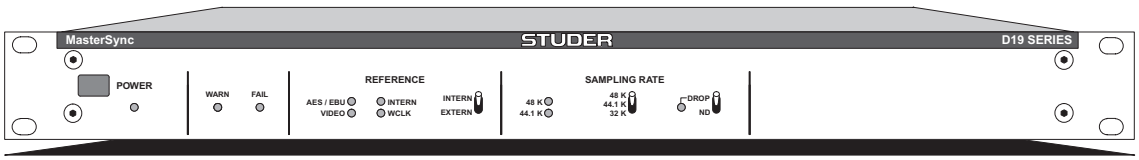
STUDER
professional audio equipment

D19 MasterSync

Sync Generator/Distributor



Operating Instructions

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Technical Documentation
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A Safety Information

CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN ATTENTION RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR ACHTUNG GEFAHR: ELEKTRISCHER SCHLAG NICHT ÖFFNEN	To reduce the risk of electric shock, do not remove covers. No user-serviceable parts inside. Refer servicing to qualified service personnel (i.e., persons having appropriate technical training and experience necessary to be aware of hazards to which they are exposed in performing a repair action, and of measures to minimize the danger of themselves).
	This symbol alerts the user to the presence of un-insulated *dangerous voltage* within the equipment that may be of sufficient magnitude to constitute a risk of electric shock to a person.
	This symbol alerts the user to *important instructions* for operating and maintenance in this documentation.
CLASS 1 LED PRODUCT CLASS 1 LASER PRODUCT	Assemblies or sub-assemblies of this product can contain opto-electronic devices. As long as these devices comply with Class I of laser or LED products according to EN 60825-1:1994, they will not be expressly marked on the product. If a special design should be covered by a higher class of this standard, the device concerned will be marked directly on the assembly or sub-assembly in accordance with the above standard.

A1 First Aid

In Case of Electric Shock:

Separate the person as quickly as possible from the electric power source:
- By switching the equipment off,
- By unplugging or disconnecting the mains cable, or
- By pushing the person away from the power source, using dry insulating material (such as wood or plastic).
- After having suffered an electric shock, *always* consult a doctor.

Warning!

Do not touch the person or his clothing before the power is turned off, otherwise you stand the risk of suffering an electric shock as well!

If the Person is Unconscious:

- Lay the person down
- Turn him to one side
- Check the pulse
- Reanimate the person if respiration is poor
- *Call for a doctor immediately*.

B General Installation Instructions

Please consider besides these general instructions also any product-specific instructions in the “Installation” chapter of this manual.

B1 Unpacking

Check the equipment for any transport damage. If the unit is mechanically damaged, if liquids have been spilled or if objects have fallen into the unit, *it must not be connected to the AC power outlet, or it must be immediately disconnected by unplugging the power cable.* Repair must only be performed by trained personnel in accordance with the applicable regulations.

B2 Installation Site

Install the unit in a place where the following conditions are met:

- The temperature and the relative humidity of the environment must be within the specified limits during operation of the unit. *Relevant values are the ones at the air inlets of the unit* (refer to Appendix 1).
- Condensation must be avoided. If the unit is installed in a location with large variation of ambient temperature (e.g. in an OB-van), appropriate precautions must be taken *before and after operation* (refer to Appendix 1).
- Unobstructed air flow is essential for proper operation. Air vents of the unit are a functional part of the design and must not be blocked in any way during operation (e.g. by objects placed upon them, placement of the unit on a soft surface, or installation of the unit within a rack or piece of furniture).
- The unit must not be heated up by external sources of heat radiation (sunlight, spotlights).

B3 Earthing and Power Supply

Earthing of units with mains supply (class I equipment) is performed via the protective earth (PE) conductor integrated in the mains cable. Units with battery operation (< 60 V, class III equipment) must be earthed separately.
Earthing the unit is one of the measures for protection against electrical shock hazard (dangerous body currents). Hazardous voltage may not only be caused by a defective power supply insulation, but may also be introduced by the connected audio or control cables.
If the unit is installed with one or several external connections, its earthing must be provided during operation as well as while the unit is not operated.
If the earthing connection can be interrupted, for example, by unplugging the mains plug of an external power supply unit, an additional, permanent earthing connection must be installed using the provided earth terminal.
Avoid ground loops (hum loops) by keeping the loop surface as small as possible (by consequently guiding the earth conductors in a narrow, parallel way), and reduce the noise current flowing through the loop by inserting an additional impedance (common-mode choke).

Class I Equipment (Mains Operation)

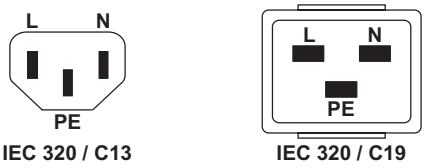
Should the equipment be delivered without a matching mains cable, the latter has to be prepared by a trained person using the attached female plug (IEC 320 / C13 or IEC 320 / C19) with respect to the applicable regulations in your country.

Before connecting the equipment to the AC power outlet, check that the local line voltage matches the equipment rating (voltage, frequency) within the admissible tolerance. The equipment fuses must be rated in accordance with the specifications on the equipment.

Equipment supplied with a 3-pole appliance inlet (protection conforming to class I equipment) *must* be connected to a 3-pole AC power outlet in such a way that the equipment cabinet is connected to the protective earth.

For information on mains cable strain relief, please refer to Appendix 2.

Female Plugs (IEC320), Front-Side View:



European Standard (CENELEC)		North American Standard (NAS)
Brown	L (Live)	Black
Blue	N (Neutral)	White
Green/Yellow	PE (Protective Earth)	Green (or Green/Yellow)

Class III Equipment (Battery Operation up to 60 V_{DC})

Equipment of this protection class must be earthed using the provided earth terminal if one or more external signals are connected to the unit (see explanation at the beginning of this paragraph).

B4 Electromagnetic Compatibility (EMC)

The unit conforms to the protection requirements relevant to electromagnetic phenomena that are listed in guidelines 89/336/EC and FCC, part 15.

- The electromagnetic interference generated by the unit is limited in such a way that other equipment and systems can be operated normally.
- The unit is adequately protected against electromagnetic interference so that it can operate properly.

The unit has been tested and conforms to the EMC standards of the specified electromagnetic environment, as listed in the following declaration. The limits of these standards ensure protection of the environment and corresponding noise immunity of the equipment with appropriate probability. However, a professional installation and integration within the system are imperative prerequisites for operation without EMC problems.

For this purpose, the following measures must be followed:

- Install the equipment in accordance with the operating instructions. Use the supplied accessories.
- In the system and in the vicinity where the equipment is installed, use only components (systems, equipment) that also fulfill the EMC standards for the given environment.

- Use a system grounding concept that satisfies the safety requirements (class I equipment must be connected with a protective ground conductor) and that also takes into consideration the EMC requirements. When deciding between radial, surface, or combined grounding, the advantages and disadvantages should be carefully evaluated in each case.
- Use shielded cables where shielding is specified. The connection of the shield to the corresponding connector terminal or housing should have a large surface and be corrosion-proof. Please note that a cable shield connected only single-ended can act as a transmitting or receiving antenna within the corresponding frequency range.
- Avoid ground loops or reduce their adverse effects by keeping the loop surface as small as possible, and reduce the noise current flowing through the loop by inserting an additional impedance (e.g. common-mode choke).
- Reduce electrostatic discharge (ESD) of persons by installing an appropriate floor covering (e.g. a carpet with permanent electrostatic filaments) and by keeping the relative humidity above 30%. Further measures (e.g. conducting floor) are usually unnecessary and only effective if used together with corresponding personal equipment.
- When using equipment with touch-sensitive operator controls, please take care that the surrounding building structure allows for sufficient capacitive coupling of the operator. This coupling can be improved by an additional, conducting surface in the operator's area, connected to the equipment housing (e.g. metal foil underneath the floor covering, carpet with conductive backing).

C Maintenance

All air vents and openings for operating elements (faders, rotary knobs) must be checked on a regular basis, and cleaned in case of dust accumulation. For cleaning, a soft paint-brush or a vacuum cleaner is recommended.
Cleaning the surfaces of the unit is performed with a soft, dry cloth or a soft brush.
Persistent contamination can be treated with a cloth that is *slightly* humidified with a mild cleaning solution, such as dishwashing detergent.
For cleaning display windows, commercially available computer/TV screen cleaners are suited. Use only a *slightly* damp (never wet) cloth.
Never use any solvents for cleaning the exterior of the unit! Liquids must never be sprayed or poured on directly!
For equipment-specific maintenance information please refer to the corresponding chapter in the operating and service manuals.

D Electrostatic Discharge during Maintenance and Repair

Caution:

Observe the precautions for handling devices sensitive to electrostatic discharge!
Many semiconductor components are sensitive to electrostatic discharge (ESD). The lifespan of assemblies containing such components can be drastically reduced by improper handling during maintenance and repair. Please observe the following rules when handling ESD sensitive components:

- ESD sensitive components should only be stored and transported in the packing material specifically provided for this purpose.

- *When performing a repair by replacing complete assemblies, the removed assembly must be sent back to the supplier in the same packing material in which the replacement assembly was shipped. If this should not be the case, any claim for a possible refund will be null and void.*
- Unpacked ESD sensitive components should only be handled in ESD protected areas (EPA, e.g. area for field service, repair or service bench) and only be touched by persons wearing a wristlet connected to the ground potential of the repair or service bench by a series resistor. The equipment to be repaired or serviced as well as all tools and electrically semi-conducting work, storage, and floor mats should also be connected to this ground potential.
- The terminals of ESD sensitive components must not come in uncontrolled contact with electrostatically chargeable or metallic surfaces (voltage puncture, discharge shock hazard).
- To prevent the components from undefined transient stress and possible damage due to inadmissible voltages or compensation currents, electrical connections should only be established or separated when the equipment is switched off and after any capacitor charges have decayed.

E Repair

By removing housing parts or shields, energized parts may be exposed. For this reason the following precautions must be observed:

- Maintenance may only be performed by trained personnel in accordance with the applicable regulations.
- The equipment must be switched off and disconnected from the AC power outlet before any housing parts are removed.
- Even if the equipment is disconnected from the power outlet, parts with hazardous charges (e.g. capacitors, picture tubes) must not be touched until they have been properly discharged. Do not touch hot components (power semiconductors, heat sinks, etc.) before they have cooled off.
- If maintenance is performed on a unit that is opened while being switched on, no un-insulated circuit components and metallic semiconductor housings must be touched, neither with bare hands nor with un-insulated tools.

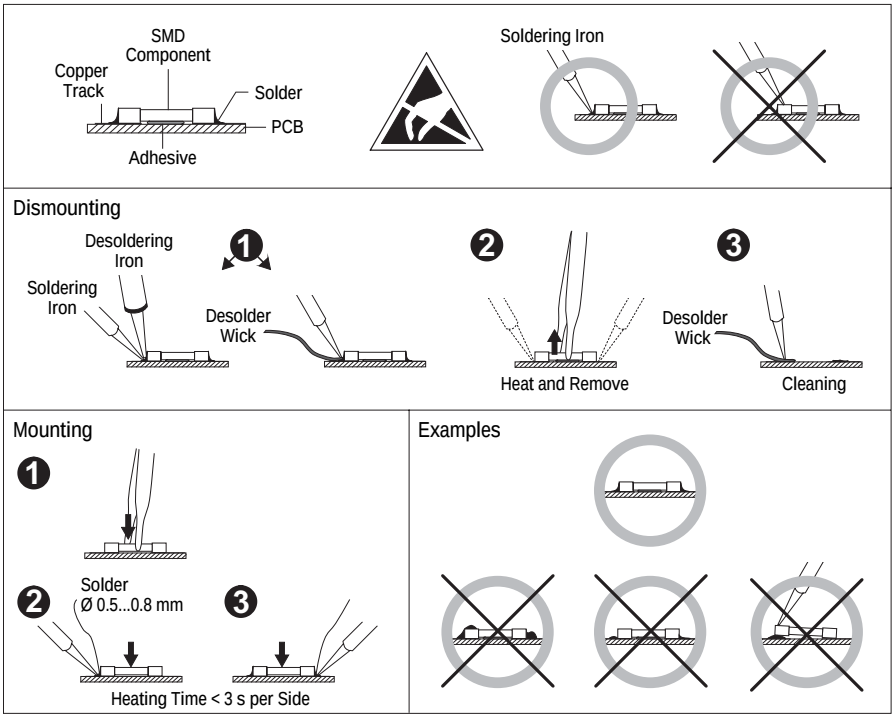
Certain components pose additional hazards:

- *Explosion hazard* from lithium batteries, electrolytic capacitors and power semiconductors (Observe the component's polarity. Do not short battery terminals. Replace batteries only by the same type).
- *Implosion hazard* from evacuated display units.
- *Radiation hazard* from laser units (non-ionizing), picture tubes (ionizing).
- *Caustic effect* of display units (LCD) and components containing liquid electrolyte.

Such components should only be handled by trained personnel who are properly protected (e.g. protection glasses, gloves).

E1 SMD Components

Studer has no commercially available SMD components in stock for service purposes. For repair, the corresponding devices have to be purchased locally. The specifications of special components can be found in the service manual.
SMD components should only be replaced by skilled specialists using appropriate tools. No warranty claims will be accepted for circuit boards that have been damaged. Proper and improper SMD soldering joints are illustrated below.



F Disposal

Packing Materials

The packing materials have been selected with environmental and disposal issues in mind. All packing material can be recycled. Recycling packing saves raw materials and reduces the volume of waste.
If you need to dispose of the transport packing materials, please try to use recyclable means.

Used Equipment

Used equipment contains valuable raw materials as well as materials that must be disposed of professionally. Please return your used equipment via an authorized specialist dealer or via the public waste disposal system, ensuring any material that can be recycled is.
Please take care that your used equipment cannot be abused. To avoid abuse, delete sensitive data from any data storage media. After having disconnected your used equipment from the mains supply, make sure that the mains connector and the mains cable are made useless.

G Declarations of Conformity

G1 Class A Equipment - FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide a reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Caution: *Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Also refer to relevant information in this manual.*

G2 CE Declaration of Conformity

We,
Studer Professional Audio GmbH,
CH-8105 Regensdorf,
declare under our sole responsibility that the products
D19 MultiFeed, Sync/AES3 Signal Distributor,
(from serial no. 1001), and
D19 MasterSync, Sync Generator/Distributor,
(from serial no. 1001),
to which this declaration relates, according to following regulations of EU directives and amendments

- Low Voltage (LVD):
  73/23/EEC + 93/68/EEC
- Electromagnetic Compatibility (EMC):
  89/336/EEC + 92/31/EEC + 93/68/EEC

are in conformity with the following standards or normative documents:

- Safety:
  EN 60950:1992 + A1/A2:1993 (Class I equipment)
- EMC:
  EN 55103-1/-2:1996

Regensdorf, September 3, 1998

B. Hochstrasser, Managing Director

P. Fiala, Manager QA

Appendix 1: Air Temperature and Humidity

General

Normal operation of the unit or system is warranted under the ambient conditions defined by *EN 60721-3-3, set IE32, value 3K3.*
This standard consists of an extensive catalogue of parameters, the most important of which are: ambient temperature +5...+40 °C, relative humidity 5...85% (i.e., no formation of condensation or ice); absolute humidity 1...25 g/m³; rate of temperature change < 0.5 °C/min. These parameters are dealt with in the following paragraphs.
Under these conditions the unit or system starts and works without any problem. Beyond these specifications, possible problems are described below.

Ambient Temperature

Units and systems by Studer are generally designed for an ambient temperature range (i.e. temperature of the incoming air) of +5 °C to +40 °C. When rack mounting the units, the intended air flow and herewith adequate cooling must be provided. The following facts must be considered:

- The admissible ambient temperature range for operation of the semiconductor components is 0 °C to +70 °C (commercial temperature range for operation).
- The air flow through the installation must provide that the outgoing air is always cooler than 70 °C.
- Average heat increase of the cooling air shall be about 20 K, allowing for an additional maximum 10 K increase at the hot components.
- In order to dissipate 1 kW with this admissible average heat increase, an air flow of 2.65 m³/min is required.

Example: A rack dissipating *P = 800 W* requires an air flow of *0.8 * 2.65 m³/min* which corresponds to *2.12 m³/min.*

- If the cooling function of the installation must be monitored (e.g. for fan failure or illumination with spot lamps), the outgoing air temperature must be measured directly above the modules at several places within the rack. The trigger temperature of the sensors should be 65 °C to 70 °C.

Frost and Dew

The unsealed system parts (connector areas and semiconductor pins) allow for a minute formation of ice or frost. However, formation of dew visible to the naked eye will already lead to malfunctions. In practice, reliable operation can be expected in a temperature range above –15 °C, if the following general rule is considered for putting the cold system into operation:
If the air within the system is cooled down, the relative humidity rises. If it reaches 100%, condensation will arise, usually in the boundary layer between the air and a cooler surface, together with formation of ice or dew at sensitive areas of the system (contacts, IC pins, etc.). Once internal condensation occurs, trouble-free operation cannot be guaranteed, independent of temperature.

Before putting into operation, the system must be checked for internal formation of condensation or ice. Only with a minute formation of ice, direct

evaporation (sublimation) may be expected; otherwise the system must be heated and dried while switched off.

A system without visible internal formation of ice or condensation should be heated up with its own heat dissipation, as homogeneously (and subsequently as slow) as possible; the ambient temperature should then always be lower than the one of the outgoing air.

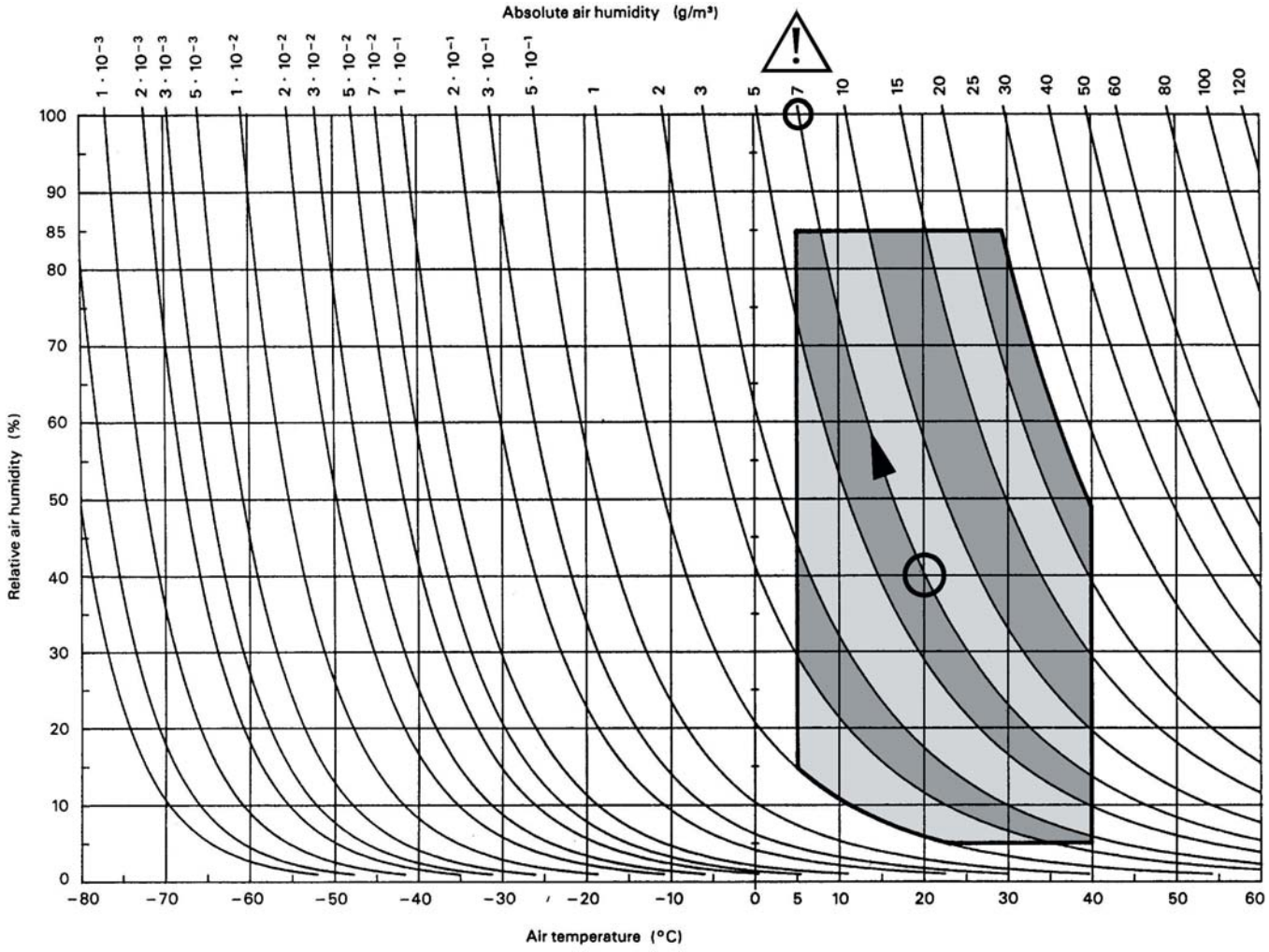
If it is absolutely necessary to operate the cold system immediately within warm ambient air, this air must be dehydrated. In such a case, the absolute humidity must be so low that the relative humidity, related to the coldest system surface, always remains below 100%.

Ensure that the enclosed air is as dry as possible when powering off (i.e. before switching off in winter, aerate the room with cold, dry air, and remove humid objects such as clothes from the room).

These relationships are visible from the following climatogram. For a controlled procedure, thermometer and hygrometer as well as a thermometer within the system will be required.

Example 1: An OB-van having an internal temperature of 20 °C and a relative humidity of 40% is switched off in the evening. If the temperature falls below +5 °C, the relative humidity will rise to 100% (7 g/m³); dew or ice will be forming.

Example 2: An OB-van is heated up in the morning with air of 20 °C and a relative humidity of 40%. On all parts being cooler than +5 °C, dew or ice will be forming.

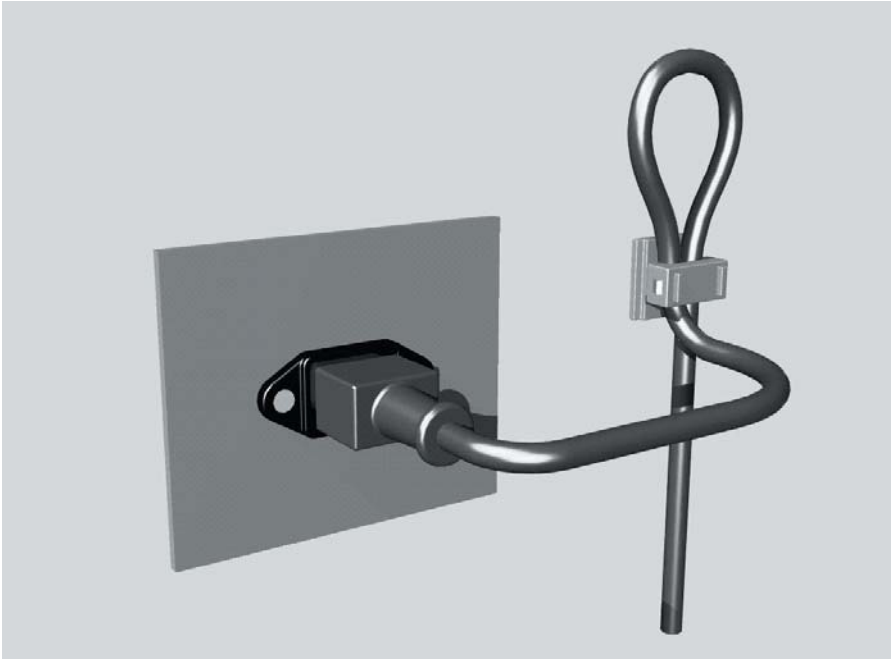


721-3-3 © CEI:1994

Climatogram for class 3K3

Appendix 2: Mains Connector Strain Relief

For anchoring connectors without a mechanical lock (e.g. IEC mains connectors), we recommend the following arrangement:



Procedure: The cable clamp shipped with your unit is auto-adhesive. For mounting please follow the rules below:

- The surface to be adhered to must be clean, dry, and free from grease, oil, or other contaminants. Recommended application temperature range is +20 °C to +40 °C.
- Remove the plastic protective backing from the rear side of the clamp and apply it firmly to the surface at the desired position. Allow as much time as possible for curing. The bond continues to develop for as long as 24 hours.
- For improved stability, the clamp should be fixed with a screw. For this purpose, a self-tapping screw and an M4 bolt and nut are included.
- Place the cable into the clamp as shown in the illustration above and firmly press down the internal top cover until the cable is fixed.

Appendix 3: Software License

Use of the software is subject to the Studer Professional Audio Software License Agreement set forth below. Using the software indicates your acceptance of this license agreement. If you do not accept these license terms, you are not authorized to use this software.

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Principle

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Warranty, Disclaimer, and Liability

For all issues not covered herewithin, refer to the "General Terms and Conditions of Sales and Delivery" being part of the sales contract.

CONTENTS

1 COME IN!

We are happy to welcome you in the circle of the Studer D19 MasterSync's users, and we felicitate you on your selection. Thanks to Studer's experience collected during more than 40 years of business in the professional audio products field, you may expect that the performance of your new unit will fulfill your highest demands.

1.1 Basic Information

The Studer D19 MasterSync is housed in a 19", 1U enclosure.
Its generator section can be synchronized to a video, word clock, or AES/EBU signal with automatical switchover. Should the external clock be missing, a low-tolerance internal reference clock with automatical and manual switchover is available.
The distributor section distributes one word clock signal to six outputs, and up to four AES/EBU signals to 16 outputs. For the latter, combinations of 1 to 16, 2 to 8, and 4 to 4 can be selected with a DIP switch located at the rear panel.

Generator: The internal generator has an internal low-tolerance reference clock (1 ppm); selectable frequencies are: 32 kHz, 44.056 kHz, 44.1 kHz, 47.952 kHz, and 48 kHz.
For external synchronization, a video signal (25 or 29.97 fps), an AES/EBU signal or a word clock signal can be used, synchronization to an optical MADI signal is available as an option. Signal selection is performed automatically, with priority in the same order. Termination for the video input is selected with an internal jumper between hi-Z and 75 Ω. The word clock input is the same as the one of the word clock distributor.
For word clock and AES/EBU sync signals the input frequency is displayed, however without drop/non-drop recognition. In case of video sync the sampling rate is generated according to the front panel selector's position. It is, for instance, possible to convert a 29.97 fps video signal to a 44.056 or 44.1 kHz sampling rate signal, as set with the DROP switch.

AES/EBU Distributor: The four inputs and four outputs each are connected to 15-pin D-type connectors. The distributor can also be used for distributing an AES/EBU frame clock.

Word Clock Distributor: The input and the outputs are equipped with BNC sockets. The input can be terminated with 75 Ω using an internal jumper. Input sensitivity is 1 V_{pp}, independent of any DC level. The word clock outputs cannot be connected to the word clock input only, but also with the internal generator's clock (setting with an internal DIP switch). The output 4...6 polarity can be inverted with an internal jumper (connect P38 and P39).

Redundancy: Two D19 MasterSync units may be connected with a cable (order no. 1.680.025.81).
Both units then must be fed with the same sync signal and must have identical settings. In case of a malfunction, the supply as well as the AES/EBU and word clock signals are taken from the second unit. In order to avoid phase jumps during switchover, both units are continuously synchronized. It is also possible to install a second, redundant power supply into a single generator/distributor unit (jumper P60-P61 must be moved to P59-P61). The "WARN" LED indicates a generator or supply failure; however, normal operation is still maintained.
If the generator cannot generate a valid AES/EBU sync signal in spite of the redundancy, the "FAIL" LED is illuminated.

Redundancy Input Option: When using this option (see chapter 1.2.2 below), each of the main inputs can be equipped with an additional redundancy input. Automatical switchover to the corresponding redundancy input takes place if one or more of the main inputs do not receive a valid AES/EBU signal. Thus, important outputs (such as program feeds) can be made very reliable. For each of the main inputs a sampling frequency converter (SFC) can be inserted into the signal path (with internal jumpers); the redundancy inputs always have SFCs in their signal path.

1.2 General

1.2.1 Scope of Delivery

The D19 MasterSync (Order No. 60.681.010.00) is shipped with an IEC 320/C13 socket, a hex-socket screwdriver (2.5 mm), and this operating manual.

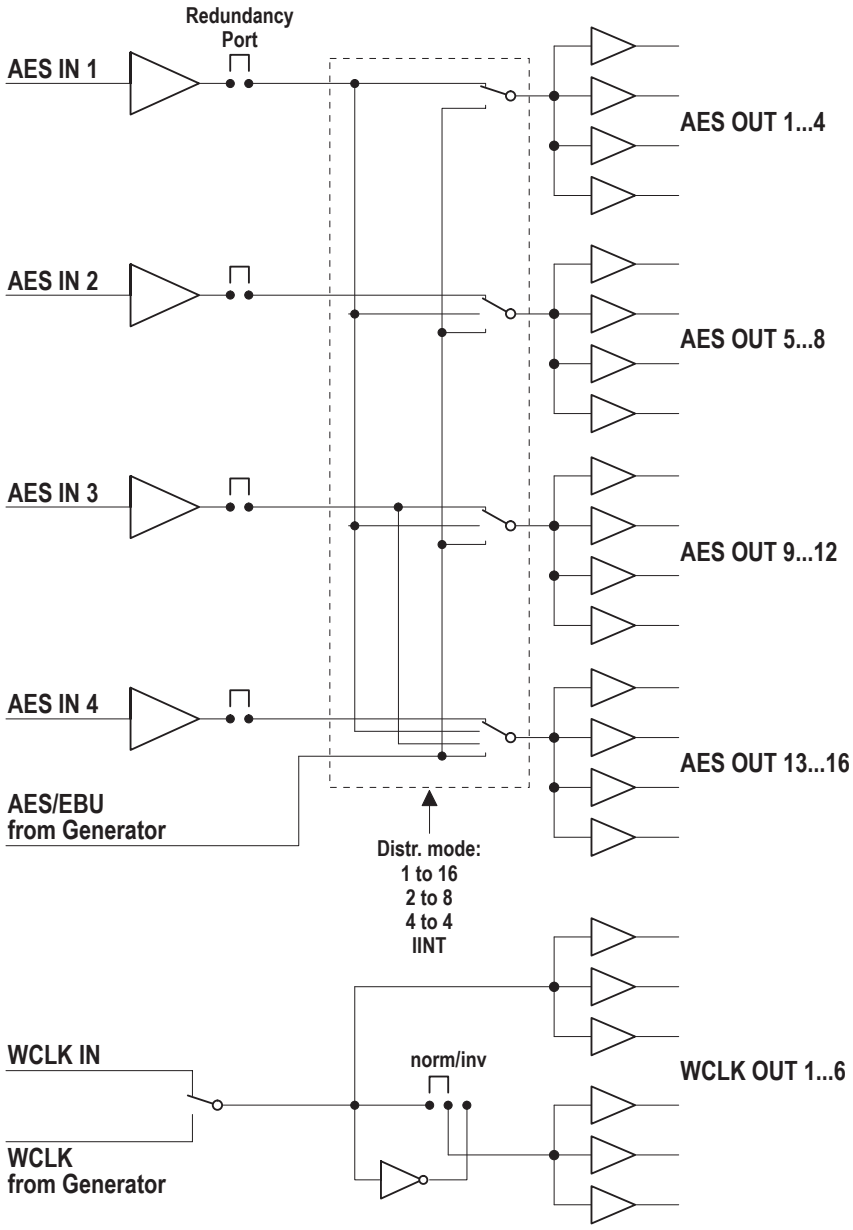
1.2.2 Options

Redundancy Input Option: **For watching the AES/EBU inputs 1...4** **1.680.041.00**
If one of these signals fails, switchover to a redundant input (with SFC) can be done automatically or controlled by an external signal. The output is synchronized to the generator's output signal.
An alarm output provides the individual error signals.

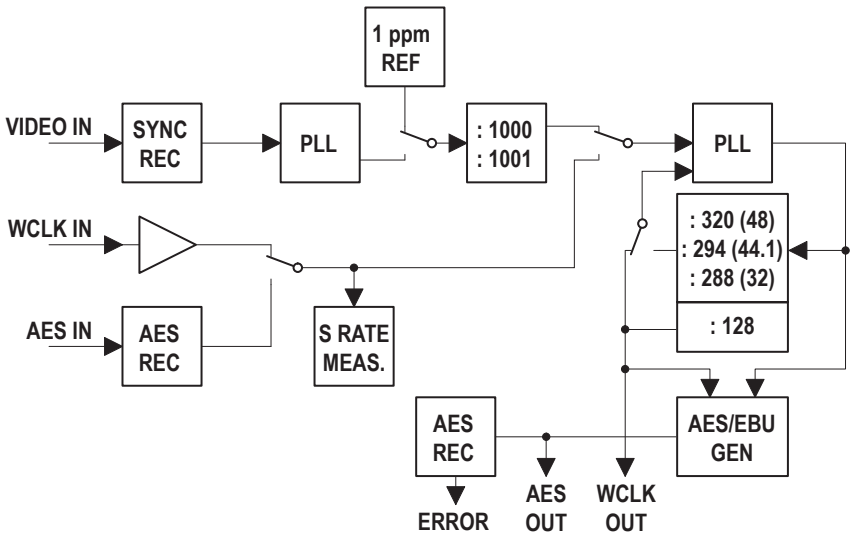
MADI Word Clock Extractor: **Generating the word clock signal from MADI** **1.680.090.00**
The optical MADI signal is used to generate a word clock signal; the MADI signal is fed to an optical output as well.

1.2.3 Block Diagrams

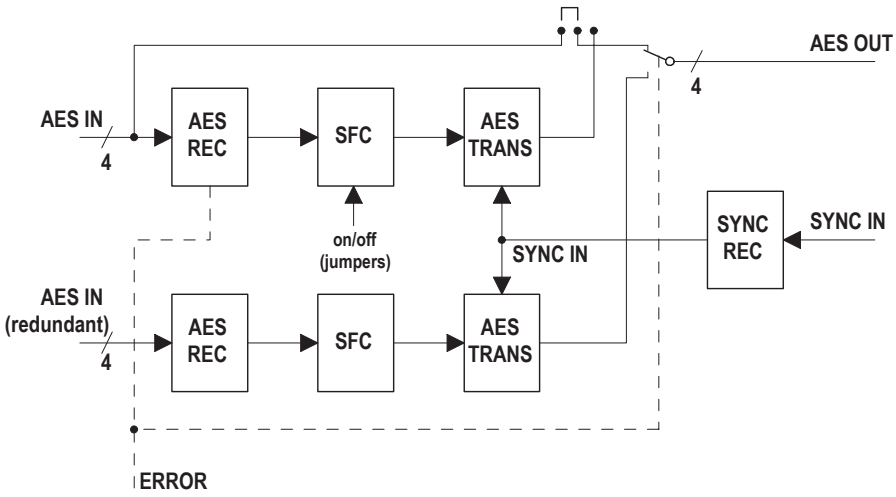
Distributor:



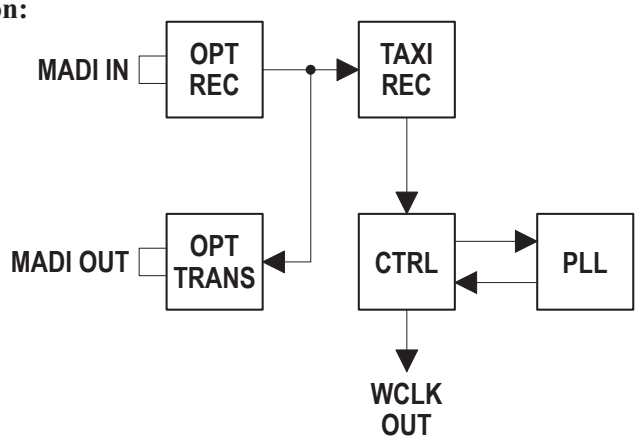
Sync Generator:



Redundancy Input Option:



MADI Word Clock Extractor Option:



1.3 Safety and Connections

1.3.1 Utilization for the Purpose Intended

The Studer D19 MasterSync is designed for professional use. It is presumed that the unit is operated only by trained personnel; servicing must be performed by qualified experts.

The electrical connections may be connected only to the appropriate voltages and signals specified in this manual. Please consult the Safety and EMC sections at the very beginning of this manual.

1.3.2 Mains Connection

There is no need to select a specific mains voltage setting because the unit can be operated on mains voltages from 100 through 240 V_{AC}, 50 to 60 Hz.

Caution!

Repair work may only be performed by a trained service technician. The primary fuse inside the unit must be replaced by a spare fuse of exactly the same type.

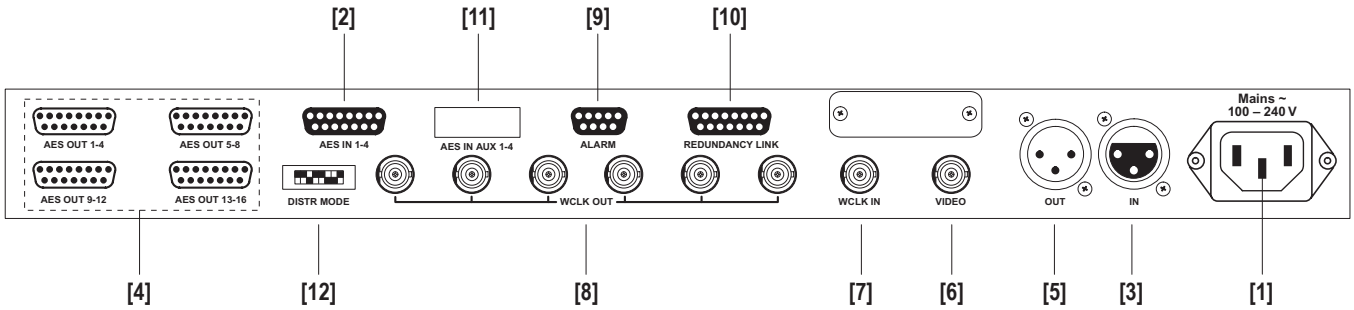
The unit must not be opened by the user – risk of a severe electric shock hazard!

Power Cable:

The supplied mains socket has to be fitted with a mating power cable incl. plug by an electrician, if your local Studer agency or your dealer should not have added a fitting power cable.

☛ Please consult the Safety section at the very beginning of this manual!

1.3.3 Connector Field



[1] Mains ~ 100 – 240 V

Connector for socket IEC 320/C13.
Supply voltage range 100...240 V_{AC} (without voltage selector);
mains frequency 50...60 Hz.
For connecting to the mains, please consult the Safety section at the very beginning of this manual.

[2] AES IN 1-4

Inputs for four digital input signals according to AES/EBU, with a female 15-pin D-type connector.

[3] AES IN

Input for sync signal with female XLR socket. Depending on the DIP switch setting (see section 3.1), this input signal can be routed to the outputs 1...4.

[4] AES OUT 1-...

Outputs for 16 digital output signals according to AES/EBU, with four male 15-pin D-type connectors.

[5] AES OUT

Sync output with male XLR socket, hard-wired to the AES IN sync signal input (XLR).

[6] VIDEO IN

BNC socket.

[7] WCLK IN

Word clock input, BNC socket, 75 Ω termination jumper-selectable.

[8] WCLK OUT

Word clock outputs, 6 BNC sockets.

[9] ALARM

Alarm outputs watching the AES/EBU inputs 1...4 and the power supply; female 9-pin D-type connector.

[10] REDUNDANCY LINK

Link socket for redundancy connection to a second unit, with female 15-pin D-type connector.

[11] AES IN AUX 1-4

Optional inputs for four redundant, digital input signals according to AES/EBU, with a female 15-pin D-type connector.

[12] DISTR. MODE

DIP switch bank with eight switches for basic settings, as routing selection (refer to section 3.1).

1.4 Technical Specifications (preliminary, subject to change without notice)

1.4.1 General

Inputs:	**AES/EBU:**	Impedance 110 Ω typ. Sensitivity min. 0.2 V_{pp} Sampling rate 28...55 kHz according to AES3 1992
	Word clock:	Impedance: hi-Z or 75 Ω, selectable with internal jumper; TTL level
Outputs:	**AES/EBU:**	Impedance 110 Ω typ. Output level with 110 Ω load: 5 V_{pp} Sampling rate 28...55 kHz according to AES3 1992
	Word clock:	Impedance: 75 Ω, TTL level
Generator:	**Internal clock:**	32; 44.1; 44.056; 48; 47.952 kHz Accuracy: ±1 ppm
	External clock:	(if synchronized by an external video signal: 32; 44.1; 44.056; 48; 47.952 kHz

1.4.2 Power Supply

Mains voltage:	100...240 V_{AC}, 50...60 Hz
Current consumption:	1...0.5 A
Power inlet:	IEC 320/C14

1.4.3 Primary Fuse

Danger: *The primary fuse is located inside the unit. Repair work may only be performed by a trained service technician.*

The primary fuse must be replaced by a spare fuse of exactly the same type and value. The unit must not be opened by the user – risk of a severe electric shock hazard.

Spare fuse: **T 2.0 A H 250 V (5 × 20 mm)** Order No. 51.01.1022

1.4.4 Operating Conditions

Ambient temperature:	**+10°...+40°C**
Relative humidity:	**Class F (DIN 40040)**

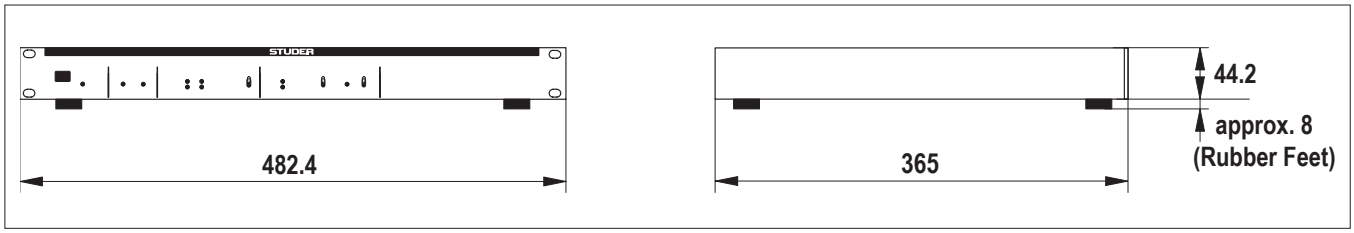
1.4.5 Safety and EMC Standards

Safety:	**Protection class I according to EN 60950:1992 + A1/A2:1993 (UL 1950)**
EMC:	Product family standard for audio, video, audio-visual, and entertainment lighting control apparatus for professional use. **Emission: EN 55103-1:1996** **Immunity: EN 55103-2:1996**

1.4.6 Mechanical Data

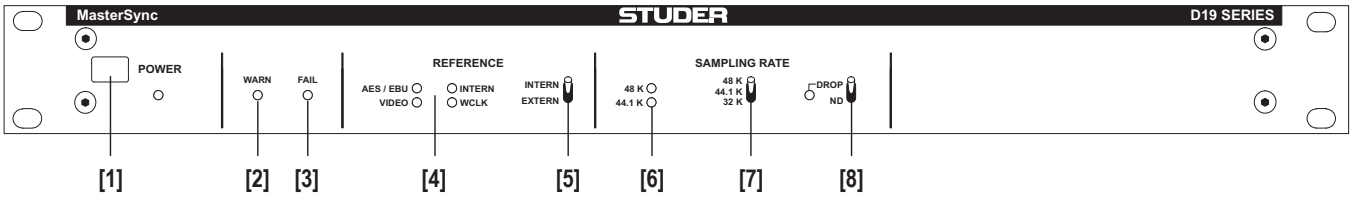
Weight: **approx. 5 kg**

Dimensions [mm]**:**



2 OPERATION

2.1 Operating Elements



[1] POWER Recessed pushbutton for switching the unit on or off; the associated LED is illuminated when the unit is switched on.

[2] WARN This LED is illuminated if an internal supply has a malfunction, provided two units are linked or a second power supply unit is installed.

[3] FAIL This LED is illuminated if the generator cannot generate a valid AES/EBU sync signal in spite of the redundancy.

[4] AES/EBU, VIDEO, INTERN, WCLK
Indicators for the synchronization input signal with automatical selection (priority: VIDEO, AES/EBU, WCLK, INTERN).

[5] INTERN / EXTERN Manual switchover between the internal or one of the external clock references. If the switch is in the EXTERN position and no external reference signal is available, the internal signal is selected automatically.

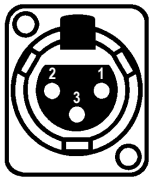
[6] 48 K / 44.1 K Sampling frequency indicator for external AES/EBU and WCLK reference signals.

[7] 48 K / 44.1 K / 32 K Manual output sampling frequency selector, if the external clock reference is a VIDEO signal.

[8] DROP / ND Manual drop-frame or non-drop-frame (ND) selector, if the external clock reference is a VIDEO signal. The associated LED is illuminated if the switch is in the DROP position.

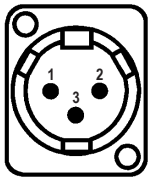
2.2 Connectors, Pin Assignments

2.2.1 AES/EBU SYNC IN (XLR-3f)



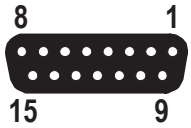
Pin	Signal
1	Screen
2	Input +
3	Input –
-	Chassis

2.2.2 AES/EBU OUT (XLR-3m)



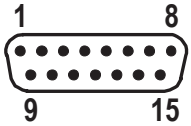
Pin	Signal
1	Screen
2	Input +
3	Input –
-	Chassis

2.2.3 4 AES/EBU IN (15-pin D-type, f)



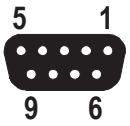
Pin	Signal
1	AES 1 +
9	AES 1 –
2	Screen
10	Screen
11	AES 2 +
3	AES 2 –
15	AES 3 +
7	AES 3 –
14	Screen
6	Screen
5	AES 4 +
13	AES 4 –
4	n.c.
12	n.c.
8	n.c.

2.2.4 4 × 4 AES/EBU OUT (4 × 15-pin D-type, m)



Pin	Signal Out 1...4	Signal Out 5...8	Signal Out 9...12	Signal Out 13...16
1	AES 1 +	AES 5 +	AES 9 +	AES 13 +
9	AES 1 –	AES 5 –	AES 9 –	AES 13 –
2	Screen	Screen	Screen	Screen
10	Screen	Screen	Screen	Screen
11	AES 2 +	AES 6 +	AES 10 +	AES 14 +
3	AES 2 –	AES 6 –	AES 10 –	AES 14 –
15	AES 3 +	AES 7 +	AES 11 +	AES 15 +
7	AES 3 –	AES 7 –	AES 11 –	AES 15 –
14	Screen	Screen	Screen	Screen
6	Screen	Screen	Screen	Screen
5	AES 4 +	AES 8 +	AES 12 +	AES 16 +
13	AES 4 –	AES 8 –	AES 12 –	AES 16 –
4	n.c.	n.c.	n.c.	n.c.
12	n.c.	n.c.	n.c.	n.c.
8	n.c.	n.c.	n.c.	n.c.

2.2.5 ALARM (9-pin D-type, f)

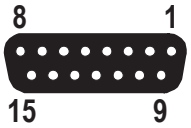


Pin	Signal
1	+24 V
2	GND
3	WARN relay contact output. Active if an internal supply has a malfunction, provided that either two units are linked together or a second redundancy power supply is installed. If active, depending on the internal jumper setting, the relay either connects pins 3 and 6 (position P25-P26), or it interrupts this connection (position P26-P27; default setting).
4	Error signal AES In 2 *
5	Error signal AES In 4 *
6	WARN common relay contact
7	FAIL relay contact output. Active if the generator cannot generate a valid AES/EBU signal in spite of redundancy. Depending on the jumper configuration, the relay either connects pins 7 and 6 (position P22-P23), or it interrupts this connection (position P23-P24; default setting).
8	Error signal AES In 1 *
9	Error signal AES In 3 *

* These signals are used only if the redundancy option is installed. They are open-collector outputs pulling to GND in case of an error. Small loads, such as LEDs, opto-couplers or relays may be directly driven. *The external supply voltage must not exceed +24 V_{DC}, the current must not exceed 50 mA per output.*
The pins may also be pulled to GND by external signals or contacts for a forced switch-over to the redundancy inputs.

2.2.6 4 AES/EBU REDUNDANCY IN (optional) (15-pin D-type, f)

(Pin assignment is identical with the one of the standard 4 AES/EBU IN connector)



Pin	Signal
1	AES 1 +
9	AES 1 –
2	Screen
10	Screen
11	AES 2 +
3	AES 2 –
15	AES 3 +
7	AES 3 –
14	Screen
6	Screen
5	AES 4 +
13	AES 4 –
4	n.c.
12	n.c.
8	n.c.

2.2.7 REDUNDANCY LINK (15-pin D-type, f)

Pin	Signal	to Pin # on 2nd Unit
1	GND	1
(2)	n.c.	(2)
(3)	n.c.	(3)
(4)	n.c.	(4)
5	ISYN EX	5
6	WCL RE	6
7	MAST	15
8	GND	8
(9)	n.c.	(9)
(10)	n.c.	(10)
11	+24 V RE	11
(12)	n.c.	(12)
13	AES RE	13
14	IWARN EX	14
15	IMAST	7

Matching Cable Order no. 1.680.025.81, suited for two units placed on top of each other.

3 DIP SWITCH AND JUMPERS

3.1 DIP Switch Settings

The DIP switch is located at the rear of the unit and is accessed through a hole in the rear panel. The switches are numbered 1...8 from the left to the right.

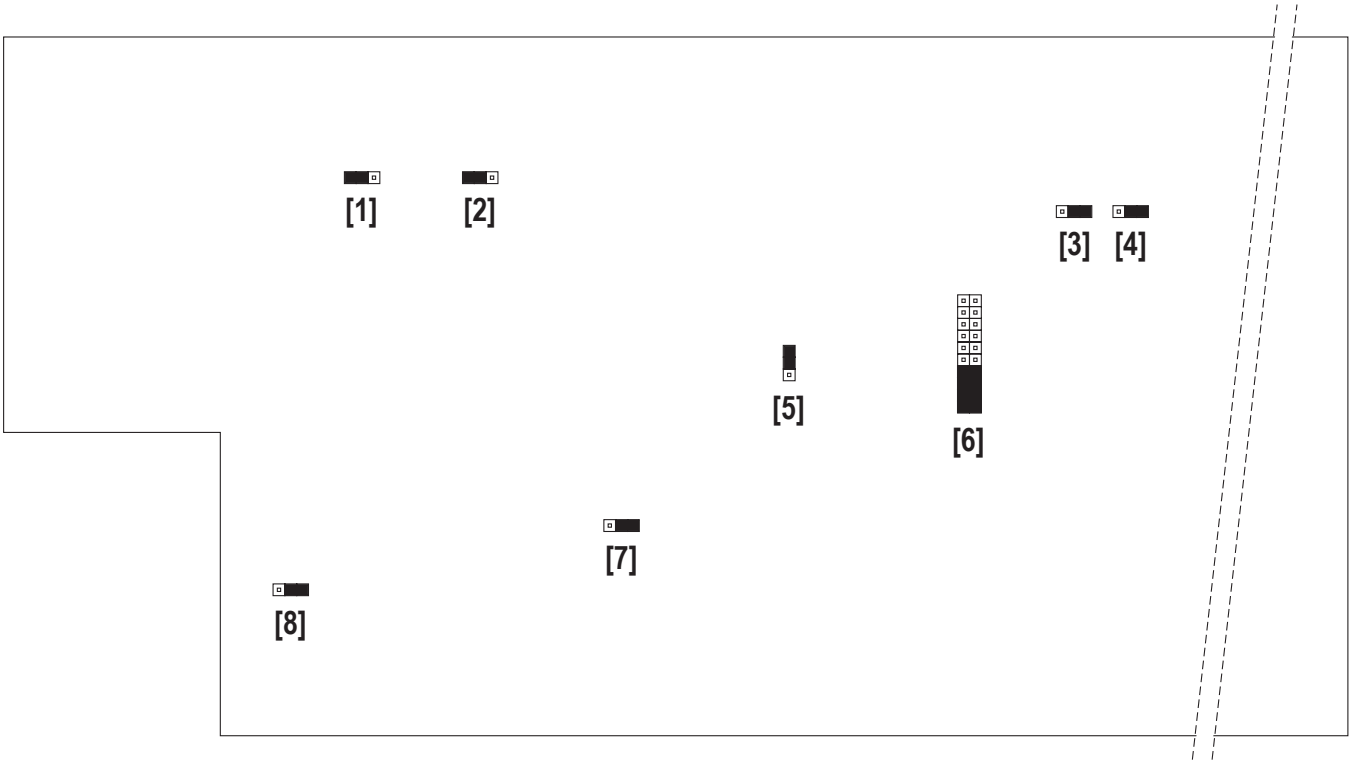
Switch	Signal	Description
1	spare	-
2	IINT1	ON: AES OUT 1...4 routed to the SYNC generator OFF: AES OUT 1...4 routed to AES IN 1
3	IINT2	ON: AES OUT 5...8 routed to the SYNC generator OFF: AES OUT 5...8 routed to AES IN 1 or AES IN 2 (depending on DIP switches 6 and 7)
4	IINT3	ON: AES OUT 9...12 routed to the SYNC generator OFF: AES OUT 9...12 routed to AES IN 1 or AES IN 3 (depending on DIP switches 6 and 7)
5	IINT4	ON: AES OUT 13...16 routed to the SYNC generator OFF: AES OUT 13...16 routed to AES IN 1, AES IN 3, or AES IN 4 (depending on DIP switches 6 and 7)
6	*DESW0*	*see table below*
7	*DESW1*	*see table below*
8	IINTWCL	ON: Word clock outputs routed to the internal generator OFF: Word clock outputs routed to the word clock input directly

DESW0	DESW1	Description	
ON	ON	1 to 16:	AES IN 1 routed to AES OUT 1...16 *
OFF	ON	2 to 8:	AES IN 1 routed to AES OUT 1...8 AES IN 3 routed to AES OUT 9...16 *
ON	OFF	4 to 4:	AES IN 1 routed to AES OUT 1...4 AES IN 2 routed to AES OUT 5...8 AES IN 3 routed to AES OUT 9...12 AES IN 4 routed to AES OUT 13...16 *
* Valid if none of the IINTx signal switches 2...5 (table above) is set to ON			

3.2 Internal Jumpers

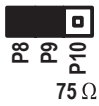
Caution: *All internal adjustments as well as repair work on this product must be performed by a trained technician – no user-serviceable parts inside!*

Factory Settings: In all drawings below, the default jumper settings are marked in black.



[1] 

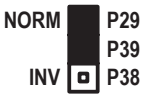
Impedance setting for the VIDEO input (BNC socket, not used).
Default setting: hi-Z.

[2] 

Impedance setting for the WCLK IN input (BNC socket).
Default setting: hi-Z; when changing the jumper to position P9-P10, the input impedance is 75 Ω.

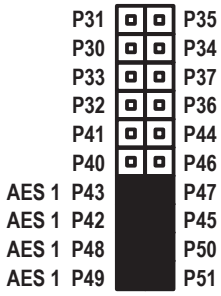
[3], [4] 

Configuration for the FAIL and WARN relay contact outputs.
FAIL is active if the generator cannot generate a valid AES/EBU signal in spite of redundancy. Jumper set to P22-P23: Make contact (default setting); jumper set to P23-P24: Break contact.
WARN is active if an internal supply has a malfunction, provided that two units are linked together or a second power supply unit is installed. Jumper set to P25-P26: Make contact (default setting); jumper set to P26-P27: Break contact.

[5] 

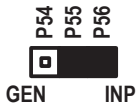
Polarity inversion of the word clock outputs 4...6 if jumper is set to INV (i.e. P38-P39); Default setting: NORM (P29-P39).

[6]



This pin array is used for installing the Redundancy option.
If no Redundancy option is installed, the following pins *must* be connected with jumpers: P43-P47, P42-P45, P48-P50, and P49-P51 (default setting).

[7]



This jumper is used if the MADI word clock extractor option is installed; then it has to be set to GEN (P54-P55).
If this option is not installed, the jumper remains in the INP position (P55-P56; default setting).

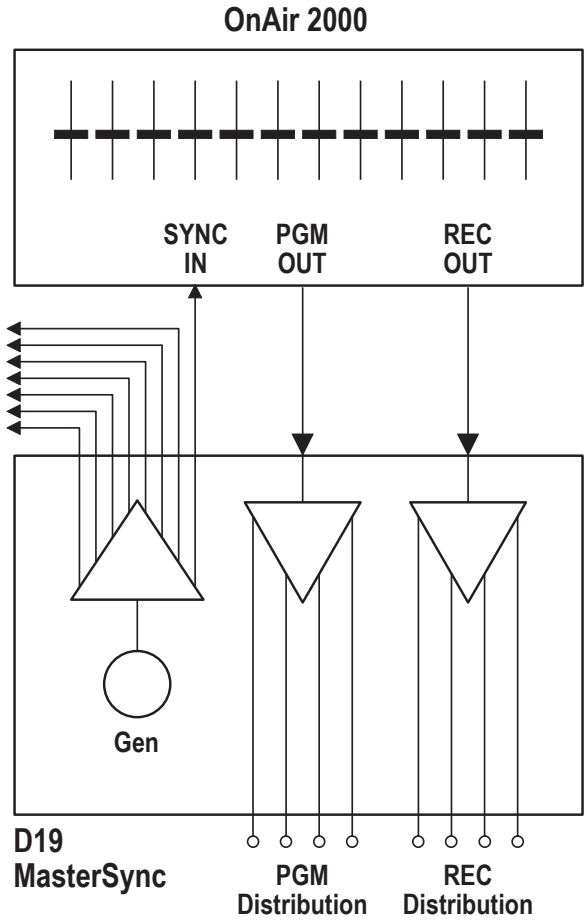
[8]

If a second, redundant power supply unit is installed, this jumper must be set to position P59-P60.
If not, the jumper remains in position P60-P61.

4 APPLICATIONS

4.1 OnAir 2000

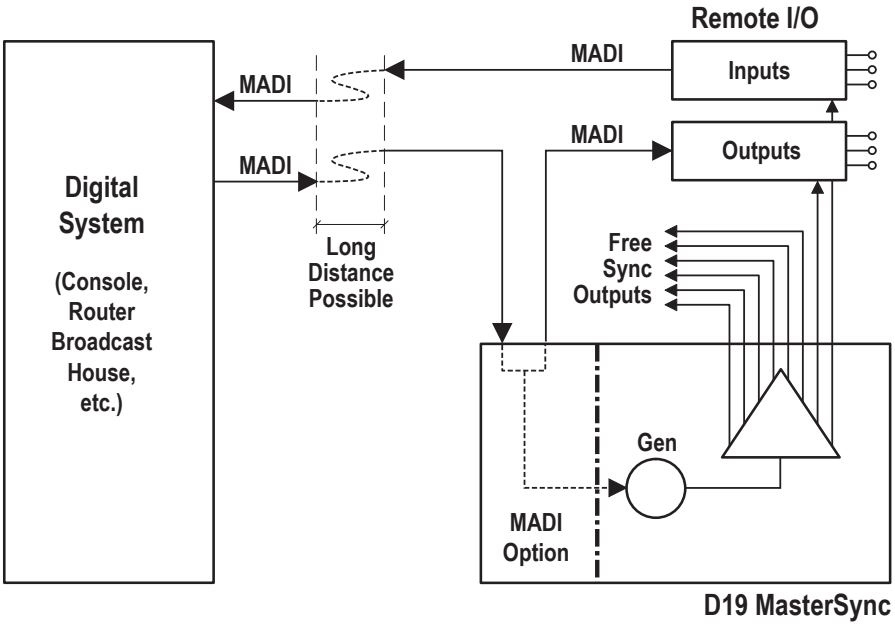
In many installations with the OnAir 2000 digital broadcast console (or other digital consoles), the need arises to generate a sync signal and distribute it to some peripheral devices, such as recording machines or players.



The D19 MasterSync is used in these environments and gives an additional benefit:
As the 16 outputs of a D19 MasterSync can be configured in such a way that they distribute different signals, it is possible to use eight outputs for sync signal distribution, and four of them each for other signals, such as the program bus and the record bus output distribution.

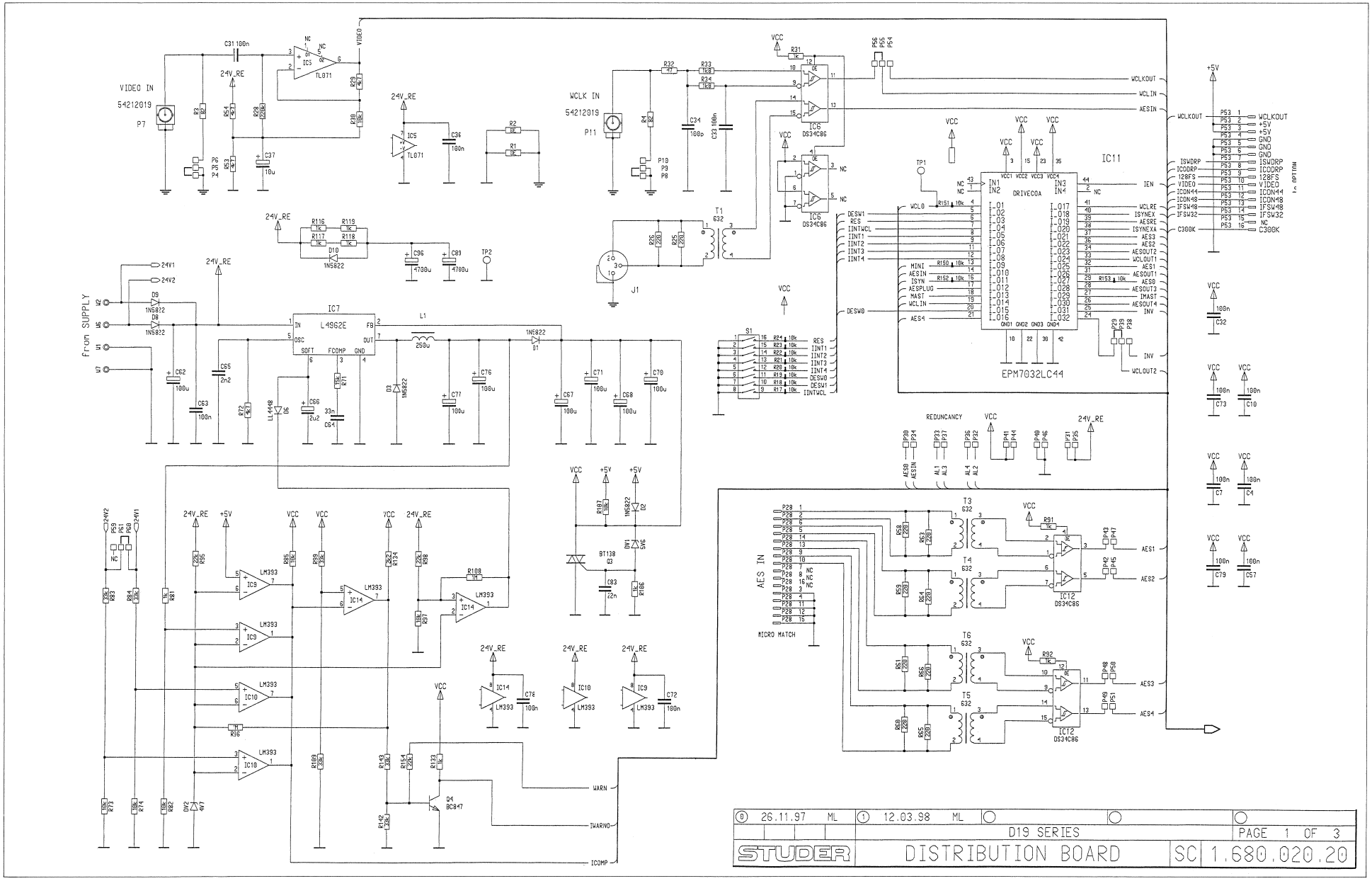
4.2 MADI Sync Extractor (Optional)

With more and more signals being transported on optical fibre links for improved immunity against hum, many systems have inputs and outputs located remotely. These inputs and outputs must be synchronized to the main digital system.
Examples: Stage boxes in theaters or PA applications, OB-vans, or simple long distance connections between the different parts of a broadcast center.

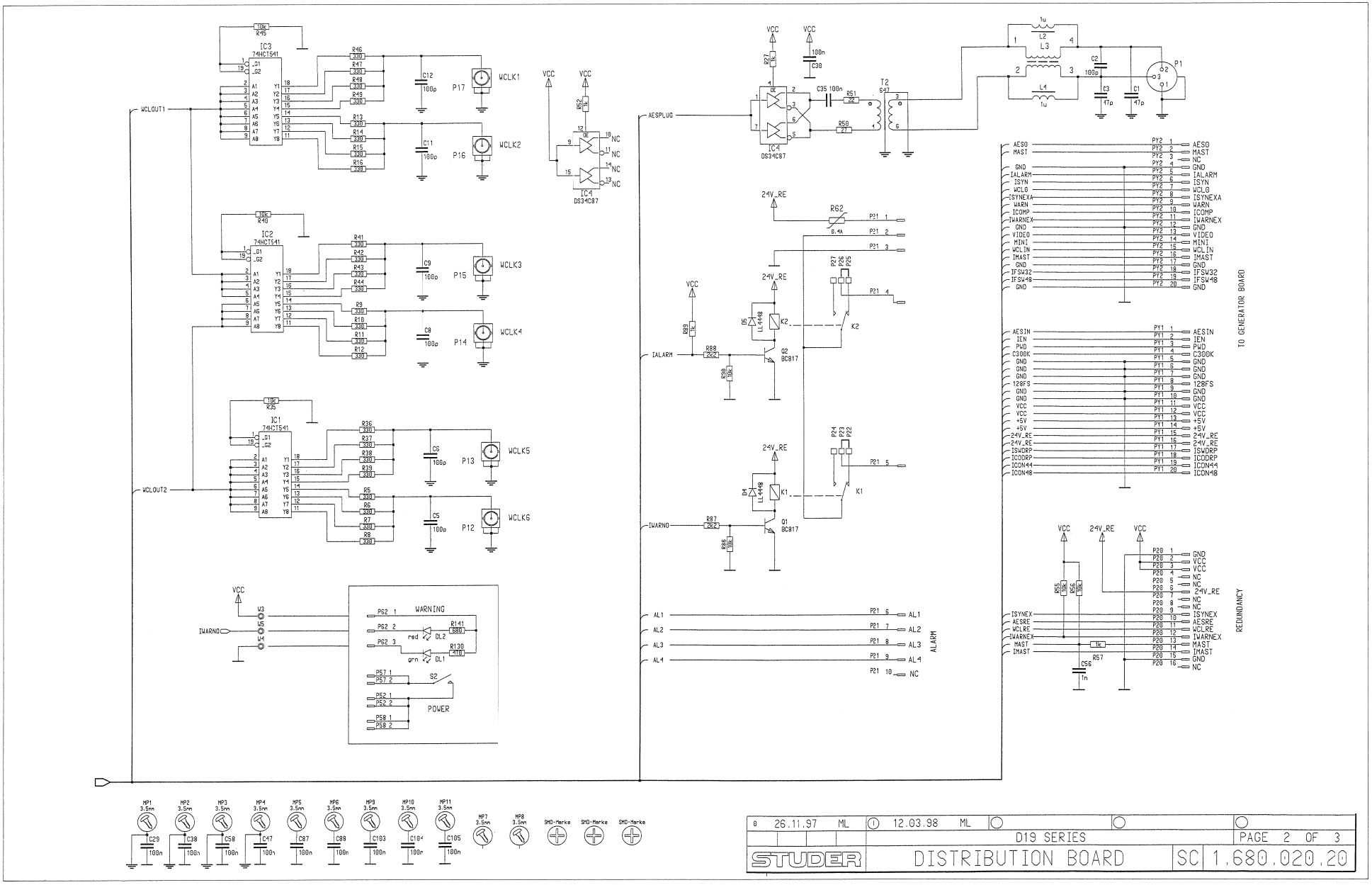


With the MADI sync extractor option, the D19 MasterSync generates a sync signal from an optical fibre MADI signal, thus synchronizing all remote inputs to the main system.

Distribution Board 1.680.020.20

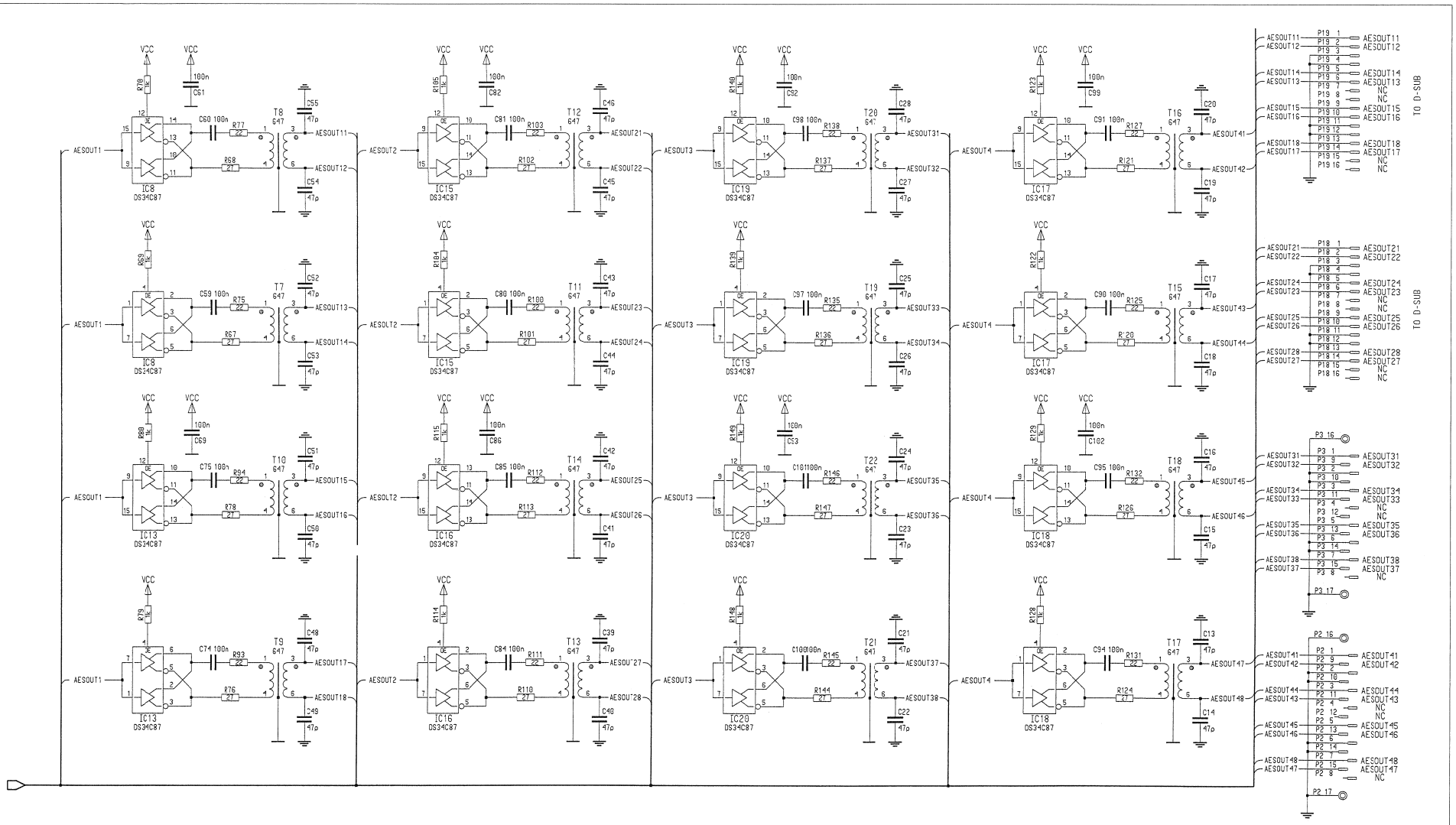


Distribution Board 1.680.020.20



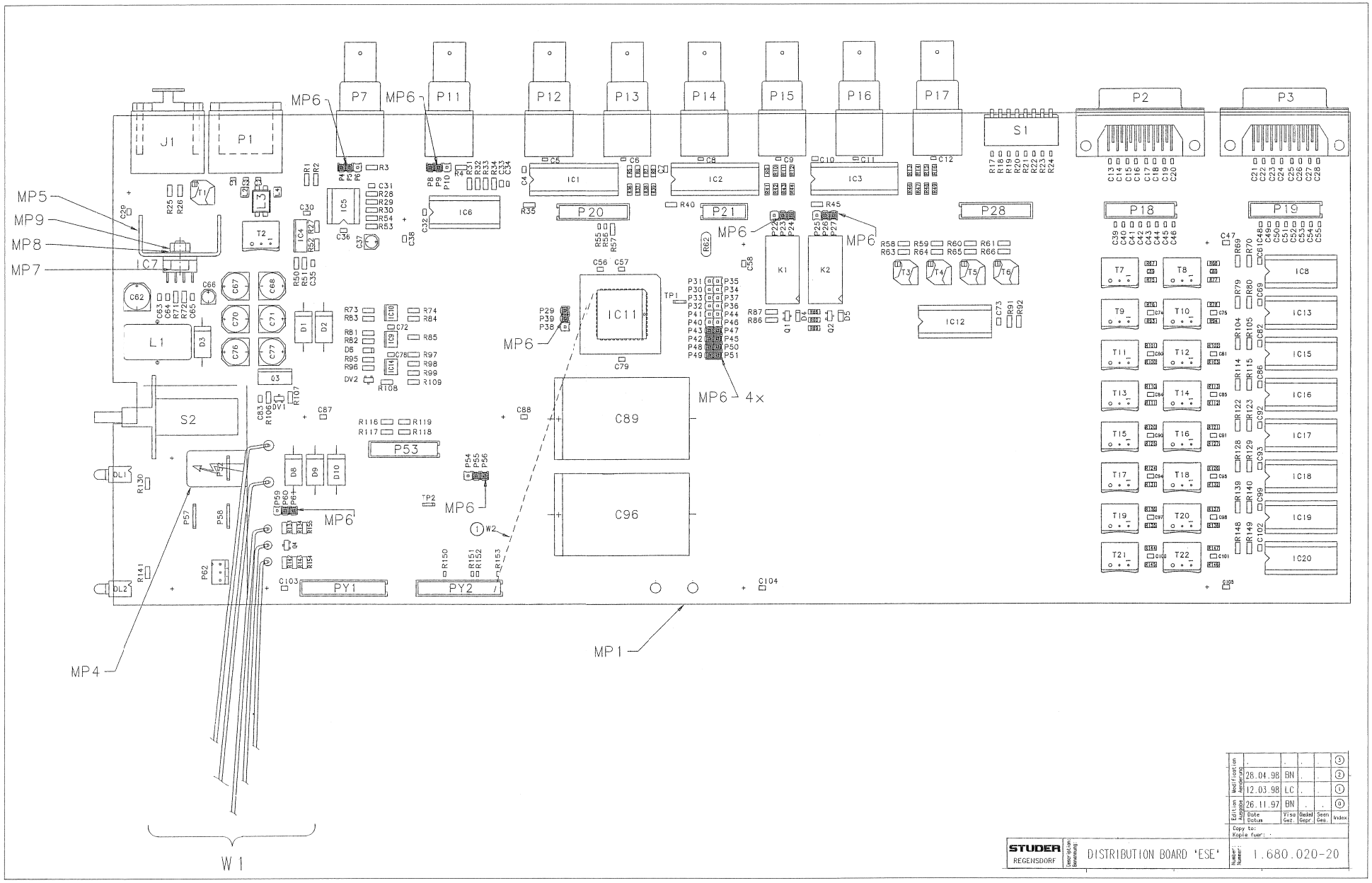
0	26.11.97	ML	1	12.03.98	ML	D19 SERIES	PAGE 2 OF 3
STUDER						DISTRIBUTION BOARD	SC 1.680.020.20

Distribution Board 1.680.020.20



0 26.11.97 ML	1 12.03.98 ML				
		D19 SERIES			PAGE 3 OF 3
STUDER	DISTRIBUTION BOARD			SC	1.680.020.20

Distribution Board 1.680.020.20



Edition / Ausgabe	Modification / Aenderung				
		.	.	.	3
	28.04.98	BN	.	.	2
	12.03.98	LC	.	.	1
	26.11.97	BN	.	.	0
	Date / Datum	Visa / Ges.	Checked / Gepr.	Seen / Ges.	Index

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STUDER REGENSDORF — Description / Benennung: DISTRIBUTION BOARD 'ESE' — Number / Nummer: 1.680.020-20

Distribution Board 1.680.020.20

Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 2	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 3	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 4	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 5	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 6	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 7	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 8	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 9	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 10	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 11	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 12	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 13	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 14	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 15	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 16	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 17	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 18	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 19	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 20	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 21	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 22	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 23	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 24	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 25	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 26	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 27	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 28	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 29	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 30	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 31	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 32	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 33	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 34	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 35	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 36	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 37	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 38	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 39	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 40	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 41	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 42	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 43	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 44	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 45	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 46	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 47	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 48	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 49	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 50	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 51	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 52	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 53	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 54	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 55	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 56	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 57	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 58	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 59	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 60	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 61	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 62	59.68.0115		100u	C-EL 35V, 8.0*10.7
0	C 63	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 64	59.60.3331		33n	CER 50V, 10%, X7R, 0805
0	C 65	59.60.3317		2n2	CER 50V, 10%, X7R, 0805
0	C 66	59.68.0129		2u2	C-EL 50V, 4.0*5.7
0	C 67	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 68	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 69	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 70	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 71	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 72	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 73	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 74	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 75	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 76	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 77	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 78	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 79	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 80	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 81	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 82	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 83	59.60.3329		22n	CER 50V, 10%, X7R, 0805
0	C 84	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 85	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 86	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 87	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 88	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 89	59.25.4472		4m7	C-EL, 20%, 25V
0	C 90	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 91	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 92	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 93	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 94	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 95	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 96	59.25.4472		4m7	C-EL, 20%, 25V
0	C 97	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 98	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 99	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 100	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 101	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 102	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 103	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 104	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 105	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	D 1	50.04.0519		1N5822	3A, Schottky
0	D 2	50.04.0519		1N5822	3A, Schottky
0	D 3	50.04.0519		1N5822	3A, Schottky
0	D 4	50.60.8001		4448	D LL 4448 SOD 80
0	D 5	50.60.8001		4448	D LL 4448 SOD 80
0	D 6	50.60.8001		4448	D LL 4448 SOD 80
0	D 8	50.04.0519		1N5822	3A, Schottky
0	D 9	50.04.0519		1N5822	3A, Schottky
0	D 10	50.04.0519		1N5822	3A, Schottky
0	DL 1	50.04.2751		grn	LED mit Halter
0	DL 2	50.04.2750		red	LED mit Halter
0	DV 1	50.60.9011		5V6	5%, 0.2W, SOT 23
0	DV 2	50.60.9009		4V7	5%, 0.2W, SOT 23
0	IC 1	50.17.0541		74HCT541	IC .. 74 HCT541 ., ,A
0	IC 2	50.17.0541		74HCT541	IC .. 74 HCT541 ., ,A
0	IC 3	50.17.0541		74HCT541	IC .. 74 HCT541 ., ,A
0	IC 4	50.62.0464		DS34C87	RS 422 Line Driver
0	IC 5	50.09.0103		TL071	IC TL 071 CP, ,A
0	IC 6	50.15.0128		34C86	IC DS 34 C 86 TN, MC34C86P ,A
0	IC 7	50.10.0118		L4962	IC L 4962 E,
0	IC 8	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	IC 9	50.61.9001		LM393	Dual voltage comp. SO 8 ,A
0	IC 10	50.61.9001		LM393	Dual voltage comp. SO 8 ,A
0	IC 11	1.680.900.20			SW 020 DRIVECO (50.63.4202) *EPLD 7032LC15*
0	IC 12	50.15.0128		34C86	IC DS 34 C 86 TN, MC34C86P ,A
0	IC 13	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	IC 14	50.61.9001		LM393	Dual voltage comp. SO 8 ,A
0	IC 15	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	IC 16	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	IC 17	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	IC 18	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	IC 19	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	IC 20	50.15.0127		34C87	IC DS 34 C 87 TN, MC34C87P ,A
0	J 1	54.21.2205		3p	XLR PCB Winkel lock
0	K 1	56.04.0161		2u	24V 125V 2A Ag/Au
0	K 2	56.04.0161		2u	24V 125V 2A Ag/Au
0	L 1	62.03.0025		250uH	2A Toroid Chocke
0	L 2	62.60.0101		1.0uH	10%, SMD 1210
0	L 3	00.00.0000		not used	not used
0	L 4	62.60.0101		1.0uH	10%, SMD 1210
0	MP 1	1.680.020.11			Distribution PCB
0	MP 2	1.680.020.10			NR-ETIKETTE 5 X 20
0	MP 3	43.01.0108		Label	ESE-WARNSCHILD
0	MP 4	43.01.0104			WARNSCHILD (BLITZ)
0	MP 5	50.03.9934			KUEHLKOERPER
0	MP 6	54.01.0021	11 pcs	Jumper	0.63 * 0.63mm
0	MP 7	21.53.0354		M3*6	Z-Schraube Inbus Zn gb chr
0	MP 8	24.16.1030			RIPPENSCHEIBE D 3.2/5.5
0	MP 9	22.01.8030		M3	6kt-Mutter 0.8d St Zn gb
0	P 1	54.21.2202		3p	XLR PCB Winkel
0	P 2	54.13.0077		15p	D-Sub, PCB, Winkel
0	P 3	54.13.0077		15p	D-Sub, PCB, Winkel
0	P 4	54.01.0020		1p	Pin 0.63*0.63
0	P 5	54.01.0020		1p	Pin 0.63*0.63
0	P 6	54.01.0020		1p	Pin 0.63*0.63
0	P 7	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 8	54.01.0020		1p	Pin 0.63*0.63
0	P 9	54.01.0020		1p	Pin 0.63*0.63
0	P 10	54.01.0020		1p	Pin 0.63*0.63

Distribution Board 1.680.020.20

Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	P 11	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 12	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 13	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 14	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 15	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 16	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 17	54.21.2019		BNC	J 1 POL PRINT/WINKEL BNC
0	P 18	54.14.5516		16p	PCB-Buchse gerade
0	P 19	54.14.5516		16p	PCB-Buchse gerade
0	P 20	54.14.5516		16p	PCB-Buchse gerade
0	P 21	54.14.5510		10p	PCB-Buchse gerade
0	P 22	54.01.0020		1p	Pin 0.63*0.63
0	P 23	54.01.0020		1p	Pin 0.63*0.63
0	P 24	54.01.0020		1p	Pin 0.63*0.63
0	P 25	54.01.0020		1p	Pin 0.63*0.63
0	P 26	54.01.0020		1p	Pin 0.63*0.63
0	P 27	54.01.0020		1p	Pin 0.63*0.63
0	P 28	54.14.5516		16p	PCB-Buchse gerade
0	P 29	54.01.0020		1p	Pin 0.63*0.63
0	P 30	54.01.0020		1p	Pin 0.63*0.63
0	P 31	54.01.0020		1p	Pin 0.63*0.63
0	P 32	54.01.0020		1p	Pin 0.63*0.63
0	P 33	54.01.0020		1p	Pin 0.63*0.63
0	P 34	54.01.0020		1p	Pin 0.63*0.63
0	P 35	54.01.0020		1p	Pin 0.63*0.63
0	P 36	54.01.0020		1p	Pin 0.63*0.63
0	P 37	54.01.0020		1p	Pin 0.63*0.63
0	P 38	54.01.0020		1p	Pin 0.63*0.63
0	P 39	54.01.0020		1p	Pin 0.63*0.63
0	P 40	54.01.0020		1p	Pin 0.63*0.63
0	P 41	54.01.0020		1p	Pin 0.63*0.63
0	P 42	54.01.0020		1p	Pin 0.63*0.63
0	P 43	54.01.0020		1p	Pin 0.63*0.63
0	P 44	54.01.0020		1p	Pin 0.63*0.63
0	P 45	54.01.0020		1p	Pin 0.63*0.63
0	P 46	54.01.0020		1p	Pin 0.63*0.63
0	P 47	54.01.0020		1p	Pin 0.63*0.63
0	P 48	54.01.0020		1p	Pin 0.63*0.63
0	P 49	54.01.0020		1p	Pin 0.63*0.63
0	P 50	54.01.0020		1p	Pin 0.63*0.63
0	P 51	54.01.0020		1p	Pin 0.63*0.63
0	P 52	not used		1p	P FLACH, 6.3*0,8, GERADE
0	P 53	54.14.5516		16p	PCB-Buchse gerade
0	P 54	54.01.0020		1p	Pin 0.63*0.63
0	P 55	54.01.0020		1p	Pin 0.63*0.63
0	P 56	54.01.0020		1p	Pin 0.63*0.63
0	P 57	54.02.0335		1p	P FLACH, 6.3*0,8, GERADE
0	P 58	54.02.0335		1p	P FLACH, 6.3*0,8, GERADE
0	P 59	54.01.0020		1p	Pin 0.63*0.63
0	P 60	54.01.0020		1p	Pin 0.63*0.63
0	P 61	54.01.0020		1p	Pin 0.63*0.63
0	P 62	54.12.0703		3p	Stecker gerade PCB
0	PY 1	54.14.5520		20p	PCB-Buchse gerade
0	PY 2	54.14.5520		20p	PCB-Buchse gerade
0	Q 1	50.60.0050		BC817-25	Q BC 817-25, NPN SOT 23
0	Q 2	50.60.0050		BC817-25	Q BC 817-25, NPN SOT 23
0	Q 3	50.99.0106		BT138	Q BT 138 - 500 TRIAC
0	Q 4	50.60.0001		BC847B	Q BC 847 B, SOT 23
0	R 1	57.60.1000		0R0	MF, 0204
0	R 2	57.60.1000		0R0	MF, 0204
0	R 3	57.60.1820		82R	MF, 1%, 0204, E24
0	R 4	57.60.1820		82R	MF, 1%, 0204, E24
0	R 5	57.60.1331		330R	MF, 1%, 0204, E24
0	R 6	57.60.1331		330R	MF, 1%, 0204, E24
0	R 7	57.60.1331		330R	MF, 1%, 0204, E24
0	R 8	57.60.1331		330R	MF, 1%, 0204, E24
0	R 9	57.60.1331		330R	MF, 1%, 0204, E24
0	R 10	57.60.1331		330R	MF, 1%, 0204, E24
0	R 11	57.60.1331		330R	MF, 1%, 0204, E24
0	R 12	57.60.1331		330R	MF, 1%, 0204, E24
0	R 13	57.60.1331		330R	MF, 1%, 0204, E24
0	R 14	57.60.1331		330R	MF, 1%, 0204, E24
0	R 15	57.60.1331		330R	MF, 1%, 0204, E24
0	R 16	57.60.1331		330R	MF, 1%, 0204, E24
0	R 17	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 18	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 19	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 20	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 21	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 22	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 23	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 24	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 25	57.60.1221		220R	MF, 1%, 0204, E24
0	R 26	57.60.1221		220R	MF, 1%, 0204, E24
0	R 27	57.60.1102		1K	MF, 1%, 0204, E24
0	R 28	57.60.1224		220K	MF, 1%, 0204, E24
0	R 29	57.60.1472		4K7	MF, 1%, 0204, E24
0	R 30	57.60.1103		10K	MF, 1%, 0204, E24
0	R 31	57.60.1102		1K	MF, 1%, 0204, E24
0	R 32	57.60.1470		47R	MF, 1%, 0204, E24
0	R 33	57.60.1182		1K8	MF, 1%, 0204, E24
0	R 34	57.60.1182		1K8	MF, 1%, 0204, E24
0	R 35	57.60.1103		10K	MF, 1%, 0204, E24
0	R 36	57.60.1331		330R	MF, 1%, 0204, E24
0	R 37	57.60.1331		330R	MF, 1%, 0204, E24
0	R 38	57.60.1331		330R	MF, 1%, 0204, E24
0	R 39	57.60.1331		330R	MF, 1%, 0204, E24
0	R 40	57.60.1103		10K	MF, 1%, 0204, E24
0	R 41	57.60.1331		330R	MF, 1%, 0204, E24
0	R 42	57.60.1331		330R	MF, 1%, 0204, E24
0	R 43	57.60.1331		330R	MF, 1%, 0204, E24
0	R 44	57.60.1331		330R	MF, 1%, 0204, E24
0	R 45	57.60.1103		10K	MF, 1%, 0204, E24
0	R 46	57.60.1331		330R	MF, 1%, 0204, E24
0	R 47	57.60.1331		330R	MF, 1%, 0204, E24
0	R 48	57.60.1331		330R	MF, 1%, 0204, E24
0	R 49	57.60.1331		330R	MF, 1%, 0204, E24
0	R 50	57.60.1270		27R	MF, 1%, 0204, E24
0	R 51	57.60.1220		22R	MF, 1%, 0204, E24
0	R 52	57.60.1102		1K	MF, 1%, 0204, E24
0	R 53	57.60.1472		4K7	MF, 1%, 0204, E24
0	R 54	57.60.1472		4K7	MF, 1%, 0204, E24
0	R 55	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 56	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 57	57.60.1102		1K	MF, 1%, 0204, E24
0	R 58	57.60.1221		220R	MF, 1%, 0204, E24
0	R 59	57.60.1221		220R	MF, 1%, 0204, E24
0	R 60	57.60.1221		220R	MF, 1%, 0204, E24
0	R 61	57.60.1221		220R	MF, 1%, 0204, E24
0	R 62	57.92.7019		0.4A	POLY- PTC, 60V
0	R 63	57.60.1221		220R	MF, 1%, 0204, E24
0	R 64	57.60.1221		220R	MF, 1%, 0204, E24
0	R 65	57.60.1221		220R	MF, 1%, 0204, E24
0	R 66	57.60.1221		220R	MF, 1%, 0204, E24
0	R 67	57.60.1270		27R	MF, 1%, 0204, E24
0	R 68	57.60.1270		27R	MF, 1%, 0204, E24
0	R 69	57.60.1102		1K	MF, 1%, 0204, E24
0	R 70	57.60.1102		1K	MF, 1%, 0204, E24
0	R 71	57.60.1153		15K	MF, 1%, 0204, E24
0	R 72	57.60.1472		4K7	MF, 1%, 0204, E24
0	R 73	57.60.1103		10K	MF, 1%, 0204, E24
0	R 74	57.60.1103		10K	MF, 1%, 0204, E24
0	R 75	57.60.1220		22R	MF, 1%, 0204, E24
0	R 76	57.60.1270		27R	MF, 1%, 0204, E24
0	R 77	57.60.1220		22R	MF, 1%, 0204, E24
0	R 78	57.60.1270		27R	MF, 1%, 0204, E24
0	R 79	57.60.1102		1K	MF, 1%, 0204, E24
0	R 80	57.60.1102		1K	MF, 1%, 0204, E24
0	R 81	57.60.1102		1K	MF, 1%, 0204, E24
0	R 82	57.60.1103		10K	MF, 1%, 0204, E24
0	R 83	57.60.1333		33K	MF, 1%, 0204, E24
0	R 84	57.60.1333		33K	MF, 1%, 0204, E24
0	R 85	57.60.1103		10K	MF, 1%, 0204, E24
0	R 86	57.60.1103		10K	MF, 1%, 0204, E24
0	R 87	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 88	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 89	57.60.1102		1K	MF, 1%, 0204, E24
0	R 90	57.60.1103		10K	MF, 1%, 0204, E24
0	R 91	57.60.1102		1K	MF, 1%, 0204, E24
0	R 92	57.60.1102		1K	MF, 1%, 0204, E24
0	R 93	57.60.1220		22R	MF, 1%, 0204, E24
0	R 94	57.60.1220		22R	MF, 1%, 0204, E24
0	R 95	57.60.1223		22K	MF, 1%, 0204, E24
0	R 96	57.60.1105		1M	MF, 1%, 0204, E24
0	R 97	57.60.1103		10K	MF, 1%, 0204, E24
0	R 98	57.60.1223		22K	MF, 1%, 0204, E24
0	R 99	57.60.1333		33K	MF, 1%, 0204, E24
0	R 100	57.60.1220		22R	MF, 1%, 0204, E24
0	R 101	57.60.1270		27R	MF, 1%, 0204, E24
0	R 102	57.60.1270		27R	MF, 1%, 0204, E24
0	R 103	57.60.1220		22R	MF, 1%, 0204, E24
0	R 104	57.60.1102		1K	MF, 1%, 0204, E24
0	R 105	57.60.1102		1K	MF, 1%, 0204, E24
0	R 106	57.60.1102		1K	MF, 1%, 0204, E24
0	R 107	57.60.1103		10K	MF, 1%, 0204, E24
0	R 108	57.60.1105		1M	MF, 1%, 0204, E24
0	R 109	57.60.1333		33K	MF, 1%, 0204, E24
0	R 110	57.60.1270		27R	MF, 1%, 0204, E24
0	R 111	57.60.1220		22R	MF, 1%, 0204, E24
0	R 112	57.60.1220		22R	MF, 1%, 0204, E24

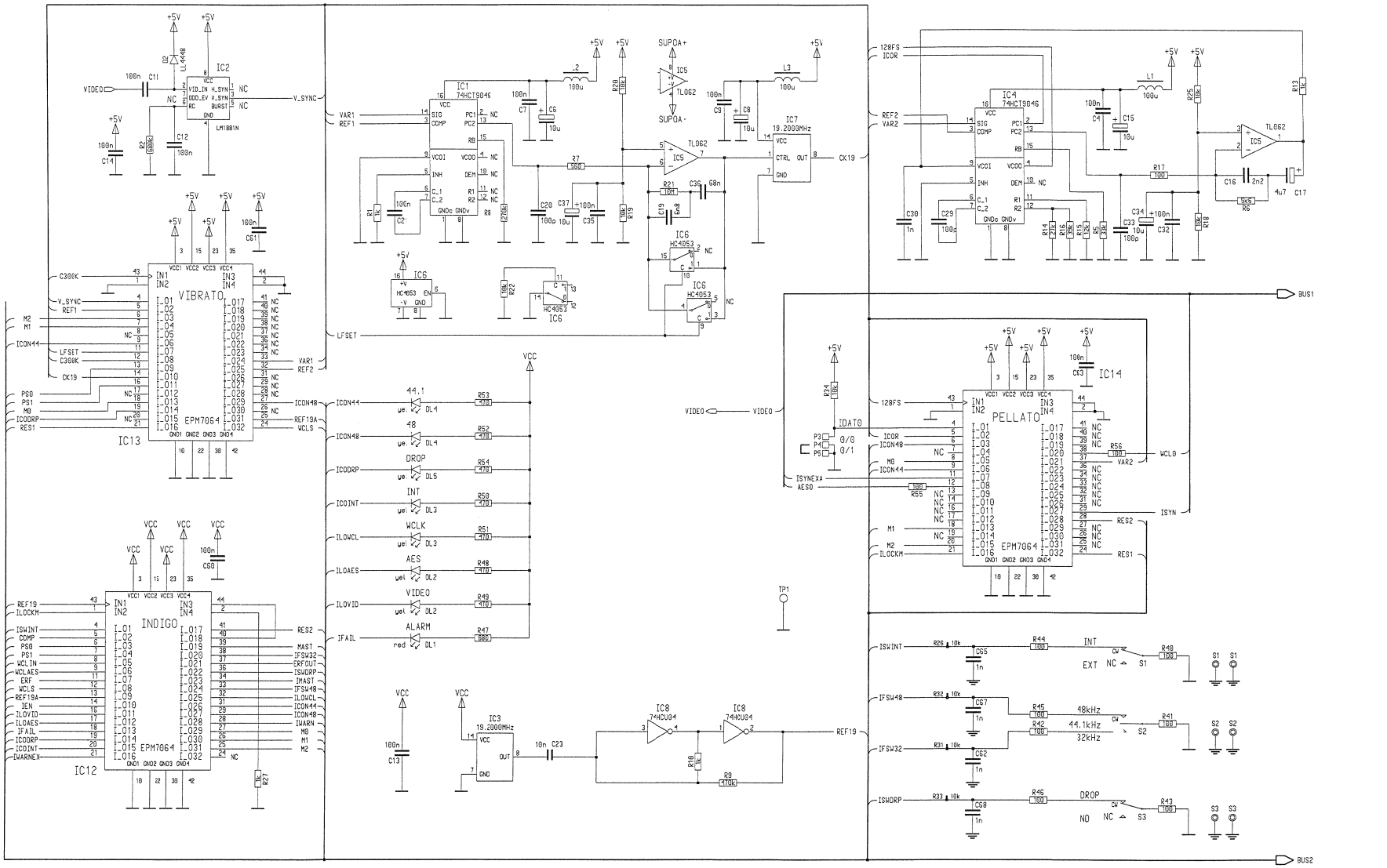
Distribution Board 1.680.020.20

Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 113	57.60.1270		27R	MF, 1%, 0204, E24
0	R 114	57.60.1102		1K	MF, 1%, 0204, E24
0	R 115	57.60.1102		1K	MF, 1%, 0204, E24
0	R 116	57.60.1102		1K	MF, 1%, 0204, E24
0	R 117	57.60.1102		1K	MF, 1%, 0204, E24
0	R 118	57.60.1102		1K	MF, 1%, 0204, E24
0	R 119	57.60.1102		1K	MF, 1%, 0204, E24
0	R 120	57.60.1270		27R	MF, 1%, 0204, E24
0	R 121	57.60.1270		27R	MF, 1%, 0204, E24
0	R 122	57.60.1102		1K	MF, 1%, 0204, E24
0	R 123	57.60.1102		1K	MF, 1%, 0204, E24
0	R 124	57.60.1270		27R	MF, 1%, 0204, E24
0	R 125	57.60.1220		22R	MF, 1%, 0204, E24
0	R 126	57.60.1270		27R	MF, 1%, 0204, E24
0	R 127	57.60.1220		22R	MF, 1%, 0204, E24
0	R 128	57.60.1102		1K	MF, 1%, 0204, E24
0	R 129	57.60.1102		1K	MF, 1%, 0204, E24
0	R 130	57.60.1471		470R	MF, 1%, 0204, E24
0	R 131	57.60.1220		22R	MF, 1%, 0204, E24
0	R 132	57.60.1220		22R	MF, 1%, 0204, E24
0	R 133	57.60.1102		1K	MF, 1%, 0204, E24
0	R 134	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 135	57.60.1220		22R	MF, 1%, 0204, E24
0	R 136	57.60.1270		27R	MF, 1%, 0204, E24
0	R 137	57.60.1270		27R	MF, 1%, 0204, E24
0	R 138	57.60.1220		22R	MF, 1%, 0204, E24
0	R 139	57.60.1102		1K	MF, 1%, 0204, E24
0	R 140	57.60.1102		1K	MF, 1%, 0204, E24
0	R 141	57.60.1681		680R	MF, 1%, 0204, E24
0	R 142	57.60.1333		33K	MF, 1%, 0204, E24
0	R 143	57.60.1333		33K	MF, 1%, 0204, E24
0	R 144	57.60.1270		27R	MF, 1%, 0204, E24
0	R 145	57.60.1220		22R	MF, 1%, 0204, E24
0	R 146	57.60.1220		22R	MF, 1%, 0204, E24
0	R 147	57.60.1270		27R	MF, 1%, 0204, E24
0	R 148	57.60.1102		1K	MF, 1%, 0204, E24
0	R 149	57.60.1102		1K	MF, 1%, 0204, E24
0	R 150	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 151	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 152	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 153	57.69.1097		10k	Chip 0603, 5%, carbon
1	R 154	57.60.1223		22K	MF, 1%, 0204, E24
1	R 155	not used		2K2	MF, 1%, 0204, E24
0	S 1	55.12.1108			S DIL SCHALTER PIANO 8-POL
0	S 2	55.03.0286		1*a	NETZSCHALTER MIT PRINTANSCHL.
0	T 1	1.022.632.00		1:1	DI/DO TRANSFORMER
0	T 2	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 3	1.022.632.00		1:1	DI/DO TRANSFORMER
0	T 4	1.022.632.00		1:1	DI/DO TRANSFORMER
0	T 5	1.022.632.00		1:1	DI/DO TRANSFORMER
0	T 6	1.022.632.00		1:1	DI/DO TRANSFORMER
0	T 7	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 8	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 9	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 10	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 11	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 12	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 13	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 14	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 15	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 16	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 17	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 18	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 19	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 20	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 21	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	T 22	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	TP 1	54.33.6010			P FLACH, 2.8*0.8,GERADE,LOSE
0	TP 2	54.33.6010			P FLACH, 2.8*0.8,GERADE,LOSE
0	W 1	1.680.020.93			LL Distribution Board
1	W 2	1.010.115.64			WIRE WRAP DRAHT D .255 L=150
0	XIC 11	53.03.2244		PLCC44p	PLCC-Socket 44p

End of List

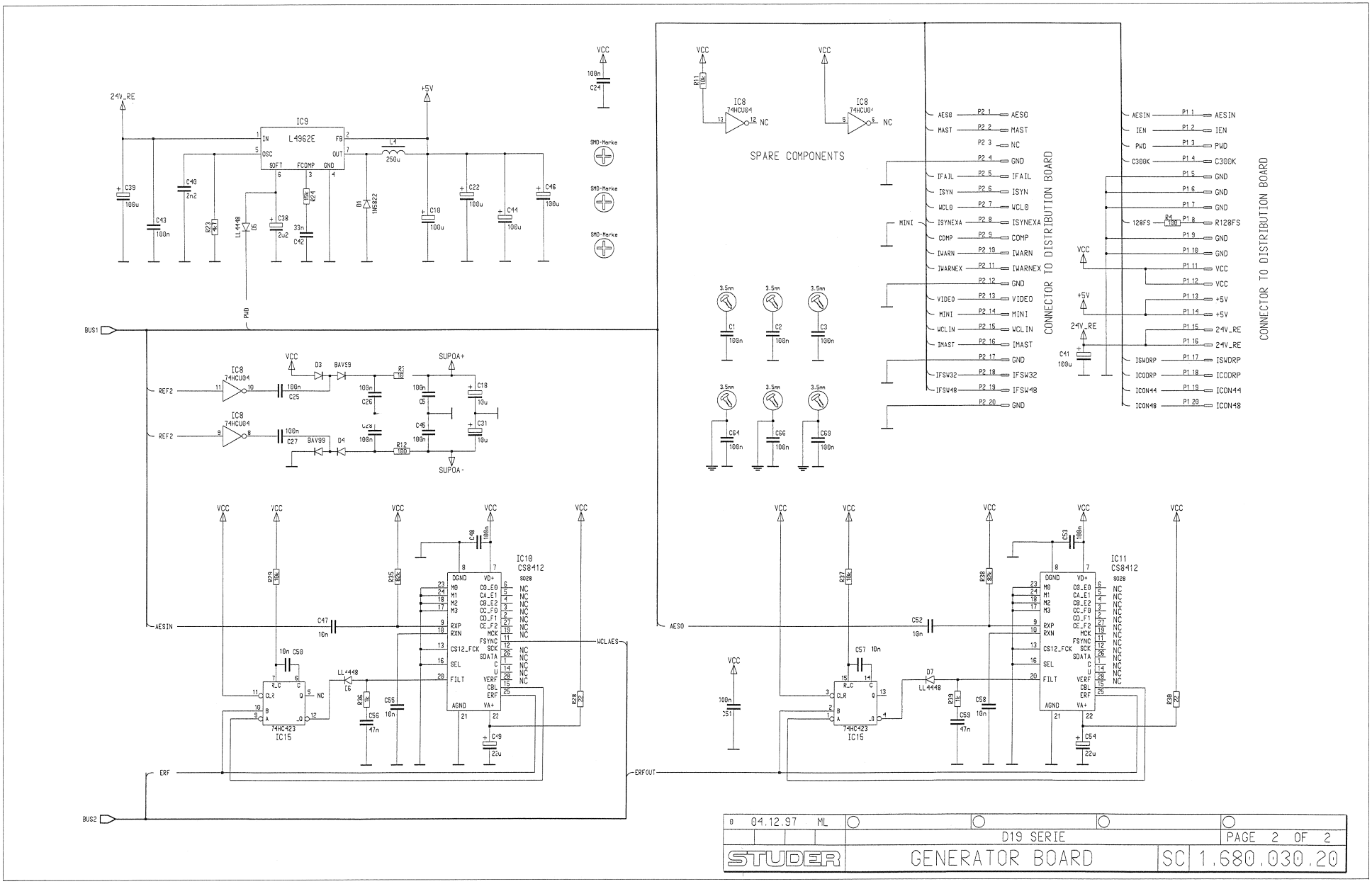
Comments

Generator Board 1.680.030.20

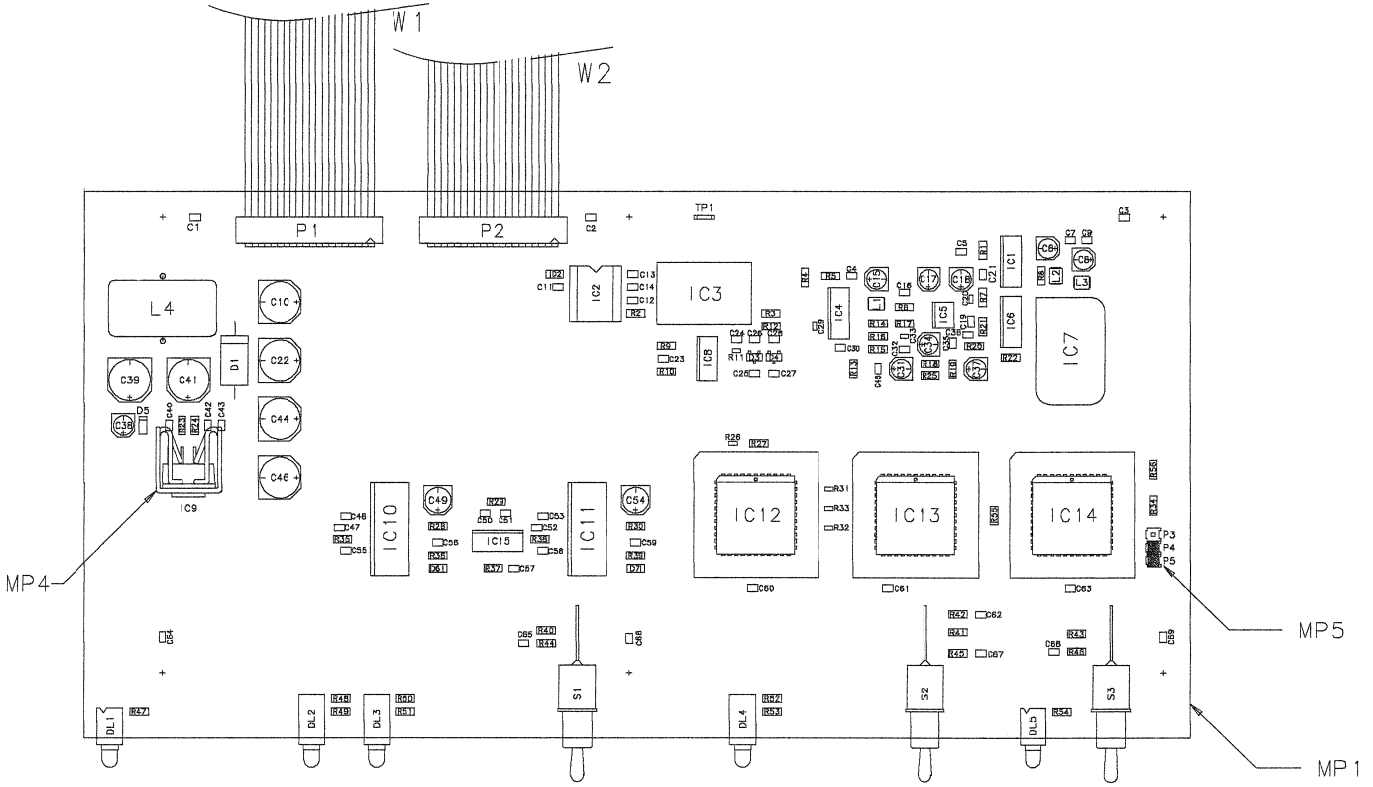


0	04.12.97	ML	D19 SERIE	PAGE 1 OF 2
STUDER			GENERATOR BOARD	SC 1.680.030.20

Generator Board 1.680.030.20



Generator Board 1.680.030.23



Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 2	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 3	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 4	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 5	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 6	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 7	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 8	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 9	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 10	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 11	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 12	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 13	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 14	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 15	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 16	59.60.3317		2n2	CER 50V, 10%, X7R, 0805
0	C 17	59.68.0107		4u7	C-EL 35V, 4.0*5.7
0	C 18	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 19	59.60.3323		6n8	CER 50V, 10%, X7R, 0805
0	C 20	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 21	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 22	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 23	59.60.3325		10n	CER 50V, 10%, X7R, 0805
0	C 24	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 25	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 26	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 27	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 28	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 29	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 30	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 31	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 32	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 33	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 34	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 35	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 36	59.60.3335		68n	CER 50V, 10%, X7R, 0805
0	C 37	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 38	59.68.0129		2u2	C-EL 50V, 4.0*5.7
0	C 39	59.68.0115		100u	C-EL 35V, 8.0*10.7
0	C 40	59.60.3317		2n2	CER 50V, 10%, X7R, 0805
0	C 41	59.68.0115		100u	C-EL 35V, 8.0*10.7
0	C 42	59.60.3331		33n	CER 50V, 10%, X7R, 0805
0	C 43	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 44	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 45	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 46	59.68.0071		100u	C-EL 16V, 8.0*6.3
0	C 47	59.60.3325		10n	CER 50V, 10%, X7R, 0805
0	C 48	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 49	59.68.0067		22u	C-EL 16V, 5.0*5.7
0	C 50	59.60.3325		10n	CER 50V, 10%, X7R, 0805
0	C 51	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 52	59.60.3325		10n	CER 50V, 10%, X7R, 0805
0	C 53	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 54	59.68.0067		22u	C-EL 16V, 5.0*5.7
0	C 55	59.60.3325		10n	CER 50V, 10%, X7R, 0805
0	C 56	59.60.3333		47n	CER 50V, 10%, X7R, 0805
0	C 57	59.60.3325		10n	CER 50V, 10%, X7R, 0805
0	C 58	59.60.3325		10n	CER 50V, 10%, X7R, 0805
0	C 59	59.60.3333		47n	CER 50V, 10%, X7R, 0805
0	C 60	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 61	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 62	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 63	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 64	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 65	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 66	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 67	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 68	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 69	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	D 1	50.04.0519		1N5822	3A, Schottky
0	D 2	50.60.8001		4448	D LL 4448 SOD 80
0	D 3	50.60.8901		BAV99	D BAV 99, SOT 23
0	D 4	50.60.8901		BAV99	D BAV 99, SOT 23
0	D 5	50.60.8001		4448	D LL 4448 SOD 80
0	D 6	50.60.8001		4448	D LL 4448 SOD 80
0	D 7	50.60.8001		4448	D LL 4448 SOD 80
0	DL 1	50.04.2750		red	LED mit Halter, rot
0	DL 2	50.04.2772			DL DUAL LED MIT HALTER GB
0	DL 3	50.04.2772			DL DUAL LED MIT HALTER GB
0	DL 4	50.04.2772			DL DUAL LED MIT HALTER GB
0	DL 5	50.04.2752		yel	LED mit Halter, gelb

Edition Index	Modification Aenderung				
		.	.	.	3
		.	.	.	2
		.	.	.	1
00	03.12.97	BN		WZ	0
	Data Datum	Visa Ved.	Dessin Gepr.	Seen Ges.	Index

Copy to: Kopie fuer: -

STUDER REGENSDORF — Description Benennung: GENERATOR BOARD 'ESE' — Number Nummer: 1.680.030.20

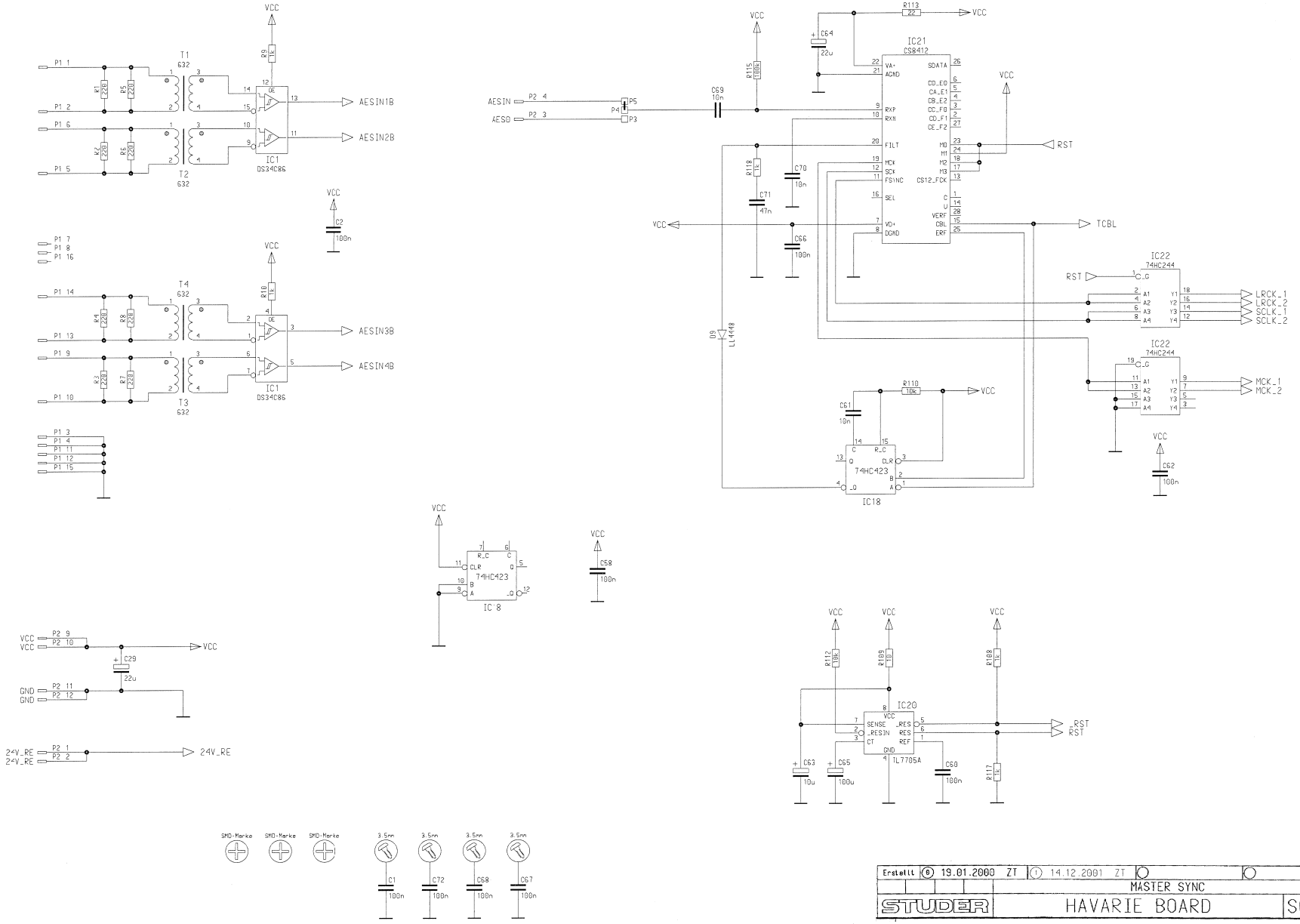
Generator Board 1.680.030.23

Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	IC 1	50.62.4946		74HCT9046	IC ,,74 HCT 9046 . ,A
0	IC 2	50.11.0145		LM1881	IC LM 1881 N,
0	IC 3	89.01.1603		19.200MHz	TCXO Xtal-Oscillator temp comp
0	IC 4	50.62.4946		74HCT9046	IC ,,74 HCT 9046 . ,A
0	IC 5	50.61.0201		TL062	Dual FET Op-Amp
0	IC 6	50.62.8053		4053	IC ,,74 HC 4053 . ,A
0	IC 7	89.01.1510		19.200MHz	HC 19.200 000 MHZ, VCXO
0	IC 8	50.62.1904		74HCU04	IC ,,74 HCU 04 . ,A
0	IC 9	50.10.0118		L4962	IC L 4962 E,
0	IC 10	50.62.0913		CS8412	AES-Receiver
0	IC 11	50.62.0913		CS8412	AES-Receiver
0	IC 12	1.680.901.22			SW 030 INDIGO (50.33.4202)
0	IC 13	1.680.902.22			SW 030 VIBRATO (50.63.4202)
0	IC 14	1.680.903.21			SW 030 PELLATO (50.63.4202)
0	IC 15	50.62.1423		74HC423	Dual multivibr monost retrigg
0	L 1	62.60.0125		100uH	10%, SMD 1210
0	L 2	62.60.0125		100uH	10%, SMD 1210
0	L 3	62.60.0125		100uH	10%, SMD 1210
0	L 4	62.03.0025		250uH	2A Toroid Chocke
0	MP 1	1.680.030.11			Generator PCB
0	MP 2	1.680.030.10			NR-ETIKETTE 5 X 20
0	MP 3	43.01.0108		Label	ESE-WARNSCHILD
0	MP 4	50.20.3011			Kühlkörper, TO 220, vertikal
0	MP 5	54.01.0021		Jumper	0.63 * 0.63mm
0	P 1	not used		20p	PCB-Flachkabel-Verbinder ->W1
0	P 2	not used		20p	PCB-Flachkabel-Verbinder ->W2
0	P 3	54.01.0020		1p	Pin 0.63*0.63
0	P 4	54.01.0020		1p	Pin 0.63*0.63
0	P 5	54.01.0020		1p	Pin 0.63*0.63
0	R 1	57.60.1102		1K	MF, 1%, 0204, E24
0	R 2	57.60.1684		680K	MF, 1%, 0204, E24
0	R 3	57.60.1101		100R	MF, 1%, 0204, E24
0	R 4	57.60.1101		100R	MF, 1%, 0204, E24
0	R 5	57.60.1333		33K	MF, 1%, 0204, E24
0	R 6	57.60.1562		5K6	MF, 1%, 0204, E24
0	R 7	57.60.1561		560R	MF, 1%, 0204, E24
0	R 8	57.60.1274		270K	MF, 1%, 0204, E24
0	R 9	57.60.1474		470K	MF, 1%, 0204, E24
0	R 10	57.60.1102		1K	MF, 1%, 0204, E24
0	R 11	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 12	57.60.1101		100R	MF, 1%, 0204, E24
0	R 13	57.60.1102		1K	MF, 1%, 0204, E24
0	R 14	57.60.1273		27K	MF, 1%, 0204, E24
0	R 15	57.60.1123		12K	MF, 1%, 0204, E24
0	R 16	57.60.1393		39K	MF, 1%, 0204, E24
0	R 17	57.60.1101		100R	MF, 1%, 0204, E24
0	R 18	57.60.1103		10K	MF, 1%, 0204, E24
0	R 19	57.60.1103		10K	MF, 1%, 0204, E24
0	R 20	57.60.1103		10K	MF, 1%, 0204, E24
0	R 21	57.60.1106		10M	MF, 2%, 0204, E24
0	R 22	57.60.1103		10K	MF, 1%, 0204, E24
0	R 23	57.60.1472		4K7	MF, 1%, 0204, E24
0	R 24	57.60.1153		15K	MF, 1%, 0204, E24
0	R 25	57.60.1103		10K	MF, 1%, 0204, E24
0	R 26	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 27	57.60.1102		1K	MF, 1%, 0204, E24
0	R 28	57.60.1220		22R	MF, 1%, 0204, E24
0	R 29	57.60.1103		10K	MF, 1%, 0204, E24
0	R 30	57.60.1220		22R	MF, 1%, 0204, E24
0	R 31	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 32	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 33	57.69.1097		10k	Chip 0603, 5%, carbon
0	R 34	57.60.1103		10K	MF, 1%, 0204, E24
0	R 35	57.60.1823		82K	MF, 1%, 0204, E24
0	R 36	57.60.1102		1K	MF, 1%, 0204, E24
0	R 37	57.60.1103		10K	MF, 1%, 0204, E24
0	R 38	57.60.1823		82K	MF, 1%, 0204, E24
0	R 39	57.60.1102		1K	MF, 1%, 0204, E24
0	R 40	57.60.1101		100R	MF, 1%, 0204, E24
0	R 41	57.60.1101		100R	MF, 1%, 0204, E24
0	R 42	57.60.1101		100R	MF, 1%, 0204, E24
0	R 43	57.60.1101		100R	MF, 1%, 0204, E24
0	R 44	57.60.1101		100R	MF, 1%, 0204, E24
0	R 45	57.60.1101		100R	MF, 1%, 0204, E24
0	R 46	57.60.1101		100R	MF, 1%, 0204, E24
0	R 47	57.60.1681		680R	MF, 1%, 0204, E24
0	R 48	57.60.1471		470R	MF, 1%, 0204, E24
0	R 49	57.60.1471		470R	MF, 1%, 0204, E24
0	R 50	57.60.1471		470R	MF, 1%, 0204, E24
0	R 51	57.60.1471		470R	MF, 1%, 0204, E24
0	R 52	57.60.1471		470R	MF, 1%, 0204, E24
0	R 53	57.60.1471		470R	MF, 1%, 0204, E24
0	R 54	57.60.1471		470R	MF, 1%, 0204, E24
0	R 55	57.60.1101		100R	MF, 1%, 0204, E24
0	R 56	57.60.1101		100R	MF, 1%, 0204, E24
0	S 1	55.11.0006		SPST	Toggle 4 * on-on Ag
0	S 2	55.11.0007		SPDT	Toggle 4 * on-off-on Ag
0	S 3	55.11.0006		SPST	Toggle 4 * on-on Ag
0	TP 1	54.33.6010			P FLACH, 2.8*0.8,GERADE,LOSE
0	W 1	1.023.567.03		Ribbon20p	FLACHKABEL 20 POL. 0,125M
0	W 2	1.023.567.03		Ribbon20p	FLACHKABEL 20 POL. 0,125M
0	XIC 12	53.03.2244		PLCC44p	PLCC-Socket 44p
0	XIC 13	53.03.2244		PLCC44p	PLCC-Socket 44p
0	XIC 14	53.03.2244		PLCC44p	PLCC-Socket 44p

End of List

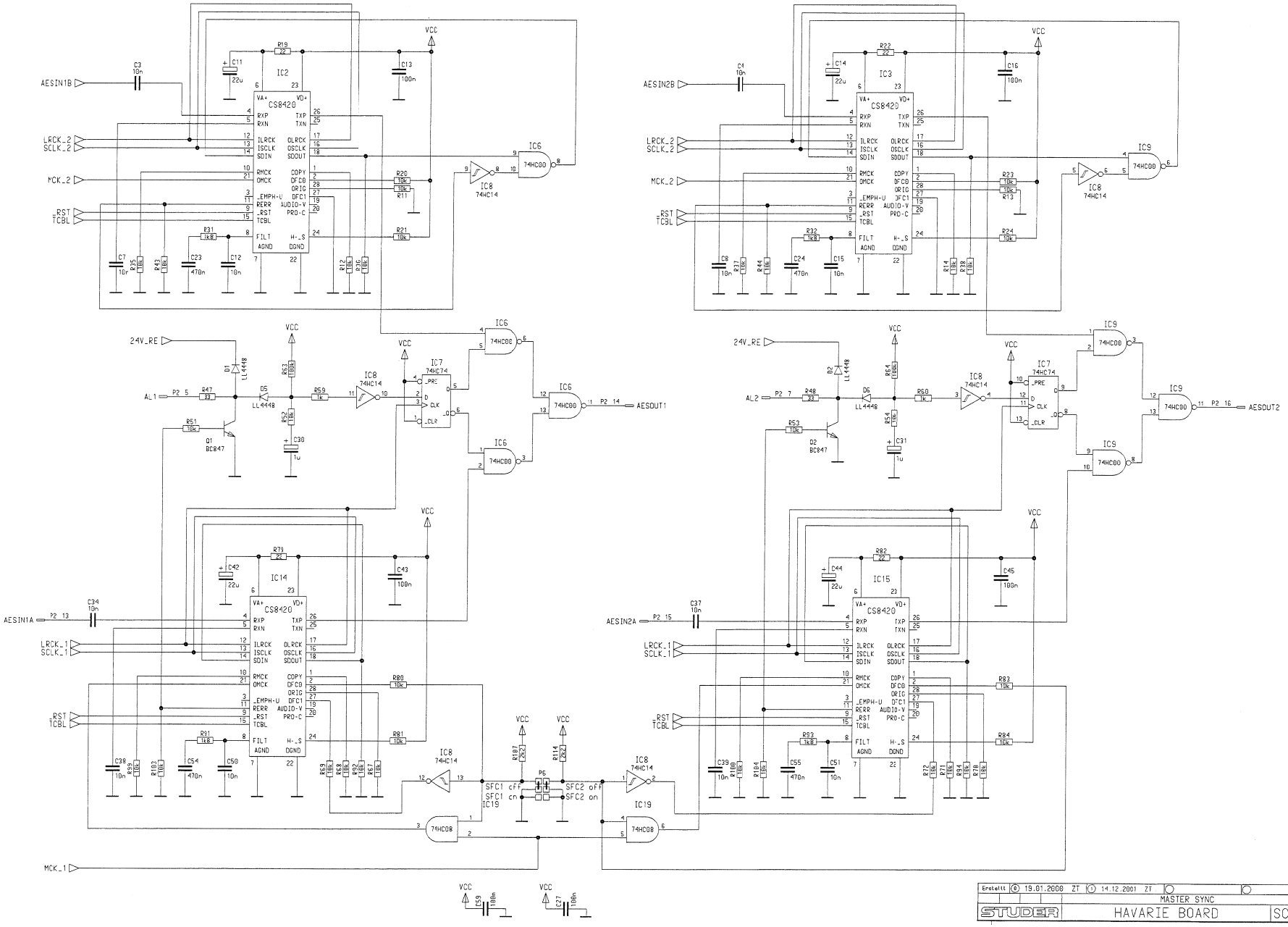
Comments

Havarie Board 1.680.040.00 (Option)

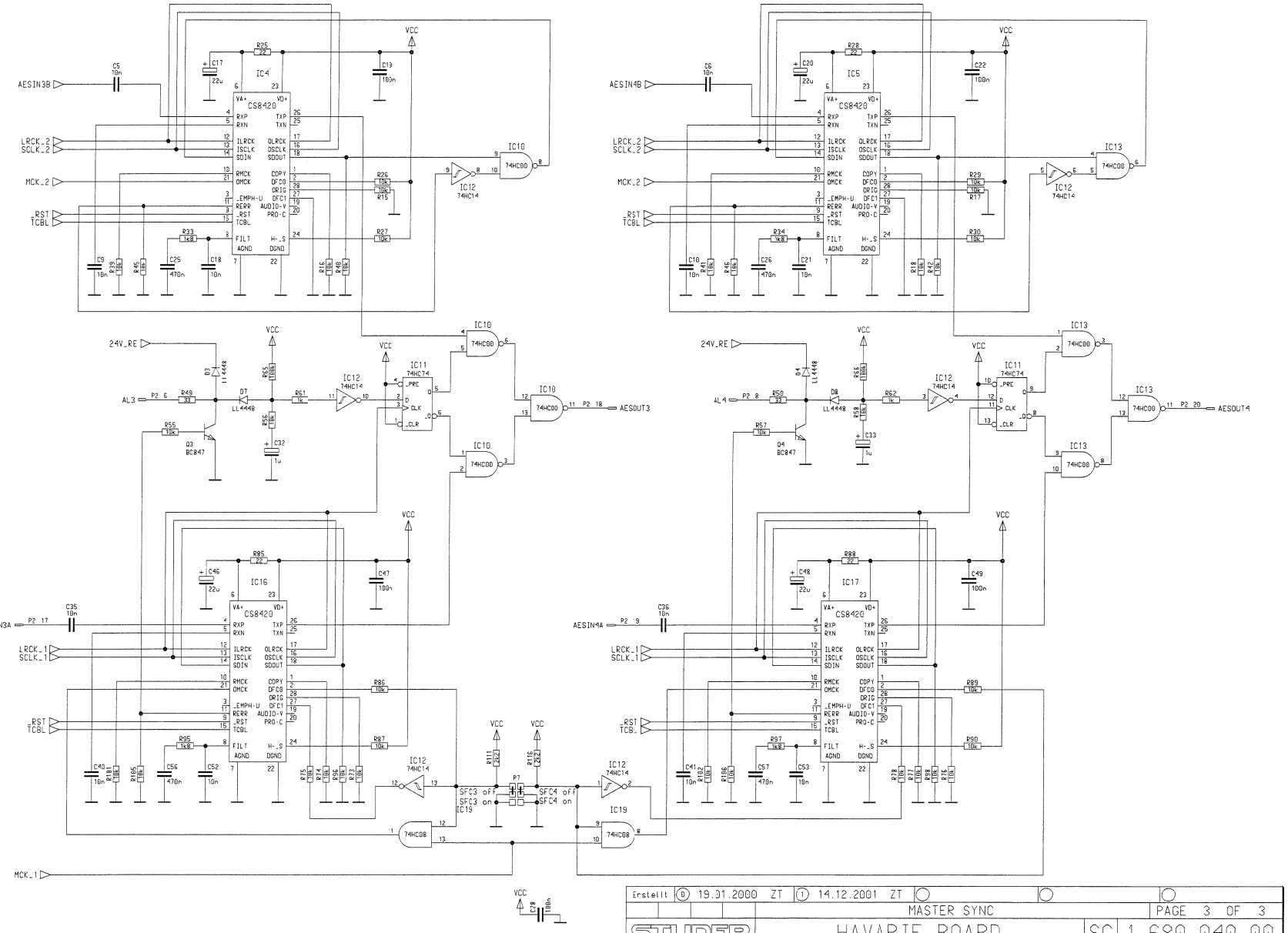


Erstellt	0 19.01.2000 ZT	1 14.12.2001 ZT			
		MASTER SYNC			PAGE 1 OF 3
STUDER		HAVARIE BOARD		SC	1.680.040.00

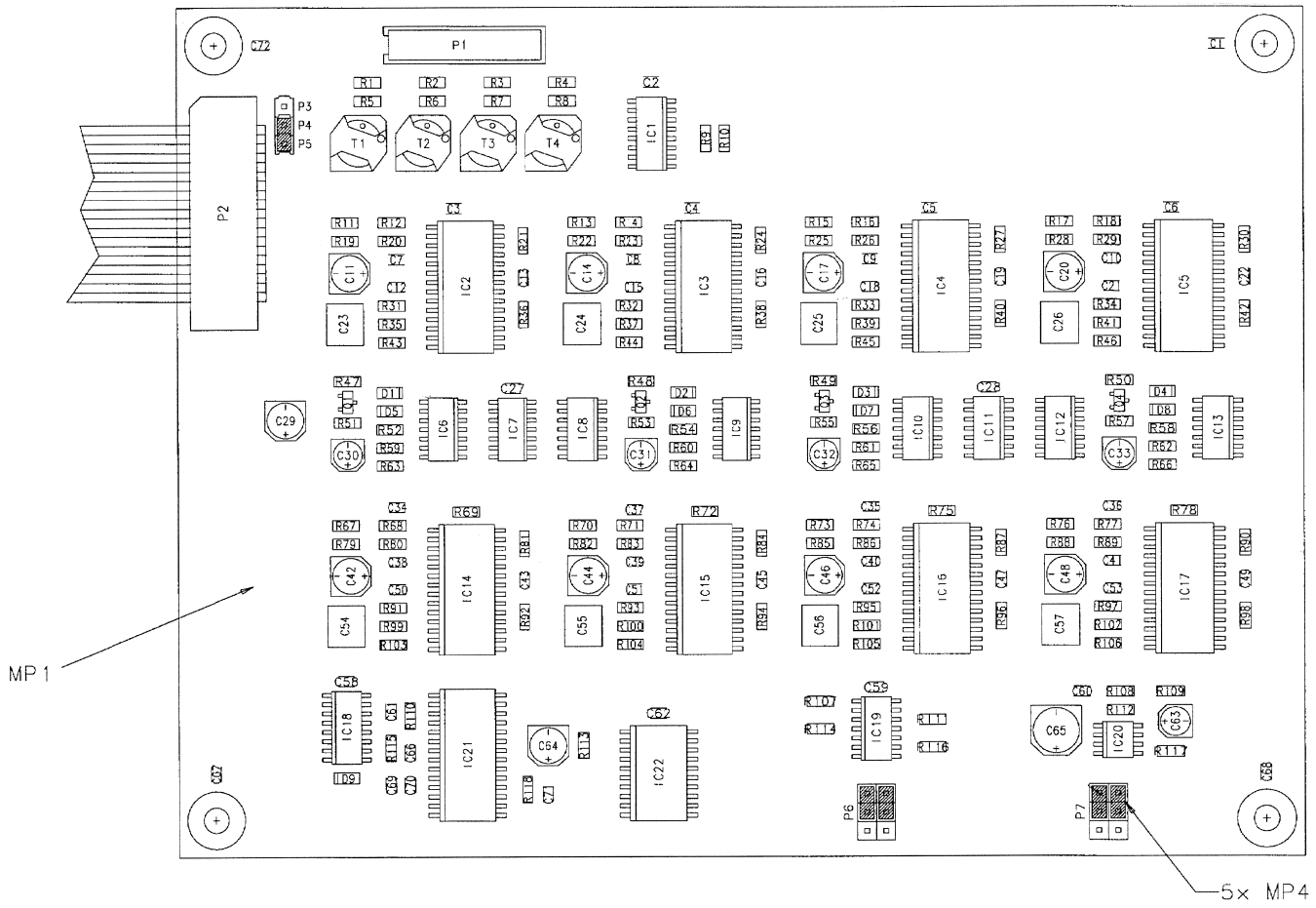
Havarie Board 1.680.040.00 (Option)



Havarie Board 1.680.040.00 (Option)



Havarie Board 1.680.040.00 (Option)



Edition Ausgabe	19.01.2000	PZ.	Ca		0
	Date Datum	Viso Gez.	Checked Gepr.	Seen Ges.	Index
Page: Seite:	1 / 1				
Z	Number: Nummer: 1.680.040.00				

Havarie Board 1.680.040.00 (Option)

Idx	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 2	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 3	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 4	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 5	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 6	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 7	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 8	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 9	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 10	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 11	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 12	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 13	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 14	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 15	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 16	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 17	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 18	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 19	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 20	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 21	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 22	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 23	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 24	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 25	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 26	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 27	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 28	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 29	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 30	59.68.0127	1 pce	1u0	EL 50V, 4.0*5.7
0	C 31	59.68.0127	1 pce	1u0	EL 50V, 4.0*5.7
0	C 32	59.68.0127	1 pce	1u0	EL 50V, 4.0*5.7
0	C 33	59.68.0127	1 pce	1u0	EL 50V, 4.0*5.7
0	C 34	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 35	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 36	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 37	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 38	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 39	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 40	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 41	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 42	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 43	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 44	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 45	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 46	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 47	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 48	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 49	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 50	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 51	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 52	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 53	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 54	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 55	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 56	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 57	59.63.0133	1 pce	470n	PEN 50V, 5%, 2220
0	C 58	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 59	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 60	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 61	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 62	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 63	59.68.0065	1 pce	10u	EL 16V, 4.0*5.7
0	C 64	59.68.0067	1 pce	22u	EL 16V, 5.0*5.7
0	C 65	59.68.0029	1 pce	100u	EL 6V, 6.3*5.7
0	C 66	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 67	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 68	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	C 69	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 70	59.60.3325	1 pce	10n	CER 50V, 10%, X7R, 0805
0	C 71	59.60.3333	1 pce	47n	CER 50V, 10%, X7R, 0805
0	C 72	59.60.3337	1 pce	100n	CER 50V, 10%, X7R, 0805
0	D 1	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 2	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 3	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 4	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 5	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 6	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 7	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 8	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	D 9	50.60.8001	1 pce	4448	200mA 75V 4ns SOD 80
0	IC 1	50.62.0463	1 pce	DS34C86	4*RS 422 Line Receiver
0	IC 2	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
0	IC 3	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
0	IC 4	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
0	IC 5	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
1	IC 6	50.62.1000	1 pce	74HC 00	Quad 2input NAND
0	IC 7	50.62.1074	1 pce	74HC 74	Dual D-type FF, preset clear
0	IC 8	50.62.1014	1 pce	74HC 14	Hex Schmitt trigger inverter
1	IC 9	50.62.1000	1 pce	74HC 00	Quad 2input NAND
1	IC 10	50.62.1000	1 pce	74HC 00	Quad 2input NAND
0	IC 11	50.62.1074	1 pce	74HC 74	Dual D-type FF, preset clear
0	IC 12	50.62.1014	1 pce	74HC 14	Hex Schmitt trigger inverter
1	IC 13	50.62.1000	1 pce	74HC 00	Quad 2input NAND
0	IC 14	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
0	IC 15	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
0	IC 16	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
0	IC 17	50.62.0916	1 pce	CS8420	Sample Rate Converter 24bit
0	IC 18	50.62.1423	1 pce	74HC423	Dual multivibr monost retrigg
0	IC 19	50.62.1008	1 pce	74HC 08	Quad 2input AND
0	IC 20	50.63.2001	1 pce	7705B	Reset Generator
0	IC 21	50.62.0913	1 pce	CS8412	AES-Receiver
				see comments	
0	IC 22	50.62.1244	1 pce	74HC244	Octal buffer line driver/recei
1	MP 1	1.680.040.12			Havarie PCB
				see comments	
0	MP 2	1.680.040.10	1 pce		NR-ETIKETTE 5 X 20
0	MP 3	43.01.0108	1 pce	Label	ESE-WARNSCHILD
0	MP 4	54.01.0021	5 pcs	Jumper	0.63*0.63mm, Au
1	MP 5	43.10.0110		A	Revisions-Etikette 5mm h'blau
0	P 1	54.14.5516	1 pce	16p	PCB-Buchse gerade
0	P 2	1.023.112.06	1 pce		FLACHKABEL 20 POL. 0.06M
0	P 3	54.01.0020	1 pce	1p	Pin, 1reihig, gerade
0	P 4	54.01.0020	1 pce	1p	Pin, 1reihig, gerade
0	P 5	54.01.0020	1 pce	1p	Pin, 1reihig, gerade
0	P 6	54.11.0136	1 pce	2*3p	Pin 0.63*0.63, RM2.54
0	P 7	54.11.0136	1 pce	2*3p	Pin 0.63*0.63, RM2.54
0	Q 1	50.60.0001	1 pce	BC847B	NPN 45V 100mA SOT 23
0	Q 2	50.60.0001	1 pce	BC847B	NPN 45V 100mA SOT 23
0	Q 3	50.60.0001	1 pce	BC847B	NPN 45V 100mA SOT 23
0	Q 4	50.60.0001	1 pce	BC847B	NPN 45V 100mA SOT 23
0	R 1	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 2	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 3	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 4	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 5	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 6	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 7	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 8	57.60.1221	1 pce	220R	MF, 1%, 0204, E24
0	R 9	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 10	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 11	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
				see comments	
0	R 12	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 13	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
				see comments	
0	R 14	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 15	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
				see comments	
0	R 16	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 17	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
				see comments	
0	R 18	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 19	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 20	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 21	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 22	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 23	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 24	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 25	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 26	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 27	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 28	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 29	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 30	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 31	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 32	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 33	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 34	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 35	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 36	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 37	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 38	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 39	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 40	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 41	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 42	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 43	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 44	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 45	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 46	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 47	57.60.1330	1 pce	33R	MF, 1%, 0204, E24
0	R 48	57.60.1330	1 pce	33R	MF, 1%, 0204, E24
0	R 49	57.60.1330	1 pce	33R	MF, 1%, 0204, E24
0	R 50	57.60.1330	1 pce	33R	MF, 1%, 0204, E24
0	R 51	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 52	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 53	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 54	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 55	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 56	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 57	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 58	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 59	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 60	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 61	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 62	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 63	57.60.1104	1 pce	100k	MF, 1%, 0204, E24
0	R 64	57.60.1104	1 pce	100k	MF, 1%, 0204, E24
0	R 65	57.60.1104	1 pce	100k	MF, 1%, 0204, E24
0	R 66	57.60.1104	1 pce	100k	MF, 1%, 0204, E24
0	R 67	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 68	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 69	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 70	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 71	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 72	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 73	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 74	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 75	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 76	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 77	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 78	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 79	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 80	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 81	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 82	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 83	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 84	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 85	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 86	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 87	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 88	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 89	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 90	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 91	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 92	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 93	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 94	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 95	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 96	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 97	57.60.1182	1 pce	1k8	MF, 1%, 0204, E24
0	R 98	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 99	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 100	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 101	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 102	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 103	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 104	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 105	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 106	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 107	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0	R 108	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 109	57.60.1100	1 pce	10R	MF, 1%, 0204, E24
0	R 110	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 111	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0	R 112	57.60.1103	1 pce	10k	MF, 1%, 0204, E24
0	R 113	57.60.1220	1 pce	22R	MF, 1%, 0204, E24
0	R 114	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0	R 115	57.60.1104	1 pce	100k	MF, 1%, 0204, E24
0	R 116	57.60.1222	1 pce	2k2	MF, 1%, 0204, E24
0	R 117	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	R 118	57.60.1102	1 pce	1k0	MF, 1%, 0204, E24
0	T 1	1.022.632.00	1 pce	1:1	DI/DO TRANSFORMER
0	T 2	1.022.632.00	1 pce	1:1	DI/DO TRANSFORMER
0	T 3	1.022.632.00	1 pce	1:1	DI/DO TRANSFORMER
0	T 4	1.022.632.00	1 pce	1:1	DI/DO TRANSFORMER

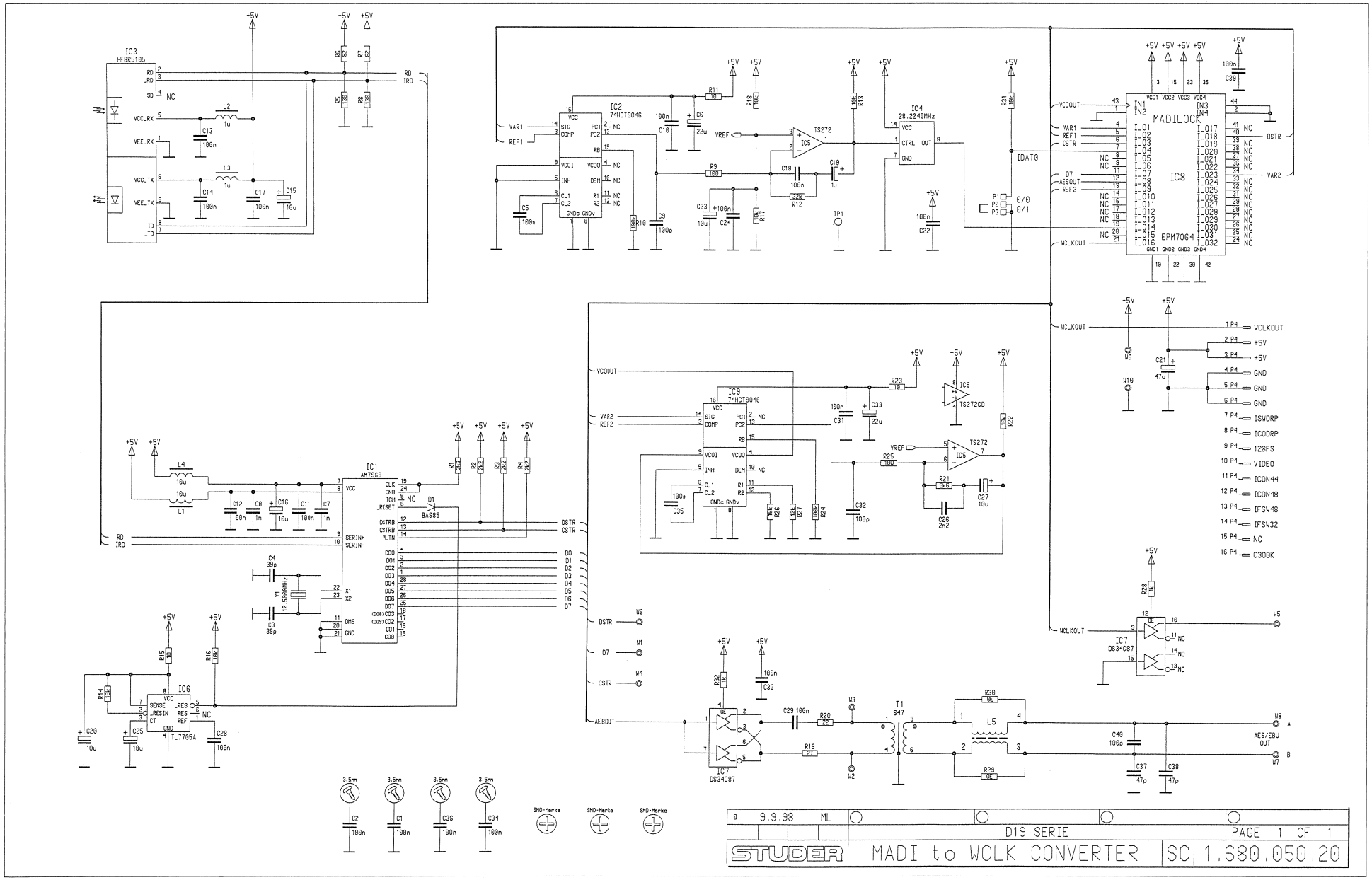
End of List

Comments:

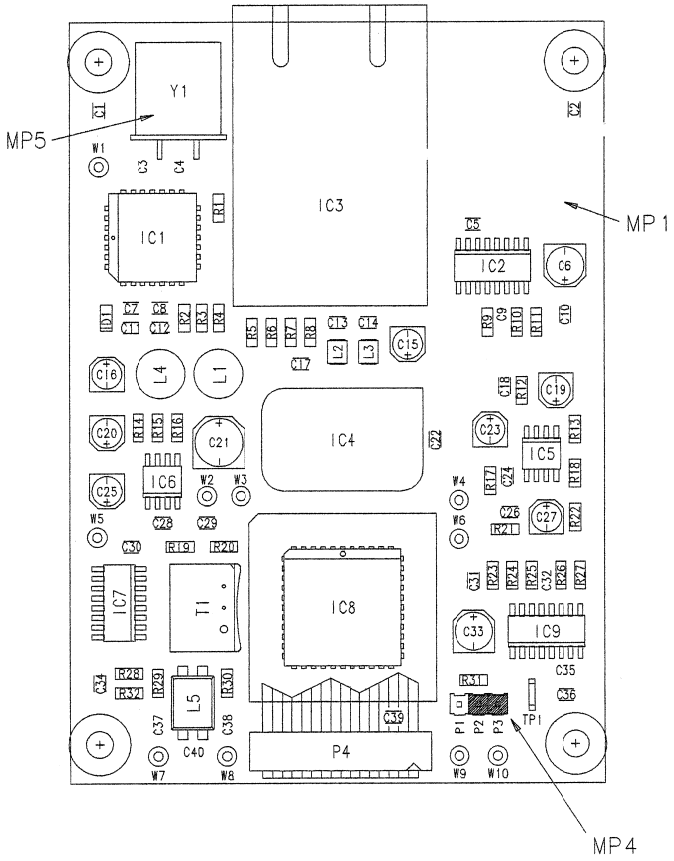
Modifications of assembly used PCB 1.680.040.11:
- Resistors R11, R13, R15, R17 are connected to GND (instead of VCC).
- Pin 24 of IC 21 is connected to VCC (instead of RST) by use of wire bridge.

(PCB 1.680.040.12 is without modifications)

MADI to WCLK Converter 1.680.050.20 (Option)



MADI to WCLK Converter 1.680.050.20 (Option)



Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	C 1	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 2	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 3	59.60.2239		39p	CER 50V, 5%, C0G, 0603
0	C 4	59.60.2239		39p	CER 50V, 5%, C0G, 0603
0	C 5	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 6	59.68.0067		22u	C-EL 16V, 5.0*5.7
0	C 7	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 8	59.60.2373		1n0	CER 50V, 5%, C0G, 0805
0	C 9	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 10	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 11	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 12	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 13	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 14	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 15	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 16	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 17	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 18	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 19	59.68.0127		1u0	C-EL 50V, 4.0*5.7
0	C 20	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 21	59.68.0069		47u	C-EL 16V, 6.3*5.7
0	C 22	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 23	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 24	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 25	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 26	59.60.3317		2n2	CER 50V, 10%, X7R, 0805
0	C 27	59.68.0065		10u	C-EL 16V, 4.0*5.7
0	C 28	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 29	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 30	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 31	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 32	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 33	59.68.0067		22u	C-EL 16V, 5.0*5.7
0	C 34	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 35	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	C 36	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 37	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 38	59.60.2241		47p	CER 50V, 5%, C0G, 0603
0	C 39	59.60.3337		100n	CER 50V, 10%, X7R, 0805
0	C 40	59.60.2249		100p	CER 50V, 5%, C0G, 0603
0	D 1	50.60.8101		BAS85	200mA 30V Schottky SOD 80
0	IC 1	50.63.0205		AM7969	TAXI Chip Receiver
0	IC 2	50.62.4946		74HCT9046	PLL with bandgap contr VCO
0	IC 3	89.10.0021		5105	LWL Transceiver FDDI/MADI
0	IC 4	89.01.1507			HC 28.224 000 MHZ, VCXO
0	IC 5	50.61.0205		TS272CD	Dual Op-Amp CMOS SO 8
0	IC 6	50.63.2001		77058	Reset Generator
0	IC 7	50.62.0464		DS34C87	4*RS 422 Line Driver
0	IC 8	1.680.904.20			SW 050 MADILOCK (50.63.4202) *(EPLD7064, 50634202)*
0	IC 9	50.62.4946		74HCT9046	PLL with bandgap contr VCO
0	L 1	62.02.3100		10uH	10%, radial RM 5
0	L 2	62.60.0101		1.0uH	10%, SMD 1210
0	L 3	62.60.0101		1.0uH	10%, SMD 1210
0	L 4	62.02.3100		10uH	10%, radial RM 5
0	L 5	not used		not used	not used
0	MP 1	1.680.050.11	1 pce		MADI to WCLK PCB
0	MP 2	1.680.050.10	1 pce		NR-ETIKETTE 5 X 20
0	MP 3	43.01.0108	1 pce	Label	ESE-WARNSCHILD
0	MP 4	54.01.0021	1 pce	Jumper	0.63 * 0.63mm
0	MP 5	65.99.0167		Tape	POLYURH. KLEBBAND WS, 9* 3
0	P 1	54.01.0020		1p	Pin 0.63*0.63
0	P 2	54.01.0020		1p	Pin 0.63*0.63
0	P 3	54.01.0020		1p	Pin 0.63*0.63
0	P 4	1.023.391.60			FLACHKABEL 16 POL. 0,06M
0	R 1	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 2	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 3	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 4	57.60.1222		2K2	MF, 1%, 0204, E24
0	R 5	57.60.1131		130R	MF, 1%, 0204, E24
0	R 6	57.60.1820		82R	MF, 1%, 0204, E24
0	R 7	57.60.1820		82R	MF, 1%, 0204, E24
0	R 8	57.60.1131		130R	MF, 1%, 0204, E24
0	R 9	57.60.1101		100R	MF, 1%, 0204, E24
0	R 10	57.60.1104		100K	MF, 1%, 0204, E24
0	R 11	57.60.1100		10R	MF, 1%, 0204, E24
0	R 12	57.60.1223		22K	MF, 1%, 0204, E24

Idx.	Pos.	Part No.	Qty.	Type/Val.	Description
0	R 13	57.60.1103		10K	MF, 1%, 0204, E24
0	R 14	57.60.1103		10K	MF, 1%, 0204, E24
0	R 15	57.60.1100		10R	MF, 1%, 0204, E24
0	R 16	57.60.1103		10K	MF, 1%, 0204, E24
0	R 17	57.60.1103		10K	MF, 1%, 0204, E24
0	R 18	57.60.1103		10K	MF, 1%, 0204, E24
0	R 19	57.60.1270		27R	MF, 1%, 0204, E24
0	R 20	57.60.1220		22R	MF, 1%, 0204, E24
0	R 21	57.60.1582		5K6	MF, 1%, 0204, E24
0	R 22	57.60.1103		10K	MF, 1%, 0204, E24
0	R 23	57.60.1100		10R	MF, 1%, 0204, E24
0	R 24	57.60.1104		100K	MF, 1%, 0204, E24
0	R 25	57.60.1101		100R	MF, 1%, 0204, E24
0	R 26	57.60.1163		16K	MF, 1%, 0204, E24
0	R 27	57.60.1123		12K	MF, 1%, 0204, E24
0	R 28	57.60.1102		1K	MF, 1%, 0204, E24
0	R 29	57.60.1000		0R0	MF, 0204
0	R 30	57.60.1000		0R0	MF, 0204
0	R 31	57.60.1103		10K	MF, 1%, 0204, E24
0	R 32	57.60.1102		1K	MF, 1%, 0204, E24
0	T 1	1.022.647.00		1:1.4	OUTPUT TRAFO AES/EBU
0	TP 1	not used		1p	PCB-Flachst 2.6*0.8, gerade
0	XIC 8	53.03.2244		PLCC44p	PLCC-Socket 44p
0	Y 1	89.01.1013		12.500MHz	12.500 000 MHz, HC 49/U

End of List

Comments:

Modification				
Edition Ausgabe	9.9.98	PZ		
Date Datum	Visa Gez.	Checked Gepr.	Seen Ges.	Index

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STUDER REGENSDORF — Description Benennung: MADI to WCLK CONVERTER *ESE* — Number Nummer: 1.680.050.20