
Section 2 - Installation

Contents:

- 2.1 Operating environment**
- 2.2 Preliminary operations**
- 2.3 Remote socket connections**
- 2.4 RS232 Socket connections**
- 2.5 Menu description**
- 2.6 Protection thresholds, alarms and settings**
- 2.7 Channel change procedure**
- 2.8 Preventive maintenance**
 - Front panel**
 - Rear panel**

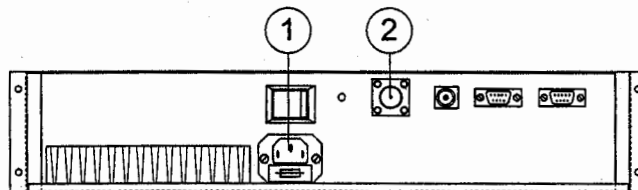
2.1 OPERATING ENVIRONMENT

The transmitter can be installed in a standard component rack or on a suitable surface such as a bench or desk. In any case, the area should be as clean and well-ventilated as possible. Always allow for at least 2 inches of clearance under the unit for ventilation. If you set the device on a flat surface, install spacers on the bottom cover plate. If you install the unit in a rack, provide adequate clearance above and below. Do not position the unit above a hot piece of equipment.

2.2 PRELIMINARY OPERATIONS

Correct installation of the equipment is important for maximum performance and reliability. Antenna and ground connections must be installed with the greatest care. There is no need of adjustment of the transmitter because the unit comes already set by our technicians.

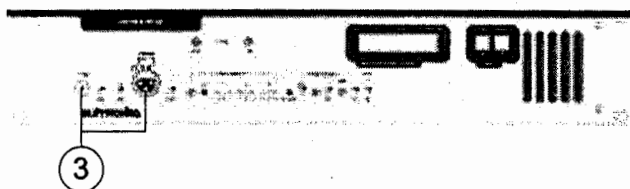
1. connect the power AC cable of the transmitter to the main AC plug. If the transmitter has to be connected to an amplifier, the power cable of the transmitter must be connected to the auxiliary socket of the amplifier and the power cable of the amplifier to the AC plug;
2. connect the antenna cable on the rear panel.



WARNING!!!

FOR ELECTRICAL SAFETY REASONS AND IN ORDER TO KEEP THE UNIT SAFE, THE GROUND TERMINAL OF THE TRANSMITTER MUST BE CONNECTED TO A GOOD GROUNDING SYSTEM AND NOT ONLY USING THE SHIELD OF THE OUTPUT COAXIAL CABLE.

3. Connect audio/video cables to the input connectors on the front panel.



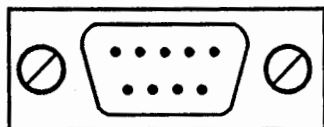
WARNING!!!

FOR ELECTRICAL SAFETY REASONS AND IN ORDER TO KEEP THE UNIT SAFE, THE GROUND TERMINAL OF THE TRANSMITTER MUST BE CONNECTED TO THE EXISTING GROUNDING SYSTEM AND NOT BY USING THE SHIELD OF THE OUTPUT COAXIAL CABLE.

2.3 REMOTE SOCKET CONNECTIONS

PIN N°	SIGNAL TYPE	IN / OUT	FUNCTION
--------	-------------	----------	----------

1	GND	-	-
2	GND	-	-
3	GND	-	-
4	GND	-	-
5	GND	-	-
6	Analog	Output	Reflected Power
7	Analog	Output	Forward Power
8	Digital	Output	GND= Alarm Floating= OK
9	Digital	Input	GND= OFF 5V or Floating= ON



DB9 Socket

2.4 RS232 SOCKET CONNECTIONS

PIN	1	2	3	4	5	6	7	8	9
FUNCTIONS	-	Tx	Rx	-	GND	-	-	-	-

2.5 MENU DESCRIPTION

TV Transmit. 5W Software V 2.0	Type of device and installed software version indication
Standard G - H	Transmission standard indication
Sync Meter ██████████	Synchronism level indication
Audio Meter ██████████	Audio level indication
FWD Power 5W ██████████	Output forward power indication
REF Power 0W ██████████	Output reflected power indication
Temperat. 35.0°C ██████████	Amplifier heat-sink temperature indication
PLL conv. Lock ██████████	Local oscillator status indication

Current Amp

6.4A

Amplifier absorbed current indication



Voltage Amp

27.5V

Amplifier power supply voltage indication



PLL video

Lock

IF oscillators status indication

PLL audio

Lock

Offset

0

OFFSET indication

Channel

66Ch

Transmission channel indication

Remote Control

Power ON

Remote Control status indication

Fwd Alarm Level

18W

Forward Alarm level indication

2.6 PROTECTION THRESHOLDS, ALARMS AND SETTINGS

In case of breakdown or unlock of one of the PLLs, the power of the transmitter is automatically decreased to zero and the "ALARM" indication is shown on the display, which then automatically enters the menu of the faulty parameter. When the alarm disappears, the transmitter is turned on again. After five ON/OFF cycles, the transmitter is blocked with a "FAULT" indication on the parameter which caused the stop.

Only the STANDARD, transmission CHANNEL, OFFSET and REMOTE ENABLED parameters can be set.

In order to set them, perform the following steps:

- remove the jumper called JP1 from the board;
- press many times the left key to choose the parameter to be set;
- once the parameter has been selected, press the right key to confirm. The set parameter starts blinking;
- choose the new value to be set by pressing the left key;
- once the value has been chosen, press the right key to confirm;
- place again the previously removed jumper JP1.

Note: after the STANDARD parameter has been modified, you will be asked to modify the transmission CHANNEL parameter as well.

WARNING!!!

**THE SETTING OF THE STANDARD AND TRANSMISSION CHANNEL PARAMETERS
MUST BE PERFORMED BY SKILLED PERSONNEL ONLY,
SINCE THEY REQUIRE A RECALIBRATION OF THE FILTERS.**

2.7 CHANNEL CHANGE PROCEDURE

1. Remove JP1 from the boards SCH0123AR1 (Setting mode)
2. Select the "Standard" menu by scrolling the display with the left key and confirm with the right key (not needed to change the channel only). Select the desired standard with the left key and confirm with the right key.
3. In the "Channel" menu, select the desired channel by scrolling with the left key and confirming with the right

key.

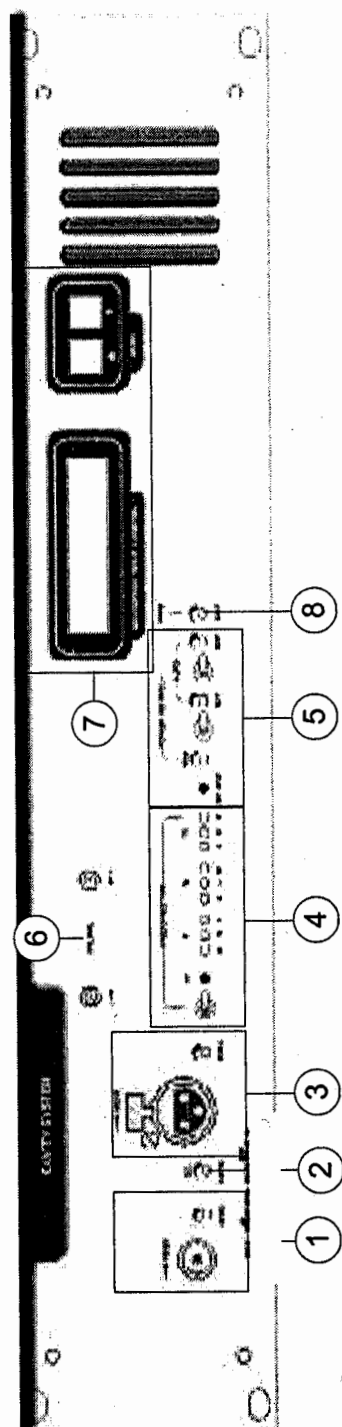
4. Reposition JP1 on SCH0123AR1 (Display mode).
5. Scroll the "PLL CONV" menu to display the lock voltage of the PLL.
6. Adjust C20 (fine) and C31 (coarse) on SCH0136AR0 to lock the PLL ("lock" indication on the display and lock voltage in the middle).
7. Re-tune the channel filter MTG0050AR0 as per the calibration procedure.

2.8 PREVENTIVE MAINTENANCE

To ensure maximum performance and minimum repair trouble, we strongly recommend that you follow the following guidelines for preventive maintenance:

1. check the antenna installation and ground connection at regular intervals;
2. keep your transmitter clean and dry externally: this will ensure continuous functioning of the front panel controls;
3. if the unit has not been used for a long period of time combined with exposure to extreme environmental conditions, open the unit and make a visual inspection.
Remove salt, water or ice with a moist cloth before turning the unit on. Check that the cooling fans are running freely.
4. for general maintenance and top performance, call an authorized service technician to check the complete antenna/earth connection installation a general check each 12-18 months;
5. check at regular intervals that the air intake located on the front panel is free of dust. If there is visible dust, remove it with a soft brush.

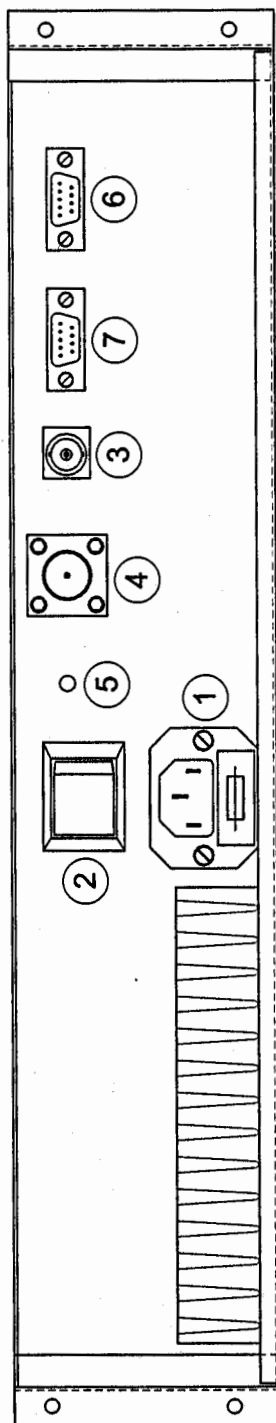
Front panel



DESCRIPTION

1	Video section 75Ω BNC Video input 1Vpp ±6dB adjustable
2	Sound carrier level adjustment
3	Audio Input 10k/600Ω Bal/Unbal Audio input 1Vpp adjustable
4	Three-cell linearity pre-corrector
5	Automatic / Manual level control -3dB Output power with no sync
6	IF (-15dBm) Link
7	Microprocessor control readings <ul style="list-style-type: none"> - FWD Power level with alarm - REF Power level with alarm - Audio meter - Sync meter - IF Carrier lock status with alarm - L.O. Carrier lock status and Lock voltage indication with alarm - Heatsink temperature with alarm - RF Power amplifier operating point - Output power, standard, channel, offset
8	Frequency Adj.

Rear panel



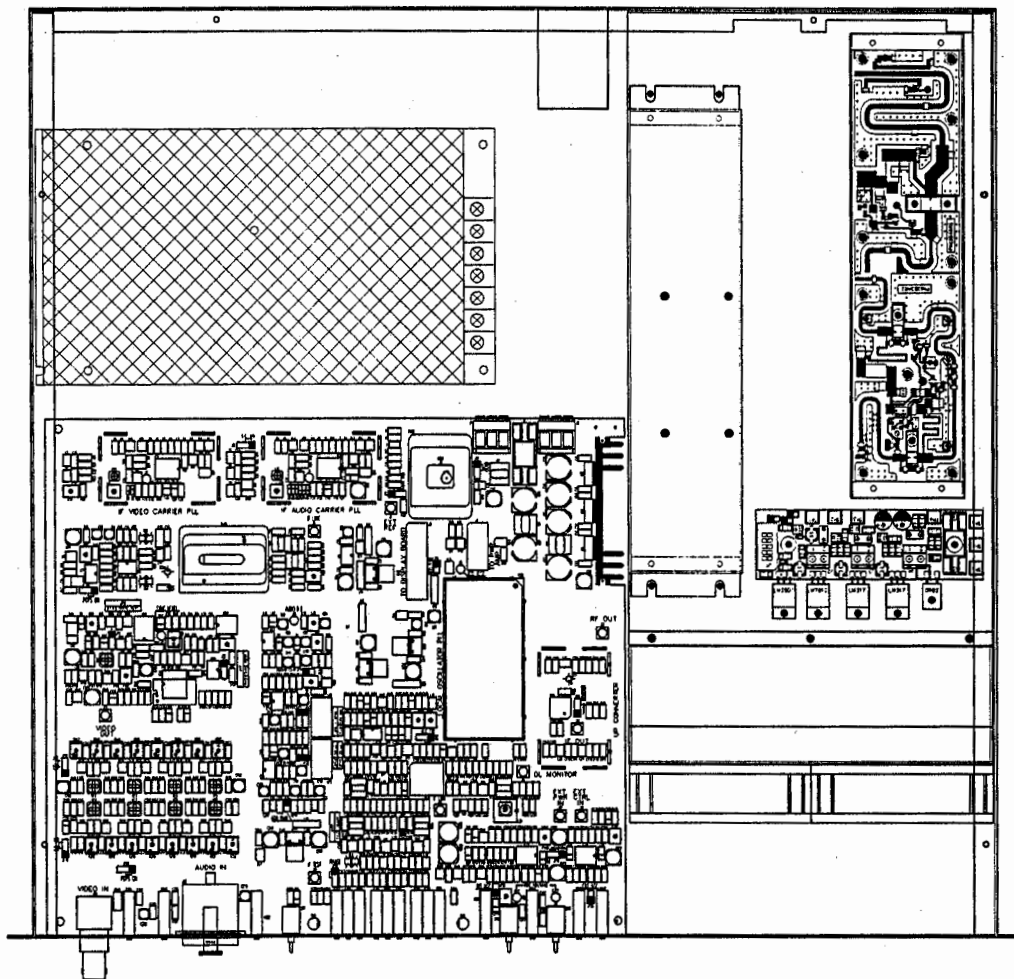
DESCRIPTION

1	Power supply socket with Fuse
2	Main switch
3	RF Input connector
4	RF Output connector
5	GND
6	Telemeasuring socket
7	RS232 Socket

Section 3 - Diagram

Contents:

- *Component Layout*
- *Amplifier module - Component list*
- *(Mother board)*
- *(Control board and display)*
- *(IVIVBd VCO Integrated)*
- *(40dB UHF Filter)*
- *(Interface board)*
- *(5W Amplifier module)*
- *(2W Amplifier module)*
- *(SP-150-24 Switching power supply)*



DESCRIPTION	DESIGNER	Sign.	DATE
	MASTORILLI		16/11/2004
TITLE	PCB DESIGNER	Sign.	REF
	MASTORILLI		APT1305A_CAV_5U.dwg
Piano di Montaggio TRASMETTITORE TV UHF CAV/5U	QUALITY CONTROL	Sign.	SHEET
	RUSSO		1/1

Component list**Amplifier module**

Description	Qty
5W UHF AMPLIFIER MODULE	1
2W UHF AMPLIFIER MODULE	1
SMB SOCKET ON REAR PANEL R114553000	1
C.PAS TF418.452E102XG300M00-VDC	4
SCA0089R1 BOX FOR 5W UHF DRIVER	1
SCA0091R0 COVER FOR BOX 50x200	1
SMA SOCKET WITHOUT BATTERY J01151A0531	1
DET1023R0 HEATSYNK FOR CAV 5W UHF	1
INTERFACE BOARD	1

CALIBRATION POINTS

- Adjustments points description

COMPONENT	DESCRIPTION
C23	Video carrier oscillator tuning capacitor
C26	Audio carrier oscillator tuning capacitor
DL1	Locked video IF PLL indication LED
DL2	Locked audio IF PLL indication LED
DL4	Board power indication LED
DL3	Modulation section power indication LED
DL5	Locked local oscillator PLL indication LED
DL6	Conversion section power indication LED
DL7	Baseband section power supply indication LED
DL8	Enabled linearity pre-corrector LED
DL9	3dB Power decrease indication LED
F1	Board power supply fuse
J22	75 Ω BNC video input connector
J3	Testpoint for measure of video carrier PLL lock voltage
J4	Testpoint for measure of audio carrier PLL lock voltage
J6	SMB 50 Ω IF connection output connector
J5	SMB PLL External reference input connector
J8	Display board-20 pin connector
J10	Testpoint for processed audio output before modulation
J9	Testpoint for channel synthesis VCO test
J11	Testpoint for regenerated synchronism level measurement
J7	RF Stage 10 pin connector
J13	SMB 75 Ω Processed video output signal monitor connector

J14	SMB IF output signal monitor connector before the mixer
J12	SMB 50Ω RF output signal connector
J15	SMB 50Ω Local oscillator output monitor connector
J16	SMB 50Ω IF input connector
JP17	Expansion / Compression function selection cell n. 1
J20-21	AGC Voltage measurement testpoint
J23	XLR 600Ω Balanced audio input connector
JP1	Jumper for audio carrier activation
JP3	Jumper for frequency reference selection
JP4-JP20	Jumpers for video processor exclusion
JP6	Jumper for white limitation exclusion
JP7	Jumper for synchronism regeneration insertion
JP8	Jumper for audio limitation insertion
JP9-JP10	Jumpers for 15kHz low-pass filter exclusion
JP13-JP18	Jumpers for group delay pre-correction stage exclusion
JP14-JP15	Jumpers for audio emphasis time-constant definition
JP19	Jumper for Forward power reading source selection
JP11	Jumper for IF signal monitoring before the mixer
JP16	Jumper for audio input impedance selection
L7	Video carrier oscillator tuning coil
L9	Audio carrier oscillator tuning coil
MF1	White limitation circuit chrome-trap tuning coil
MF2...MF9	Video group delay pre-correction cells tuning coil
OSC1	Internal reference frequency fine adjust
R29	Video sub-carrier level regulation trimmer
R42	Video amplitude modulation depth regulation trimmer
R66	IF Output level regulation trimmer

R70	Synchronism limitation circuit intervention setting trimmer
R79	Audio deviation regulation trimmer
R84	Regenerated synchronism level regulation trimmer
R86	Video synchronism level indication regulation trimmer
R87	Audio deviation level indication regulation trimmer
R109	White limitation circuit intervention setting trimmer
R116	Audio deviation limitation circuit symmetry trimmer
R142-143	Automatic / Manual input AGC level
R263	Reflected power indication regulation trimmer
R259	Forward power indication regulation trimmer
R152	Video pre-corrector cell 8 passing band regulation trimmer
R153	Video pre-corrector cell 8 group delay regulation trimmer
R155	Video pre-corrector cell 7 passing band regulation trimmer
R156	Video pre-corrector cell 7 group delay regulation trimmer
R158	Video pre-corrector cell 6 passing band regulation trimmer
R159	Video pre-corrector cell 6 group delay regulation trimmer
R161	Video pre-corrector cell 5 passing band regulation trimmer
R162	Video pre-corrector cell 5 group delay regulation trimmer
R242	Video pre-corrector cell 1 passing band regulation trimmer
R243	Video pre-corrector cell 1 group delay regulation trimmer
R245	Video pre-corrector cell 2 passing band regulation trimmer
R246	Video pre-corrector cell 2 group delay regulation trimmer
R248	Video pre-corrector cell 3 passing band regulation trimmer
R249	Video pre-corrector cell 3 group delay regulation trimmer
R251	Video pre-corrector cell 4 passing band regulation trimmer
R252	Video pre-corrector cell 4 group delay regulation trimmer
R298	Video input level regulation trimmer

R300	Audio sub-carrier level regulation trimmer
R302	Audio input level regulation trimmer
R303-304-305	Knee and inclination phase of the cell n. 1
R306-307-308	Knee and inclination phase of the cell n. 2
R309-310-311	Knee and inclination phase of the cell n. 3
R312	IF Gain regulation trimmer in normal mode
R314	IF Gain regulation trimmer in automatic mode
R316	IF Gain regulation trimmer in automatic mode with ext. amplifier
R317	OCXO Fine tuning Freq. adj.
SAW1	Vestigial SAW filter, depending on the standard
SW1	Linearity pre-correction insertion switch
SW2-3	IF Gain control mode selection switch
VCO1	PLL controlled local oscillator board insertion slot

TECHNICAL CHARACTERISTICS

- Analog readings

Forward power
Reflected power
Synchronism level
Audio deviation
Heat sink temperature
Channel VCO tuning
Final stage working voltage
Current absorbed by the final stage

Indication on analog instrument and numerical with alarm
Indication on analog instrument and numerical with alarm
Indication on analog instrument
Indication on analog instrument
Indication on analog instrument and numerical with alarm
Indication on analog instrument with alarm
Indication on analog instrument and numerical
Indication on analog instrument and numerical

- Digital controls

IF PLL Lock status
Alarm status
ON - OFF

Indication on audio and video sub-carriers and channel carrier
Alarm indication on one of the readings
Remote control of powered apparatus

- Programming

IF PLL
Channel PLL

Programming of the oscillators PLL depending on the standard
Programming of the oscillator PLL depending on the channel

Component layout

