

Firma / Company **FRIWO Gerätebau GmbH**

Gerätetyp / Type: FW8060M/OF/24/HERC
 Artikelnr. / Part-No.: 1961720
 Zeichnungsnr. / Drawing-No.: 15.5572.511-00
 Datum / Date: 29.07.2022

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 Freigabe App. / Approved App. PRFFR
 Freigabe / Approved KSTMM

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We may ask you to return one signed copy of the specification for our records as having your approval. Unless you do not enter your objection to the latest specification issue without delay, your acceptance and release for production on the basis of this specification is deemed to be given.

Kundenfreigabe / Customer Release:

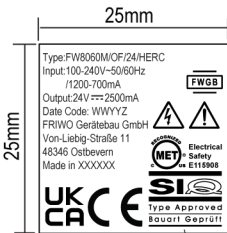
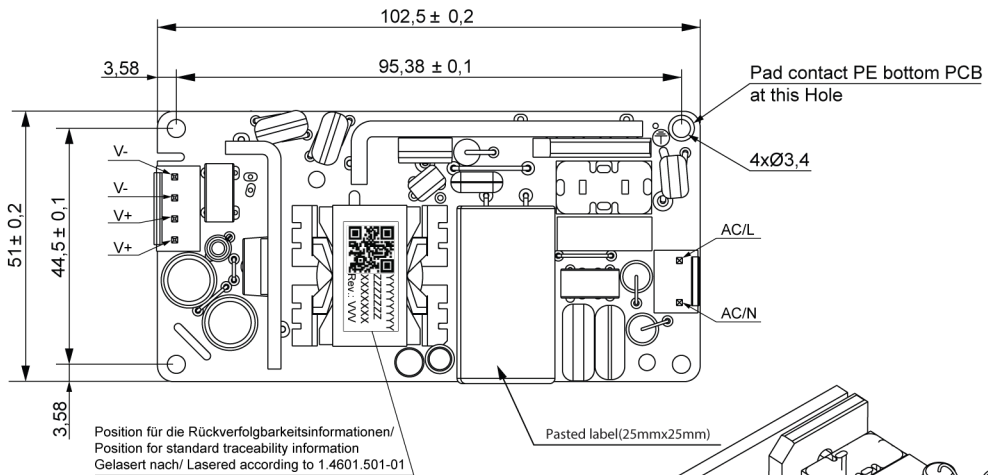
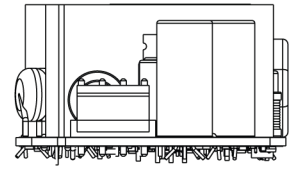
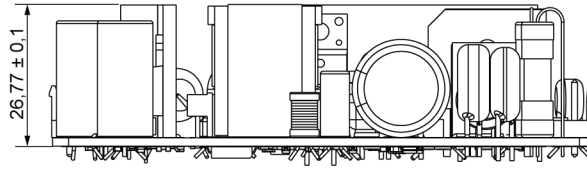
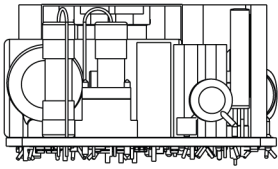
Datum / Date:

Unterschrift / Signature:

Index / Rev.	Datum / Date	Name	Einzelheit / Detail
Ⓐ	2023/5/12	Frenkie	PCR P004134054; MR2023-4-13732: Update Life time to "3 years at ...
Ⓑ	2023/10/17	Frenkie	PCR P004355985; MR2023-4-14203: Update images, Add PE symbol on ...
Ⓒ	2024/5/13	Brian	PCR P004614174, MR2024-4-16398: Traceability label added, see point 1.0.

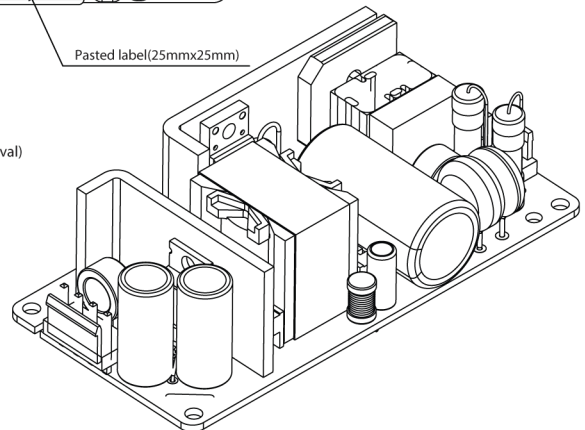
1 Gehäuse / Housing:

Gehäusertyp / housing type: **OPEN FRAME**



Printing:Black letter on white base
 Material:copperplate paper with bright/shining surface(UL,CSA approval)
 Coating:Acrylic adhesive backing
 To be manufactured by UL/CSA qualified vendor
 Storage temperature -40 °C~+85 °C
 The thickness of label is 0.12+/-0.02mm
 XXXXXX = China, Germany, Vietnam, or Poland
 Datumscode/date-code "WWYYZ"
 W=Woche/week Y=Jahr/year Z=Fertigungsstätte/Factory code
 (Note:without mark = FRIWO Gerätebau GmbH)

Approval marks after release



Input PIN	JST connector ST10			Output PIN	JST connector ST100				Earth Screw hole	Pad contact PE
	1	2	3		1	2	3	4		
	AC/L	No Pin	AC/N		V+	V+	V-	V-		

Pad contact PE marked with \perp must be connected to safety earth for class I applications and connected together for class II applications for optimum EMC performance, use base metal plate preferred.

2 Verpackung / Packaging

2.1 Einzelverpackung / Individual packaging:

Fächersteg/ Divider: 15.3973.556-01
 Zwischenlage/Underliner : 13.0002.056-03
 ESD-Beutel/ ESD bag: 1822389(152x102)

Leiterplatte in ESD-Beutel legen/ Put PCB into ESD bag

2.2 Sammelverpackung / bulk packaging: 56 er UMKARTON / Carton 56

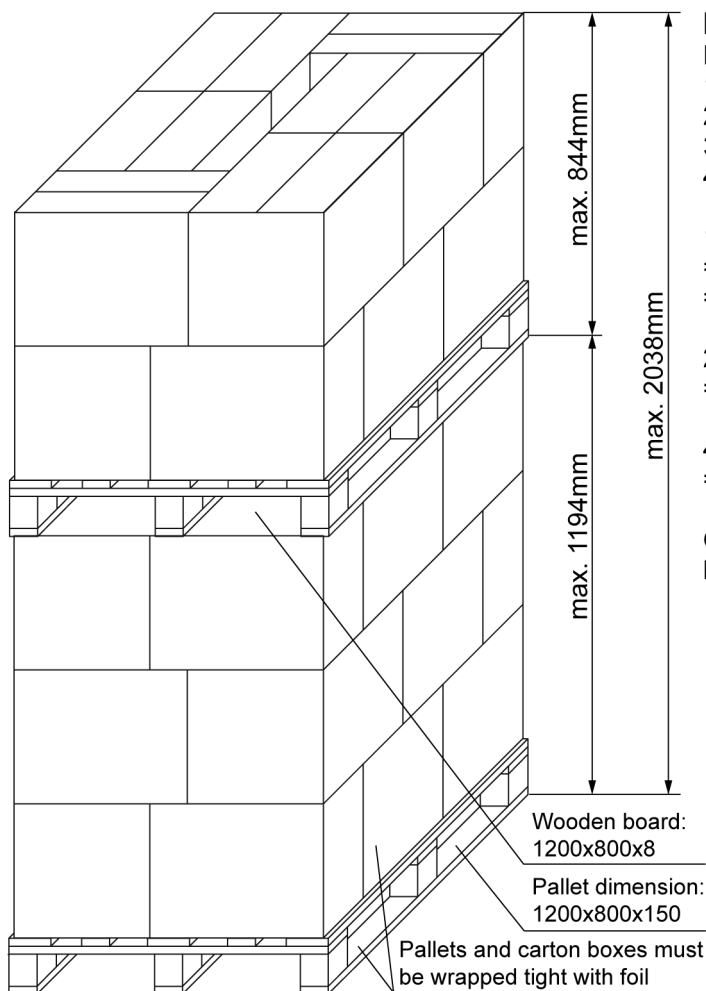
2.2.1 Aussenabmessungen / Outer dimensions: 433mm x 338mm x 344mm

2.3 Anzahl der Geräte pro Umkarton / amount of units per master carton: 80

2.4 Gewicht pro Stück / weight per unit: 128 g

2.5 Lagertemperatur / storage temperature: -40°C - +85°C / 10 to 95 rel. hum.

2.6 Verpackungsvorschriften / packaging specification:



Master packing only for Asia production

Notes:

- 1) 80pcs per carton
- 2) 6 cartons per layer
- 3) 3 layers on 1st pallet + 2 layers on 2nd pallet
- 4) 2 pallets stacked one over another

1 Stack (3-layer-pallet and 2-layer-pallet)
 = (1440pcs + 960pcs)
 = 2400pcs per stack

22 pallets (11 stacks of each type)
 = 26400pcs per 20 foot container

48 pallets (24 stacks of each type)
 = 57600pcs per 40 foot container

One label on each master carton,
 labels must face outside when loading pallet

3 Allgemeine Prüfbedingungen / General test conditions

- 3.1** In einem Bereich der Umgebungstemperatur von -25°C bis $+70^{\circ}\text{C}$ bei 95% relativer Luftfeuchte, keine Betauung, muss die einwandfreie Funktion des Gerätes gewährleistet sein.

Within an ambient temperature range from -25°C to $+70^{\circ}\text{C}$ at 95% relative humidity, no condensation, the faultless function of the unit must be guaranteed.

4 Elektrische Prüfbedingungen / electrical tests

4.1 Alle nachstehend aufgeführten Werte werden bei +25°C Raumtemperatur und nach 15 Minuten Einschaltdauer gemessen.

All values listed below are measured at an ambient temperature of +25°C and after 15 minutes of operation.

4.2 Eingangsdaten / Input data:

4.2.1 Nenneingangsspannung / 100-240V AC ±10%
 Nominal input voltage : 100-240V AC ±10%

4.2.2 Nenneingangsfrequenz / 50 / 60Hz
 Nominal input frequency: 50 / 60Hz

4.2.3 Nenneingangsstrom / 1.2-0.7Arms @ bei Maxlast
 Nominal input current: 1.2-0.7Arms @ max load

4.2.4 Leerlaufleistungsaufnahme bei UE / 230V AC : ≤ 0.15W
 Stand-by power consumption at UIn: 230V AC : ≤ 0.15W

4.3 Ausgangsdaten / Output data:

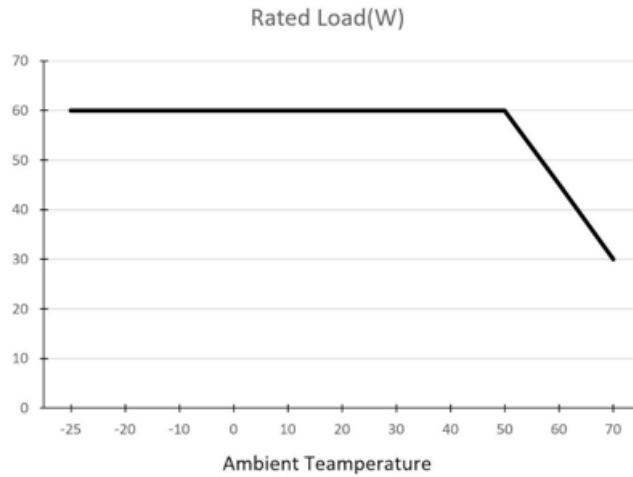
Messaufbau siehe / <http://www.friwo.de>
 Measuring setup see:

4.3.1 Ausgangsspannung / UA: 24V DC +5% / -5% UBr : ≤ 150mVss
 Nominal output voltage: Uout: 24V DC +5% / -5% UBr : ≤ 150mVpp

Add 0.1µF/63V ceramic capacitor and 10µF/63V aluminum electrolytic capacitor across the output terminal. Measured with 20MHz Bandwidth Oscilloscope.

4.3.2 Nennausgangsstrom /
 Nominal output current:

IA : 2500mA
 Iout : 2500mA



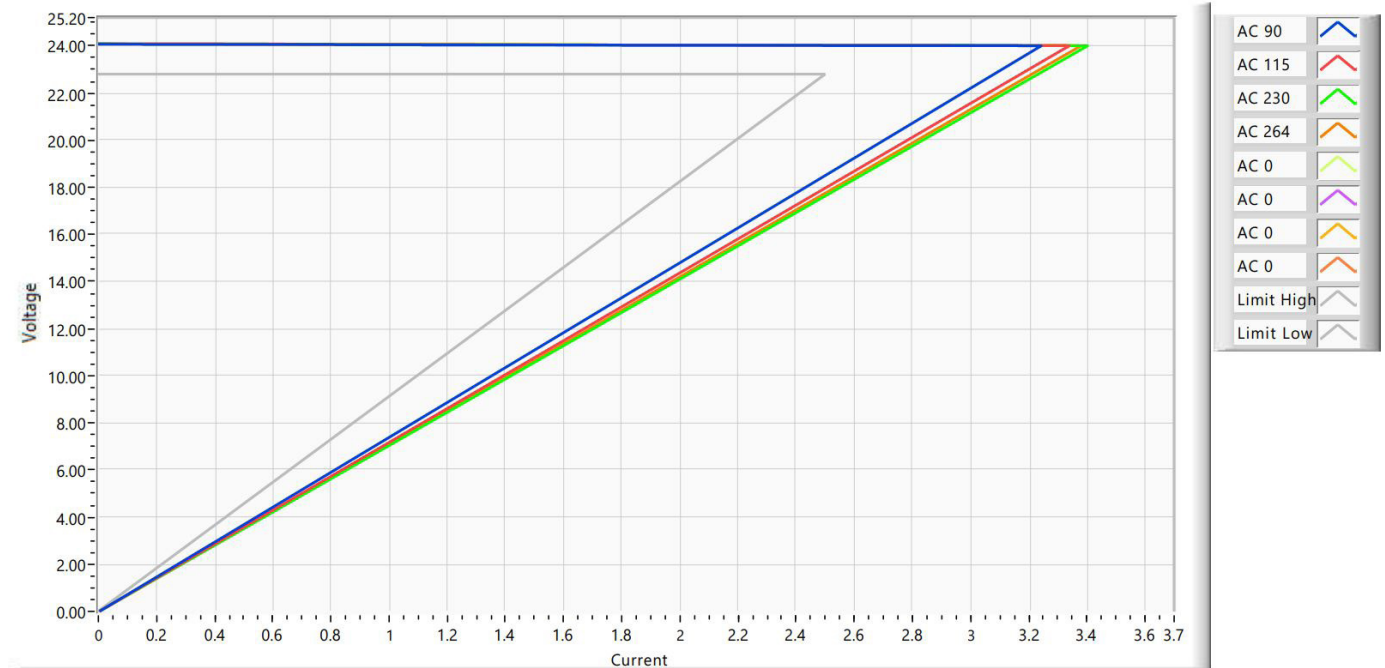
4.3.3 Überspannungsschutz/
 Over voltage protection:

27V

4.3.4 Durchschnittlicher Wirkungsgrad /
 Average Efficiency:

≥ 88.0%

4.3.5 Ausgangskennlinie / Output characteristic: -



5 Sicherheitsanleitung / Safety details:

Sicherheitsaufbau nach / Safety-standard acc. to :	IEC60601-1, ES60601-1, IEC62368-1
Schutzklasse / Protection class :	N/A Class I - only installed on base plate, and connected ground / Klasse I - nur auf Grundplatte montiert und geerdet Class II - only with touch-proof plastic enclosure / Klasse II - nur mit berührungssicherem Kunststoffgehäuse
Trennung (prim.-sek.) / Separation (prim.-sec.) :	Galvanisch durch Wandler Galvanic by transformer
Kriech- und Luftstrecken / Creepage distance and clearance :	≥ Kr : 8mm, Lu : 6mm ; Cr : 8mm, Cl : 6mm
Ableitstrom / Leakage current :	I Ableit ≤ 100µA I leak ≤ 100µA
Gemessen nach / According to : siehe / see www.friwo.de	IEC60601-1
Hochspannungstest / High-voltage test :	≥ 4,59kVac
Anwendungsbereich / Range of application :	Medizinische Anwendungen Medical applications
Umgebungstemperatur / Ambient temperature range :	-25°C bis / to +70°C
Atmosphärischer Druck / Atmospheric pressure	54 -106 kPa
max. Arbeitshöhe / max. working height:	5000m
Sicherung auf der Leiterplatte / Fuse used at PCB:	F14 & F15 250Vac/2.5A, slow blow, high breaking capacity, size 5x20mm

* Temperaturbereich für den bestimmungsgemäßen Betrieb, deren Nichtbeachtung gegebenenfalls einen Gewährleistungsanspruch ausschließt.

* Temperature range for designated use. Nonobservance can as the case may be suspend the warranty claim.

Means of protection:	2 MOPP
Short circuit protection:	Yes, automatic recovery
Over voltage protection:	Yes, Latch
Over load protection:	Yes, automatic recovery
Over temperature protection:	Yes, Latch
Cooling:	Convection cooling
Bedienungsanleitung / Manual:	Siehe / See www.friwo.de

6 EMV Festigkeit / EMC stability

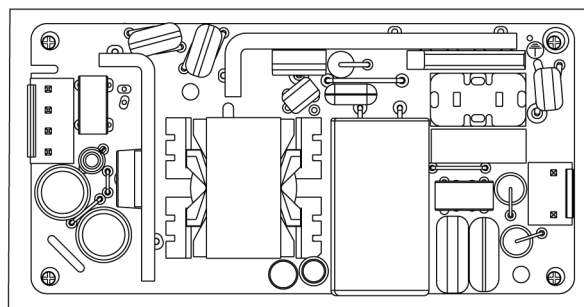
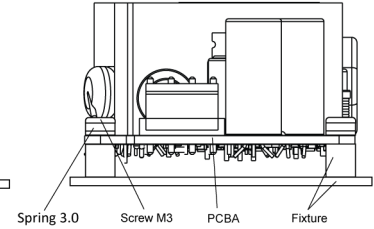
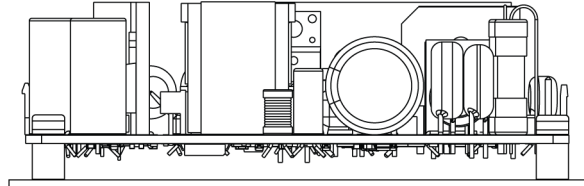
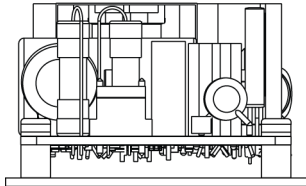
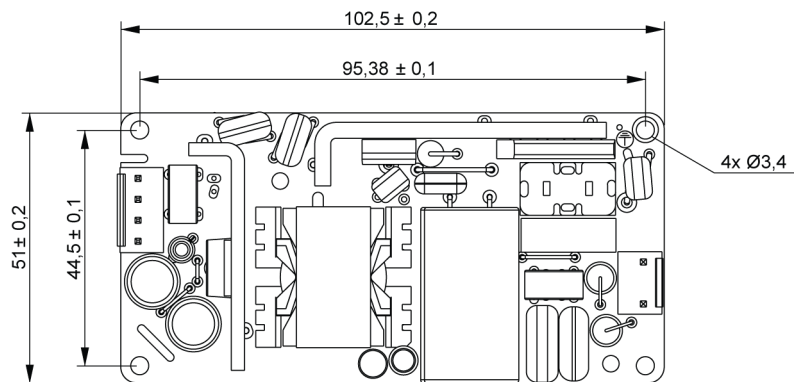
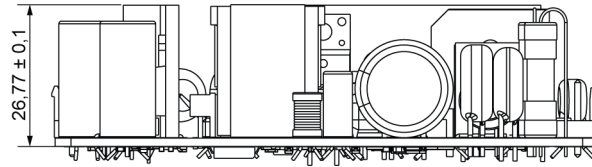
Versuch	Prüfung	Bewertungs-kriterium	Schärfe-grad	Bedingung	Anforderung	Criteria
SURGE	EN61000-4-5	I	2	L-PE, N-PE, L-N-PE	2 kV	A
		II	2	L-N	2 kV	
BURST	EN61000-4-4	II	2	AC input 5kHz/100kHz	2 kV	
		II	2	DC output 5kHz/100kHz	2 kV	
ESD	EN61000-4-2	II	2	Only output terminal (contact discharge)	8 kV	

7 EMV-Störaussendung/ EMC emitted interference

Versuch	Prüfung	Bewertungskriterium
Conducted Emissions	EN55032	Class B
Radiated Emissions	EN55032	Class B

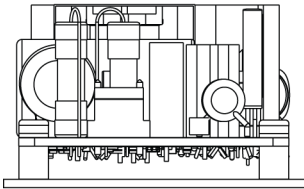
8 Links & Miscellaneous

8.1 Installation Method

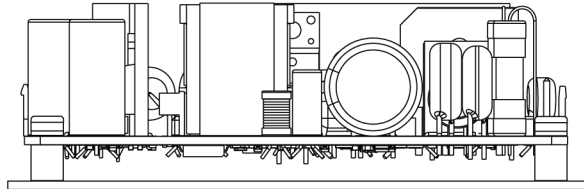


8.2 Acceptable installation

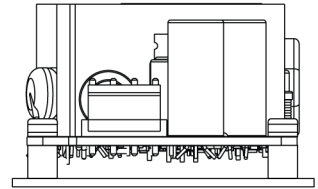
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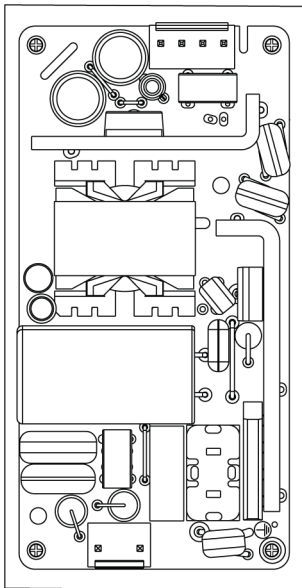
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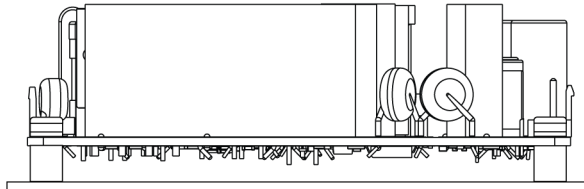
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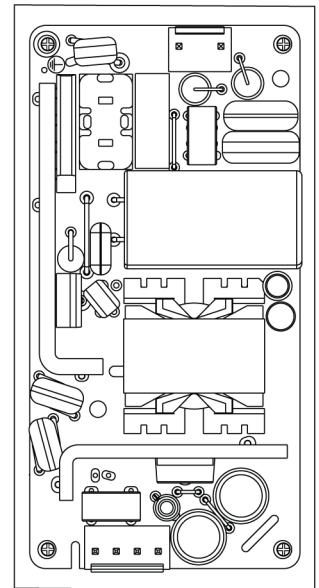
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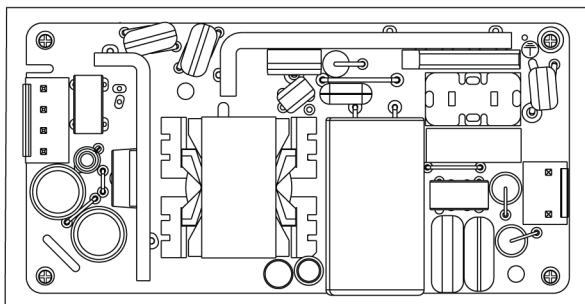
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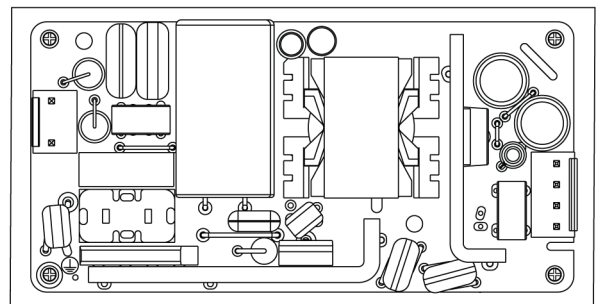
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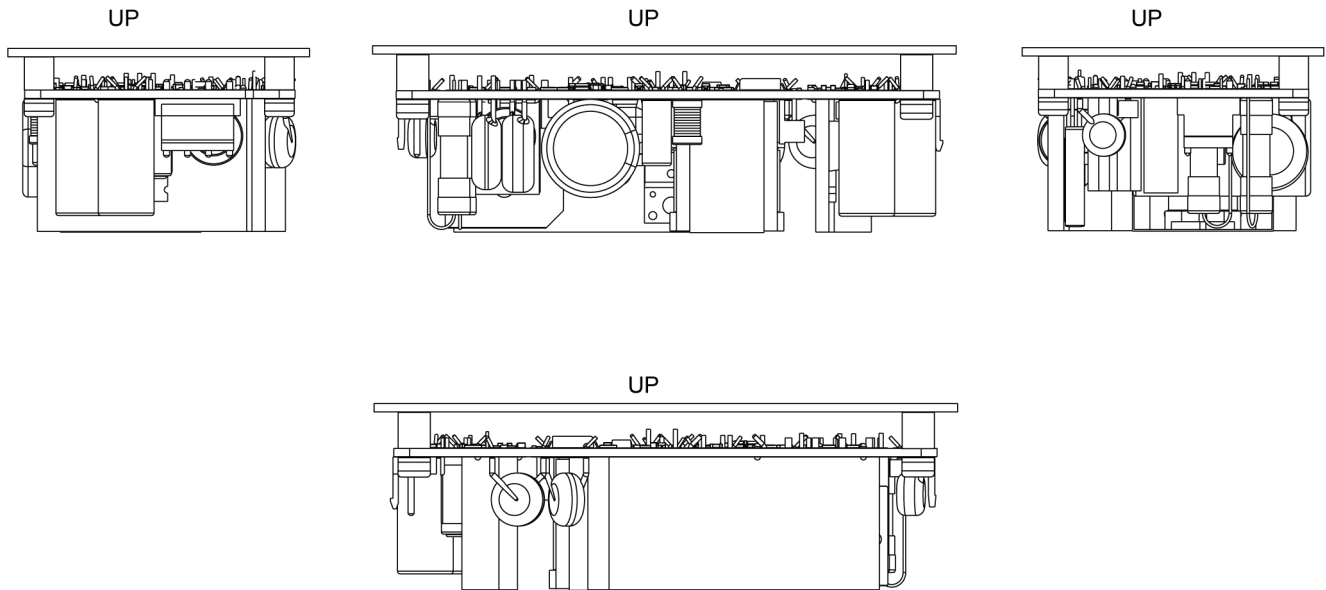
UP



UP



8.3 Unacceptable installation



8.4 Description of symbols

No.	Symbol	Description EN	Description DE
1		Caution	Warnung
2		Caution, risk of electric shock	Vorsicht, Gefahr eines Stromschlags
3		Protective earth; protective ground	Schutzleiter; Schutzerde