



The Synchronization Experts.



MANUAL

Signal Distribution Unit

SDU/TTL

Meinberg Funkuhren GmbH & Co. KG

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1 Imprint & Legal Information

Publisher

Meinberg Funkhuren GmbH & Co. KG

Registered Place of Business:

Lange Wand 9
31812 Bad Pyrmont
Germany

Phone:

+ 49 (0) 52 81 – 93 09 – 0

Fax:

+ 49 (0) 52 81 – 93 09 – 230

The company is registered in the "A" Register of Companies & Traders maintained by the Local Court of Hanover (Amtsgericht Hannover) under the number:

17HRA 100322

Executive Management: Heiko Gerstung
Andre Hartmann
Natalie Meinberg
Daniel Boldt

Website: <https://www.meinbergglobal.com>

Email: info@meinberg.de

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3 Presentation Conventions in this Manual

3.1 Conventions for the Presentation of Critical Safety Warnings

Warnings are indicated with the following warning boxes, using the following signal words, colors, and symbols:



Caution!

This signal word indicates a hazard with a **low risk level**. Such a notice refers to a procedure or other action that may result in **minor injury** if not observed or if improperly performed.



Warning!

This signal word indicates a hazard with a **medium risk level**. Such a notice refers to a procedure or other action that may result in **serious injury** or even **death** if not observed or if improperly performed.



Danger!

This signal word indicates a hazard with a **high risk level**. Such a notice refers to a procedure or other action that will very likely result in **serious injury** or even **death** if not observed or if improperly performed.

3.2 Secondary Symbols Used in Safety Warnings

Some warning boxes may feature a secondary symbol that emphasizes the defining nature of a hazard or risk.



The presence of an “electrical hazard” symbol is indicative of a risk of electric shock or lightning strike.



The presence of a “fall hazard” symbol is indicative of a risk of falling when performing work at height.



This “laser hazard” symbol is indicative of a risk relating to laser radiation.

3.3 Conventions for the Presentation of Other Important Information

Beyond the above safety-related warning boxes, the following warning and information boxes are also used to indicate risks of product damage, data loss, and information security breaches, and also to provide general information for the sake of clarity, convenience, and optimum operation:



Important!

Warnings of risks of product damage, data loss, and also information security risks are indicated with this type of warning box.



Information:

Additional information that may be relevant for improving efficiency or avoiding confusion or misunderstandings is provided in this form.

3.4 Generally Applicable Symbols

The following symbols and pictograms are also used in a broader context in this manual and on the product.



The presence of the “ESD” symbol is indicative of a risk of product damage caused by electrostatic discharge.



Direct Current (DC) (*symbol definition IEC 60417-5031*)



Alternating Current (AC) (*symbol definition IEC 60417-5032*)



Grounding Terminal (*symbol definition IEC 60417-5017*)



Protective Earth Connection (*symbol definition IEC 60417-5019*)



Disconnect All Power Connectors (*symbol definition IEC 60417-6172*)

4 Important Safety Information



The safety information provided in this chapter as well as specific safety warnings provided at relevant points in this manual must be observed during every installation, set-up, and operation procedure of the device, as well as its removal from service.

Any safety warnings affixed to the device itself must also be observed.

Any failure to observe this safety information, these safety warnings, and other safety-critical operating instructions in the product documentation, or any other improper usage of the device may result in unpredictable behavior from the product, and may result in injury or death.

Depending on your specific device configuration and installed options, some safety information may not be applicable to your device.

Meinberg accepts no responsibility for injury or death arising from a failure to observe the safety information, warnings, and safety-critical instructions provided in the product documentation.

It is the responsibility of the operator to ensure that the product is safely and properly used.

Should you require additional assistance or advice on safety-related matters for your product, Meinberg's Technical Support team will be happy to assist you at any time. Simply send a mail to techsupport@meinberg.de.

4.1 Appropriate Usage



The device must only be used appropriately in accordance with the specifications of the product documentation! Appropriate usage is defined exclusively by this manual as well as any other relevant documentation provided directly by Meinberg.

Appropriate usage includes in particular compliance with specified limits! The device's operating parameters must never exceed or fall below these limits!

4.2 Product Documentation

The information in this manual is intended for readers with an appropriate degree of safety awareness.

The following are deemed to possess such an appropriate degree of safety awareness:

- **skilled personnel** with a familiarity with relevant national safety standards and regulations,
- **instructed personnel** having received suitable instruction from skilled personnel on relevant national safety standards and regulations.



Read the product manual carefully and completely before you set the product up for use.

If any of the safety information in the product documentation is unclear for you, do **not** continue with the set-up or operation of the device!

Safety standards and regulations change on a regular basis and Meinberg updates the corresponding safety information and warnings to reflect these changes. It is therefore recommended to regularly visit the Meinberg website at <https://www.meinbergglobal.com> or the Meinberg Customer Portal at <https://meinberg.support> to download up-to-date manuals.

Please keep all product documentation, including this manual, in a safe place in a digital or printed format to ensure that it is always easily accessible.

Meinberg's Technical Support team is also always available at techsupport@meinberg.de if you require additional assistance or advice on safety aspects of your Meinberg product.

4.3 Safety during Installation

This rack-mounted device has been designed and tested in accordance with the requirements of the standard IEC 62368-1 (*Audio/Video, Information and Communication Technology Equipment—Part 1: Safety Requirements*). Where the rack-mounted device is to be installed in a larger unit (such as an electrical enclosure), additional requirements in the IEC 62368-1 standard may apply that must be observed and complied with. General requirements regarding the safety of electrical equipment (such as IEC, VDE, DIN, ANSI) and applicable national standards must be observed in particular.

The device has been developed for use in industrial or commercial environments and may only be used in such environments. In environments at risk of high environmental conductivity ("high pollution degree" according to IEC 60664-1), additional measures such as installation of the device in an air-conditioned electrical enclosure may be necessary.

If the appliance has been brought into the usage area from a cold environment, condensation may develop; in this case, wait until the appliance has adjusted to the temperature and is completely dry before setting it up.



When unpacking & setting up the equipment, and before operating it, be sure to read the information on installing the hardware and the specifications of the device. These include in particular dimensions, electrical characteristics, and necessary environmental conditions.

Fire safety standards must be upheld with the device in its installed state—never block or obstruct ventilation openings and/or the intakes or openings of active cooling solutions.

The device with the highest mass should be installed at the lowest position in the rack in order to position the center of gravity of the rack as a whole as low as possible and minimize the risk of the rack tipping over. Further devices should be installed from the bottom, working your way up.

The device must be protected against mechanical & physical stresses such as vibration or shock.

Never drill holes into the device to mount it! If you are experiencing difficulties with rack installation, contact Meinberg's Technical Support team for assistance!

Inspect the device housing before installation. The device housing must be free of any damage when it is installed.

4.4 Grounding the Device



In order to ensure that the device can be operated safely and to meet the requirements of IEC 62368-1, the device must be correctly connected to the protective earth conductor via the protective earth terminal.

If an external grounding terminal is provided on the chassis, it must be connected to the grounding busbar for safety reasons before connecting the power supply. This ensures that any possible leakage current on the chassis is safely discharged to earth.



The screw, washer, and toothed lock washer necessary for mounting the grounding cable are provided on the grounding terminal of the chassis. A grounding cable is not included with the device.



Please ensure that your grounding cable has a thickness of 1.5 mm² or greater, that you use a suitable grounding terminal or lug, and that the cable is properly crimped!

4.5 Electrical Safety

This Meinberg product is operated at a hazardous voltage.

This system may only be set up and connected by skilled personnel, or by instructed personnel who have received appropriate technical & safety training from skilled personnel.

Custom cables may only be assembled by a qualified electrician.

Never work on cables carrying a live current!

Never use cables or connectors that are visibly damaged or known to be defective! Faulty, defective, or improperly connected shielding, connectors, or cables present a risk of injury or death due to electric shock and may also constitute a fire hazard!

Before operating the device, check that all cables are in good order. Ensure in particular that the cables are undamaged (for example, kinks), that they are not wound too tightly around corners, and that no objects are placed on the cables.

Cables must be laid in such a way that they do not present a tripping hazard.

The power supply should be connected using a short, low-inductance cable. Avoid the use of power strips or extension cables if possible. If the use of such a device is unavoidable, ensure that it is expressly rated for the rated currents of all connected devices.

Never connect or disconnect power, data, or signal cables during a thunderstorm! Doing so presents a risk of injury or death, as cables and connectors may conduct very high voltages in the event of a lightning strike!

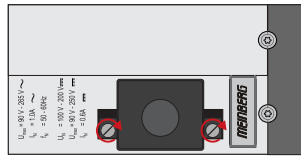
Device cables must be connected or disconnected in the order specified in the user documentation for the device. Connect all cables only while the device is de-energized before you connect the power supply.

Always pull cable connectors out at **both** ends before performing work on connectors! Improperly connecting or disconnecting this Meinberg system may result in electric shock, possibly resulting in injury or death!

When pulling out a connector, **never** pull on the cable itself! Pulling on the cable may cause the plug to become detached from the connector or cause damage to the connector itself. This presents a risk of direct contact with energized components.



5-Pin MSTB Connector



3-Pin MSTB Connector

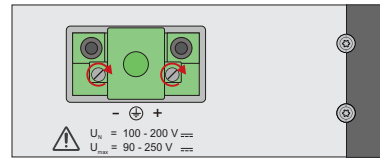


Illustration: Lock screws on an MSTB plug connector; in this case on a LANTIME M320

Ensure that all plug connections are secure. In particular, when using plug connectors with lock screws, ensure that the lock screws are securely tightened. This is especially important for power supply connectors where 3-pin or 5-pin MSTB connectors with lock screws are used (see illustration).

Before the device is connected to the power supply, the device housing must be grounded by connecting a grounding cable to the grounding terminal of the device.

When installing the device in an electrical enclosure, it must be ensured that adequate clearance is provided, minimum creepage distances to adjacent conductors are maintained, and that there is no risk of short circuits.

Protect the device from the ingress of objects or liquids!

If the device malfunctions or requires servicing (for example, due to damage to the housing, power supply cable, or the ingress of liquids or objects), the power supply may be cut off. In this case, the device must be isolated immediately and physically from all power supplies! The following procedure must be followed in order to correctly and reliably isolate the device:

- Pull the power supply plug from the power source.
- Loosen the locking screws of the MSTB power supply plug on the device and pull it out of the device.
- Contact the person responsible for your electrical infrastructure.
- If your device is connected to one or more uninterruptible power supplies (UPS), the direct power supply connection between the device and the UPS solution must be first be disconnected.



4.5.1 Special Information for Devices with AC Power Supply



This device is a Protection Class 1 device and may only be connected to a grounded outlet (TN system).

For safe operation, the installation must be protected by a fuse rated for currents not exceeding 20 A and equipped with a residual-current circuit breaker in accordance with applicable national standards.

The appliance must only ever be disconnected from the mains power supply via the mains socket and not from the appliance itself.

Make sure that the power connector on the appliance or the mains socket is readily accessible for the user so that the mains cable can be pulled out of the socket in an emergency.

Non-compliant cabling or improperly grounded sockets are an electrical hazard!

Only connect the appliance to a grounded shockproof outlet using a safety-tested mains cable designed for use in the country of operation.

4.5.2 Special Information for Devices with DC Power Supply



In accordance with IEC 62368-1, it must be possible to disconnect the appliance from the supply voltage from a point other than the appliance itself (e.g., from the primary circuit breaker).

The power supply plug may only be fitted or dismantled while the appliance is isolated from the power supply (e.g., disconnected via the primary circuit breaker).

Power supply cables must have adequate fuse protection and have an adequate wire gauge size (1 mm² – 2.5 mm² / 17 AWG – 13 AWG)

The power supply of the device must have a suitable on-demand disconnection mechanism (i.e., a switch). This disconnection mechanism must be readily accessible in the vicinity of the appliance and marked accordingly as a disconnection mechanism for the appliance.

4.6 Safety when Maintaining and Cleaning the Device



Only use a soft, dry cloth to clean the device.

Never use liquids such as detergents or solvents to clean the device! The ingress of liquids into the device housing may cause short circuits in the electronic circuitry, which in turn can cause a fire or electric shock!

Neither the device nor its individual components may be opened. The device or its components may only be repaired by the manufacturer or by authorized personnel. Improperly performed repairs can put the user at significant risk!

In particular, **never** open a power supply unit or module, as hazardous voltages may be present within the power supply device even after it is isolated from the upstream voltage. If a power supply unit or module is no longer functional (for example due to a defect), it can be returned to Meinberg for repair.

Some components of the device may become very hot during operation. Do not touch these surfaces!

If maintenance work is to be performed on the device and the device housing is still hot, switch off the device beforehand and allow it to cool.

5 Important Product Information

5.1 CE Marking

This product bears the CE mark as is required to introduce the product into the EU Single Market.



The use of this mark is a declaration that the product is compliant with all requirements of the EU directives effective and applicable as at the time of manufacture of the product.

These directives are listed in the EU Declaration of Conformity, appended to this manual as → [Chapter 11](#).

5.2 UKCA Marking

This product bears the British UKCA mark as is required to introduce the product into the United Kingdom (excluding Northern Ireland, where the CE marking remains valid).



The use of this mark is a declaration that the product is in conformity with all requirements of the UK statutory instruments applicable and effective as at the time of manufacture of the product.

These statutory instruments are listed in the UK Declaration of Conformity, appended to this manual as → [Chapter 12](#).

5.3 Ensuring the Optimum Operation of Your Device

- Ensure that ventilation slots are not obscured or blocked by dust, or else heat may build up inside the device. While the system is designed to shut down safely and automatically in the event of temperature limits being exceeded, the risk of malfunctions and product damage following overheating cannot be entirely eliminated.
- The device is only deemed to be appropriately used and EMC limits (electromagnetic compatibility) are only deemed to be complied with while the device housing is fully assembled in order to ensure that requirements pertaining to cooling, fire safety, electrical shielding and (electro)magnetic shielding are upheld.

5.4 Prevention of ESD Damage



An **ESDS device** (electrostatic discharge-sensitive device) is any device at risk of damage or malfunction due to electrostatic discharge (**ESD**) and thus requires special measures to prevent such damage or malfunction. Systems and modules with ESDS components usually bear this symbol.

Precautionary measures should be taken to protect ESDS components from damage and malfunction.

- Before removing or installing a module, ground your body first (for example, by touching a grounded object) before touching ESDS components.
- Ensure that you wear a grounding strap on your wrist when handling such ESDS components. This strap must in turn be attached to an uncoated, non-conductive metal part of the system.
- Use only tools and equipment that are free of static electricity.
- Ensure that your clothing is suitable for the handling of ESDS components. In particular, do not wear garments that are susceptible to electrostatic discharges (wool, polyester). Ensure that your shoes enable a low-resistance path for electrostatic charges to dissipate to the ground.
- Only touch or hold ESDS components by the edges. Never touch any pins or conductors on the ESDS components.
- When removing or installing ESDS components, avoid coming into contact with persons who are not grounded. Such contact may compromise your connection with the grounding conductor and thus also compromise the ESDS component's protection from any static charges you may be carrying.
- Always store ESDS components in ESD-proof 'antistatic' bags. These bags must not be damaged in any way. Antistatic bags that are crumpled or have holes cannot provide effective protection against electrostatic discharges. Antistatic bags must have a sufficient electrical resistance and must not be made of conductive metals if the ESDS component has a lithium battery fitted on it.

5.5 Disposal

Disposal of Packaging Materials



The packaging materials that we use are fully recyclable:

Material	Use for	Disposal
Polystyrene	Packaging frame/filling material	Recycling Depot
PE-LD (Low-density polyethylene)	Accessories packaging, bubble wrap	Recycling Depot
Cardboard	Shipping packaging, accessories packaging	Paper Recycling

For information on the proper disposal of packaging materials in your specific country, please inquire with your local waste disposal company or authority.

Disposal of the Device



This product falls under the labeling obligations of the Waste Electrical and Electronic Equipment Directive 2012/19/EU ("*WEEE Directive*") and thus bears this WEEE symbol. The presence of this symbol indicates that this electronic product may only be disposed of in accordance with the following provisions.



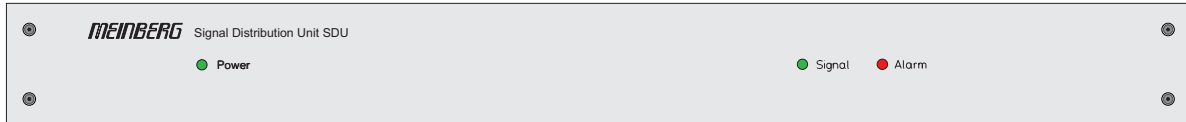
Important!

Do not dispose of the product via the household waste. Inquire with your local waste disposal company or authority on how to best dispose of the product if necessary.

This product is considered to be a "B2B" product for the purposes of the WEEE Directive and is also classified as "IT and Telecommunications Equipment" in accordance with Annex I of the Directive.

It can be returned to Meinberg for disposal. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself. If you wish for Meinberg to handle disposal for you, please get in touch with us. Otherwise, please use the return and collection systems provided within your country to ensure that your device is disposed of in a compliant fashion to protect the environment and conserve valuable resources.

6 The Modular System SDU



The Signal Distribution Unit "SDU" is installed in a 1U 19-inch housing and is used to distribute a variety of signals. The connectors of the input/output signals of the SDU are provided by connectors on the rear of the housing.

The system consists of one or two distribution modules which can distribute TTL-level signals (1PPS, IRIG DCLS or 10 MHz), sine wave signals (10 MHz), optical fiber optic signals and/or modulated IRIG (IRIG am) depending on the application area.

Some device options using the example of a TTL signal distributor:

Designation	Signal	Number of inputs	Number of outputs
SDU/TTL	TTL	1x	12
SDU/TTL-12-12	TTL	2x	12
SDU/TTL-24	TTL	1x	24
SDU/SIN-12	Sinus-Wave	1x	12

It is also possible to use different types of power supply units with the SDU.

Power Supply

(AD10) 1x AC/DC Power Supply
 $U_{\max} = 90-265 \text{ V} \sim$
 $90-250 \text{ V} \equiv$

(DC20) 1x DC Power Supply
 $U_{\max} = 20-60 \text{ V} \equiv$

Redundant Power Supply Configurations:

(AD10-AD10) 2x AC/DC Power Supplies

(DC20-DC20) 2x DC Power Supplies

(AD10-DC20) 1x AC/DC Power Supply + 1x DC Power Supply

7 Technical Specifications SDU/TTL Chassis

Housing 19" multipac housing, 1U

Housing material sheet steel

Temperature range

Operation 0 ... 50 °C (32 ... 122 °F)

Storage -20 ... 70 °C (-4 ... 158 °F)

Relative humidity

Operation max. 85 % (non-condensing) at 40°C

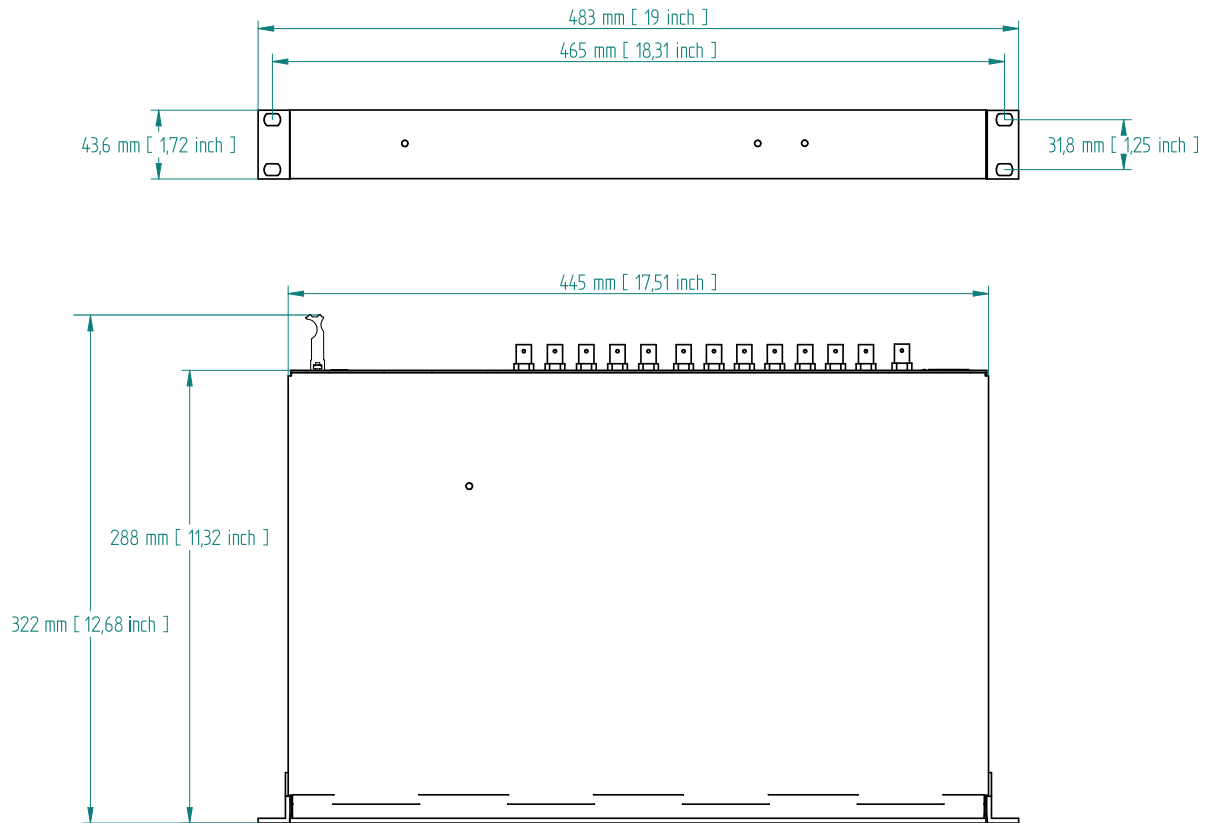
Maximum altitude

Operation max. 4000 m / 13123 ft (above sea level)

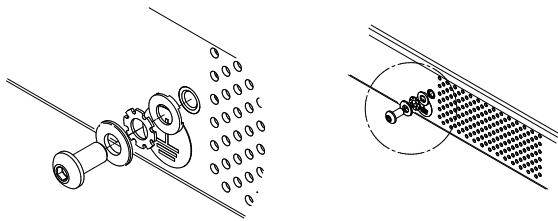
Acoustics 0 dB (A)

IP protection class IP20

Housing dimensions



External Ground Connection on the Housing



This terminal must be wired to a bonding busbar (grounding busbar). The terminal is located on the side of the chassis with the power supply unit. The parts required to establish this connection—not including the grounding conductor cable itself—are included with the product as shipped.

8 Signal-Distribution SDU/TTL

The SDU/TTL is used to multiply TTL signals. The TTL signal is fed into the system and then output via drivers at twelve output connectors. The LEDs on the front panel indicate the general status of the system.

Depending on the variant, there are up to two error relays on the back of the SDU/TTL, which output the error status of the corresponding signal input, as well as LEDs that indicate whether an input signal is present.

A minimum pulse width of approx. $1\ \mu\text{s}$ is required for correct error detection of the input signal. Optionally, the input signal can be electrically isolated by an optocoupler.

When Error output is available:

- During "OK" State the connection of the Relay is between: CO - NO
- During "ERROR" State the connection of the Relay is between: CO - NC

Specifications:

Input signal:	TTL (IRIG_DC, PPS, 10 MHz, ...) Optional Galvanic isolation by optocoupler (IRIG_DC, PPS)
Output signal:	TTL
Signal Level:	TTL = 5 V (without load), 2.5 V (with $50\ \Omega$ load) common GND for all outputs

Delay from Signal Input to Signal Output

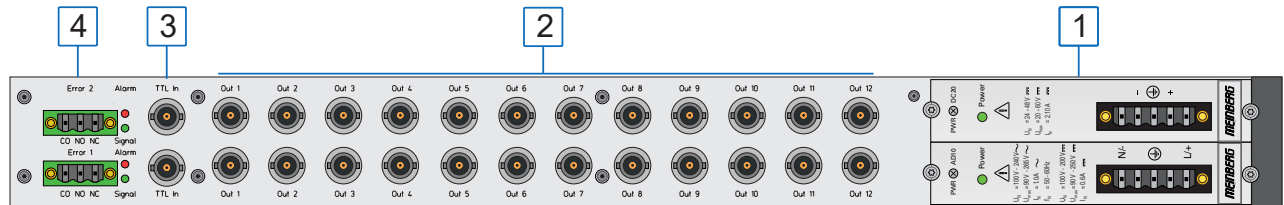
Turn on delay:	~26 ns
Turn off delay:	~28 ns

Crosstalk (Outputs):	min. 30 dB
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Connectors:

Inputs:	1-2 x BNC Female
Outputs:	max. 24 x BNC Female

9 Connectors: SDU/TTL



ENGLISH

1. Power supply
2. TTL outputs, BNC female
3. TTL input, BNC female
4. Error relay output, 3pin DFK connector

DEUTSCH

1. Spannungsversorgung
2. TTL Ausgänge, BNC Buchse
3. TTL Eingang, BNC Buchse
4. Error-Relaisausgang, 3-pol. DFK Anschluss



Information:

The figure shows an SDU/TTL-12-12/AD10-DC20

The numbering above relates to the corresponding subsection in this chapter.

The following system configurations are available:

Input/output signal options:

SDU/TTL/...	1x TTL In – a single input signal with error relay and an internal SDU/TTL distribution card with 12 TTL outputs via BNC female connectors
SDU/TTL-24/...	1x TTL In – a single input signal with error relay and two internal SDU/TTL distribution cards with 12 + 12 (24) TTL outputs via BNC female connectors
SDU/TTL-12-12/...	2x TTL In – two independent input signals with error relay each and two internal SDU/TTL distribution cards with 12 + 12 (24) TTL outputs via BNC female connectors

Power supply

SDU/.../AD10	1x AC/DC power supply $U_{\max} = 90-265 \text{ V } \sim$ $90-250 \text{ V } \text{---}$
SDU/.../DC20	1x DC power supply $U_{\max} = 20-60 \text{ V } \text{---}$

Redundant power supply configurations:

SDU/.../AD10-AD10	2x AC/DC power supply
SDU/.../DC20-DC20	2x DC power supply
SDU/.../AD10-DC20	1x AC/DC power supply + 1x DC power supply

9.1 AC/DC Power Connector

Danger!

This equipment is operated at a hazardous voltage.

Danger of death from electric shock!



- This device must be connected by skilled personnel or instructed personnel only.
- **Never** handle exposed terminals or plugs while the power is on.
- All connectors must provide protection against contact with live parts in the form of a suitable plug body!
- Always ensure that wiring is safe!
- The device must be grounded by means of a connection with a correctly installed protective earth conductor (PE).

AC/DC Power Supply Module Technical Specifications

Connector Type: MSTB 5-Pin, Male
(on device) with lock screws

Pin Assignment:

- 1: N/-
- 2: Not Connected
- 3: PE (Protective Earth)
- 4: Not Connected
- 5: L/+

Input Specifications

Nominal Voltage Range: $U_N = 100\text{ V} \sim 240\text{ V} \sim 100\text{ V} \dashv\dashv 200\text{ V} \dashv\dashv$

Rated Voltage Range: $U_{\max} = 90\text{ V} \sim 265\text{ V} \sim 90\text{ V} \dashv\dashv 250\text{ V} \dashv\dashv$

Nominal Current: $I_N = 1.0\text{ A} \sim 0.6\text{ A} \dashv\dashv$

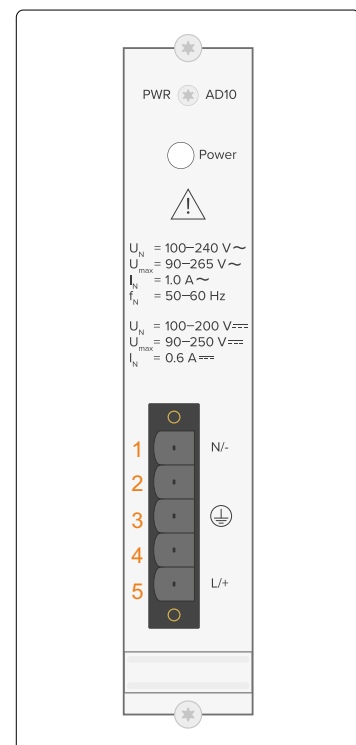
Nominal Frequency Range: $f_N = 50\text{ Hz} - 60\text{ Hz}$

Rated Frequency Range: $f_{\max} = 47\text{ Hz} - 63\text{ Hz}$

Output Specifications

Max. Power: $P_{\max} = 50\text{ W}$

Max. Heat Output: $E_{\text{therm}} = 180.00\text{ kJ/h (170.61 BTU/h)}$



DC Power Supply Module Technical Specifications

Connector Type: (on device)	MSTB 5-Pin, Male with lock screws
Pin Assignment:	1: Not Connected 2: V_{IN-} 3: PE (Protective Earth) 4: V_{IN+} 5: Not Connected

Input Specifications

Nominal Voltage Range: $U_N = 24\text{ V} \text{ --- } 48\text{ V} \text{ ---}$

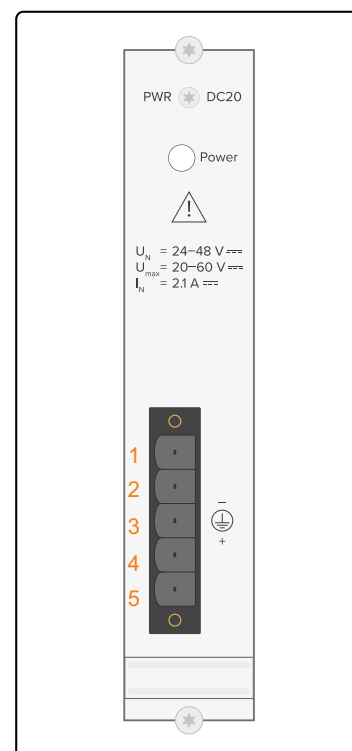
Rated Voltage Range: $U_{max} = 20\text{ V} \text{ --- } 60\text{ V} \text{ ---}$

Nominal Current: $I_N = 2.10\text{ A} \text{ ---}$

Output Specifications

Max. Power: $P_{max} = 50\text{ W}$

Max. Heat Output: $E_{therm} = 180.00\text{ kJ/h (170.61 BTU/h)}$



Replacing a Hot-Pluggable Power Supply Module

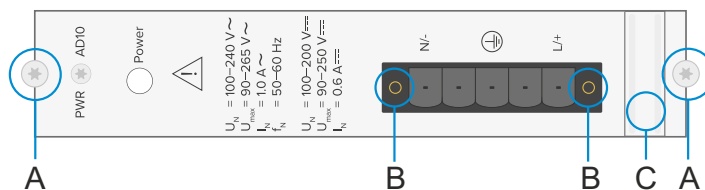


Information:

It is possible to remove or install a power supply module (e.g., due to a fault) while maintaining operation if the system is operated with redundant power supplies.

Tools Required

- Slotted Screwdriver: 0.4 mm Tip Thickness, 2.5 mm Tip Width
- Torx Screwdriver: TR8x60



1. Cut off the power supply to the module by pulling the mains plug of the power supply cable out of the mains socket.
2. Remove the 5-pin MSTB plug from the power supply module after loosening the two screws (B) using the slotted screwdriver.

Important!



Screw Torque Value (A)

When tightening the Torx screws (A) to fix the newly installed power supply module in place, please do not exceed the specified torque of 0.6 Nm.

3. Use the Torx screwdriver (TR8) to remove the two Torx screws (A) of the power supply unit to be replaced.
4. The detached power supply module can now be pulled out by the handle (C).
5. Insert the new power supply into the free slot and secure it using the two Torx fastening screws (A) that were used to secure the old power supply unit.
6. Connect the 5-pin MSTB connector of the power cable to the power supply and retighten the two slotted-head screws (B).

7. The power cable can now be reconnected to the power supply.
8. The status LED of the new power supply should now light up and an "OK" status should be displayed in the Web Interface.

Checking the Status of the Power Supply Unit

The status of each power supply module can be checked using the associated LED on the front panel of the device or using the LED on the power supply module itself.

9.2 TTL Output

Output Signal:	TTL
Signal Level:	TTL = 5 V (without load), 2.5 V (with 50 Ω load)
Rise Time:	Typically 2.6 ns
Fall Time:	Typically 2.6 ns
Connector Type:	BNC, Female
Cable Type:	Coaxial Cable, Shielded



9.3 TTL In

Input Signal:	PPS TC-DCLS Prog. Pulses
Signal Level:	TTL
Connection Type:	BNC Female
Cable:	shielded coaxial line

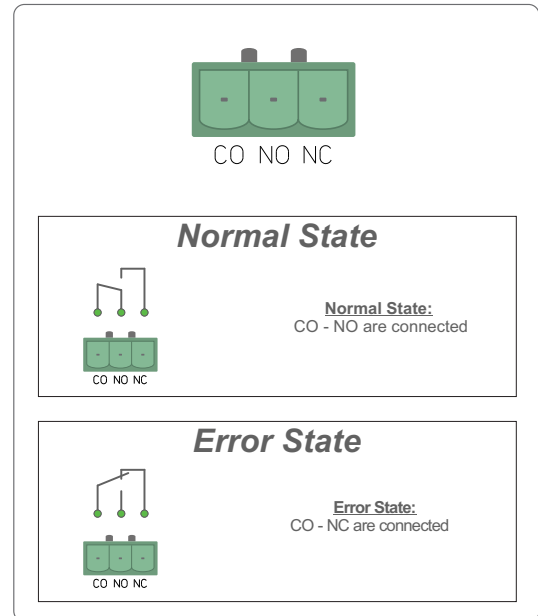


9.4 Error Relay

There is a relay output that is labeled "Error" on the unit. This is a potential free contact, which is directly controlled. Normally, when an input signal is applied, the relay and the relay contact "NO" is active. If the input is faulty or switched off the device, the relay contact "NC" is active.

Technical Specification

Switching Voltage max.:	125 V DC	
	150 V AC	
Switching Current max.:	1 A	
Switching Load max.:	DC	30 W
	AC	60 VA
Switching Current UL/CSA:	0.46 A	150 V AC
	0.46 A	65 V DC
	1 A	30 V DC
Response Time:	ca.2 ms	



Danger!

This equipment is operated at a hazardous voltage.

Danger of death from electric shock!



- Never work with open terminals and plugs while the power is on!
- When handling the connectors of the error relay cable, always disconnect both ends of the cable from their respective devices!
- Hazardous voltages may be passing through the terminal of the fault signal relay! Never handle the fault signal relay terminal while the signal voltage is present!

10 RoHS Conformity

Conformity with EU Directive 2011/65/EU (RoHS)

We hereby declare that this product is compliant with the European Union Directive 2011/65/EU and its delegated directive 2015/863/EU "Restrictions of Hazardous Substances in Electrical and Electronic Equipment" and that no impermissible substances are present in our products pursuant to these Directives.

We warrant that our electrical and electronic products sold in the EU do not contain lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), bis(2-ethylhexyl)phthalat (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP), or diisobutyl phthalate (DIBP) above the legal limits.



11 Declaration of Conformity for Operation in the European Union

EU-Konformitätserklärung

Doc ID: SDU/TTL-May 19, 2025

Hersteller Meinberg Funkuhren GmbH & Co. KG
Manufacturer Lange Wand 9, D-31812 Bad Pyrmont

erklärt in alleiniger Verantwortung, dass das Produkt,
declares under its sole responsibility, that the product

Produktbezeichnung SDU/TTL
Product Designation

auf das sich diese Erklärung bezieht, mit den folgenden Normen und Richtlinien übereinstimmt:
to which this declaration relates is in conformity with the following standards and provisions of the directives:

EMV – Richtlinie	EN 61000-6-2:2019
<i>EMC Directive</i>	EN IEC 61000-6-3:2021
	EN 55035:2017/A11:2020
	EN 55032:2015 + AC:2016 + A11:2020 + A1:2020

2014/30/EU

Niederspannungsrichtlinie	EN IEC 62368-1:2020 + A11:2020
<i>Low-voltage Directive</i>	

2014/35/EU

RoHS – Richtlinie	EN IEC 63000:2018
<i>RoHS Directive</i>	

2011/65/EU + 2015/863/EU

EU-Declaration of Conformity

Doc ID: SDU/TTL-May 19, 2025

Diese EU-Konformitätserklärung umfasst alle nachfolgend aufgeführten Gerätekonfigurationen:
This UKCA Declaration of Conformity further covers all the device configurations listed below:

Signal Distribution Unit	SDU/TTL/AD10
	SDU/TTL/AD10-AD10
	SDU/TTL/AD10-DC20
	SDU/TTL/DC20
	SDU/TTL/DC20-DC20
	SDU/TTL-12-12/AD10
	SDU/TTL-12-12/AD10-AD10
	SDU/TTL-12-12/AD10-DC20
	SDU/TTL-12-12/DC20
	SDU/TTL-12-12/DC20-DC20

Bad Pyrmont, den May 19, 2025

Aron Meinberg
Quality Management


Meinberg Funkuhren GmbH & Co. KG
Lange Wand 9
31842 Bad Pyrmont

12 Declaration of Conformity for Operation in the United Kingdom

UKCA Declaration of Conformity

Doc ID: SDU/TTL-May 19, 2025

Manufacturer

Meinberg Funkuhren GmbH & Co. KG
Lange Wand 9
31812 Bad Pyrmont
Germany

declares that the product

Product Designation

SDU/TTL

to which this declaration relates, is in conformity with the following standards and provisions of the following regulations under British law:

Electromagnetic Compatibility
Regulations 2016 (as amended)
SI 2016/1091

EN IEC 61000-6-2:2019
EN IEC 61000-6-3:2021
EN 55035:2017/A11:2020
EN 55032:2015 + AC:2016 + A11:2020 + A1:2020

Electrical Equipment (Safety)
Regulations 2016 (as amended)
SI 2016/1101

EN IEC 62368-1:2020/A11:2020

The Restriction of the Use of Certain
Hazardous Substances in Electrical and
Electronic Equipment Regulations 2012
(as amended)
SI 2012/3032

EN IEC 63000:2018

UKCA Declaration of Conformity

Doc ID: SDU/TTL-May 19, 2025

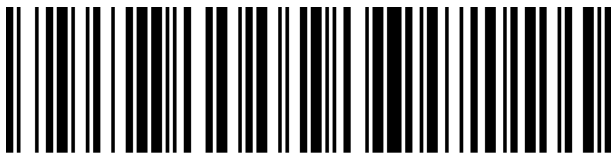
This UKCA Declaration of Conformity further covers all the device configurations listed below:

Signal Distribution Unit	SDU/TTL/AD10
	SDU/TTL/AD10-AD10
	SDU/TTL/AD10-DC20
	SDU/TTL/DC20
	SDU/TTL/DC20-DC20
	SDU/TTL-12-12/AD10
	SDU/TTL-12-12/AD10-AD10
	SDU/TTL-12-12/AD10-DC20
	SDU/TTL-12-12/DC20
	SDU/TTL-12-12/DC20-DC20

Bad Pyrmont, Germany, dated May 19, 2025

Aron Meinberg
Quality Management


Meinberg Funkuhren GmbH & Co. KG
Lange Wand 9
31842 Bad Pyrmont



SDU_TTL_190525