



Firma / Company :

Distribution

Gerätetyp / Type : DT6024
 Artikelnr. / Part-No. : 1831363
 Zeichnungsnr. / Drawing-No. : 15.2987.500-00
 Datum / Date : JUL.27.2009

Sachbearbeiter Verkauf / Contact Sales : Werk
 Sachbearbeiter Mechanik / Contact Mech. Eng. : FEWHJG
 Sachbearbeiter Elektronik / Contact Elec. Eng. : FESINL
 Freigabe App. / Approved App. FEWMZH
 Freigabe / Approved FELCCH

Wir bitten Sie, ein Exemplar mit Freigabevermerk an uns zurückzusenden. Sollten Sie dieser Spezifikation nicht unverzüglich widersprechen, gilt die Zustimmung und Fertigungsfreigabe auf Grundlage dieser Spezifikation als erteilt.

We may ask you to return one signed copy of this 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
⑥	2009/06/04	Heaven Li	MR2009-1-1845 change the bottom tampoprint
⑦	2009/07/27	Norman work	MR2009-1-1984 delete sign for polarity of the lead
⑨	2009/12/23	Heaven Li	MR2009-1-2557 Change the tampoprint from "IV" to "V".
⑩	2010/09/20	Kuhn	Eco Design added, see point 8.
⑪	2010/11/05	Kuhn	Stand-by power consumption changed to 0,3 W, see point 6.2.3.

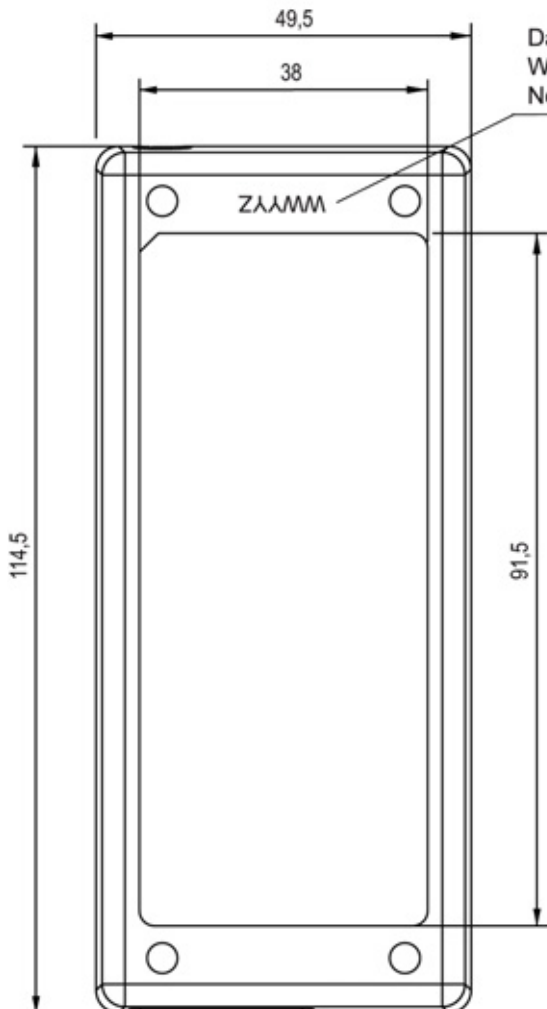
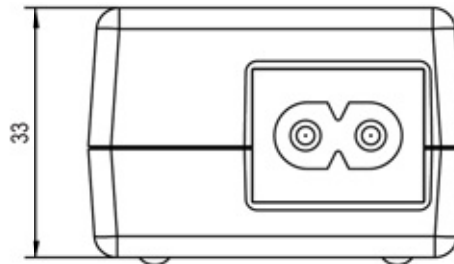
Geschäftssitz / Headquarter
 FRIWO Gerätebau GmbH
 Von-Liebig-Straße 11
 D-48346 Ostbevern
 Tel +49 2532/ 81-0
 Fax +49 2532/ 81-112
 www.friwo.de
 WEEE-Reg.-Nr. DE 70846847

Geschäftsführung / Management Board
 Felix Zimmermann
 Peter Vogt
 Klaus Schilling
 St.-Nr. 346/5840/0923
 Finanzamt Warendorf
 USt.-Ident.-Nr. DE811114890
 Amtsgericht Münster
 HRB 9325

Bankverbindung / Bank Details
Sparkasse Münsterland-Ost
 BLZ 400 501 50 (EUR) Kto. 5 000 526
 IBAN DE42 4005 0150 0005 0005 26
 BLZ 400 501 50 (USD) Kto. 86 0000 23
 SWIFT WELADED1MST
Commerzbank AG, Frankfurt a. M.
 BLZ 500 400 00 Kto. 5 811 419
 IBAN DE05 5004 0000 0581 1419 00

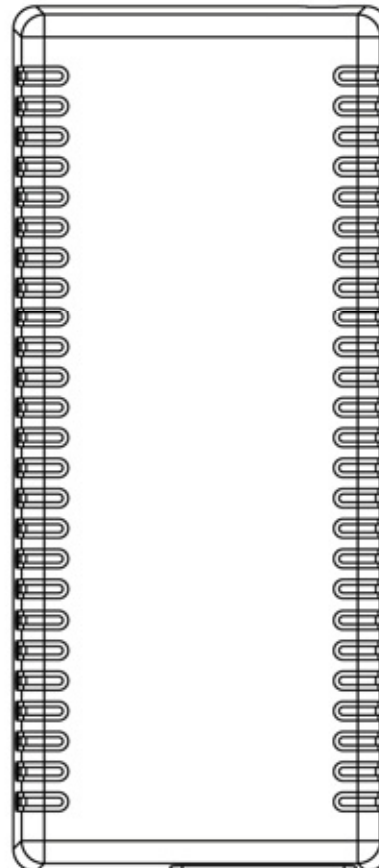
1 Gehäuse / Housing:

Gehäusotyp / housing-typ: DT60
 Material: PC / ABS V0 125 C
 Farbe Boden/ bottom colour: schwarz / black
 Farbe Deckel/ cover colour: schwarz / black



Datumscode/ date-code "WWYYZ"
 W=Woche/ week Y=Jahr/ year Z=Fertigungsstätte/ Factory code
 Note: with out/ ohne mark = FRIWO Gerätebau GmbH Germany

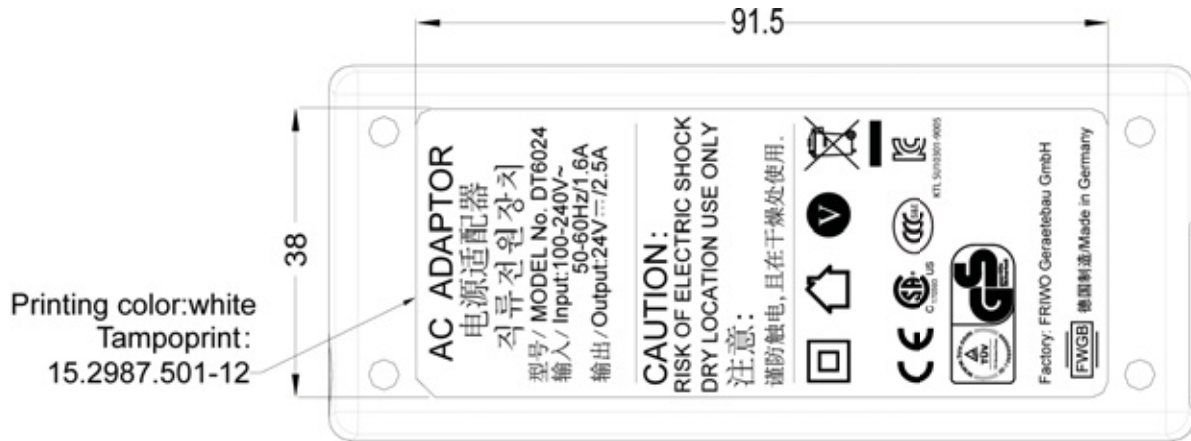
Schriftfelder vertieft /
 Inscription fields deepened



2 Gehäuseaufschriften / Housing labelling:

2.1 Bodenbeschriftung / Bottom labelling

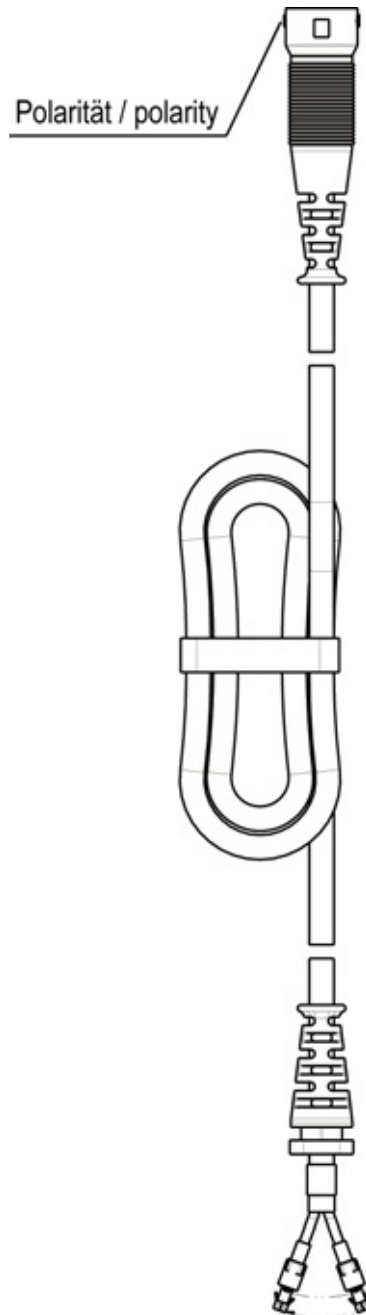
2.1.1



3 Leitungen / Leads:

- 3.1 Ausgangsleitung / output lead: 10.5567.303-190
Länge / length: 1830 mm
Querschnitt / cross section: 2XAWG16
Farbe / colour: schwarz / black

Polarität / polarity:



4 Verpackung / packaging:

4.1 Einzelverpackung / individual packaging:
11.0817.056-30

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

4.3 Anzahl der Geräte pro Umkarton / amount of units per master carton 50

4.4 Lagertemperatur / storage temperature: -10°C - +70°C / 10 to 95 rel. hum.

5 Allgemeine Prüfbedingungen / General test conditions:

5.1 In einem Bereich der Umgebungstemperatur von 0°C bis +40°C bei 95% relativer Luftfeuchte, keine Betauung, muss die einwandfreie Funktion des Gerätes gewährleistet sein.

Within an ambient temperature range from 0°C to +40°C at 95% relative humidity, no condensation, the faultless function of the unit must be guaranteed.

6 Elektrische Prüfbedingungen / electrical tests:

6.1 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.

6.2 Eingangsdaten / Input data:

6.2.1 Nenneingangsspannung : 100-240V AC +10/-10%
 Nominal input voltage : 100-240V AC +10/-10%

6.2.2 Nenneingangsfrequenz : 50-60Hz
 Nominal input frequency : 50-60Hz

6.2.3 Leerlaufleistungsaufnahme bei U_E : 230V AC : $\leq 0.3W$
 Stand-by power consumption at U_{in} : 230V AC : $\leq 0.3W$

6.3 Ausgangsdaten / Output data

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

6.3.1 Ausgangsspannung: U_A : 24V DC +5% / -5% U_{Br} : $\leq 250mV_{ss}$
 Nominal output voltage: U_{out} : 24V DC +5% / -5% U_{Br} : $\leq 250mV_{pp}$

Add 0.1uF/50V ceramic capacitor and 47uF/35V aluminum electrolytic capacitor across the output terminal. Measured with 20MHz Bandwidth Oscilloscope.

6.3.2 Nennausgangsstrom : I_A : 2500mA
 Nominal output current : I_{out} : 2500mA

6.4 Efficiency

Efficiency can meet energy star level "V".

6.5 Hold-up time:

The minimum hold-up time shall be 8ms when the power supply operate at 100Vac/60Hz and maximum load.

6.6 Over voltage protection

The unit will be protected when a fault is happen, the output voltage will less than 2V, when fault is removed and power on it again, the unit will operate normally.

6.7 Over temperature protection

When atmosphere's temperature in housing achieve about 105 degree, the unit will be protect, after cooling and power on again, the unit will operate normally.

6.8 Short protection

When short output plug, the unit will be protect, when short removed, the unit will operate normally.

6.9 AC inrush current

AC line inrush current shall not damage any component nor cause the AC line fuse to blow up under any DC conditions and with any specified AC line input voltage and frequency, Repetitive On/Off cycling of the AC input voltage shall not damage the power supply.

7 Sicherheitsanleitung / Safety details:

Sicherheitsaufbau nach / Safety-standard: EN60950-1
acc. to

Schutzklasse / Protection class : II

Trennung (prim.-sek.) : Galvanisch durch Wandler

Separation (prim.-sec.) : Galvanic by transformer

Kriech- und Luftstrecken / Creepage distance and clearance : \geq Kr : 6.4mm, Lu : 4mm ; Cr : 6.4mm, Cl : 4mm

Ableitstrom : I Ableit \leq 250 μ A
Gemessen nach EN60950-1 siehe www.friwo.de

Leakage current : I leak \leq 250 μ A
According to EN60950-1 see www.friwo.de

Hochspannungstest / High-voltage test : \geq 3kVac

Anwendungsbereich : Einrichtungen der Informationstechnik, einschließlich elektrische Büromaschinen

Range of application : Information Technology Equipment including electrical office equipment

Umgebungstemperatur / Ambient temperature range : 0°C bis / to +40°C

8 CE-Konformitätserklärung / Declaration of Conformity

Wir, der Hersteller, erklären hiermit, dass das Produkt: /
We, the manufacturer, hereby confirm, that the product:

Gerätetyp / Type: DT6024
 Artikel-Nr. / Part-No.: 1831363
 Zeichnungs-Nr. / Drawing-No.: 15.2987.500-00

weitere Merkmale /
additional information:

mit der beiliegenden Beschreibung die Anforderungen der Niederspannungsrichtlinien 2006/95 EG, der EMV-Richtlinien 2004/108 EG und Öko-Design Richtlinie 2009/125/EG erfüllt.

with the enclosed description fulfils the requirements of the Low Voltage Directives 2006/95 EC, the regulations of the EMC Directives 2004/108 EC and the eco design Directive 2009/125/EC.

Das Gerät entspricht der / *The unit corresponds to:*

- | | | |
|--|---|--------------------------------------|
| a) Niederspannungsrichtlinie /
<i>Low Voltage Directive</i> | b) EMV-Richtlinie /
<i>EMC Directive</i> | c) Öko Design /
<i>ECO Design</i> |
| <input type="checkbox"/> EN 60950-1 11/2006 | <input type="checkbox"/> EN 61000-3-2 10/2006
<input type="checkbox"/> EN 55022 05/2008
<input type="checkbox"/> EN 55014-1 06/2007 | <input type="checkbox"/> Step 2 |

Ausstelldatum / *Date of issue:* 20.09.2010



Quality Manager

i. A. Klaus Dieter Bischoff




Firmenstempel / Company stamp

Manager Product Design FPS

i. V. Armin Wegener

9 Links & Miscellaneous

EMC-specification

9.1 Noise-suppressed: acc. to EN55014 ,55022/B and FCC rules 15,class B.

9.2 Harmonic current emissions acc. to EN 61000-3-2

9.3 Immunity to electrostatic discharge (ESD): acc. to EN 61000-4-2

Discharge characteristic	Test level	Assessment criteria U _{in} 120Vac	Assessment criteria U _{in} 230Vac
Air discharge	±8KV	B	B
Contact discharge	±4KV	B	B
Indirect discharge	±8KV	B	B

9.4 Immunity to radiated electromagnetic field: acc. to EN 61000-4-3 Test characteristic: 80 - 1000 MHz; 80% AM (1 kHz)

Test level	Assessment criteria
3V/m	A

9.5 Immunity to fast electric transients (burst): acc. to EN 61000-4-4

Coupling	Test level	Assessment criteria U _{in} 120Vac	Assessment criteria U _{in} 230Vac
AC-input	2KV	A	A
DC-output (capacitive clamp)	1KV	A	A

9.6 Surge capability: acc. to EN 61000-4-5

Surge voltage	Assessment criteria U _{in} 120Vac	Assessment criteria U _{in} 230Vac
1KV	B	B

9.7 Immunity to conducted disturbances, induced by radio frequency fields: acc. to EN 61000-4-6 Test characteristic: 0.15 – 80MHz; 80% AM (1 kHz)

Test level	Assessment criteria
3V	A

9.8 Immunity to voltage dips, short interruptions and voltage variations.

9.8.1 Test acc. to EN 61000-4-11 Test performed at $U_{in} = 230VAC / 120VAC$

Voltage dips

Test level $\%U_N$	Voltage dips and short interruptions $\%U_N$	Duration time of voltage Dips (in half sine)	Test result U_{in}	Test result U_{in}
			120Vac	230Vac
0	100	0.5	A	A
40	60	1	A	A
		5	B	A
		10	B	A
		25	B	A
		50	B	A

Voltage variations

Test level	Duration to decrease the voltage	Duration of the decreased voltage	Duration to increase the voltage	Test result U_{in} 120Vac	Test result U_{in} 230Vac
$40\%U_N$	$2s \pm 20\%$	$1s \pm 20\%$	$2s \pm 20\%$	B	B
$0\%U_N$	$2s \pm 20\%$	$1s \pm 20\%$	$2s \pm 20\%$	B	B

9.9 Assessment criteria

- a. Agreed operational behaviour within the specified limits.
- b. Time limited functional diminshment of malfunction during the tests is permitted. The function is self-reactivated by the unit following completion of the tests.
- c. Malfunction is permitted. The function can be reactivated either by reconnection to the mains or by operator intervention.