

# DC/DC Converter

150 W

## 150 FDB 750 M24 W50

$V_{I\text{ nom}} = 600 V_{DC}$  and  $750 V_{DC}$

$V_{O\text{ nom}} = 24 V$   $I_O = 6.2 A$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>INPUT</b>						
$V_I$	Input voltage range	Continuously	400		900	$V_{DC}$
	Input voltage range: dynamic	$V_I = 900 V \dots 1000 V$ for 5 min.	900		1000	$V_{DC}$
$V_{I\text{ min}}$	Converter shutdown				390	$V_{DC}$
$V_{I\text{ max}}$	Converter shutdown			1150		$V_{DC}$
	Input transients	2 kV, transient pulses	for $t \leq 1 \text{ ms} / \geq 10^6$ pulses			
$I_I$	Input current	No load $V_I = 1000 V, I_O = 0 A$			15	$\text{mA}$
		Nominal load $V_I = 750 V, I_O = 6.2 A$		0.25		$A$
		Nominal load $V_I = 400 V, I_O = 6.2 A$			0.5	$A$
	Input current integral	$V_I = 1000 V, 0 A \leq I_O \leq 6.2 A$			5	$A^2s$
$I_{I\text{ max}}$	Max. input switch on current $V_I \geq V_{I\text{ min}}$	$I_O = 6.2 A$ $\Delta t \leq 100 \text{ ms}$	On request			
	Input fuse		2 A			
$C_I$	Converter input capacity		On request			
	External line inductance		On request			

### OUTPUT: Power unit

$400 V \leq V_I \leq 900 V$

$P_{O\text{ nom}}$	Output power			150		W
$V_{O\text{ nom}}$	Output voltage adjustment, factory set		24.0	24.0	24.2	$V_{DC}$
$\Delta V_O$	Regulation	$0 A \leq I_O \leq 6.2 A$ $T_A = -40^\circ C \dots +70^\circ C$	$\leq 3 \% V_{O\text{ nom}}$			V
$\Delta V_{O\text{ dyn}}$	Load regulation dynamic	Load: $20 - 80 - 20 \% \times I_{O\text{ nom}}$			500	mV
$t_{\text{dyn}}$	Response time	Load: $20 - 80 - 20 \% \times I_{O\text{ nom}}$		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			750	mV
$t_{\text{on}}$	Turn on time $V_O$	$0 A \leq I_O \leq 6.2 A$ Resistive load			200	ms
$t_h$	Hold up time	$0 A \leq I_O \leq 6.2 A$	-	-	-	ms
	Oversvoltage shutdown $V_O$	$0 A \leq I_O \leq 6.2 A$	Converter off: $V_O \leq 32.4 V$			V
$I_O$	Output current			6.2		A
	Output current limitation of $I_O$		6.8			A
	Output short circuit current	Short circuit between + $V_O$ and - $V_O$			9	A
$C_O$	Output capacity			12		mF

### OUTPUT: Signals

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

f	Switching frequency	$V_I = 750 V, I_O = 6.2 A$	25	100		kHz
$\eta$	Efficiency	$P_O \geq 0.7 \times P_{O\text{ nom}}$	84	87		%
	MTBF (SN 29500)	$V_I = 750 V, I_O = 6.2 A, T_A = +40^\circ C$		400 000		h
	No load, short circuit proof		Continuously			

\* - sign: sink current

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
<b>SAFETY / DIMENSIONS</b>						
	Creepage / clearance distances	Input   Output	8.0			mm
	Base isolation	Input   Baseplate	6.0			mm
	acc. to EN 50124 - 1 / PD2, 0V 3	Output   Baseplate	2.0			mm
	Dielectric strength type test 1 minute	Input   Output			4300	V <sub>eff</sub>
	Piece tests ramp function 5 - 10 - 5 sec	Input   Baseplate			1500	V <sub>eff</sub>
	DC voltage 3000V   1500V   500V resp.	Output   Baseplate			500	V <sub>eff</sub>
	Connectors	Input: + V <sub>I</sub> and - V <sub>I</sub> Output: + V <sub>O</sub> and - V <sub>O</sub> Option: Relais	Lines 80 cm			
	Protection class, protection system	Depends on model	IP 20			
	Dimensions w x h x d <i>see drawing</i>	Wall mounting	266 x 167 x 69.5			mm
	Assembling	Wall mounting with screws	4 x M5 / M6			
	Weight	Depends on model	1.1		2.2	kg

### ENVIROMENTAL CONDITIONS

T <sub>A</sub>	Operating temperature range	Continuously for 10 min. EN 50155 Class Tx	- 40		+ 70	°C
			- 40		+ 85	°C
T <sub>Storage</sub>	Storage Temperature		- 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			

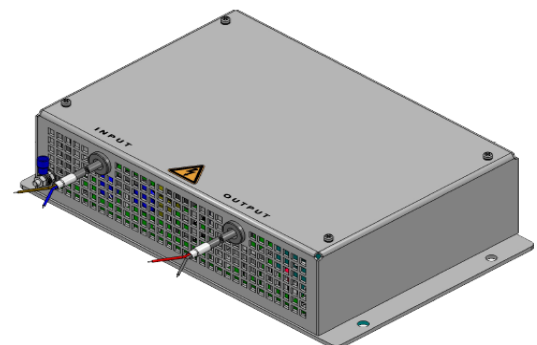
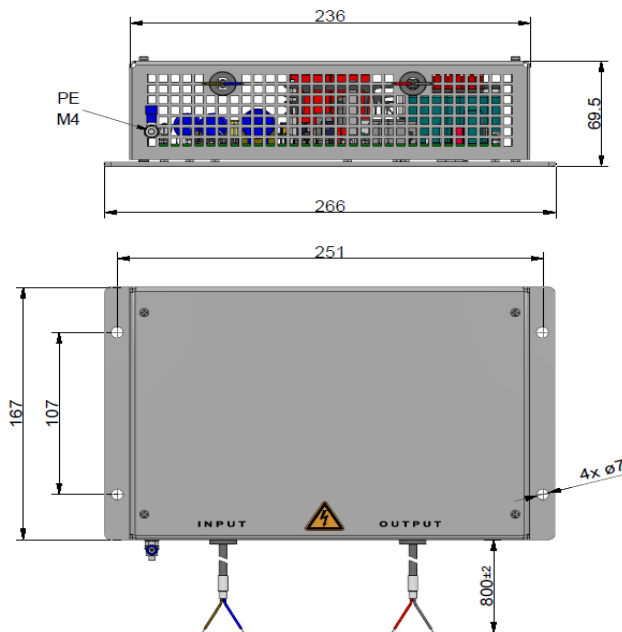
### EMC

	Emission	Line conducted and radiated	EN 50121 - 3 - 2: 2016			
	Transient withstand	V <sub>I</sub> = 1000 V <sub>DC</sub> ... 1269 V <sub>DC</sub> 2 kV 3 kV	for t ≤ 20 ms for t ≤ 1 ms / ≥ 10 <sup>6</sup> pulses for t ≤ 0,2 ms			

### STANDARDS

Applied standards:	EN 50155: 2016	BN 411 002	EN 50124 - 1: 2006	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
	EN 45545-2	IEC 571	IEC 61373: 2011	EN 60721 - 3 - 5	EN 60529

Technical specifications valid for: - 40° C ≤ T<sub>A</sub> ≤ + 70° C, 400 V ≤ V<sub>I</sub> ≤ 900 V, unless otherwise noted.



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Schutzvermerk nach DIN 34	Maßstab 1:2	Gewicht	Oberfläche	Datum	Name	Werkstoff	Freimaßtoleranz DIN 2768m	Version
				25.10.21	Dietz			PT1
								Format A3
								Blatt 1
								Blätter 1
Zust.	Anderung	Datum	Name			Ers. für:		