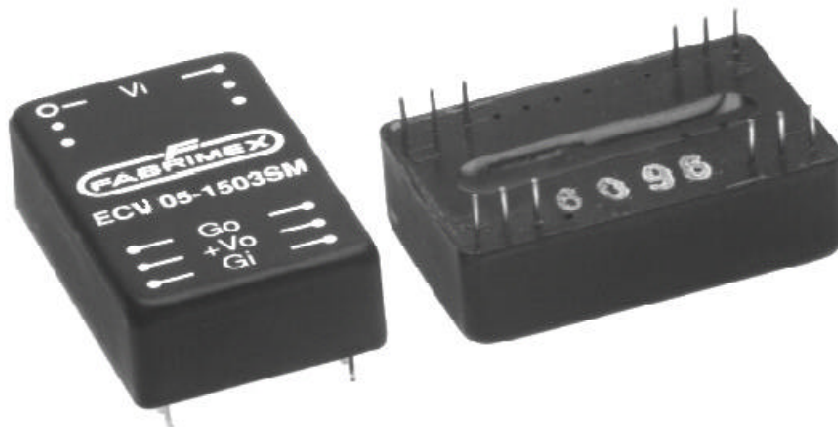


# DC/DC Ultra Wide Input Converter ECU 3 Watt DIL-24



**3 Watt DC/DC Converter line  
with 4:1 input range and single  
or dual output models**

**3 Watt DC/DC Konverter Serie  
mit 4:1 Eingangsbereich und  
Einfach- oder Doppelausgang**

**3 Watt convertisseur CC/CC  
avec 4:1 d'entrée et sortie  
simple ou double**

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

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

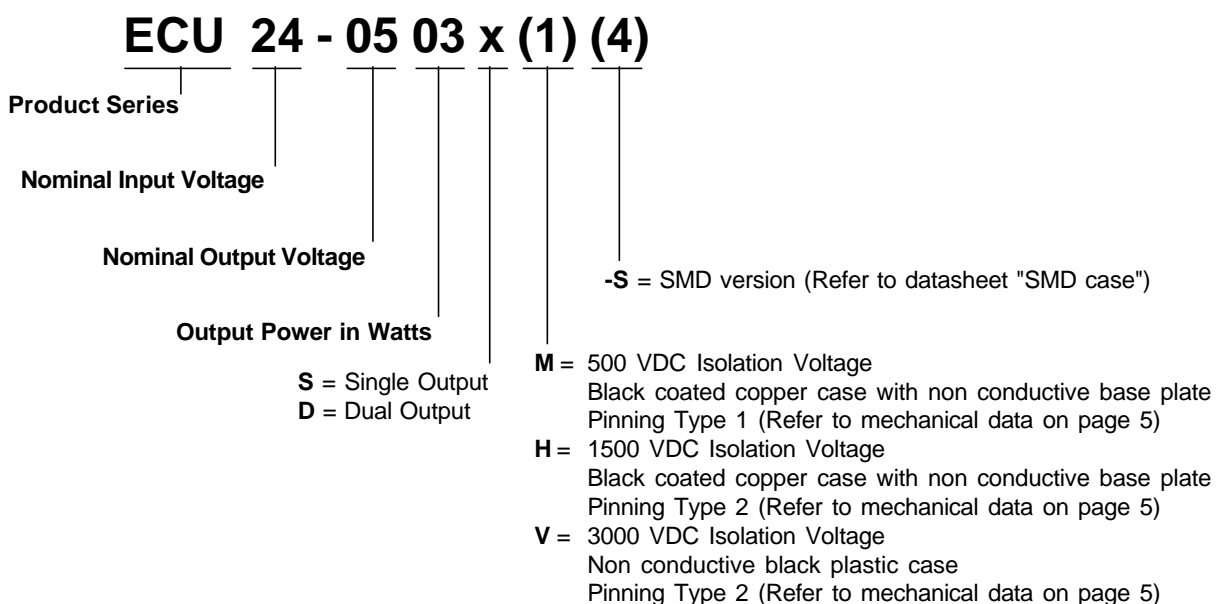
Module convertisseur CC/CC avec séparation galvanique entrée sortie 500, 1500 ou 3000 VDC • Filtre en Pi à l'entrée • Protection courts-circuits permanente • Rendement élevé • Pas de dérive jusqu' à 70°C • Ondulation résiduelle de sortie très faible • Profilé bas • Boîtier en métal blindé 6 faces avec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

Model	Input nominal	Input range	Input current max. @ full load	Output Uout	Output Iout	Operating temperature	Efficiency typ.
ECU24-0303S(1)(4)	24 VDC	9...36 VDC	117 mA	3.3 VDC	600 mA	For all models: -25...+70°C or max. case temperature for M/H Versions = 100°C V Version = 95°C	70%
ECU24-0503S(1)(4)	24 VDC	9...36 VDC	174 mA	5.0 VDC	600 mA		72%
ECU24-1203S(1)(4)	24 VDC	9...36 VDC	165 mA	12.0 VDC	250 mA		76%
ECU24-1503S(1)(4)	24 VDC	9...36 VDC	165 mA	15.0 VDC	200 mA		76%
ECU48-0303S(1)(4)	48 VDC	18...72 VDC	58 mA	3.3 VDC	600 mA		70%
ECU48-0503S(1)(4)	48 VDC	18...72 VDC	87 mA	5.0 VDC	600 mA		72%
ECU48-1203S(1)(4)	48 VDC	18...72 VDC	78 mA	12.0 VDC	250 mA		80%
ECU48-1503S(1)(4)	48 VDC	18...72 VDC	78 mA	15.0 VDC	200 mA		80%
ECU24-0503D(1)(4)	24 VDC	9...36 VDC	179 mA	±5.0 VDC	±300 mA	70%	
ECU24-1203D(1)(4)	24 VDC	9...36 VDC	174 mA	±12.0 VDC	±125 mA	72%	
ECU24-1503D(1)(4)	24 VDC	9...36 VDC	174 mA	±15.0 VDC	±100 mA	72%	
ECU48-0503D(1)(4)	48 VDC	18...72 VDC	88 mA	±5.0 VDC	±300 mA	71%	
ECU48-1203D(1)(4)	48 VDC	18...72 VDC	87 mA	±12.0 VDC	±125 mA	72%	
ECU48-1503D(1)(4)	48 VDC	18...72 VDC	87 mA	±15.0 VDC	±100 mA	72%	

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

(4) Suffix "-S" for SMD version

Refer to section nomenclature



## 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 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 (Single versions) 1%pp (Dual versions)
Short circuit protection	Kurzschlussfestigkeit	Protection courts-circuits	Continuous
No load input current	Leerlaufeingangsstrom	Courant d'entrée à vide	15/7.5 mA (Single 24/48 VDC) 25/12 mA (Dual 24/48 VDC)
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 Parasite guidé	EN55022/11 Class A with external 22µF capacitor
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. 13 g; Plastic Case approx. 17 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 kommende Mittel, raten wir dringend beim Ersteinsatz der Konverter eine Verträglichkeitsprüfung vorzunehmen.

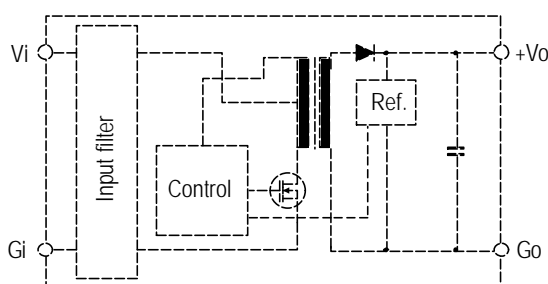
Les modules sont lavables avec les solvants couramment utilisés dans l'industrie électronique.

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.

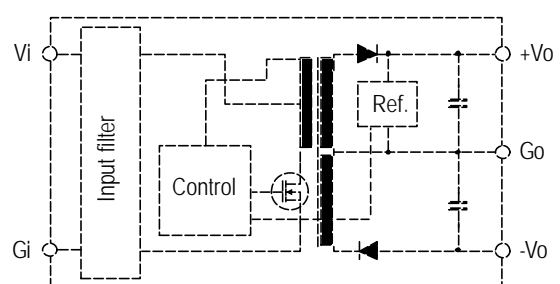
## Functional block diagram

## Blockschema

## Synoptique



Single output converter block diagram



Dual output converter block diagram

## EMC information ECU24-0503SH EN55022/11 Class A

## EMC-TESTCENTER ACCR. EN45001

## FABRIMEX AG

Date : 09/04/98                      Time : 08:02:12.33  
 Technician : Urs Luessi              Test Equip. : EMC-30 MKIV  
 Test Method : Conducted Emission    Test Number : 3  
 Equipment : ECU24-0503SH            Sensor Loc. : Positive  
 Mode of Op. : Nominal Operation     Sensor Pol. : NA  
 Serial No. : 9832                      Ext. Atten. : 0 dB

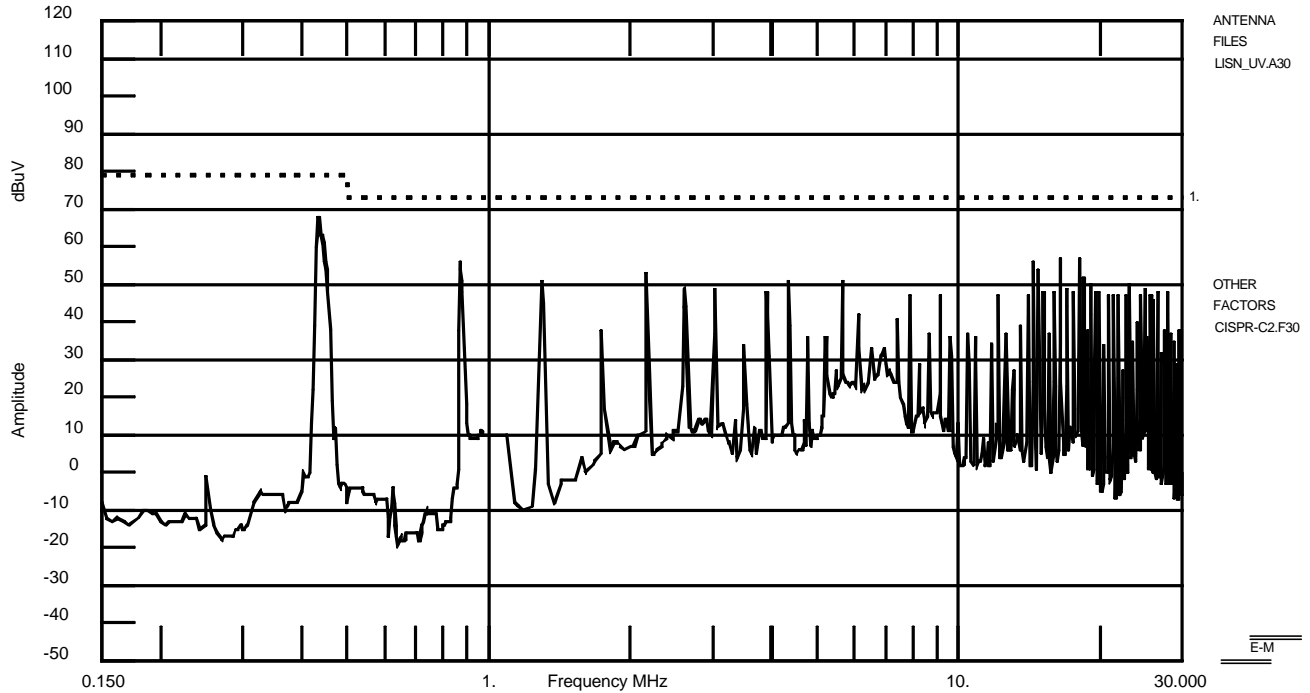
## EMC-30 SETTINGS

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

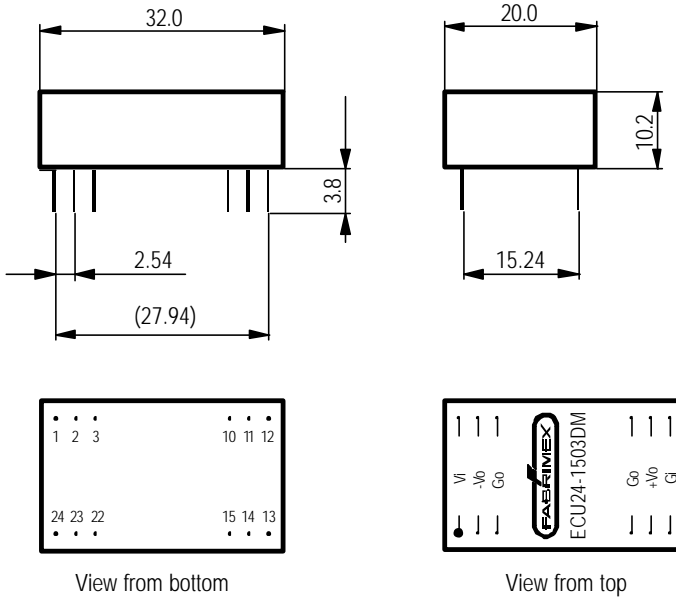
## SPECS

1) EN 55022 Class A QuasiPeak

Comment : 24 VDC input voltage with 22  $\mu$ F capacitor near input



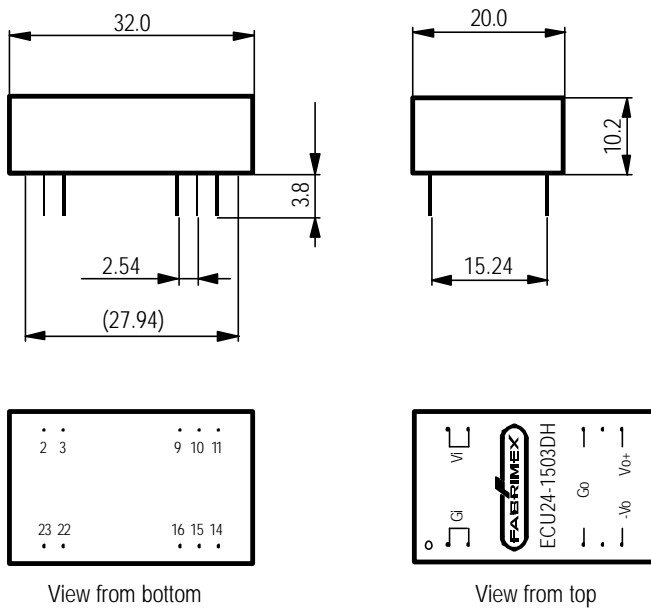
Normal tolerance  $\pm 0.2$  mm; Pin distance tolerance  $\pm 0.05$  mm, Pin diameter 0.5 mm

**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

**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
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

**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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