

Data Sheet 300 FDB 750 M105 W12

$V_{In\ nom} = 750\ V_{DC}$

$V_{Out\ nom} = 105\ V$

$I_{Out} = 2.85A, Peak:12A\ 200ms$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
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INPUT

V_I	Input operating voltage range	Continuously	420		1'000	V_{DC}
$V_{Insw\ low}$	Converter switch ON		430		450	V_{DC}
$V_{Insw\ high}$	Converter switch OFF		1'025 400	1'050 415	1'100 420	V_{DC} V_{DC}
I_I	Input current No load	$V_{In} = 1'000V, I_{Out} = 0\ A$			25	mA
	Nominal load	$V_{In} = 750V, I_{Out} = 2.85\ A$		0.5		A
	Nominal load	$V_{In} = 425V, I_{Out} = 2.85\ A$			1.0	A
	Input current integral	$V_I = 1'000V, 0\ A \leq I_O \leq 2.85\ A$		5	10	A ² s
$I_{I\ max}$	Max. input switch on current inrush	$\Delta t \leq 0.1\ ms$			75	A
	Input fuse 2 kVDC	Nominal current		4		A

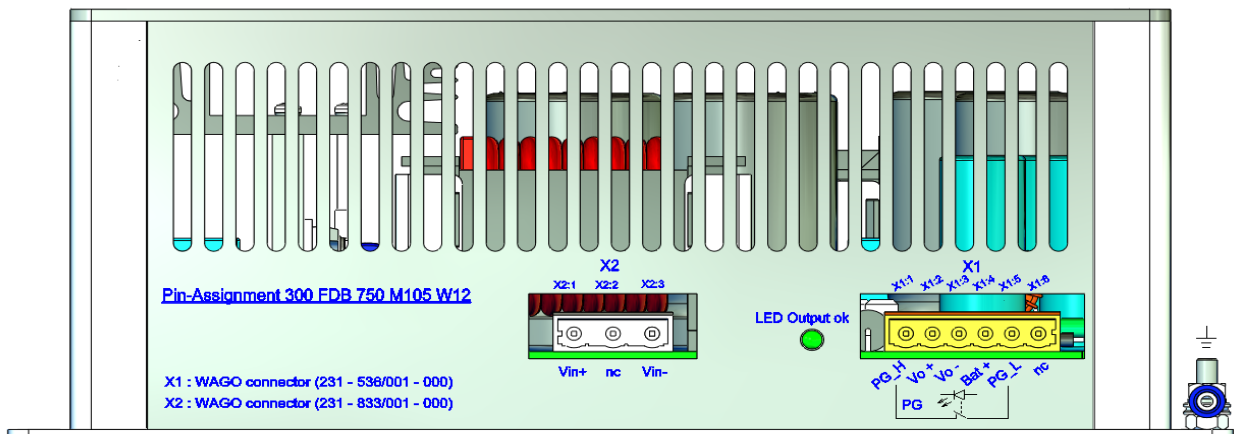
OUTPUT: Power unit

$425\ V_{DC} \leq V_{In} \leq 1'000\ V_{DC}\ T_A = -40^\circ C \dots +70^\circ C$

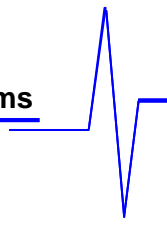
$P_{Out\ nom}$	Output power	continuous	285	300		W
		Peak power	1100	1250		W
$P_{Out\ nom}$	Output power	Repetition rate for output peak power	3			minutes
$V_{Out\ nom}$	Output voltage availability	Monitor V_{Bat}	82	85	88	V
$V_{Out\ nom}$	Output voltage adjustment, factory set	$I_O = 1.5\ A \approx 50\%$ of nominal load	100	105	110	V_{DC}
ΔV_{Out}	Regulation	$0\ A \leq I_O \leq 2.85\ A\ (10 \dots 12\ A)$	$\leq 3\%\ V_{O\ nom}$			V
$\Delta V_{O\ dyn.}$	Load regulation dynamic	Load: 20 - 80 - 20 % x $I_{O\ nom}$			1.5	V
t_{dyn}	Response time	Load: 20 - 80 - 20 % x $I_{O\ nom}$		2	5	ms
$V_{Out\ rms}$	Ripple	Nom. load BW 300 kHz		150	250	mV
$V_{Out\ pp}$	Noise	Nom. load BW 20 MHz			750	mV
t_{on}	Turn on time V_{Out}	$0\ A \leq I_O \leq 2.85\ A$ resistive load		150	500	ms
	Ovoltage shutdown V_{Out} when output failure occurs	$0\ A \leq I_O \leq 2.85\ A$ Restart again only after $V_{in\ OFF/ON}$	converter switch Off: $V_O \leq 137.5\ V$			V_{DC}
I_O	Output current	continuous		2.85		A
I_O	Output current	Peak for $t \leq 200ms$	10	12		A
I_O	Output current limitation threshold of I_{Out}		2.9	3.0	3.2	A
I_{Out-sc}	Output short circuit current	Short circuit between + V_{Out} and - V_{Out}		5	6	A
START CONDITION		Output voltage available if: Switch ON threshold $V_{in}\ 420V \dots 450V$	$420\ V_{DC} \leq V_{in} \leq 1'000\ V_{DC}$ AND $V_{out} \leq 85\ V_{DC} \pm 2.5\%$			
SIGNALS						
LED		$V_O\ o.k.\ V_O > 100V \pm 2.5\%$	LED Green ON			
PG	Power Good PG_H and PG_L Max. switching capacity: $V < 154V, I \leq 10mA$	$V_{Bat} < 85V \rightarrow$ converter ON X1:1 X1:5 contact open X1:1 X1:5 contact closed	$V_O < 100V \pm 2.5\%$ $V_O \geq 100V \pm 2.5\%$			

f	Switching frequency	$V_I = 750\ V, I_O = 2.85\ A$		40		kHz
η	Efficiency	$P_O \geq 0.7 \times P_{O\ nom}$	80	83		%
	MTBF (SN 29500)	$V_I = 750\ V, I_O = 2.85\ A, T_A = +40^\circ C$		300 000		h
	Life time	$V_I = 750\ V, I_O = 1.5\ A, T_A = +40^\circ C$	25			y
	No load, short circuit proof		Continuously			

Applications: stationary and mobile. Operation with direct contact to catenary voltage. High input surge capability. Creepage & clearance, choice of Al caps for max. altitude 2'500m over sea level. High immunity against steep dV_{in}/dt variation: $600V \rightarrow 1200V \leq 1ms$



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SYMBOL PARAMETER TEST CONDITIONS MIN TYP MAX UNITS

SAFETY / DIMENSIONS

	Creepage / clearance distances Basis isolation, PCB FR4 V0 acc. to EN 50124 - 1 / 0V 3, 2'500m o.s.l.	Input – output Input – chassis Output – chassis	8.0 6.0 2.0			mm mm mm
	Dielectric strength test Piece test every unit for ramp function 2 s – 3 s – 3 s	Input – output Input – chassis Output – chassis			4'000 1'500 500	V _{DC} V _{DC} V _{DC}
	Connectors (mating connectors to conduct with the converter output connectors)	Input: + V _{in} and – V _{in} Output: + V _{Out} and – V _{Out} V _{Batt} , PG	WAGO 231- 203 / 037 – 000 WAGO 231- 306 / 037 – 000			
	Protection class, protection system		I, IP 20			
	Dimensions w x h x d	Wall mounting See mechanic drawing	286 x 235 x 92			mm
	Assembling	Wall mounting with screws	6 x drill size 8 mm for M7			
	Weight			3		kg

ENVIROMENTAL CONDITIONS

T _A	Operating temperature range	Continuously P _{out} = 300W EN 50155	- 40		+ 70	°C
T _{Storage}	Storage Temperature		- 40		+ 85	°C
	Cooling		free air convection			
	Humidity	EN 50155, IEC 60571	75% averaged year, 95% 30 days			
	Vibration / shock (not tested for DIN rail mounting)	IEC 61373, IEC 68-2-27, Cat. I 3 shocks per axis	50 m / s ² , 30 ms			

EMC

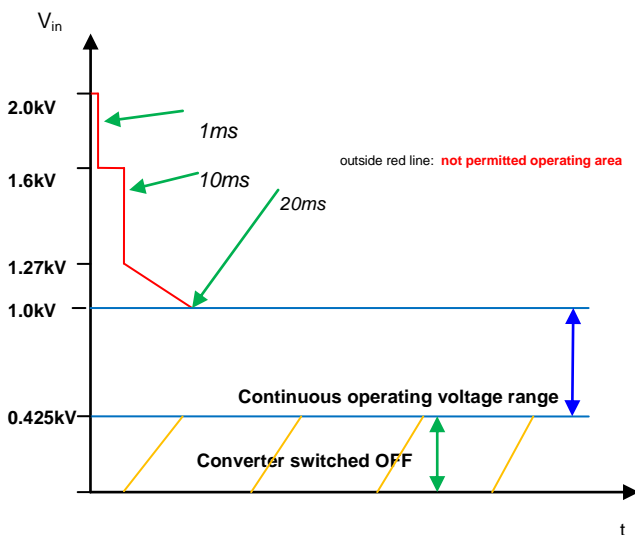
	Emission	Line conducted and radiated	EN 50121 - 3 - 2: 2016
	Immunity	Input, output	

STANDARDS

Applied standards:	EN 50155: 2008	EN 50163	EN 50124 - 1: 1996	EN 50121 - 3 - 2: 2016	IEC 60571
	SN 29500	EN 50121 - 1	EN 50125 - 1	EN 60068 - 2 - 6, 2...27	EN 61000 - 4 - 2...6
	IEC 571	IEC 61373: 1999	EN 60721 - 3 - 5	EN 61373 : 1999	EN 60529
	IEC 1287-1	EN 50207: 2000			

Technical specifications valid for: - 40° C ≤ T_A ≤ + 70° C, 420 V_{DC} ≤ V_{in} ≤ 1'000V_{DC}, unless otherwise noted.

Wall mounting, metal housing: 300 FDB 750 M105 W12



Converter Output ON:

- 420V ≤ V_{IN} ≤ 1'000V
AND
- V_{Bat} ≤ 85V

