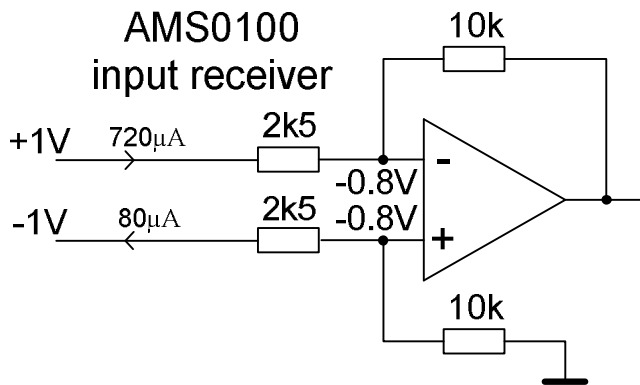


APPLICATION NOTES

Optimizing input stage CMRR

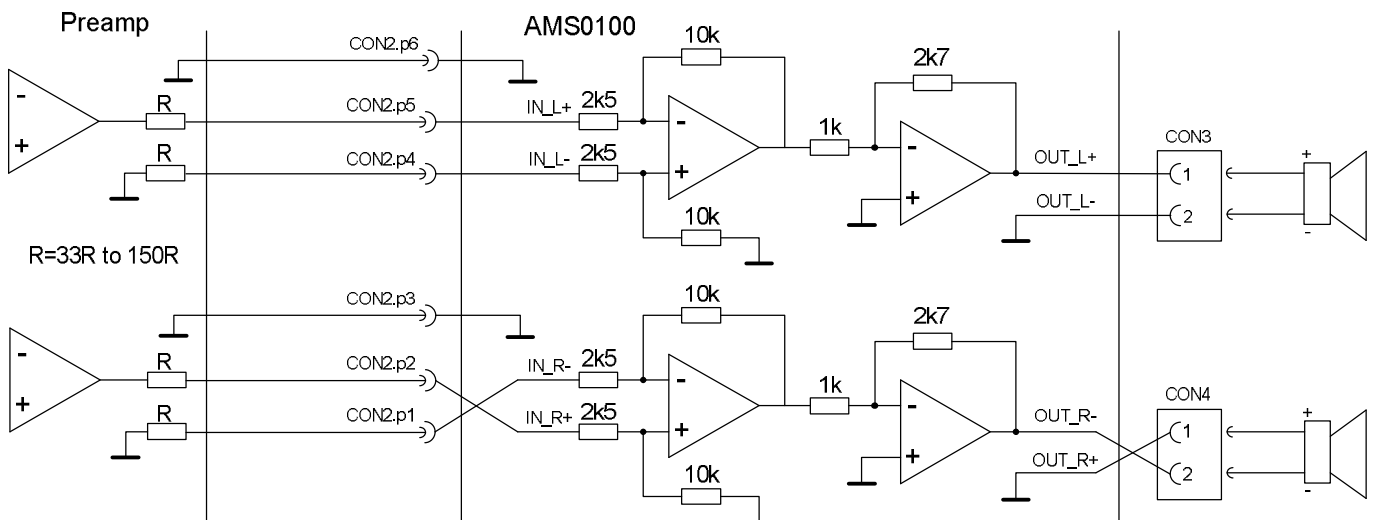
This is simplified drawing of the input of AMS0100. It is a typical circuit which is often used where the source impedance is well known and does not vary too much. Input currents are calculated when a balanced signal is applied. As can be seen the input impedance is not the same on both inputs and depending on which type of signal is applied (single ended or balanced) the input impedance changes.



This is however not a problem as long as a few precautions are made. Common mode rejection CMRR will be significantly improved by having the same source resistance on both the inputs.

Impedance balancing with single ended signal

Below is shown a setup with an impedance balanced single ended source. This requires a balanced cable.



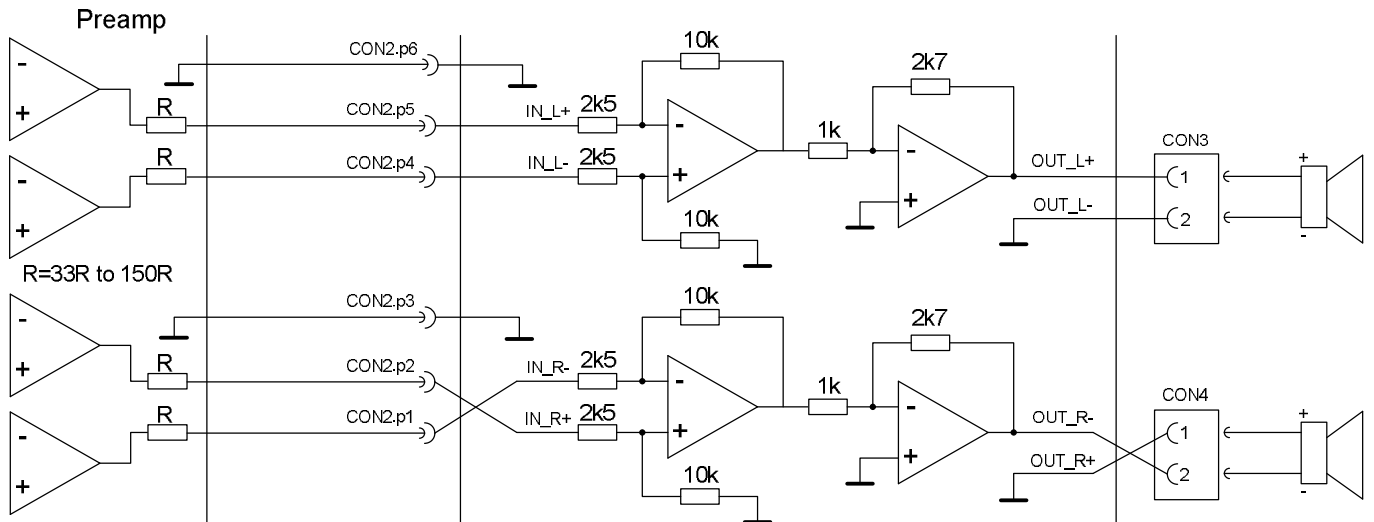
It is quite common to have a series resistance of 50ohm or more on the signal output so if the same resistance is placed in the opposite side of the signal of either sending or receiving side of the cable the CMRR rejection is intact.

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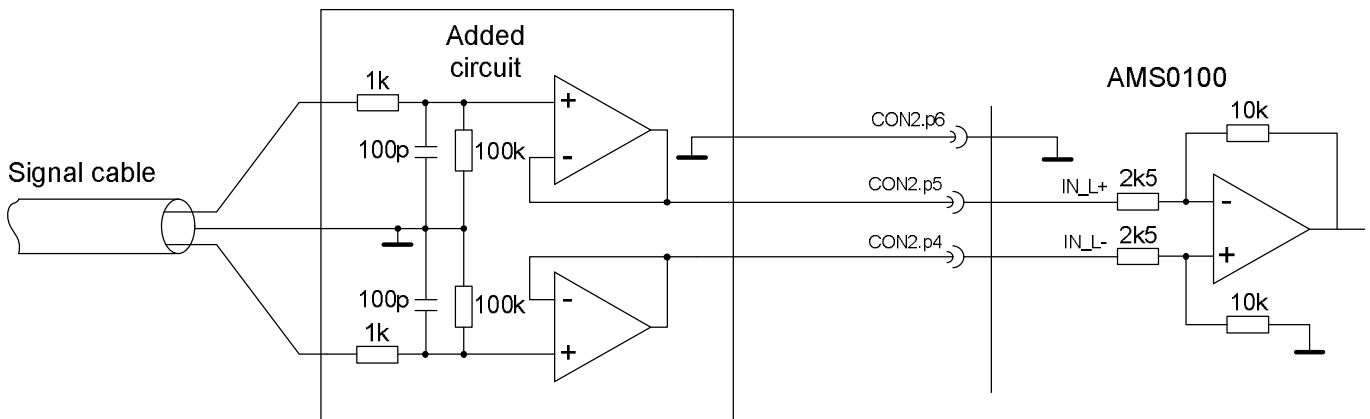
Balanced input signal

If a balanced signal source is used the following setup applies.

AMS0100



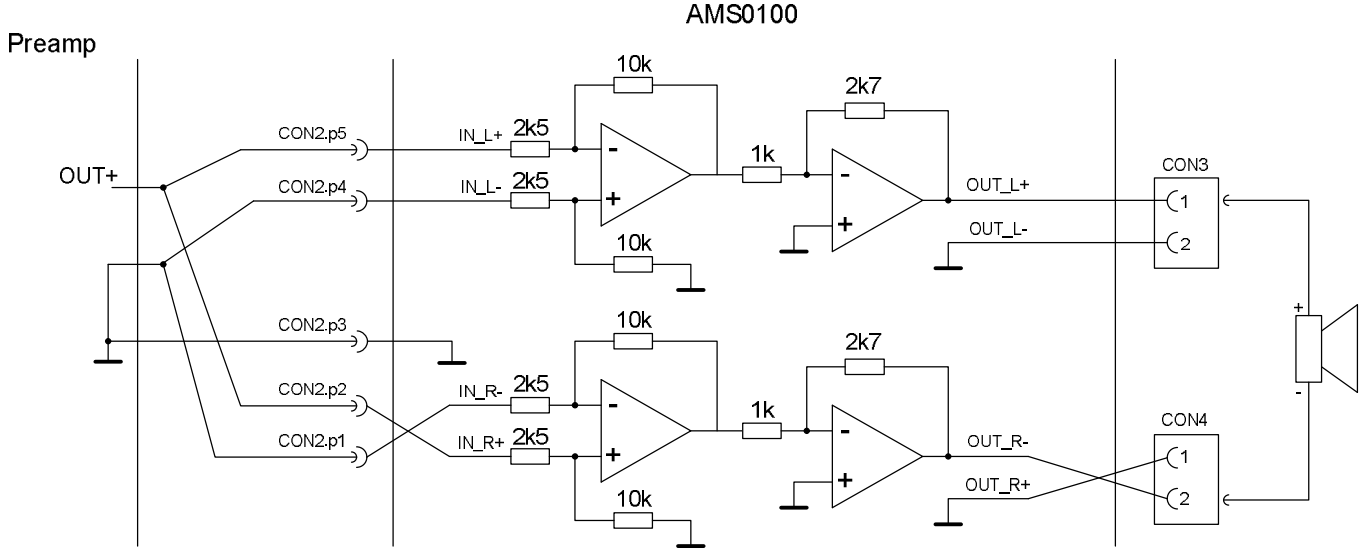
If long cables are used the cable impedance itself can contribute a lot to the series impedance and since that impedance is not very well defined (symmetrically) it can be an advantage to increase both the diff mode and common mode input impedance. In such a case an additional circuit as below can be added before the AMS module.



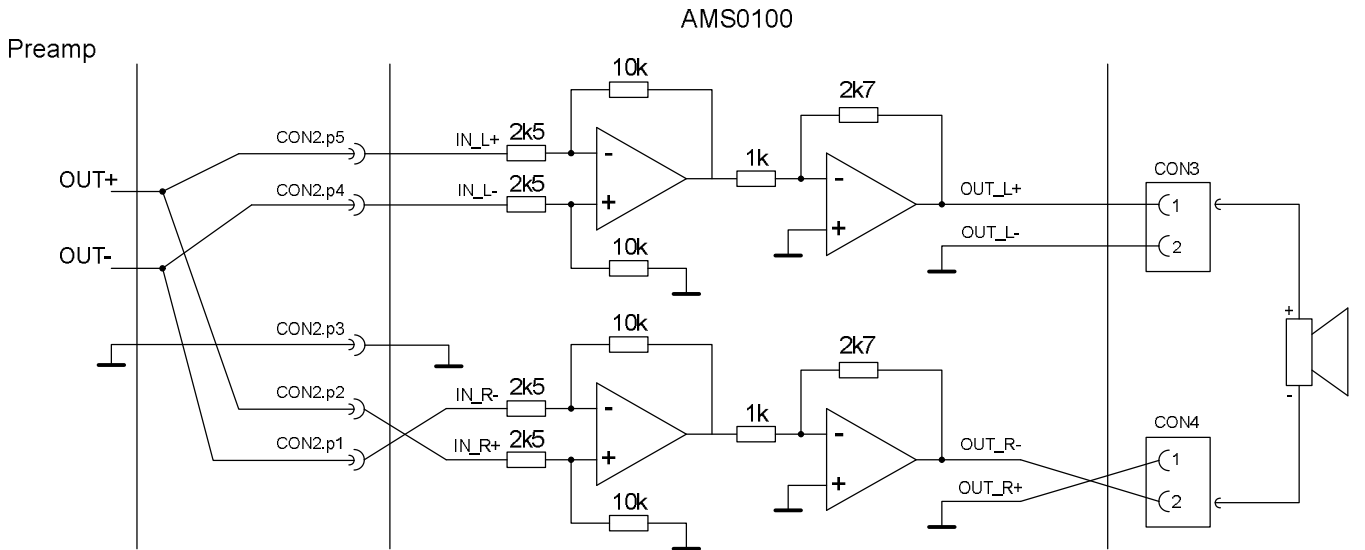
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BTL setup

SE input signal



Balanced input signal



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REVISION LOG

Rev.	Date	Item	Sign
A	2013-07-22	First official released revision.	PB
B	2013-09-04	Revised timing, audio specifications.	JN
C	2013-09-20	Revised temp specs, cleanup.	PB
D	2013-10-02	Cleanup.	JN
E	2013-10-15	Changed Safety standards.	PB
F	2013-10-29	Changed to maximum 330uF capacitive load for VA+/-. Revised contact information.	MC
G	2013-11-28	Changed STBY_DC voltage level vs load current Removed graphs for STBY_DC vs load current in disabled and enabled mode Changed maximum STBY_DC load to 25mA for ErP Updated Emission standards Changed the Weight from 140-150g to 170-180g Updated amendments in EMC compliances Changed ErP standby currents Disclaimer added	PB/MC/JN
H	2013-12-04	Added AMS0100-2301 as variant Updated info about auxiliary supplies VA+- voltage fluctuation updated AUX VS+- voltage fluctuation updated Energy star current updated	PB JN
I	2014-02-06	Instruction added on VA+/- fuse replacement	PB
J	2014-06-03	nDISABLE thresholds updated Updated information about VA+/- fuse	PB
K	2015-02-05	Corrected nMUTE timing graph and added max offset voltage	MC

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