

APG20_{mk2}

User Manual



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Introduction

Line & microphone audio receiver gateway

The APG20MK2 is an audio receiver gateway converting databus transmitted audio signals to standard line and microphone level signals. The audio output of the APG20 can be fed to regular inputs on audio amplifiers, pre-amplifiers, mixers or many more.

In combination with the matching input modules (WLI and WMI) it offers a solutions for two channel audio transmission (line & microphone) covering distances up to 300 meters over standard UTP CAT5E (or better) cabling. Distances up to 600 meters can be achieved when applying additional power supplies.

Due to the differential bus input with increased voltage levels, the received signals are insensitive for noise, interference and attenuation over the long transmission distance. This offers the appropriate solution for high quality audio transmissions in long distance applications while maintaining high quality audio reproduction.

The bus input carrying both audio channels, an RS485 data channel and 24 Volts distribution to the transmitter end is implemented using an RJ45 connector. The audio outputs are performed using dual RCA (line) and female XLR (microphone) connections. The XLR output is accompanied with a switch allowing selection between a -40 dB and 0 dB output level.

The signals carried on the RS-485 pair of the databus are linked to an RJ45 output connection, allowing daisy chaining to the controlled equipment. A variety of optionally available mounting brackets are allowing desk, closet or 19" equipment rack installation.

Precautions

READ FOLLOWING INSTRUCTIONS FOR YOUR OWN SAFETY

- ALWAYS KEEP THESE INSTRUCTIONS FOR FUTURE REFERENCE. NEVER THROW THEM AWAY
- ALWAYS HANDLE THIS UNIT WITH CARE
- CLEAN ONLY WITH DRY CLOTH
- HEED ALL WARNINGS AND FOLLOW ALL INSTRUCTIONS
- NEVER EXPOSE THIS EQUIPMENT TO RAIN, MOISTURE, ANY DRIPPING OR SPLASHING LIQUID. NEVER PLACE AN OBJECT FILLED WITH LIQUID ON TOP OF THIS DEVICE
- DO NOT INSTALL THIS UNIT NEAR ANY HEAT SOURCES SUCH AS RADIATORS OR OTHER APPARATUS THAT PRODUCE HEAT
- DO NOT PLACE THIS UNIT IN ENVIRONMENTS WITH A HIGH LEVEL OF DUST, HEAT, MOISTURE OR VIBRATION
- THIS UNIT IS DEVELOPED FOR INDOOR USE ONLY. DO NOT USE IT OUTDOORS
- PLACE THE UNIT ON A STABLE BASE OR MOUNT IT IN A STABLE RACK
- ONLY USE ATTACHMENTS & ACCESSORIES SPECIFIED BY THE MANUFACTURER.
- UNPLUG THIS APPARATUS DURING LIGHTNING STORMS OR WHEN UNUSED FOR LONG PERIODS OF TIME
- CAREFULLY CHECK THE UNIT'S CONDITION AFTER UNPACKING. IF THERE IS ANY DAMAGE TO THE CARTON BOX OR THE UNIT ITSELF, INFORM YOUR VENDOR IMMEDIATELY.
- ONLY CONNECT THIS UNIT TO A MAINS SOCKET OUTLET WITH PROTECTIVE EARTHING CONNECTION
- THE INSTALLATION, CONNECTION AND CONFIGURATION OF THE DEVICE SHOULD BE DONE BY QUALIFIED TECHNICIANS



CAUTION – SERVICING

This product contains no user serviceable parts. Refer all servicing to qualified service personnel. Do not perform any servicing (unless you are qualified to do so.)



EC DECLARATION OF CONFORMITY

This product conforms to all the essential requirements and further relevant specifications described in following directives: 2004/108/EC (EMC) and 2006/95/EC (LVD)



WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The WEEE marking indicates that this product should not be disposed with regular household waste at the end of its product life. This regulation is created to protect both the environment and human health.

This product is developed and manufactured with high quality materials and components which can be recycled and/or reused. Please dispose of this product at your local collection point or recycling centre for electrical and electronic waste. Do this to make sure that the product is recycled in an environmental friendly way, and help to protect the environment in which we all live.

CAUTION

The symbols shown are internationally recognized symbols that warn about potential hazards of electrical products. The lightning flash with arrowpoint in an equilateral triangle means that the unit contains dangerous voltages. The exclamation point in an equilateral triangle indicates that it is necessary for the user to refer to the users manual.



These symbols warn that there are no user serviceable parts inside the unit. Do not open the unit. Do not attempt to service the unit yourself. Refer all servicing to qualified personnel. Opening the chassis for any reason will void the manufacturer’s warranty. Do not get the unit wet. If liquid is spilled on the unit, shut it off immediately and take it to a dealer for service. Disconnect the unit during storms to prevent damage.

Chapter 1

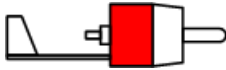
Connections and connectors

CONNECTION STANDARDS

The in- and output connections for AUDAC audio equipment are performed corresponding to international wiring standards for professional audio equipment.

Cinch (RCA):

For unbalanced line output connections



Tip: Signal
White: Left

Sleeve: Ground
Red: Right

XLR:

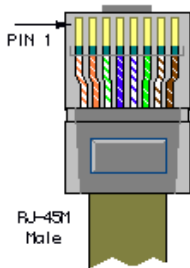
For balanced line / microphone output connections



Pin 1: Ground
Pin 2: Signal +
Pin 3: Signal -

RJ45 Bus input (RS485, Audio, +24 V DC):

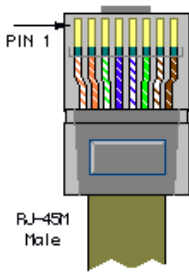
For connection to audio input & control units



Pin 1	White-Orange	AUDIO WLI +
Pin 2	Orange	AUDIO WLI -
Pin 3	White-Green	+24 V DC
Pin 4	Blue	RS485 A
Pin 5	White-Blue	RS485 B
Pin 6	Green	GND
Pin 7	White-Brown	AUDIO WMI+
Pin 8	Brown	AUDIO WMI-

RJ45 Bus output (RS485):

For connection to Remote Wall Mixers (Audio Input & Mixing)



Pin 1	White–Orange	N/C
Pin 2	Orange	N/C
Pin 3	White–Green	N/C
Pin 4	Blue	RS485 A
Pin 5	White–Blue	RS485 B
Pin 6	Green	GND
Pin 7	White–Brown	N/C
Pin 8	Brown	N/C



ATTENTION

The twisted pair cabling must always be connected 'straight'. In case of self made cabling, it must be wired as described above, to make the system work properly.

Chapter 2

Overview APG20_{MK2}

Front panel



The front panel of the APG20_{MK2} contains all outputs on which audio & data connections for bus transferred signals are made available.

1) Microphone output:

The microphone signal (transferred by brown twisted pair) is balanced and made available on the XLR output connector on the left side. This output is accompanied with a slide switch, allowing switching the signal reference level. When switched to -40 dB, the output matches signal level to be fed to standard microphone inputs, while 0 dB allows the signal to be fed to standard line input connections.

2) Line output:

The line level signal (transferred by orange twisted pair) is made available on the dual RCA output at the centre position. This is an unbalanced dual–mono line level signal, allowing insertion to stereo line level inputs.

3) RS485 output:

The RJ45 connection on the right side of the front panel is carrying the RS485 signal which is available on the RJ45 bus input connection. This connection allows the control signal to be daisy–chained to any other controlled device.

Rear panel



The rear panel of the APG20mk2 contains the 24 Volts DC input connection, together with the RJ45 bus input connection where to the twisted pair bus cabling has to be connected.

1) 24 Volts power connector:

The 24 Volts power supply connection is implemented using a terminal block connection on the left side APG20mk2's rear panel. The included power supply (PSD241) should be connected here. This input is accompanied with a green 'RUN' indicator LED which will illuminate when the device is operational.

Mind the polarity when connecting the power supply.

2) RJ45 Bus input connection:

The RJ45 connection connects the remote input and control modules to the APG20mk2. This connection carries two analogue audio pairs, an RS485 data pair and 24 Volts distribution to the transmitter end. More information over the connection possibilities can be found in the next chapter of this instruction manual.

Chapter 3

Connections

The APG20MK2 allows the connection of two matching input modules and one or more digital control panels. To guarantee a proper functioning of the system, it is important that the connection requirements and limitations are always carefully followed.

The required cabling specification is CAT5E (or better) UTP twisted pair cabling. In situations containing high levels of electromagnetic interference, shielded cable can improve the performance of the system.

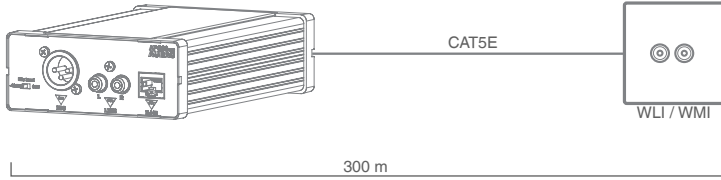
IMPORTANT

Always make sure the devices are powered off when connecting or disconnecting any of the inputs on the APG20MK2.

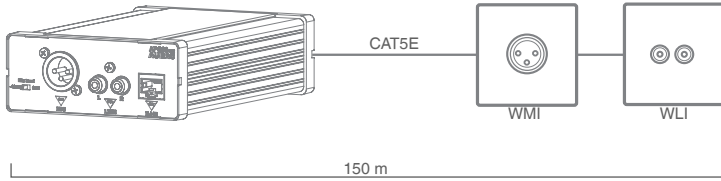
The maximum cable length is depending of the number connected input modules on the bus cabling (depending of the voltage drop on the bus cabling). When only one input unit is connected, distances up to 300 meters can be achieved. When two input units are connected, the maximum cable distance is limited to 150 meters.

In case distances higher than 300 meters (or 150 meters with two input modules) are required, an additional junction box (ARJ03P) with power supply has to be applied to the system, allowing a total distance of up to 600 meters.

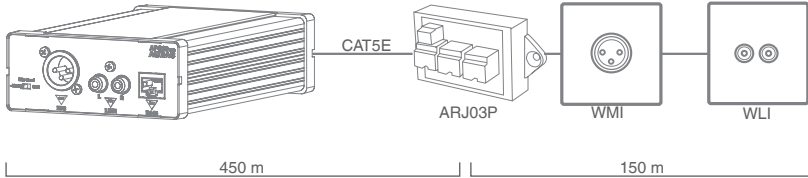
The example diagrams shown on the following page are indicating some connection diagrams for typical application setups, including their cable length limitations.



*Example 1: One input module connected
Maximum cable length: 300 meter*



*Example 2: Two input modules connected
Maximum cable length: 150 meter*



*Example 3: Two input modules with junction box + external PSU connected
Maximum cable length: 600 meter (450 + 150)*

Chapter 4

Technical specifications

Inputs	Type Connectors	Audio / RS485 / 24V DC Bus RJ45
Output	Type Connectors	Microphone output Male XLR
	Level	Switchable 0 dB / -40 dB
	Type Connectors	Line output Dual RCA
	Level	0 dB
	Type Connectors	RS485 data link output RJ45
Power consumption		1.2 Watt
Connection standard		TIA/EIA T568B
Required cabling		UTP CAT5E
Max cable length		300 meter (without external PSU) 600 meter (with external PSU)
Power supply		24V DC PSD241 switching power supply included 100 ~ 240V AC / 47~63 Hz
Dimensions (W x H x D)		108 x 44 x 165 mm
Weight		0.76 Kg
Packaging		Carton box
Shipping weight & Volume		1.08 Kg – 0.0078 Cbm
Compatible devices		WLI18 Wall line input unit WMI18 Wall microphone input unit
Optional Accessories	ARJ03P PSD24x MBS1xx	Junction box External power supply Mounting brackets

Notes
