THYRO-A ECO

DIGITAL SCR POWER CONTROLLER
UP TO 125 AMPS

The modular, easy to use, cost optimized Thyro-A® eco SCR power controller for heating elements, resistive loads and transformer loads in heating, melting, drying and forming applications.

PRODUCT HIGHLIGHTS

- Comprehensive operating and control modes to save system costs for resistive and transformer loads
- High efficiency, wear-free design with integrated phase angle (VAR) and full wave switch mode (TAKT)
- Performance control accuracy to maximize end process repeatability
- Easy to use due to Thyro-Tool Pro software for parameter settings, visualization and commissioning
- No potentiometer settings
- Simple fieldbus integration with optional BasicBus Module
- Performance range with rated currents from 25 A to 125 A and rated voltages from 400 V to 500 V

TYPICAL APPLICATIONS

- Transformer loads, resistive loads and heating elements in electric furnaces used for glas, metals and ceramics manufacturing
- Heat tracing for piping and process elements in chemical and petro-chemical industry
- Extruder and plastic press heating, IR drying and automotive applications

AT A GLANCE

Phase Type

1, 2, and 3-phase power controller

Accuracy

±3.0% voltage

AC Input Line Voltage Rating

400 V to 500 V [-15 to +10%]

Extended range -57% with separate 24 V auxiliary supply

Type Current Range

25 A to 125 A

Operating Modes

Zero cross firing (TAKT)

Phase-angle firing (VAR)

Communications

Ethernet/IP®, EtherCAT®
PROFIBUS®, PROFINET®
Modbus RTU®, Modbus TCP/IP®
DeviceNet™

PRODUCT SPECIFICATIONS

THYRO-A® eco Model		
Thyro-A eco 1A	**Thyro-A eco 2A**	**Thyro-A eco 3A**
One-phase power controller	Two-phase power controller for three-phase economic circuit	Three-phase power controller
Zero cross firing (TAKT)	Zero cross firing (TAKT)	Zero cross firing (TAKT)
Phase-angle firing (VAR)		Phase-angle firing (VAR)
Control Accuracy	±3.0% voltage at rated voltage	
Load Types	Resistive loads, transformer loads, and loads with large R_{warm}/R_{cold} up to factor 6	
Control Types	U-Voltage, U^2-Voltage, Without regulation	
Set Point Input	Freely configurable between 0 (4) to 20 mA; 0 (1) to 5 V; 0 (2) to 10 V	
Limitations	Voltage limitation, current limitation	
Load Circuit / Self-Monitoring	Provided	
Operation / Fault Indicatiors	Digital output for fault messages with adjustable signal range 0 (2) to 10 V / 0 (4) to 20 mA	
Fuse	No integrated semiconductor fuse	

ELECTRICAL SPECIFICATIONS

Rated Connection Voltage	400 V type: -15% / +10%: 230 V -15% with external 24 V auxiliary power
	500 V type: -15% / +10%: with external 24 V auxiliary power
Frequency	All types, 45 to 65 Hz
Control Voltage	AC/DC 24 V (±10%)
Interface	
Status LEDs	Mutliple color status LEDs to be used as level indicator or as an indication for the status signals: ON/READY LIMIT PULSE LOCK FAULT LOAD OUTPUT (%)
Control Interface	Micro USB connector for Thyro-Tool Pro software connection
Environmental Specifications	
Ambient Temperature	Up to 45°C (113°F) by passive convection cooling at rated current
	At higher temperatures, operation is permissible with reduced current limits
	Max 40°C (104°F) for UL applications
Storage Temperature	-25 to +55°C (-13 to 131°F)
Humidity Class	DIN EN 50178 Tab. 7
Site Altitude	Up to 1000 m (3281') above sea level at nominal load; above 1000 m (3281'), on request
Certification	
Approvals	CE for EU LV Directive 2014/35/EU & 2004/108/EC
	UL Certified, UL 508A in preparation

ORDERING INFORMATION

Thyro-A eco 1A H RL3 Single-Phase Power Controller

Current (A)	Unit Rating (kVA)			Dimensions			Approx. Weight	PN		
	230 V	400 V	500 V	W	H	D		230 V	400 V	500 V
25	5.7	10	12.5	45 mm (1.8 in)	136 mm (5.4 in)	129 mm (5.1 in)	0.7 kg (1.5 lb)	2.000.604.101		2.000.605.101
50	11.5	20	25	52 mm (2.0 in)	203 mm (8.0 in)	184 mm (7.3 in)	1.7 kg (3.7 lb)	2.000.604.102		2.000.605.102
80	18	32	40	75 mm (3.0 in)	203 mm (8.0 in)	193 mm (7.6 in)	1.7 kg (3.7 lb)	2.000.604.103		2.000.605.103
125	28	50	62.5	125 mm (4.9 in)	320 mm (12.6 in)	241 mm (9.5 in)	4 kg (8.8 lb)	2.000.604.104		2.000.605.104

Thyro-A eco 2A H RL3 Dual-Phase Power Controller for Three-Phase Loads with Three-Phase Circuit

Current (A)	Unit Rating (kVA)		Dimensions			Approx. Weight	PN	
	400 V	500 V	W	H	D		400 V	500 V
25	17.3	21.6	89 mm (3.5 in)	136 mm (5.4 in)	129 mm (5.1 in)	1.4 kg (3.1 lb)	2.000.604.201	2.000.605.201
50	34.6	43.3	104 mm (4.1 in)	203 mm (8.0 in)	184 mm (7.3 in)	3.4 kg (7.5 lb)	2.000.604.202	2.000.605.202
80	55.4	69.2	150 mm (5.9 in)	203 mm (8.0 in)	193 mm (7.6 in)	3.8 kg (8.4 lb)	2.000.604.203	2.000.605.203
125	86.6	108.2	250 mm (9.8 in)	320 mm (12.6 in)	241 mm (9.5 in)	8 kg (17.6 lb)	2.000.604.204	2.000.605.204

Thyro-A eco 3A H RL3 Three-Phase Power Controller

Current (A)	Unit Rating (kVA)		Dimensions			Approx. Weight	PN	
	400 V	500 V	W	H	D		400 V	500 V
25	17.3	21.6	135 mm (5.3 in)	136 mm (5.4 in)	129 mm (5.1 in)	2.1 kg (4.6 lb)	2.000.604.301	2.000.605.301
50	34.6	43.3	156 mm (6.1 in)	203 mm (8.0 in)	184 mm (7.3 in)	5.1 kg (11.2 lb)	2.000.604.302	2.000.605.302
80	55.4	69.2	225 mm (8.9 in)	203 mm (8.0 in)	193 mm (7.6 in)	5.7 kg (12.5 lb)	2.000.604.303	2.000.605.303
125	86.6	108.2	375 mm (14.8 in)	320 mm (12.6 in)	241 mm (9.5 in)	12 kg (26.5 lb)	2.000.604.304	2.000.605.304

ACCESSORIES

BasicBus Module	Busmodule to connect up to 8 power controllers
	Available with Anybus Digital Interface Card for Ethernet/IP®, EhterCAT® Profibus®, Profinet®, Modbus RTU®, Modbus TCP/IP®, DeviceNet™
Thyro-Tool Pro	PC software for commissioning, visualization, and configuration
DIN rail adapter	For one and two phase configuration up to 50 A

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

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

For international contact information, visit advanced-energy.com.

sales.support@aei.com
+1.970.221.0108

ENG-Thyro-A-eco-235-02 12.18