THYRO-XD SERIES

DIGITAL SCR POWER CONTROLLER WITH CLASS-LEADING ACCURACY FOR DEMANDING APPLICATIONS

Advanced Energy's Thyro-XD power controller is a compact, lightweight, high accuracy power controller. Automation is easy with EtherCAT support. Class leading accuracy of <0.5% makes it perfect for critical applications where power and resistance sensitivity are paramount.

PRODUCT HIGHLIGHTS

- The Thyro-XD is targeted for SEMI Lamp Driver processes such as Epitaxial growth and rapid thermal annealing applications
- Enhanced voltage measurement improves system accuracy and stability Wide voltage range input for minimizing product variants
- Ensures lower ripple with improved stability due to higher sampling rate
- Faster detection of resistance changes
- Change to depth and length allows for natural convection, cooler internal temperatures
- New EtherCAT and USB-C enables seamless integration to host systems and easy fieldbus integration by means of Advanced Bus Module
- Cost optimized solution and suitable for smallest cabinet design
- Fast response time on heating processer process optimization to improve product quality
- Premier performance control accuracy to maximize end-process repeatability
- Intuitive performance and status feedback via a modular, integrated touch screen display or PC tool

TYPICAL APPLICATIONS

- Epitaxial growth and rapid thermal annealing applications
- Transformer loads, resistive loads, and heating elements in electric furnaces used for glass, metals, and ceramics manufacture

AT A GLANCE

Phase Type

1-phase power controller

Accuracy*

±0.25% voltage or current
±0.50% power

Note* - The stated accuracy only applies to phase angle setpoints down to 5%

AC Input Line Voltage Rating

24 to 500 VAC [+10%]

Type Current Range

30 A

Control Modes

Zero cross firing (TAKT)
Phase-angle firing (VAR)
Variable full wave (VT)
Load resistance deviation 0.25%

Communications

Ethernet/IP®, EtherCAT®
PROFIBUS®, PROFINET®
Modbus TCP/IP®

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PRODUCT SPECIFICATIONS

THYRO-XD Series	
Control Accuracy*	±0.25% voltage or current, ±0.5% power
Load Types	Lampdriver, resistive loads, transformer loads, and loads with large Rwarm/Rcold up to factor 20 (MOSI starting mode)
Operating Modes	TAKT: full frequency package control
	VAR: phase-angle firing
	VT: Variable Full Wave
Control Types	U-voltage, U^2-voltage, I-current, I^2-current, P-power, without regulation
Set Point Input	0(4) mA - 20 mA Ri = 250 Ω / max 24 mA. The maximum open circuit voltage = 24 V. 0(1) V - 5 V Ri = 11.1 k Ω / max 28 V 0(2) V - 10 V Ri = 6.6 k Ω / max 28 V
Actual Value Outputs	Signal level 0 V - 10 V, 0 mA - 20 mA or 4 mA - 20 mA with Rmin of 500 Ω. The maximum burden voltage is 12 V 3 measuring values for optional display of U, I, and P; can be set as desired between 0 to 20 mA; 0 to 10 V
Load Resistance Measurement	0.25% deviation
Operation/Fault Indicators	Via 3 fault signaling relays and status/diagnostic LEDs, freely configurable
Fuse	Integrated semiconductor fuse

Note* - The stated accuracy only applies to phase angle setpoints down to 5%

ELECTRICAL SPECIFICATIONS

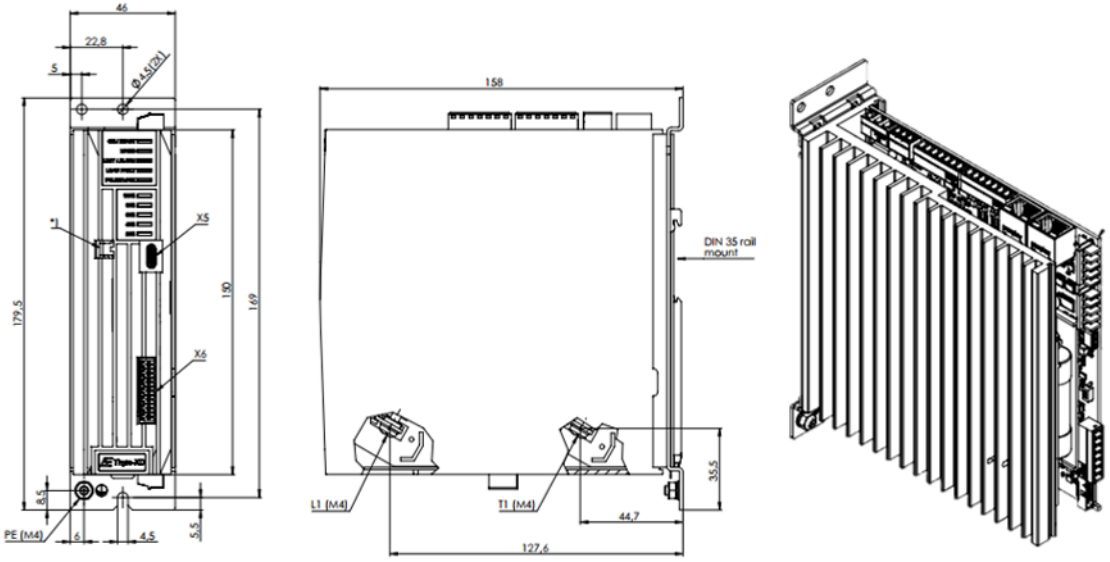
Rated Connection Voltage AC	500 V type: 24 V, -20% up to 500 V +10%
Frequency	45 to 65 Hz
Control Voltage	DC 24 V (±10%)

Environmental	
Ambient Temperature	Up to 45°C (113°F) by passive convection cooling with 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 ft) above sea level at nominal load; above 1000 m (3281 ft), on request

Regulatory	
Certifications	CE marked for EU LV Directive 2014/35/EU and 2004/108/EC

MECHANICAL SPECIFICATIONS

Thyro-XD 1XD 500-30



Dimensions								
Type Current (A)	Width		Height		Depth		Weight	
	mm	in	mm	in	mm	in	kg	lb
30	46	1.81	150	5.9	154	6.06	0.9	2.0

INTERFACE

Status LEDs [Programmable]	Multiple color status LEDs for parameters:
	ON/READY
	LIMIT
	PULSE LOCK
	FAULT
Control Interface	Terminal port for optional Thyro-Touch display
	Micro USB connector for Thyro-Tool Pro PC software connection
Communication Modules	RJ45 port for Advanced Bus Module to support Anybus® digital communication protocols
Optional Thyro-A+ Touch Display	Mounting on Thyro-XD front terminal X6. Optional front door assembly kit available. The parameters of the Thyro-XD power controller can be altered via the optional available touch display. In addition, the EasyStart feature simplifies the setting of the power controller configuration. Display setpoints and measured process values as a line chart, bar chart, or operating-data display. Includes a SD®memory card for data store and parameter setting for uploading on other Thyro -XD devices

ACCESSORIES

Cabinet Installation Kit (SEK)	Enables cabinet door or panel installation

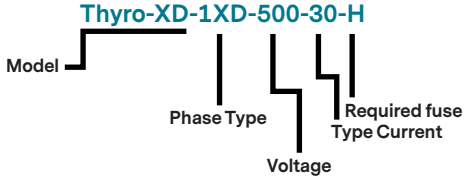
ORDERING INFORMATION

Model	Description
Thyro-XD	Modular Digital Thyristor SCR Power Controller with current range to 30 A, ±0.5% Power Accuracy

Code	Phase Type
1XD	Single phase power controller for single phase operation

Code	AC Input Line Voltage
500	Type Voltage 500 V unit: 24 VAC to 500 VAC +10%

Code	Type Current, TC	Apparent Power [kVA]
Available with all Phase type option codes and 500 V Type /Voltage		1XD
30	TC = 30 A	15
Code	**Integrated Semiconductor Fuse**	
H	Integrated semiconductor fuse [REQUIRED]	
Code	**Additional Options**	
C09	PCB conformal coating	



ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than four 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.

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