

DC/DC Dead Battery Starter NSB

200 Watt

500 NSB 1500 M24 W00

$$V_{In\ Nom} = 1'500 V_{DC}$$

$$V_{out\ Nom} = 24 V \quad I_A = 8.5 A \quad (21 A \text{ for } t \leq 0.1s)$$

SYMBOL	PARAMETER	TEST CONDITION	MIN	TYP	MAX	UNIT
INPUT						
V_{In}	Operating Input Voltage Range	Continuous $t \leq 5 \text{ min. EN 50163}$	1'000		1'800	V_{DC}
	Converter Switched OFF!	$t \leq 20 \text{ ms EN 50163}$	1'800		1'950	V_{DC}
	Surge	V_{In} for $t \leq 1 \text{ ms}$	1'950		2'538	V_{DC}
	Surge		10			kV_{DC}
$V_{In\ min}$	Turn ON Voltage Range		950		1'000	V_{DC}
$V_{In\ min}$	Turn OFF Voltage Range		950		975	V_{DC}
$V_{In\ max}$	Turn OFF Voltage Range		2'025	2'050	2'100	V_{DC}
	Input Current Time Integral				5	A^2s
$I_{In\ max}$	Input Current	$1'000V \leq V_{In} \leq 1'950V, T_A, I_{Out} = 21 A$			1.0	A
	Input Fuse	4kV 10mm x 85mm		4 A		
	Reverse Polarity Protection	On request		-		

OUTPUT						
$P_{Out\ Nom}$	Output Power continuously	$1'000 V \leq V_{In} \leq 1'800 V$		200		W
$P_{Out, pk}$	Peak Output Power $t \leq 0.1 \text{ sec.}$	$1'000 V \leq V_{In} \leq 1'800 V$ $I_{Out} = 21A$	500			W
P_{Out}	Rep. Rate $P_{max}/P_{nom}: 1.5 \text{ sec.} 6 \text{ Min.}$			500		W
$V_{Out\ Nom}$	V_{Out} Factory Adjust	$V_{In} = 1'500 V \quad I_{Out} = 8.5 A$	23.8	24.0	24.2	V_{DC}
ΔV_{Out}	Regulation Accuracy static	$0 A \leq I_{Out} \leq 8.5 A$ $T_A = -40^\circ C + 70^\circ C \text{ Temp. class T3}$	5 % $V_{Out\ Nom}$			V
$V_{Out\ rms}$	Output Voltage Noise	BW 300 kHz			3	V_{ss}
$V_{Aout\ ss}$	Spikes	Nominal Load and BW 20 MHz			2,5	V
t_{On}	Start Time V_{Out} see Diagram page 2	$0 A \leq I_{Out} \leq 8.5 A$ Push Button Pin 11 connected to Pin 12 $I_{max} \leq 25 \text{ mA}$		2	3	s
I_{Out}	Output Current $I_{Out}, I_{out, pk}$		8.5		21.0	A
	Current Limitation I_{Out} static dynamic	Threshold value	9.0			A
I_{OC}	Max. Output Short Circuit Current	Continuous Short Circuit + V_O and - V_O			10	A
C_{Out}	Ext. output capacity converter	Max. allowed ext. connected capacity			100	μF
K1	Internal MOS transistor is switching ON when Pin 11 and pin 12 are connected	Push Button closes internal semiconductor switch	Bridge between Pin 11 and 12			

COMMON DATAS

f	Switching Frequency			15		kHz
η	Efficiency	$V_{In} = 1'500 V_{DC}, P_{Out} = 200 W$		80		%
	Usage Time		20			Years
	MTBF @ SN 29500 $T_A = +40^\circ C$	$V_{In} = 1'500 V_{DC} \quad P_{Out} = 200 W$		400'000		h
	No Load and Short Circuit Condition		continuous			
	PCB varnished	Peters Lacke: type SL 1306	Option: SL 1309			

SAFETY / DIMENSIONS

	Overtemperature TURN - OFF	Transformer Temperature Monitor	105°C - 5 K, + 10 K			
	Transformer Partial Discharge Test Type Test, see diagram		2650 V, 10 pC			
	PCB FR4, $V_0 \text{ TG} = 140^\circ C \text{ CTI 250}$					
	Creepage / Clearance (PD2) acc. EN 50124 - 1 0V 3	Primary - Secondary Primary - Case Secondary - Case	36 36 18 18 2 2			mm mm mm
	Isolation Test Voltage Piece Unit Test: ramp function 5s - 10s - 5s Type test: 1 minute each	Primary - Secondary Primary - Case Secondary - Case			5.2 3.0 0.5	kV_{DC} kV_{DC} kV_{DC}
	Connector	Input: + V_{In} and - V_{In} Output: + V_{Out} and - V_{Out} Mating connector Protection:	Ettinger 13.44.656 WAGO: 721 - 442/001-000 WAGO: 721 - 112/037-000 on Mounting AL plate			
	Protection class, - degree		I, IP 00			
	Dimension incl. Mounting Plate	B x H x T	430 x 310 x 75			mm
	Mounting Direction: recommend vertical	Chassis Mounting with screws	6 x M6			
	Weight			7.5	8.0	kg
	T_A Temperature measurement ref. point	10 cm below Dead Battery Starter				

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SYMBOL PARAMETER TEST CONDITION MIN TYP MAX UNIT

AMBIENT CONDITION

T _A	Operating Temperature Range	EN 50155 class T3	- 40		+ 70	°C
T _{Storage}	Storage Temperature Range		- 40		+ 85	°C
	Cooling	See „Einbaulage“	Free convection			
	Huminidy	EN 50155, IEC 60571	75% jährliches Mittel, 95% 30 Tage			
	Vibration / Schock	IEC 61373, IEC 68-2-27, BN 411002 Kat. I 3 Shocks each Axis	50 m / s ² , 30 ms			
	Altitude		< 1200 m above NN / 40°C < 1800 m above NN / 30°C			

EMV

	Emission	*)	EN 50121 - 3 - 2: 2006		
	Sussescibility		10 kV t ≤ 1 ms		

STANDARDS

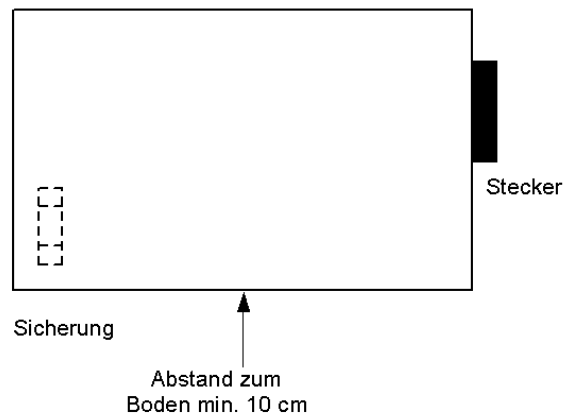
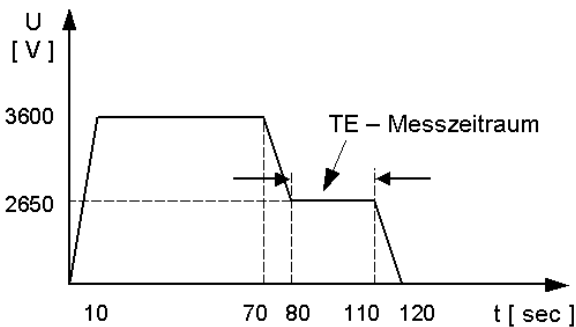
		EN 50155 :2007	EN 50 121 - 1	EN 50125 - 1	EN 60068 - 2 - 6, 2...27	EN 61000 - 4 - 2...6
		EN 50207: 2000	IEC 61373: 1999	EN 60721 - 3 - 5	EN 61373: 1999	VDE 115 / T. 106
		EN 50163 :1995				

Technical Datas valid for: - 40° C ≤ T_A ≤ + 70° C, 1'000 V_{DC} ≤ V_{In} ≤ 1'800 V_{DC} if not otherwise specified.

*) radiated emission, EN 61000-4-3 in closed customer assembling only

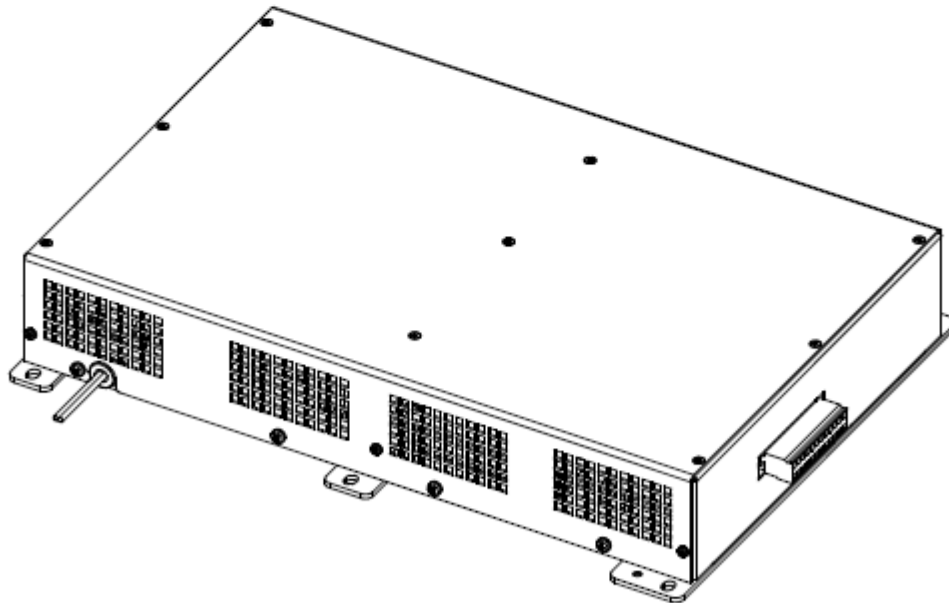
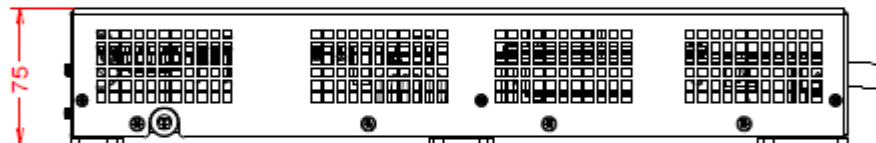
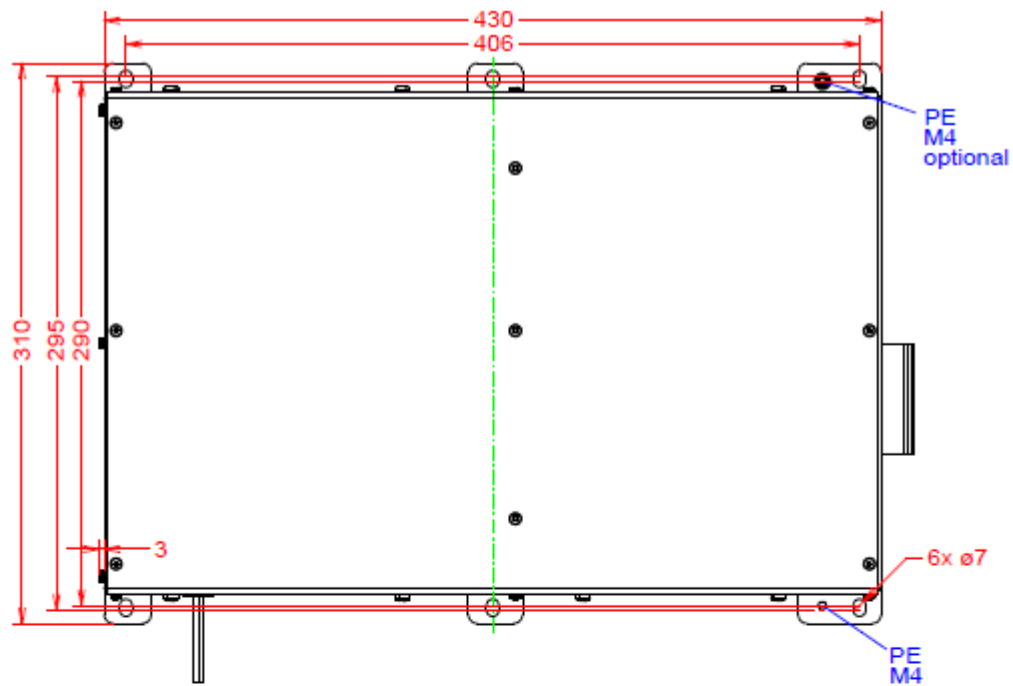
Einbaulage – stehend senkrecht

Transformator TE – Prüfung
EN 50207: 2000

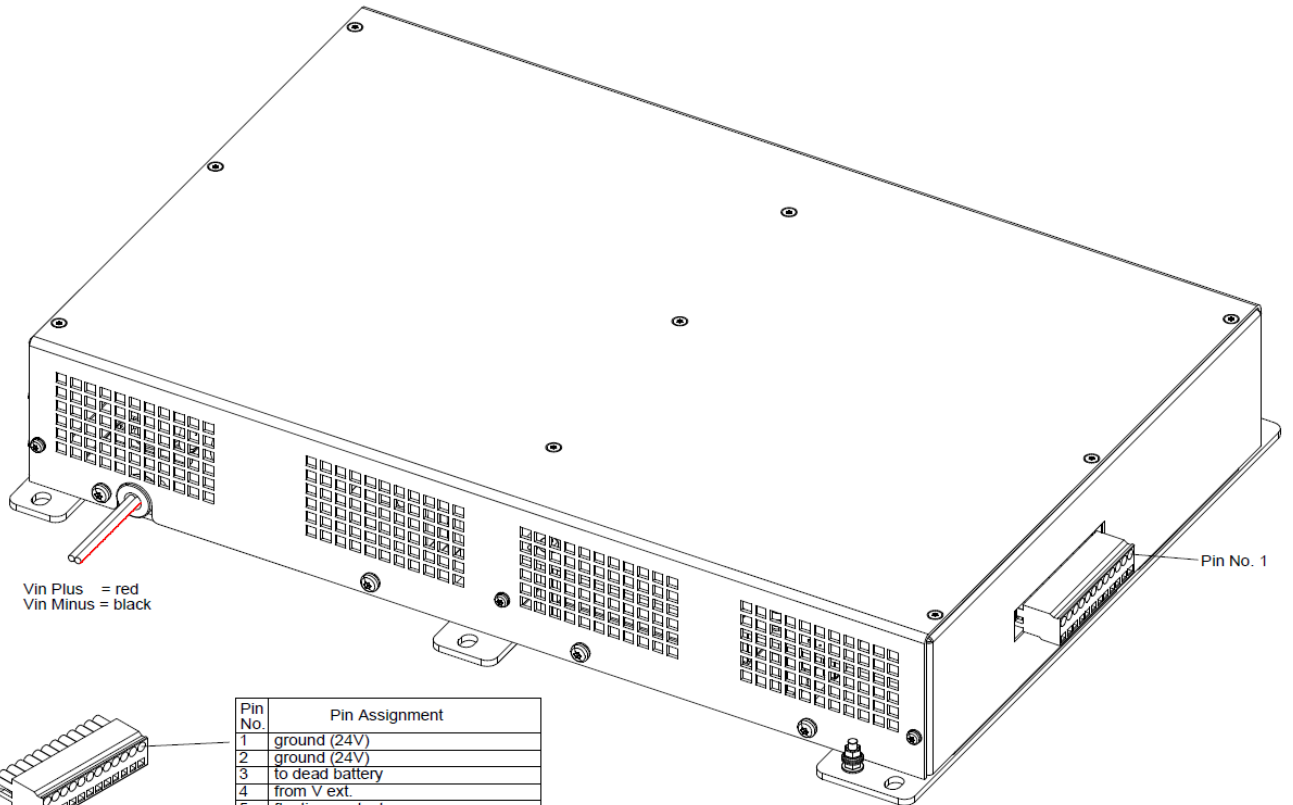


Pin Assignment

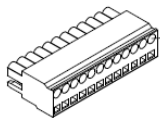
Input		Faston
+ V _{in}		Red line
- V _{in}		Black line
Output		WAGO
Pin	Function	Function
1	Minus V _{out}	- V _{out} // GND
2	Minus V _{out}	- V _{out} // GND
3	Plus V _{out}	+ V _{out} // 24V to loads
4	24V	From ext. 24V or free
5	Relay 3	Floating contact K1 closed
6	Relay 3	Indicator K1 closed
7	Relay 2	Floating contact K1 closed
8	Relay 2	Indicator K1 closed
9	Relay 1	Indicator Failure
10	Relay 1	Floating contact Failure
11	Resistor	Push Button
12	Plus 24V	Push Button



Schutzvermerk nach DIN 34		Maßstab	Gewicht 7,3 kg	Oberfläche		Werkstoff	Freimaßtoleranz DIN 2768m		
				Datum	Name	Bezeichnung			
				Bearb.	18.05.16	Feuring	500 NSB 1500 M24		
				Gepr.			Maßzeichnung		
				Norm			Artikelnummer		
Z03	Gewicht	23.08.16	Feuring				1117-01		Blatt 1
Z02	Dim 290/295	21.07.16	Feuring				Ers. für:		Blätter 1
Z01	H92 in H75	13.07.16	Feuring						
Zust.	Anderung	Datum	Name						



Vin Plus = red
 Vin Minus = black



Customer Connector

Pin No.	Pin Assignment
1	ground (24V)
2	ground (24V)
3	to dead battery
4	from V ext.
5	floating contact
6	indikation: K1 closed and operation
7	floatind contact
8	indikation: K1 closed and operation
9	indikation: failure
10	floating contact
11	External push button
12	External push button

Schutzvermerk nach DIN 34	Maßstab	Gewicht	Oberfläche	Werkstoff	Freimaßtoleranz DIN 2768m	
			Datum	Name	Bezeichnung	
			Bearb.	23.08.16	Feuring	500 NSB 1500 M24
			Gepr.			Pin Assignment
			Norm			
						Artikelnummer
						1117-01
Zust.	Anderung	Datum	Name			Blatt
						1
						Blätter
						1