

## Features

- ◆ Operating temperature: -40 to +85°C
- ◆  $\pm 5/\pm 9/\pm 12/\pm 15$ Vdc multiple voltage output
- ◆ International standard pin-out
- ◆ 100% burn-in
- ◆ No external component required
- ◆ UL94V-0 package
- ◆ RoHS/CE compliance
- ◆ With 3 year warranty

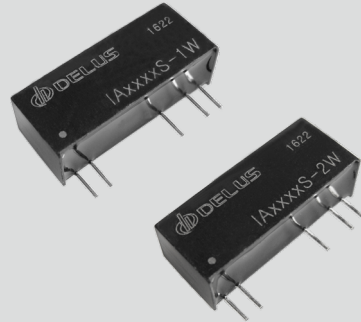
## General Description

IA-1W/2W series dc/dc converters are specially designed for the application of the power supply which is isolated from the input source in the distributed power supply system on the circuit board. Small size, high power density, can save valuable board space.

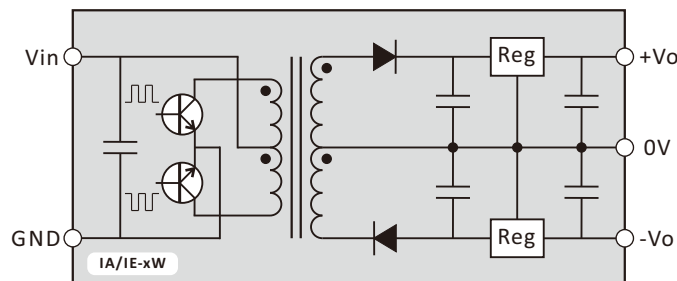
The chip ceramic capacitors and SMT are used in all series. These converters have characteristics of long life, excellent performance, stability and reliability.

Applied to the input power supply voltage is relatively stable, input and output requirements for isolation, voltage stability requirements are relatively high, the ripple noise sensitive applications.

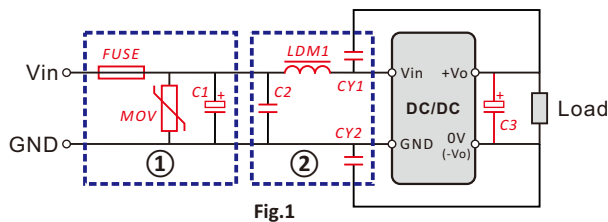
CE RoHS



## Functional Diagram



## EMC Solution-Recommended Circuit



Note: Part ① is the recommended external circuit for EMS test and Part ② for EMI filtering. Choose according to requirements.

Parameter Description			
Vin	5V/9V	12V/15V/24V	48V
C2	4.7uF/50V		2.2uF/100V
LDM1	6.8uH		
CY1	-		
CY2	1nF/2kV or 4.5kV		
C3	Choose according fig.3		
If there is no recommended parameters, no external component is required.			

# IA/IE-1W~2W Series

1w/2w, fixed input, isolated & regulated dual output dc-dc converter



Input Specifications					
Item	Test Conditions	Min	Typ	Max	Units
Input Surge Voltage (1 sec max)	3.3V input	-0.7		5	Vdc
	5V input	-0.7		7	
	9V input	-0.7		15	
	12V input	-0.7		15	
	15V input	-0.7		20	
	24V input	-0.7		30	
	48V input	-0.7		60	
Input Filter	"C" filter				
Reverse Polarity Input Current	no support				
Hot Plug	no support				

Output Specifications					
Item	Test Conditions	Min	Typ	Max	Units
Output Power	1W model	0.1		1	W
	2W model	0.2		2	
Output Voltage Accuracy	Nominal, 100% load			±3	%
Line Regulation	For vin change of ±5%			±0.5	
Load Regulation	Nominal, 10%-100% load		±1	±2	mVp-p
Ripple	DC-20MHz bandwidth		20	30	
Noise	DC-20MHz bandwidth		50	200	
Temperature Drift	Nominal, 100% load			±0.03	%/°C
Short Circuit Protection				1	s

Isolation Specifications					
Item	Test Conditions	Min	Typ	Max	Units
Isolation Voltage	IA	1500			Vdc
	IE	3000			
Insulation Resistance	Test at 500Vdc	1000			MΩ
Isolation Capacitance	IN-OUT, 100kHz @ 0.1Vdc		20		pF

Common Specification					
Item	Test Conditions	Min	Typ	Max	Units
Switching Frequency	100% load, input low to high		100		kHz
Operating Temperature		-40		+85	°C
Case Temp Rise	Ta=25°C		45		
Lead Temperature	1.5mm from case for 10 seconds			+300	
Storage Temperature		-50		+130	
Storage Humidity				95	%
Weight			5.2		g
MTBF	Using MIL-HDBK 217 @ 25°C	1000			k hours
Case Material		Black Plastic (UL94V-0)			

EMC Specification			
EMI	CE	EN55022:2010	Class B ( See Fig.1 )
	RE	EN55022:2010	Class B ( See Fig.1 )
EMS	ESD	EN55024:2010/EN61000-4-2	perf. Criterion B
	RS	EN55024:2010/EN61000-4-3	perf. Criterion A

## Application Note

### 1. Requirement on Output Load

To ensure this DC/DC can operate efficiently and reliably, during operation, the minimum output load is not less than 10% of the full load, and that **this product should never be operated under no load!**

When the actual output power is very small, if in the selection phase, it is recommended to select a lower power level model, else please connect a resistor with proper resistance at the output end in parallel to increase the load.

### 2. Typical Application Circuit

General applications, the circuit according to Fig.2 Typical recommended. The value of each component will be selected according to the following recommended list.

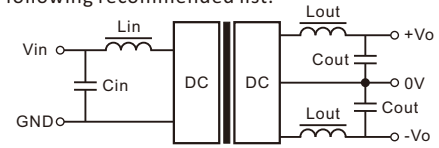


Fig.2

### Capacitor and Inductor values Recommended

Cin	Cout	Lin, Lout
10~100uF	±5V	4.7uF
	±9V	2.2uF
	±12V	1uF
	±15V	0.47uF
		not required, recommended values 4.7-22uH

*If using a filter inductor, it should be noted "LC" filtering network natural frequency should be staggered with the DC/DC operating frequency to avoid mutual interference.*

### 3. Output overload protection & Input over-voltage protection

In general, the series product has no function of output overload protection and input over-voltage protection. The simplest method is for connecting a linear regulator with over-heat protection at the input (Fig.3).

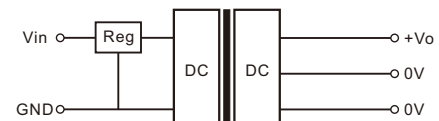


Fig.3

### 4. On derating

When the environmental temperature exceeds 70°C the module must be derating used, please refer to derating curve ( Fig.4 ).

### Temperature Derating Curve

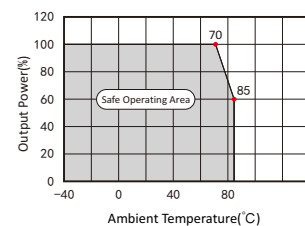


Fig.4

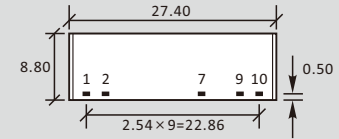
# IA\_S-1W & IA\_S-2W Series

1w/2w, fixed input, 1500Vdc isolated & regulated dual output dc-dc converter



Product Program							
Certificate	Model	Eff (%)	Input		Output		Max Capacitive Load (uF)
			Voltage(Vdc)		Vdc	mA	
			Nominal	Range	Nominal	Max	
CE/RoHS	IA0505S-1W	61	5	4.75-5.25	±5	±100	22
	IA0509S-1W	62			±9	±56	
	IA0512S-1W	66			±12	±42	
	IA0515S-1W	68			±15	±33	
CE/RoHS	IA1205S-1W	60	12	11.4-12.6	±5	±100	22
	IA1209S-1W	62			±9	±56	
	IA1212S-1W	71			±12	±42	
	IA1215S-1W	71			±15	±33	
CE/RoHS	IA1505S-1W	61	15	14.2-15.7	±5	±100	22
CE/RoHS	IA1809S-1W	62	18	17.1-18.9	±9	±56	22
CE/RoHS	IA2405S-1W	61	24	22.8-25.2	±5	±100	22
	IA2409S-1W	62			±9	±56	
	IA2412S-1W	62			±12	±42	
	IA2415S-1W	65			±15	±33	
CE/RoHS	IA0505S-2W	76	5	4.75-5.25	±5	±200	22
	IA0509S-2W	71			±9	±100	
	IA0512S-2W	71			±12	±83	
	IA0515S-2W	73			±15	±67	
CE/RoHS	IA1205S-2W	76	12	11.4-12.6	±5	±200	22
	IA1209S-2W	73			±9	±100	
	IA1212S-2W	82			±12	±83	
	IA1215S-2W	73			±15	±67	
CE/RoHS	IA1515S-2W	73	15	14.2-15.7	±15	±67	22
CE/RoHS	IA2405S-2W	78	24	22.8-25.2	±5	±200	22
	IA2409S-2W	73			±9	±100	
	IA2412S-2W	78			±12	±83	
	IA2415S-2W	77			±15	±67	

## Dimensions First Angle Proj



脚位	IA_S-1W/2W
1	Vin
2	GND
7	+Vo
9	-Vo
10	0V

**Note:**

All size units **mm**,  
 Diameter of all terminal 0.5mm,  
 Distance between all adjacent terminal 2.54mm  
**Isolation: 1500Vdc**  
**Weight: 5.2g**

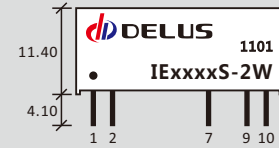
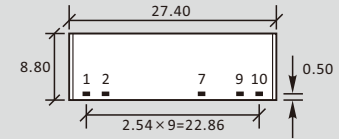
# IE\_S-1W & IE\_S-2W Series

1w/2w, fixed input, 3000Vdc isolated & regulated dual output dc-dc converter



Product Program							
Certificate	Model	Eff (%)	Input		Output		Max Capacitive Load (uF)
			Voltage(Vdc)		Vdc	mA	
			Nominal	Range	Nominal	Max	
CE/RoHS	IE0505S-1W	61	5	4.75-5.25	±5	±100	22
	IE0509S-1W	62			±9	±56	
	IE0512S-1W	66			±12	±42	
	IE0515S-1W	68			±15	±33	
CE/RoHS	IE1205S-1W	60	12	11.4-12.6	±5	±100	22
	IE1209S-1W	62			±9	±56	
	IE1212S-1W	71			±12	±42	
	IE1215S-1W	71			±15	±33	
CE/RoHS	IE2405S-1W	61	24	22.8-25.2	±5	±100	22
	IE2409S-1W	62			±9	±56	
	IE2412S-1W	62			±12	±42	
	IE2415S-1W	65			±15	±33	
CE/RoHS	IE0505S-2W	76	5	4.75-5.25	±5	±200	22
	IE0509S-2W	71			±9	±100	
	IE0512S-2W	71			±12	±83	
	IE0515S-2W	73			±15	±67	
CE/RoHS	IE1205S-2W	76	12	11.4-12.6	±5	±200	22
	IE1209S-2W	73			±9	±100	
	IE1212S-2W	82			±12	±83	
	IE1215S-2W	73			±15	±67	
CE/RoHS	IE2405S-2W	78	24	22.8-25.2	±5	±200	22
	IE2409S-2W	73			±9	±100	
	IE2412S-2W	78			±12	±83	
	IE2415S-2W	77			±15	±67	

## Dimensions First Angle Proj



脚位	IE_S-1W/2W
1	Vin
2	GND
7	+Vo
9	-Vo
10	0V

**Note:**

All size units **mm**,  
 Diameter of all terminal 0.5mm,  
 Distance between all adjacent terminal 2.54mm  
**Isolation: 3000Vdc**  
**Weight: 5.2g**

# File Release Notes

DBN-202 Technical Data Sheet Version



No.	Version	Date	Description
1	V0	2011/11/01	First release
2	A/0	2016/07/01	Change document version definition
3			
4			
5			

1. All data in addition to particular things, are Ta = 25°C, humidity<75%, nominal input voltage and output measured at rated load;
2. Non-standard models with some of the following indicators may be different from the specific circumstances of the Secretary to direct contact with me;
3. In the use of this manual, if some of them do not quite understand terms please refer to our <<DC/DC Converter Application Guide>>;
4. The Company focused on technological improvements, product specifications and parameter updates without notice, to pay attention to the latest information on website.

All Delus Corporation's products are manufactured, assembled and tested utilizing ISO9001 quality systems.  
For information regarding Delus Corporation and its products please see website: [www.delus-power.com](http://www.delus-power.com)

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