

# DC/DC Converter

## Series GWL Single Output Galvanic Isolated



Input voltage 24 - 220 V  
Output power up to 1800 W  
Voltage regulated  
High efficiency  
Up to 15 units to be connected in parallel with current sharing  
For 5xGWL 1 fan chassis or forced cooling necessary



Option: For ruggedized applications  
Additional available operational modes:  
parallel and n + 1 redundant

### Input:

Input voltage (DC) 24 V, 48 V-60 V, 110 V  
220 V  $\pm 30\%$   
Inrush current limiting standard (not for 24 V, 48 V-60 V)  
Input current max.  $I_{in} = \frac{1,8 \times P_{OUTnom}}{U_{INnom}}$   
Dimension input cable and prefuse Use ext. fuse at least one band higher with delay characteristic, Ensure effective cross-sectional area of cable is acc. VDE 0100, check temperature, limit cable run and note voltage drop especially at low input voltages  
Fuse Input option (rear side)  
Decoupling diode option (rear side)

### Output:

Output voltage (DC) see table  
Output current (DC) see table  
Output power see table  
Decoupling diode option (rear side)  
Efficiency > 80 - 90%  
depending on model

### Regulation:

Line regulation  $\leq 0,1\% U_{out}$   
(max. source voltage variation)  
Load regulation  $\leq 0,1\% U_{out}$   
(0 - 100% output load change)  
Dynamic response  $\leq 1$  ms  
Ripple and noise < 1%  
Temperature coefficient  $\leq 0,02\%/K$

### Protection:

Overload protection current limit at  $1,1 \times I_{nom}$   
short circuit protection  
Overvoltage protection standard, adjusted fix +10%  $U_{out}$   
Thermal protection temperature regulated  
Decoupling diode option (rear side)  
Signal relay standard  
Shut down at deviation of  $U_{in} \pm 30\%$

### Environmental conditions:

Operating temperature -25° C - +70° C  
Derating 2,5%/K  
+50 - +70° C  
Power - boost with ext. fan, see table  
Cooling free air convection, power-boost with ext. fan (> 1,5 m/s)  
Switching frequency 100 kHz

### Safety:

Safety standard EN60950-1  
Isolation input - output:  $U_{in}$  and  $U_{out} \leq 60$  V: 500  $V_{rms}$   
 $U_{in}$  60 - 130 V,  $U_{out} \leq 60$  V: 2  $kV_{rms}$   
 $U_{in}$  130 - 250 V,  $U_{out} \leq 250$  V: 3  $kV_{rms}$   
input-ground, output-ground:  $U_{in}$  or  $U_{out} \leq 60$  V: 500  $V_{rms}$   
 $U_{in}$  or  $U_{out}$  60 - 130 V: 1  $kV_{rms}$   
 $U_{in}$  or  $U_{out}$  130 - 250 V: 1,5  $kV_{rms}$   
disconnect the anti-interference capacitors input-ground and output-ground

### EMC:

Input EMI filter EN61000-6-3 / Class B  
Input immunity EN61000-6-2

### Operating and Control:

Remote sense standard, up to 0,25 V per wire  
Ext. ON/OFF standard  
Current share standard  
Input control signal: Power Fail at -25 %  $U_{in}$   
(neg. or pos. Logic)  
Output control signal: Power Good  
(neg. or pos. Logic)  
Indicator "ON" LED green  
Adjustment voltage  $\pm 10\%$ , potentiometer front-panel  
Signal Relay

### Connectors:

Input  $U_{in}$  24 V, 48-60 V ( $I > 30$  A):  
input bus bar M8 threaded stud  
 $U_{in}$  110 V, 220 V ( $I < 30$  A):  
screw - terminal  
6  $mm^2$  fixed / 4  $mm^2$  variable  
Output  $U_{out} \leq 48$  V ( $I > 30$  A):  
input bus bar M8 threaded stud  
 $U_{out} \geq 60$  V ( $I < 30$  A):  
screw - terminal  
6  $mm^2$  fixed / 4  $mm^2$  variable  
Signals Combicon 12 pole 0,2 - 2,5  
female multipoint connector with screw-terminal included with delivery

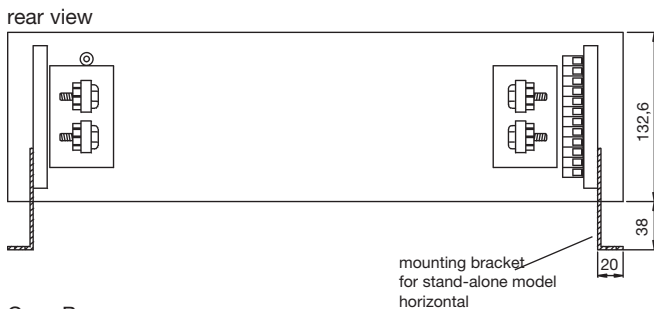
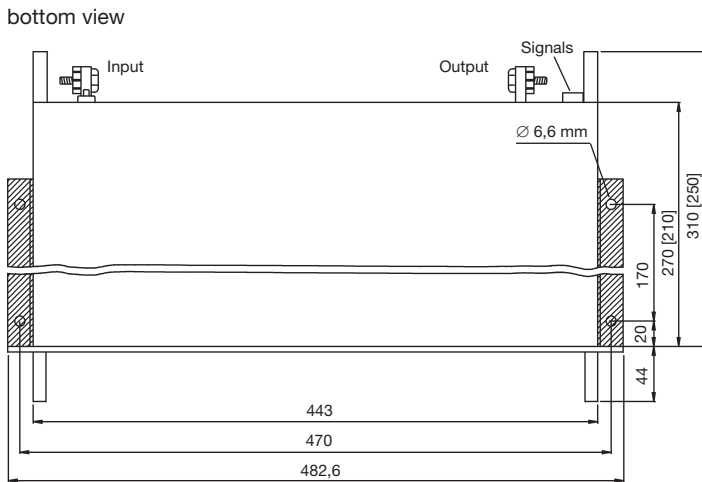
### Physical Specification:

Front-panel front-panel mask 19", 3U  
Dimensions see table and drawing  
Weight Case A: 13,0 kg  
Case B: 15,4 kg

Input* Voltage (V)	Output voltage (V) / Current (A)	Power free air convection (ext. Fan) (W)	Case		Model number
			A	B	
24	24/35 (40)	850(1000)	x		GWL24/24/35
24	24/55 (65)	1300(1550)		x	GWL24/24/55
24	48/17 (20)	850(1000)	x		GWL24/48/17
24	48/27 (32)	1300(1550)		x	GWL24/48/27
24	60/14 (17)	850(1000)	x		GWL24/60/14
24	60/22 (26)	1300(1550)		x	GWL24/60/22
24	110/8 (9)	850(1000)	x		GWL24/110/8
24	110/12 (14)	1300(1550)		x	GWL24/110/12
24	220/4 (4,5)	850(1000)	x		GWL24/220/4
24	220/6 (7)	1300(1550)		x	GWL24/220/6
48-60, 110, 220	12/65 (85)	800(1000)	x		GWL.../12/65
48-60, 110, 220	12/100 (125)	1200(1500)		x	GWL.../12/100
48-60, 110, 220	15/55 (70)	850(1050)	x		GWL.../15/55
48-60, 110, 220	15/85 (105)	1300(1600)		x	GWL.../15/85
48-60, 110, 220	24/20 (30)	500 (600)	x		GWL.../24/20
48-60, 110, 220	24/40 (50)	1000(1200)	x		GWL.../24/40
48-60, 110, 220	24/60 (75)	1500(1800)		x	GWL.../24/60
48-60, 110, 220	48/10 (12,5)	500 (600)	x		GWL.../48/10
48-60, 110, 220	48/20 (25)	1000(1200)	x		GWL.../48/20
48-60, 110, 220	48/30 (37)	1500(1800)		x	GWL.../48/30
48-60, 110, 220	60/8,5 (10)	500 (600)	x		GWL.../60/8,5
48-60, 110, 220	60/17 (20)	1000(1200)	x		GWL.../60/17
48-60, 110, 220	60/25 (30)	1500(1800)		x	GWL.../60/25
48-60, 110, 220	110/4,5 (5,5)	500 (600)	x		GWL.../110/4,5
48-60, 110, 220	110/9 (11)	1000(1200)	x		GWL.../110/9
48-60, 110, 220	110/13 (16)	1500(1800)		x	GWL.../110/13
48-60, 110, 220	220/2,25 (2,75)	500 (600)	x		GWL.../220/2,25
48-60, 110, 220	220/4,5 (5,5)	1000(1200)	x		GWL.../220/4,5
48-60, 110, 220	220/7 (8)	1500(1800)		x	GWL.../220/7

\* AC-input on request  
Other types, and modifications on request

### Dimensions in mm



Case B  
Values in brackets [...] Case A

### Options:

Decoupling diode - Output I ≤ 20 A  
Decoupling diode - Output I > 20 A  
Fuse Input  
Front-panel  
Colour RAL 7032  
other colours consult factory  
Mounting bracket for stand-alone model  
- horizontal  
fixed for ruggedized applications  
Fan insert

### Model Number:

replace (...) with the input voltage

### Dimensions

Case	Dimensions w x h x d (mm)	Dimensions Depth incl. Contact rail (mm)
A	482,6 x 132,6 x 210	250
B	482,6 x 132,6 x 270	310

### Pin Assignment

Combicon 12-pol.	GWL..
Signal relay	12
NOC	11
Signal relay	10
NCC	9
+ Sense	7
- Sense	6
Current Share	5
Common 0 V Output	4
Ext. On/Off	3
Output Power Good	2
Input Power Fail	1