

GW DCPD Transimpedance Amplifier (TIA) Measurement

J. Kissel, 2023-03-10

DUT Setup

Can set up SR785 in the *front* of ISC-R5 rack, if more convenient, since only thing that changes between measuring DCPDA and DCPDB is the BNC Monitor Hook-up

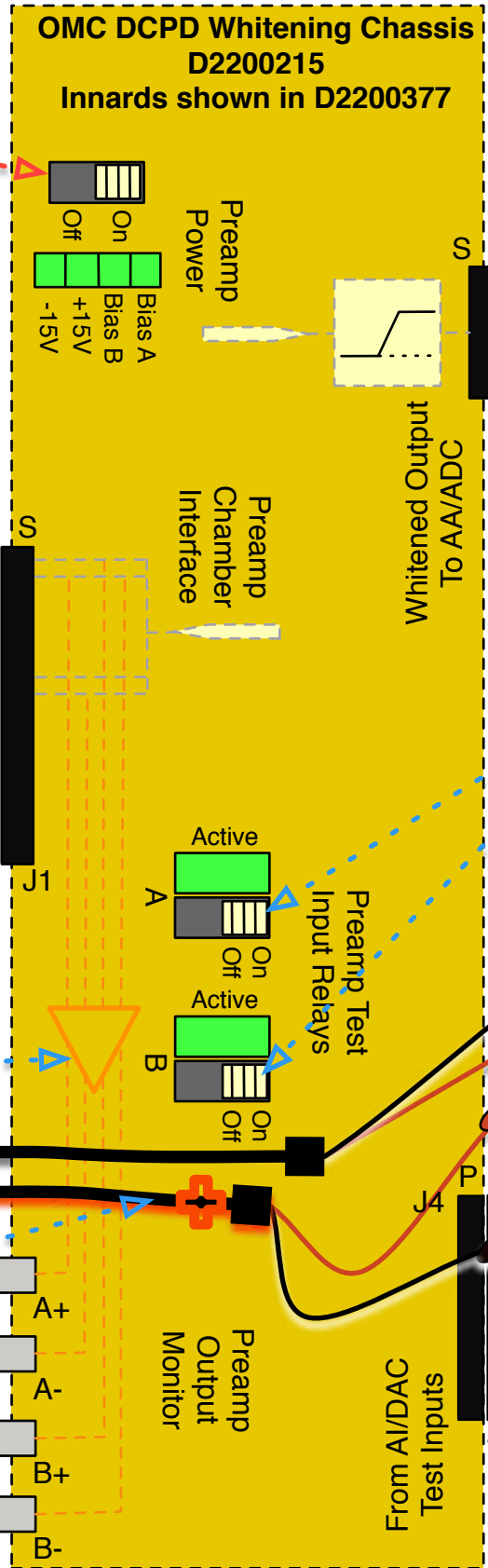
You might be tempted to use D1900068's DB9 output and a DB9 cable to connect "cleanly" to DAC drive. See LHO aLOG 61289 for discussion of compromise.

Cable connected to in-vac DCPD Chain as normal

OK to disconnect DAC cable and BNC monitor cables without powering down DCPDs

ALL OTHER CHASSIS / CABLE CONNECTIONS NOT SHOWN REMAIN CONNECTED AS NORMAL

ISC-R5 Rack



OMCA DCPD Pins Are:
DCPDA = 5+ & 18-
DCPDB = 1+ & 14-
Chassis GND = 13

Turn both Test Input Relays ON during measurement (State of Whitening Relays doesn't matter)

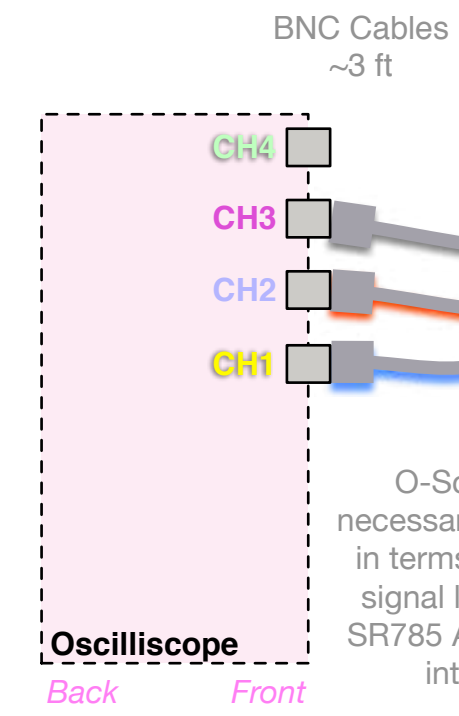
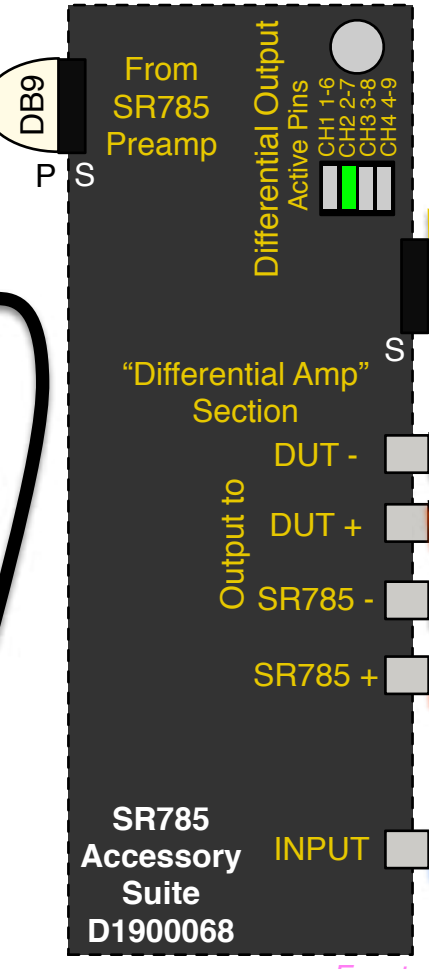
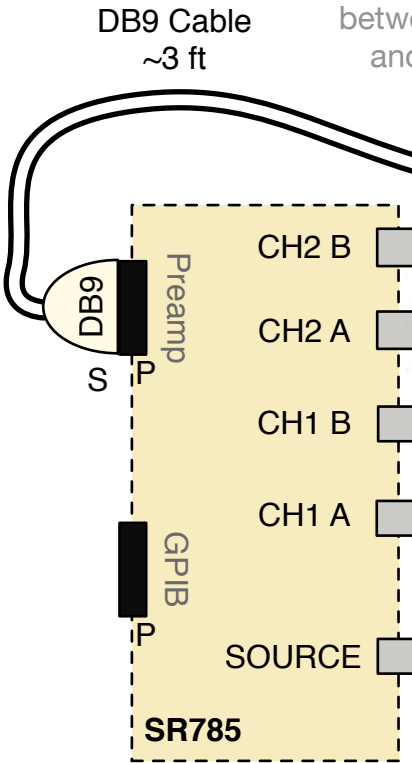
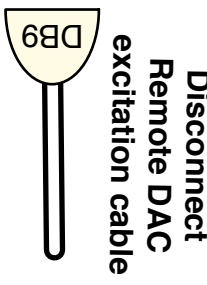
Excitation drives both DCPDA & DCPDB through pins 1+ & 6-

Internal "Unity Gain" Buffers b/w primary signal and monitors

Weave drive BNCs from the *back* of the rack to the *front*. Make sure exposed BNC shields aren't touching each other or the chassis.

Change from A to B monitors to record response of DCPDA and DCPDB in-vac TIA, respectively

BNC Shields connected to Chassis 0V pin 5



O-Scope not strictly necessary, but **very** helpful in terms of understanding signal levels in/out of the SR785 Accessory Box and into PUM Driver

BNC Cables ~3 ft

BNC Cables ~10 ft

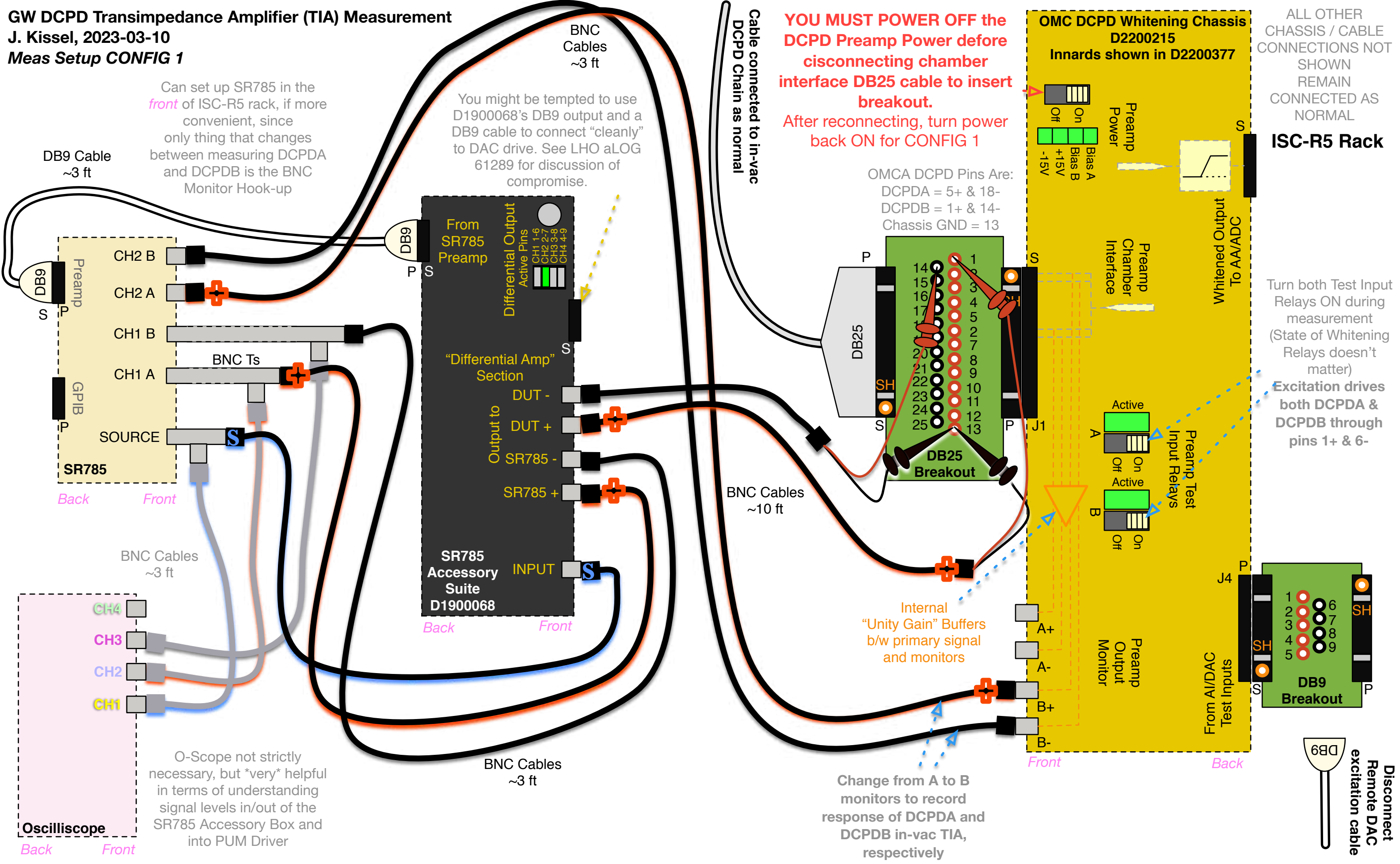
Front

Back

Back Front

GW DCPD Transimpedance Amplifier (TIA) Measurement

J. Kissel, 2023-03-10
Meas Setup CONFIG 1



Can set up SR785 in the front of ISC-R5 rack, if more convenient, since only thing that changes between measuring DCPDA and DCPDB is the BNC Monitor Hook-up

You might be tempted to use D1900068's DB9 output and a DB9 cable to connect "cleanly" to DAC drive. See LHO aLOG 61289 for discussion of compromise.

YOU MUST POWER OFF the DCPD Preamp Power before disconnecting chamber interface DB25 cable to insert breakout.
After reconnecting, turn power back ON for CONFIG 1

ALL OTHER CHASSIS / CABLE CONNECTIONS NOT SHOWN REMAIN CONNECTED AS NORMAL

ISC-R5 Rack

OMC DCPD Whitening Chassis D2200215
Innards shown in D2200377

Bias A On
Bias B +15V On
-15V On

Preamp Power

Whitened Output To AA/DAC

Preamp Chamber Interface

Preamp Test Input Relays
Active On
Off

Preamp Output Monitor

From AI/DAC Test Inputs

J1

J4

DB9 Breakout

DB9 Breakout

Turn both Test Input Relays ON during measurement (State of Whitening Relays doesn't matter)
Excitation drives both DCPDA & DCPDB through pins 1+ & 6-

Cable connected to in-vac DCPD Chain as normal

OMCA DCPD Pins Are:
DCPDA = 5+ & 18-
DCPDB = 1+ & 14-
Chassis GND = 13

BNC Cables ~10 ft

Internal "Unity Gain" Buffers b/w primary signal and monitors

Change from A to B monitors to record response of DCPDA and DCPDB in-vac TIA, respectively

Disconnect Remote DAC excitation cable

Oscilloscope

O-Scope not strictly necessary, but *very* helpful in terms of understanding signal levels in/out of the SR785 Accessory Box and into PUM Driver

DB9 Cable ~3 ft

BNC Cables ~3 ft

BNC Cables ~3 ft

BNC Cables ~3 ft

Back Front

Back Front

Back Front

Front

Back

DB9

DB9

DB25

DB25 Breakout

DB9 Breakout

DB9

CH2 B

CH2 A

CH1 B

CH1 A

SOURCE

SR785

From SR785 Preamp

"Differential Amp" Section

SR785 Accessory Suite D1900068

OMC DCPD Whitening Chassis D2200215
Innards shown in D2200377

Preamp Chamber Interface

From AI/DAC Test Inputs

ISC-R5 Rack

Turn both Test Input Relays ON during measurement (State of Whitening Relays doesn't matter)
Excitation drives both DCPDA & DCPDB through pins 1+ & 6-

Disconnect Remote DAC excitation cable

GW DCPD Transimpedance Amplifier (TIA) Measurement

J. Kissel, 2023-03-10
Meas Setup CONFIG 2

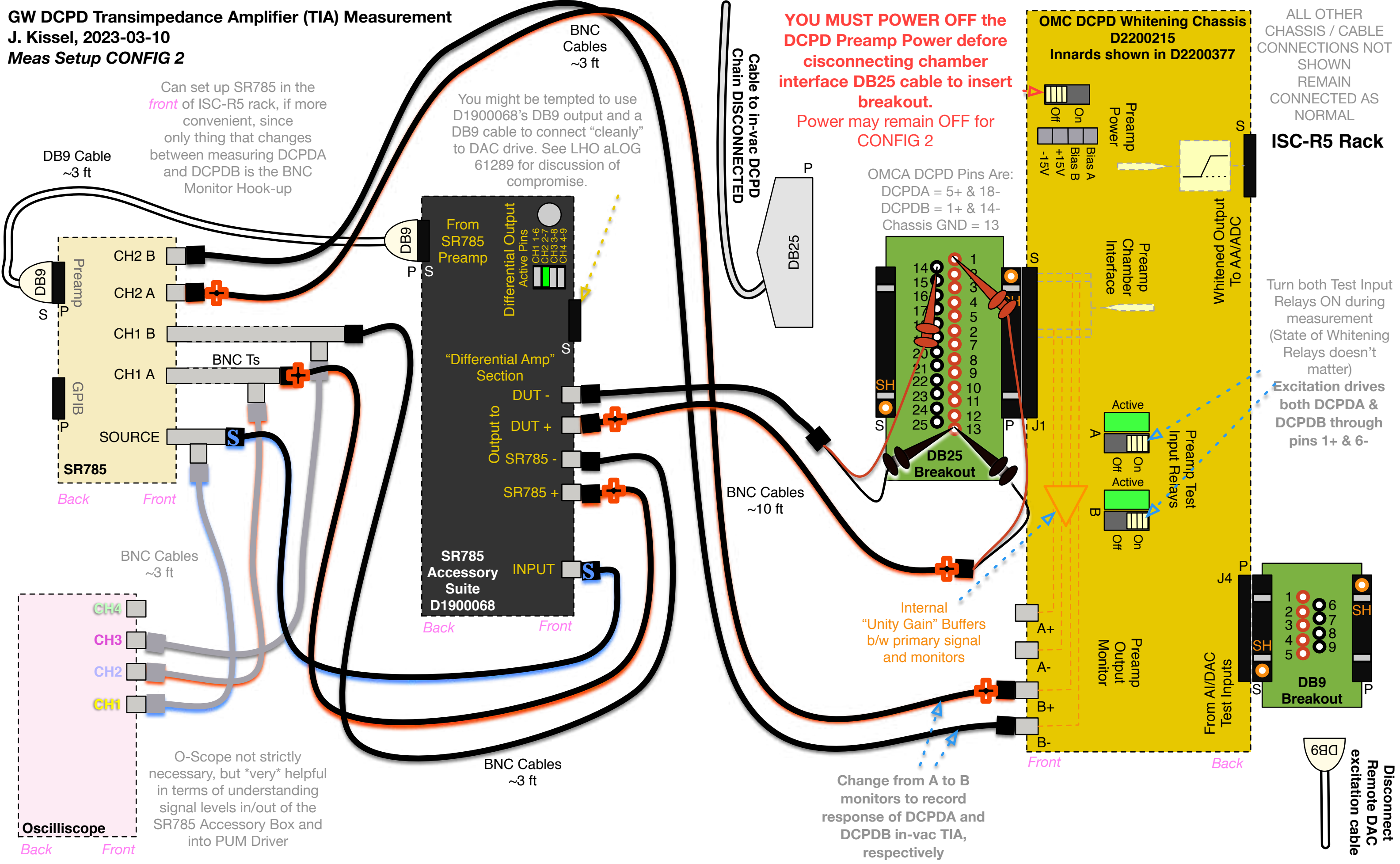
Can set up SR785 in the *front* of ISC-R5 rack, if more convenient, since only thing that changes between measuring DCPDA and DCPDB is the BNC Monitor Hook-up

You might be tempted to use D1900068's DB9 output and a DB9 cable to connect "cleanly" to DAC drive. See LHO aLOG 61289 for discussion of compromise.

YOU MUST POWER OFF the DCPD Preamp Power before cisdnecting chamber interface DB25 cable to insert breakout.
Power may remain OFF for CONFIG 2

ALL OTHER CHASSIS / CABLE CONNECTIONS NOT SHOWN REMAIN CONNECTED AS NORMAL

ISC-R5 Rack



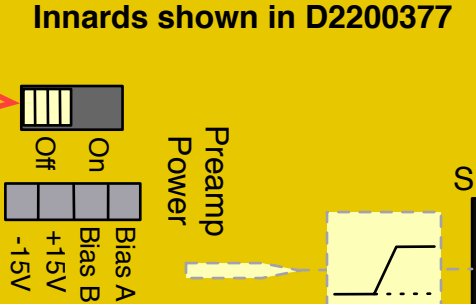
DB9 Cable
~3 ft

BNC Cables
~3 ft

Cable to in-vac DCPD
Chain DISCONNECTED

OMCA DCPD Pins Are:
DCPDA = 5+ & 18-
DCPDB = 1+ & 14-
Chassis GND = 13

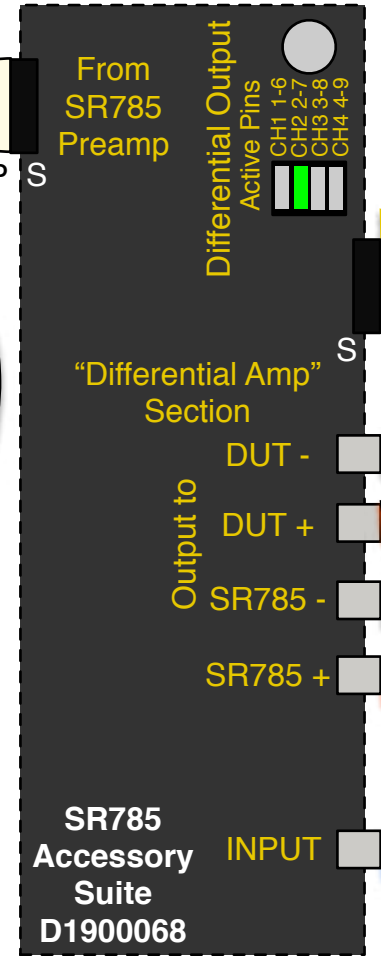
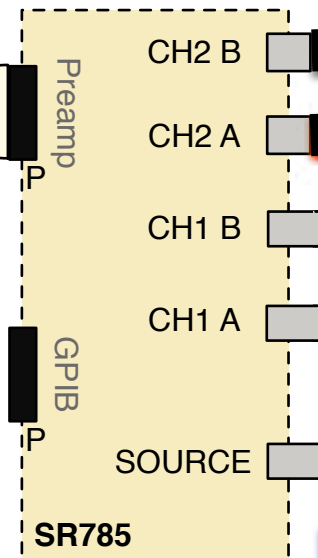
OMC DCPD Whitening Chassis D2200215



Whitened Output
To AA/DAC

Turn both Test Input Relays ON during measurement (State of Whitening Relays doesn't matter)

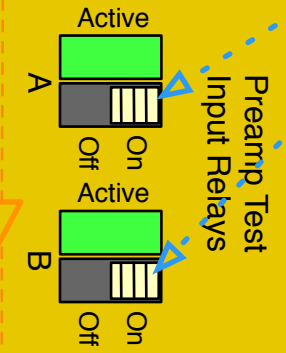
Excitation drives both DCPDA & DCPDB through pins 1+ & 6-



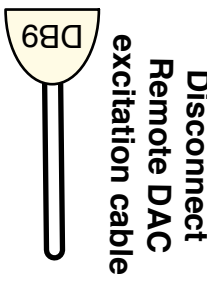
BNC Cables
~10 ft

Internal "Unity Gain" Buffers
b/w primary signal
and monitors

Change from A to B monitors to record response of DCPDA and DCPDB in-vac TIA, respectively



Preamp Output Monitor



Oscilloscope

O-Scope not strictly necessary, but *very* helpful in terms of understanding signal levels in/out of the SR785 Accessory Box and into PUM Driver

GW DCPD Transimpedance Amplifier (TIA) Measurement

J. Kissel, 2023-03-10

Meas Setup CONFIG 3

