

PURE SOUND

Building a Straight Wire
to the Soul of Music

EVAL9 / SMPS1200A400 APP NOTE



1 Introduction

This application note describes how to correctly connect the PURIFI EVAL9 evaluation kit via the CAB1(cable kit) to the Hypex SMPS1200A400 power supply.

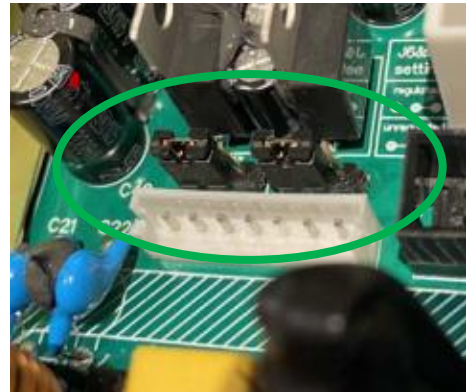
In addition to two set of cables that need to be prepared and connected, it is also of great importance to correctly set jumpers on the SMPS1200A400 to ensure it supplies UNREGUTLATED Vaux voltage rails.

1.1 Configuring SMPS1200A400 for UNREGULATED Vaux

SMPS1200A400 is by default configured for regulated Vaux. This must be changed to unregulated via jumpers J6 and J7:



Wrong!



Correct

If the PSU is configured incorrectly the EVAL9 will not function properly!

1.2 High Power Connectors

EVAL9 and SMPS1200A400 have identical high-power connectors with matched pinout – so a cable with straight-through connections (pin to pin) is required.

The CAB1 cable kit from PURIFI contains the needed wires and plug housings. One end of the cable has already been configured; however, the opposite end needs to be configured by the user.



EVAL9, J2			Cable	SMPS1200A400, J1		
Pin	Signal	Description		Pin	Function	Remarks
1	VDR	Gate Drive Supply, referenced to -VP	↔	1	V _{DR} +	Positive bootstrap driver voltage
2	+VP	Power Stage Supply, positive rail	↔	2	HV+	Positive supply rail
3	GND	Ground	↔	3	GND	Ground
4	-VP	Power Stage Supply, negative rail	↔	4	V _{DR} -	Negative bootstrap driver voltage
5	-VP	Power Stage Supply, negative rail	↔	5	HV -	Negative supply rail
6	GND	Ground	↔	6	GND	Ground

Table 1 Power connector, J2



Connector type equivalent: JST: B06P-VL.

Matching cable part: JST: VLP-06V.

Extra connector housings and wires can be purchased from Digikey:

<https://www.digikey.com/product-detail/en/jst-sales-america-inc/VLP-06V/455-2352-ND/1883066>

<https://www.digikey.com/product-detail/en/jst-sales-america-inc/ASVFSVF14K305/455-3113-ND/6009489>

1.3 Low Power Connectors

EVAL9 and SMPS1200A400 have a different pin out on their respective low-power connectors, so great care must be taken in order to configure the cable correctly.

The cable kit (CAB1) from PURIFI contains the needed wires and plug housings.

Note that only three connections are required! All other pins are no-connects.



EVAL9, J3			Cable	SMPS1200A400, J5		
Pin	Signal	Description		Pin	Function	Remarks
5	+VUNREG	Voltage regulator input, positive rail	↔	3	V _{AUX}	Positive Auxiliary Output
6	GND	Ground	↔	5	GND	Ground
7	-VUNREG	Voltage regulator input, negative rail	↔	7	V _{AUX}	Negative Auxiliary Output

Table 2 Aux connector, EVAL9, J3 to SMPS1200A400, J5



Connector type: JST: B7B-EH-A(LF)(SN), Matching cable part: JST: EHR-7.

It is very important not to reverse the connection – please ensure to connect like shown below:



Extra connector housings and wires can be purchased from Digikey:

<https://www.digikey.com/products/en?keywords=EHR-7>

<https://www.digikey.com/product-detail/en/jst-sales-america-inc/ASEHSEH22K305/455-3104-ND/6009480>