

GINO-AKA

Power Controllers



AKGRAD32

Product Data Catalogue

1 General Information

The AKGrad32 SCR power controller performs a smooth and continuous regulation of the power dissipated by heating elements in various applications. The power regulation to any setpoint within the range is accomplished by thyristors switching ON or OFF every half cycle (typ. 10ms) of the AC electrical power line. Typical applications for the AKGrad32 is as heat treatment controller in tin bath or lehr heating furnaces in the glass industry or as a controller for resistive heating load banks.



Each SCR/thyristor is a switching device which can provide fast AC full-wave or proportional phase angle conductions of electric power. The AKGrad32 performs a well-balanced power regulation with the highest accuracy for your heating process. At the same time, it guarantees an optimized heater lifetime following the specifications of various heating element manufacturers.

Thanks to its powerful 32bit DSP processor, an AKGrad32 calculates true RMS U, I, P and R for each phase in a closed loop and compensates temperature drifts of the heaters as well as power supply fluctuations. The powerful measurement system also enables:

- ✓ High precision closed-loop kW, rate %, I^2 or U^2 regulation and real-time adaptation to the power line variations;
- ✓ Phase angle soft start for loads with high cold/hot variation and load failure diagnosis;
- ✓ Patented soft-start firing for inductive downstream transformer which avoids any over current peak due to magnetic current;
- ✓ Protections against over current peak, instantaneous correction against voltage slowdown or load surge;
- ✓ Patented algorithm integrated into each AKGrad32 control card for power savings and flicker suppression with the SYNCHRO feature (optional).

The AKGrad32 comes as a plug-and-play solution ready for standalone installation or as a component within a control cabinet. The integrated cooling facilities are optimized to meet the highest standards in compact sizing and low noise level operation.

2 Ratings

Type	Typical rated current (A) and power capability (kW)**											
	IEC 60947-4-3											
	100/120V*		200/240V*		380/440V*		480V*		600V*		690V*	
	kW	A	kW	A	kW	A	kW	A	kW	A	kW	A
1 Phase												
AKG32-1P-60A	6	53	12	53	22	53	25	53	32	53	36	53
AKG32-1P-100A	10	88	19	88	37	88	42	88	53	88	61	88
AKG32-1P-150A	15	132	29	132	55	132	63	132	79	132	91	132
AKG32-1P-230A	22	202	45	202	84	202	97	202	121	202	140	202
AKG32-1P-330A	32	290	64	290	121	290	139	290	174	290	200	290
AKG32-1P-420A	41	370	81	370	153	370	177	370	222	370	255	370
AKG32-1P-600A	58	528	116	528	219	528	253	528	317	528	364	528
2 Phase												
AKG32-2P-60A	10	53	20	53	38	53	44	53	55	53	63	53
AKG32-2P-100A	17	88	34	88	63	88	73	88	91	88	105	88
AKG32-2P-150A	25	132	50	132	95	132	110	132	137	132	158	132
AKG32-2P-230A	39	202	77	202	145	202	168	202	210	202	242	202
AKG32-2P-330A	55	290	111	290	209	290	241	290	302	290	347	290
AKG32-2P-420A	70	370	141	370	266	370	307	370	384	370	442	370
AKG32-2P-600A	101	528	201	528	380	528	439	528	549	528	631	528
3 Phase												
AKG32-3P-60A	10	53	20	53	38	53	44	53	55	53	63	53
AKG32-3P-100A	17	88	34	88	63	88	73	88	91	88	105	88
AKG32-3P-150A	25	132	50	132	95	132	110	132	137	132	158	132
AKG32-3P-230A	39	202	77	202	145	202	168	202	210	202	242	202
AKG32-3P-330A	55	290	111	290	209	290	241	290	302	290	347	290
AKG32-3P-420A	70	370	141	370	266	370	307	370	384	370	442	370
AKG32-3P-600A	101	528	201	528	380	528	439	528	549	528	631	528
* Auto-adaptation to mains voltage fluctuations +10% -15% and frequency range 47-63Hz												
** At 45°C ambient temperature for various mains voltages												

3 Standards and regulations

IEC 60947-1 Ed 6.0 (04/2020)

IEC 60947-4-3 Ed 3.0 (07/2020)

4 Engineered solutions

GINO-AKA provides fully engineered solutions and design concepts for different heating applications. We engineer special high current power controllers with tailored cooling systems in accordance to customers requirements or complete turnkey heating cabinets with circuit breakers, user interfaces, visualization, power and control terminals. GINO-AKA also supplies suitable and reliable heating transformers upon request.



We provide these special designs utilizing our experience and expertise in the field of heating systems as well as working with modern planning tools and full in house 3D designs. GINO-AKA also provides a multitude of current communication protocols embedded into the basic control board. Due to this the customer can choose his preferred factory automation protocol to integrate the AKGRAD32 power controller into his existing automation network.

5 Commissioning and Installation services

GINO-AKA entertains a dedicated commissioning and onsite service teams based in France (Lisses) and Germany (Bonn) to assure highest availability and service levels. The service package provided can include:

- ✓ Installation of AKGRAD32 Power controllers or complete heating panels
- ✓ Upgrade of existing AKGRAD or Gradathyr or other brand units to meet modern communications and standards
- ✓ Commissioning of Heating Panels and interface with supply transformers
- ✓ Calibration of Synchro settings for power quality correction and energy savings
- ✓ Consultation during first glow tests
- ✓ Integration in plant communication and automation systems
- ✓ Remote as well as onsite trouble shooting and support.



6 Order Code

Type key	A K G r a d 3 2 – U – I I I I – N – T – H M I – C O M – S
U	Main voltage: 2 = 70-280V (+10/-15%) 4 = 280-460V (+10/-15%) 6 = 480-690V (+10/-15%)
IIII	Thyristor current capacity 60 to 2500 A
N	Number of thyristors 1P = 1 thyristor 2P = 2 thyristor 3P = 3 thyristor
T	Downstream destination R = resistive T = transformer
HMI	Optional HMI touchscreen N/A = no screen HMI4 = 4" screen size HMI7 = 7" screen size
COM	Factory automation interface N/A = 2 x Modbus RS P = Profibus DP ETH = Modbus Ethernet EIP = Ethernet/IP PN = Profinet 2 ports
S	Synchro savings N/A = no S = yes

7 General Arrangement



8 Dimensions



AKGrad32 Config	Unit	60A	100A	150A	230A	330A	420A	600A to 750A	900A	1200A to 1500A	1800A to 2500A
Three Phase AKGrad32 3 Thyristors	Length L [mm]	175	175	190	190	267	267	287	655	805	805
	Height H [mm]	300	300	350	350	410	410	410	745	745	820
	Width W [mm]	235	235	240	240	260	260	260	390	425	425
Three Phase AKGrad32 2 Thyristors	Length L [mm]	175	175	175	175	190	267	267	450	537	537
	Height H [mm]	300	300	300	300	350	410	410	745	745	820
	Width W [mm]	235	235	235	235	240	300	260	390	425	425
Single Phase AKGrad32 1 Thyristor	Length L [mm]	175	175	175	175	175	190	190	400	400	400
	Height H [mm]	250	300	300	300	300	350	350	745	745	820
	Width W [mm]	235	235	235	235	235	240	240	390	425	425

GINO-AKA SAS Representatives



Algeria		Australia		Austria		Belgium		Bulgaria	
Canada		Chile		China		Czech Republic		England	
Germany		Hong Kong		India		Indonesia		Italy	
Laos		Luxembourg		Mexico		Netherlands		New Zealand	
Peru		Philippines		Russia		South Africa		Sweden	
Taiwan		Thailand		Turkey		United States		Vietnam	



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