# Operating Manual
# Service Manual

## *SPDIF-AES/EBU Converter 1248*

RTW

RADIO-TECHNISCHE WERKSTÄTTEN

INSTRUMENTS FOR STUDIO APPLICATIONS

Serial Number:

Catalogue Number:

**RTW**

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## Hinweis

**WARNUNG!**



Bitte beachten Sie vor der Inbetriebnahme des Gerätes die folgenden Sicherheitshinweise:

Innerhalb des Gerätes befinden sich keine Teile, die der Wartung durch den Benutzer bedürfen.
Um einen elektrischen Schlag zu vermeiden, darf das Gehäuse nicht geöffnet werden.
Überlassen Sie Wartungsarbeiten stets nur dem Fachmann.
Das Gerät ist für den Einsatz in geschlossenen Räumen vorgesehen.
Entfernen Sie keine Teile aus dem Gerät und führen Sie keine Modifikation am Gerät aus ohne die schriftliche Freigabe durch RTW.

## Note

**WARNING!**



Please read this safety information before using the instrument:

Do not service or repair this product unless properly qualified.
Servicing should be peformed only by a qualified technician.
There are no user servicable parts inside the unit.
Do not open the case while the unit is connected to power. High voltage exists inside the instrument.
The device has been designed for indoor use only.
Do not substitute parts or make any modifications without the written approval of RTW.

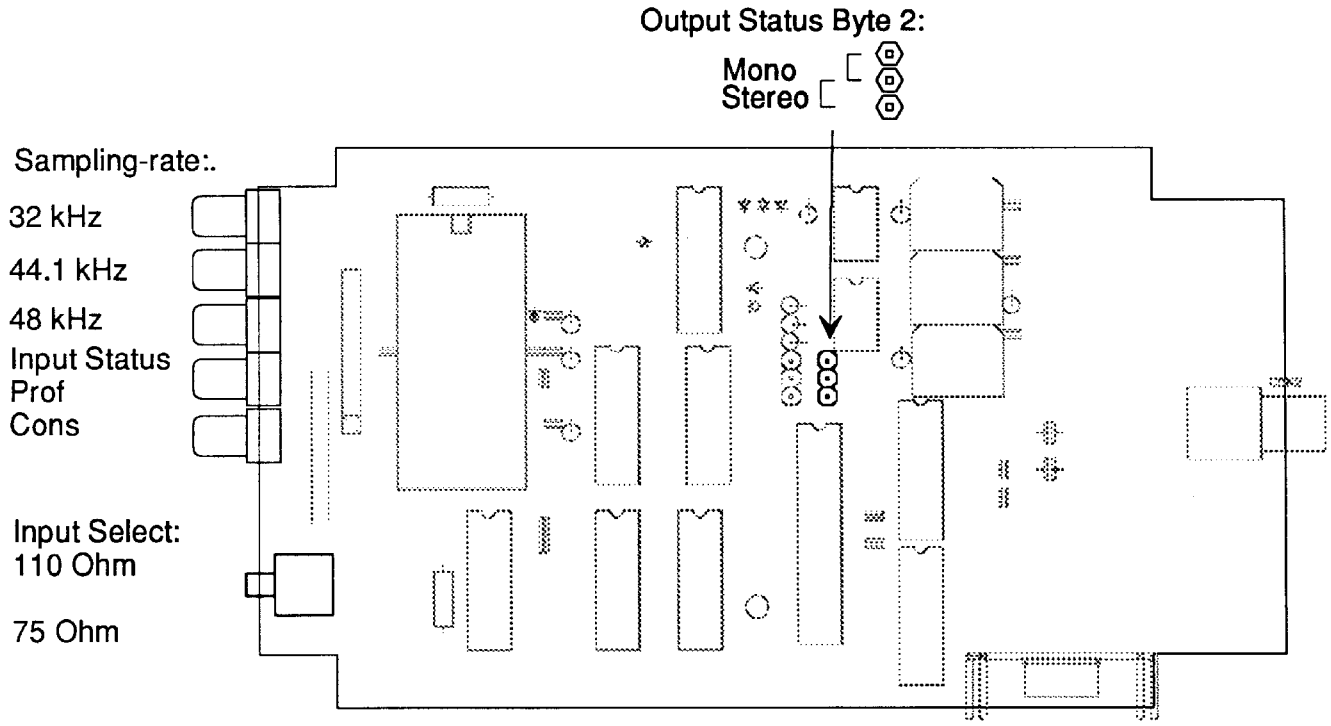
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# *Distri*Con DIF SPDIF nach AES/EBU Formatkonverter 1248

## 1. Beschreibung

Format-Converter-Box für die Umwandlung digitaler Audiodaten aus dem Consumer- SPDIF-Format oder semiprofessionellen AES/EBU-Format ins proffessionelle AES/EBU-Format. Der Converter stellt sich automatisch auf die Eingangssignal-Abtastrate ein. Danach durchläuft das Signal eine Jitter-Reduktionsstufe und erhält dann die Statusinformationen " Stereo bzw. Zweikanal (Jumper-definierbar)", "AES/EBU professional", "Sampling-Rate", "Copy OK" und evtl. "Emphasis-Flag" automatisch zugesetzt. Gelbes Kunststoffgehäuse aus schlagzähem Polystyrol.

## 2. Konfiguration des SPDIF Formatkonverters



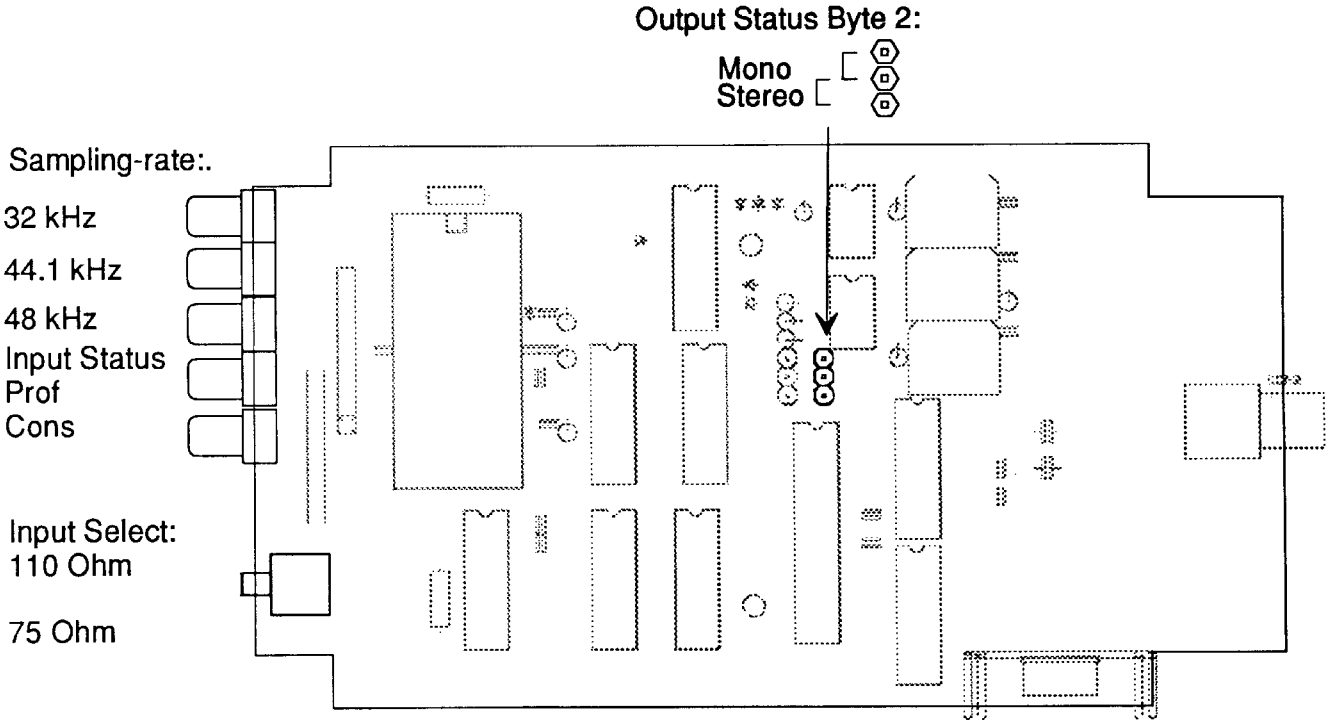

Auf dem DIF Formatkonverter 1248 kann über einen Jumper zwischen Stereo und zweikanaliger Statusinformation gewechselt werden. Über drei LED´s wird die Präsenz eines SPDIF bzw. AES/EBU Rahmens signalisiert.

## 3. Description

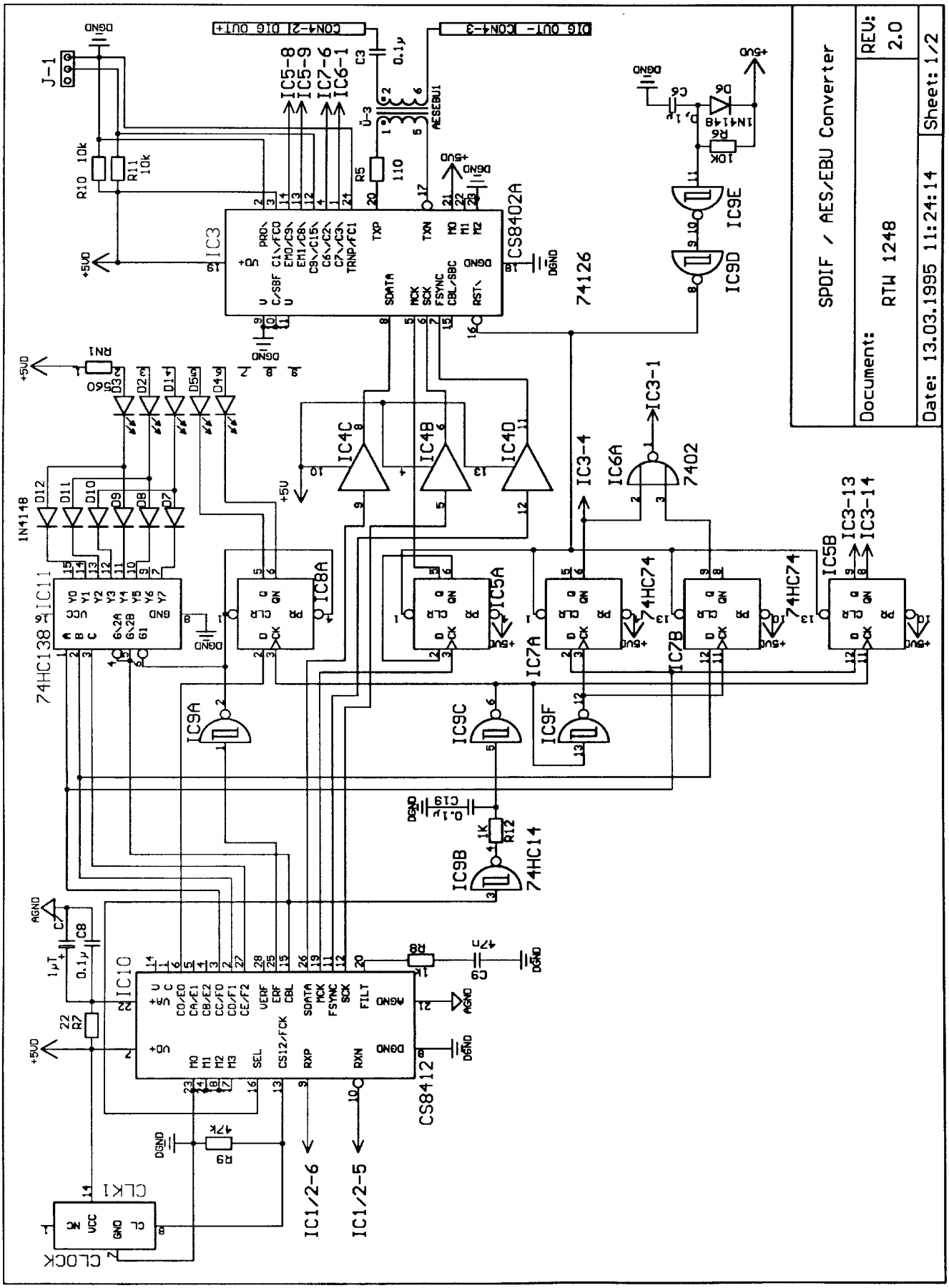
Used to convert digital audio data from the consumer SPDIF or semiprofessional AES/EBU format to the professional AES/EBU format. The converter automatically adjusts to the sampling rate of the incomming signal. That signal passes through a jitter reduction stage after which status information is automatically applied: "stereo or two-channel (can be jumper-specified)", "AES/EBU professional", "sampling rate", "copy OK" and, where needed, an "emphasis flag". The unit is housed in a yellow case made of high-impact polystyrene.

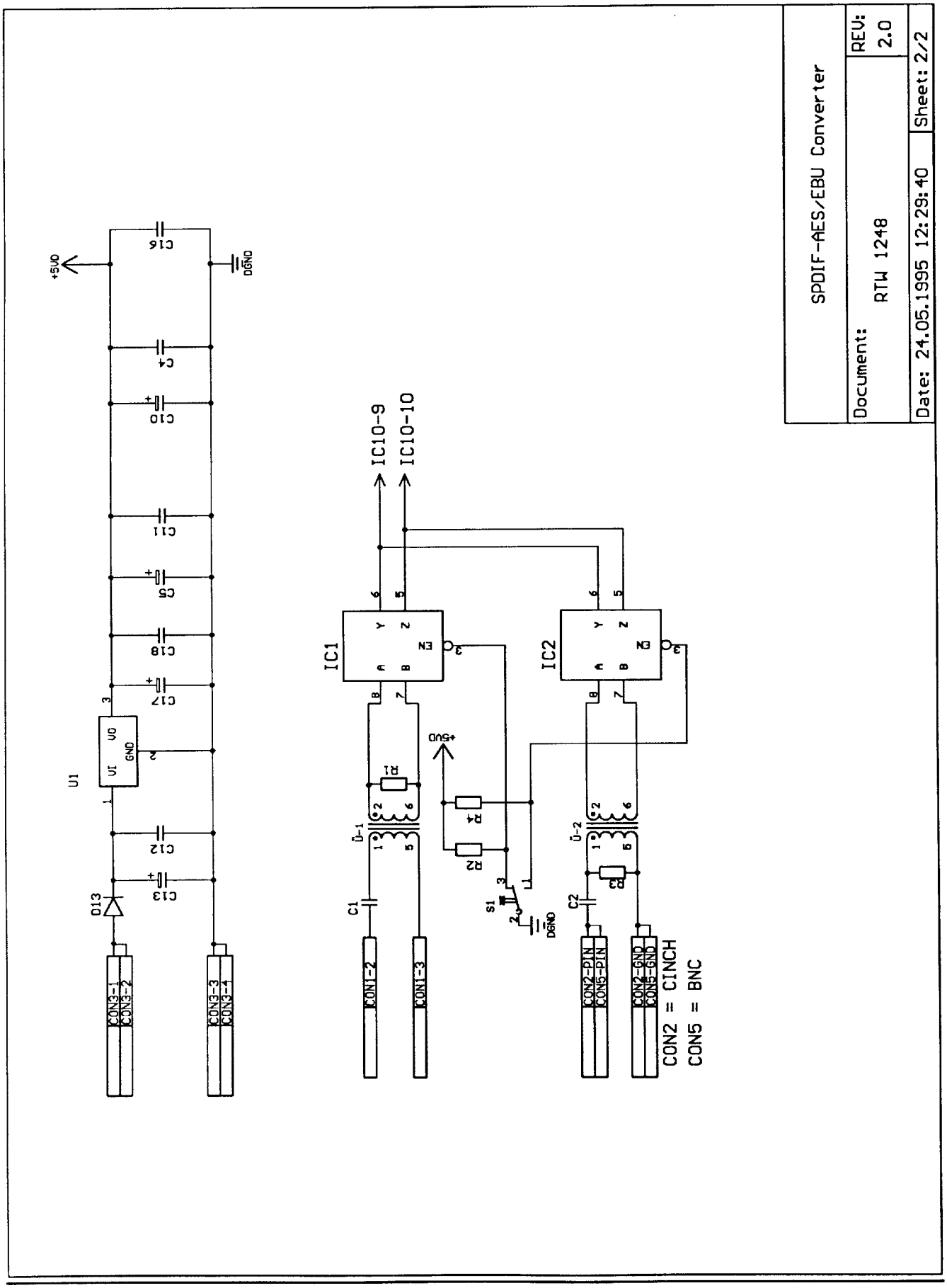
## 4. Configuration of the SPDIF Formatconverter

The content of status information byte 2 "Stereo" or "Mono" can be preset by the use of a jumper inside the 1248 formatconverter. The presence of an incomming signal is indicated by three LED´s.

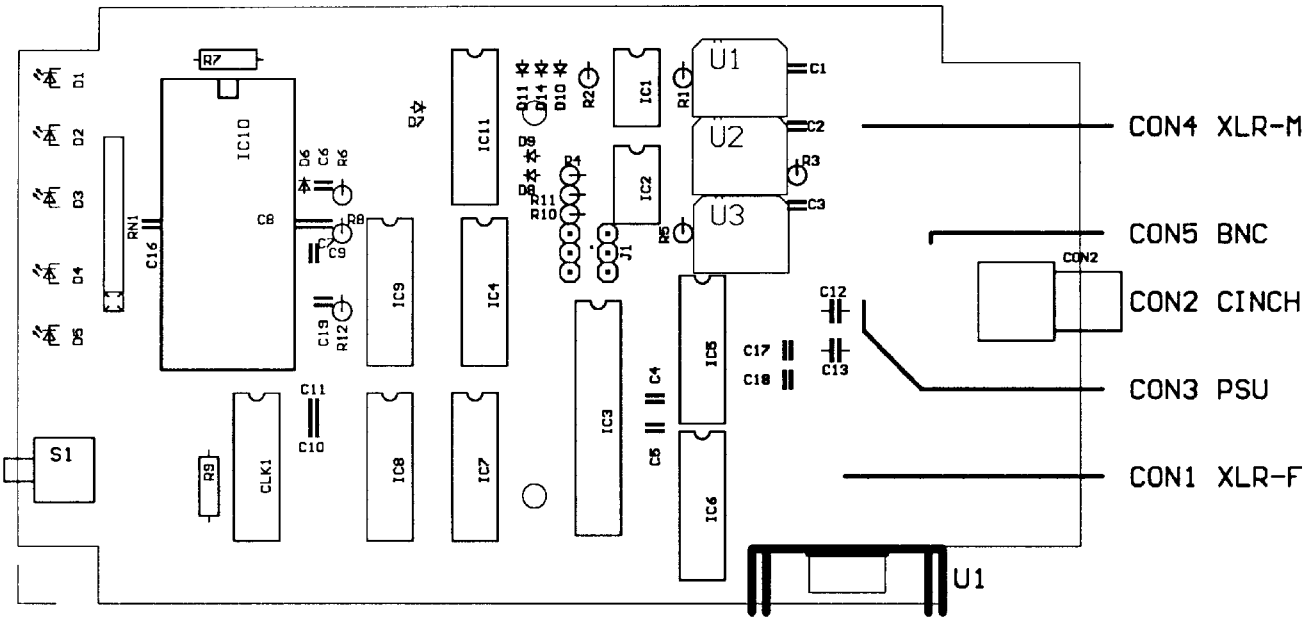


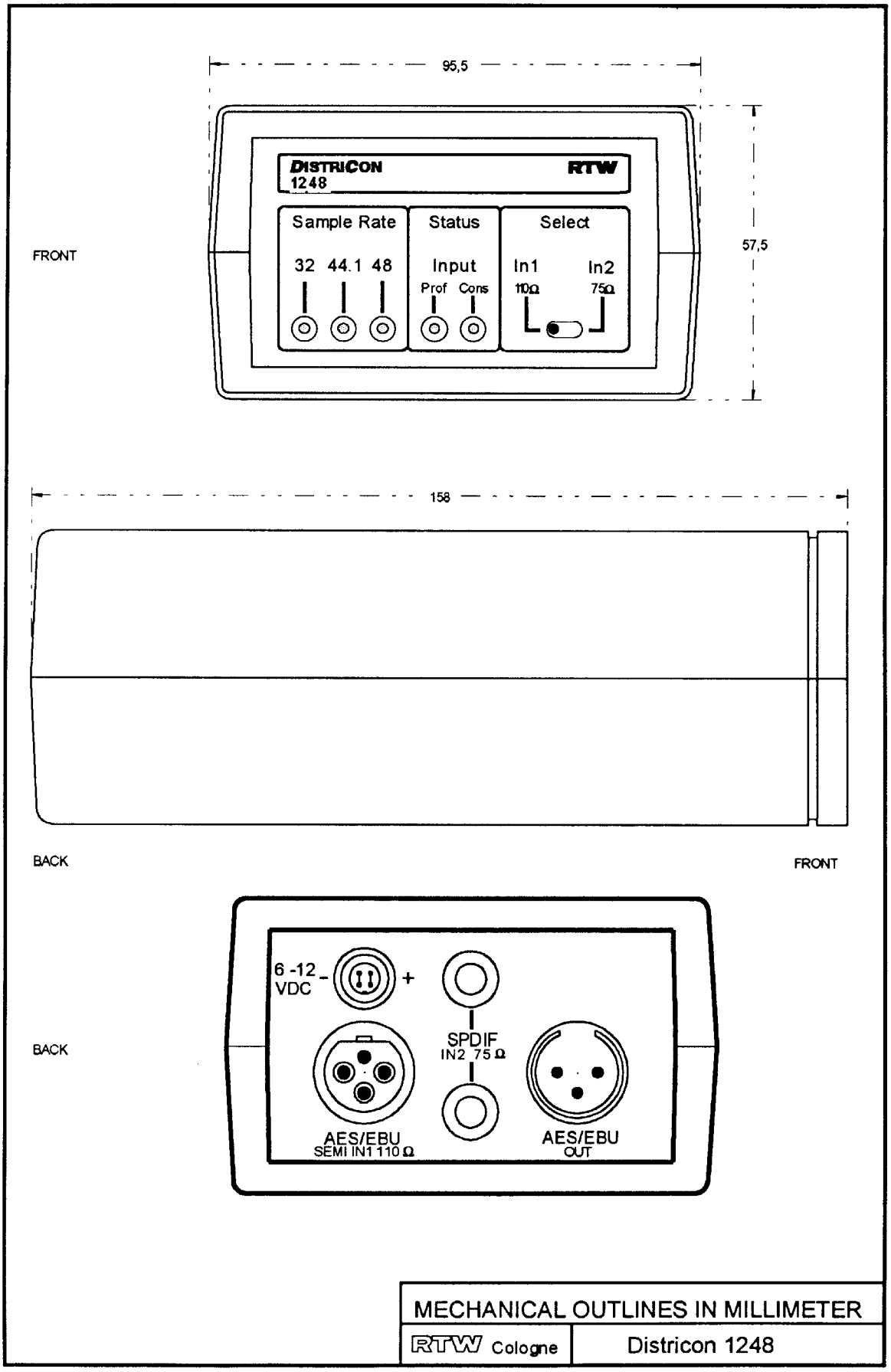
## 5. Schematic


SPDIF / AES/EBU Converter
REV: 2.0
Document: RTW 1248
Sheet: 1/2
Date: 13.03.1995 11:24:14
CON4-2 DIG OUT+
DIG OUT- CON4-3
J-1
IC5-8
IC5-9
IC7-6
IC6-1
C3
0.1µ
Ü-3
AESEBU1
R10 10k
R11 10k
R5 110
IC3
CS8402A
74126
IC9E
IC9D
R6 10K
IN4148
C6
RN1 560
D3
D2
D1
D5
D4
D12
D11
D10
D9
D8
D7
IC4C
IC4B
IC4D
IC3-1
IC3-4
IC6A
7402
IC11
74HC138
IC8A
IC5A
IC7A
IC7B
74HC74
IC5B
IC3-13
IC3-14
IC9A
IC9C
IC9F
C19 0.1µ
R12 1K
IC9B
74HC14
AGND
C7 1µT
C8 0.1µ
IC10
CS8412
R8
C9 47n
R7 22
R9 47K
CLK1
CLOCK
IC1/2-6
IC1/2-5


SPDIF-AES/EBU Converter
REV: 2.0
Document: RTW 1248
Sheet: 2/2
Date: 24.05.1995 12:29:40
+5VD
DGND
C16
C4
C10
C11
C5
C18
C17
C12
C13
D13
U1
VI
VO
GND
IC10-9
IC10-10
IC1
IC2
R1
R2
R3
R4
Ü-1
Ü-2
C1
C2
S1
CON3-1
CON3-2
CON3-3
CON3-4
CON1-2
CON1-3
CON2-PIN
CON5-PIN
CON2-GND
CON5-GND
CON2 = CINCH
CON5 = BNC

## 6. Component layout






| MECHANICAL OUTLINES IN MILLIMETER | |
|---|---|
| RTW Cologne | Districon 1248 |

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| REF.NO | DESCRIPTION | VALUE | | | TYPE | MANUFACTURER | PART-NO |
|---|---|---|---|---|---|---|---|
| R1 | Resistor,Metalfilm | 110E | 50ppm | 1% | 0207 MK2 | Resista | 170913 |
| R2 | Resistor,Metalfilm | 10K | 50ppm | 1% | 0207 MK2 | Resista | 17059 |
| R3 | Resistor,Metalfilm | 75E | 50ppm | 1% | 0207 MK2 | Resista | 170968 |
| R4 | Resistor,Metalfilm | 10K | 50ppm | 1% | 0207 MK2 | Resista | 17059 |
| R5 | Resistor,Metalfilm | 110E | 50ppm | 1% | 0207 MK2 | Resista | 170913 |
| R6 | Resistor,Metalfilm | 10K | 50ppm | 1% | 0207 MK2 | Resista | 17059 |
| R7 | Resistor,Metalfilm | 22E | 50ppm | 1% | 0207 MK2 | Resista | 170903 |
| R8 | Resistor,Metalfilm | 1,0K | 50ppm | 1% | 0207 MK2 | Resista | 170957 |
| R9 | Resistor,Metalfilm | 47K | 50ppm | 1% | 0207 MK2 | Resista | 17047 |
| R10 - 11 | Resistor,Metalfilm | 10K | 50ppm | 1% | 0207 MK2 | Resista | 17059 |
| R12 | Resistor,Metalfilm | 1,0K | 50ppm | 1% | 0207 MK2 | Resista | 170957 |
| C1 - 4 | Capacitor,Ceramic | 0,1u | 63V | | Z5U | Sprague | 17422 |
| C5 | Capacitor,Tantal | 1,0u | 35V | | ETP1,0/35 | Ero | 17328 |
| C6 | Capacitor,Ceramic | 0,1u | 63V | | Z5U | Sprague | 17422 |
| C7 | Capacitor,Tantal | 1,0u | 35V | | ETP1,0/35 | Ero | 17328 |
| C8 | Capacitor,Ceramic | 0,1u | 63V | | Z5U | Sprague | 17422 |
| C9 | Capacitor | 0,047 | | | | Roederstein | 173922 |
| C10 | Capacitor,Tantal | 1,0u | 35V | | ETP1,0/35 | Ero | 17328 |
| C11 | Capacitor,Ceramic | 0,1u | 63V | | Z5U | Sprague | 17422 |
| C12 | Capacitor | 0,33u | | | | Wima | 173921 |
| C13 | Capacitor,Elect | 47u | 50V | | SME-VB | | 17305 |
| C16 | Capacitor,Ceramic | 0,1u | 63V | | Z5U | Sprague | 17422 |
| C17 | Capacitor,Elect | 10u | 40V | | SRA-VB | Chemi-Con | 17318 |
| C18 - 19 | Capacitor,Ceramic | 0,1u | 63V | | Z5U | Sprague | 17422 |
| RN1 | Resistor,Array | 560E | | | A561G | ITT | 170883 |
| IC1 - 2 | IC-SN | | | | 75178BP | Texas Instrument | 18087 |
| IC3 | AES-EBU Transmitter | | | | CS 8402 A-CP | Crystal | 18181 |
| IC4 | IC-CMOS | | | | MC74HC126N | Motorola | 18026 |
| IC5 | IC-HC | | | | 74HC74 | National | 18032 |
| IC6 | IC-HC | | | | 74HC02 | Motorola | 18030 |
| IC7 - 8 | IC-HC | | | | 74HC74 | National | 18032 |
| IC9 | IC-HC | | | | 74HC14 | National | 18031 |
| IC10 | AES-EBU Receiver | | | | CS 8412-CP | Crystal | 18173 |
| IC11 | IC-HC | | | | 74HC138 | National | 18089 |
| U1 | Voltage Regulator | | | | MC7805CT | Motorola | 17518 |
| CLK-1 | Crystal | 6,144 | MHz | | SG-51K | Epson | 175404 |
| Ü1 - 3 | AES-EBU Transformer | | | | 76601/1 | Newport | 14606 |
| D1 - 5 | Single LED yellow | | | | MU-B-F 5102-5200-6 | Mustlich | 19416 |
| D6 - 12 | Diode,Silicon | | | | 1N4148 | ITT | 17492 |
| D13 | Diode,Silicon | | | | 1N4001 | ITT | 17498 |
| Print | | | | | | | 169137 |