H Series — 50 Watt AC-DC Converters

Input voltage range 85...255 V AC
1, 2 or 3 isolated outputs up to 48 V DC
4 kV AC I/O electric strength test voltage

- Rugged electrical and mechanical design
- Output 1 regulated, outputs 2 and 3 tracking
- Operating ambient temperature range –10...50°C with convection cooling

Selection chart

Output 1 $U_{o\,nom}$ [V DC]	Output 1 $I_{o\,nom}$ [A]	Output 2 $U_{o\,nom}$ [V DC]	Output 2 $I_{o\,nom}$ [A]	Output 3 $U_{o\,nom}$ [V DC]	Output 3 $I_{o\,nom}$ [A]	Rated power $P_{o\,tot}$ [W]	Type Input voltage 85...255 V AC	Options
5.1	11	-	-	-	-	56	LH 1001-2R	D, V
12	6	-	-	-	-	72	LH 1301-2R	D
15	4.5	-	-	-	-	67	LH 1501-2R	D
24	3	-	-	-	-	72	LH 1601-2R	D
48	1.5	-	-	-	-	72	LH 1901-2R	D
12	2	12	2	-	-	48	LH 2320-2	D
15	1.7	15	1.7	-	-	51	LH 2540-2	D
5.1	5	12	0.7	12	0.7	42	LH 3020-2	D, V
5.1	5	15	0.6	15	0.6	43	LH 3040-2	D, V

Input

Input voltage	continuous range	85...255 V AC
Input frequency		47...63 Hz
Inrush current limitation	by thermistor	

Output

Efficiency	$U_{i\,nom}$, $I_{o\,nom}$	up to 83%
Output voltage 1 setting acc.	$U_{i\,nom}$, $I_{o\,nom}$	±2% $U_{o1\,nom}$
Output voltage 2, 3 setting acc.	$U_{i\,nom}$, $I_{o\,nom}$	±5% $U_{o2,3\,nom}$
Output voltage switching noise	IEC/EN 61204, total	typ. 200 mV_{pp}
Line regulation	$U_{i\,min}$...$U_{i\,max}$, $I_{o\,nom}$	typ. ±1% $U_{o\,nom}$
Load regulation output 1	$U_{i\,nom}$, 0...$I_{o1\,nom}$	typ. 0.2% $U_{o1\,nom}$
Load regulation output 2, 3	10...100% $I_{o2,3\,nom}$	typ. 0.7 V
Output voltage 2, 3	$U_{i\,nom}$, $I_{o1\,nom}$, $I_{o2,3}$ = 0	max. 115% $U_{o2,3\,nom}$
Cross load regulation outp. 2, 3	0...100% $I_{o1\,nom}$	typ. 0.7 V
Minimum output current	not required	0 A
Current limitation main output	rectangular U/I characteristic	typ. 110% $I_{o\,nom}$
Current limitation aux. output(s)	rectangular U/I characteristic	typ. 120% $I_{o\,nom}$
Operation in parallel	by current limitation	
Hold-up time	U_i = 230 V AC, $I_{o\,nom}$	typ. 70 ms

Protection

Input undervoltage lockout		typ. 60 V AC
Input overvoltage lockout		typ. 280 V AC
Input transient protection	varistor	
Output	no-load, overload and short circuit proof	
Output overvoltage	suppressor diode in each output	typ. 150% $U_{o\,nom}$
Overtemperature	switch-off with auto restart	T_C typ. 100°C

Control

Output voltage adjustment	single output types	0...110% $U_{o1\,nom}$
Inhibit	TTL input, output(s) disabled if left open-circuit	
Status indication	LEDs: OK, inhibit	

Safety

Approvals	EN 60950, UL 1950, CSA C22.2 No. 950	
Class of equipment		class I
Protection degree	units without options	IP 40
Electric strength test voltage	I/case	2 kV AC
	I/O	4 kV AC
	O/case	1 kV AC
	O/O	0.2 kV AC

EMC

Electrostatic discharge	IEC/EN 61000-4-2, contact discharge, level 2 (4 kV)	criterion A
Electromagnetic field	IEC/EN 61000-4-3, level x (20 V/m)	criterion A
Electr. fast transients/bursts	IEC/EN 61000-4-4, input, level 1 (0.5 kV)	criterion A
Surge	IEC/EN 61000-4-5, input, level 1 (0.5 kV)	criterion A
Electromagnetic emissions	CISPR 22/EN 55022, conducted	class A
	CISPR 22/EN 55022, radiated	class B

Environmental

Operating ambient temperature	$U_{i\,nom}$, $I_{o\,nom}$, convection cooled	–10...50°C
Operating case temperature T_C	$U_{i\,nom}$, $I_{o\,nom}$	–10...80°C
Storage temperature	non operational	–25...100°C
Damp heat	IEC/EN 60068-2-3, 93 %, 40 °C	21 days
Vibration, sinusoidal	IEC/EN 60068-2-6, 10…60/60…150 Hz	0.15 mm/2 g_n
Shock	IEC/EN 60068-2-27, 6 ms	15 g_n
Bump	IEC/EN 60068-2-29, 16 ms	10 g_n
MTBF	MIL-HDBK-217E, G_B, 40 °C, single output types	384'000 h

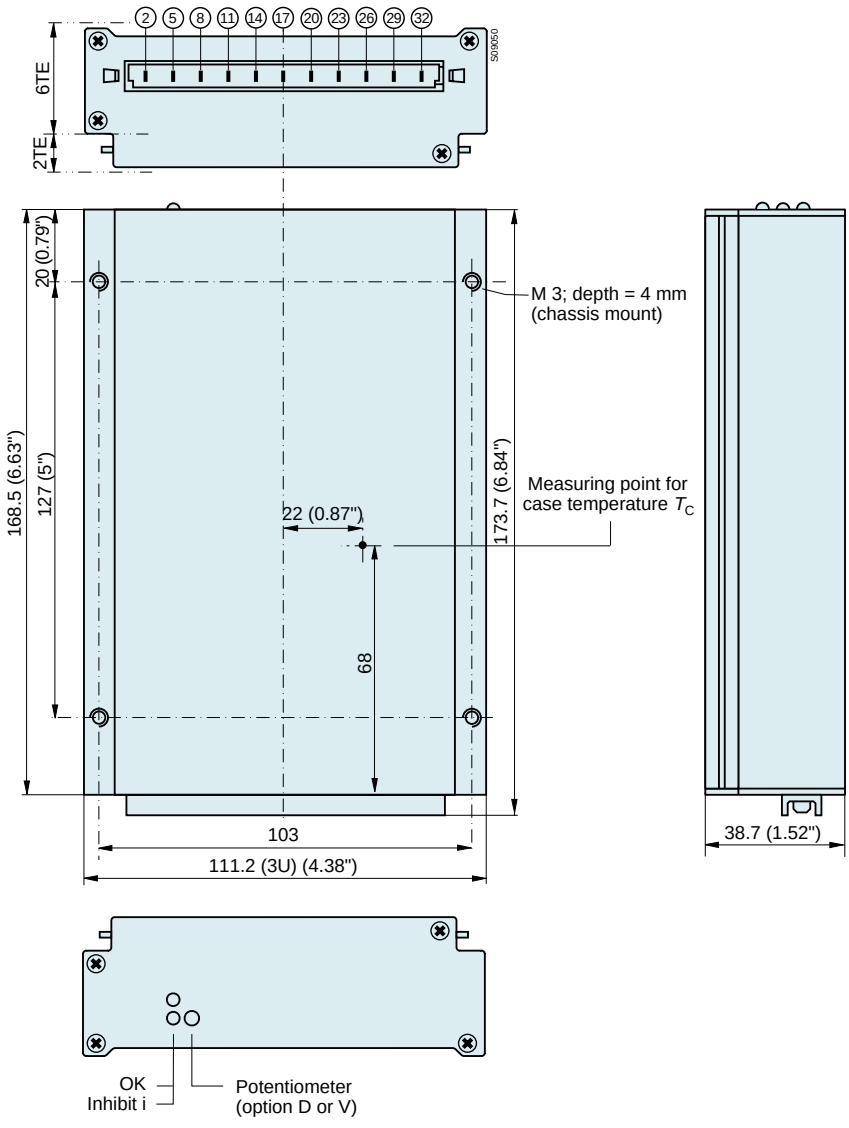
Options

Input and/or output undervoltage monitoring, excludes option V	D1…D8
Input and/or output undervoltage monitoring (VME), excludes option D	V2, V3

Mechanical data

Tolerances ±0.3 mm (0.012") unless otherwise indicated.

European Projection



Pin allocation

Pin	Electrical Determination	LH1000	LH2000	LH3000
2 5	Inhibit control input Safe Data or ACFAIL	i D or V	i D or V	i D or V
8 11	Output voltage (positive) Output voltage (negative)	Vo1+ Vo1–		Vo3+ Vo3–
14 17	Control input + Control input –	R G		
14 17	Output voltage (positive) Output voltage (negative)		Vo2+ Vo2–	Vo2+ Vo2–
20 23	Output voltage (positive) Output voltage (negative)	Vo1+ Vo1–	Vo1+ Vo1–	Vo1+ Vo1–
26	Protective earth	⏚	⏚	⏚
29 32	AC input voltage AC input voltage	N ≂ P ≂	N≂ P ≂	N ≂ P ≂

Accessories

Front panels 19" (Schroff/Intermas)
Mating H11 connectors with screw, solder, fast-on or press-fit terminals
Connector retention facilities and code key system for connector coding
Flexible PCB for connecting the converter via an H11 connector, if mounted on a PCB
Chassis or wall mounting plates for frontal access
Universal mounting brackets for chassis or DIN-rail mounting