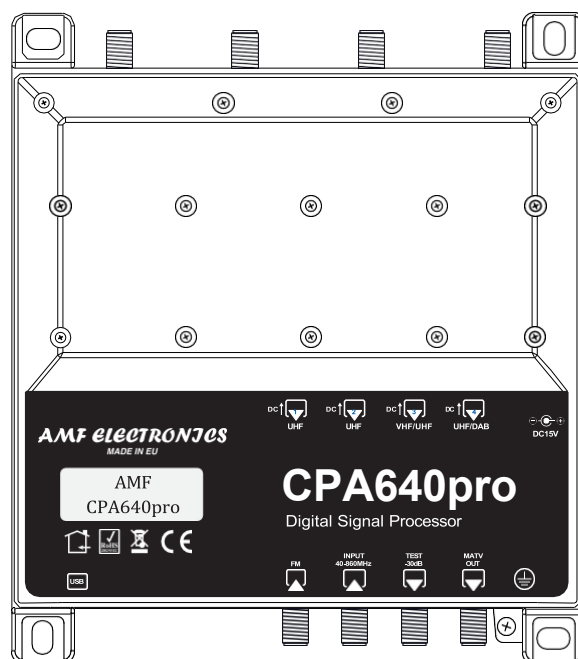


Digital Signal Processor

TV Terrestrial programmable amplifier

- ▶ Total output level max 126dBμV
- ▶ 50dB digital filters on adjacent channels
- ▶ Single filter selectable mode Standard/Narrow/Wide
- ▶ Channel to channel conversion
- ▶ Manual filter level adjustment (1)
- ▶ Filter frequency OFF-SET adjustment (1)
- ▶ UHF inputs Lte 700 filter with SAW technology
- ▶ Dual-stage input amplifiers
- ▶ AUX input (40... 860MHz)
- ▶ DAB filter 174... 230MHz
- ▶ Automatic Channel search from all inputs
- ▶ Manual programming from display and APP

(1) Function only accessible with smartphone programming.



TECHNICAL SPECIFICATIONS		
NUMBER OF INPUTS	6	1 FM; 2 UHF; 1 VHF/UHF; 1 DAB/UHF ; 1 AUX
INPUTS FREQUENCY RANGE	MHz	FM (40... 108) AUX (40... 862) BIII/DAB 170... 240 / UHF 470... 694/862
SINGLE CHANNEL FILTERS		32
NUMBER OF CHANNEL PER FILTERS		1
INPUT LEVEL RANGES	dBμV	FM 35... 90 - BIII/DAB 40... 110 - UHF 40... 110
FILTERS SELECTIVITY	dB	>50 (Adjacent channels)
AUTOMATIC CONTROL GAIN RANGE	dB	40 dB
VHF/UHF INPUTS AMPLIFIER GAIN		0 / +15 / +30
FM GAIN	dB	45 (Adjustable 0... -30dB)
AUX GAIN	dB	40 (Adjustable 0... -20dB)
VHF GAIN	dB	60
UHF GAIN	dB	75
SELECTABLE FILTERS BANDWIDTH		AUTO - NARROW/STANDARD/WIDE
OUTPUT LEVEL RANGE	dBμV	99... 119
FILTER LEVEL ADJUSTER	dB	-5... +5 (1dB step)
FILTER OFFSET ADJUSTER	KHz	-500... +500 (125KHz steps)
UHF ADJUSTABLE SLOPE	dB	0... -5
VHF ADJUSTABLE OUTPUT	dB	0... 10 (1 dB step)
MAX TOTAL VHF-UHF OUTPUT LEVEL	dBμV	126 DIN 45004B
INPUTS REMOTE POWER		12V / 24V 100 mA
RETURN LOSS IN/OUT	dB	>12
TEST OUTPUT		1 (-30 dB)
AMPLIFIER POWERING		100...240VAC 50/60Hz (External power adapter 15VDC / 1,25A)
MAX AMPLIFIER CONSUMPTION	W	10,50
MAX AMPLIFIER CONSUMPTION + REMOTE POWER	W	12,50
OPERATING TEMPERATURE	°C	-5... 50
DIMENSIONS	mm	192 x 217 x 37

Pictograms / symbols description



The programmable amplifier complies with the RED 2014/53/EU directive.



The **AUTO-TUNING** scanning function serves to speed up the programming procedure by automatically storing DVB-T/T2 Channel's.



The UHF inputs are protected by SAW technology filters against 5G and 4G Lte interference.



Heed the warning and safety instructions.



Hints and tips on the use of the product.

Description of symbols and electrical safety



Product complies with CE marking requirements



Installation is only permitted in dry rooms and on a non-flammable surface. Ensure that there is adequate air circulation.



Symbol indicating earth terminal



Symbol indicating that the supplied mains power adapter complies with the safety requirements for class II devices.



To avoid risk of fire or electrocution, do not open the mains power supply provided.



RoHS 2011/65EU compliant product.



Pursuant to Article 24 of Legislative Decree No. 49 of 14 March 2014 "Implementation of Directive 2012/19/EU on waste electrical and electronic equipment (WEEE)". The crossed-out wheelie bin symbol on the equipment or its packaging indicates that the product at the end of its useful life must be collected separately from other waste for proper treatment and recycling.

Package Contents

01 CPA 640 pro programmable amplifier

01 Power adapter YS25-1501250 (100... 240VAC 50/60Hz 0.5A - 15VDC 1.25A)

08 Dowels 6x30mm with screws 4.5x40mm

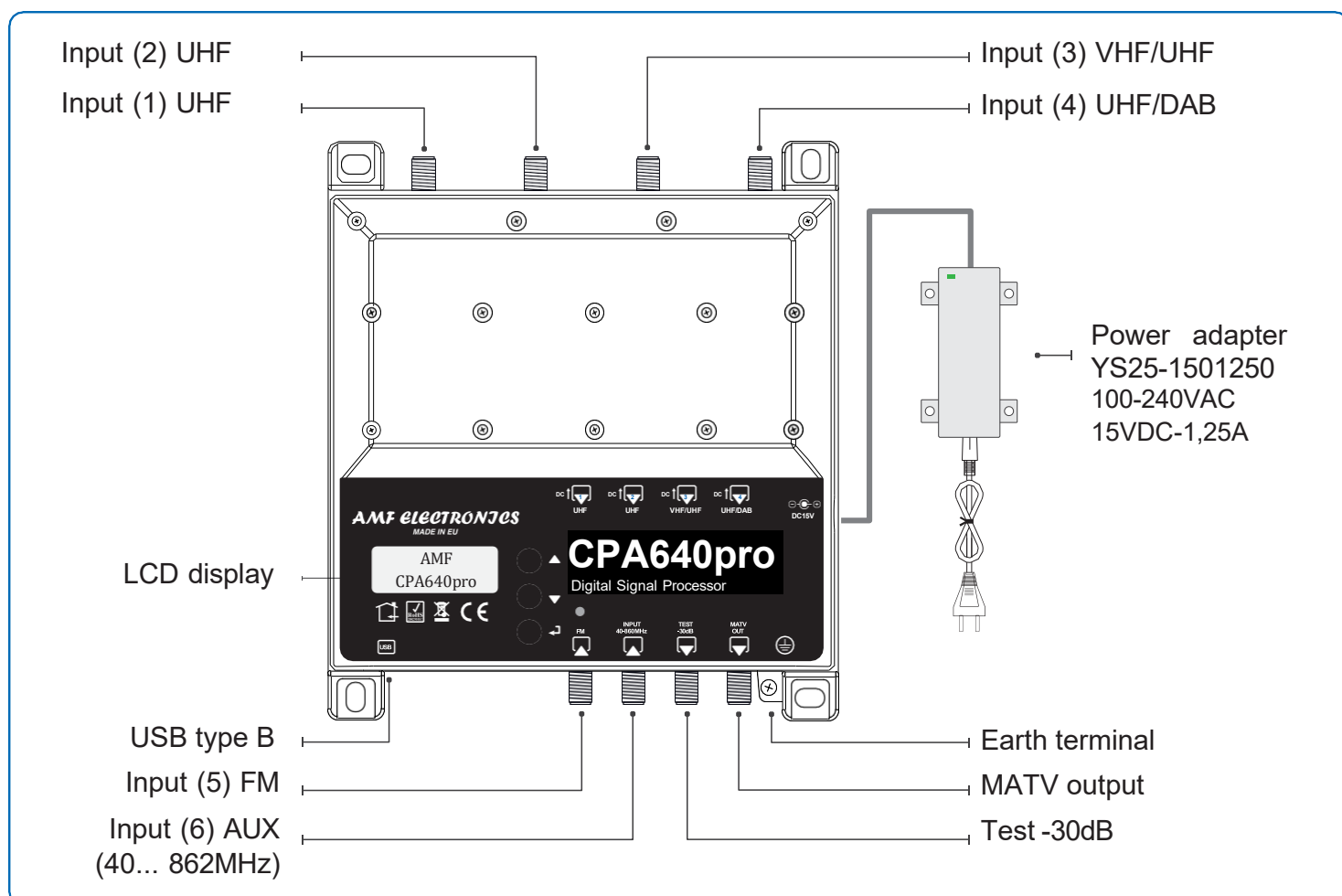
01 User Manual

Installation warnings

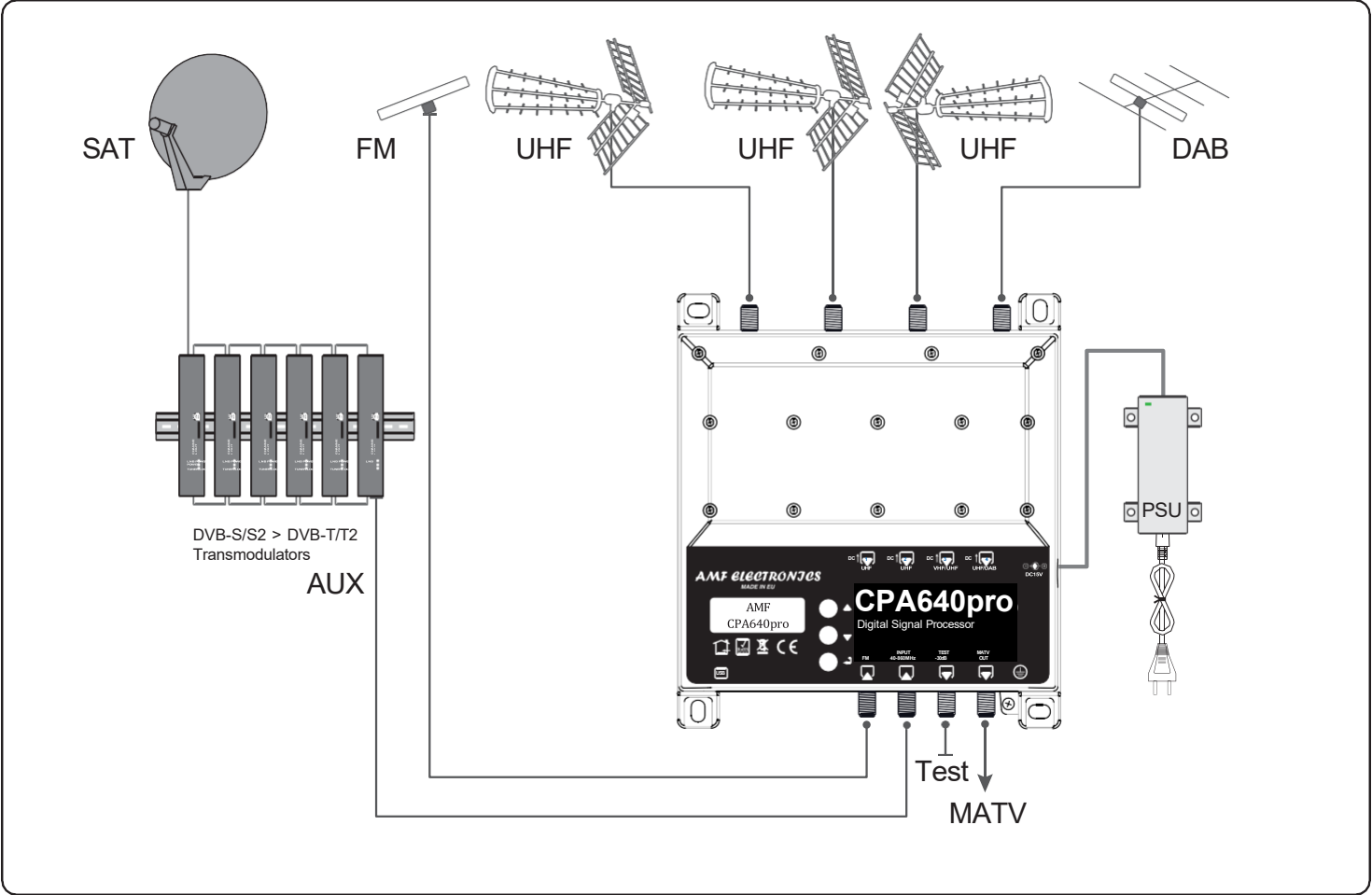
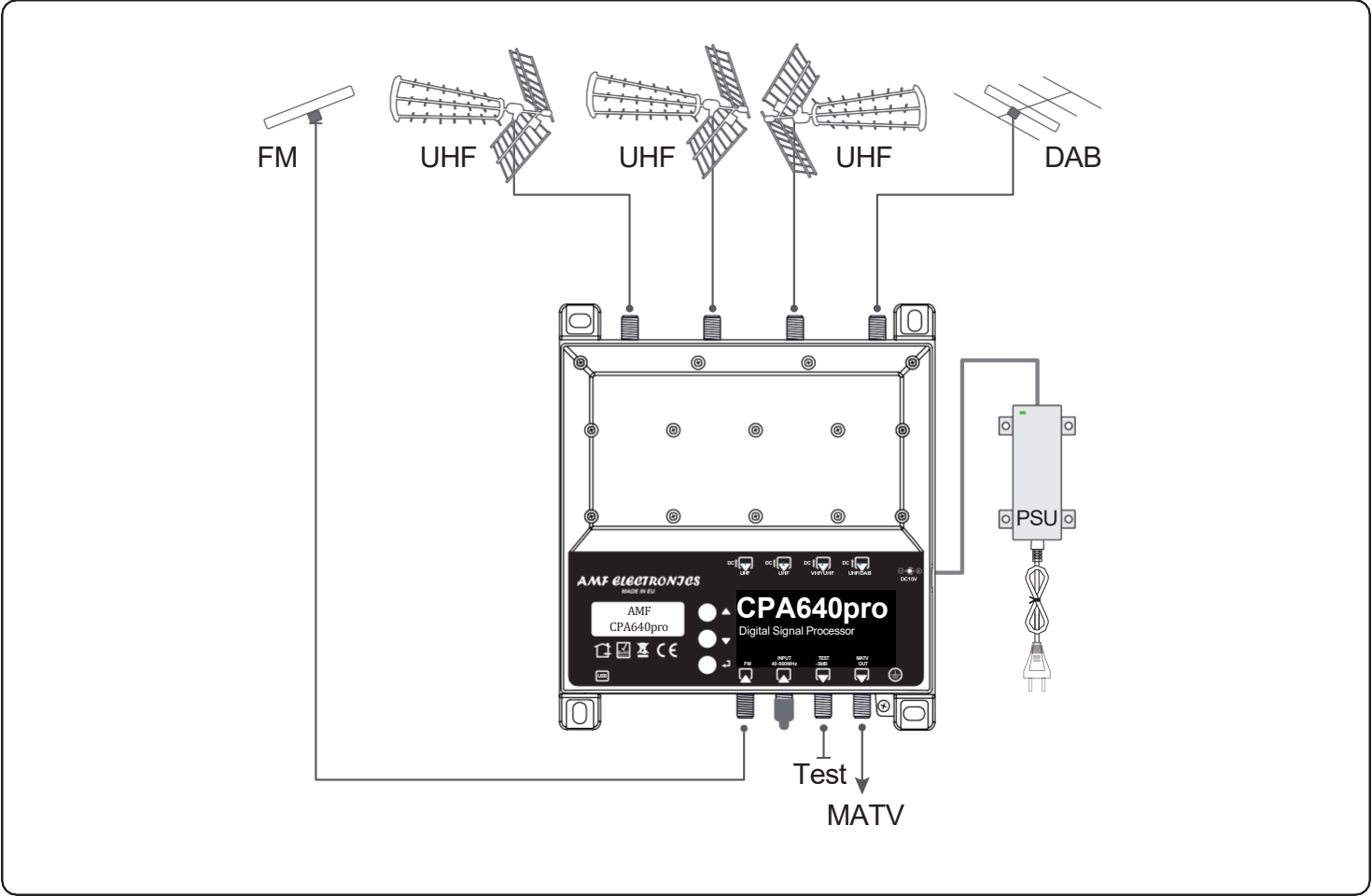
- Use only the supplied power adapter.
- To ensure adequate cooling and ventilation, the **CPA 640 pro** amplifier and power adapter must be securely fixed to a vertical wall.
- To avoid the risk of fire or electrocution, do not expose the products to rain or moisture.
- Products must not come into contact with water or be wetted by liquids.
- Do not place products near heat sources or in places with moisture.
- In the case of installation in a cabinet or recessed compartment, provide adequate ventilation and observe the minimum distances given in the drawing below.
- Prepare the mains connection in accordance with the regulations in force in the country of installation and in such a way that the power supply to the control unit can be easily disconnected.

Connections and start-up

- 1) Proceed with the connection of the coaxial input and output cables equipped with their own earth terminal block.
- 2) Close the inputs with 75Ω terminations.
- 3) Connect the power supply to the mains socket only after all other connections have been made.
- 4) Always use the test output for connecting measuring instruments.



Application examples



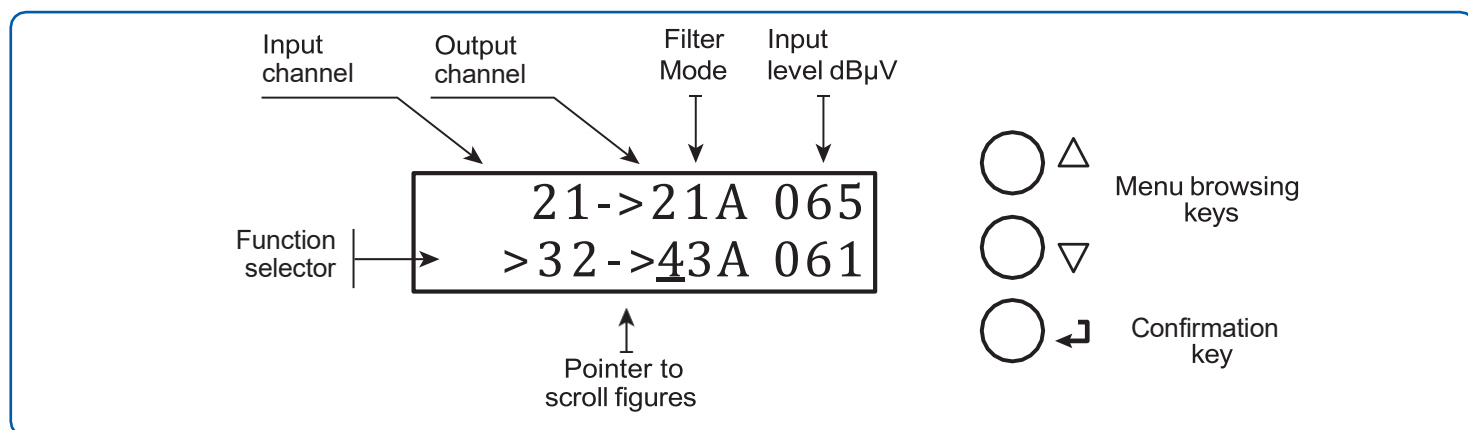
Device Programming

The **CPA 640 pro** programmable amplifier can be configured in two different ways:

- 1) using the display and navigation keys integrated into the control unit.
- 2) using the **AMF USB** application for Android smart phones, which can be downloaded free of charge from the Google Play Store.

Description of display use

- To activate the display, briefly press the  key.
- To access the menus, press and hold the  key for 3 seconds.
- To make a value in the display editable, position the function selector > using the navigation keys  . Pressing  will activate the pointer under the data, which can be modified with   keys. To confirm the change press .



Note: after 3 minutes of inactivity the display switches off but the menu remains open on the last selected function. To resume press any key



To return to the main level menu from any sub-menu, simultaneously press the  

Automatic Channel Programming

To speed up the programming process, you can use the **AUTO-TUNING** function. When this function is activated, the **CPA 640 pro** amplifier will automatically scan the inputs (1; 2; 3; 4) and store only DVB-T/T2 signals with a level equal to or higher than the **THRES** threshold (factory setting 55dB μ V).

TUNING
AUTO MA

To start the **AUTO-TUNING** procedure select **AUTO** and press $\leftarrow$. For best results, you will be asked to confirm some parameters before starting the scan.

THRESHOLD LEVEL

>THRES:055dB S
TART

The 55dB μ V factory threshold is optimal for most situations, but it is possible to change it.

Note: Lower values of 55 increase scanning sensitivity. Values higher than 55 decrease scanning sensitivity.

AUTO-TUNING START

>START
EXIT

Select **START** to start automatic channels scanning. The duration of the **AUTO-TUNING** procedure depends on the number of channels received from the connected antennas.

TUNING
WAIT

OUTPUT
>LEV:110dB μ V

Once the **AUTO-TUNING** procedure is complete, the display will show the total output level calculated according to the number of channels found in the scan. To confirm and complete the procedure press the $\leftarrow$ key. If you wish to change the value of the output level, use the ∇ Δ keys and confirm by pressing the $\leftarrow$ key.

NO MU
FOUND

If no channel/MUX is found, the display will show the message **NO MUX FOUND**. Check that the connections to the TV antennas are correct or decrease the **THRES** value and repeat the search.



If the number of channels/MUXes found after the **AUTO-TUNING** scan is lower than expected, repeat the procedure with a lower **THRES** value. If unwanted filters are activated, increase the **THRES** value. A lower **THRES** value enhances search sensitivity.

Menu description

TUNING
AUTO MA

INPUT (1) UHF

IN (1) UHF

To start manual programming, select MAN using the ▾ key and press ↵.

To set input parameters (1) press ↵.

REMOTE POWER SUPPLY

IN (1) UHF
>DC:OFF

To enable remote feed from input (1) press ↵ and use the ▾ Δ keys to select **ON / OFF** and confirm by pressing ↵ again.



The 12 or 24 voltage selection can be found in the **ADVANCED** menu.



The presence of a short circuit or overload at the inputs is signalled by the **POWER LED** flashing and the display will prompt **ERROR OVERCURRENT!**

INPUT AMPLIFIER

DC:OFF
>AMPLI:MID

Press ▾ to set function switch > to **AMPLI** and press ↵ and use the ▾ Δ keys to select the proper input amplifier mode confirm by pressing ↵ again. The recommended criteria for selecting the amplifier type are shown in the diagram below

Input amplifier mode

AMPLI: HIGH

AMPLI: MID

AMPLI: OFF

Input signals level < 55dBμV

55 ÷ 85dBμV

> 85dBμV

CHANNEL FILTER

AMPLI:MID
>ADD 1CH

Press ▾ to position function switch > to **ADD 1CH** and press ↵. To select the channel number use the ▾ Δ keys; to confirm that the output channel is the same as the input channel press ↵ twice.

>21->21A 065
ADD 1 CH

>21->21A 065
ADD 1 CH

21->21A 065
>25->25A 060

CHANNEL CONVERSION

>21->34S 065
ADD 1 CH

To convert a Channel to a different channel from the one received as input, place the pointer under the output filter and select the channel number using the ▽ △ keys, press ↵ to confirm.

LTE 5G FILTER	INPUT CH.	OUTPUT CH.
ON	E21÷E48	E21÷E69
OFF	E21÷E69	E21÷E69



Useful function for converting one or more adjacent channels that interfere with each other.

SINGLE FILTER BANDWIDTH

>21->21A 065
25->25A 060

The default settings for the filter bandwidth is **A** (Automatic). In the **ADVANCED** menu can be switched to **MAN** (Manual).

In manual mode **MAN** for each individual channel/MUX a filter with a width of your choice between **S** (Standardized) / **N** (Narrow) / **W** (Wide) can be used. To manually assign a filter bandwidth press ↵ again and use the ▽ △ keys to choose the most suitable filter.

FILTER	FILTER AMPLITUDE	USE SUGGESTION
S	8MHz	The S (Standardized) filter is the best performing filter in most cases.
N	7,5MHz	Set filter N (Narrow) for adjacent the channel
W	8,75MHz	The W (Wide) filter is suitable filter for non-adjacent channels only.

OVERLAPPING

FILTERS
23->23S*065
>23->23S*065

The overlapping of two or more filters with the same output channel is indicated by the symbol *.

DELETE FILTER

CH DELETED

Select a channel filter or conversion and press ↵ for 5 seconds to delete.

INPUT (2) UHF

IN (2) UHF

To set the input parameters (2) press ↵ and access the menu. For programming, follow the instructions described for **INPUT (1) UHF**.

INPUT (3) VHF/UHF

IN (3) V/UHF

To set input **(3)** parameters, press $\leftarrow$ to access the menu. For programming, follow the instructions described for **INPUT (1) UHF**

LTE 5G FILTER	INPUT CH.	OUTPUT CH.
ON	E5÷E13/E21÷E48	E5÷E13/E21÷E69
OFF	E5÷E13/E21÷E69	E5÷E13/E21÷E69

INPUT (4) UHF

IN (4) UHF

To set input **(4)** parameters, press $\leftarrow$ to access the menu. For programming, follow the instructions described for **INPUT (1) UHF**

INPUT (4) DAB

IN (4) DAB

To activate the input filter for the DAB band select **ON**. The **DAB** filter has its own amplifier that can be set to three levels.

:ON
>AMPLI:MID

AMPLIFIER	GAIN
OFF	-8 dB
MID	0 dB
HIGH	+15 dB

Note: Activating the DAB filter does not exclude the possibility of process UHF channels from the same input so COMBO DAB-UHF antennas can be used.

INPUT (5) FM

IN (5) FM

Input **(5)** is dedicated to the FM radio band. To adjust the input attenuation press $\leftarrow$ and use the ∇ Δ keys to set the desired level.

IN (5) FM
>ATTEN:-15dB

INPUT (6) AUX

IN (6) AUX

Input **(6)** is wideband from 40 to 860Mhz and is ideal for amplifying signals generated by A/V modulators or DVB- S/S2 > DVB-T/T2 transmodulation systems. To adjust the input attenuation press $\leftarrow$ and use the ∇ Δ keys to set the desired level.

IN (6) AUX
>ATTEN:-15dB

OUTPUT

LEVEL

OUTPUT

Press ▾ to select the OUTPUT menu and confirm with ↵ to access the amplifier output level setup.

OUTPUT

>LEV:119dBuV

To set the output level, press ↵ and use the ▾ ▴ keys to change the numerical value. To confirm, press ↵ again.

SLOPE

LEV:119dBuV

>SLOPE:05dB

To correct the slope of the output, set the pointer > to SLOPE and press ↵, use the ▾ ▴ keys to change the value and press ↵ to confirm.

VHF OUTPUT LEVEL

SLOPE:05dB

>VHF:-00dB

To change the VHF level output, select VHF and press ↵; use the ▾ ▴ keys to change the value and press ↵ to confirm.



To return to the main level menu from any submenu, press and hold the ▾ ▴

ADVANCED SETTINGS

ADVANCED

PROTECTION PASSWORD

ADVANCED
>PASSW:000

Select **PASSW**, press $\leftarrow$ and use the ∇ Δ keys to choose the numerical value of the first digit on the right and confirm with $\rightarrow$. For the next two digits, repeat the operation and press $\rightarrow$ to confirm.

Code 0 0 0 equals no password protection

Lte 5G FILTER

PASSW:000
>LTE:5G

Press $\leftarrow$ and use the ∇ Δ keys to enable or disable the Lte5G SAW filters, press $\rightarrow$ to confirm.

Lte 5G FILTER	INPUT CHANNELS
ON	E21÷E48
OFF	E21÷E69

PASSW:000
>LTE:QFF

REMOTE POWERING

LTE:5G
>DC:12V

To set the **DC** voltage press $\leftarrow$ and use the ∇ Δ keys to select **12V** or **24V** voltage confirm by pressing $\rightarrow$.

The selected remote supply voltage will be the same for all inputs.

FILTERS BANDWIDTH

DC:12V
>BW:MAN

Selecting **MAN** (manual) mode, in the **INPUT** menu each filter can be assigned as **Narrow**, **Standard** or **Wide**.

DC:12V
>BW:AUTO

Selecting **AUTO** the filters width will be assigned automatically.

THRESHOLD LEVEL

BW:AUTO
>THRES:055dB

The **THRES** value determines the sensitivity of the **AUTO- TUNING** scan and the intervention threshold of the **MONITOR** function.

FAST FUNCTION

THRES:055dB
>FAST:QN

Activation of the **FAST** function reduces the adjusting time of the **CAG** (automatic gain control). This function is useful in the presence of unstable channels with sudden changes in their level.

MONITOR FUNCTION

FAST:OFF
>MONITOR:OFF

Activation of the **MONITOR** function, a continuous cyclic check of all the programmed filters, disabling those that are not affected by the transmission of a channel. The switch-off threshold is set by the **THRES** value described in the **THRESHOLD LEVEL** function.

SERIAL NUMBER

MONITOR:OFF
>SRNBR:12345

The number series to the right of **SRNBR** represents the serial number of the product.



To return to the main level menu from any submenu, press and hold the ▽ △

RESET

RESET

If you wish to delete all settings and restore the control unit to factory state, select **YES** and confirm ↵. The display will show the message **OP EXECUTED** to confirm the successful cancellation operation.

ARE U SURE?
YES NO

OP
EXECUTED

EXIT

EXIT

To end the programming procedures select **EXIT** pressing ↵ and select with ▽ △ **YES** press ↵ to confirm. If you wish to continue programming select **NO** and confirm with ↵.

ARE U SURE?
YES NO

Android SmartPhone Programming

Requirements

The **CPA 640 pro** can also be programmed by the **AMF USB** for Android smartphones and tablets, which can be downloaded free of charge.

To check whether your device's USB port supports **OTG** (On The Go) mode, please refer to the user manuals of your smartphone/tablet, failing which you can check **OTG** compatibility with a free APP called **USB OTG Checker** that can be downloaded from the Google Play portal.

The **AMF USB** application requires at least the Android 11 operating system or higher.

A **USB-OTG** cable or adapter is required to connect and program the amplifier.

Setup

- 1 Power up the control unit and wait the end of booting until the LCD display shows **CPA 640 pro**
- 2 Connect the USB port of your Android device with the **USB** type B port integrated in the amplifier **CPA 640 pro** using a proper USB-OTG cable.
- 3 If the connection procedure was successfully completed, the **AMF USB** application will start automatically allowing all programming operations.

Microsoft Windows App Programming

Install in a PC Windows OS the latest version of the application **AMF USB** for Windows that can be downloaded for free.

The **AMF USB** application requires at least Windows 7 operating system or higher.

Setup

- 1 Power up the control unit and wait for the LCD display to show **CPA 640 pro**.
- 2 Connect the USB port type A of the Windows OS personal computer to USB type B port integrated in the **CPA 640 pro** unit using standard USB A-B cable.
- 3 Launch the **AMF USB** application, select the amplifier model and start to programming.

Label with serial and tracking data

AA1000015019-X1020L

AA	100001	5	0	1	9	-X	1	0	2	0	L
Model		Serial #			Manuf. Week	Manuf. Year	HW Rel.		FW Rel.		