Thyro-A

THYRISTOR POWER CONTROLLER (SCR) 16 A – 1,500 A

Safe, fast and communication enabled

The new communication enabled thyristor power controller Thyro-A allows a precise energy dosing at a high level of availability owing to high-capacity digital technology.

Heating - Melting - Forming

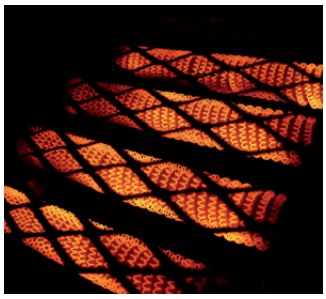
With highly flexibility for interfacing the load and power supply side, the range of applications for Thyro-A has expanded significantly. For standard processes, adjustments can be made on the unit, which facilitate handling and speed up commissioning. Owing to an interface option at the automation level, many further functions can also be used. All measurement, status and set points may be processed via SPS or the process computer. Stand-alone operations or the direct combination with process controls are, of course, still possible. Power controllers of Thyro-A are thus excellently suited in numerous fields of applications within the scope of process engineering technology, e.g.:

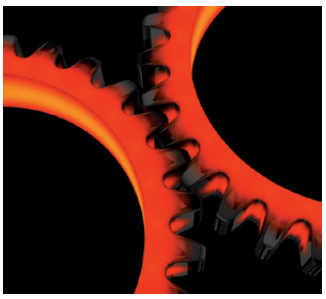
- Automotive industry (paint drying equipment)
- Chemical industry (pipe trace heaters, pre-heating equipment)
- Furnace construction (industrial-, diffusion-, drying-ovens)
- Glass industry (plate glass equipment, feeders, finishing equipment)
- Machine building industry (extruders, plastic presses)
- Packaging industry (shrink tunnels)
- Printing machines (IR drying)

AEG
POWER SOLUTIONS

Thyro-A

TECHNICAL DATA (EXCERPT)





KEY FEATURES

Besides wear-free operations and high performance the product series offers the following features:

- Easy handling, little space
- Rated voltages up to 600 V
- Rated currents up to 1,500 A
- 1-, 2- and 3-phase versions (2-phase version for 3-phase load without deploying the neutral conductor)
- Integrated semi-conductor fuses
- LED status indicators

AUTOMATION LEVEL

- Serial design system interface for connection to an optional bus module (PROFIBUS DPV1, Modbus RTU, DeviceNet, CANopen, PROFINET. Projected: Modbus TCP/IP, EtherNet/IP) for the processing of set points and actual values as well as for status reports
- Interface option for connection to PC software Thyro-Tool Family
- Secure separation of control and power units

ANALOG CONTROLLING

- Analog set point between 0...20 mA; 0...10 V
- Control characteristic is adjustable within the interval
- At the dual point controller: Off = 0...3 V ON = 3...24 V

LOAD SIDE

- High resistance against short-circuit currents and blocking voltage accommodated by the power semi-conductors
- For ohmic load as well as inductive mixed load
- Suitable for transformer-type load due to an integrated soft-start, phase-angle firing of the 1st half-wave and channel separation
- Optimized load control due to the implementation of up to 5 control types and 3 operating modes

POWER SUPPLY SIDE

- Network voltages of up to 0.43 x U_{nom}
- Frequency range 47 Hz - 63 Hz
- Internal network load optimization in the operating modes TAKT and QTM
- Optional external network load optimization (Thyro-Power Manager)

CERTIFICATES

- Quality standard in accordance with ISO 9001
- Approval in accordance with UL 508
- S.C.C.R. according to UL 508 A (100 kA short-circuit test), accredited 16 A - 350 A
- Canadian National Standard C22.2 No. 14
- CE conformity
- GOST
- RoHS conformity 5/6

Thyro-A

TECHNICAL DATA (EXCERPT)

OPERATING MODES		
TAKT	full frequency package control	frequency package control
VAR	phase-angle	firing of each sinus half-wave
QTM	half-wave frequency package control	quick operating mode for ohmic load without a transformer
VT (in preparation):	combination of operating modes VAR and TAKT	
Thyro-A		
1A...	1-phase version, for 1-phase load between 2-phases or for 1-phase connected to the neutral phase operating modes: TAKT, VAR, QTM, VT	
2A...	2-phase version for 3-phase load in cost saving 3-phase circuit operating modes: TAKT	
3A...	3-phase version, for 3-phase load operating modes: TAKT, VAR, VT	
RATED VOLTAGE ...H1		
...230...	230 V - 57 % + 10 %	
...400...	400 V - 57 % + 10 %	
...500...	500 V - 57 % + 10 %	
RATED VOLTAGE ...H RL1 AND H RLP1		
...230...	230 V - 15 % + 10 %	230 V - 57 % combined with 24 V input
...400....	400 V - 15 % + 10 %	400 V - 57 % combined with 24 V input
...500...	500 V - 15 % + 10 %	500 V - 57 % combined with 24 V input
...600...	600 V - 15 % + 10 %	600 V - 57 % combined with 24 V input
Network frequency	for all types from 47 Hz to 63 Hz	
RATED CURRENT		
...-xxx...	16 A, 30 A, 45 A, 60 A, 100 A, 130 A, 170 A, 280 A, 350 A, 495 A, 650 A, 1,000 A, 1,400 A, 1,500 A	
Load type	ohmic load employed at a R_{warm}/R_{cold} ratio of up to 6; limitation of 3 x I_{nom}; transformer load	
Network load	internal network load optimization for the operating modes QTM and TAKT interface for external network load optimization available, e.g. Thyro-Power Manager	
FUNCTIONAL FEATURES		
...F...	forced ventilation	
	set point inputs	2 set point inputs, secured (SELV, PELV) from the mains input of analog set point, signal intervals: 0(4)-20 mA, 0(1)-5 V, 0(2)-10 V control input for switch operation mode - dual point control is possible (U_{On} = 3 - 24 V) digital set point is provided by the process computer or bus system
...H 1	control types	U_{eff} / U^2_{eff}
...H RL1	functional features	H1, additionally
	control types	U_{eff} / U^2_{eff} / I_{eff} / I^2_{eff}
	load monitoring	via an adjustable response threshold
	limitations	current limitation I_{eff} / $\hat{I}$ VAR current peak limitation to $\hat{I}$ = 3 x I_{nom}
	relay output	exchanger, max. contact load 250 V, 6 A, 180 W, 1,500 VA
	analog output	signal level 0(2)-10 V / 0(4)-20 mA, max. compliance voltage 10 V can also be used as adjustment aid
	external supply	24 V DC/AC, connected upon demand
	load types	ohmic load employed at a R_{warm}/R_{cold}-ratio of up to 6 (only deployed for H RL1 and H RLP1) limitation to $\hat{I}$ = 3 x I_{nom} (for H RL1 and H RLP1 in VAR mode)
	operational display	via LEDs and relay output (exchanger, indications adjustable)
...H RLP1	control types	such as ...H RL1, but additionally
	control types	U_{eff} / U^2_{eff} / I_{eff} / I^2_{eff} / P
SYSTEM INTERFACE		
	optional bus module for PROFIBUS DPV1, Modbus RTU, DeviceNet, CANopen, PROFINET. Projected: Modbus TCP/IP, EtherNet IP. For interfacing the PC software of the Thyro-Tool Family via a PC adapter.	
EXAMPLE REGARDING THE TYPE KEY		
	Thyro-A 2A 400-170 H RLP1	
	2A = 2-phase version for 3-phase load in cost-saving 3-phase circuit, 400 = 400 V rated voltage	
	170 = 170 A rated current, H = semi-conductor fuse, R = failure indicator relay	
	L = load monitoring + analog output, P = performance control display, 1 = additional Thyro-A identification	

Thyro-A

TECHNICAL DATA (EXCERPT)

Thyro-A 1A H1 / H RL1 / H RLP1

SINGLE PHASE POWER CONTROLLER

...H1	...H RL1	...H RLP1	Current (A)	UNIT RATING (kVA) 230 V	400 V	500 V	600 V	POWER LOSS (W)	DIMENSIONS (mm) W	H	D	WEIGHT (kg) approx.
			16	3.7	6.4	8	-	30	45	131	127	0.7
			30	6.9	12	15	-	47	45	131	127	0.7
			45	10	18	22.5	-	52	52	190	182	1.7
			60	14	24	30	-	80	52	190	182	1.7
			100	23	40	50	-	105	75	190	190	1.9
			130	30	52	65	-	150	125	320	237	4
			170	39	68	85	-	210	125	320	237	4
...F...			280	64	112	140	-	330	125	370	237	5
...F...			350	80	140	175	-	390	125	400	261	8.4
...F...			495	-	198	247	297	603	112	414	345	15
...F...			650	-	260	325	390	726	112	414	345	15
...F...			1,000	-	400	500	600	1,396	239	729	516	35
...F...			1,400	-	-	700	840	1,815	239	729	516	35
...F...			1,500	-	600	-	-	1,855	239	729	516	35

Thyro-A 2A H1 / H RL1 / H RLP1

DUAL PHASE POWER CONTROLLER FOR THREE PHASE LOADS WITH THREE PHASE CIRCUIT

...H1	...H RL1	...H RLP1	Current (A)	UNIT RATING (kVA) 230 V	400 V	500 V	600 V	POWER LOSS (W)	DIMENSIONS (mm) W	H	D	WEIGHT (kg) approx.
			16	-	11	14	-	60	90	131	127	1.4
			30	-	21	26	-	94	90	131	127	1.4
			45	-	31	39	-	96	104	190	182	3.4
			60	-	42	52	-	160	104	190	182	3.4
			100	-	69	87	-	210	150	190	190	3.8
			130	-	90	112	-	300	250	320	237	8
			170	-	118	147	-	420	250	320	237	8
...F...			280	-	194	242	-	660	250	393	237	11
...F...			350	-	242	303	-	780	250	430	261	16.7
...F...			495	-	343	429	514	1,206	194	380	345	22
...F...			650	-	450	563	675	1,453	194	380	345	22
...F...			1,000	-	693	866	1,039	2,811	417	685	516	54
...F...			1,400	-	-	1,212	1,454	3,451	417	685	516	54
...F...			1,500	-	1,039	-	-	3,531	417	685	516	54

Thyro-A 3A H1 / H RL1 / H RLP1

THREE PHASE POWER CONTROLLER

...H1	...H RL1	...H RLP1	Current (A)	UNIT RATING (kVA) 230 V	400 V	500 V	600 V	POWER LOSS (W)	DIMENSIONS (mm) W	H	D	WEIGHT (kg) approx.
			16	-	11	14	-	90	135	132	127	2.1
			30	-	21	26	-	141	135	132	127	2.1
			45	-	31	39	-	144	156	190	182	5.1
			60	-	42	52	-	240	156	190	182	5.1
			100	-	69	87	-	315	225	190	190	5.7
			130	-	90	112	-	450	375	320	241	12
			170	-	118	147	-	630	375	320	241	12
...F...			280	-	194	242	-	990	375	397	241	15
...F...			350	-	242	303	-	1,170	375	430	261	25.5
...F...			495	-	343	429	514	1,822	276	407	345	30
...F...			650	-	450	563	675	2,192	276	407	345	30
...F...			1,000	-	693	866	1,039	4,127	583	685	516	74
...F...			1,400	-	-	1,212	1,454	5,086	583	685	516	74
...F...			1,500	-	1,039	-	-	5,206	583	685	516	74

AEG Power Solutions GmbH
Emil-Siepmann-Str. 32
D-59581 Warstein-Belecke
Germany

Phone: +49 2902 763 520
Fax: +49 2902 763 1201

powercontroller@aegps.com
www.aegps.com

AEG POWER SOLUTIONS