Thyro-P

DIGITAL THYRISTOR POWER CONTROLLER (SCR)

Secure, fast, economic and communication enabled

The Thyro-P is the result of consistent implementation of over 40 years of experience in the field of power controllers.

The power controllers (SCR) of Thyro-P can be used wherever voltage, current or power needs to be controlled precisely and reliably. Using broad band electric power supply, optional network optimization, patented ASM procedure and a user friendly interface, a wide range of industrial applications is adaptable such as:

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

With various operating and control modes, good connections to process and automation systems, high level of control accuracy using a 32-bit RICS processor and easy handling, the digital Thyro-P meets future requirements for new applications. Parameters can be adapted via menus; set points and actual values of the process can be redirected via analog outputs or as an option via bus systems.

The Thyro-P series offers a rated current of up to 2,900 A and voltage of up to 690 V due to the deployment of modern network thyristors.

Application specific solutions are also available with significant higher currents and voltages.

AEG
POWER SOLUTIONS

Thyro-P

SPECIFICATIONS

KEY FEATURES

- Ease of handling for rapid and reliable commissioning
- Ease of connection to automation equipment via bus interfaces
- Transformer load, resistive load as well as heating elements with large R_{warm}/R_{cold}
- Integrated soft-starting for operation with downstream transformer
- Broad band electric power supply for control voltage
- 6 LED status indicators
- 3 self-programmable monitoring relays
- Error memory with occurrence time recording
- Integrated load circuit monitoring
- High efficiency, wear-free operation
- Integrated semiconductor fuses
- Secure separation between power and control section
- Connection on SELF/PELF-circuit

ADDITIONAL FEATURES

- Elapsed hour meter, resolution in min./hour
- Energy meter, releasable in Ws/kWh
- Current resolution: 15 bit, equivalent to 0.03%
- Resolution voltage/ power/ set point: 14 bit
- Number of A/D transformer: 7
- Sample rate of A/D transformer: 1.5 M./sec

CERTIFICATES

- Quality standard to DIN EN ISO 9001
- UL certification
- SCCR, (see operating instructions) according to UL 508A (100 kA short circuit test)
- CE-compliant
- Canadian National Standard
- GOST certification
- RoHS compliant 5/6

OPTIONS

Local display and operating unit (LBA)
Pluggable, menu driven operation and display unit, parameter setting and display with measuring data, copy function, 7x19 digits display, graphics capable (line diagrams).

Cabinet installation kit (SEK)
Installation kit for LBA, with wiring, eligible for cabinet door or panel installation.

Thyro-Power Manager
The Thyro-Power Manager is an additional device for network load optimization if using several Thyro-P and Thyro-A power controllers. At the same time it serves as a measurement device for mains voltage, power and energy consumption especially for the operation mode TAKT. Thyro-Power Manager is an alternative to ASM procedure.

Thyro-Tool Family
PC software for commissioning, visualization and diagnosis of Thyro-P, Thyro-A and Thyro-S power controllers.
With functions, such as:

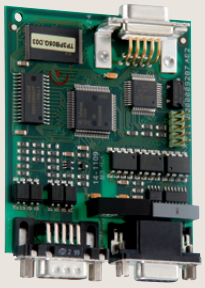
- Comparing sets of parameters
- Line diagrams of process data (with print option)
- Bar charts
- Simultaneous display of process data from various power controllers
- Simultaneous connection of up to 998 Thyro-P power controllers

Bus interfaces
Adapter modules for plugging into the Thyro-P control unit. Interface to various bus systems, e.g. PROFIBUS-DP, Modbus RTU and DeviceNet. Interface to further bus systems on request.

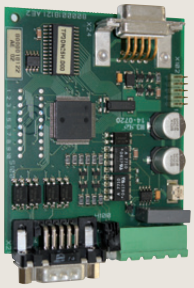
ASM procedure (patented)
Automatic synchronization of multiple power controller applications for dynamic load optimization. Minimizes network load peaks and related system perturbation.

Thyro-P

TYPE RANGE AND
TECHNICAL DATA (EXCEPT)



PROFIBUS-DP interface



DeviceNet interface

Local display and
operating unit (LBA)

Thyro-P DATA	
Applicable for	resistive load, transformer load and loads with large R_{warm}/R_{cold} up to parameter 20 (MOSI mode)
Set point input	2 analog inputs, control start/ finish can be be set as desired between 0-20 mA; 0-10 V.
Operating modes	TAKT: full frequency package control
	VAR: phase-angle
	SSSD: soft-start-soft-down
Control modes	U-voltage, U^2-voltage, I-current, I^2-current, P-power, without regulation
Actual value outputs	3 measuring values for optional display of U, I and P; can be set as desired between 0…20 mA; 0…10 V
Load circuit/self monitoring	provided
Operation/fault indicators	via 3 fault signaling relays and LED's, free configurable
Error memory	16 messages with occurence time
Interfaces	RS232, fibre optic as well as for various bus systems
TECHNICAL DATA	
Rated connection voltage (V)	400 V type: 230 V -20 % up to 400 V +10 %
	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 Hz to 65 Hz
Control voltage	AC 230 V (-20 %) up to 500 V (+10 %);
Ventilator (only for HF types)	230 V, 50 Hz to 60 Hz
Ambient temperature	up to 35 °C by external fan cooling (for HF types, with integradted fan) with rated current
	up to 45 °C by passive convection cooling with rated current
	at higher temperatures the operation is permissable with reduced current limits
	with UL applications max. 40 °C
Storage temperature	-25 °C up to +55 °C;
Humidity class	DIN EN 50178 Tab. 7
Site altitude	up to 1,000 m above sea level, at nominal load; above 1,000 m, on request

Thyro-P

TYPE RANGE AND
TECHNICAL DATA (EXCERPT)

Thyro-P 1P

Thyro-P 2P

Thyro-P 3P

Thyro-P 1P					Thyro-P 2P					Thyro-P 3P				
1-phase power controller					two-phase power controller for 3-phase economic circuits					three-phase power controller				
full frequency package control (TAKT)					full frequency package control (TAKT)					full frequency package control (TAKT)				
phase-angle (VAR)										phase-angle (VAR)				
soft-start-soft-down					soft-start-soft-down					soft-start-soft-down				
	[V]	[A]		[kVA]		[V]	[A]		[kVA]		[V]	[A]		[kVA]
1P	400	37	H	15	2P	400	37	H	25	3P	400	37	H	25
1P	400	75	H	30	2P	400	75	H	52	3P	400	75	H	52
1P	400	110	H	44	2P	400	110	H	76	3P	400	110	H	76
1P	400	130	H	52	2P	400	130	H	90	3P	400	130	H	90
1P	400	170	H	68	2P	400	170	H	118	3P	400	170	H	118
1P	400	280	HF	112	2P	400	280	HF	194	3P	400	280	HF	194
1P	400	495	HF	198	2P	400	495	HF	343	3P	400	495	HF	343
1P	400	650	HF	260	2P	400	650	HF	450	3P	400	650	HF	450
1P	400	1,000	HF	400	2P	400	1,000	HF	693	3P	400	1,000	HF	693
1P	400	1,500	HF	600	2P	400	1,500	HF	1,039	3P	400	1,500	HF	1,039
1P	400	2,100	HF	840	2P	400	2,000	HF	1,385	3P	400	1,850	HF	1,281
1P	400	2,900	HF	1,160	2P	400	2,750	HF	1,905	3P	400	2,600	HF	1,801
1P	500	37	H	18	2P	500	37	H	32	3P	500	37	H	32
1P	500	75	H	38	2P	500	75	H	65	3P	500	75	H	65
1P	500	110	H	55	2P	500	110	H	95	3P	500	110	H	95
1P	500	130	H	65	2P	500	130	H	112	3P	500	130	H	112
1P	500	170	H	85	2P	500	170	H	147	3P	500	170	H	147
1P	500	280	HF	140	2P	500	280	HF	242	3P	500	280	HF	242
1P	500	495	HF	248	2P	500	495	HF	429	3P	500	495	HF	429
1P	500	650	HF	325	2P	500	650	HF	563	3P	500	650	HF	563
1P	500	1,000	HF	500	2P	500	1,000	HF	866	3P	500	1,000	HF	866
1P	500	1,500	HF	750	2P	500	1,500	HF	1,300	3P	500	1,500	HF	1,300
1P	500	2,100	HF	1,050	2P	500	2,000	HF	1,732	3P	500	1,850	HF	1,602
1P	500	2,900	HF	1,450	2P	500	2,750	HF	2,381	3P	500	2,600	HF	2,251
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	1,400	HF	966	2P	690	1,400	HF	1,673	3P	690	1,400	HF	1,673
1P	690	2,000	HF	1,380	2P	690	1,850	HF	2,210	3P	690	1,700	HF	2,031
1P	690	2,600	HF	1,794	2P	690	2,400	HF	2,868	3P	690	2,200	HF	2,629

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