Input voltage ranges from 8…385 V DC
1or 2 outputs up to 48 V DC
4 kV AC I/O electric strength test voltage

- Rugged electrical and mechanical design
- Fully isolated outputs
- Operating ambient temperature range –40...71°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]	Type Input voltage 8...35 V DC	Options
5.1	20	-	-	AK 1001-7R	-9, D, V, P, T, B1
12	10	-	-	AK 1301-7R	-9, D, P, T, B1
15	8	-	-	AK 1501-7R	-9, D, P, T, B1
24	5	-	-	AK 1601-7R	-9, D, P, T, B1
24	5	-	-	AK 2320-7R	-9, D, P, T, B1
30	4	-	-	AK 2540-7R	-9, D, P, T, B1
48	2.5	-	-	AK 2660-7R	-9, D, P, T, B1
12	5	12	5	AK 2320-7R	-9, D, P, T, B1
15	4	15	4	AK 2540-7R	-9, D, P, T, B1
24	2.5	24	2.5	AK 2660-7R	-9, D, P, T, B1

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]	Type Input voltage 14...70 V DC	Type Input voltage 20...100 V DC	Options
5.1	25	-	-	BK 1001-7R	FK 1001-7R	-9, D, V, P, T, B1
12	12	-	-	BK 1301-7R	FK 1301-7R	-9, D, P, T, B1
15	10	-	-	BK 1501-7R	FK 1501-7R	-9, D, P, T, B1
24	6	-	-	BK 1601-7R	FK 1601-7R	-9, D, P, T, B1
24	6	-	-	BK 2320-7R	FK 2320-7R	-9, D, P, T, B1
30	5	-	-	BK 2540-7R	FK 2540-7R	-9, D, P, T, B1
48	3	-	-	BK 2660-7R	FK 2660-7R	-9, D, P, T, B1
12	6	12	6	BK 2320-7R	FK 2320-7R	-9, D, P, T, B1
15	5	15	5	BK 2540-7R	FK 2540-7R	-9, D, P, T, B1
24	3	24	3	BK 2660-7R	FK 2660-7R	-9, D, P, T, B1

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]	Type Input voltage 28...140 V DC	Type Input voltage 44...220 V DC	Type Input voltage 67...385 V DC	Options
5.1	25	-	-	CK 1001-7R	DK 1001-7R	-	-9, E, D, V, P, T, B1
12	12	-	-	CK 1301-7R	DK 1301-7R	EK 1301-7R	-9, E, D, P, T, B1
15	10	-	-	CK 1501-7R	DK 1501-7R	EK 1501-7R	-9, E, D, P, T, B1
24	6	-	-	CK 1601-7R	DK 1601-7R	EK 1601-7R	-9, E, D, P, T, B1
24	6	-	-	CK 2320-7R	DK 2320-7R	EK 2320-7R	-9, E, D, P, T, B1
30	5	-	-	CK 2540-7R	DK 2540-7R	EK 2540-7R	-9, E, D, P, T, B1
48	3	-	-	CK 2660-7R	DK 2660-7R	EK 2660-7R	-9, E, D, P, T, B1
12	6	12	6	CK 2320-7R	DK 2320-7R	EK 2320-7R	-9, E, D, P, T, B1
15	5	15	5	CK 2540-7R	DK 2540-7R	EK 2540-7R	-9, E, D, P, T, B1
24	3	24	3	CK 2660-7R	DK 2660-7R	EK 2660-7R	-9, E, D, P, T, B1

Input

Input voltage	6 wide-input ranges (1:5)	refer to selection chart
Inrush current limitation	CK, DK, EK by thermistor	

Output

Efficiency	$U_{i\,nom}$, $I_{o\,nom}$	up to 87%
Output voltage setting accuracy	$U_{i\,nom}$, $I_{o\,nom}$	±0.6% $U_{o\,nom}$
Output voltage switching noise	IEC/EN 61204, total	typ. 100 mV_{pp}
Line regulation	$U_{i\,min}$...$U_{i\,max}$, $I_{o\,nom}$	typ. ±0.3%
Load regulation	$U_{i\,nom}$, 10...100% $I_{o\,nom}$, symmetrical output load	typ. 0.4%
Minimum load	not required	0 A
Current limitation	rectangular U/I characteristic	typ. 110% $I_{o\,nom}$
Operation in parallel	by current limitation	
Hold-up time	$U_{i\,nom}$, $I_{o\,nom}$, C/D/E/FK with ext. diode in input line	4...30 ms
	$U_{i\,nom}$, $I_{o\,nom}$, A/BK with ext. diode in input line	typ. 1 ms

Control and protection

Input reverse polarity	built-in fuse, not user accessible	
Input undervoltage lockout		typ. 80% $U_{i\,min}$
Input overvoltage lockout		typ. 108% $U_{i\,max}$
Input transient protection	varistor or suppressor diode	
Output	no-load, overload and short circuit proof	
Output overvoltage	suppressor diode in each output	typ. 130% $U_{o\,nom}$
Overtemperature	switch-off with auto restart	T_C typ 100°C
Output voltage adjustment		0...110% $U_{o\,nom}$
Inhibit	TTL input, output(s) disabled if left open	
Status indication	LEDs: OK, inhibit, overload	

Safety

Approvals	EN 60950, UL 1950, CSA 22.2 No. 950	
Protection degree		IP 30
Class of equipment		class I
Electric strength test voltage	I/case	2 kV AC
	I/O	4 kV AC
	O/case	1 kV AC
	O/O	0.1 kV AC

EMC

Electrostatic discharge	IEC/EN 61000-4-2, level 4 (8/15 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, level 4 (2/4 kV)	criterion A
Surge	IEC/EN 61000-4-5, level 3 (2 kV)	criterion A
Conducted disturbances	IEC/EN 61000-4-6, level 3 (10 V)	criterion A
Electromagnetic emissions	CISPR 22/EN 55022, conducted	class B

Environmental

Operating ambient temperature	$U_{i\,nom}$, $I_{o\,nom}$, convection cooled	–25...71°C
Operating case temperature T_C	$U_{i\,nom}$, $I_{o\,nom}$	–25...95°C
Storage temperature	non operational	–40...100°C
Damp heat	IEC/EN 60068-2-3, 93%, 40°C	56 days
Vibration, sinusoidal	IEC/EN 60068-2-6, 10...60/60...2000 Hz	0.35 mm/5 g_n
Shock	IEC/EN 60068-2-27, 6 ms	100 g_n
Bump	IEC/EN 60068-2-29, 6 ms	40 g_n
Random vibration	IEC/EN 60068-2-64, 20...500 Hz	4.9 $g_{n\,rms}$
MTBF	MIL-HDBK-217F, G_B, 40°C	500'000 h

Options

Extended temperature range	–40...71°C, ambient, operating	-9
Electronic inrush current limitation		E
Output voltage adjustment	40...110% $U_{o\,nom}$, excludes feature R and vice versa	P
Input and/or output undervoltage monitoring, excludes option V		D0…D9
Input and/or output undervoltage monitoring (VME), excludes option P		V0, V2, V3
Current sharing		T
Cooling plate		B1

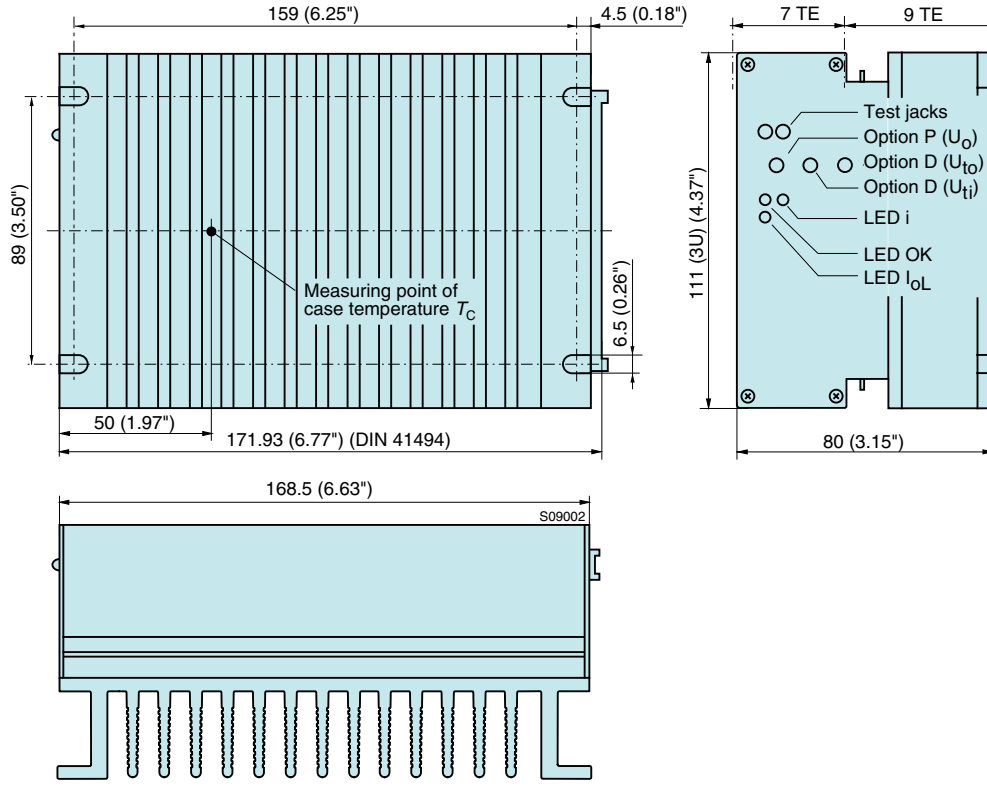
Pin allocation

Pin	AK 1000, BK...EK 1001		AK 2000		BK...EK 1301/1501/1601		BK...EK 2000	
4	Vo1+	Output 1	Vo2+	Output 2	Vo1+	Output 1	Vo2+	Output 2
6					Vo1+		Vo2+	
8	Vo1–	Output 1	Vo2–	Output 2	Vo1–	Output 1	Vo2–	Output 2
10					Vo1–		Vo2–	
12	S+	Sense	Vo1+	Output 1	S+	Sense	Vo1+	Output 1
14	S–	Sense	Vo1–	Output 1	S–	Sense	Vo1–	Output 1
16	R	Control of U_{o1}	R	Control of U_{o1}	R	Control of U_{o1}	R	Control of U_{o1}
18	i	Inhibit	i	Inhibit	i	Inhibit	i	Inhibit
20	D	Save data	D	Safe data	D	Save data	D	Save data
	V	ACFAIL						
22	T	Current sharing	T	Current sharing	T	Current sharing	T	Current sharing
24	⏚	Protective earth	⏚	Protective earth	⏚	Protective earth	⏚	Protective earth
26	Vi+	Input	Vi+	Input	Vi+	Input	Vi+	Input
28					Vi+		Vi+	
30	Vi–	Input	Vi–	Input	Vi–	Input	Vi–	Input
32					Vi–		Vi–	

Mechanical data

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

European Projection



Accessories

Front panels 19" (Schroff/Intermas)
Mating H15/H15S4 connectors with screw, solder, fast-on or press-fit terminals
Connector retention facilities and code key system for connector coding
Chassis or wall mounting plates for frontal access
Universal mounting brackets for chassis or DIN-rail mounting

Pin allocation