

25 LPB 024 M24

$V_{I\ nom} = 24V$ $V_{O\ nom} = 24 V$ $I_{O\ nom} = 1.0 A$

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
INPUT:						
V_{IN}	Input voltage range	Continuously	16.8		30.0	V_{DC}
$V_{IN\ Dyn}$	Input voltage range dynamic	$V_{IN} = 14.4 V \dots 16.8 V$ for $t \leq 0.1 s$ $V_{IN} = 30.0 V \dots 33.6 V$ for $t \leq 1 s$	14.4		33.6	V_{DC}
$V_{IN\ Min}$	Converter switch off		13.8		14.3	V_{DC}
$V_{IN\ Max}$	Converter switch off		-		-	V_{DC}
I_{IN}	Input current no load	$V_{IN} = 33.6 V, I_{OUT} = 0 A$	10		25	mA
	Nominal load	$V_{IN} = 24.0 V, I_{OUT} = 1.0 A$		1.2	A	
	Nominal load	$V_{IN} = 14.4 V, I_{OUT} = 1.0 A$		2.0	2.4	A
	Input current integral	$V_{IN} = 33.6 V$			5	A ² s
$I_{IN\ Max}$	Switch on current at $V_{IN} \geq V_{IN\ min}$	$I_{OUT} = 1.0 A$ $\Delta t \leq 200 ms$			2	A
	Input Fuse	5 x 20 mm	6.3 A			
C_{IN}	Converter input capacitance			6	12	μF
	External line Inductance				50	μH
	Reverse input protection	parallel diode + input fuse	1.5KE33A			

OUTPUT: Power Unit

$14.4 V \leq V_{IN} \leq 33.6 V$

$P_{OUT\ Nom}$	Output power	$T_A = -40^\circ C \dots +70^\circ C$ (10 min + 85°C)		25		W
$V_{OUT\ Nom}$	Output voltage adjustment, factory set		+ 23.9	+ 24.0	+ 24.1	V_{DC}
ΔV_{OUT}	Load regulation static	$0 A \leq I_{OUT} \leq 1.0 A$ $T_A = -40^\circ C \dots +70^\circ C$	$\pm 2.5 \% V_{out\ nom.}$			
		$0 A \leq I_{OUT} \leq 1.0 A$ $T_A = -40^\circ C \dots +85^\circ C$	$\pm 3.0 \% V_{out\ nom.}$			V
$\Delta V_{O\ dyn.}$	Load regulation dynamic	Pulse load: 20 - 80 - 20 % x I_{OUT}			± 250	mV
t_{dyn}	Response time	Pulse load: 20 - 80 - 20 % x I_{OUT}		1	2	ms
$V_{O\ rms}$	Ripple	Nominal load BW 300 kHz		50	150	mV _{rms}
$V_{O\ pp}$	Noise	$0 A \leq I_{OUT} \leq 1.0 A$ Nominal load BW 20 MHz		75	350	mV _{pp}
t_{on}	Turn on time V_o	$0 A \leq I_{OUT} \leq 1.0 A$ resistive load	20		150	ms
t_h	Hold Up Time	$0 A \leq I_{OUT} \leq 1.0 A$ $T_A = -40^\circ C \dots +85^\circ C$	0			ms
	Overvoltage Protection	$0 A \leq I_{OUT} \leq 1.0 A$ $T_A = -40^\circ C \dots +85^\circ C$	Transil Diode 1,5KE30A			
I_{OUT}	Output current			1.0		A
	Output current limitation	$T_A = -40^\circ C \dots +85^\circ C$	1.1			A
I_{AK}	Output short circuit current	short circuit between + V_o and - V_o			1.7	A
	Sense Lines	none				
C_o	Converter Capacitance	Output		300		μF

Signals

Signals	Option:	Input	LED yellow	
		Output	LED yellow	

GENERAL SPECIFICATIONS

f	Switching frequency	$V_{IN} = 24 V, I_{OUT} = 1.0 A$		125		kHz
η	Efficiency	$P_{OUT} \geq 0.7 \times P_{OUT\ Nom}$	88	89		%
	MTBF (SN 29500)	$V_{IN} = 24 V, I_{OUT} = 1.50 A, T_A = +40^\circ C$		750 000		h
	No load, short circuit proof		Continuously			

SYMBOL	PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
SAFETY / DIMENSIONS						
	Creepage, Clearance @ PD 2, OV 3 PCB: FR4/V0, TG = + 140°C	Input – Output Input – Ground Output – Ground	2.0 1.0 1.0			mm mm mm
	Converter Isolation Strength Test each unit ramp function 2 s – 3 s – 2 s	Input – Output Input – Ground Output – Ground			2100 1500 500	V _{DC} V _{DC} V _{DC}
	Connector	± Input, ± Output, SE:	Cable wiring			
	Pin Assignment	Recommended gauge size s. table below				
	Protection Class, Protection degree		I, IP 20			
	Dimensions <i>see drawing</i>	l x b x d	145 x 60 x 30			mm
	Assembling	PCB mounting with screws	4 x M4			
	Weight			375		g

ENVIRONMENTAL CONDITIONS

T _A	Operating Range	Continuously EN 50155 class Tx for 10 Min.	- 40 - 40		+ 70 + 85	°C °C
T _{Sto}	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 ² , 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 _i = 42 Ω performance criteria - A -		
		HF – Current Injection EN 61000 - 4 - 6	10 V _{eff} , R _i = 150 Ω performance criteria - A -		

STANDARDS

	Applied Standards:	EN 50155: 2007	BN 411 002	EN 50124 - 1: 2006	EN 50121 - 3 - 2: 2007	IEC 60571
		SN 29 500	EN 50 121 - 1	EN 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_A ≤ + 70° C, 16.8 V ≤ V_{IN} ≤ 30.0 V, unless otherwise noted.

- in closed housing **) 1400 MHz – 2100MHz 10V/m 2100MHz – 2500MHz 5V/m

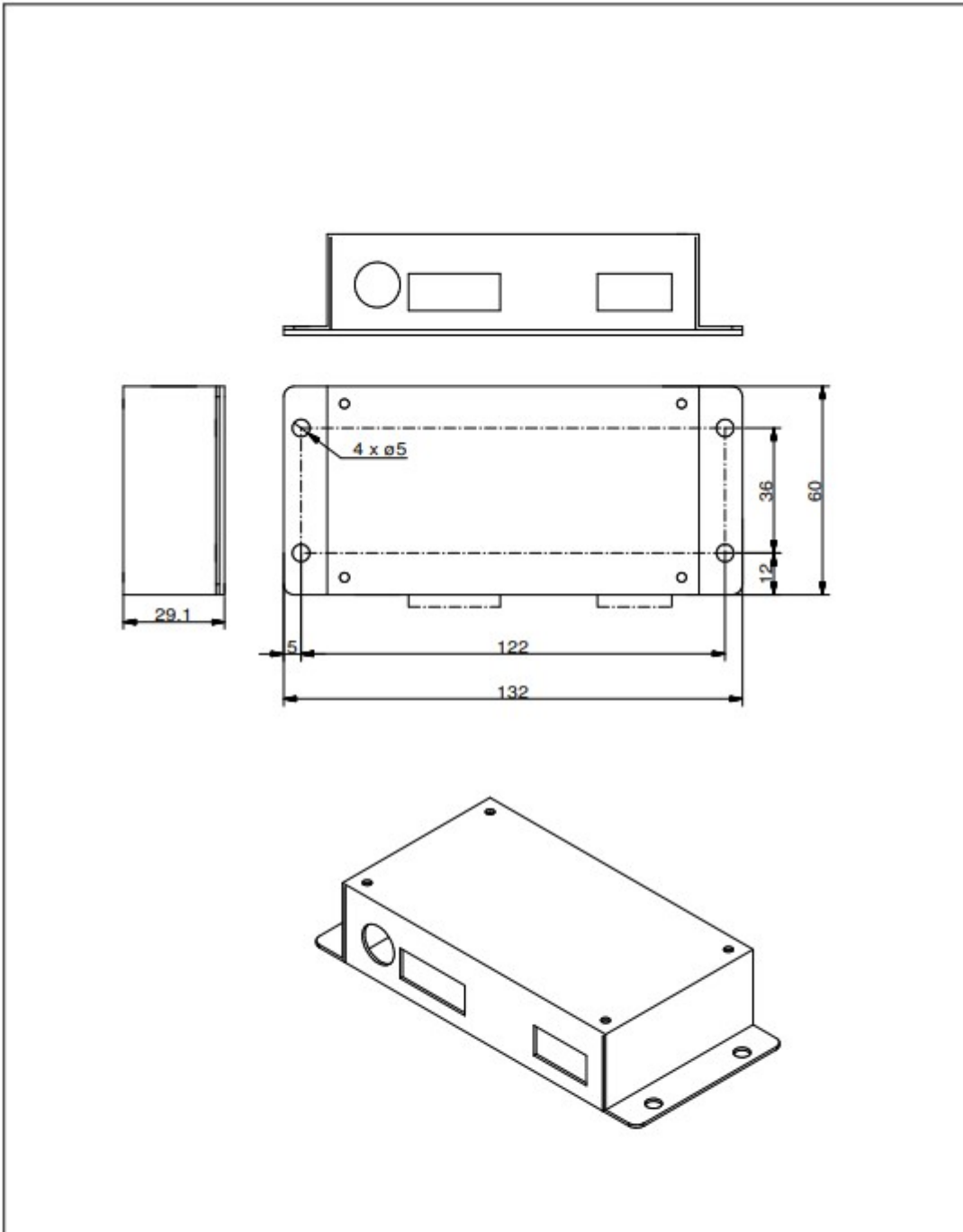
Cabling Connector Pinning:

		Size
+ V _{in}	5	1.0mm ²
- V _{in}	4	1.0mm ²
PE	3	1.5mm ²
+ V _{out}	2	1.0mm ²
- V _{out}	1	1.0mm ²

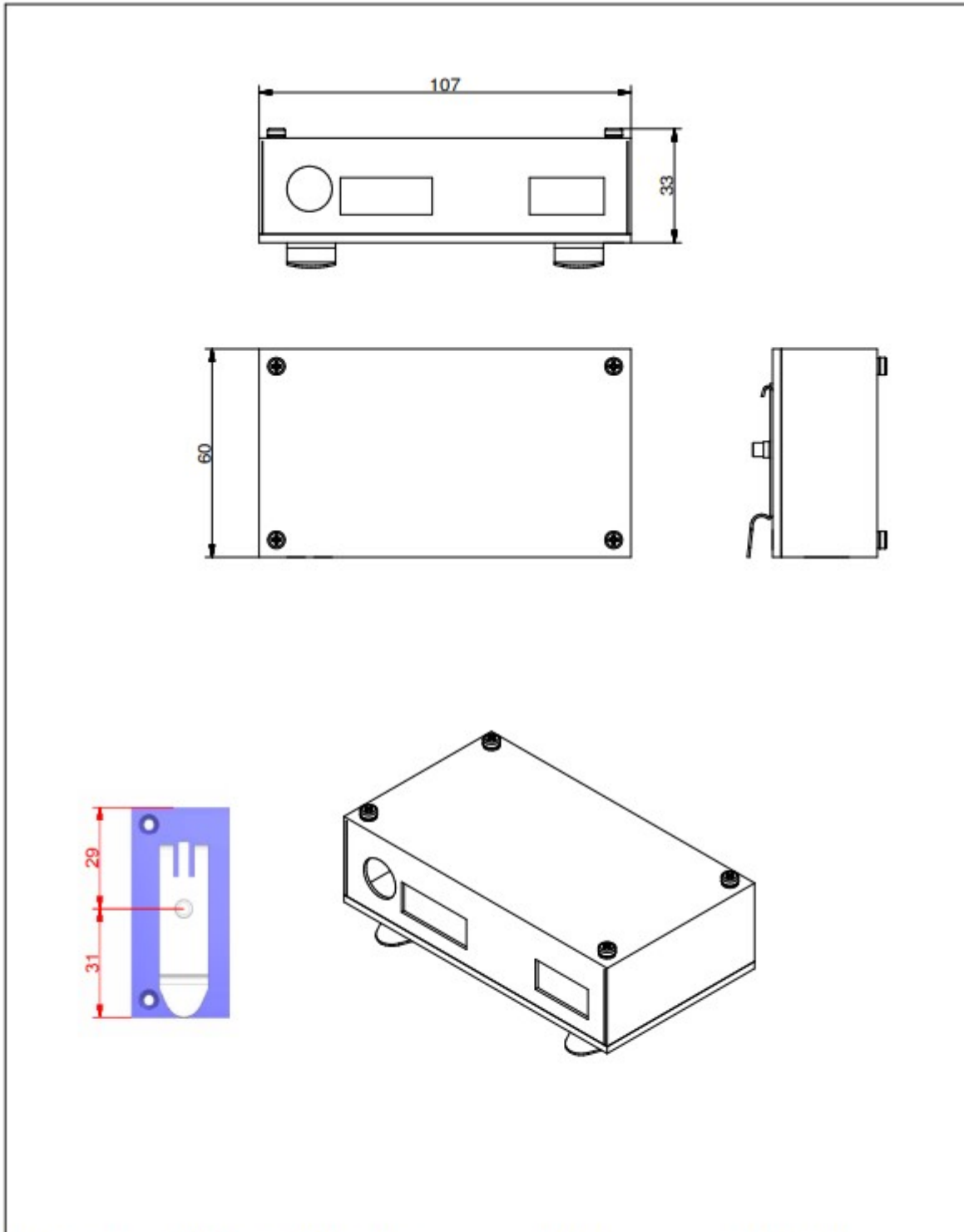
Order Key: 25 LPB 024 M24 □00

Please, select

W = Wall mounting
H = TS35 Rail mounting
P = Print mounting



Schutzvermerk nach DIN 34	Maßstab	Gewicht	Oberfläche chromatiert natur		Werkstoff Bl. AlMg Si 0,5 F22	Freimaßtoleranz DIN 2768m	
			Datum	Name	Bezeichnung		
			Bearb. 07.04.10	Radbruch	Maßzeichnung Wandbefestigung		
			Gepr.				
			Norm				
					Artikelnummer	Blatt 1	
					Artikelnummer	Blätter 1	
Zust.	Änderung	Datum	Name	Ers. für:			



Schutzvermerk nach DIN 34	Maßstab	Gewicht	Oberfläche chromatiert natur	Werkstoff Bl. 1,0 AlMg Si 0,5 F22	Freimaßtoleranz DIN 2768m		
			Datum	Name	Bezeichnung		
			Bearb. 07.07.10	Radbruch	25 LPB und 30 LPB		
			Gepr.		Befestigung TS35		
			Norm		Artikelnummer		
						Artikelnummer	Blatt 1
						Ers. für:	
Zust.	Änderung	Datum	Name				1