



NEW

THYRO-PX™
DIGITAL THYRISTOR SCR POWER CONTROLLER
UP TO 2900 A





Thyro-PX™

Digital thyristor SCR power controllers

The result of over 50 years of power-control expertise across a range of industries worldwide, the Thyro-PX™ SCR power controller adds new functionality to the precise, reliable performance of the Thyro-Family.

INNOVATIVE FEATURES FOR ADVANCED PROCESS REQUIREMENTS

ADVANTAGES
Comprehensive operating and control modes
Easy integration into process and automation systems
Excellent control accuracy
Flexibility and expandability into specific applications
Easy handling
Mains load optimization

APPLICATIONS
Automotive
Chemical and oil
Extruders and plastic presses
Furniture
Furnace construction
Glass
IR drying
Machine building
Packaging
Painting machines and printers
Pipe trace heaters

EASY COMMUNICATION AND CONTROL

Adjust performance parameters via menu. Control and monitor set points and actual process values via analog outputs or a wide range of optional bus systems. The optional Thyro-Touch display unit provides easy, intuitive operation via touchscreen.

WIDE PERFORMANCE RANGE

The series offers rated currents up to 2900 A and voltages up to 690 V. Application-specific solutions are also available with significantly higher currents and voltages.

MAINS LOAD OPTIMIZATION

Mains load optimization functionality includes fully digital dASM operation in TAKT mode. The new Thyro-PX 1PX VSC model offers primary or secondary voltage sequence control (VSC) connections for mains load optimization in thermal applications with high dynamic specifications (VAR_VSC operating mode).

FEATURES

- › High efficiency, wear-free operation
- › Integrated soft starting for operation with downstream transformer
- › Seven LED status indicators
- › Three self-programmable monitoring relays
- › Error memory with occurrence time recording
- › Integrated load circuit monitoring
- › Multizone feature:
 - Uses Thyro-PX 2PX and Thyro-PX 3PX as two or three single-phase units
- › Digital I/O modules
- › Integrated semiconductor fuses
- › Secure separation between power and control section
- › Elapsed hour meter
- › Energy meter, resettable, in kWh

FOR TRANSFORMER LOADS, RESISTIVE LOADS, AND HEATING ELEMENTS WITH LARGE R_{WARM}/R_{COLD}

THYRO-TOUCH DISPLAY

With an integrated process data recorder, the optional Thyro-Touch unit enables intuitive operation of Thyro-PX power controllers via touch display.

- › Large 2.8" touch display for menu-driven operation
- › Multiple display modes:
 - Bar chart
 - Line chart
 - Actual values (numerical)
 - Data logger
- › Integrated SD card to load or save data
- › Long-term data recording of up to six process parameters, as well as status messages
- › Analysis via Thyro-Touch tool (on PC):
 - Long-term line-chart data
 - Status messages
 - PDF export
- › EasyStart feature for easy Thyro-PX commissioning
- › Integrated low-energy Bluetooth® feature
- › Retrofittable into existing Thyro-PX standard units (downward compatible to LBA-2 and LBA with limited parameter settings)
- › English, German, and additional languages upon request



*Remote Operating and Display
Thyro-Touch*

CABINET INSTALLATION KIT (SEK)

- › Enables cabinet door or panel installation
- › Can be used with all Thyro-Touch and LBA-2 adapters

ADDITIONAL FEATURES

DIGITAL AND ANALOG I/O

Easily add digital or analog inputs and outputs with optional interface cards:

- › Digital I/O interface card:
 - Nine digital inputs
 - Three digital outputs
- › Analog and digital I/O interface card:
 - Four digital inputs
 - Three digital outputs
 - Three analog inputs

EASY INTEGRATION INTO AUTOMATION SYSTEMS

Anybus® interfaces enable easy connection to a wide range of industrial protocols:

- › EtherNet/IP®
- › Profibus DPV1®
- › PROFINET®
- › DeviceNet™
- › Modbus RTU®
- › Modbus TCP®
- › EtherCAT®

Additional connections are available up on request.

dASM MAINS LOAD OPTIMIZATION

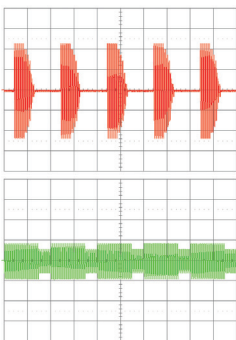
This function enables digital and dynamic working mains load optimization for the Thyro-PX series (excluding Thyro-PX VSC) in TAKT operating mode.

- › Easy installation and commissioning of dASM function
- › Mains load optimization in groups of up to 32 similar units
- › Distance of up to 40 m (131') between two power controllers
- › Fast response to set point and load changes
- › Power monitoring (load level)
- › Easy wiring, parameter setting, and commissioning
- › Easy retrofitting of dASM feature to existing units with replacement of the Thyro-PX control unit

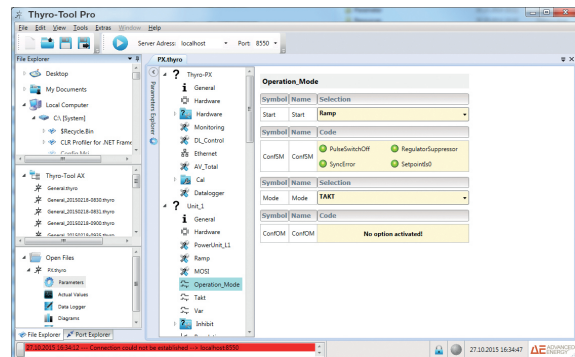
THYRO-TOOL PRO

This PC software enables commissioning, visualization, and diagnosis of Thyro-AX® and Thyro-PX SCR power controllers.

- › Individual analysis for the connected Thyro-PX
- › Actual value
- › Set points
- › Line charts
- › Parameter analysis
- › Presentation of process data of the power controller



Without mains load optimization, worst case (top) vs. with dASM mains load optimization (bottom)



Thyro-Tool Pro

SUMMARY SPECIFICATIONS

THYRO-PX SERIES	
Load Types	Resistive loads, transformer loads, and loads with large R_{warm}/R_{cold} up to factor 20 (MOSI starting mode)
Operating Modes	TAKT: full frequency package control
	VAR: phase-angle
	VSC_VAR: Voltage sequence control with phase-angle
Control Types	U-voltage, U ² -voltage, I-current, I ² -current, P-power, without regulation
Set Point Input	Up to three analog inputs (freely configurable), control start/finish can be set as desired between 0 to 20 mA; 0 to 10 V.
Actual Value Outputs	Three 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 Circuit/Self Monitoring	Provided
Operation/Fault Indicators	Via three fault signaling relays and LEDs, free configurable
Error Memory	Long-term storage of an unlimited number of status messages is possible with the process data recording function.
Interfaces	RS-232, various Anybus [®] modules for external interfaces, USB, I/O bus
TECHNICAL DATA	
Rated Connection Voltage	500 V type: 230 V -20% up to 500 V +10%
	690 V type: 500 V -20% up to 690 V +10%
Frequency	All types, 45 to 65 Hz
Control Voltage	AC min 90 to max 265 V; alternative DC 24 V (±10%)
Ventilator (HF Types Only)	230 V, 50 to 60 Hz
Ambient Temperature	Up to 35°C (95°F) by external fan cooling (for HF types, with integrated fan) with rated current
	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') above sea level at nominal load; above 1000 m (3281'), on request

CERTIFICATES

- › UL certification (pending)
- › SCCR, (see operating instructions) according to UL 508A (100 kVA short circuit test) 16 to 280 A (pending)
- › CE compliant



Thyro-PX 1PX



Thyro-PX 2PX



Thyro-PX 3PX

THYRO-PX™ MODEL

Thyro-PX 1PX					Thyro-PX 2PX					Thyro-PX 3PX				
One-phase power controller					Two-phase power controller for three-phase economic circuit					Three-phase power controller				
Full wave switch (TAKT)					Full wave switch (TAKT)					Full wave switch (TAKT)				
Phase-angle firing (VAR)					--					Phase-angle firing (VAR)				
Phase	V	A		kVA	Phase	V	A		kVA	Phase	V	A		kVA
1P	230 to 500	16	H	8	2P	230 to 500	16	H	14	3P	230 to 500	16	H	14
1P	230 to 500	37	H	18	2P	230 to 500	37	H	32	3P	230 to 500	37	H	32
1P	230 to 500	75	H	38	2P	230 to 500	75	H	65	3P	230 to 500	75	H	65
1P	230 to 500	110	H	55	2P	230 to 500	110	H	95	3P	230 to 500	110	H	95
1P	230 to 500	130	H	65	2P	230 to 500	130	H	112	3P	230 to 500	130	H	112
1P	230 to 500	170	H	85	2P	230 to 500	170	H	147	3P	230 to 500	170	H	147
1P	230 to 500	280	HF	140	2P	230 to 500	280	HF	242	3P	230 to 500	280	HF	242
1P	230 to 500	350	HF	175	2P	230 to 500	350	HF	303	3P	230 to 500	350	HF	303
1P	230 to 500	495	HF	248	2P	230 to 500	495	HF	429	3P	230 to 500	495	HF	429
1P	230 to 500	650	HF	325	2P	230 to 500	650	HF	563	3P	230 to 500	650	HF	563
1P	230 to 500	780	HF	390	2P	230 to 500	780	HF	675	3P	230 to 500	780	HF	675
1P	230 to 500	1000	HF	500	2P	230 to 500	1000	HF	866	3P	230 to 500	1000	HF	866
1P	230 to 500	1500	HF	750	2P	230 to 500	1500	HF	1300	3P	230 to 500	1500	HF	1300
1P	230 to 500	2100	HF	1050	2P	230 to 500	2000	HF	1732	3P	230 to 500	1850	HF	1602
1P	230 to 500	2900	HF	1450	2P	230 to 500	2750	HF	2381	3P	230 to 500	2600	HF	2251
1P	690	80	H	55	2P	690	80	H	95	3P	690	80	H	95
1P	690	200	HF	138	2P	690	200	HF	239	3P	690	200	HF	239
1P	690	300	HF	207	2P	690	300	HF	358	3P	690	300	HF	358
1P	690	500	HF	345	2P	690	500	HF	597	3P	690	500	HF	597
1P	690	780	HF	538	2P	690	780	HF	932	3P	690	780	HF	932
1P	690	1400	HF	966	2P	690	1400	HF	1673	3P	690	1400	HF	1673
1P	690	2000	HF	1380	2P	690	1850	HF	2210	3P	690	1700	HF	2031
1P	690	2600	HF	1794	2P	690	2400	HF	2868	3P	690	2200	HF	2629



Thyro-PX 1PX...VSC 2



Thyro-PX 1PX...VSC 3

THYRO-PX™ VSC MODEL

Thyro-PX 1PX...VSC2					Thyro-PX 1PX...VSC3				
Two-step VSC connection					Three-step VSC connection				
Voltage sequence control with phase-angle firing (VSC_VAR)					Voltage sequence control with phase-angle firing (VSC_VAR)				
Phase	V	A		kVA	Phase	V	A		kVA
1P	230 to 500	16	H	8	1P	230 to 500	16	H	8
1P	230 to 500	37	H	18	1P	230 to 500	37	H	18
1P	230 to 500	75	H	38	1P	230 to 500	75	H	38
1P	230 to 500	110	H	55	1P	230 to 500	110	H	55
1P	230 to 500	130	H	65	1P	230 to 500	130	H	65
1P	230 to 500	170	H	85	1P	230 to 500	170	H	85
1P	230 to 500	280	HF	140	1P	230 to 500	280	HF	140
1P	230 to 500	350	HF	175	1P	230 to 500	350	HF	175
1P	230 to 500	495	HF	248	1P	230 to 500	495	HF	248
1P	230 to 500	650	HF	325	1P	230 to 500	650	HF	325
1P	230 to 500	780	HF	390	1P	230 to 500	780	HF	390
1P	230 to 500	1000	HF	500	1P	230 to 500	1000	HF	500
1P	230 to 500	1500	HF	750	1P	230 to 500	1500	HF	750
1P	230 to 500	2000	HF	1050	1P	230 to 500	1850	HF	1050
1P	230 to 500	2750	HF	1450	1P	230 to 500	2600	HF	1450
1P	690	80	H	55	1P	690	80	H	55
1P	690	200	HF	138	1P	690	200	HF	138
1P	690	300	HF	207	1P	690	300	HF	207
1P	690	500	HF	345	1P	690	500	HF	345
1P	690	780	HF	538	1P	690	780	HF	538
1P	690	1400	HF	966	1P	690	1400	HF	966
1P	690	1850	HF	1380	1P	690	1700	HF	1380
1P	690	2400	HF	1794	1P	690	2200	HF	1794



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

ENG-Thyro-PX-VSC-230-02 04.16

Specifications are subject to change without notice. ©2015 Advanced Energy Industries, Inc. All rights reserved. Advanced Energy®, Thyro-AX®, and Thyro-PX™ are U.S. trademarks of Advanced Energy Industries, Inc. Anybus® is a trademark of HMS Industrial Networks AB. Bluetooth® is a trademark of Bluetooth SIG, Inc. CANopen® is a trademark of CAN in Automation e.V. Modbus® is a trademark of Schneider Electric U.S.A., Inc. Profibus® and Profinet® are trademarks of Profibus and Profinet International (PI). DeviceNet™ and EtherNet/IP® are trademarks of ODVA, Inc.