

Thyro-AXTM

Thyristor Power Controller (SCR) 16 A - 1,500 A

With numerous new performance features the Thyro-AX is recognized as the new generation of digital thyristor power controllers within Advanced Energy's established Thyro-Family.



parameterization, completely new options are offered. Set- and actual points as well as operating modes etc. are shown in plain text. Operating modes are signalized via changing background lighting. In addition to the standard interfaces, Ethernet as well as USB2.0 have been added. By Thyro-Tool AX, parameterization via USB2.0 interface is possible even without external supply.

For communication with higher control systems bus modules are available such as DeviceNet, Modbus RTU, PROFIBUS and CANopen as well as TCP/IP based communication incl. PROFINET, Modbus TCP and EtherNet/IP.

The new series of Thyro-AX supports voltages from 24 V to 600 V and offering a product scope from 16 A to 1,500 A available as single, dual and three-phase units. With flexible connection technology the power controller can be connected from below and/or from above.

The full graphic touch display allows the user a high level of intuitive unit operation. Regarding the handling of the power controller, especially for visualization and A further important and specific feature of the new generation is the application of intelligent technologies to compensate system perturbations as well as mains load optimization to reduce costs.

Including e.g.:

• Internal mains load optimization for up to 12 power controllers

Optional:

- Thyro-Power Manager
- dASM bus module (in preparation)

Applications

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

High efficiency levels to save energy within the ongoing operation mode is a standard for the power controller series Thyro-AX like for all power controllers of the Thyro-Family.

The thyristor power controller Thyro-AX can be used for all applications including heating, melting, forming and drying. Versatile and easy to handle, it is used in many fields of applications in modern process engineering.

Thyro-AX		
Operating modes		
TAKT: full frequency package control	frequency package control	
VAR: phase-angle	firing of each sinus half-wave	
QTM: half-wave frequency package control	quick operating mode for ohmic load without a transformer	
SWITCH: full-wave frequency	switch operating mode, also for transformer load	
Thyro-AX		
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, SWITCH	
2A	2-phase version for 3-phase load in cost saving 3-phase circuit	
	operating modes: TA	KT, SWITCH
3A	3-phase version for 3-phase load operating modes: TAKT, VAR, SWITCH	
Rated voltage		
230 V	24 V - 253 V	
400 V	24 V - 440 V	
500 V	24 V - 550 V	
600 V	24 V - 660 V	
Network frequency	for all types from 47 Hz to 63 Hz max.	
	the frequency change is 5 % per half-wave	
Rated current		
XXX	16 A, 30 A, 45 A, 60 A,	100 A, 130 A, 170 A, 230 A, 280 A, 350 A, 495 A, 650 A, 1,000 A, 1,400 A, 1,500 A
Load types		
	ohmic load employed	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ;
	ohmic load employed transformer load	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ;
Mains load	ohmic load employed transformer load internal network load	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ; optimization for the operating modes QTM and TAKT
Mains load	ohmic load employed transformer load internal network loac interface for external	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager
Mains load Functional features	ohmic load employed transformer load internal network loac interface for external	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager
Mains load Functional features F	ohmic load employed transformer load internal network load interface for external forced ventilation	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs	d at a R _{warm} /R _{cold} -ratio up to 6; limitation of 3 x I _{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network loac interface for external forced ventilation set point inputs	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible (U _{ON} = 3 - 24 V)
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Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible (U _{oN} = 3 - 24 V) digital set point is provided by the process computer or bus system $U_{eff}/U_{eff}^2/I_{eff}^2/P$
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs control types load monitoring	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible (U _{ON} = 3 - 24 V) digital set point is provided by the process computer or bus system $U_{eff} / U_{eff}^2 / I_{eff} / I_{eff}^2 / P$ via an adjustable response threshold
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs control types load monitoring limitations	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible ($U_{ON} = 3 - 24 V$) digital set point is provided by the process computer or bus system $U_{eff} / U_{eff}^2 / I_{eff} / P$ via an adjustable response threshold current limitation I_{eff} current peak limitation to $\hat{I} = 3 \times I_{nom}$ for operation mode VAR
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs control types load monitoring limitations relay output	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible ($U_{ON} = 3 - 24 V$) digital set point is provided by the process computer or bus system $U_{eff} / U_{eff}^2 / I_{eff} / I_{eff}^2 / P$ via an adjustable response threshold current limitation I_{eff} current peak limitation to $\hat{I} = 3 \times I_{nom}$ for operation mode VAR exchanger, max. contact load 250 V, 4 A, 180 W, 1,500 VA
Mains load Functional features F H RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs control types load monitoring limitations relay output analog output	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible ($U_{ON} = 3 - 24 V$) digital set point is provided by the process computer or bus system $U_{eff} / U_{eff}^2 / I_{eff} / I_{eff}^2 / P$ via an adjustable response threshold current limitation I_{eff} current peak limitation to $\hat{I} = 3 \times I_{nom}$ for operation mode VAR exchanger, max. contact load 250 V, 4 A, 180 W, 1,500 VA 3 analog outputs each with signal levels of 0(2) - 10 V / 0(4) - 20 mA, max. compliance voltage 10 V
Mains load Functional featuresFH RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs Control types load monitoring limitations relay output analog output external supply	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible $(U_{oN} = 3 - 24 \text{ V})$ digital set point is provided by the process computer or bus system $U_{eff} / U_{eff}^2 / I_{eff}^2 / P$ via an adjustable response threshold current limitation I_{eff} current peak limitation to $\hat{I} = 3 \times I_{nom}$ for operation mode VAR exchanger, max. contact load 250 V, 4 A, 180 W, 1,500 VA 3 analog outputs each with signal levels of $0(2) - 10 \text{ V} / 0(4) - 20 \text{ mA}$, max. compliance voltage 10 V 85 V - 265 V (47 Hz - 63 Hz)
Mains load Functional featuresFH RLP2	ohmic load employed transformer load internal network load interface for external forced ventilation set point inputs control types load monitoring limitations relay output analog output external supply operational display	d at a R_{warm}/R_{cold} -ratio up to 6; limitation of 3 x I_{nom} ; optimization for the operating modes QTM and TAKT network load optimization available, e.g. Thyro-Power Manager 2 set point inputs, 2 digital inputs and 1 switch input input of analog set point, signal intervals, each of: 0(4) - 20 mA / 0(1) - 5 V / 0(2) - 10 V control input for switch operation mode - dual point control is possible $(U_{oN} = 3 - 24 \text{ V})$ digital set point is provided by the process computer or bus system $U_{eff} / U_{eff}^2 / I_{eff}^2 / P$ via an adjustable response threshold current limitation I_{eff} current peak limitation to $\hat{I} = 3 \times I_{nom}$ for operation mode VAR exchanger, max. contact load 250 V, 4 A, 180 W, 1,500 VA 3 analog outputs each with signal levels of $0(2) - 10 \text{ V} / 0(4) - 20 \text{ mA}$, max. compliance voltage 10 V 85 V - 265 V (47 Hz - 63 Hz) via display and relay output (exchanger, indications adjustable)



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