

DC/DC Wide Input Converter

ECW 5...6 Watt

DIL-24



DC/DC converter modules with input to output isolation of 500, 1500 or 3000 VDC • Pi-filter at input • Continuous short circuit proof • High efficiency • No derating up to 70°C • Low output ripple and noise • Low silhouette • Metal case with non conductive base plate, six sides shielded or non conductive plastic case • SMD mounting available • Inhibit as option

DC/DC Konverter-Modul mit galvanischer Trennung Eingang / Ausgang von 500, 1500 oder 3000 VDC • Pi-Filter am Eingang • Dauerkurzschlussfest • Hoher Wirkungsgrad • Keine Lastminderung bis zu einer Umgebungstemperatur von 70°C • Gute Werte von Ripple und Noise • Geringe Bauhöhe • Metallgehäuse mit isolierender Bodenplatte, 6seitig abgeschirmt oder nicht leitendes Plastikgehäuse • SMD Montage verfügbar • Inhibit als Option

Module convertisseur CC/CC avec séparation galvanique entrée sortie 500, 1500 ou 3000 VDC • Filtre en Pi à l'entrée • Protection courts-circuits permanente • Rendement élevé • Pas de derating jusqu' à 70°C • Ondulation résiduelle de sortie très faible • Profile bas • Boîtier en métal blindé 6 faces avec fond isolé ou boîtier en plastique • Montage CMS disponible • Inhibit comme option

Product range			Typenübersicht			Sommaire des types	
Model	Input nominal	Input range	Input current max. @ full load	Output Uout	Output Iout	Operating temperature	Efficiency typ.
ECW12-0305S(1)(2)(3)(4)	12 VDC	9...18 VDC	393 mA	3.3 VDC	1000 mA	For all models: -25...+70°C or max. case temperature for M/H Versions = 100°C V Version = 95°C	70%
ECW12-0505S(1)(2)(3)(4)	12 VDC	9...18 VDC	545 mA	5.0 VDC	1000 mA		76%
ECW12-1206S(1)(2)(3)(4)	12 VDC	9...18 VDC	585 mA	12.0 VDC	470 mA		80%
ECW12-1506S(1)(2)(3)(4)	12 VDC	9...18 VDC	625 mA	15.0 VDC	400 mA		80%
ECW24-0305S(1)(2)(3)(4)	24 VDC	18...36 VDC	195 mA	3.3 VDC	1000 mA		70%
ECW24-0505S(1)(2)(3)(4)	24 VDC	18...36 VDC	265 mA	5.0 VDC	1000 mA		78%
ECW24-1206S(1)(2)(3)(4)	24 VDC	18...36 VDC	285 mA	12.0 VDC	470 mA		82%
ECW24-1506S(1)(2)(3)(4)	24 VDC	18...36 VDC	305 mA	15.0 VDC	400 mA		82%

Model	Input nominal	Input range	Input current max. @ full load	Output Uout	Output Iout	Operating temperature	Efficiency typ.
ECW48-0305S(1)(2)(3)(4)	48 VDC	36...72 VDC	98 mA	3.3 VDC	1000 mA	For all models: -25...+70°C or max. case temperature for M/H Versions = 100°C V Version = 95°C	70%
ECW48-0505S(1)(2)(3)(4)	48 VDC	36...72 VDC	133 mA	5.0 VDC	1000 mA		78%
ECW48-1206S(1)(2)(3)(4)	48 VDC	36...72 VDC	145 mA	12.0 VDC	470 mA		81%
ECW48-1506S(1)(2)(3)(4)	48 VDC	36...72 VDC	154 mA	15.0 VDC	400 mA		81%
ECW12-0505D(1)(2)(3)(4)	12 VDC	9...18 VDC	545 mA	±5.0 VDC	±500 mA		76%
ECW12-1206D(1)(2)(3)(4)	12 VDC	9...18 VDC	575 mA	±12.0 VDC	±230 mA		80%
ECW12-1506D(1)(2)(3)(4)	12 VDC	9...18 VDC	590 mA	±15.0 VDC	±190 mA		80%
ECW24-0505D(1)(2)(3)(4)	24 VDC	18...36 VDC	265 mA	±5.0 VDC	±500 mA		78%
ECW24-1206D(1)(2)(3)(4)	24 VDC	18...36 VDC	285 mA	±12.0 VDC	±230 mA		81%
ECW24-1506D(1)(2)(3)(4)	24 VDC	18...36 VDC	295 mA	±15.0 VDC	±190 mA		81%
ECW48-0505D(1)(2)(3)(4)	48 VDC	36...72 VDC	265 mA	±5.0 VDC	±500 mA		78%
ECW48-1206D(1)(2)(3)(4)	48 VDC	36...72 VDC	142 mA	±12.0 VDC	±230 mA		81%
ECW48-1506D(1)(2)(3)(4)	48 VDC	36...72 VDC	147 mA	±15.0 VDC	±190 mA		81%

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

(2) Add B for the Version EN55022 Class B

(3) Suffix "T" with inhibit on/off for 1500, 3000VDC isolation and class B (2) only

(4) Suffix "-S" for SMD version

Refer to section nomenclature

Nomenclature	Nomenklatur	Nomenclature
ECW 24 - 05 05 x (1) (2) (3) (4)		
Product Series		-S = SMD version (Refer to datasheet "SMD case")
Nominal Input Voltage		T = inhibit on/off control for EMC class B (2) and 1500, 3000VDC isolation only (Refer to mechanical data on page 5)
Nominal Output Voltage		blank = EN 55022/11 Class A (with external input capacitor)
Output Power in Watts		B = EN 55022/11 Class B (with external input capacitor)
S = Single Output D = Dual Output		M = 500 VDC Isolation Voltage Black coated copper case with non conductive base plate Pinning Type 1 (Refer to mechanical data on page 5)
		H = 1500 VDC Isolation Voltage Black coated copper case with non conductive base plate Pinning Type 2 (Refer to mechanical data on page 5)
		V = 3000 VDC Isolation Voltage Non conductive black plastic case Pinning Type 2 (Refer to mechanical data on page 5)
Additional Functions	Zusatzfunktionen	Fonctions compl.

Remote On/Off Control

Logic Compatibility.....	CMOS or Open Collector TTL
Output-ON.....	> +5.5 VDC or Open Collector
Output-OFF.....	< 1.8 VDC
Shutdown Idle Current.....	10 mA
Input Resistance.....	100 kohms (Ein 0...9 VDC)
Control Common.....	Referenced to Input Minus

El. characteristics

El. Eigenschaften

Caractéristiques él.

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)	Ausgangsspannungsripple (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 - 12 mA (ECW12) 2 - 7.5 mA (ECW24/ECW48)
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	500, 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
Temperature coefficient	Temperaturkoeffizient	Coefficient de température	typ. ±0.05% per °C
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

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 kommenden Mittel, raten wir dringend, beim Ersteinsatz der Konverter eine Verträglichkeitsprüfung vorzunehmen.

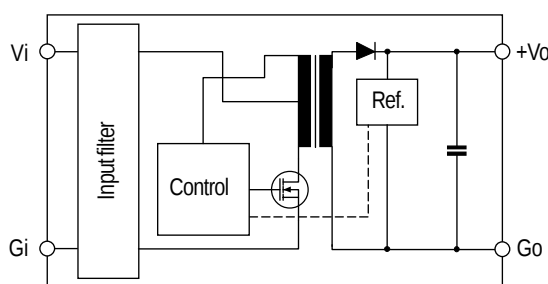
Les modules sont lavables avec les solvants couramment utilisés dans l'industrie électronique.

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.

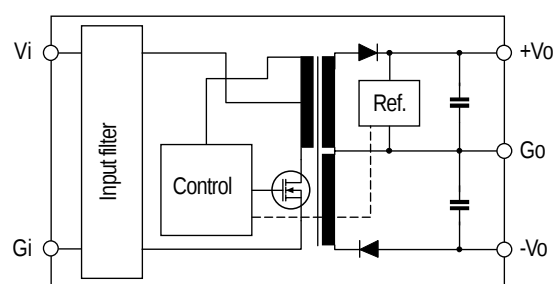
Functional block diagram

Blockschema

Synoptique



Single output converter block diagram



Dual output converter block diagram

EMC information ECW24-0505SM 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 : ECW24-0505SM Sensor Loc. : NA
Mode of Op. : Normal operation Sensor Pol. : positiv
Serial No. : 9926 Ext. Atten. : 0 dB

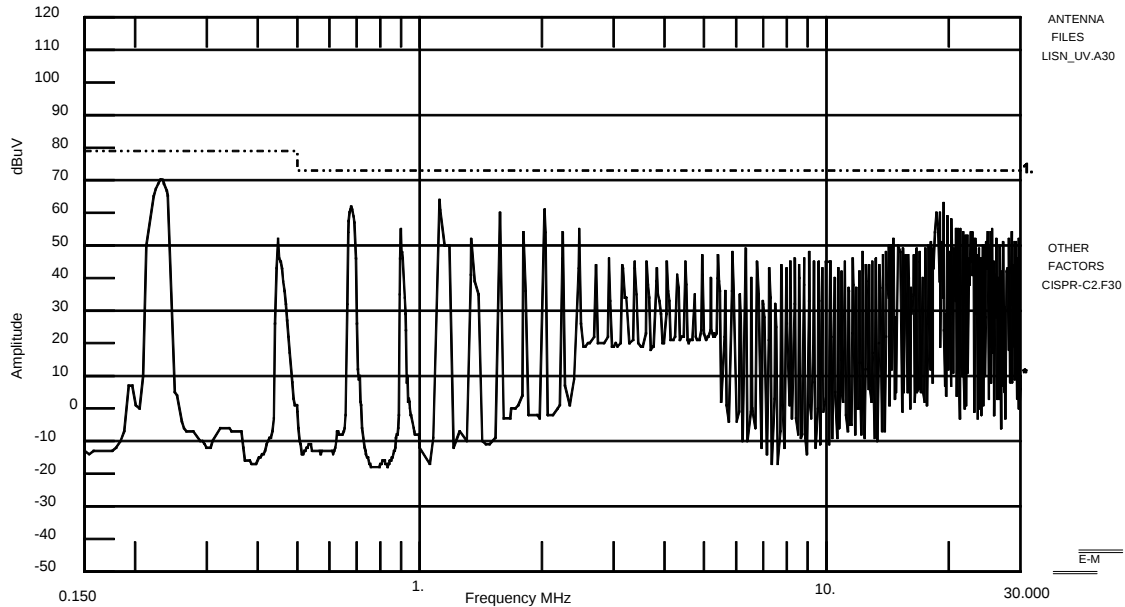
EMC-30 SETTINGS

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 ECW24-0505SHB 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 : ECW24-0505SHB Sensor Loc. : NA
Mode of Op. : Nominal operation Sensor Pol. : positiv
Serial No. : 9926 Ext. Atten. : 0 dB

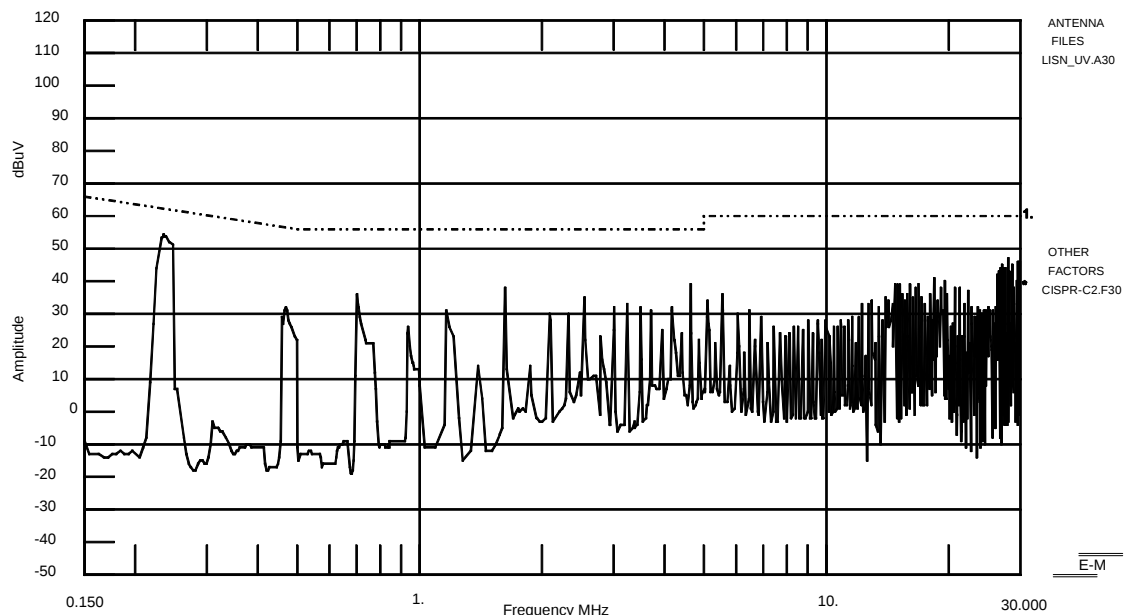
EMC-30 SETTINGS

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

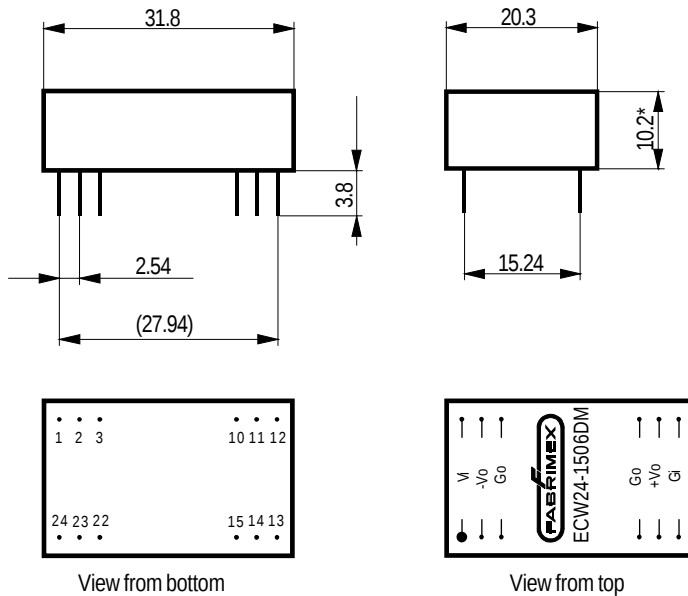
SPECS

1) EN 55022 CLASS B / QuasiPeak

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



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



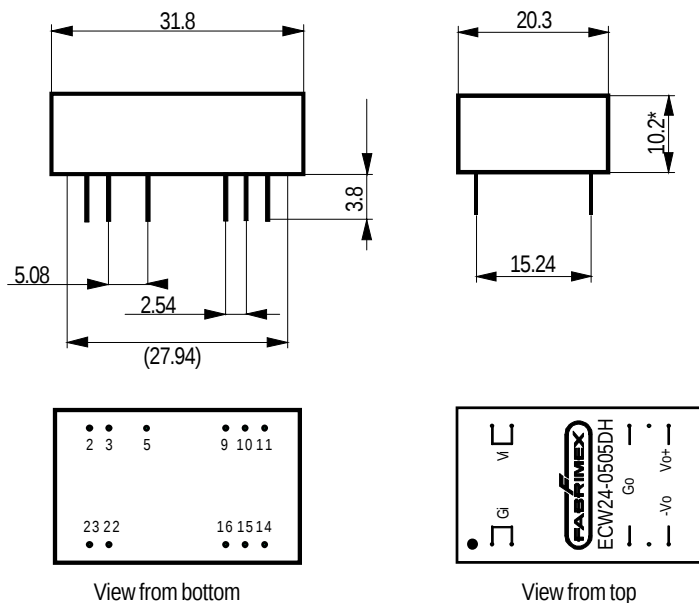
Pinning Type 1

Mechanical data for converters with 500 VDC isolation voltage

Pin	Single	Dual	Pin
1	Vi	Vi	1
2	NC	-Vo	2
3	NC	Go	3
10	Go	Go	10
11	+Vo	+Vo	11
12	Gi	Gi	12
13	Gi	Gi	13
14	+Vo	+Vo	14
15	Go	Go	15
22	NC	Go	22
23	NC	-Vo	23
24	Vi	Vi	24

NC = No connection internal to pin

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



Pinning Type 2

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

Pin	Single	Dual	Pin
2	Gi	Gi	2
3	Gi	Gi	3
5	NP or Inhibit	NP or Inhibit	5
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

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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