

# DC-DC Converter

WRD\_S(D)\_(ZD)(K)-30WH2 Series

HenLv

## Features

- Wide voltage input 2:1
- DIP、Din-rail series
- Operating temperature range: -40°C~+85°C
- Isolation voltage 1500VDC 0.5mA 1Minute
- Internal SMD design
- Metal shell, highly flame-retardant plastic shell
- Heat dissipation mode: natural air cooling
- It has good shielding anti-interference performance and electromagnetic compatibility, lightning protection, output over current, short circuit protection, overheat protection, self-recovery and other functions

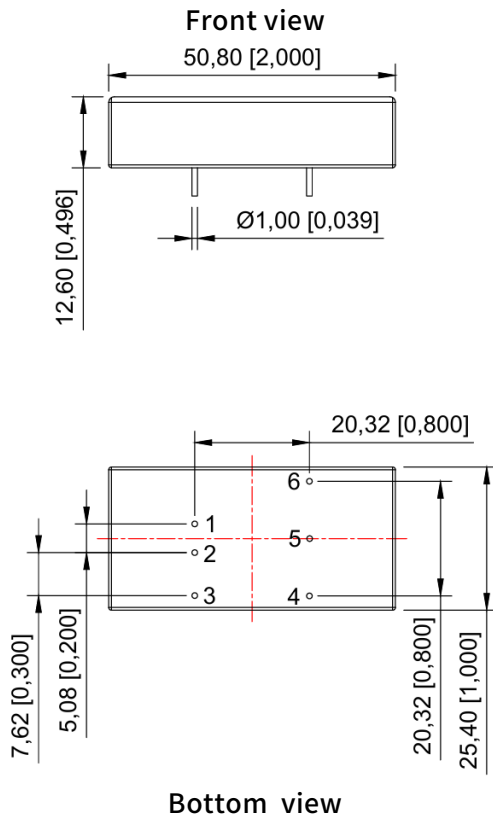
## Product Picture



EMC-EN55032  
EN55035  
LVD-EN62368

## Dimensions

### WRD\_S(D)\_(ZD)(K)-30WH2 Series Dimensions



Note:

Size unit: mm[inch]

Pin section tolerance:  $\pm 0.1 [\pm 0.004]$

Unmarked tolerance:  $\pm 0.25 [\pm 0.01]$

The device layout is for reference only.

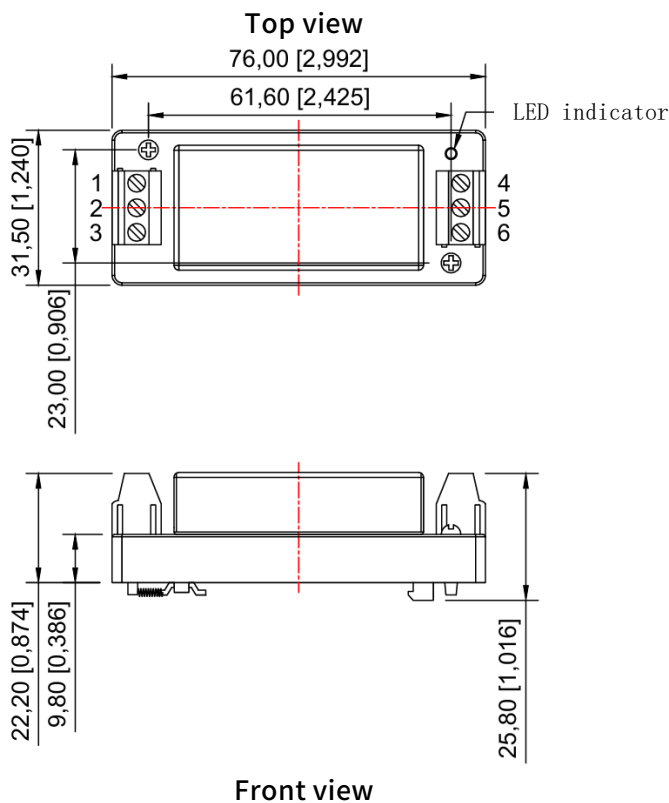
Note: The grid distance: 2.54\*2.54mm

Pin mode		
Pin	Single	Dual
1	Vin	Vin
2	GND	GND
3	CNT	CNT
4	TRM	-XXVDC
5	0V	COM
6	+XXVDC	+XXVDC

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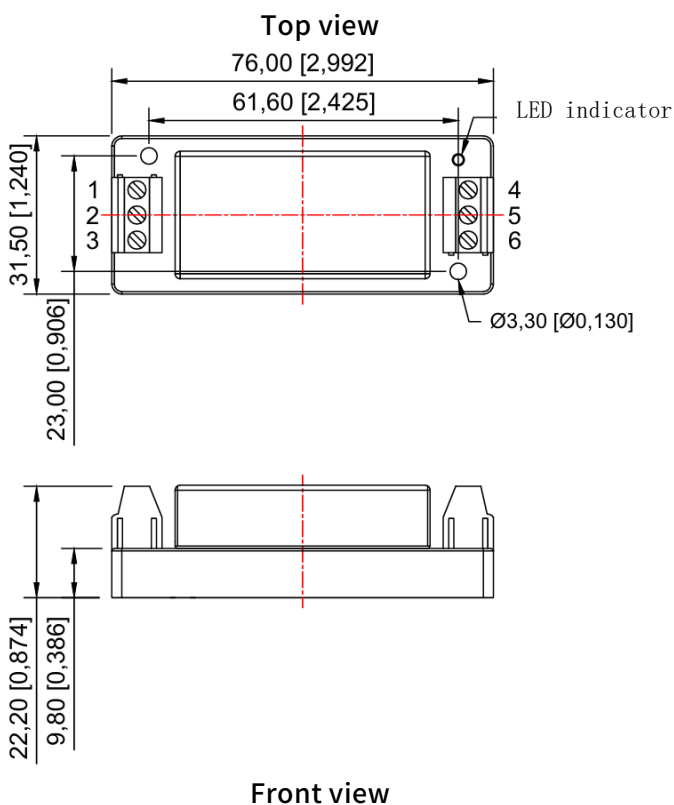
WRD\_S(D)\_ZDK-30WH2 Series Dimensions



Pin mode		
Pin	Single	Dual
1	CNT	CNT
2	GND	GND
3	Vin	Vin
4	TRM	-XXVDC
5	0V	COM
6	+XXVDC	+XXVDC

Note:  
Size unit: mm[inch]  
Unmarked tolerance:  $\pm 0.25[\pm 0.01]$   
Wiring strength: 24-12 AWG  
Tightening torque: Max 0.4N-m  
Din-rail type: TS35  
The device layout is for reference only.◦

WRD\_S(D)\_ZD-30WH2 Series Dimensions



Pin mode		
Pin	Single	Dual
1	CNT	CNT
2	GND	GND
3	Vin	Vin
4	TRM	-XXVDC
5	0V	COM
6	+XXVDC	+XXVDC

Note:  
Size unit: mm[inch]  
Unmarked tolerance:  $\pm 0.25[\pm 0.01]$   
Wiring strength: 24-12 AWG  
Tightening torque: Max 0.4N-m  
The device layout is for reference only.

Application

Railway communication, display, monitoring equipment, petrochemical, industrial control, remote DC power supply system, switching system and other communication equipment.

Selection Guide

Model	Vin (VDC)	Vout (Vo±2%)	Current (mA)	Efficiency (%)	Isolation (VDC)
WRD_S05-30WH2	5(4.5-9)	5	6000	≥85	1500
WRD_S12-30WH2		12	2500	≥85	1500
WRD_S15-30WH2		15	2000	≥85	1500
WRD_D05-30WH2		±5	±3000	≥85	1500
WRD_D12-30WH2		±12	±1250	≥85	1500
WRD_D15-30WH2		±15	±1000	≥85	1500
WRD_S05ZD(K)-30WH2		5	6000	≥85	1500
WRD_S12ZD(K)-30WH2		12	2500	≥85	1500
WRD_S15ZD(K)-30WH2		15	2000	≥85	1500
WRD_D05ZD(K)-30WH2		±5	±3000	≥85	1500
WRD_D12ZD(K)-30WH2		±12	±1250	≥85	1500
WRD_D15ZD(K)-30WH2		±15	±1000	≥85	1500
WRD_S05-30WH2	12(9-18) 24(18-36) 48(36-75) 110(70-150)	5	6000	≥85	1500
WRD_S12-30WH2		12	2500	≥85	1500
WRD_S15-30WH2		15	2000	≥85	1500
WRD_S24-30WH2		24	1250	≥86	1500
WRD_D05-30WH2		±5	±3000	≥85	1500
WRD_D12-30WH2		±12	±1250	≥85	1500
WRD_D15-30WH2		±15	±1000	≥85	1500
WRD_S05ZD(K)-30WH2		5	6000	≥85	1500
WRD_S12ZD(K)-30WH2		12	2500	≥85	1500
WRD_S15ZD(K)-30WH2		15	2000	≥85	1500
WRD_S24ZD(K)-30WH2		24	1250	≥86	1500
WRD_D05ZD(K)-30WH2		±5	±3000	≥85	1500
WRD_D12ZD(K)-30WH2		±12	±1250	≥85	1500
WRD_D15ZD(K)-30WH2		±15	±1000	≥85	1500

Note: Our company customizes module power supplies with any input or output for customers. If you have other output voltage requirements, please contact our company. Unless otherwise specified, the input =Vi. The characteristics of the module power supply should comply with the provisions of Table 1 and be applicable to the full temperature range (-40℃≤Tc≤85℃).

Mechanical Specifications

Size	50.80 x 25.40 x 12.60 mm, ZD(K): 76.00 x 31.5 mm
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Electrical Specifications

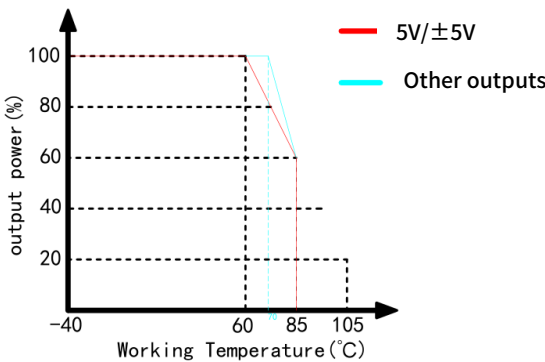
Specifications	Symbol	Conditions $V_i$ , $-40^{\circ}\text{C} \leq T_c \leq 85^{\circ}\text{C}$ (Unless otherwise specified)	Min	Max	Unit
Output Voltage	$V_o$	Full Load	$V_o-2\%$	$V_o+2\%$	V
Output Current	$I_{o\max}$	—	—	$P(\text{Power})/$ $U(\text{Output voltage})$	A
Output Ripple voltage	$V_{p-p}$	Full Load, $V_i$ , BW=20MHz, Normal Temperature	—	240	mV
Output Noise Voltage	$V_{p-p}$	Full Load, $V_i$ , BW=20MHz, Normal Temperature	—	480	mV
Voltage Regulation	$S_v$	$V_{\min}$ , $V_i$ , $V_{\max}$ , Full Load	—	$\pm 2$	%
Load Adjustment	$S_i$	$V_i$ , $I_o=(10\%\sim 100\%), 5V, \pm 5V$	—	$\pm 4$	%
		$V_i$ , $I_o=(10\%\sim 100\%)$ , Other outputs		$\pm 2$	
Efficiency	$\eta$	$V_i$ , Full Load, Normal Temperature	84	—	%
Insulation Resistance	$R_I$	Input-output, Insulation Voltage 500VDC	1000	—	M $\Omega$

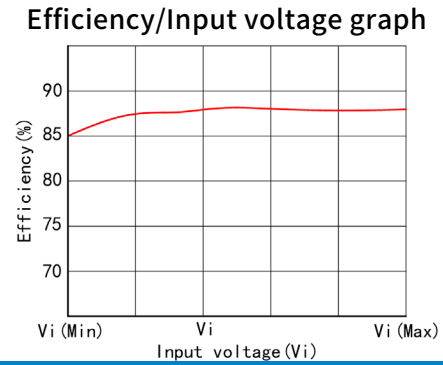
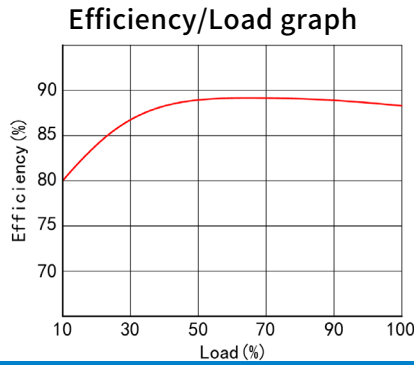
General Specifications

EMC Specifications	Magnetic Field Sensitivity Test	GB6833.2-87
	Electrostatic Discharge Sensitivity Test	GB6833.3-87
	Radiation Sensitivity Test	GB6833.5-87
	Conduction Sensitivity Test	GB6833.6-87
Temperature Drift	$\leq 0.02\%/^{\circ}\text{C}$	
Storage Temperature	$-40^{\circ}\text{C} \sim 125^{\circ}\text{C}$	
Input Frequency	200KHz~400KHz	
Humidity	10%~90%RH	
MTBF	$> 300000\text{H}$	

Typical SpecificationsCurves

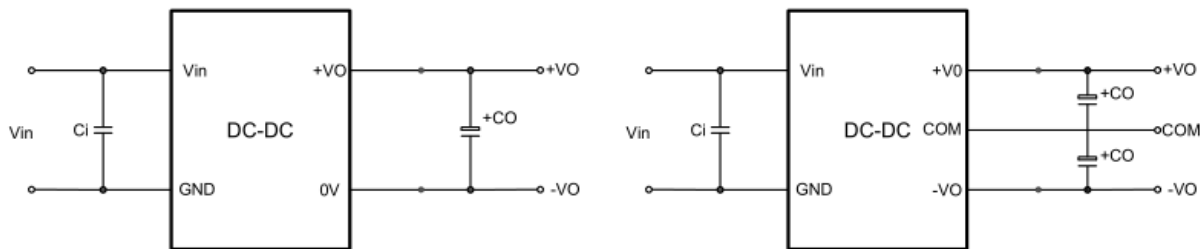
Temperature chart





## Typical Application

### Design Reference



### Recommendation Test

Filter: In some circuits that are sensitive to noise and ripple, an external filter capacitor can be connected to the DC/DC input and output terminals to reduce the impact of ripple on the system, but the value of the filter capacitor should be appropriate, if the capacitor is too large, it is likely to cause startup problems, for each output, under the condition of ensuring safe and reliable operation, the maximum capacitance of the filter capacitor can be referred to the external capacitance table. In order to obtain very low ripple, an "LC" filter network can be connected to the input and output end of the DC/DC converter, so that the filtering effect will be better, and it should be noted that the size of the inductance value and the frequency of the "LC" filter network should be staggered from the frequency of the DC/DC module power supply to avoid mutual interference. For each output channel, it is advisable to verify the condition of its external capacitor while ensuring safe and reliable operation. For further details, please refer to Table 1.

Vin (VDC)	Vout (VDC)	Ci (μF)	Co (μF)
5 (4.5~9)	5	100μF/50V	47μF/16V
	12/15		22μF/25V
	±5/±12		47μF/16V
	±15		22μF/50V
12 (9~18) 24 (18~36)	5	100μF/50V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		47μF/16V
48 (36~75)	±15	47~100μF/100V	22μF/50V
	5		47μF/16V
	12/15		22μF/25V

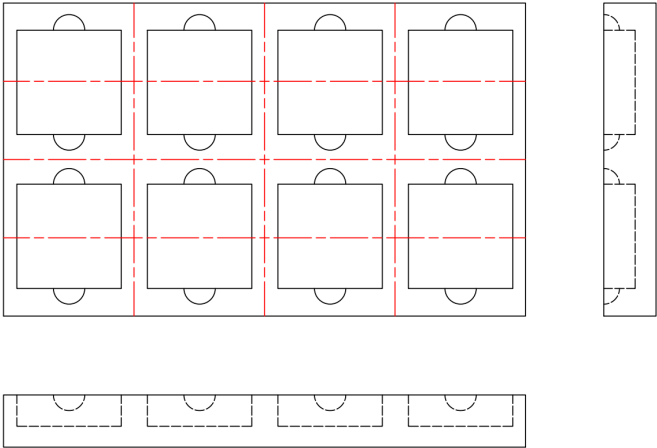
	24		22μF/50V
	±5/±12		47μF/16V
	±15		22μF/50V
110 (70~150)	5	22~47μF/200V	47μF/16V
	12/15		22μF/25V
	24		22μF/50V
	±5/±12		47μF/16V
	±15		22μF/50V

The recommended values for the external filter capacitors are specified in Table 1.

Precautions

Package

This series of modules are packed in shockproof and anti-static foam.



Transport

The package containing the module is allowed to be transported by any means of transport, which should avoid direct rain and snow and mechanical damage.

Storage

The module should be stored in a warehouse where the ambient temperature is -40 degrees ~ 125 degrees, the relative humidity is 10%~90%, and the surrounding environment is free from acidic, alkaline and other harmful gases.

Note: The above are the performance indicators of the product series listed in this manual. Some indicators of non-standard products may exceed the above requirements, so if there is any inconsistency between the manual and the product specification documents, please refer to the specification documents. If you have special needs, please contact us directly.