit ACU 1+1 R that allows the effectively management of the transition from analogue TV to digital DVB-T, standard (thanks to the ability to detect the type of input signal in transit to the repeater and to the configuration versatility of the switching logic).

We can have two type of configurations: pre switch-off and post switch-off .

#### Pre switch-off :

In the system one transposer works with DVB-T/H signal, the other works with analogue signal. The system is able to detect the mode of signal received from the input antenna and consequently it sets the corresponding transposer. The system can be configured with every type of channel in/out combination and it's possible to receive and transmit either to different or to the same channel. During operation, only one transposer will have the useful TV signal, so it will force the change over unit to commutate its output to the antenna. In pre switch-off configuration the change-over unit [ACU 1+1 R] works only with the transmission four ports relay while the input three ports relay (normally used in the 1+1 configuration) is replaced by a 3 dB hybrid splitter, in this way it is possible to set available simultaneously the input signal to both transposers.

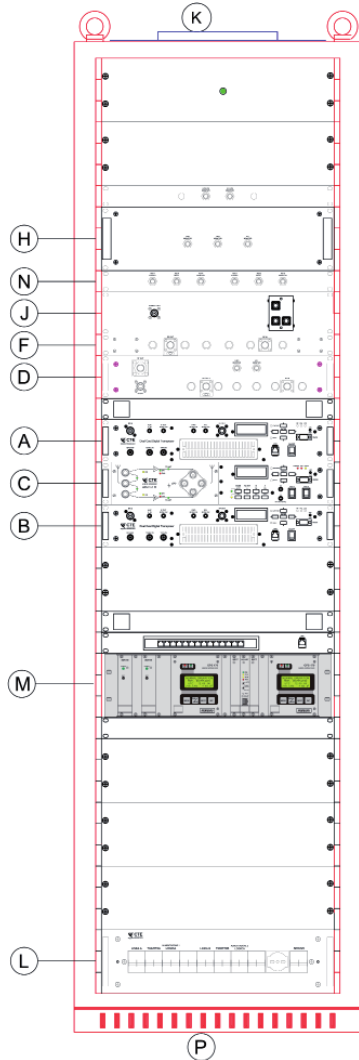
#### Post switch-off :

The system is configured in 1+1 redundant mode , both transposers work in DVB-T/H mode and one is the reserve for the other. In this mode the redundancy management of transposer is automatic. In this configuration the change-over ACU 1+1 R is configured to work both with transmission four ports coaxial relay and with input three ports relay.





## Example of Dual Cast 1+1 Repeater System



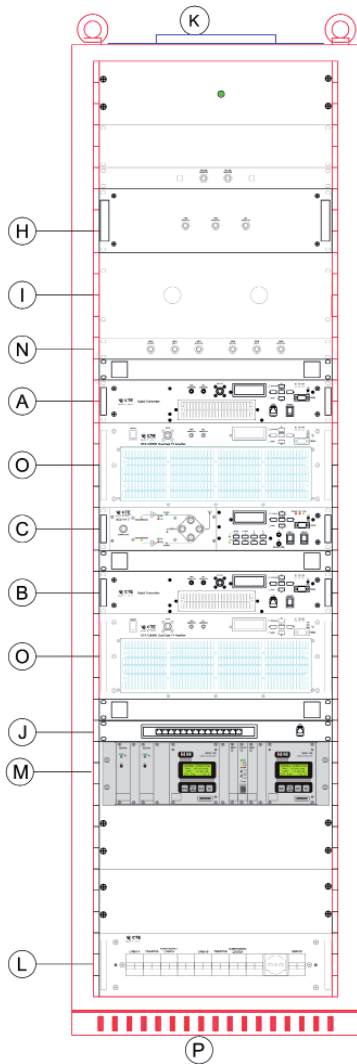
A-B	E25/100- DRU RTX dual-cast 25Wrms/100Wps UHF regenerati ve
C	ACU 1+1 R exchange logic 1+1 repeater
D	Out fi lter CL6X30B with directi onal coupler TV2/MUXA
F	In fi lter CL6X30B TV2/MUXA
K	Cabinet fan EMB with scoop for TLS and led power
L	Energy panel 230 Vac (lines A-B), wiring to equipment and fan
M	GPS 1+1 mod. GPS170-HQ 1+1 16 OUT
N	Monitory panel ASI
P	Rack 19"-44U deep max 700mm



## Transmitter system

The system is composed by two transmitters in 1+1 configuration and one change over unit and works in DVB-T/H mode. The output power can be reduced depending on the network need both locally from LCD or by remote system (web or SNMP). The transmitters are agile in frequency (no manual tuning is needed except external antenna filters). The transmitter can work in MFN or SFN, in hierarchical and non hierarchical mode. The logic (change over unit ACU 1+1) permits the commutation of the main transmitter from the antenna to the dummy load and vice versa, both in automatic and manual mode. The logic detects the transmitter state by means of the telesignals (parallel port) and controls the RF on/off state of transmitters.

### Example digital Transmitter 1+1



A-B	E5/10- DRU TX 5Wrms/10Wps UHF
C	ACU 1+1 T exchange logic 1+1 transmitter with unbalanced 75W load
H	output filter
O	DTA 125U 125Wrms UHF Amplifier
I	Relay panel 7/16
J	Switch ethernet
K	Kit fan EMB with scoop for TLS and led power
L	Energy panel 230 Vac (lines A-B), wiring to equipment and fan
M	GPS 1+1 mod. GPS170-HQ 1+1 16 OUT
N	Monitory panel ASI
P	Rack 19"-44U deep max 700mm



## FM SYSTEM

The ACS N+1 is a control unit dedicated to transmission equipment and transponder FM / TV. Its main purpose is to automatically replace the faulty equipment with another equipment with the same features and settings. This changeover is implemented through the coaxial relays. In systems where the receiver is not provided, the receivers coaxial relays are replaced with an Audio Matrix to exchange the baseband. the coaxial relay dedicated to the receivers is not terminated with a standard 50 Ohm load, but with an attenuator connected to the TX1 RF probe that can be used for a testing purposes. This connection does not affect in any way the normal state of the system because it operates only when the reserve system is on standby.

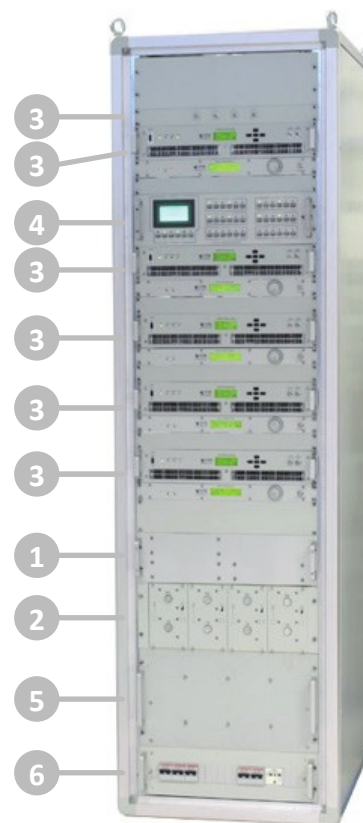
The advantage of this solution are

1. TX reserve can be test on power even when connected to the dummy load, even remotely.
2. test the RX reserve with a confirmation of the TS field even remotely
3. In case of switchover , the faulty receiver on the load can be tested in after setting the correct frequency. Reset the frequency after the test. The connection is not mandatory and can be removed at any time.

### Example System N+1 TRANSPOSER 4+1

The system's picture used as an example consists of:

1. Input Filter and Splitter: The first block of the system consists of a compact Splitter Star-point that use a triple cavity filters. This block are responsible for filtering and splitting the RF Field signal coming from one or more antennas.
2. Coaxial Relays used for both TX and RX up to 300W are the 4-port relay.
3. Transposer composed by separate Transmitter and Receiver. All transmitters and receivers used in the system are identical and can be exchanged between them. This is made possible by the Frequency Control function available on the TX and RX. Nine Frequency / Power can be memorized on the TX and restored through a contact closure. Nine Frequency can be memorized on the RX and restored through a contact closure. On both TX and RX when no PIN is closed is automatically set the profile "zero". The Frequency Control function is available when the transmitter is set in Remote mode.
4. Logic ACS N+ 1 :The ACS N+1 is the control unit that supervise the logic states through the TX /RX parallel port and impose all the necessary commands needed for the switchover.
5. Output Combiners : The Output Combiner filters may vary according system configuration. Filters are composed of double, triple or even quadruple cavity when the channel spacing is 500kHz.
6. AC Mains Line Distribution: The AC Mains Line Distribution is contained in a standard 19" 3U and closed with cover protection. In the standard configurations, is usually installed at the base of the cabinet and can be composed until the configuration on 6+1. Different models are provided for systems 30W, 300W and 1000W.
7. Monitors & RF DIR REF: The RF monitor is usually installed at the top of the rack with test point for the directional coupler of the Antenna and Dummy Load .





The Transposer used in this systems consists of a separate transmitter, which varies according the power class, and a separate FM receiver that remains the same for any system. This approach has the advantage of being able to migrate from Transposer system to Transmitter system simply removing the Receiver. The connection between the two devices is mainly of two types, the audio connection and the parallel interface connection. When the units are inside the rack this connection is made through the card interface. FM receiver is a agile compact receiver for FM broadcasting band (from 87,5 to 108 MHz) mounted in a 19" standard rack 1U. The FM system in the Application TRANSPOSER N+1 is connected by an Interface board which acts as an hub for all the signals coming from the parallel port of the equipment. Thus links together the ACS N+1, equipment and coaxial relays. It also makes available the TS and TC for the user. All cables used on the rack are PIN to PIN.

## GENERAL DESCRIPTION ACS N+1

This NEW Change-Over unit is designed for management of systems in configurations up to 6+1. By means of a parallel interface, the Change-Over unit constantly monitors different receiving/transmitting parameters of the system, along with the position feedback of the coaxial switches. The definition of the program to be used for the reserve equipment, is implicitly set by the position of the base-band relay switches, and/or by the received RF figure. To provide both local and remote users with accurate information about the operational figures of the monitored units, an Ethernet connection is available at the radio reception end in the system. The local interface is based on graphical touch-screen display, where a clear synoptic view of the monitored system is available. To deploy the remote control function, RS232, parallel interface, SNMP and WEB server are available.



SPECIFICATION	
Power Consumption	Approx less then 50VA
Dimension (WxHxD) mm	485x88x500
Weight	Approx 9.5kg
Nr. of power supply	2
Number of fans	0
Remote control	RS485/Parallel/SNMP/HTTP
Standard compliance	EMC: EN 300-489-1 EN 301-489-14 SAFETY: EN 60950 EN 60215
Operating range	-5/+45°C
Storage range	-10/80°C
Maximum relative humidity	90% non condensing
Max operating altitude	2500m a.s.l.