

X4-Audio Series

Innovative relay attenuator with IR remote, stackable up to 6 stereo modules

Features

- 24 or 64 switching positions, featuring contactless hall sensing technology
- Smooth, precise switch feel
- 6 relay attenuation stages using quality Panasonic latching relays
- Low noise, high-precision thin film resistors
- 5k, 10k, 25k, 50k, 100k, 250k and 500k ohms standard resistor values
- With IR remote detector input
- Stackable to up to 6 stereo modules (12 channels)
- Optional integrated shaft push button "mute" function

Possible Customization

- Resistor values and tapers
- Shaft shape
- IR protocol and codes
- Circuitry, function and cable interface solutions

Applications

- High-end home and theater audio
- Mixing desks and studio consoles

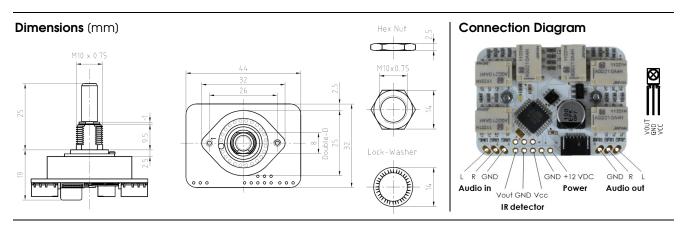




RoHS (2002/95/EC)

Description

X4-Audio is a high performance relay volume control attenuator that incorporates 6 relay driven ladder stages. The attenuation is ranging over 24 or 64 positions (the 64 positions version comes without indexing). The attenuation function can be controlled by the front panel rotary switch or by an IR remote unit. The optionally available IR detector can be mounted to the front panel and directly connected to the board by the user. When returning to selector switch operation after the attenuation level has been changed by IR remote, the volume will be automatically and smoothly readjusted to the current rotary switch position. The contactless Hall-Effect Sensor rotary switch control provides enhanced system reliability and long operational life. Non-indexing, 1.5 or 4 Ncm switching torques are available as well as an optional pushbutton for mute function.



dB Attenuation

24 Positions

Switch Position	1	2	3	4	5	6	7	8	9	10	11	1:	2	13	14	15	16	17	18	19	2	20 2	21	22	23	24
Attenuation (dB)	-Off	-77.5	-70	-62.5	-55	-47.5	-42.5	-40	-37.5	-35	-32.		0 -2	7.5	-25	-22.5	-20	-17.	5 -15	-12	.5 -	10 -	7.5	-5	-2.5	0
Step Size (dB)		7	.5	7.5	7.5	7.5	5 2	.5 2	.5 2	.5 2	2.5	2.5	2.5	2.5	2.	5 2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	5 2	.5 2	2.5

64 Positions (no indexing); ranging from –89.6 to 0 dB with 1.4 dB steps



Specifications

Mechanical Rating

Indexing Resolution: 24 positions (15° indexing) or 64 positions (no indexing) Switching torque: 0, 1.5, 4 or 8 Ncm (+/- 30%, over temperature range and life) Rotational life: 500k cycles with no indexing (over temperature range, at 120 RPM) 100k cycles with 1.5 Ncm switching torque (over temperature range, at 120 RPM)

50k cycles with 4 and 8 Ncm switching torque (over temperature range, at 120 RPM)

Shaft strength: 1000 N push, 200 N pull, 500 N side force min. (all static, against housing, for 1 minute max.)

End stop strength: 250 Ncm min. Mounting torque: 300 Ncm max.

Electrical Rating

Operating voltage: 12 VDC nominal (8 to 15 VDC)

On board voltage: 5 VDC (regulated)

Current consumption: 30 mA peak max., 10 mA continuos max. (per module, at 12 VDC, including IR receiver)

Resistor values: 5k, 10k, 25k, 50k, 100k, 250k or 500k ohms

Resistor type:_____Susumu, 0603 package, RR series (thin-film, +/- 0.5%, TCR; +/-25ppm/°C)

Relay type: Panasonic, DPDT, single coil latching, 4 ms max. operate time, AgPd plated contacts

IR detector (optional): Sharp, P/N GP1UX311QS (max. 300 mm cable length to receiver unit)

Materials & Finishes

PCB:_____FR4, 0.04" (1.0 mm), gold plated

Shaft: Stainless steel (1.4301)

Housing: Zinc die cast, Gold over copper plated Nut: Brass, zinc plated and passivated

Lock washer: Spring steel, zinc plated

Environmental Rating

Operating temperature: ____-30 to +85°C (storage: -55 to +85°C)

Humidity: 90% relative humidity max., non-condensing (against front panel, MIL-STD-202G, method 103B, condition B)

Salt atmosphere: With IP68 sealing only (against front panel, MIL-STD-810F, method 509.4; 96 hrs.)

Vibration: 29 GRMS max. at 100 to 1,000 Hz (MIL-STD-202G, method 214A, condition 1H/15 minutes)

Flammability: UL94-HB

Push Button Rating

Tact switch, IP67 sealed Type:

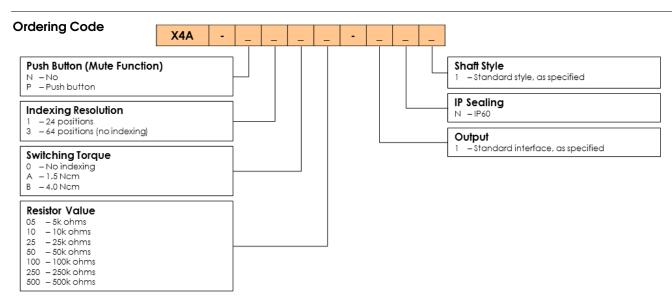
Actuation force: 6 N (+/-30%, over temperature range and life)

Actuation life: 100k cycles min. at 2 Hz max. actuation speed (over temperature range)

Switch travel: _____0.5 mm (+/- 0.2 mm)

Contact plating: Silver

Packaging: Single piece packed (ESD shielded bag), nut and lock-washer are included



Accessories to Order

- IR remote with IR detecor:
- Spare nuts with lock washer (10 pcs. pack):_____P/N M10NUTWASH10
- Stop screws (10 pcs. pack): P/N X4-STOP