THYRO-A

Universal, configurable and communication capable

The new, communication-capable thyristor Power Controller, Thyro-A, is equipped with high-performance digital technology to meet exacting demands. To satisfy a substantially expanded field of application, it also provides - aside from the necessary reproducibility - advantageous options and system features for coupling to the automation level as well as for the load and current supply side; this gives it a considerably expanded field of application.
Since it is so easy to handle, the Thyro-A thyristor Power Controller can be readily incorporated into bus systems, used in stand-alone operation, or used in conjunction with process controllers, PLC, or computer systems. Because it simple to mount, readily placed in service, and provides safe operation, the Thyro-A type Power Controller is finding use in exceptional application fields throughout the entire range of process technology, e.g.:

- ovens (industrial, diffusion, drying)
- glass processing (plate glass equipment, feeders, finishing equipment)
- plant equipment (extruders, plastic presses),
- chemical industry (pipe trace heaters, pre-heating equipment),
- automotive industry (paint drying equipment),
- printing machines (IR drying),
- packaging industry (shrink tunnels)

Key Features

In addition to wear-free operation and high efficiency, this product series features:

- simple handling and low space requirements
- voltage ratings 230 V, 400 V, 500 V
- current ratings 8 A ... 280 A, in single and dual phase configurations
- integrated semiconductor fuses
- LED status indicators

Automation Levels

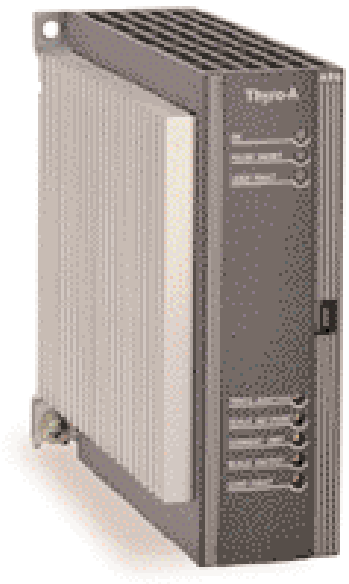
- standard system interface features for connection to an optional bus module (e.g. Profibus-DP, Modbus RTU) that can handle set-point and actual values as well as status signals
- can be controlled by up to 10V/20mA or over standard feature system interface or, if load is resistive, with a 2-point regulator
- secure isolation between control and power sections.

Load Side

- high short-circuit current capability and blocking voltage of the power-semiconductor
- integrated softstart and phase 1. allows handling of inductive loads
- two regulation methods and up to three operating modes provide optimal load control.

Power Supply Side

- mains voltages down to 0.43 x U_{nom}
- mains load optimization for Thyro-A 1A in QTM operating mode



- prepared for mains load optimization with TAKT operation (SYT-9 required)

Other

- UL approval
- meets ISO 9001 quality standards
- CE conformant

Extras for the HRL type

- full inductive load capable through additional channel separation
- Rwarm/Rcold to ≤6
- additional 24V DC/AC control voltage input
- load monitoring
- total of 4 regulation methods: U, U^2, I, I^2
- alarm relay
- analog output (actual value indicator and adjustment aid, up to 10V/20mA)

Power Reliability

SPECIFICATION

Thyro-A 1A	Current	Type Rating			Dissipation	Dimensions [mm]			Weight [kg]
H1, HRL1	[A]	230 V	400 V	500 V	[W]	W	H	D	approx.
	8	1.8	3.2	4		40	121	127	0.5
	16	3.7	6.4	8	30	45	121	127	0.7
	30	6.9	12	15	47	45	121	127	0.7
	45	10	18	22,5	48	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

Thyro-2A	Current	Type Rating			Dissipation	Dimensions [mm]			Weight [kg]
H1, HRL1	[A]	230 V	400 V	500 V	[W]	W	H	D	approx.
	8		5.5	7		80	121	127	1
	16		11	14	60	90	121	127	1.4
	30		21	26	94	90	121	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

Voltage Ratings			
	230 Volt	-15% +10%	> 99 V with addl. 24 V feed
	400 Volt	-15% +10%	> 172 V with addl. 24 V feed
	500 Volt	-15% +10%	> 215 V with addl. 24 V feed
Line Frequency	all types, 47 Hz to 63 Hz; Δf = 6 Hz; max. frequency change 5% per half cycle		
Load Type	resistive load, resistive load with R warm / R cold ratio to 6, limit at $\hat{i}$ = 3 x I nom		
Operating Modes	TAKT (T 0 : 0.1 sec / 1.0 sec), VAR (for types 1A only) QTM = rapid half-cycle pulse mode (for types 1A only)		
Regulation Modes	U, U^2, additionally for HRL types; I, I^2		
Set-point Inputs	2 set-point inputs (SELV, PELV) securely isolated from line set-point 1: external set-point input signal ranges: 0(4) - 20 mA R i = approx. 250 Ω / 0 - 5 V R i = approx. 44 kΩ / 0 - 10 V R i = approx. 88 kΩ set-point 2: via optional bus interface		
Control Characteristic	Adjustable linear control characteristic. Every controller output whose output signal is in the range of 0 ... 20 mA / 0 ... 5 V / 0 ... 10 V can be adapted to the power-controller.		
additional for HRL types			
Load monitoring	adjustable		
Limits	current limiting I eff		
Relay output	changeover contact, contact material: AgSnO2 / Au plated		
Analog output	signal level 0 ... 10 Volt, 0 ... 20 mA, 4 ... 20 mA, maximum compliance voltage 10 V		
Channel separation	present		
Adjustment aid	present		
Control voltage input	24V DC/AC		

Power Reliability