

## 50 WBB 110 M12 W00

$V_{i\text{ nom}} = 110\text{ V}$        $V_{O\text{ nom}} = 12\text{ V}$        $I_{O\text{ nom}} = 4.0\text{ A}$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>Input:</b>						
$V_{IN}$	Input voltage range	Continuously	77.0		137.5	V
$V_{IN\text{ Dyn}}$	Input voltage range dynamic	$V_{IN} = 66.0\text{ V} \dots 77.0\text{ V}$ for $t \leq 0.1\text{ s}$ $V_{IN} = 137.5\text{ V} \dots 154.0\text{ V}$ for $t \leq 1\text{ s}$	66.0		154.0	V
$V_{IN\text{ Min}}$	Converter shutdown				65	V
$V_{IN\text{ Max}}$	Converter shutdown		155			V
$I_{IN}$	Input current	no load		0.6	70	mA
	Nominal load	$V_{IN} = 110.0\text{ V}$ , $I_{OUT} = 4.0\text{ A}$			1.1	A
	Nominal load	$V_{IN} = 66.0\text{ V}$ , $I_{OUT} = 4.0\text{ A}$				A
	Input current integral	$V_{IN} = 154.0\text{ V}$			5	A <sup>2</sup> s
$I_{IN\text{ Max}}$	Switch on current at $V_{IN} \geq V_{IN\text{ min}}$	$I_{OUT} = 4.0\text{ A}$ $\Delta t \leq 200\text{ ms}$			6	A
	Input Fuse		10 A Pico Fuse			
$C_{IN}$	Converter input capacitance			20	25	$\mu\text{F}$
	External Line Inductance				25	$\mu\text{H}$
	Reverse input protection	parallel diode + input fuse	1.5KE160A			

### Output: Power Unit

$P_{OUT\text{ Nom}}$	Output power	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$		50		W
$V_{OUT\text{ Nom}}$	Output voltage adjustment, factory set	$77.0\text{ V} \leq V_{IN} \leq 137.5\text{ V}$	+ 11.9	+ 12.0	+ 12.2	V
$\Delta V_{OUT}$	Load regulation static	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$ $0\text{ A} \leq I_{OUT} \leq 4.0\text{ A}$ $T_A = -40^\circ\text{C} \dots +70^\circ\text{C}$	$\pm 2.5\% V_{OUT\text{ nom}}$			V
$\Delta V_{O\text{ dyn}}$	Load regulation dynamic	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$ Pulse load: 20 - 80 - 20 % x $I_{OUT}$			$\pm 150$	mV
$t_{\text{dyn}}$	Response time	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$ Pulse load: 20 - 80 - 20 % x $I_{OUT}$		1	2	ms
$V_{O\text{ rms}}$	Ripple	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$ Nominal load BW 300 kHz		100	150	mV
$V_{O\text{ pp}}$	Noise	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$ Nominal load BW 20 MHz			200	mV
$t_{on}$	Turn on time $V_o$	$77.0\text{ V} \leq V_{IN} \leq 137.5\text{ V}$ , $0\text{ A} \leq I_{OUT} \leq 4.0\text{ A}$ resistive load	25		200	ms
$t_h$	Hold Up Time	$77.0\text{ V} \leq V_{IN} \leq 137.5\text{ V}$ $0\text{ A} \leq I_{OUT} \leq 4.0\text{ A}$	0			ms
	Overvoltage Protection	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$ $0\text{ A} \leq I_{OUT} \leq 4.0\text{ A}$	Transil Diode 1,5KE15A			
$I_{OUT}$	Output current	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$		4.0		A
	Output current limitation	$66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$	4.1			A
$I_{AK}$	Output short circuit current	short circuit between + $V_o$ and - $V_o$ $66.0\text{ V} \leq V_{IN} \leq 154.0\text{ V}$			6.5	A
	Sense Lines	no				
$C_o$	Converter Capacitance	Output		10		mF

### Signals

Signals	Input	LED yellow
	Output	LED yellow

### General Specifications

f	Switching frequency	$V_{IN} = 110\text{ V}$ , $I_{OUT} = 4.0\text{ A}$		100		kHz
$\eta$	Efficiency	$P_{OUT} \geq 0.7 \times P_{OUT\text{ Nom}}$	86	89		%
	MTBF (SN 29500)	$V_{IN} = 110\text{ V}$ , $I_{OUT} = 4.0\text{ A}$ , $T_A = +40^\circ\text{C}$		500 000		h
	No load, short circuit proof		Continuously			

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>SAFETY / DIMENSIONS</b>						
	Creepage, Clearance PCB FR4 V0	Input – Output Input – Case Output – Case	2.0 2.0 1.0			mm mm mm
	Converter Dielectric Strength Test each unit ramp function 2 s – 3 s – 2 s	Input – Output Input – Case Output – Case			2100 2100 750	V V V
	Connector	Input, Output, SE: Combicon 5-pins Required femal plug:	DFK-MSTBA 2.5/5-GF-5.08 MSTB 2.5 HC/5-STF-5.08			
	Pin Assignment	Wire gauges	see drawing			
	Protection Class, Protection degree		I, IP 20			
	Dimensions see drawing	w x h x d	110 x 170 x 52			mm
	Assembling	Wall mounting with screws	4 x M4			
	Weight			750		g

**ENVIRONMENTAL CONDITIONS**

T <sub>A</sub>	Operating Range	Continuously EN 50155 class Tx for 10 Min.	- 40 - 40		+ 70 + 85	°C °C
T <sub>Sto</sub>	Storage Range		- 40		+ 85	°C
	Cooling		convection			
	Humidity	EN 50155, IEC 60571	75% averaged year, 95% 30 days			
	Vibration / Shock	IEC 61373, IEC 68-2-27, EN 50155 Cat. I 3 shocks each Axis	50 m / s <sup>2</sup> , 30 ms			

**EMV**

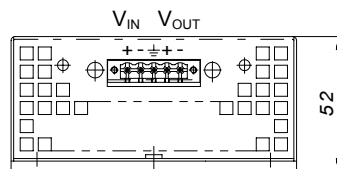
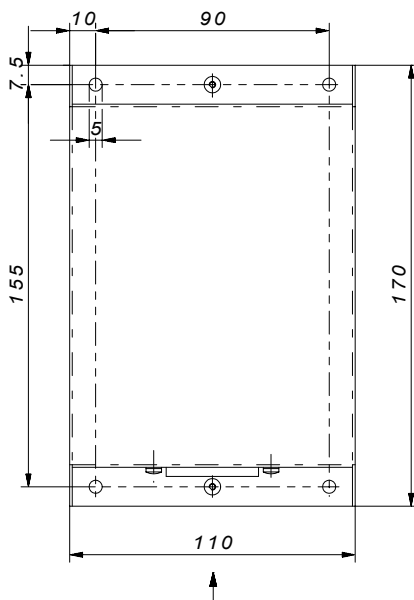
	Emission	Line conducted and radiated	EN 50121 - 3 - 2: 2001			
	Immunity	ESD EN 61000 - 4 - 2	6 kV / 8 kV performance criteria - B -			
		High Frequency Field EN 61000 - 4 - 3	10 V / m 80 MHz ... 1 GHz performance criteria - A -			
		Burst EN 61000 - 4 - 4	Level 3 asym., sym. performance criteria - A -			
		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	3 V <sub>eff</sub> , R <sub>i</sub> = 150 Ω performance criteria - A -			

**STANDARDS**

Applied Standards:	EN 50155: 2000	BN 411 002	EN 50124 - 1: 1996	EN 50121 - 3 - 2: 2001	IEC 60571
	SN 29 500	prEN 50 121 - 1	prEN 50125 - 1	EN 60068 - 2 - 6, 2...27	EN 61000 - 4 - 2...6
	IEC 571	IEC 61373	EN 60721 - 3 - 5	EN 61373	EN 60529

Technical specifications valid for: - 40° C ≤ T<sub>A</sub> ≤ + 70° C, 77.0 V ≤ V<sub>IN</sub> ≤ 137.5 V, unless otherwise noted.

**Dimensions (in mm) and pin assignment**



View in direction of the arrow

Wire gauges:  
V<sub>in</sub>: 1,0 mm<sup>2</sup>  
V<sub>in</sub>: 1,0 mm<sup>2</sup>  
PE: 1,5 mm<sup>2</sup>