

DC/DC Wide Input Converter

UCW 3 Watt

DIL-24



DC/DC converter modules with input to output isolation of 1500 or 3000 VDC • Pi-filter at input • Continuous short circuit proof • High efficiency • Low output ripple and noise • Low silhouette • Metal case with non conductive base plate, six sides shielded or non conductive plastic case • UL, cUL certified

DC/DC Konverter-Modul mit galvanischer Trennung Eingang / Ausgang von 1500 oder 3000 VDC • Pi-Filter am Eingang • Dauerkurzschlussfest • Hoher Wirkungsgrad • Gute Werte von Ripple und Noise • Geringe Bauhöhe • Metallgehäuse mit isolierender Bodenplatte, 6seitig abgeschirmt oder nicht leitendes Plastikgehäuse • UL, cUL zertifiziert

Module convertisseur CC/CC avec séparation galvanique entrée sortie 1500 ou 3000 VDC • Filtre en Pi à l'entrée • Protection courts-circuits permanente • Rendement élevé • Ondulation résiduelle de sortie très faible • Profile bas • Boîtier en métal blindé 6 faces avec fond isolé ou boîtier en plastique • Approbation UL, cUL

Product range		Typenübersicht				Sommaire des types	
Model	Input nominal	Input range	Input current max. @ full load	Output Uout	Output Iout	Operating temperature	Efficiency typ.
UCW05-0303S(1)	5 VDC	4.5...6.0 VDC	650 mA	3.3 VDC	600 mA	For all models: -25...+70°C or max. case temperature for H Versions = 100°C V Version = 95°C	61%
UCW05-0503S(1)	5 VDC	4.5...6.0 VDC	850 mA	5.0 VDC	600 mA		70%
UCW05-1203S(1)	5 VDC	4.5...6.0 VDC	800 mA	12.0 VDC	250 mA		75%
UCW05-1503S(1)	5 VDC	4.5...6.0 VDC	800 mA	15.0 VDC	200 mA		75%
UCW12-0303S(1)(2)	12 VDC	9...18 VDC	254 mA	3.3 VDC	600 mA		65%
UCW12-0503S(1)(2)	12 VDC	9...18 VDC	340 mA	5.0 VDC	600 mA		73%
UCW12-1203S(1)(2)	12 VDC	9...18 VDC	320 mA	12.0 VDC	250 mA		78%
UCW12-1503S(1)(2)	12 VDC	9...18 VDC	320 mA	15.0 VDC	200 mA		78%
UCW24-0303S(1)(2)	24 VDC	18...36 VDC	125 mA	3.3 VDC	600 mA		66%
UCW24-0503S(1)(2)	24 VDC	18...36 VDC	168 mA	5.0 VDC	600 mA		74%
UCW24-1203S(1)(2)	24 VDC	18...36 VDC	156 mA	12.0 VDC	250 mA		80%
UCW24-1503S(1)(2)	24 VDC	18...36 VDC	156 mA	15.0 VDC	200 mA		80%

Model	Input nominal	Input range	Input current max. @ full load	Output Uout	Output Iout	Operating temperature	Efficiency typ.
UCW48-0303S(1)(2)	48 VDC	36...72 VDC	61 mA	3.3 VDC	600 mA	For all models: -25...+70°C or max. case temperature for H Versions = 100°C V Version = 95°C	68%
UCW48-0503S(1)(2)	48 VDC	36...72 VDC	82 mA	5.0 VDC	600 mA		76%
UCW48-1203S(1)(2)	48 VDC	36...72 VDC	78 mA	12.0 VDC	250 mA		80%
UCW48-1503S(1)(2)	48 VDC	36...72 VDC	78 mA	15.0 VDC	200 mA		80%
UCW05-0503D(1)	5 VDC	4.5...6.0 VDC	850 mA	±5.0 VDC	±300 mA		70%
UCW05-1203D(1)	5 VDC	4.5...6.0 VDC	800 mA	±12.0 VDC	±125 mA		75%
UCW05-1503D(1)	5 VDC	4.5...6.0 VDC	800 mA	±15.0 VDC	±100 mA		75%
UCW12-0503D(1)(2)	12 VDC	9...18 VDC	340 mA	±5.0 VDC	±300 mA		73%
UCW12-1203D(1)(2)	12 VDC	9...18 VDC	320 mA	±12.0 VDC	±125 mA		78%
UCW12-1503D(1)(2)	12 VDC	9...18 VDC	320 mA	±15.0 VDC	±100 mA		78%
UCW24-0503D(1)(2)	24 VDC	18...36 VDC	168 mA	±5.0 VDC	±300 mA		74%
UCW24-1203D(1)(2)	24 VDC	18...36 VDC	156 mA	±12.0 VDC	±125 mA		80%
UCW24-1503D(1)(2)	24 VDC	18...36 VDC	156 mA	±15.0 VDC	±100 mA		80%
UCW48-0503D(1)(2)*	48 VDC	36...72 VDC	82 mA	±5.0 VDC	±300 mA		76%
UCW48-1203D(1)(2)	48 VDC	36...72 VDC	80 mA	±12.0 VDC	±125 mA		78%
UCW48-1503D(1)(2)	48 VDC	36...72 VDC	80 mA	±15.0 VDC	±100 mA		78%

(1) Suffix "H, V" with isolation voltage indication

(2) Suffix "B" for the Version EN55022 Class B

* Suffix "GP" in extended operating temperature -40 .. +85°C or max. case temperature 100°C

Refer to section nomenclature

Nomenclature

Nomenklatur

Nomenclature

UCW 24 - 05 03 x (1) (2)

Product Series

Nominal Input Voltage

Nominal Output Voltage

Output Power in Watts

S = Single Output
D = Dual Output

blank = EN 55022/11 Class A (with external input capacitor)
B = EN 55022/11 Class B (with external input capacitor)

H = 1500 VDC Isolation Voltage
Black coated copper case with non conductive base plate
(Refer to mechanical data on page 5)

V = 3000 VDC Isolation Voltage
Non conductive black plastic case
(Refer to mechanical data on page 5)

Specifications

Spezifikationen

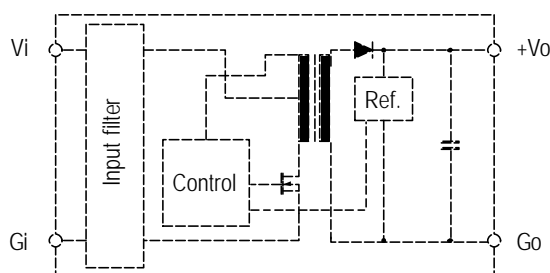
Spécifications

All values refer to an ambient temperature of 25°C and nominal rated values where nothing else is specified

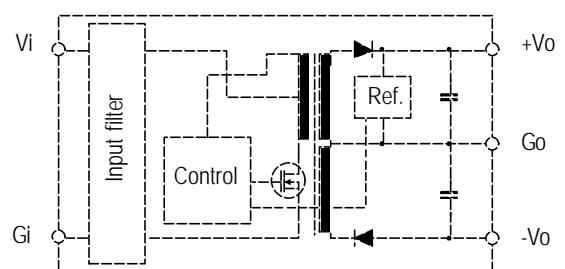
Output voltage accuracy	Ausgangsspannungsgenauigkeit	Précision de la tension de sortie	±2% of Uout nom.
Output voltage balance	Abgleich zwischen den Ausgängen	Balance des sorties	±1%; Dual
Residual output ripple (BW 20 MHz)	Ausgangsspannungsrippel (BW 20 MHz)	Ondulation résiduelle de sortie (BW 20 MHz)	100 mVpp (3.3/5 VDC) 1% pp (12/15 VDC)
Short circuit protection	Kurzschlussfestigkeit	Protection courts-circuits	Continuous
No load input current	Leerlaufeingangsstrom	Courant d'entrée à vide	7.5 - 15 mA (UCW05/UCW12) 2 - 7.5 mA (UCW24/UCW48)
Line regulation (max...min)	Leistungsregulierung (max...min)	Régulation ligne (max...min)	±0.5%; single,dual
Load regulation	Lastregulierung	Régulation charge	±0.5%; single (100%...10%) ±1.0%; dual (100%...25%)
Isolation voltage	Isolationsspannung	Tension d'isolement	1500 or 3000 VDC
Isolation resistance	Isolationswiderstand	Résistance d'isolement	> 1 GOhm
Switching frequency	Schaltfrequenz	Fréquence de découpage	typ. 100 kHz
MTBF (MIL-HB 217E at 25°C)	MTBF (MIL-HB 217E bei 25°C)	MTBF (MIL-HB 217E à 25°C)	>1'000'000 hrs.
EMC Conducted	EMV Leitungsgebunden	EMC Emis	EN55022/11 Class A/B with external input capacitor
Safety	Sicherheit	Sécurité	UL1950
Safety approval	Sicherheitsprüfung	Approbation de sécurité	UL / cUL File No. E195564
Temperature coefficient	Temperaturkoeffizient	Coefficient de température	typ. ±0.05% / K
Storage temperature	Lagertemperatur	Température de stockage	-40...+100°C
Soldering information	Lötinformationen	Information de soudage	275°C for 10 sec.
Weight	Gewicht	Poids	approx. 12 g; Plastic Case approx. 16 g; Copper Case

Functional block diagram

Synoptique



Single output converter block diagram



Dual output converter block diagram

EMC information UCW24-0503SH EN55022/11 Class A

Electro-Metrics

EMV Messung

Date : 09/08/99 Time : 10:57:59.95
 Technician : U. Luessi Test Equip. : EMC-30 MKIV
 Test Method : CONDUCTED EMISSION Test Number : 1
 Equipment : UCW24-0505SH Sensor Loc. : NA
 Mode of Op. : Normal operation Sensor Pol. : positiv
 Serial No. : 9926 Ext. Atten. : 0 dB

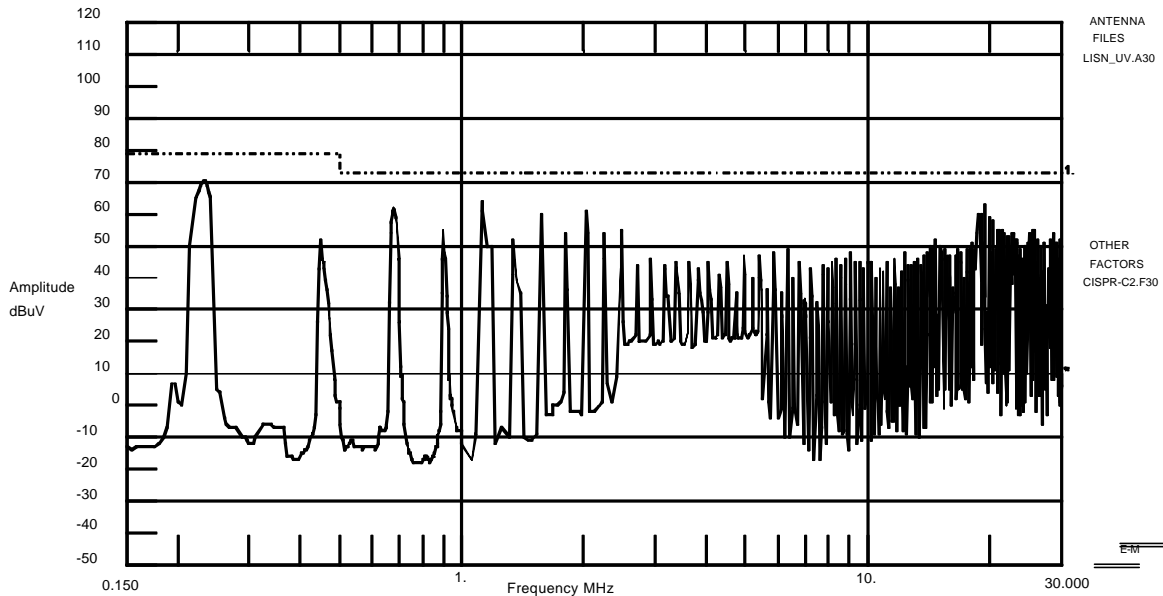
EMC-30 SETTINGS

Detector QuasiPeak
 Bandwidth CISPR
 Dwell N/A
 RF Atten. 0 dB
 IF Atten. 0 dB

SPECS

1) EN 55022 Class A QuasiPeak

Comment : 24VDC input voltage with 100uF capacitor near input



EMC information UCW24-0503SVB EN55022/11 Class B

Electro-Metrics

EMV Messung

Date : 09/08/99 Time : 13:22:16.42
 Technician : U. Luessi Test Equip. : EMC-30 MKIV
 Test Method : CONDUCTED EMISSION Test Number : 1
 Equipment : UCW24-0505SHB Sensor Loc. : NA
 Mode of Op. : Nominal operation Sensor Pol. : positiv
 Serial No. : 9926 Ext. Atten. : 0 dB

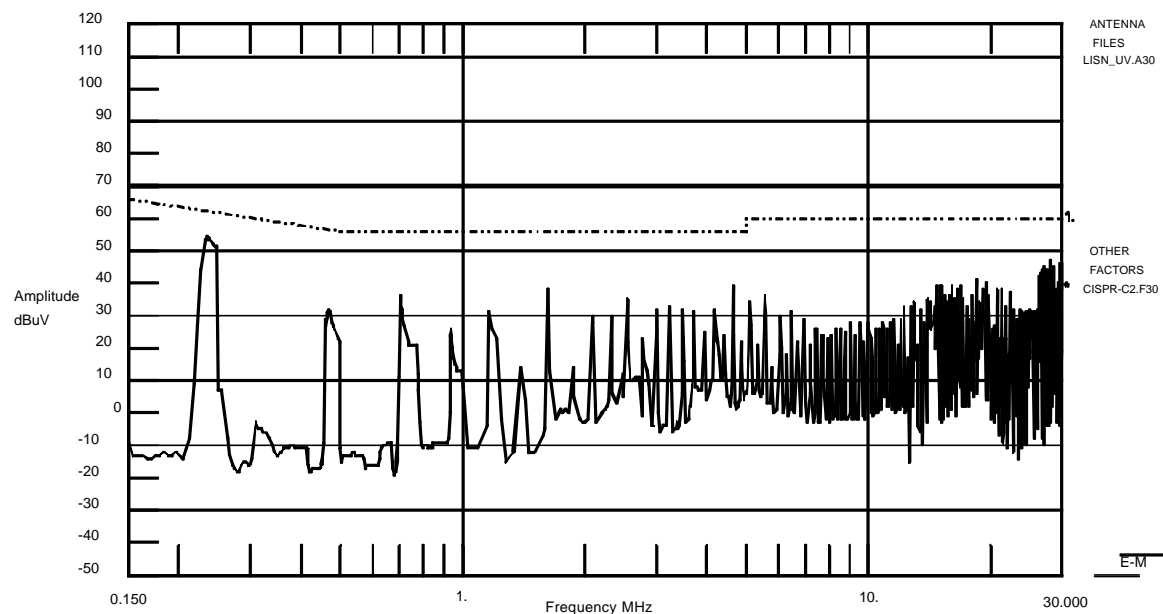
EMC-30 SETTINGS

Detector QuasiPeak
 Bandwidth CISPR
 Dwell N/A
 RF Atten. 0 dB
 IF Atten. 0 dB

SPECS

1) EN 55022 CLASS B / QuasiPeak

Comment : 24VDC input voltage with 100uF capacitor near input

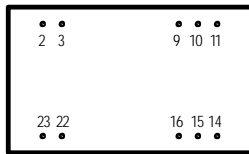
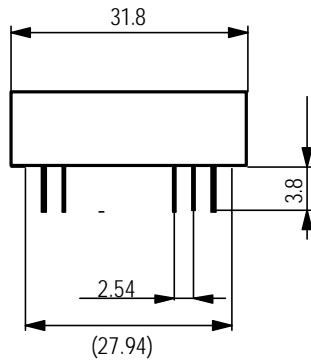


Case

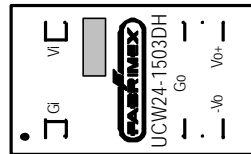
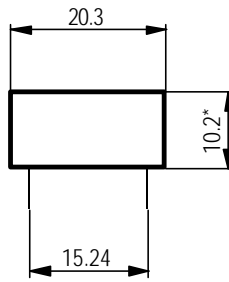
Gehäuse

Boîtier

Normal tolerance ± 0.2 mm; Pin distance tolerance ± 0.05 mm, Pin diameter 0.5 mm



View from bottom



View from top

Pinning

Mechanical data for converters with 1500 VDC or 3000 VDC isolation voltage

Pin	Single	Dual	Pin
2	Gi	Gi	2
3	Gi	Gi	3
9	NC	Go	9
10	NC	NC	10
11	NC	-Vo	11
14	+Vo	+Vo	14
15	NC	NC	15
16	Go	Go	16
22	Vi	Vi	22
23	Vi	Vi	23

NC = No connection internal to pin

NP = No pin

* for EN 55022/11 Class B, height = 12.7mm

Cleaning

Waschen

Lavage

The modules are cleanable with the today's known and in the electronics industry usually used products.

Due to the different cleaning processes and new available products, we highly recommend to do a compatibility test when using the converters the first time.

Die Module sind waschbar mit den heute bekannten und in der Elektronikindustrie üblichen Reinigungsmitteln.

Bedingt durch die verschiedenen Reinigungsprozesse und neu auf den Markt kommende Mittel, raten wir dringend beim Ersteinsatz der Konverter eine Verträglichkeitsprüfung vorzunehmen.

Les modules sont lavables avec les solvants couramment utilisés dans l'industrie électronique.

Dû aux différents processus de lavage et aux nouveaux détergents disponibles sur le marché, il est strictement recommandé de faire un test de compatibilité avant la première utilisation.

Notice: All statements, technical information, and recommendations related to FABRIMEX's products are based on information believed to be reliable, but the accuracy or completeness thereof is not guaranteed. Before utilizing the product, the user should determine the suitability of the product for its intended use.

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