



Datasheet

CT2 stepped audio attenuator / volume control

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The CT2 Audio Volume Controls are high quality stepped 24-position attenuators, designed for maximum sonic quality, accuracy and reliability. This makes them equally suited for audiophile and professional applications.

Available as master volume control with 60dB attenuation range (1, 2, 4 decks - 6 and 8 decks versions available on request) and as individual channel fine adjustment (CT2-10k-1/fine) with 0.5dB level change between each step (only available with 1 deck, 10kOhm).

Their series resistor networks consist of 23 non-inductive, low noise, SMD metal film resistors.

The layout of the PC Boards and the choice of SMD resistors have reduced the signal path to a minimum length. The PCB design combined with the special resistors also account for the very low series inductance and the very low stray capacitance. The result is a bandwidth beyond even the most demanding audiophile requirements.

Low noise, non-inductive, metal film SMD resistors
Entire signal path gold plated
Designed for shortest possible signal path
Reduced inductance and stray capacitance
Improved sonic quality

Improved accuracy - 0.05dB channel tracking
0.05dB attenuation accuracy
Improved reliability
Increased bandwidth
Reduced distortion, less than 0.0001%

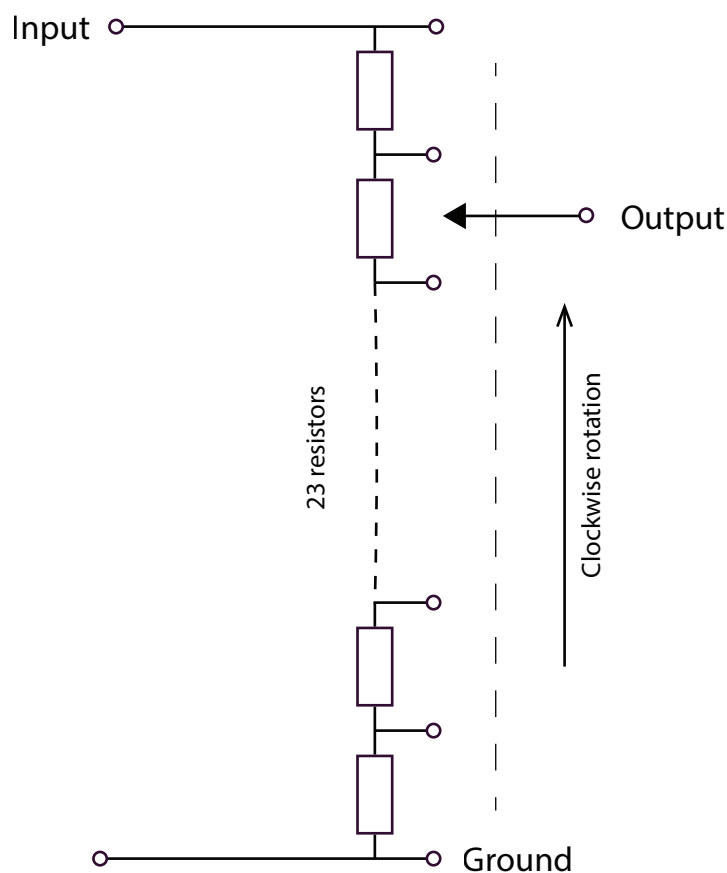


Fig. 1. CT2 schematic

CT2 stepped audio attenuator / volume control

MAXIMUM RATINGS

Note	Parameter	Conditions/comments	Value	Unit
1	Switching capacity	(resistive load)	2V/2A, 24V/0.6A, 42V/0.4A	AC/DC
1	Power dissipation	(each resistor)	100	mW
1	Operating ambient temperature range		-25 to +70 (-13 to +158)	deg. C (deg. F)
1	Storage temperature range		-40 to +85 (-40 to 185)	deg. C (deg. F)

MECHANICAL CHARACTERISTICS

Note	Parameter	Conditions/comments	Value	Unit
	Number of positions		24	
	Indexing angle		15	deg.
	Switching function		shorting	
	Gold plating, contacts	(hard-gold)	3	µm
	Gold plating, wiper	(hard-gold)	8	µm
2	Mechanical life		>25,000	cycles
	Switching torque	1-, 2-, and 4-deck versions 6- and 8-deck versions (special order)	1.5 3.5	Ncm Ncm
	Nut tightening torque		max. 300	Ncm

DC ELECTRICAL CHARACTERISTICS

Note	Parameter	Conditions/comments	Value	Unit
	Total resistance range	(standard versions of CT2) (fine-adjustment version)	10, 20, 50, 100, 250, 500 10	kOhm kOhm
3	Total resistance accuracy	(new)	0.1	%
	Attenuation steps, standard version	(source output impedance = 0), (load input impedance = infinite)	0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 38, 42, 46, 50, 60, infinite	dB
	Attenuation steps, version for fine-adjustment (CT2-10k-1/fine)	(source output impedance = 0), (load input impedance = infinite)	0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 9.5, 10, 10.5, 11, 12, infinite	dB
3	Attenuation accuracy	(new)	+/- 0.05	dB
3	Matching accuracy (tracking)	(between two decks)	+/- 0.05	dB
4	Contact resistance	(new)	max. 0.01	Ohm
	Contact capacitance	(adjacent contacts)	1	pF
	Series inductance	(10 kOhm, input to ground)	max. 0.4	µH

AC ELECTRICAL CHARACTERISTICS

Note	Parameter	Conditions/comments	Value	Unit
4	-3dB bandwidth	(10k, A = -6dB)	50	MHz
5	Noise voltage	(10k, input to ground pin)	12.8	nV/Hz
6	Total harmonic distortion	(A = -6dB, fo = 1kHz)	max. 0.0001	%

Notes

- 1 Exposure to maximum rating conditions for extended periods of time may affect device reliability.
- 2 One cycle is defined as a full rotation from one end stop to the other and return.
- 3 Typical values at +25 deg. C ambient temperature. Output unloaded.
- 4 Measuring probe input capacitance 1 pF
- 5 Theoretical value for an ideal 10k resistor
- 6 Measured with Panasonic Audio Analyzer VP-7722P

Table 1. CT2 specifications

CT2 stepped audio attenuator / volume control

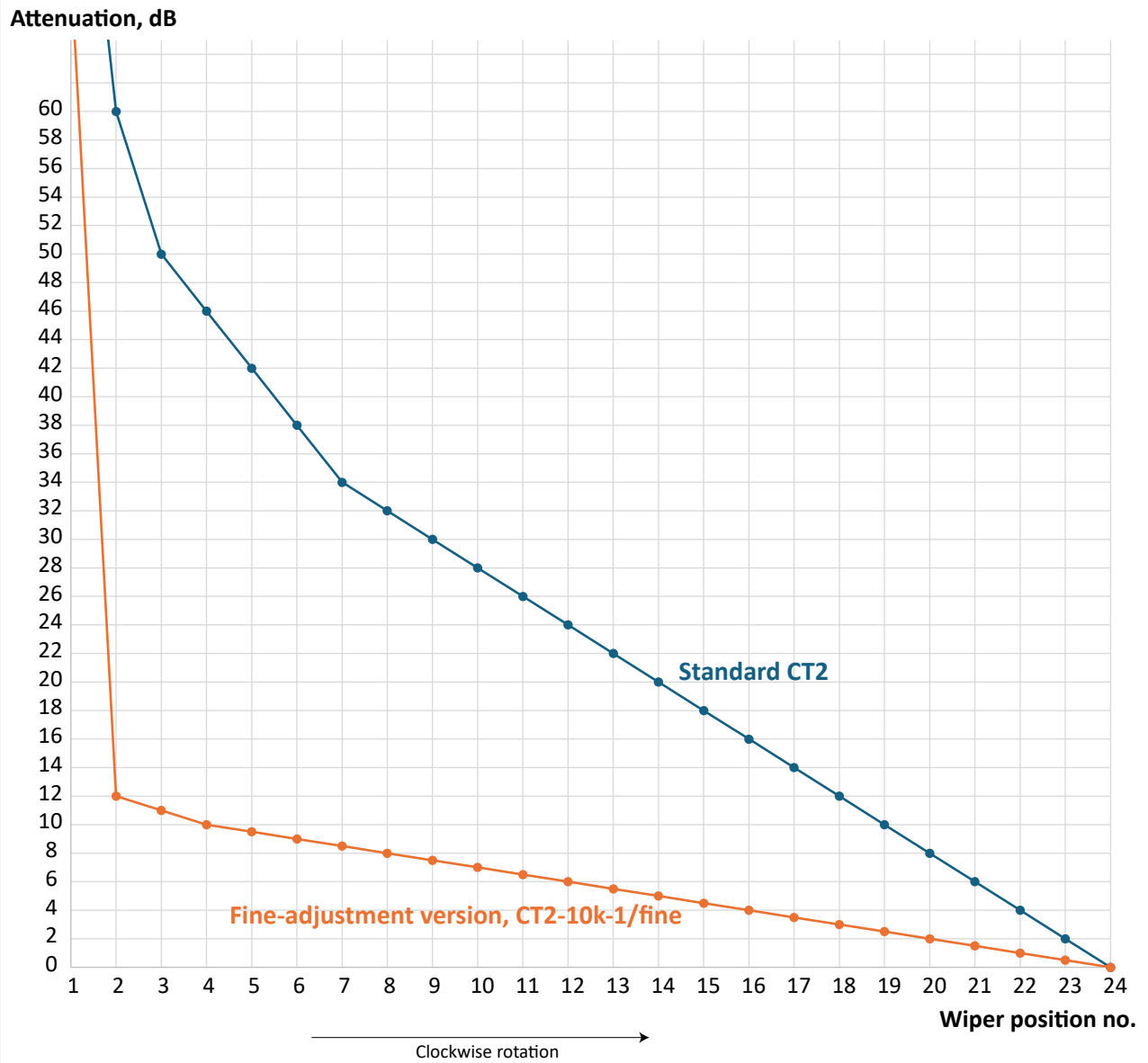
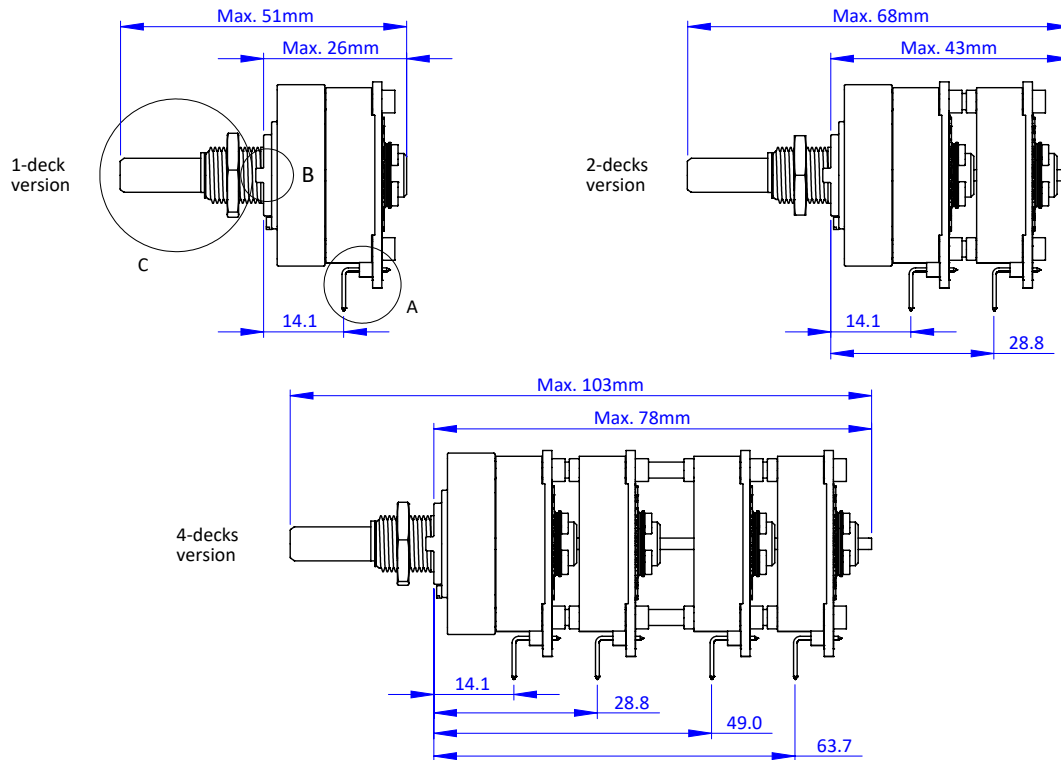


Fig. 2. CT2 attenuation vs. wiper position

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Dimensions common for all models

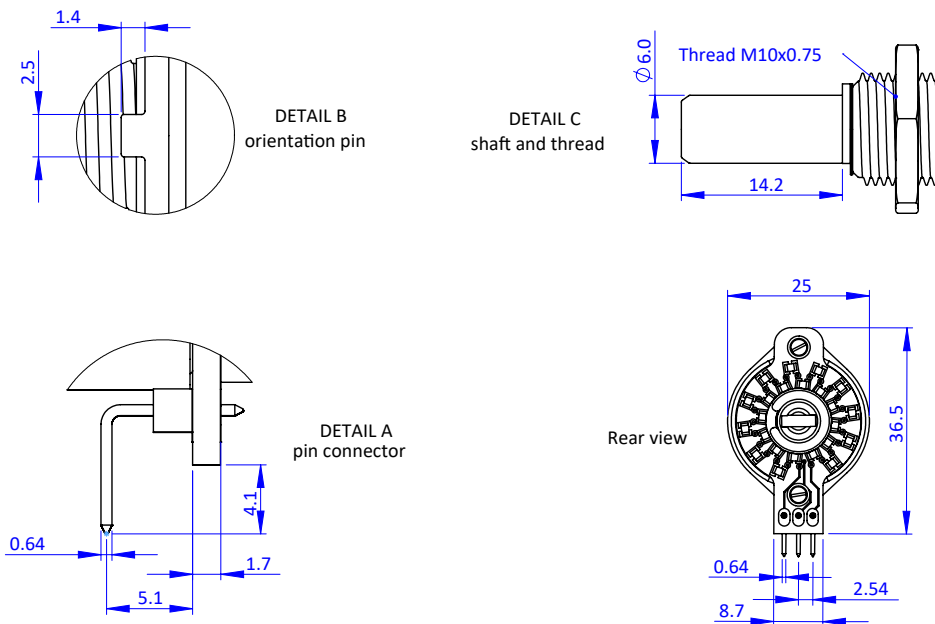


Fig. 3. CT2 outline drawing and dimensions

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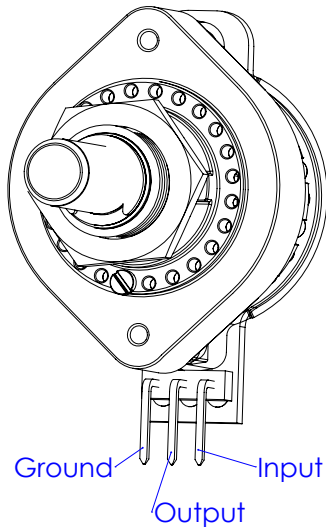


Fig. 4. CT2 connections

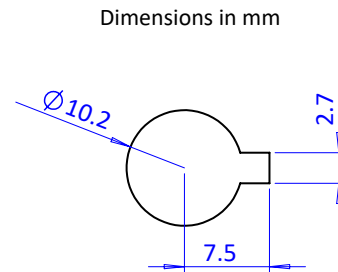


Fig. 5. Suggested mounting panel cut-out

Part number	Description
CT2-10k-1/fine	1-channel stepped attenuator, fine-adjustment (0.5dB steps)
CT2-xxxk-1	1-channel stepped audio attenuate (mono)
CT2-xxxk-2	2-channel stepped audio attenuate (mono)
CT2-xxxk-4	4-channel stepped audio attenuate (mono)
CT2-xxxk-6	6-channel stepped audio attenuate (mono) Available on request ONLY
CT2-xxxk-8	8-channel stepped audio attenuate (mono) Available on request ONLY
xxx refers to the attenuator resistance. Available resistances are 10 (10kOhm), 20 (20kOhm), 50 (50kOhm), 100 (100kOhm), 250 (250kOhm), 500 (500kOhm)	

Table 2. CT2 ordering information

Latest update: August 11, 2024