

## **THYRO-A**

# DIGITAL THYRISTOR SCR POWER CONTROLLERS 8 TO 1500 AMPS



With highly flexible interfacing for the load and power supply side, Thyro-A<sup>®</sup> modules precisely and reliably control power in an expanded range of applications.

#### **PRODUCT HIGHLIGHTS**

- Wear-free operations and precise, reliable performance
- DIN rail mounting (up to 60 A; for 1- and 2-phase devices)
- Integrated protection against contact
- Rated voltages up to 600 V; currents up to 1500 A
- 1-, 2- and 3-phase versions (2-phase version for 3-phase load without deploying the neutral conductor)
- Integrated semiconductor fuses
- LED status and level indication
- USB interface

#### TYPICAL APPLICATIONS

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

#### **SPECIFICATIONS**

Thyro-A Series								
Operating Modes								
TAKT (full wave switch)	Full frequency package control							
VAR (phase-angle firing)	Firing of each sinus half-wave							
QTM (half wave frequency package control)	Quick operating mode for ohmic load without a transformer							
VT	Combination of operating modes VAR and TAKT (on request)							
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 mode: TAKT							
3A	3-phase version, for 3-phase load; operating mo	des: TAKT operating modes: TAKT, VAR, VT						
Rated Voltage H 3								
230	230 V -57% +10%							
400	400 V -57% +10%							
500	500 V -57% +10%							
Rated Voltage H RL3 und H RLP 3								
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 to 63 Hz							
Rated Current								
xxx	8A, 16, 30, 45, 60, 100, 130, 170, 280, 350, 495, 6	650, 1000, 1400, 1500 A						
Load Types								
Types	Ohmic loads employed at Rwarm/Rcold ratio 6:1							
	Limitation of on 3 x Inom							
	Transformer loads							
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							
H3	Set point inputs	2 set point inputs, secured (SE LV, PE LV) 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 (UOn = 3 to 24 V) digital set point is provided by the process computer or bus system						
	Control types V <sub>eff</sub> / V <sup>2</sup> <sub>eff</sub>							



#### **SPECIFICATIONS (CONTINUED)**

#### **Power Supply Side**

- Power supply voltage range of up to 0.43 x Unom > Frequency 47 to 63 Hz
- Internal network load optimization in TAKT and QTM operating modes
- Optional external network load optimization with Thyro-Power Manager

#### Certificates

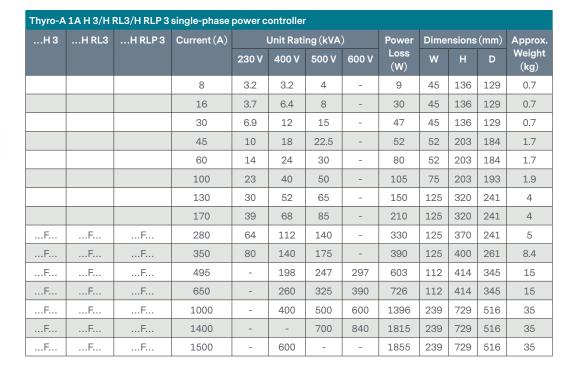
- Quality standard in accordance with ISO 9001
- Approval in accordance with UL 508
- S.C.C.R. according to UL 508 A (100 kA short-circuit test), accredited 8 to 350 A
- Canadian National Standard C22.2 No. 14
- CE conformity
- RoHS conformity 5/6

Thurs A Carias							
Thyro-A SeriesH RL3 (additional toH	2 factures)						
Control types	V <sub>eff</sub> / V <sub>eff</sub> / I <sub>eff</sub> / I <sup>2</sup> <sub>eff</sub>						
Load monitoring	Via an adjustable response threshold						
Limitations	Current limitation I <sub>eff</sub> / Î VAR current peak limitation to Î = 3 x I <sub>nom</sub>						
Relay output	Exchanger, max. contact load 250 V, 6 A, 180 W, 1500 VA						
Analog output	Signal level 0(2)-10 V / 0(4)-20 mA, max. compliance voltage 10 V						
Alialog output	Can also be used as adjustment aid						
External supply	24 V DC/AC, connected upon demand						
Load types	Ohmic load employed at R <sub>warm</sub> /R <sub>cold</sub> ratio of up to 6 (only deployed for H RL3 and H RLP3)						
Load types	Limitation to î = 3 x I <sub>nom</sub> (for H RL3 and H RLP3 in VAR)						
Operational display	Via LEDs and relay output (exchanger, indications adjustable)						
H RLP3 (additional to							
Control types	$V_{\rm eff}/V_{\rm eff}/I_{\rm eff}/P$						
71	Veff / V eff / I eff / P						
System Interface	DOCIDITO DDV4 Madaus DTIL Davia Natw CANanage DDOCINCT® Madaus TOD Chargest ID®						
•	COFIBUS® DPV1, Modbus® RTU, DeviceNet™, CANopen®, PROFINET®, Modbus® TCP, Ethernet/IP®						
Thyro-Tool PC software via	USB Interface						
Type Key Example							
Type Key	Thyro-A 2A 400-280 HF RLP3						
Explanation	Thyro-A Digital power controller						
	2A Thyro-A as 2-phase version, suitable for 3-phase load in cost-saving 3-phase circuit						
	400 V rated voltage						
	-280 280 rated A current						
	H Semiconductor fuse						
	F Forced ventilation						
	R Failure Indicator relay						
	L Load monitoring, including analog output						
	P Performance control						
	3 Additional Thyro-A identification						



#### **THYRO-A**







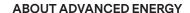
Thyro-A 2A H 3/H RL3/H RLP 3 dual-phase power controller for three phase loads with three -phase circuit											
H3	H RL3	H RLP3	Current (A)	Unit Rating (kVA)			Power	Dimensions (mm)			Approx.
				400 V	500 V	600 V	Loss (W)	W	Н	D	Weight (kg)
			8	6	7	-	18	89	136	129	1.4
			16	11	14	-	60	89	136	129	1.4
			30	21	26	-	94	89	136	129	1.4
			45	31	39	-	96	104	203	184	3.4
			60	42	52	-	160	104	203	184	3.4
			100	69	87	-	210	150	203	193	3.8
			130	90	112	-	300	250	320	241	8
			170	118	147	-	420	250	320	241	8
F	F	F	280	194	242	-	660	250	393	241	11
F	F	F	350	242	303	-	780	250	430	261	16.7
F	F	F	495	343	429	514	1206	194	380	345	22
F	F	F	650	450	563	675	1453	194	380	345	22
F	F	F	1000	693	866	1039	2811	417	685	516	54
F	F	F	1400	-	1212	1454	3451	417	685	516	54
F	F	F	1500	1039	-	-	3531	417	685	516	54



Thyro-A 3A H 3/H RL3/H RLP 3 three -phase power controller											
Н З	H RL3	H RLP 3	Current (A)	Unit Rating (kVA)			Power	Dime	nsions	Approx.	
				400 V	500 V	600 V	Loss (W)	W	Н	D	Weight (kg)
			8	6	7	-	27	135	135	129	2.1
			16	11	14	-	90	135	136	129	2.1
			30	21	26	-	141	135	136	129	2.1
			45	31	39	-	144	156	203	184	5.1
			60	42	52	-	240	156	203	184	5.1
			100	69	87	-	315	225	203	193	5.7
			130	90	112	-	450	375	320	241	12
			170	118	147	-	630	375	320	241	12
F	F	F	280	194	242	-	990	375	393	241	15
F	F	F	350	242	303	-	1170	375	430	261	25.5
F	F	F	495	343	429	514	1822	276	380	345	30
F	F	F	650	450	563	675	2192	276	380	345	30
F	F	F	1000	693	866	1039	4127	583	685	516	74
F	F	F	1400	-	1212	1454	5086	583	685	516	74
F	F	F	1500	1039	-	-	5206	583	685	516	74

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AE's power solutions enable customer innovation in complex semiconductor and industrial thin film plasma manufacturing processes, demanding high and low voltage applications, and temperature-critical thermal processes.

With deep applications know-how and responsive service and support across the globe, AE builds collaborative partnerships to meet rapid technological developments, propel growth for its customers and power the future of technology.

PRECISION | POWER | PERFORMANCE



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