

**EOL**

## DC/DC Wide Input Converter ECW 10 Series



- \* Input to output isolation of 500 VDC
- \* Pi-filter at input
- \* Continuous short circuit proof
- \* Efficiency up to 82%
- \* No derating up to 71°C
- \* Low output ripple and spikes
- \* Low silhouette
- \* Metal case with a non conductive base plate, six-sides shielded
- \* Safety Meets IEC/EN/UL 62368-1

### Product Range

| Model         | Input<br>nominal | Input<br>range | I <sub>in</sub> @ U <sub>in</sub> nom. |         | U <sub>out</sub> | Output<br>I <sub>out</sub> max. | power | Efficiency<br>typ. | Max.<br>capacity |
|---------------|------------------|----------------|----------------------------------------|---------|------------------|---------------------------------|-------|--------------------|------------------|
|               |                  |                | full load                              | no load |                  |                                 |       |                    |                  |
| <b>Single</b> |                  |                |                                        |         |                  |                                 |       |                    |                  |
| ECW12-0510    | 12Vdc            | 9...18Vdc      | 1100mA                                 | 30mA    | 5.1Vdc           | 2000mA                          | 10.2W | 76%                | 2'000uF          |
| ECW12-1210    | 12Vdc            | 9...18Vdc      | 1065mA                                 | 30mA    | 12Vdc            | 830mA                           | 10W   | 78%                | 830uF            |
| ECW12-1510    | 12Vdc            | 9...18Vdc      | 1065mA                                 | 30mA    | 15Vdc            | 666mA                           | 10W   | 78%                | 660uF            |
| ECW24-0510    | 24Vdc            | 18...36Vdc     | 535mA                                  | 20mA    | 5.1Vdc           | 2000mA                          | 10.2W | 78%                | 2'000uF          |
| ECW24-1210    | 24Vdc            | 18...36Vdc     | 520mA                                  | 20mA    | 12Vdc            | 830mA                           | 10W   | 80%                | 830uF            |
| ECW24-1510    | 24Vdc            | 18...36Vdc     | 520mA                                  | 20mA    | 15Vdc            | 666mA                           | 10W   | 80%                | 660uF            |
| ECW48-0510    | 48Vdc            | 36...72 Vdc    | 260mA                                  | 10mA    | 5.1Vdc           | 2000mA                          | 10.2W | 80%                | 2'000uF          |
| ECW48-1210    | 48Vdc            | 36...72 Vdc    | 254mA                                  | 10mA    | 12Vdc            | 830mA                           | 10W   | 82%                | 830uF            |
| ECW48-1510    | 48Vdc            | 36...72 Vdc    | 254mA                                  | 10mA    | 15Vdc            | 666mA                           | 10W   | 82%                | 660uF            |

**End Of Life**

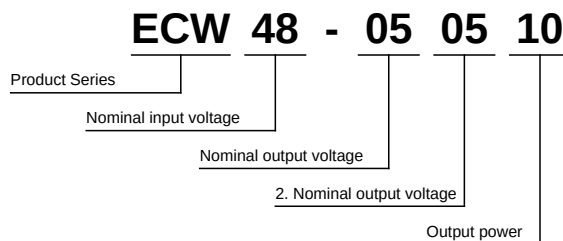
## Dual

|              |       |             |        |      |                    |                    |              |     |                    |
|--------------|-------|-------------|--------|------|--------------------|--------------------|--------------|-----|--------------------|
| ECW12-050510 | 12Vdc | 9...18Vdc   | 1065mA | 40mA | +5.1Vdc<br>-5.1Vdc | +1000mA<br>-1000mA | 5.1W<br>5.1W | 78% | 1'000uF<br>1'000uF |
| ECW12-121210 | 12Vdc | 9...18Vdc   | 1065mA | 40mA | +12Vdc<br>-12Vdc   | +415mA<br>-415mA   | 5W<br>5W     | 78% | 415uF<br>415uF     |
| ECW12-151510 | 12Vdc | 9...18Vdc   | 1065mA | 40mA | +15Vdc<br>-15Vdc   | +333mA<br>-333mA   | 5W<br>5W     | 78% | 330uF<br>330uF     |
| ECW24-050510 | 24Vdc | 18...36Vdc  | 520mA  | 20mA | +5.1Vdc<br>-5.1Vdc | +1000mA<br>-1000mA | 5.1W<br>5.1W | 80% | 1'000uF<br>1'000uF |
| ECW24-121210 | 24Vdc | 18...36Vdc  | 520mA  | 20mA | +12Vdc<br>-12Vdc   | +415mA<br>-415mA   | 5W<br>5W     | 80% | 415uF<br>415uF     |
| ECW24-151510 | 24Vdc | 18...36Vdc  | 520mA  | 20mA | +15Vdc<br>-15Vdc   | +333mA<br>-333mA   | 5W<br>5W     | 80% | 330uF<br>330uF     |
| ECW48-050510 | 48Vdc | 36...72 Vdc | 254mA  | 10mA | +5.1Vdc<br>-5.1Vdc | +1000mA<br>-1000mA | 5.1W<br>5.1W | 82% | 1'000uF<br>1'000uF |
| ECW48-121210 | 48Vdc | 36...72 Vdc | 254mA  | 10mA | +12Vdc<br>-12Vdc   | +415mA<br>-415mA   | 5W<br>5W     | 82% | 415uF<br>415uF     |
| ECW48-151510 | 48Vdc | 36...72 Vdc | 254mA  | 10mA | +15Vdc<br>-15Vdc   | +333mA<br>-333mA   | 5W<br>5W     | 82% | 330uF<br>330uF     |

Notes:

Measured at nominal input voltage

## Nomenclature



## Specifications

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

### Input Specifications

| Characteristic                   | Conditions       | min | typ           | max   | unit             |
|----------------------------------|------------------|-----|---------------|-------|------------------|
| $U_{IN}$ Input voltage           | $T_A < T_{MAX}$  | See | product       | range | Vdc              |
| $U_{UVLO}$ Under voltage lockout |                  |     |               |       | Vdc              |
| Max. input current at full load  | $I_O = I_{Omax}$ | See | product       | range | A                |
| No load input current            | $I_O = 0$        | See | product       | range | mA               |
| Inrush current                   |                  |     |               |       | A <sup>2</sup> s |
| Input surge voltage              |                  |     | 25 / 50 / 100 |       | Vdc              |

### Output Specifications

| Characteristic                    | Conditions                  | min | typ  | max  | unit |
|-----------------------------------|-----------------------------|-----|------|------|------|
| $U_{ACC}$ Output voltage accuracy |                             |     | ±1   |      | %    |
| Output voltage adjust             |                             |     |      |      | %    |
| Line regulation                   |                             |     |      | ±0.2 | %    |
| Load regulation                   | 25% / 100% step load change |     |      | ±1   | %    |
| Cross regulation                  |                             |     |      |      | %    |
| Load transient recovery time      | 25% / 100% step load change |     | <500 |      | us   |

## End Of Life

|  |                              |            |  |                         |  |        |
|--|------------------------------|------------|--|-------------------------|--|--------|
|  | Load transient error band    |            |  | ±1                      |  | %      |
|  | Temperature coefficient      |            |  | ±0.02                   |  | %/K    |
|  | Ramp up time                 |            |  |                         |  | ms     |
|  | Start up time                |            |  | 12&24Vin: 60, 48Vin: 28 |  | ms     |
|  | Ripple and noise             | BW = 20MHz |  | 100                     |  | mVpp   |
|  | Current limit                |            |  |                         |  | % Inom |
|  | Over voltage protection      |            |  |                         |  | % Unom |
|  | Short circuit protection     |            |  |                         |  | % Inom |
|  | Short circuit characteristic |            |  | continuous              |  |        |

#### General Specifications

| Characteristic   |                      | Conditions | min | typ                         | max | unit |
|------------------|----------------------|------------|-----|-----------------------------|-----|------|
| U <sub>ISO</sub> | Isolation voltage    |            |     | 500                         |     | Vdc  |
| R <sub>ISO</sub> | Isolation resistance |            |     | > 1G                        |     | Ohm  |
| C <sub>ISO</sub> | Isolation capacity   |            |     | 2'500                       |     | pF   |
| F <sub>SW</sub>  | Switching frequency  |            |     | min. 200                    |     | kHz  |
|                  | Approvals            |            |     |                             |     |      |
|                  | Safety Approvals     |            |     |                             |     |      |
|                  | MTBF                 |            |     | >1'400'000                  |     | h    |
|                  | Case material        |            |     | Copper, black coated        |     |      |
|                  | Compound material    |            |     | Two component resin UL94-V0 |     |      |
|                  | PCB material         |            |     | UL 94V-0                    |     |      |
|                  | Weight               |            |     | 33                          |     | gr   |
|                  | Dimensions           |            |     | 50.8 x 25.4 x 10.2          |     | mm   |
|                  | Soldering infos      |            |     | 275°C for 10 sec.           |     | s    |

#### EMC Specifications

| Characteristic |               | Conditions          |                    |
|----------------|---------------|---------------------|--------------------|
|                | EMC conducted | See EMC information | EN55022/11 Class A |

#### Environmental Specifications

| Characteristic   |                        | Conditions          | min | typ        | max | unit |
|------------------|------------------------|---------------------|-----|------------|-----|------|
| T <sub>AMB</sub> | Operation temperature  | Derating above 71°C |     | -25...+71  |     | °C   |
| T <sub>AMB</sub> | Storage temperature    |                     |     | -40...+100 |     | °C   |
| T <sub>SD</sub>  | Thermal shutdown range |                     |     | -          |     | °C   |

# EMC information

EMC emissions conducted, EN55022/11 Class A, Example:

## EMC-TESTCENTER ACCR. EN45001

FABRIMEX AG

Date : 02/19/99  
Technician : Urs Luessi  
Test Method : Conducted Emission  
Equipment : ECW48-0510  
Mode of Op. : Nominal Operation  
Serial No. : 9816  
Time : 13:04:36.14  
Test Equip. : EMC-30 MKIV  
Test Number : 1  
Sensor Loc. : Positive  
Sensor Pol. :  
Ext. Atten. : 0 dB

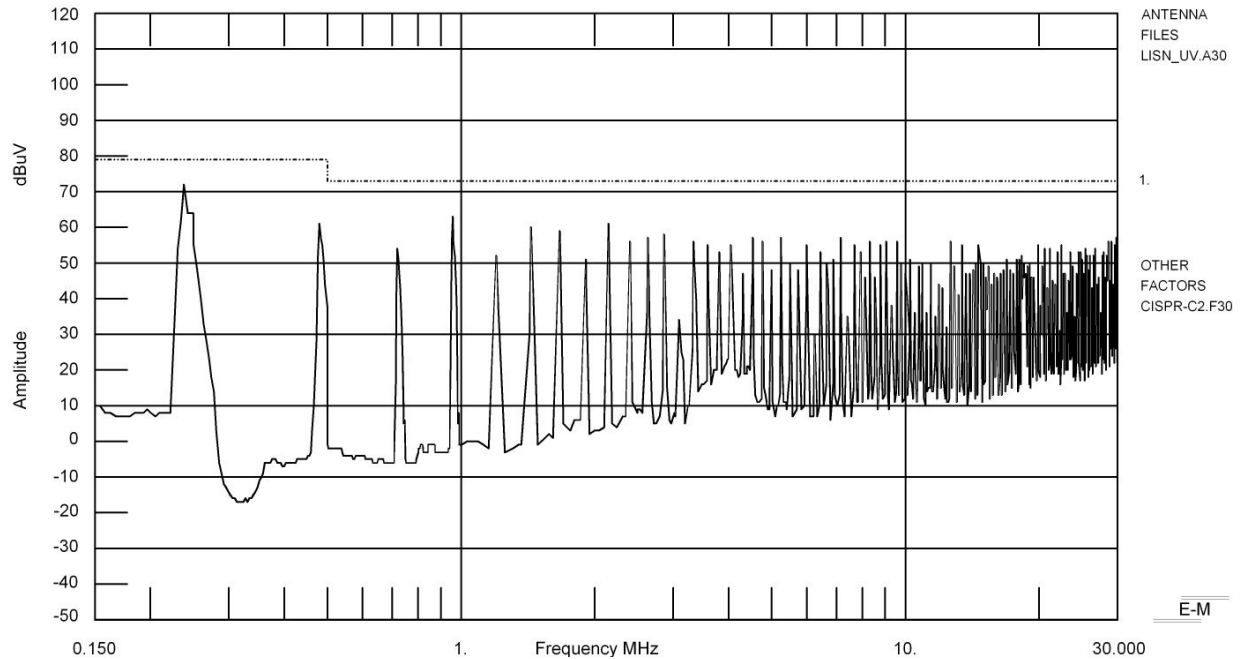
EMC-30 SETTINGS

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

SPECS

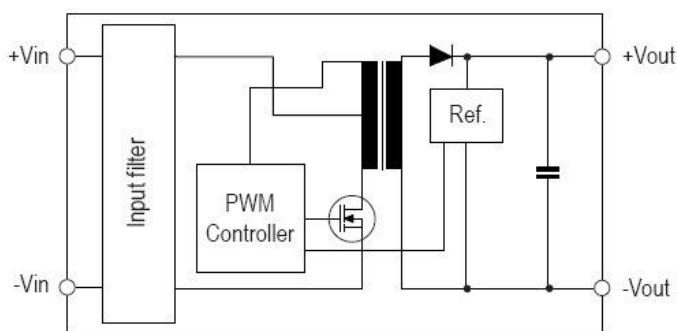
1) EN 55022 Class A QuasiPeak

Comment :

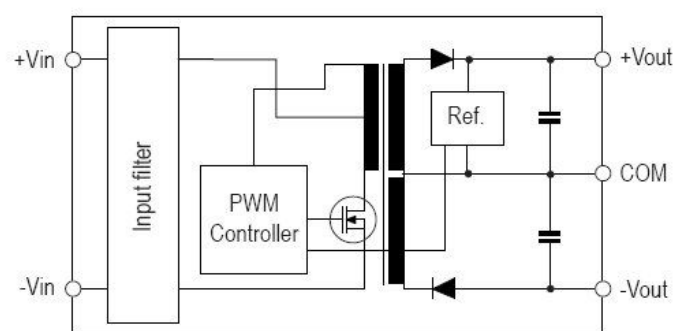


No EMC filter available yet, please contact factory

## Block diagram



Single output converter block diagram



Dual output converter block diagram

**End Of Life**

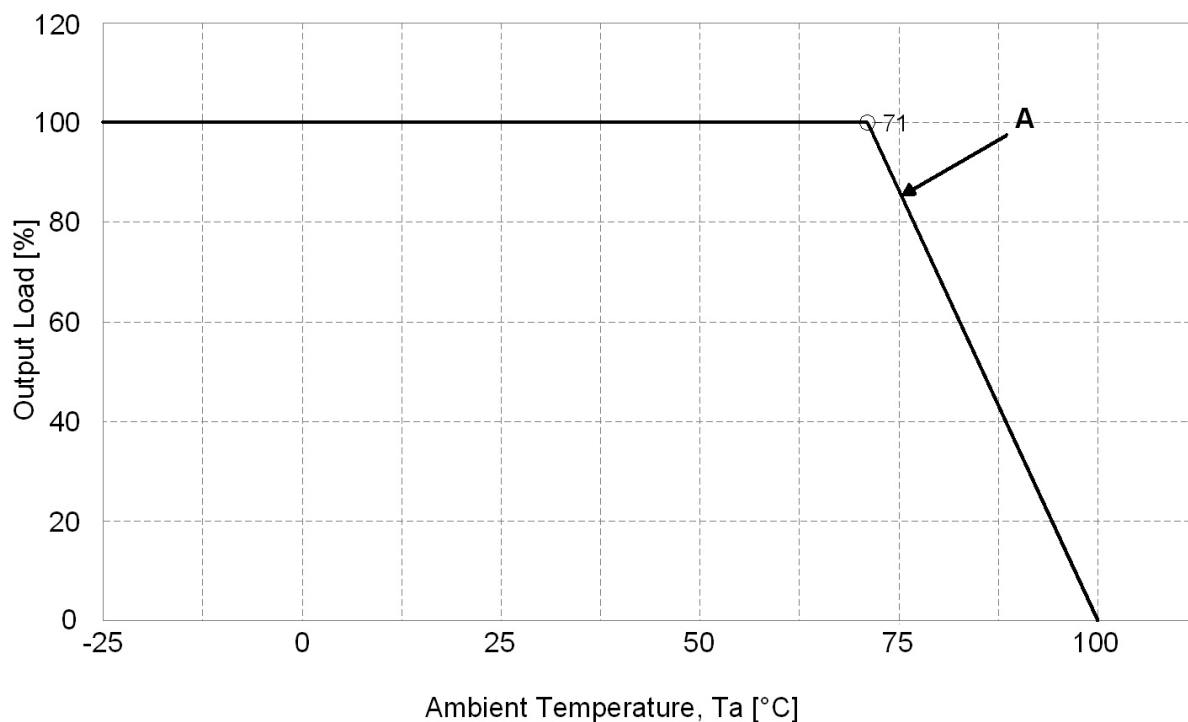
Exista AG, CH-8617 Mönchaltorf/Switzerland

Page 4/7

Datasheet No: 300016 Rev. L / 07.2026

## Derating

The operating case temperature range of ECW 10 series is -25...+71°C. When operating the ECW 10 series, proper derating or cooling is needed. The following curves are the derating curves of ECW 10. Please note that these are relative values in a test environment. Ambient temperature can not be exactly defined in an application, only the case temperature. Please ask the factory for a suitable heat sink.

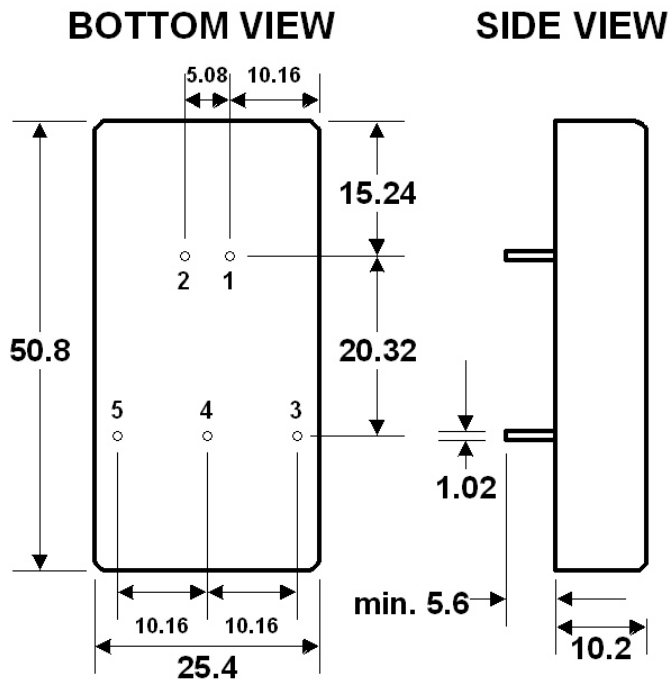


## Own notes

## Case

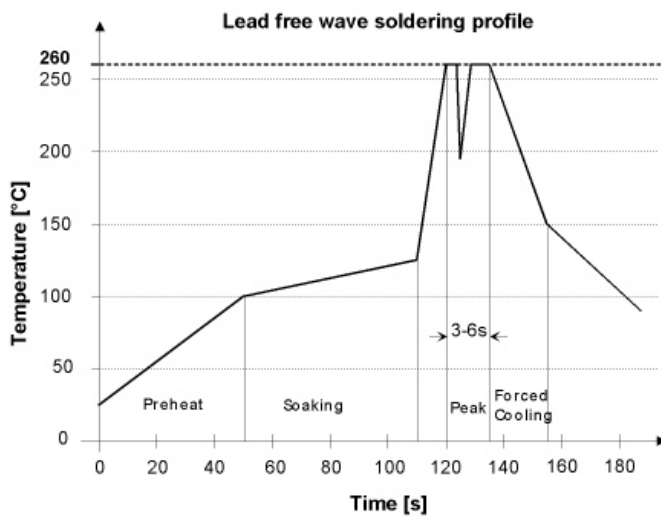
Normal tolerance  $1/10 \pm 0.5$  mm,  $1/100 \pm 0.25$  mm; Pin tolerance  $\pm 0.05$  mm diameter

NP = No pin, NC = Not connected, NA = Not available for electrical contact, do not connect, (opt) = optional



| Pin | Single | Dual | Pin |
|-----|--------|------|-----|
| 1   | +Vi    | +Vi  | 1   |
| 2   | -Vi    | -Vi  | 2   |
| 3   | +Vo    | +Vo  | 3   |
| 4   | NP     | Com  | 4   |
| 5   | -Vo    | -Vo  | 5   |

## Soldering



1. Soldering Materials: Sn/Cu/Ni
2. Preheat: 1.4 °C/s (From 30°C to 100°C)
3. Soaking: 0.5 °C/s (From 100°C to 130°C), 60 ±20s
4. Peak temperature: 260°C, above 250°C 3~6s
5. Forced cooling: -10.0 °C/s (From 260°C to 150°C)

## Cleaning

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.

## Own notes

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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The logo for EXISTA, featuring the word "EXISTA" in a bold, sans-serif font. The letters "E", "X", "I", and "S" are in a dark blue color, while the letters "T" and "A" are in a lighter blue color.