



NETWORKING  
AUDIO  
SYSTEMS

# DALLIS

## Product Information

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## **DALLIS - Digital And Line Level Interface System**

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## DALLIS - Digital And Line Level Interface System

DALLIS is a very flexible and versatile I/O system that offers a wide choice of different I/Os designed as plug-in cards. The frame is connected via a central master card which distributes a multi-channel optical fibre link to the respective basic interfaces. Master cards are available with ATM or MADI interface.

The internal hardware structure itself offers a significant advantage with regard to safety: the I/O cards and the central master card are point-to-point connected. Thus, in contrast to bus structures (e. g. TDM), there is no danger of one I/O card decommissioning the complete frame.

In addition, it is possible to design the master card redundantly which is supported optimally by the double-star architecture of the backplane. The power supply units can be also of redundant design and thus, depending on the connected system, a complete hardware redundancy down to the interface (I/O card) can be achieved.

All active components of the interface systems are hot-pluggable.



## Frames

DALLIS frames are available as 19" mounting frames in the heights 3RU and 6RU. Both variants include 18 slots for I/O cards with the slots differing in width.

The 3RU-frame is designed for accommodating 4HP cards whereas the 6RU-frame offers slots of 8HP. Basically, all available plug-in cards can be used in both frame builds.

### 940/03 Frame 3HE

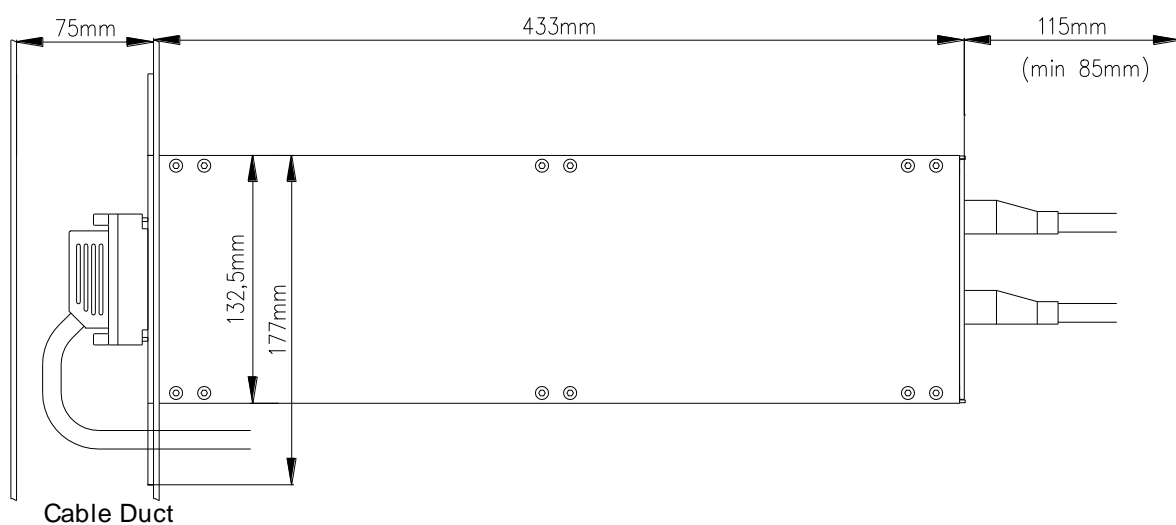
- 19"/3RU chassis, 1 level for card fitting
- 18 slots in a 4HP grid pattern and 2 slots with 6HP (for master cards)
- Double-star topology of backplane
- Passive ventilation
- Temperature- and voltage surveillance
- Alarm outputs, BNC (closed contact in case of failure) and D-Sub (see page 9)
- Control inputs to change over to the 2<sup>nd</sup> master card (opto-coupler, 5...30V), BNC and D-Sub (requires two master cards supporting this feature)

### Power Supply

- 1 power supply unit; optional second, redundant PSU (type 940/16)
- Hot-pluggable
- Supply voltage 100V...240V / 48Hz...62Hz
- Power consumption (depending on mounted equipment) 20W...150W

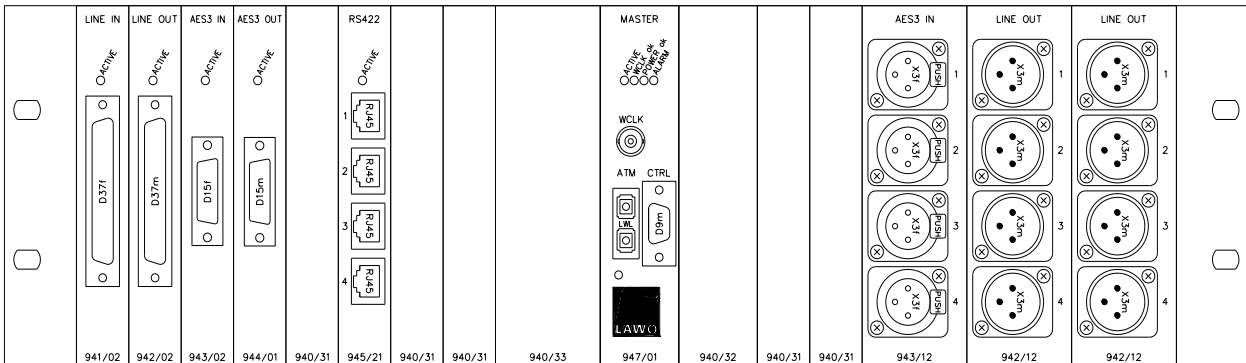
### Dimensions/Weight

- Height 132.5mm corresponding 3RU
- Width 19" corresponding 483mm (front plate) / 440mm (chassis)
- Depth ca. 433mm (without mounting)
- Weight 7.15kg (without mounted equipment)
- IRU below the frame is strictly required for ventilation and cable duct

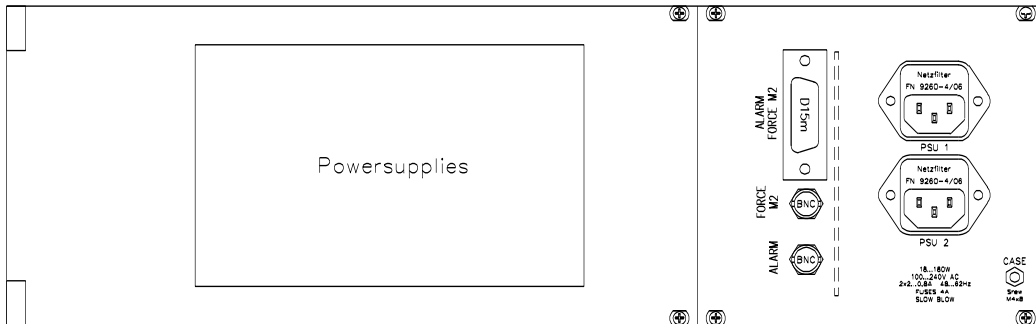


Frame 3RU, side view/mounting frame in the cabinet

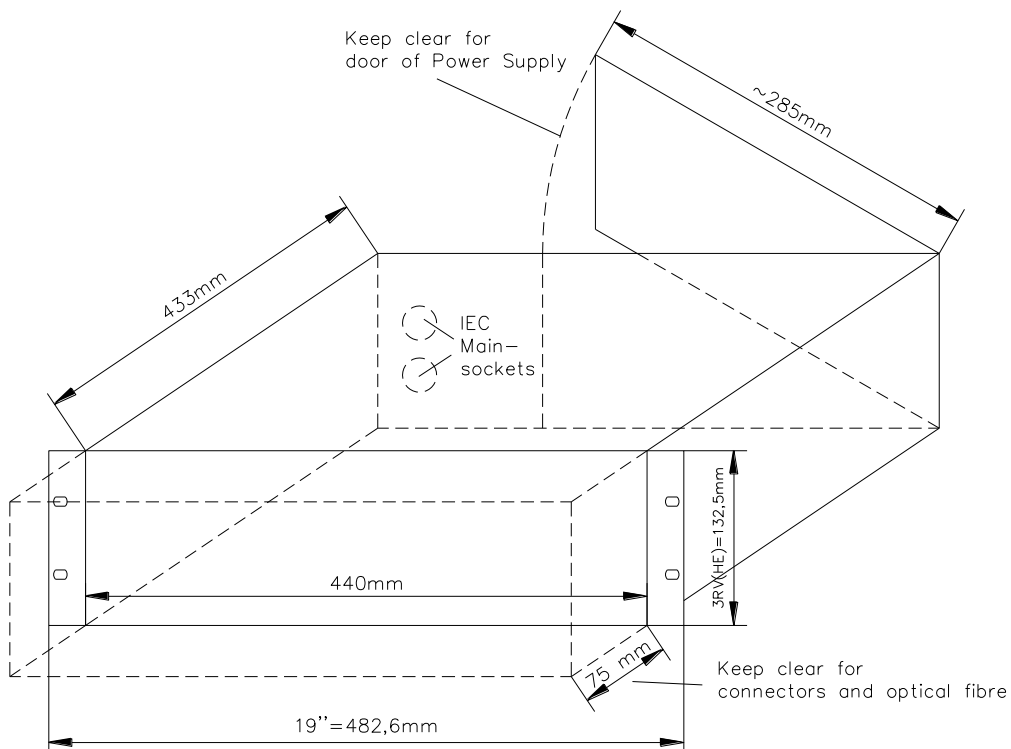
Slot-No.: ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ①① ①② ①③ ①④ ①⑤ ①⑥ ①⑦ ①⑧



Frame 940/03, front view (mounted equipment as example)



Frame 940/03, back view



Dimension diagram 3RU frame; the 6RU frame differs in height

### 940/06 Frame GHE

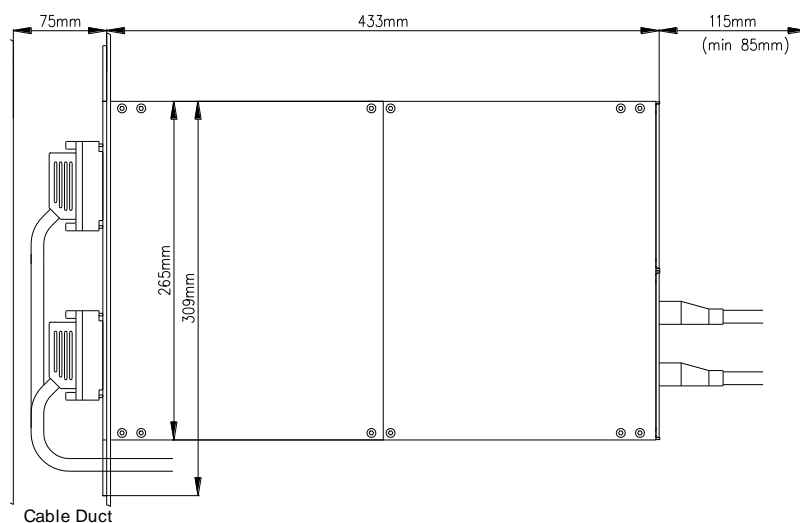
- 19"/6RU chassis, 2 levels for card fitting
- 18 slots in a 8HP grid pattern and 2 slots with 6HP (for master cards) and 1 slot 4HP for phantom supply card
- Double-star topology of backplane
- Passive ventilation
- Temperature- and voltage surveillance
- Alarm outputs, BNC (closed contact in case of failure) and D-Sub (see page 9)
- Control inputs to change over to the 2<sup>nd</sup> master card (opto-coupler, 5...30V), BNC and D-Sub (requires two master cards supporting this feature)

### Power Supply

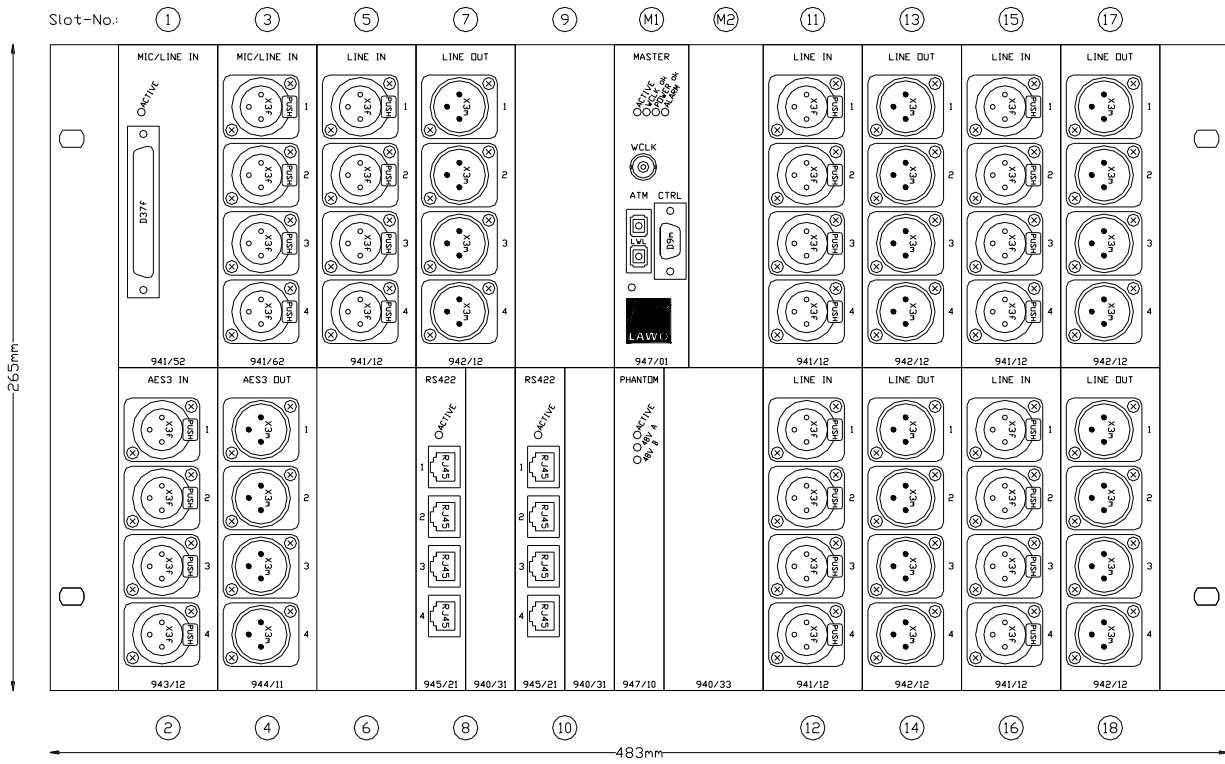
- 1 power supply unit; optional second, redundant PSU (type 940/16)
- Hot-pluggable
- Supply voltage 100V...240V / 48Hz...62Hz
- Power consumption (depending on mounted equipment) 20W...150W

### Dimensions/Weight

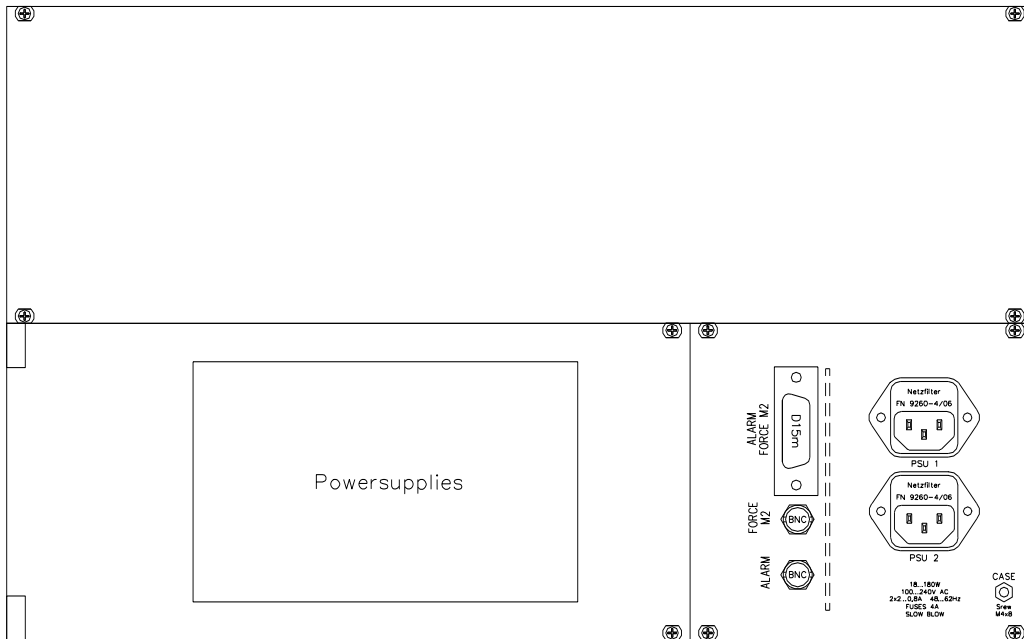
- Height 265mm corresponding 6RU
- Width 19" corresponding 483mm (front plate) / 440mm (chassis)
- Depth ca. 433mm (without mounting)
- Weight ca. 11kg (without mounted equipment)
- IRU below the frame is strictly for ventilation and cable duct



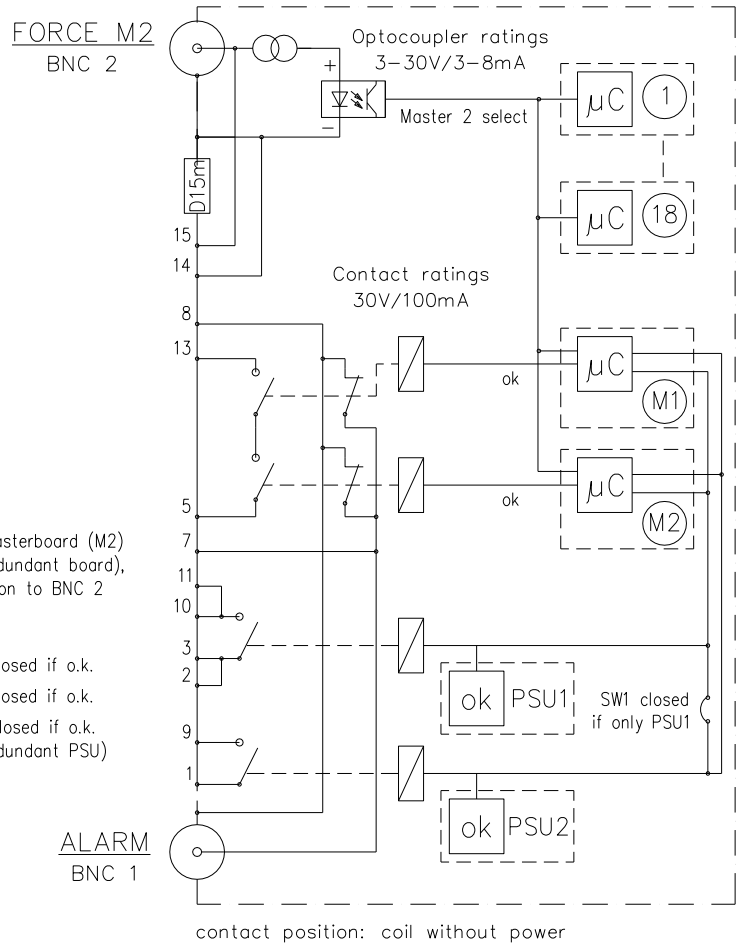
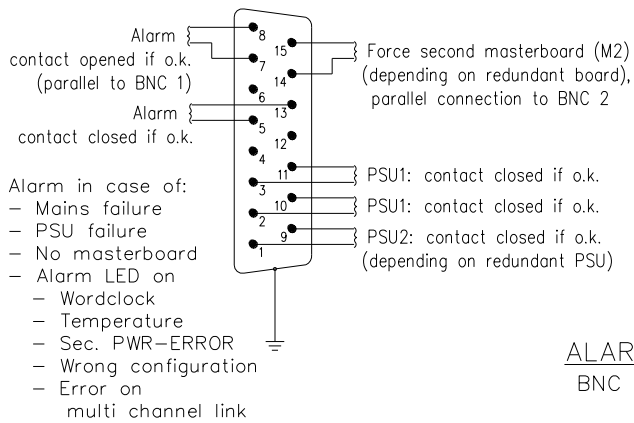
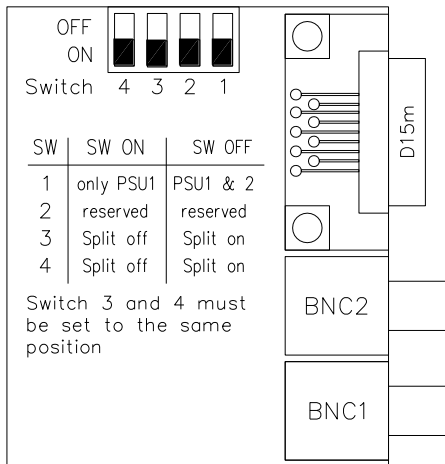
Frame GRU, side view/mounting frame in the cabinet



Frame 940/06, front view (mounted equipment as example)



Frame 940/06, back view

**Connector assignment**


**Plug-in Cards**

All plug-in cards are hot-pluggable. Thus, neither failure nor replacement effect any troubles in the operating matrix system (exception: when master card is not redundant).

All plug-in cards include an "ACTIVE"-LED. This facilitates locating defect cards.

The following plug-in cards are available for DALLIS:

**Master**

Interface	Connector Duplex-SC / Type			Audio	
	multi-mode fibre	multi-mode fibre (redundant)	single-mode fibre	Channels in	Channels out
MADI	947/05	947/07	947/15	64 (60*) mono	64 (60*) mono
ATM	947/03			80 mono	80 mono

\* if integrated in superior systems (mc<sup>2</sup> series, Nova73 HD), 4 channels are reserved for remote control und surveillance purposes

**Analogue**

Interface	Connector / Type			Audio	
	D-Sub	XLR	BNC	Channels in	Channels out
Mic/Line in (transformer-balanced)	941/52*	941/62*		4 mono	-
Line in (transformer-balanced)	941/02 (15dBu) 941/04 (24dBu) 941/06 (18dBu)	941/12 (15dBu) 941/14 (24dBu) 941/16 (18dBu)		4 mono	-
Line out (transformer-balanced)	942/02 (15dBu) 942/04 (24dBu) 942/06 (18dBu)	942/12 (15dBu) 942/14 (24dBu) 942/16 (18dBu)		-	4 mono
Mic/Line in (electric.-balanced), incl. phantom power	941/51			8 mono	-
Line in (electric.-balanced)	941/84			8 mono	-
Line in/out (electric.-balanced)	941/83			8 mono	8 mono
Line out (electric.-balanced)	942/84			-	8 mono
Headphones	942/61			-	4 stereo

\* for phantom power supply additional plug-in card 947/10 "Phantom" required (one per frame).

**Digital (AES/EBU)**

Interface	Connector / Type			Audio	
	D-Sub	XLR	BNC	Channels in	Channels out
AES3 in (with SRC)	943/02	943/12		4 stereo	-
AES3 in (high-Z, with SRC)/thru	943/84			4 stereo	-
AES3 in (with SRC)/out	943/52		943/72	4 stereo	4 stereo
AES3 in (with SRC)/out (with SRC)	943/54		943/74	4 stereo	4 stereo
AES3 out	944/01	944/11		-	4 stereo

**Miscellaneous**

Type	Type	Description	Audio	
			Channels in (max)	Channels out (max)
ADAT®	946/31		8 mono	8 mono
Intercom	943/81	For digital intercom signals (bi-directional on BNC)	4 stereo	4 stereo
SD SDI (embedded audio)	946/09		4 stereo	4 stereo
HD/SD SDI(embedded audio)	946/13		4 stereo	4 stereo
DSP fixed-mixer, signal generator	947/41	DSP fixed-mixer, signal generator	8 mono	8 mono
DSP mix matrix, signal generator	947/42	DSP mix matrix, signal generator	8 mono	8 mono

ADAT® is a registered trademark of Alesis, LLC and is used here under license.

**Control**

Type	Type	Description	Audio	
			Channels in (max)	Channels out (max)
Serial Data	945/22	Transfer of RS422, RS232 and MIDI data via audio channels	4 mono	4 mono
GPIO	945/01	8 optocouplers, 8 relays	-	-
	945/05	8 optocouplers, 16 relays, 4 VCA inputs	-	-
Optical Switch	945/61	2-to-1 switch for optical signals, optical to electrical conversion (coax)	-	-

The following information gives an overview over the most important characteristics of the plug-in cards. For further information please consult our data sheets.

**947/03 Master ATM**

The master card controls and monitors the I/O system and offers a ATM interface for connection via fibre optic link. There is also a wordclock interfacing port available for the synchronisation of connected devices.



**Audio Parameters**

- Word length 24Bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Up to 80 audio channels (mono) bi-directional via ATM at 44.1kHz/48kHz
- Up to 40 audio channels (mono) bi-directional via ATM at 88.2kHz/96kHz

**ATM Interface**

- 1 port ATM, LWL/Duplex SC, MMF 62.5/125 at 1300nm
- Max. line distance is 2000m

**Synchronisation**

- The master card synchronises via the ATM link or via the Word clock Input.

**Additional Interfacing Ports**

- Word clock: 1 output / input (switchable) BNC (75Ω)
- Service: 1 port serial data RS232, D-Sub 9-pin male

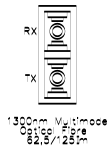
**Built**

- Plug-in card for DALLIS frame, supports change-over to redundant master card by control input (see page 5 and 7)
- Width 6HP
- Weight ca. 300g

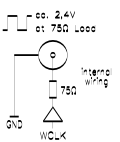
**Power Supply**

- Power consumption 6.8W at 48kHz and 7.0W at 96kHz

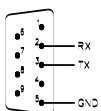
MAD in/out A/B  
Duplex-SC



WCLK out  
BNC  
connector view

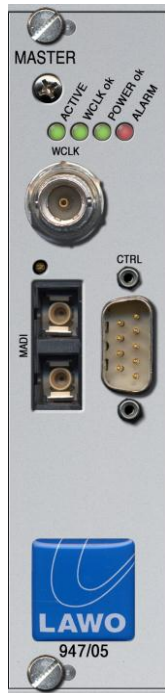


CTRL RS232  
D-Sub 9p male  
connector view

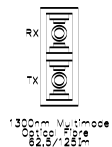


## 947/05 Master MADI

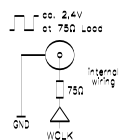
The master card controls and monitors the I/O system and offers a MADI interface for connection via fibre optic link. There is also a word clock interfacing port available for the synchronisation of connected devices.



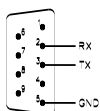
MADI in/out A/B  
Duplex-SC



WCLK out  
BNC  
connector view



CTRL\_RS232  
D-Sub 9p male  
connector view



### Audio Parameters

- Word length 24Bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Up to 64 audio channels (mono) bi-directional via ATM at 44.1kHz/48kHz
- Up to 32 audio channels (mono) bi-directional via ATM at 88.2kHz/96kHz

### MADI Interface

- 1 port MADI, LWL/Duplex SC, MMF 62.5/125 at 1300nm
- Max. line distance is 2000m

### Synchronisation

- The master card synchronises via the Madi link or via the word clock Input.

### Additional Interfacing Ports

- Word clock: 1 output / input (switchable) BNC (75Ω)
- Service: 1 port serial data RS232, D-Sub 9-pin male

### Built

- Plug-in card for DALLIS frame, supports change-over to redundant master card by control input (see page 5 and 7)
- Width 6HP
- Weight ca. 300g

### Power Supply

- Power consumption typ. 5.9W at 48kHz and 96kHz

**947/07 Master MADI (redundant port)**

The master card controls and monitors the I/O system and offers an MADI interface for connection via fibre optic link. A second port allows the connection via an additional redundant optical fibre. There is also a wordclock interfacing port available for the synchronisation of connected devices.



**Audio Parameters**

- Word length 24Bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Up to 64 audio channels (mono) bi-directional via ATM at 44.1kHz/48kHz
- Up to 32 audio channels (mono) bi-directional via ATM at 88.2kHz/96kHz

**MADI Interface**

- 2 ports MADI, LWL/Duplex SC, MMF 62.5/125 at 1300nm
- Max. line distance is 2000m

**Synchronisation**

- The master card synchronises via the MADI link or via the Wordclock Input.

**Additional Interfacing Ports**

- Wordclock: 1 output / input (switchable) BNC (75Ω)
- Service: 1 port serial data RS232, D-Sub 9-pin male

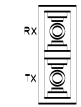
**Built**

- Plug-in card for DALLIS frame, supports change-over to redundant master card by control input (see page 5 and 7)
- Width 6HP
- Weight ca. 350g

**Power Supply**

- Power consumption typ. 6.9W at 48kHz and 96kHz

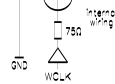
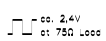
MADI in/out A/B  
Duplex-SC



1300nm Multimode  
62.5/125µm  
82.5/125µm

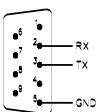
WCLK out

BNC  
connector view



CTRL RS232

D-Sub 9p male  
connector view



## 947/15 Master MADI SMF

The master card controls and monitors the I/O system and offers a MADI interface for connection via fibre optic link. There is also a word clock interfacing port available for the synchronisation of connected devices.



### Audio Parameters

- Word length 24Bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Up to 64 audio channels (mono) bi-directional via ATM at 44.1kHz/48kHz
- Up to 32 audio channels (mono) bi-directional via ATM at 88.2kHz/96kHz

### MADI Interface

- 1 port MADI, LWL/Duplex SC, SMF 9/125 at 1300nm
- Max. line distance is 15000m

### Synchronisation

- The master card synchronises via the Madi link or via the word clock Input.

### Additional Interfacing Ports

- Word clock: 1 output / input (switchable) BNC (75Ω)
- Service: 1 port serial data RS232, D-Sub 9-pin male

### Built

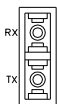
- Plug-in card for DALLIS frame, supports change-over to redundant master card by control input (see page 5 and 7)
- Width 6HP
- Weight ca. 300g

### Power Supply

- Power consumption typ. 5.9W at 48kHz and 96kHz

#### MADI in/out A/B

Duplex-SC

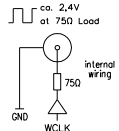


1300nm Single Mode  
Optical Fibre  
9/125µm

#### WCLK out

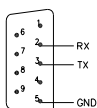
BNC  
connector view

ca. 2.4V  
at 75Ω Load



#### CTRL RS232

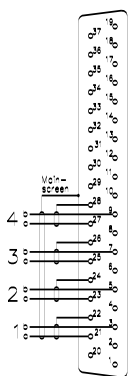
D-Sub 9p male  
connector view



**941/02, 04, 06 Line In (Transformer, D-Sub)**



Line In  
D-Sub 37-pin female  
connector view



**Inputs**

- 4 analog inputs
- Connector D-Sub 37-pin female
- Transformer balanced design, galvanically isolated, floating
- Suitable for unbalanced use
- Meets the technical requirements of IRT 3/5, RBT and NIO

**Analog Audio Parameters**

- Input level for digital full scale level: +15dBu (941/02)  
+18dBu (941/06)  
+24dBu (941/04)
- Frequency response: ±0.1dB (20Hz...20kHz) at 48kHz,  
±0.2dB (20Hz...40kHz) at 96kHz
- Dynamic range: typ. 110dB(A), 107dB(RMS)
- Idle channel noise: -107dBFS (RMS)
- Input impedance: > 10kΩ
- CMRR: 95dB (1kHz)
- Crosstalk: typ. -115dB
- THD&N: 0.0008% resp. -104dB (1kHz, +14dBu)
- HF-demodulation resistant in compliance with IRT-standards 3/5

**Digital Audio Parameters**

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 240g

**Power Supply**

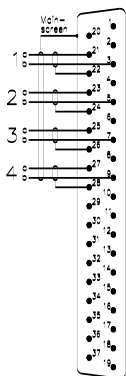
- Power consumption typ. 1.6W at 48kHz and 1.7W at 96kHz



**942/02, 04, 06 Line Out (Transformer, D-Sub)**



Line Out  
D-Sub 37p male  
connector view



**Outputs**

- 4 analog outputs
- Connector D-Sub 37-pin male
- Transformer balanced design, galvanically isolated, floating
- Suitable for unbalanced use
- Meets the technical requirements of IRT 3/5, RBT and NIO

**Analog Audio Parameters**

- Output level at digital full scale level (other levels on demand)
  - +15dBu (942/02)
  - +18dBu (942/06)
  - +24dBu (942/04)
- Frequency response:
  - +0.1dB, -0.2dB (20Hz...20kHz) at 48kHz,
  - +0.1dB, -1.0dB (20Hz...40kHz) at 96kHz
- Dynamic range:
  - typ. 116dB(A), 113dB(RMS)
- Idle channel noise:
  - 97.5dBu (RMS, 0dBFS=+15dBu)
- Output impedance:
  - typ. 8Ω (4Ω at 1kHz)
- Common mode of impedance:
  - typ. -90dB (1kHz)
- Crosstalk:
  - typ. -115dB
- THD&N:
  - 0.0025% resp. -92dB (1kHz, 0dBFS=+15dBu)

**Digital Audio Parameters**

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 260g

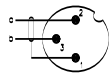
**Power Supply**

- 942/02: Power consumption typ. 2.4W at 48kHz and 2.5W at 96kHz
- 942/04, 942/06: Power consumption typ. 3.2W at 48kHz and 96kHz

## 942/12, 14, 16 Line Out (Transformer, XLR)



Line Out  
XLR 3p male  
connector view



### Outputs

- 4 analog outputs
- Connectors XLR 3-pole male
- Transformer balanced design, galvanically isolated, floating
- Suitable for unbalanced use
- Meets the technical requirements of IRT 3/5, RBT and NIO

### Analog Audio Parameters

- Output level at digital full scale level
 

	+15dBu (942/12)
	+18dBu (942/16)
	+24dBu (942/14)
- Frequency response:
 

	+0.1dB, -0.2dB (20Hz...20kHz) at 48kHz,
	+0.1dB, -1.0dB (20Hz...40kHz) at 96kHz
- Dynamic range:
 

	typ. 115.5dB(A), 112.7dB(RMS)
--	-------------------------------
- Idle channel noise:
 

	-97.5dBu (RMS)
--	----------------
- Output impedance:
 

	typ. 8Ω (4Ω at 1kHz)
--	----------------------
- Common mode of impedance:
 

	typ. -90dB (1kHz)
--	-------------------
- Crosstalk:
 

	typ. -115dB
--	-------------
- THD&N:
 

	0.0025% resp. -92dB (1kHz, 0dBFS=+15dBu)
--	---

### Digital Audio Parameters

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

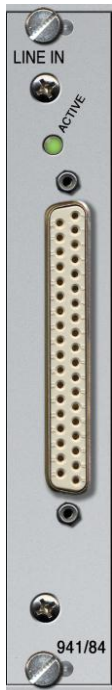
### Built

- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 300g

### Power Supply

- 942/12: Power consumption typ. 2.4W at 48kHz and 2.5W at 96kHz
- 942/14, 942/16: Power consumption typ. 3.2W at 48kHz and 96kHz

**941/84 Line In (Electronically balanced, D-Sub)**



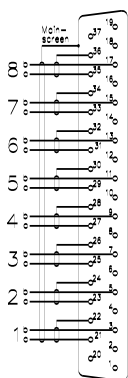
**Inputs**

- 8 analog inputs
- Connector D-Sub 37-pin female
- Electronically balanced design, floating
- Suitable for unbalanced use (max. +18dBu)

**Analog Audio Parameters**

- Input level for digital full scale level  
+12, 15, 18, 21, 24dBu
- Frequency response:  
±0.1dB (20Hz...20kHz) at 48kHz,  
+0.1dB, -0.4dB (20Hz...40kHz) at 96kHz
- Dynamic range: typ. 108dB(A), 104dB(RMS)
- Input impedance: > 11kΩ
- CMRR: typ. 105dB
- THD&N: 0.0025% resp. -92dB (997Hz, -1dBFS)

Line In  
D-Sub 37p female  
connector view



**Digital Audio Parameters**

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

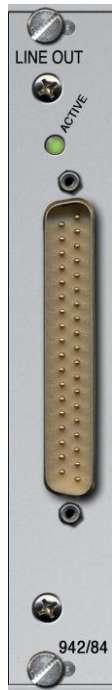
**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 225g

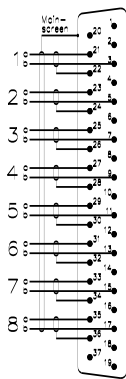
**Power Supply**

- Power consumption 2.6W at 48kHz and 2.9W at 96kHz

## 942/84 Line Out (Electronically balanced, D-Sub)



Line Out  
D-Sub 37p male  
connector view



### Outputs

- 8 analog outputs
- Connector D-Sub 37-pin male
- Electronically balanced design, floating
- Suitable for unbalanced use (max. +18dBu)

### Analog Audio Parameters

- Output level at digital full scale level  
+12, 15, 18, 21, 24dBu
- Frequency response:  
±0.1dB (20Hz...20kHz) at 48kHz,  
+0.1dB, -0.4dB (20Hz...40kHz) at 96kHz
- Dynamic range: typ. 106dB(A), 103dB(RMS) (at +15dBu)
- Output impedance: 50Ω (1kHz)
- CMR: typ. 65dB (1kHz)
- Crosstalk: typ. -125dB
- THD&N: 0.0016% resp. -96dB  
(997Hz, -3dBFS, +15dBu mode)

### Digital Audio Parameters

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

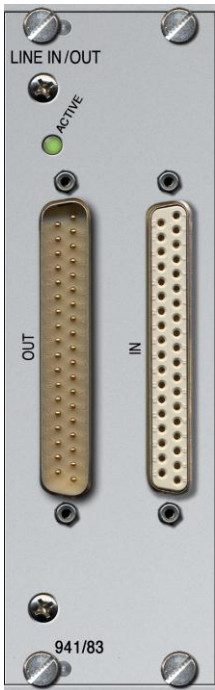
### Built

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 210g

### Power Supply

- Mode 0dBFS=+15dBu: power consumption typ. 3.4W at 48kHz  
and 3.7W at 96kHz
- Mode 0dBFS=+24dBu: power consumption typ. 4.8W at 48kHz  
and 5.0W at 96kHz

**941/83 Line In/Out (Electronically balanced, D-Sub)**



**Inputs**

- 8 analog inputs
- Connector D-Sub 37-pin female
- Electronically balanced design, floating
- Suitable for unbalanced use (max. +18dBu)

**Outputs**

- 8 analog outputs
- Connector D-Sub 37-pin male
- Electronically balanced design, floating
- Suitable for unbalanced use (max. +18dBu)

**Analog Audio Parameters**

- Inputs see type 941/84
- Outputs see type 942/84

**Digital Audio Parameters**

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

**Built**

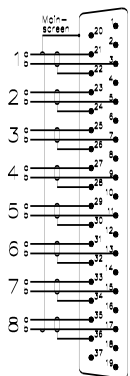
- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 290g

**Power Supply**

- Mode 0dBFS=+15dBu: power consumption typ. 3.7W at 48kHz and 96kHz
- Mode 0dBFS=+24dBu: power consumption typ. 4.8W at 48kHz and 5.0W at 96kHz

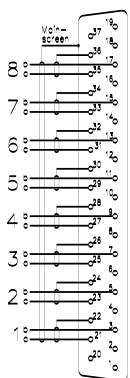
Line Out

D-Sub 37p male connector view



Line In

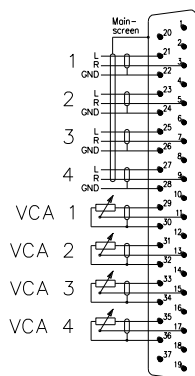
D-Sub 37p female connector view



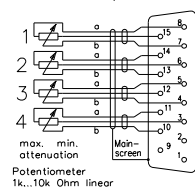
## 942/61 Headphones (D-Sub)



Phones Out  
D-Sub 37p male  
connector view



Alternative VCA in  
(opt. type 945/10)  
D-Sub 15p female



### Outputs

- 4 analog outputs for headphones (stereo)
- Connector D-Sub 37-pin male
- Electronically unbalanced design

### Function

- 4 VCA inputs for remote control of output level (volume)
- Connection of potentiometers (1k $\Omega$ ...10k $\Omega$  linear), represent digital scale (8bit), integrated reference voltage source
- Optionally discrete connection via connector panel 945/10

### Analog Audio Parameters

- Output level at digital full scale level  
220mW (50 $\Omega$ )
- Frequency response:  
+0.1dB, -0.8dB (20Hz...20kHz) at 48kHz,  
+0.1dB, -1.5dB (20Hz...40kHz) at 96kHz
- Dynamic range:  
typ. 105dB(A), 110dB(RMS) (no load)
- Idle channel noise:  
-85dBu (RMS)
- Output impedance:  
typ. 10 $\Omega$
- Crosstalk:  
typ. 80dB (full level at 50 $\Omega$ )
- THD&N:  
0.003% resp. -90dB  
(997Hz, -1dBFS; 200 $\Omega$  load)

### Digital Audio Parameters

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

### Built

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 190g

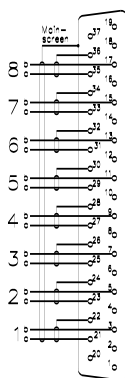
### Power Supply

- Power consumption 1.8W at 48kHz and 2.0W at 96kHz

**941/51 Mic/Line In (Electronically balanced, D-Sub), Rev. A**



Mic/Line In  
D-Sub 37p female  
connector view



**Inputs**

- 8 analog inputs
- Connector D-Sub 37-pin female
- Electronically balanced design, not floating
- Suitable for unbalanced use
- Integrated phantom power supply (switchable per input)

**Analog Audio Parameters**

- Input level for digital full scale level (remote controlled)
  - 55...+4dBu (no PAD)
  - 35...+24dBu (with PAD)
- Subsonic Filter switchable 12dB/oct for 40/80/140 Hz
- Input level tolerance typ. ±0.1dB
- Frequency response:
  - ±0.1dB (20Hz...20kHz) at 48kHz
  - ±0.3dB (20Hz...40kHz) at 96kHz
- Dynamic range: typ. 104dB(A), 101dB(RMS)
- Idle channel noise: -101dBfs (RMS, 0dBfs=+4dBu, no PAD)
- Input impedance: typ. 6.1kΩ
- CMRR: typ. 80dB (1kHz)
- Crosstalk: typ. 110dB (1 kHz)
- THD&N: typ. 0.002% resp. -90dB (997Hz, +3dBu, no PAD)

**Digital Audio Parameters**

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

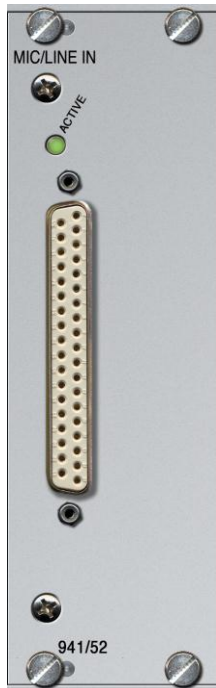
**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 320g

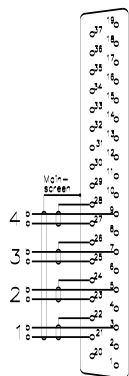
**Power Supply**

- Power consumption 3.5W (without phantom power) at 48kHz
- Power consumption 3.9W (phantom power active) at 48kHz
- Power consumption 3.8W (without phantom power) at 96kHz
- Power consumption 4.3W (phantom power active) at 96kHz

## 941/52 Mic/Line In (Transformer, D-Sub)



Mic/Line In  
D-Sub 37p female  
connector view



### Inputs

- 4 analog inputs
- Connector D-Sub 37-pin female
- Transformer balanced design, galvanically isolated, floating
- Suitable for unbalanced use
- Meets the technical requirements of IRT 3/5, RBT and NIO

### Analog Audio Parameters

- Input level for digital full scale level (remote controlled)  
-70...+30dBu
- Subsonic Filter switchable 12dB/oct for 40/80/140 Hz
- Frequency response: 0.1dB, -0.25dBu (20Hz...20kHz) at 48kHz,  
+0.1dB, -0.25dBu (20Hz...40kHz) at 96kHz
- Dynamic range: typ. 127dB(A), 124dB(RMS)
- Idle channel noise: -124dBFS at 0dBFS=+30dBu
- Input impedance: > 2.4 kΩ (5.9 kΩ Line)
- CMRR: 100dB (1kHz)
- Crosstalk: typ. -116dB
- THD&N: typ. 0.0013% resp. -100dB  
(1kHz, +14dBu)
- HF-demodulation resistant in compliance with IRT-standards 3/5

### Digital Audio Parameters

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

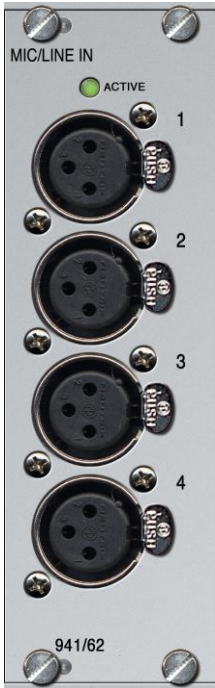
### Built

- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 880g

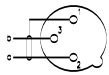
### Power Supply

- Power consumption 3.2W (without phantom power) at 48kHz  
Power consumption 3.6W (phantom power active) at 48kHz  
Power consumption 3.5W (without phantom power) at 96kHz  
Power consumption 3.8W (phantom power active) at 96kHz

**941/62 Mic/Line In (Transformer, XLR)**



Mic/Line In  
XLR 3p female  
connector view



**Inputs**

- 4 analog inputs
- Connectors XLR 3-pole female
- Transformer balanced design, galvanically isolated, floating
- Suitable for unbalanced use
- Meets the technical requirements of IRT 3/5, RBT and NIO

**Analog Audio Parameters**

- Input level for digital full scale level (remote controlled) -70...+30dBu
- Subsonic Filter switchable 12dB/oct for 40/80/140 Hz
- Frequency response: ±0.1dB (40Hz...15kHz),  
±0.4dB (20Hz...20kHz)
- Dynamic range: typ. 127dB(A), 124dB(RMS)
- Idle channel noise: -124dBFS at 0dBFS=+30dBu
- Input impedance: > 2.4kΩ (5.9kΩ Line)
- CMRR: 100dB (1kHz)
- Crosstalk: typ. -116dB
- THD&N: typ. 0.0013% resp. -100dB  
(1kHz, +14dBu)
- HF-demodulation resistant in compliance with IRT-standards 3/5

**Digital Audio-Parameters**

- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz

**Built**

- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 910g

**Power Supply**

- Power consumption 3.5W (without phantom power) at 48kHz  
Power consumption 3.6W (phantom power active) at 48kHz  
Power consumption 3.5W (without phantom power) at 96kHz  
Power consumption 3.8W (phantom power active) at 96kHz

### 947/10 Phantom power supply



#### Functionality

- 48V phantom power supply for Mic/Line cards 941/52 and 941/62
- Internally redundant structure

#### Built

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 230g

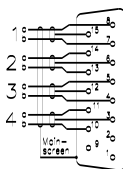
#### Power Supply

- Power consumption max. 30W
- Power dissipation max. 6W

**943/02 AES3 In (SRC, D-Sub)**



AES3 In  
Sub-D 15p female  
connector view



**Inputs**

- 4 inputs AES3 (AES/EBU, stereo)
- Connector D-Sub 15-pin female
- Transformer balanced design, galvanically isolated, floating

**Digital Audio Parameters**

- Comply with AES3-2003
- Word length 24bit
- Dolby-E compatible
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits (not in case of sample rate conversion), transfer of the Valid Bit can be suppressed (DIP switch)
- Input impedance 110Ω, signal amplitude min. 200mV
- Phase tolerance -140°...+305°

**Sampling Rate Converter**

- 4 sampling rate converter, auto range 14.7kHz...108kHz, individual bypass (DIP switch)

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 180g

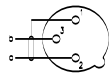
**Power Supply**

- Power consumption max. 2.6W at 48kHz and 3.5W at 96kHz

## 943/12 AES3 In (SRC, XLR)



AES3 In  
XLR 3p female  
connector view



### Inputs

- 4 inputs AES3 (AES/EBU, stereo)
- Connectors XLR 3-pole female
- Transformer balanced design, galvanically isolated, floating

### Digital Audio Parameters

- Comply with AES3-2003
- Word length 24bit
- Dolby-E compatible
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits (not in case of sample rate conversion), transfer of the Valid Bit can be suppressed (DIP switch)
- Input impedance 110Ω, signal amplitude min. 200mV
- Phase tolerance  $-140^{\circ}$ ... $+305^{\circ}$

### Sampling Rate Converter

- 4 sampling rate converter, auto range 14.7kHz...108kHz, individual bypass (DIP switch)

### Built

- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 180g

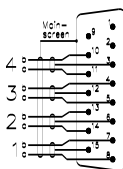
### Power Supply

- Power consumption max. 2.6W at 48kHz and 3.5W at 96kHz

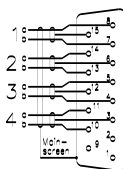
**943/52 AES3 In/Out (SRC In, D-Sub)**



AES3 Out  
Sub-D 15p male  
connector view



AES3 In  
Sub-D 15p female  
connector view



**Inputs**

- 4 inputs AES3 (AES/EBU, stereo)
- Connector D-Sub 15-pin female
- Transformer balanced design, galvanically isolated, floating

**Outputs**

- 4 outputs AES3 (AES/EBU, stereo)
- Connector D-Sub 15-pin male
- Transformer balanced design, galvanically isolated, floating

**Digital Audio Parameters**

- Comply with AES3-2003
- Word length 24bit
- Dolby-E compatible
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits (not in case of sample rate conversion), transfer of the Valid Bit can be suppressed (DIP switch)
- Input impedance 110Ω, signal amplitude min. 200mV
- Phase tolerance for input signals -162°...+204°
- Output impedance 110Ω, signal amplitude typ. 3V at 110Ω

**Sampling Rate Converter**

- Inputs: 4 sampling rate converter, auto range 28kHz...100kHz individual bypass (remote control or DIP switch)

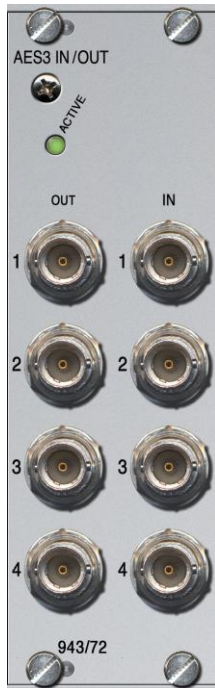
**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 190g

**Power Supply**

- Power consumption max. 2.6W at 48kHz and 3.3W at 96kHz

**943/72 AES3 In/Out (SRC Inp, BNC)**



**Inputs**

- 4 inputs AES3 (AES/EBU, stereo)
- Connector BNC 75Ω
- Unbalanced design, not floating

**Outputs**

- 4 outputs AES3 (AES/EBU, stereo)
- Connector BNC 75Ω
- Unbalanced design, not floating

**Digital Audio Parameters**

- Comply with AES3-2003
- Word length 24bit
- Dolby-E compatible
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits (not in case of sample rate conversion), transfer of the Valid Bit can be suppressed (DIP switch)
- Input impedance 75Ω, signal amplitude min. 400mV
- Phase tolerance for input signals -162°...+204°
- Output impedance 75Ω, signal amplitude typ. 1V at AES3-id, 0.5V at S/PDIF

**Sampling Rate Converters**

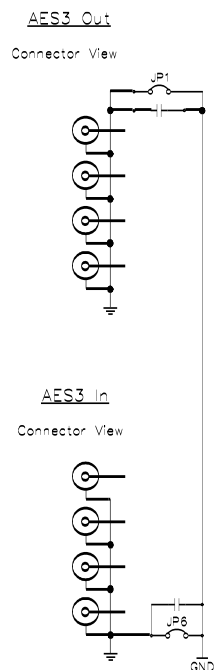
- Inputs: 4 sampling rate converters, auto range 28kHz...100kHz, individual bypass (remote control or DIP switch)

**Built**

- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 380g

**Power Supply**

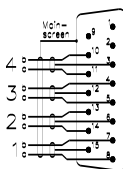
- Power consumption max. 2.5W at 48kHz and 3.1W at 96kHz



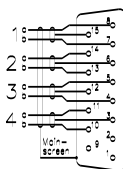
**943/54 AES3 In/Out (SRC In/Out, D-Sub)**



AES3 Out  
Sub-D 15p male  
connector view



AES3 In  
Sub-D 15p female  
connector view



**Inputs**

- 4 inputs AES3 (AES/EBU, stereo)
- Connector D-Sub 15-pin female
- Transformer balanced design, galvanically isolated, floating

**Outputs**

- 4 outputs AES3 (AES/EBU, stereo)
- Connector D-Sub 15-pin male
- Transformer balanced design, galvanically isolated, floating

**Digital Audio Parameters**

- Comply with AES3-2003
- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits (not in case of sample rate conversion), transfer of the Valid Bit can be suppressed (DIP switch)
- Input impedance 110Ω, signal amplitude min. 200mV
- Phase tolerance for input signals  $-162^{\circ} \dots +204^{\circ}$
- Output impedance 110Ω, signal amplitude typ. 3V at 110Ω
- Outputs: Word length reduction to 16 or 20bit, separately switchable per output (DIP switch, Dithering)

**Sampling Rate Converters**

- Inputs: 4 sampling rate converters, auto range 28kHz...100kHz, individual bypass (remote control or DIP switch)
- Outputs: 4 sampling rate converters, individually switchable, sampling frequencies 44.1kHz/48kHz/88.2kHz/96kHz/follow input or bypass (*zirkon/Novall?* supports only 44.1kHz, 48kHz/96kHz or follow input, depending on  $f_s$  of system)

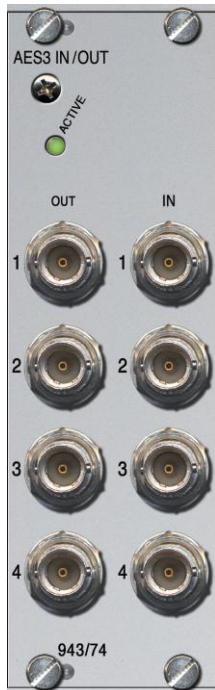
**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 190g

**Power Supply**

- Power consumption max. 2.0W at 48kHz and 2.4W at 96kHz

**943/74 AES3 In/Out (SRC In/Out, BNC)**



**Inputs**

- 4 inputs AES3 (AES/EBU, stereo)
- Connector BNC 75Ω
- Unbalanced design, not floating

**Outputs**

- 4 outputs AES3 (AES/EBU, stereo)
- Connector BNC 75Ω
- Unbalanced design, not floating

**Digital Audio Parameters**

- Comply with AES3-2003
- Word length 24bit
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits (not in case of sample rate conversion), transfer of the Valid Bit can be suppressed (DIP switch)
- Input impedance 75Ω, signal amplitude min. 400mV
- Phase tolerance for input signals -162°...+204°
- Output impedance 75Ω, signal amplitude typ. 1V at AES3-id, 0.5V at S/PDIF
- Outputs: Word length reduction to 16 or 20bit, separately switchable per output (DIP switch, Dithering)

**Sampling Rate Converters**

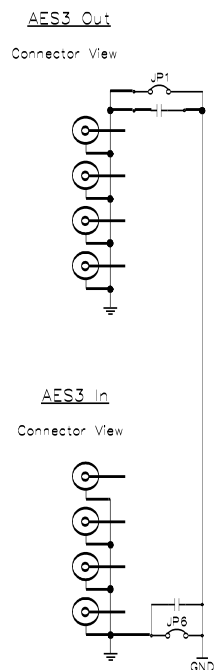
- Inputs: 4 sampling rate converters, auto range 28kHz...100kHz, individual bypass (remote control or DIP switch)
- Outputs: 4 sampling rate converters, individually switchable, sampling frequencies 44.1kHz/48kHz/88.2kHz/96kHz/follow input or bypass (*zirkon/Naval7* supports only 44.1kHz, 48kHz/96kHz or follow input, depending on  $f_s$  of system)

**Built**

- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 380g

**Power Supply**

- Power consumption max. 2.5W at 48kHz and 3.1W at 96kHz



**943/84 AES3 In High Z (SRC, D-Sub)**

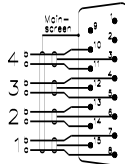
This high Z input card is designed especially for monitor matrices. The looped-through output allows the real monitoring of AES/EBU signals without additional signal splitter device. The termination must be provided by an external device.

In practice, the card will be positioned either before the monitored AES3 input or between the monitored AES3 output and its consumer load.



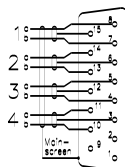
AES3 Thru

Sub-D 15p male connector view



AES3 In

Sub-D 15p female connector view



**Inputs**

- 4 inputs AES3 (AES/EBU, stereo)
- Connector D-Sub 15-pin female
- Transformer balanced design, galvanically isolated, floating

**Loop Through**

- Connector D-Sub 15-pin male
- Connected device must provide termination of 110Ω

**Digital Audio Parameters**

- Comply with AES3-2003 (only with external termination of 110Ω)
- Word length 24bit
- Dolby-E compatible
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits (not in case of sample rate conversion), transfer of the Valid Bit can be suppressed (DIP switch)
- Input impedance high Z, signal amplitude min. 200mV
- Phase tolerance for input signals -162°...+204°

**Sampling Rate Converter**

- Inputs: 4 sampling rate converter, auto range 14.7kHz...108kHz, individual bypass (remote control or DIP switch)

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 190g

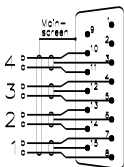
**Power Supply**

- Power consumption max. 2.0W at 48kHz and 2.4W at 96kHz

## 944/01 AES3 Out (D-Sub)



AES3 Out  
Sub-D 15p male  
connector view



### Outputs

- 4 outputs AES3 (AES/EBU, stereo)
- Connector D-Sub 15-pin male
- Transformer balanced design, galvanically isolated, floating

### Digital Audio Parameters

- Comply with AES3-2003
- Word length 24bit
- Dolby-E compatible
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits
- Output impedance 110Ω, signal amplitude typ. 3V on 110Ω

### Built

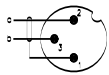
- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 180g

### Power Supply

- Power consumption max. 1.4W at 48kHz and 1.6W at 96kHz

**944/11 AES3 Out (XLR)**

AES3 Out  
XLR 3p male  
connector view

**Outputs**

- 4 outputs AES3 (AES/EBU, stereo)
- Connectors XLR 3-pole male
- Transformer balanced design, galvanically isolated, floating

**Digital Audio Parameters**

- Comply with AES3-2003
- Word length 24bit
- Dolby-E compatible
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Transparent transfer of all bits
- Output impedance 110Ω, signal amplitude typ. 3V on 110Ω

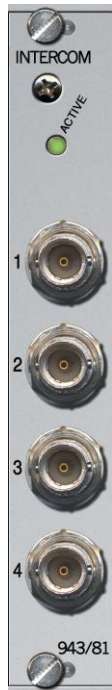
**Built**

- Plug-in card for DALLIS frame
- Width 8HP
- Weight ca. 230g

**Power Supply**

- Power consumption max. 1.4W at 48kHz and 1.6W at 96kHz

**943/81 Intercom (BNC)**



**Functionality**

- 4 Ports Intercom, bi-directional
- Protocol Riedel Artist
- Transparent data link

**Technical data**

- Ports: BNC, electric parameters according to Riedel specification

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 250g

**Power Supply**

- Power consumption typ. 4.1W

**946/09 SD SDI audio embedder/de-embedder (BNC)****Inputs**

- 1 input SD SDI (SMPTE 272M-1994)
- Connector BNC 75 $\Omega$  (equalisation for 300m Belden SD SDI)
- Synchronisation to SD SDI frame

**Loop Through**

- 1 output with looped input signal SD SDI, re-clocked
- Connector BNC 75 $\Omega$  (equalisation for 300m Belden SD SDI)

**Outputs**

- 2 outputs SD-SDI (SMPTE 272 M-1994), depending on input signal
- Connector BNC 75 $\Omega$   
(equalisation 300m Belden SD SDI)
- Output 1: looped input signal during PWR off (relay-bypass)

**Digital Audio Parameters**

- Embedding/de-embedding of up to 8 audio channels (incl. insert mode)
- Cascadable for up to 16 channels embedding and 16 channels de-embedding
- Word length 16 bit/ 20 bit/ 24bit
- 4 stereo Delays each 240ms
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Integrated sampling rate converter
- Clean or cascade mode for embedder
- Video test pattern generator

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight 275g

**Power Supply**

- Power consumption typ. 5.4W at 48kHz and 6.0W at 96kHz

## 946/13 HD/SD SDI audio embedder/de-embedder (BNC)



### Inputs

- 1 input auto detect
  - HD SDI (SMPTE 299M-2004)
  - SD SDI (SMPTE 272M-1994)
- Connector BNC 75Ω  
(equalisation for 130m Belden HD SDI, 300m Belden SD SDI)
- Synchronisation to HD SDI / SD SDI frame

### Loop Through

- 1 output with looped input signal HD SDI / SD SDI, re-clocked
- Connector BNC 75Ω  
(equalisation for 130m Belden HD SDI, 300m Belden SD SDI)

### Outputs

- 2 outputs HD SDI (SMPTE 299 M-2004) or SD SDI (SMPTE 272 M-1994), depending on input signal
- Connector BNC 75Ω  
(equalisation for 130m Belden HD SDI, 300m Belden SD SDI)
- Output 1: looped input signal during PWR off (relay-bypass)

### Digital Audio Parameters

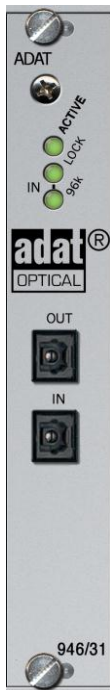
- Embedding/de-embedding of up to 8 audio channels (incl. insert mode)
- Cascadable for up to 16 channels embedding and 16 channels de-embedding
- Word length 16 bit/20 bit/24 bit
- 4 stereo Delays each 240ms
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Integrated sampling rate converter
- Clean or cascade mode for embedder
- Video test pattern generator

### Built

- Plug-in card for DALLIS frame
- Width 4HP
- Weight 275g

### Power Supply

- Power consumption typ. 5.4W at 48kHz and 6.0W at 96kHz

**946/31 ADAT® (Toslink)****Inputs**

- 1 input ADAT® (8 audio channels resp. 4 audio channels in S/MUX mode)
- Connector Toslink (optical), APF 970/1000nm

**Outputs**

- 1 output ADAT® (8 audio channels resp. 4 audio channels in S/MUX mode)
- Connector Toslink (optical), APF 970/1000nm
- Line distance from 0.2 m up to 10 m (depending on connected receiver)

**Digital Audio Parameters**

- Word length 24bit
- Comply to Alesis ADAT® Type I and Type II Optical Digital Interface Protocol
- Sampling rates 44.1kHz/48kHz/88.2kHz/96kHz
- Outputs: Word length reduction to 16 or 20bit (Dithering)

**Sampling Rate Converters**

- Inputs: auto range 32...55 kHz resp. 55...108 kHz (S/MUX mode), bypass (remote control or DIP switch)
- Outputs: 44.1kHz/48kHz/88.2kHz/96kHz\* resp. 32...108 kHz (follow input mode), bypass (remote control or DIP switch)  
(\* zirkon/Naval7 supports only 44.1kHz, 48kHz/96kHz or follow input, depending on  $f_s$  of system)

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 165g

**Power Supply**

- Power consumption typ. 1.9W



*ADA7® is a registered trademark of Alesis, LLC and is used here under license.*

**947/41 DSP (Mixer fix configured, signal generator)**



**Function**

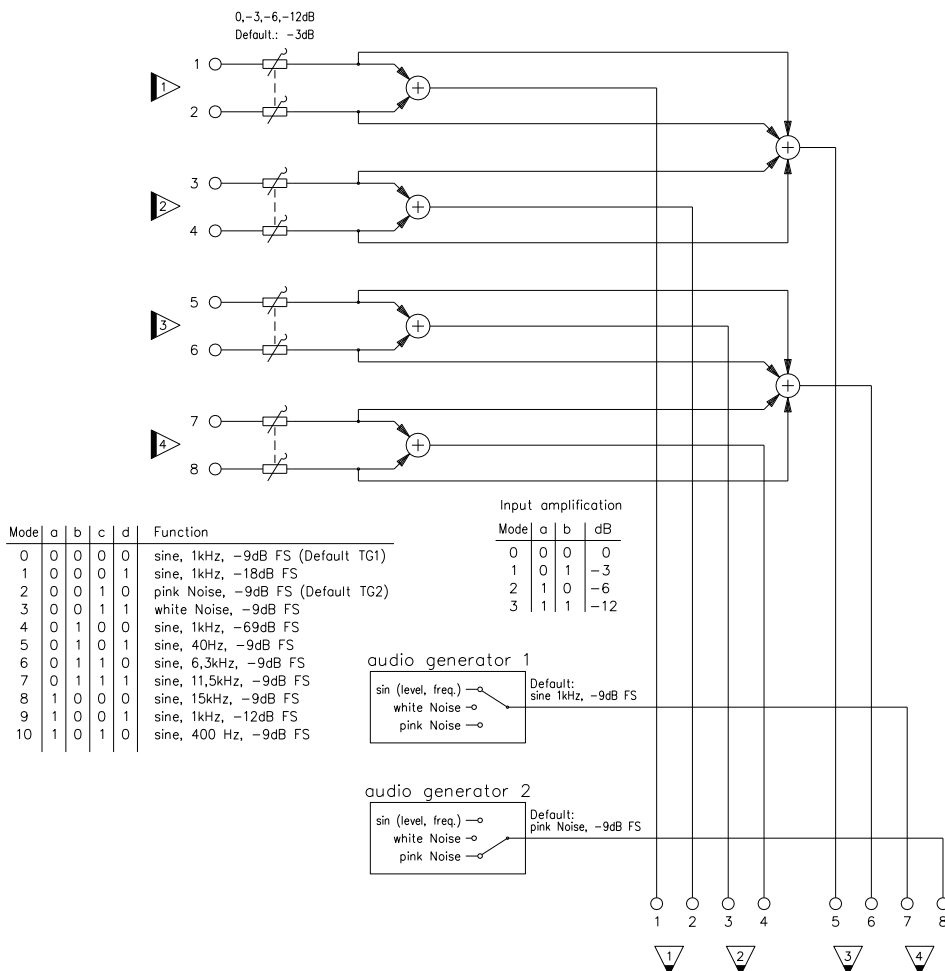
- Internal 8 inputs and 8 outputs (mono)
- Inputs are grouped to  
4 mixers with 2 inputs each (e.g. converting stereo to mono)  
2 mixer with 4 inputs each
- Attenuation for mixer inputs 0, -3, -6, -12dB (selectable per DIP switch)
- 2 signal generators, modes selectable per DIP switch

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 170g

**Power Supply**

- Power consumption typ. 1.3W at 48kHz and 96kHz



**947/42 DSP (mixing matrix, signal generator)**



**Function**

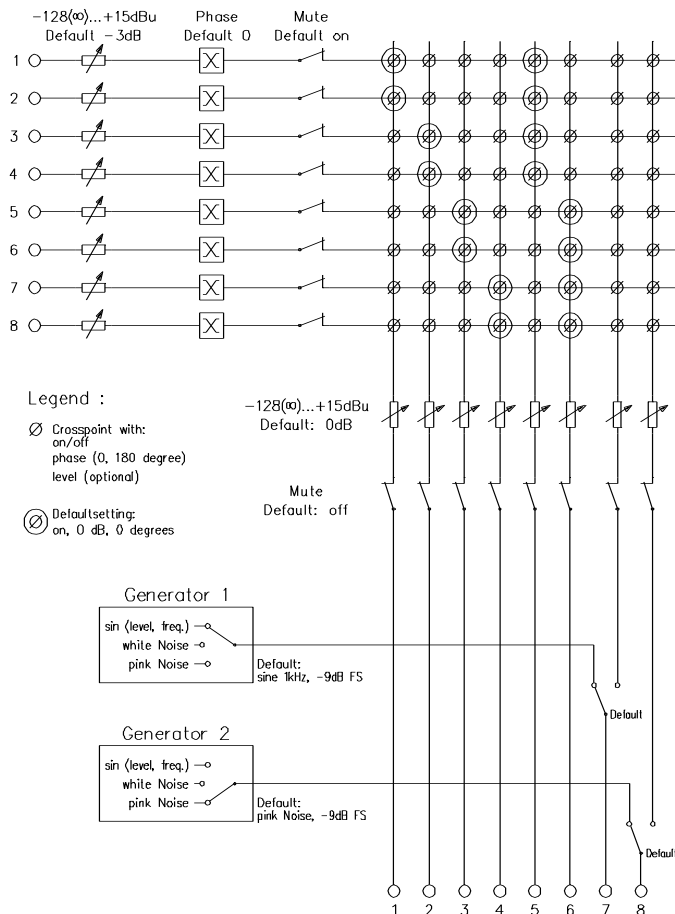
- Internal 8 inputs and 8 outputs (mono)
- Inputs and outputs build a matrix
- Remote controlled attenuation for each input, output and crosspoint
- Phase (0, 180°) remote controlled for each input and crosspoint
- 2 signal generators, selectable instead of matrix outputs

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 170g

**Power Supply**

- Power consumption max. 1.3W at 48kHz and 1.4W at 96kHz



**945/01 GPI (General Purpose Interface)**



**Inputs**

- 8 opto-coupler (3...36V/typ. 8mA)

**Outputs**

- 8 relays (max. 50V/500mA), floating
- Power supply 5V/300mA

**Connector**

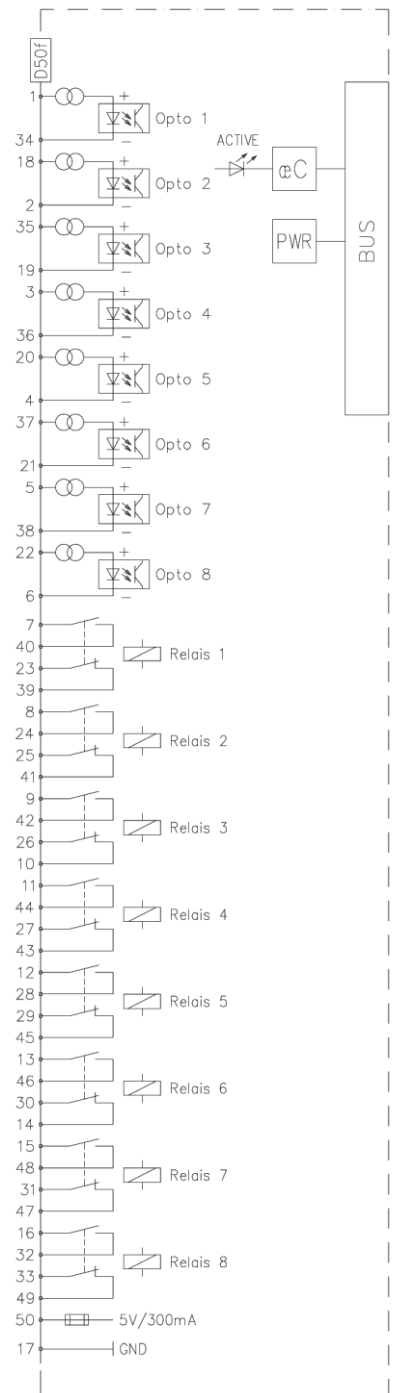
- D-Sub 50-pin female

**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 200g

**Power Supply**

- Power consumption max. 3W
- Power dissipation typ. 1.5W



**945/05 GPI** (General Purpose Interface with VCA)



**Inputs**

- 8 opto-coupler (3V...36V/typ. 8mA)
- 4 VCA (e.g. remote control of headphone volume):  
connection of potentiometers (1kΩ...10kΩ linear),  
represent digital scale (8 bit), integrated reference voltage source,  
(connector panel 945/10 required)

**Outputs**

- 16 solid state relay (max. 30V/500mA), floating
- Power supply 5V/300mA

**Connector**

- D-Sub 50-pin female (opto, relay)
- Optional connector panel 945/10 (VCA)

**Built**

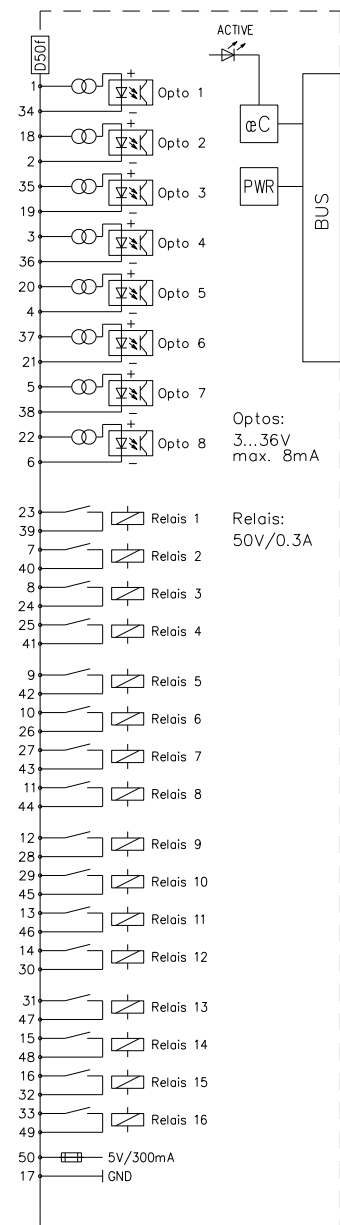
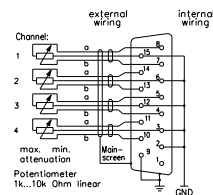
- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 200g

**Power Supply**

- Power consumption typ. 3.6W
- Power dissipation typ. 2.1W



**Application VCA INPUT**  
Use Modul 945/10 to contact VCA IN  
Sub-D 15p female  
Connector View



**945/22 Serial Data (data transfer, RJ45)**



**Functionality**

- 4 Ports RS422, RS232, MIDI bi-directional, selectable for each port
- Transparent data link, no handshake

**Technical data**

- Transfer rate 9,6kBaud to 38,4kBaud
- SONY 9-Pin compatible
- Ports: Western, RJ45

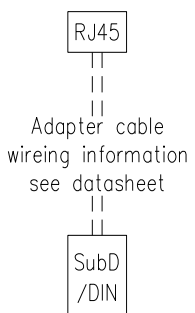
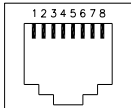
**Built**

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 195g

**Power Supply**

- Power consumption typ. 4.4W

RS422, RS232, MIDI  
RJ45p female  
connector view



### 945/61 Optical Switch



#### Functionality

- Change-over switch for Madi and ATM STM-1 streams
- Converts optical Madi signals (MMF) to electrical (coax)

#### Connector

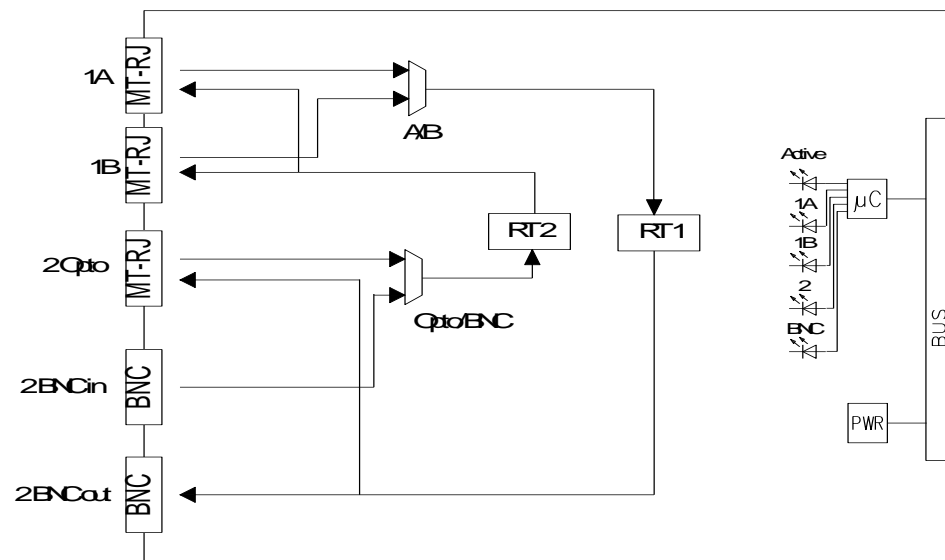
- Optical Port MT-RJ
- Connector BNC 75Ω

#### Built

- Plug-in card for DALLIS frame
- Width 4HP
- Weight ca. 205g

#### Power Supply

- Power consumption typ. 7.2W



**940/32, 33, 34 Front Plate 4HP, 6HP and 8HP**



**Technical data**

- Weight: 19g (4HP), 28g (6HP) and 38g (8HP)







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