

## 1000 LWB 110 M24 W00

$V_{I\text{ nom}} = 110\text{V}$      $V_{O\text{ nom}} = 24\text{V}$      $I_O = 45\text{A}$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
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### INPUT

$V_I$	Input voltage range	Continuously	77		137.5	$V_{DC}$
	Input voltage range: dynamic	$V_{In} = 66.0\text{V} - 77.0\text{V}$ $t \leq 0.1\text{sec}$ $V_{In} = 137.5\text{V} - 154.0\text{V}$ $t \leq 1.0\text{sec}$	66.0 137.5		77.0 154.0	$V_{DC}$ $V_{DC}$
$V_{I\text{ min}}$	Converter On   Off	Switch On: 55 V    Switch Off: 49 V	60		65	$V_{DC}$
$V_{I\text{ max}}$	Converter shutdown	No electrical switch OFF at $V_{I\text{ max}}$			-	$V_{DC}$
$V_{\text{Enable}}$	Option: Enable Function Reference: - $V_I$ see drawing	Converter ON: connector X3 Pin 1 and 2 closed Converter OFF: connector X3 Pin 1 and 2 open				$V_{DC}$
	Stand by current	$66\text{V} \leq V_I \leq 154\text{V}$ , converter OFF			25	mA
$I_I$	Input current	No load Nominal load Nomonal load		12	100	mA A A
	Input current integral	$V_I = 154\text{V}$			15	A <sup>2</sup> s
$I_{I\text{ max}}$	Max. input switch on current $V_I \geq V_{I\text{ min}}$ , ( $V_{\text{Enable}} \rightarrow \leq 0.8\text{V}$ )	$I_O = 45\text{A}$ $\Delta t \leq 100\text{ms}$	On request			
	Input Power Fuse Switch	No internal fuse	External circuit breaker			
$C_I$	Converter input capacity				100	$\mu\text{F}$
	External line inductance				50	$\mu\text{H}$
	Reverse input protection	Parallel diode + fuse	1.5 KE160 A			

### OUTPUT: Power unit

$66\text{V}_{DC} \leq V_I \leq 154\text{V}_{DC}$

$P_{O\text{ nom}}$	Output power		1080	1100		W
$V_{O\text{ nom}}$	Output voltage adjustment, factory set		24,1	24,2	24,3	$V_{DC}$
$\Delta V_O$	Regulation	$0\text{A} \leq I_I \leq 45\text{A}$ $T_A = -40^\circ\text{C} \dots +70^\circ\text{C}$ $T_A = -40^\circ\text{C} \dots +85^\circ\text{C}$	23.6 ... 24.3 $\leq 4\% V_{O\text{ nom}}$			V
$\Delta V_{O\text{ dyn}}$	Load regulation dynamic	Pulse load: 20 - 80 - 20 % x $I_{O\text{ nom}}$			500	mV
$t_{\text{dyn}}$	Response time	Pulse load: 20 - 80 - 20 % x $I_{O\text{ nom}}$		1	2	ms
$V_{O\text{ rms}}$	Ripple	Nom. load BW 300 kHz		100	250	mV
$V_{O\text{ pp}}$	Noise	Nom. load BW 20 MHz			350	mV
$t_{\text{on}}$	Turn on time $V_O$	$0\text{A} \leq I_{O\text{ out}} \leq 45\text{A}$ Resistive load			250	ms
$t_h$	Hold up time	$0\text{A} \leq I_{O\text{ out}} \leq 45\text{A}$ , class s1 0ms	-			
	Overvoltage shutdown $V_O$	$0\text{A} \leq I_{O\text{ out}} \leq 45\text{A}$	Converter off: $V_O \leq 32.4\text{V}$			
$I_O$	Output current			45		A
	Output current limitation of $I_O$		46		47	A
	Output short circuit current	Short circuit between + $V_O$ and - $V_O$ $66\text{V} \leq V_I \leq 154\text{V}$			65	A
$C_O$	Output capacity			30		mF

### OUTPUT: Signals

PF	Option: Power Fail Open Collector Transistor $V_{CE\text{ max}} \leq 70\text{V}$ , $I_{CE\text{ max}} \leq -20\text{mA}^*$ Reference: - $V_O$	Transistor on: PF= low, $V_O < V_{O\text{ min}}$ Transistor off: PF= high, $V_O \geq V_{O\text{ min}}$  Signal defined for $V_O \geq 0.6 \times V_{O\text{ nom}}$	$V_O < 0.95 \times V_{O\text{ nom}} \pm 2\%$ $V_O \geq 0.95 \times V_{O\text{ nom}} \pm 2\%$	
	Signals	LED	Option	

### GENERAL SPECIFICATIONS

f	Switching frequency	$V_I = 110\text{V}$ , $I_O = 45\text{A}$		200		kHz
$\eta$	Efficiency	$P_O \geq 0.7 \times P_{O\text{ nom}}$	86	88		%
	MTBF (SN 29500)	$V_I = 110\text{V}$ , $I_O = 45\text{A}$ , $T_A = +40^\circ\text{C}$		400 000		h
	No load, short circuit proof		Continuously			

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### SAFETY / DIMENSIONS

	Creepage / clearance distances PD2, OV2 PCB FR4, V0, TG = + 140°C	Input – output Input – case Output – case	2.0 2.0 1.0			mm mm mm
	Converter dielectric strength test unit test ramp function: 2s – 3s – 2s Type test: 1 min.	Input – output Input – case Output – case			2'100 1'500 700	V <sub>DC</sub> V <sub>DC</sub> V <sub>DC</sub>
	Connectors	Input: X1 Output: X2 X3: Enable & PowerFail PE:	WAGO: 745 - 851/006 – 000 WAGO: 745 - 851/006 – 000 WAGO: 734 - 138			
	Protection class, protection system		I, IP 20			
	Dimensions with mounting plate	w x h x d	241 x 290 x 169.2			mm
	Assembling	Wall mounting with screws	4 x M6			
	Weight		7.25			kg

### ENVIRONMENTAL CONDITIONS

T <sub>A</sub>	Operating temperature range	Continuously	- 40		+ 70	°C
T <sub>Storage</sub>	Storage Temperature	10 min. class Tx @ EN 50155	- 40		+ 85	°C
	Cooling		free air convection			
	Humidity	EN 50155, IEC 60571	75% averaged year, 95% 30 days			
	Vibration / shock	IEC 61373, IEC 68-2-27, BN 411002 Cat. I 3 Shocks per axis	50 m / s <sup>2</sup> , 30 ms			

### EMC

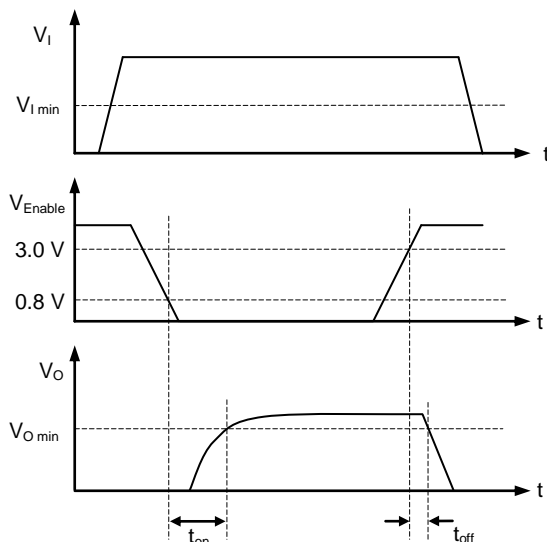
	Emission	Line conducted and radiated	EN 50121 - 3 - 2: 2006			
	Immunity	ESD EN 61000 - 4 - 2	6 kV / 8 kV Performance criteria - B -			
		High frequency field EN 61000 - 4 - 3	20 V / m 80 MHz ... 1 GHz Performance criteria - A -			
		Burst EN 61000 - 4 - 4	Level 3 asym., sym. Performance criteria - A -			
		Surge EN 61000 - 4 - 5	2 kV asym. / 1 kV sym. R <sub>i</sub> = 42 Ω Performance criteria - A -			
		HF – Current injection EN 61000 - 4 - 6	10 V <sub>eff</sub> , R <sub>i</sub> = 150 Ω Performance criteria - A -			

### STANDARDS

Applied standards:	EN 50155: 2006	BN 411 002	EN 50124 - 1: 2006	EN 50121 - 3 - 2: 2006	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

Technical specifications valid for: - 40° C ≤ T<sub>A</sub> ≤ + 70° C, 77 V ≤ V<sub>in</sub> ≤ 137.5 V, unless otherwise noted.

**Turn On Time t<sub>on</sub> and Hold Up Time t<sub>h</sub>**  
as a function of Enable signal V<sub>Enable</sub>



**Dynamic load regulation V<sub>O,dyn</sub> and dynamic response time t<sub>dyn</sub>**

