AQS PSD BOARD

AQS PSD
Technical Manual

Version 002

BRUKER

The information in this manual may be altered without notice.

BRUKER accepts no responsibility for actions taken as a result of use of this manual. BRUKER accepts no liability for any mistakes contained in the manual, leading to coincidental damage, whether during installation or operation of the instrument. Unauthorised reproduction of manual contents, without written permission from the publishers, or translation into another language, either in full or in part, is forbidden.

This manual was written by

Uwe Vogel

Rheinstetten, Germany

P/N: Z31557
DWG-Nr: 1269002

Contents

Contents

General 1

Overview 1.1

General Functions of the PSD Board:

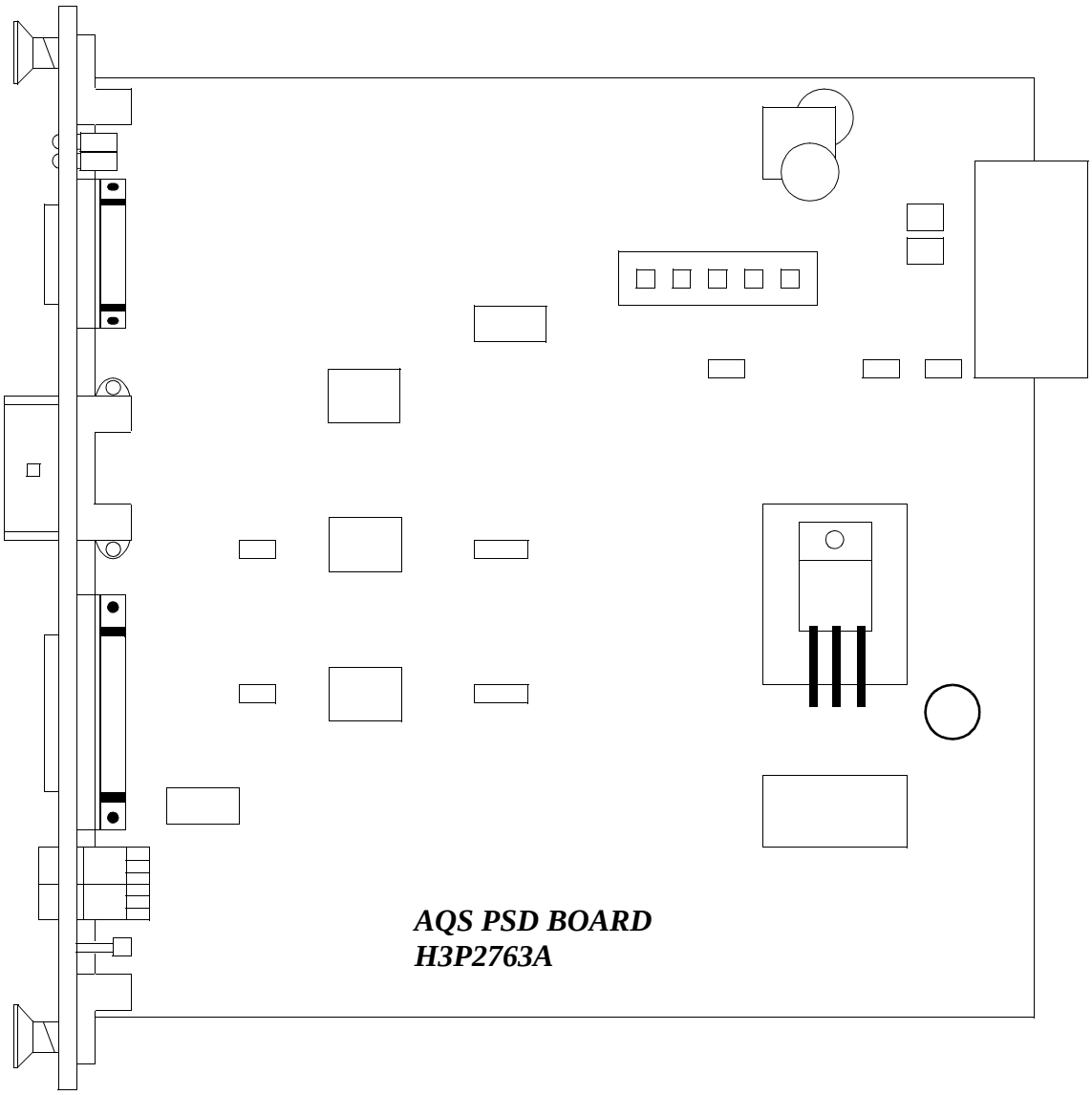
- Provides a connection for two AVANCE racks (Intra rack connector - see figure 2.4).
- Provides a connection between an AVANCE rack and a HPPR/2 (HPPR/2 connector 1, HPPR/2 connector 2 - see figure 2.4).
- Provides BLNKTR pulses for the Amplifiers.

If there are external amplifies in your configuration then you must mount the ACB-X board in the front side of the AQS rack and the PSD board in the rear side of the AQS rack.

If there are only compact amplifies in your configuration, then mount the ACB standard board in the PSD Slot.

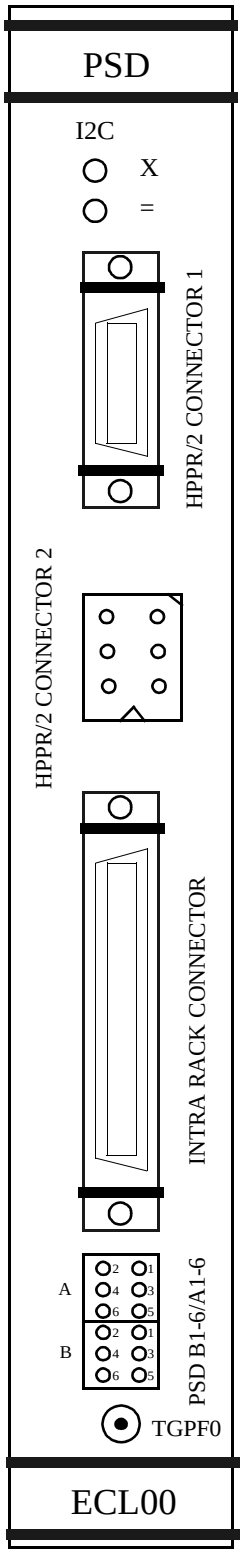
Layout AQS PSD BOARD (ECL00) *1.2*

Figure 1.1. AQS PSD BOARD (ECL00) Top View



Frontpanel AQS PSD BOARD (ECL00) *1.3*

Figure 1.2. PSD BOARD (ECL00) Front Panel



Shows the condition of the Board
X: means I2C 1 bus swapover to I2C_2Bus
=: means I2C bus direct connection

HPPR/2 CONNECTOR 1

Power supply to HPPR, SBS-bus Interface (differential RS485 output) to HPPR, EMERGENCY_STOP signal from HPPR, INTERLEAVE_INCR and RGP_HPPR_OUT signal to HPPR, LOCK_PP signal to HPPR.

HPPR/2 CONNECTOR 2

Additional power supply to HPPR

INTRA RACK CONNECTOR

Connection between AQS chassis 1 and AQS chassis 2.

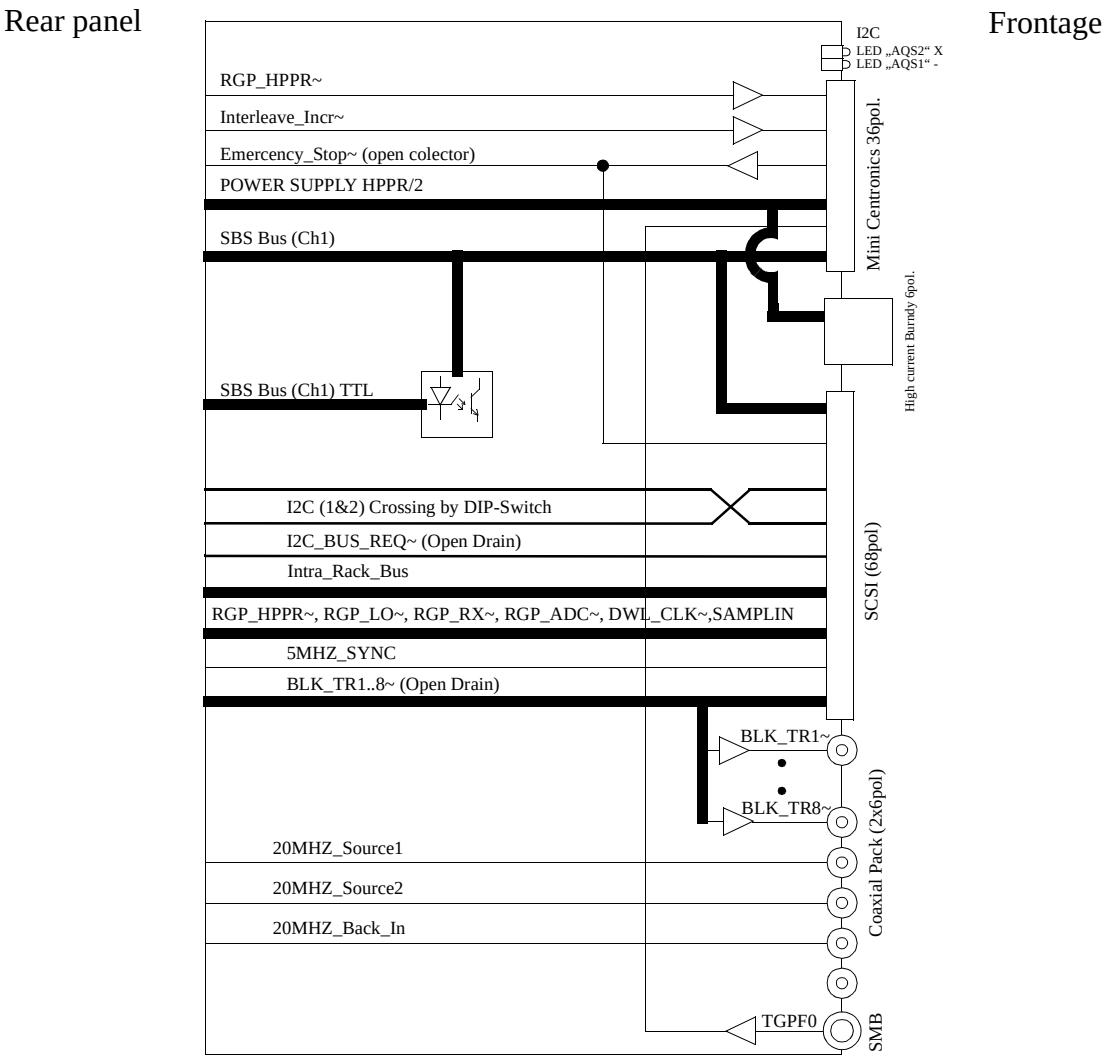
PSD B1-6/A1-6

Provides the blanking signals to the amplifiers and the 20MHZ Source (reference frequences).

Installation 2

PSD Block Diagram (ECL00) 2.1

Figure 2.1. PSD BOARD (EC00) Overview



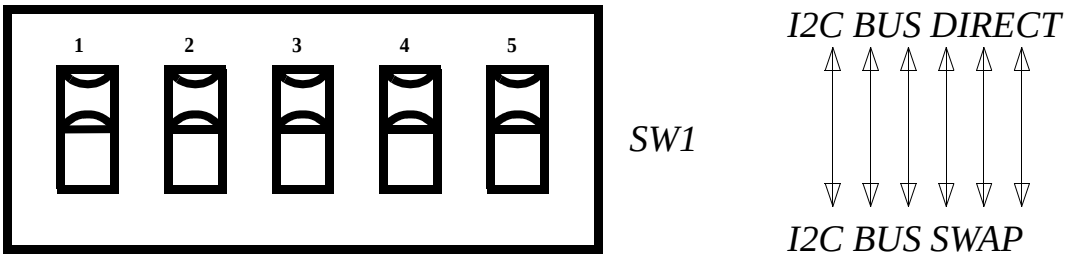
Board Dip-Switches *2.2*

Before placing the PSD board into the AQS Rack check the switch positions.

In a single chassis **all** switches must be in the upper position (see figure2.2).

In double chassis version refer chapter 4

Figure 2.2. Switch Settings in Single Chassis Mode



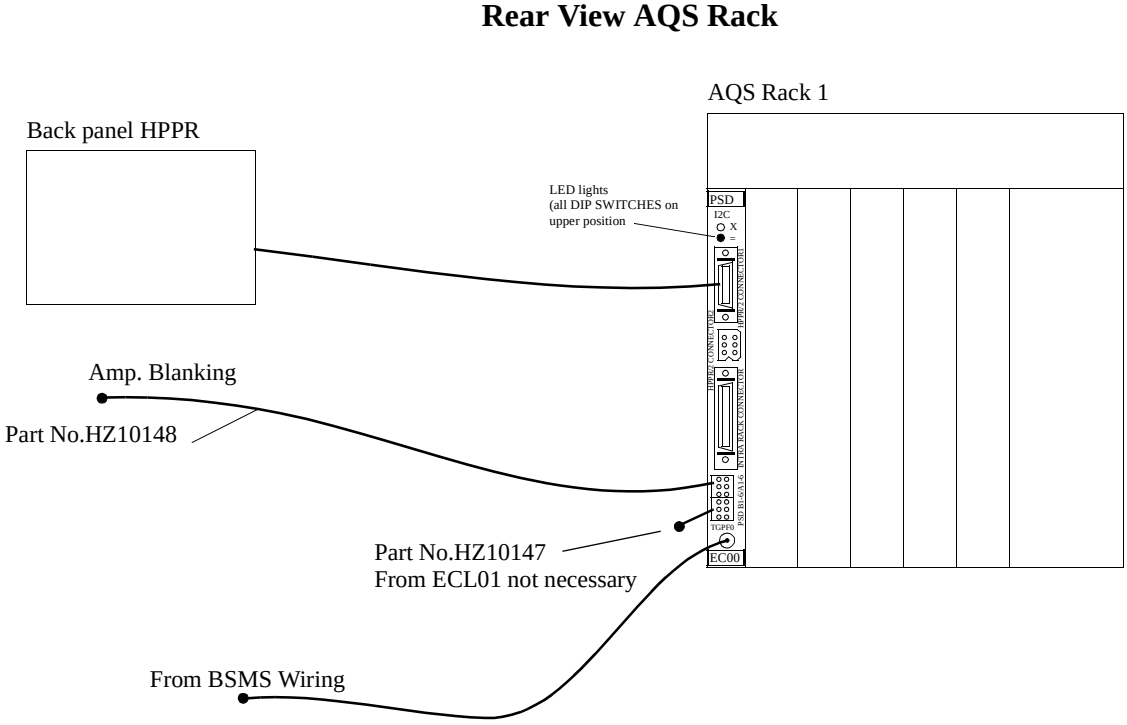
Connections 2.3

Connection in a Single Chassis Mode 2.3.1

The PSD board must be situated in the left slot of the AQS rack on the rear side (see figure 2.3).

- The PSD connector „HPPR/2 CONNECTOR1“ is linked by the backpanel HPPR wiring to the HPPR.
- The PSD connector „PSD A1-6“ is linked by the cable HZ10148 to the amplifiers.
- The PSD connector „PSD B1-6“ is linked by the termination cable HZ10147 (only necessary for the AQS PSD Board ECL00).

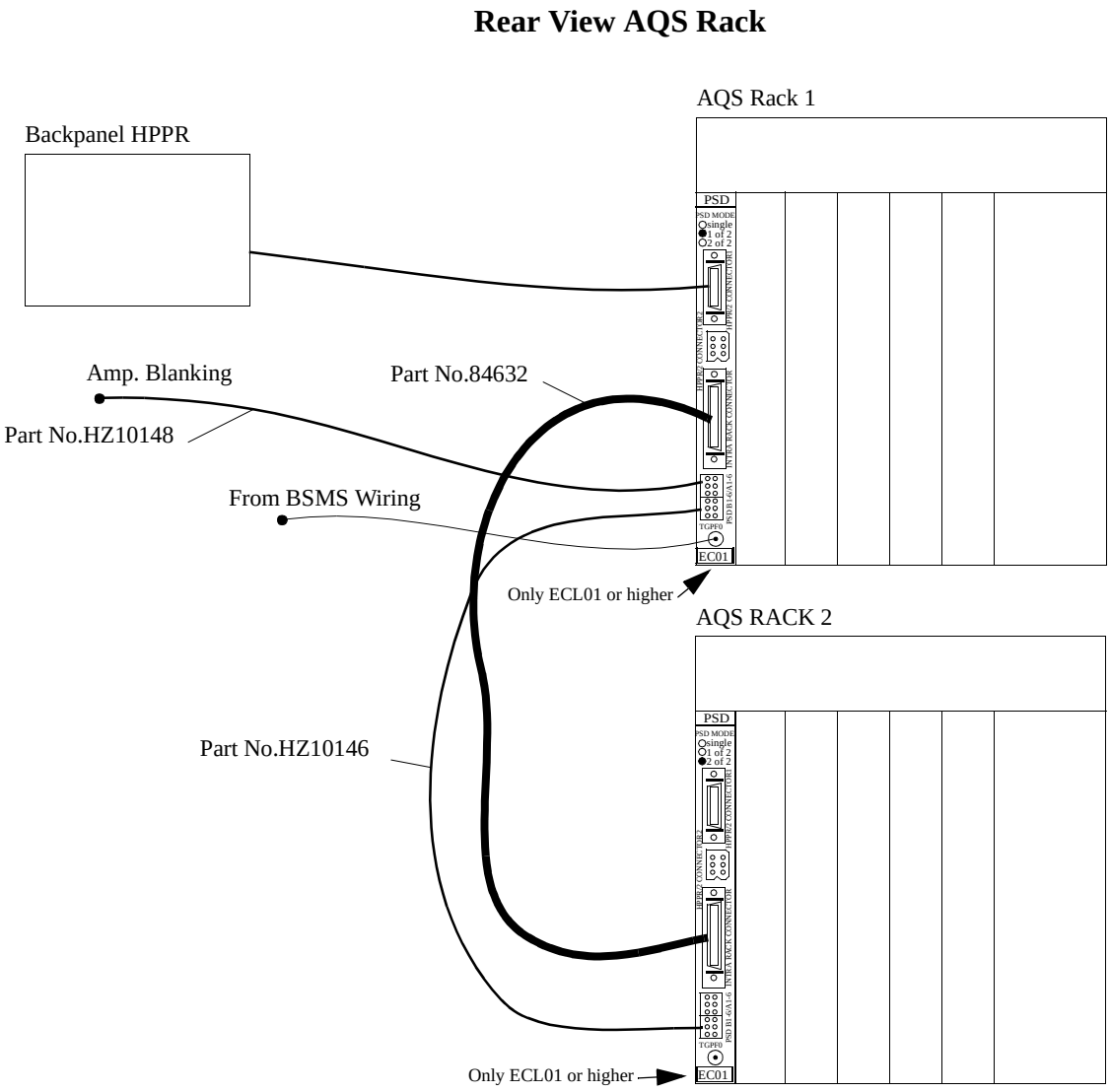
Figure 2.3. PSD Wiring in a Single Chassis Mode



Connection in a Double Chassis Mode *2.3.2*

- The PSD connector „HPPR/2 CONNECTOR1“ is linked by the back panel HPPR wiring to the HPPR.
- The PSD connector „INTRA RACK CONNECTOR“ (Rack1) is linked by the cable 84632 to the „INTRA RACK CONNECTOR (Rack2).
- The PSD connector „PSD A1-6“ is linked by the cable HZ10148 to the amplifiers.
- The PSD connector „PSD B1-6“ (Rack 1) is linked by the cable HZ10146 to the PSD connector „PSD B1-6“ (Rack 2).

Figure 2.4. PSD Wiring in a Double Chassis Mode



Part Numbers 2.4

Table 2.1. Part Numbers

Part Description	Part No.
PSD Board	H9530
Intra Rack Cable	84632
Cable to Amplifier	HZ10148
Termination Cable (only for AQS PSD BOARD ECL00 necessary)	HZ10147
PSD B1-6 to PSD B1-6 Cable	HZ10146

Connector Pinout 3

HPPR/2 Connector 1 3.1

HPPR/2 CONNECTOR 1

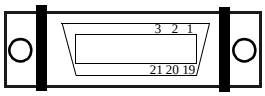


Table 3.1. Pinout HPPR/2 Connector 1

Pin No.	Signals
1	HPPR_P19V_OUT
2	HPPR_P19V_OUT
3	HPPR_P9V_OUT
4	HPPR_P9V_OUT
5	HPPR_P9V_OUT
6	HPPR_P9V_OUT
7	HPPR_P9V_OUT
8	HPPR_P9V_OUT
9	SBS_P12V
10	RXDP_1
11	TXDP_1
12	WUP_1-
13	HPPR_GND
14	EMERGENCY_STOP_IN-
15	HPPR_GND
16	INTERLEAVE_INCR_OUT
17	LOCK_PP
18	RGP_HPPR_OUT
19	HPPR_N19V_OUT
20	HPPR_N19V_OUT
21	HPPR_GND

Table 3.1. Pinout HPPR/2 Connector 1

Pin No.	Signals
22	HPPR_GND
23	HPPR_GND
24	HPPR_GND
25	HPPR_GND
26	HPPR_GND
27	SBS_GND
28	RXDM_1
29	TXDM_1
30	SBS_GND
31	HPPR_GND
32	EMERGENCY_STOP_IN
33	HPPR_GND
34	INTERLEAVE_INCR_OUT-
35	LOCK_PP
36	RGP_HPPR_OUT-

HPPR/2 Connector 2 *3.2*

HPPR/2 CONNECTOR 2

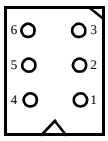


Table 3.2. Pinout HPPR/2 Connector 2

Pin No.	Signals
1	SRING
2	HPPR_P9V_OUT
3	HPPR_N19V_OUT
4	HPPR_GND
5	HPPR_GND
6	HPPR_P19V_OUT

Intra Rack Connector *3.3*

INTRA RACK CONNECTOR 2

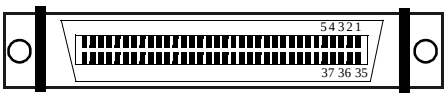


Table 3.3. Pinout Intra Rack Connector

Pin No.	Signals
1	BLNKTR1-
2	BLNKTR2-
3	BLNKTR3-
4	BLNKTR4-
5	BLNKTR5-
6	BLNKTR6-
7	BLNKTR7-
8	BLNKTR8-
9	EMERGENCY_STOP-
10	I2C_SCL_OUT
11	I2C_SDA_OUT
12	I2C_2_SCL_OUT
13	I2C_2_SDA_OUT
14	INTERLEAVE_INCR-
15	I2C_BUS_REQ-
16	LOCAL_TX
17	LOCAL_RX
18	RGP_LOW-
19	RGP_HPPR-
20	RGP_ADC-
21	RGP_RX-
22	DWL_CLK-
23	SAMPLE_INFO0
24	SAMPLE_INFO1
25	SAMPLE_INFO2

Table 3.3. Pinout Intra Rack Connector

Pin No.	Signals
26	SAMPLE_INFO3
27	SAMPLE_INFO4
28	ADC_SEL0
29	WUP_1-
30	RXDP_1
31	RXDM_1
32	TXDP_1
33	TXDM_1
34	5MHZ_SYNC
35	GND
36	GND
37	GND
38	GND
39	GND
40	GND
41	GND
42	GND
43	GND
44	GND
45	GND
46	GND
47	GND
48	GND
49	GND
50	GND
51	GND
52	GND
53	NC
54	NC
55	NC
56	NC

Table 3.3. Pinout Intra Rack Connector

Pin No.	Signals
57	RESERVE_1
58	RESERVE_2
59	RESERVE_3
60	RESERVE_4
61	RESERVE_5
62	GND
63	RESERVE_6
64	RESERVE_7
65	SAMPLE_INFO6
66	GND
67	GND
68	GND

PSD B1-6/A1-6 *3.4*

PSD B1-6/A1-6

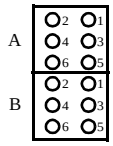


Table 3.4. Pinout PSD B1-6/A1-6

Pin No.	Signals
A1	BLNKTR2-
A2	BLNKTR1-
A3	BLNKTR4-
A4	BLNKTR3-
A5	BLNKTR6-
A6	BLNKTR5-
B1	BLNKTR8-
B2	BLNKTR7-
B3	20MHZ_BACK_IN
B4	20MHZ_SOURCE1 (Board ECL00) from Board ECL01 not connected
B5	NC
B6	20MHZ_SOURCE2

Revision C 4

Overview in REVISION C (ECL01) 4.1

The main difference between the Revision A (Board Revision B was never produced) and the Revision C is the additional mounted Print, the AQS PSD ROUTING BOARD (H9655).

This Board is used to route the 20MHZ REFERENZ CLOCK and the

I2C-BUS (I2C_2_BUS) signals dependant on the AQS RACKVERSION.

The main advantages are :

- In the single chassis Version no external termination Cable HZ10147 is necessary.
- In the dual chassis Version the chassis connection Cable HZ10146 between the CHASSIS 1 (AQS B1-6) and the CHASSIS 2 (AQS B1-6) is a simple single wire cable without external termination.
- All terminal resisters are placed on the AQS PSD ROUTING BOARD.

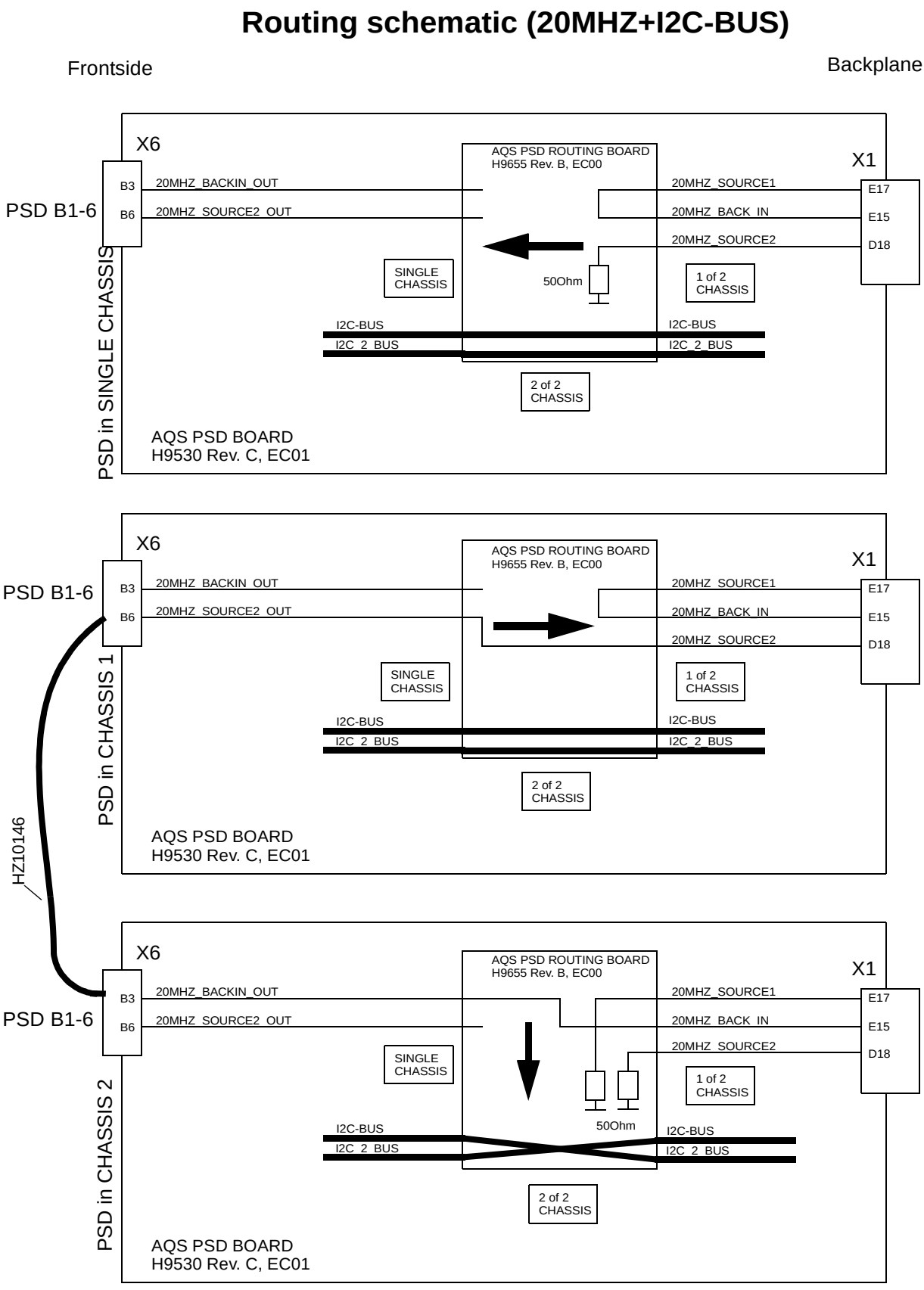
It is mandatory in the dual chassis version for both AQS Racks to have an AQS PSD BOARD with ECL01 or higher.

The mounted AQS PSD ROUTING Board must be set in the correct direction so that all signals are routed correctly.

The AQS PSD ROUTING BOARD position in use is displayed on 3 LEDs on the front panel (see ***PSD Front Panel REV. C (ECL01) on page 24***), or can be determined from the arrow position on the AQS PSD ROUTING BOARD in relation to the marker on the AQS PSD BOARD see ***AQS PSD REV. C Top View on page 23***.

Refer to the Routing schematic on page 22 for the correct mounting position.

Figure 4.1. Routing schematic



Layout AQS PSD Board (ECL01) *4.2*

Figure 4.2. AQS PSD REV. C Top View

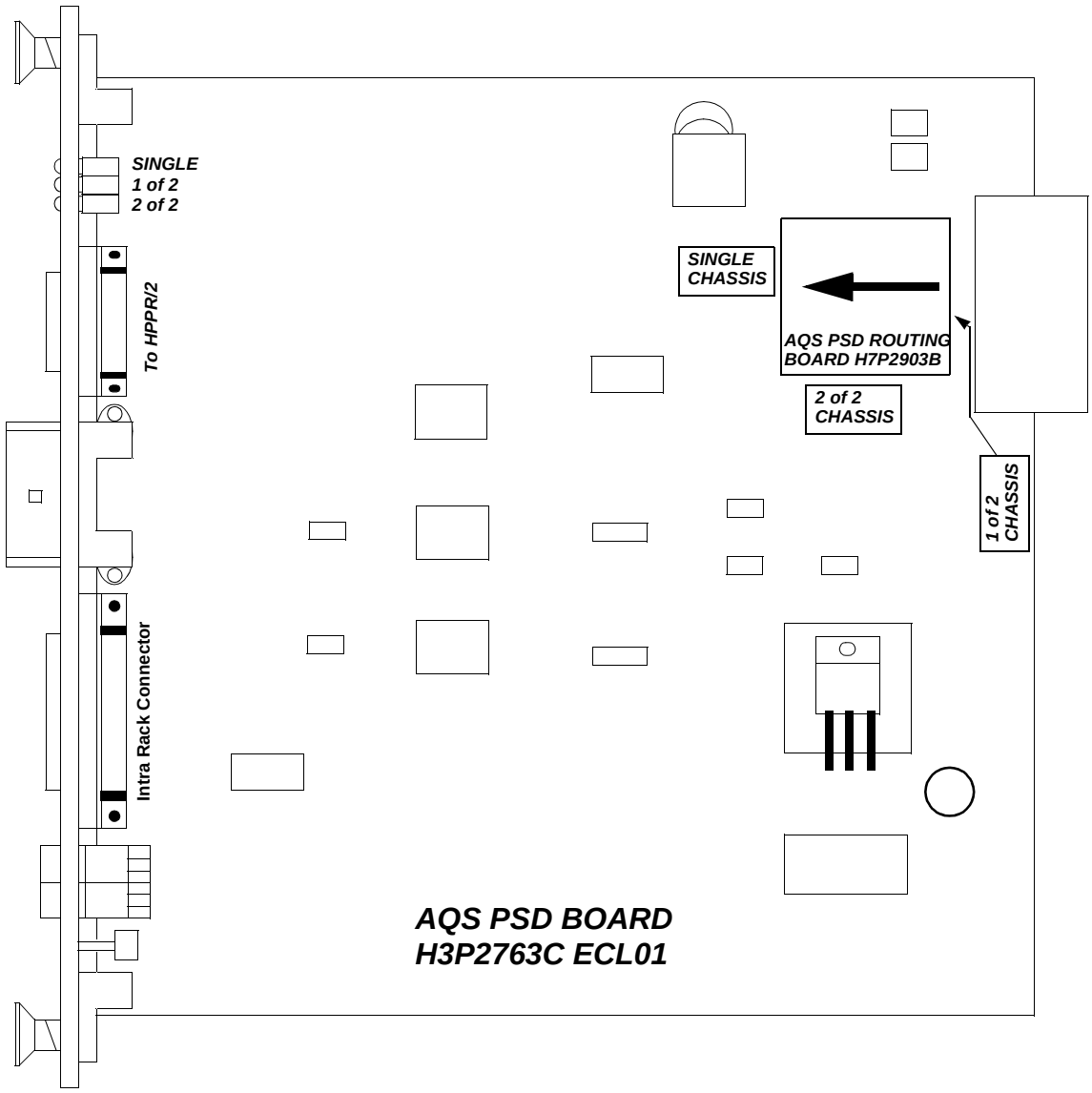
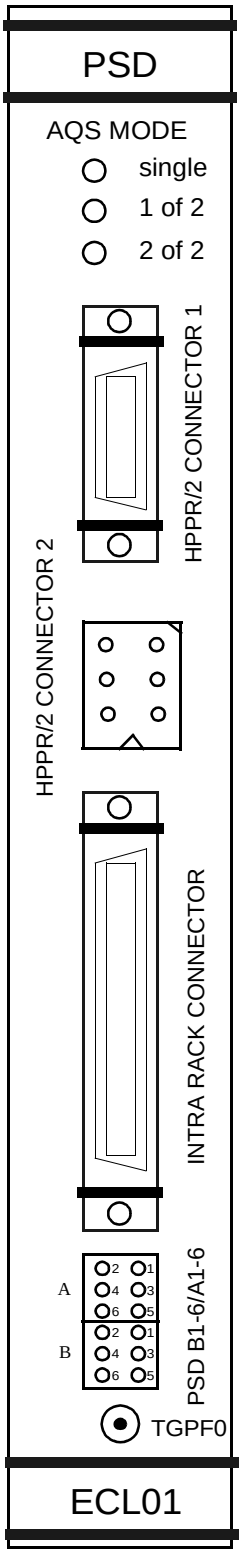


Figure 4.3. PSD Front Panel REV. C (ECL01)



AQS MODE

Shows the mounted position of the AQS PSD ROUTING BARD

HPPR/2 CONNECTOR 1

Power supply to HPPR, SBS-bus Interface (differential RS485 output) to HPPR, EMERGENCY_STOP signal from HPPR, INTERLEAVE_INCR and RGP_HPPR_OUT signal to HPPR, LOCK_PP signal to HPPR.

HPPR/2 CONNECTOR 2

Additional power supply to HPPR

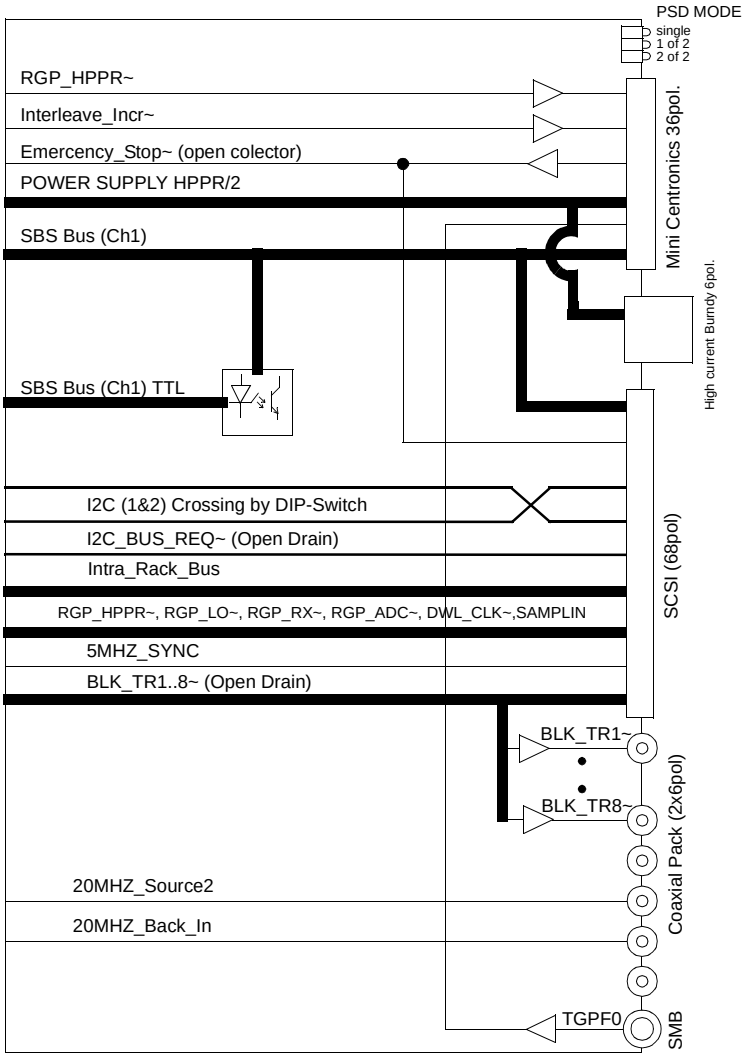
INTRA RACK CONNECTOR

Connection between AQS chassis 1 a. AQS chassis 2.

PSD B1-6/A1-6

Provides the blanking signals to the amplifiers and the 20MHZ Source (reference frequences).

Figure 4.4. PSD Overview REV. C (ECL01)



Revision C

Figures

Figures

Tables

Figures