Control your Power

Thyro-P

Digital Thyristor Power Controllers (SCR)

Secure, fast, economic and communication enabled

With over 40 years of Power Controller experience, the Thyro-P is AEG's most advanced controller design. Together with several operating and control modes to choose from, straightforward connections to process and automation systems, and a high level of control accuracy through the use of a 32-bit RICS processor, the Thyro-P sets the standard for digital SCR Power Controllers.

Thyro-P Thyristor Power Controllers (SCR) can be used wherever you need precise control of voltage, current or power. Using AEG's patented ASM procedure, Thryo-P Power Controllers can be synchronized to eliminate peak power demands created when multiple controllers are used. A user friendly interface makes it adaptable for a wide range of industrial applications such as:

- Glass processing (plate glass equipment, feeders, finishing equipment, fiber glass)
- Furnace construction
- Engineering
- Painting machines and printers
- Chemicals and mineral oil
- Furniture industry
- Automotive industry (paint drying equipment),
- Plant equipment (extruders, plastic presses)
- Pipe trace heaters, pre-heating equipment
- Infra-Red drying
- Packaging industry (shrink tunnels).

Parameters may be adapted via menus; setpoints and actual values of the process may be redirected via analog outputs, or optionally via bus systems to automation systems and other units.

The Thyro-P series has a rated current of up to 2900 A and voltage up to 690 V due to the deployment of modern network thyristors.

Key features

- Ease of handling for rapid and reliable start-up
- Ease of connection to automation equipment via bus communications
- Transformer load, resistance load and heating elements with large R_{warm} /R_{cold} ratio
- Integrated soft-starting for operation with downstream transformer
- Wide band power supply for control voltage
- 6- LED status indicators via LED
- Centralized fault indication
- Error memory with event time
- Integrated load circuit monitoring
- High efficiency, trouble-free operation
- Integrated semiconductor fuses
- Electrical protection separation between power and control section that meets VDE 0160
- Connection on SELF/PELF-circuit

New assimilated features:

- Elapsed hour meter, resolution in min./hour
- Energy meter, releaseable in Ws/kWh
- Current resolution: 15 bit, equivalent to 0,03 %
- Resolution voltage/power/setpoint: 14 bit
- Number of A/D transformer: 7
- Sample rate of A/D transformer: 1,5 M/sec

- Quality standard to DIN EN ISO 9001
- UL certification, UL508A (100kA S.C.C.R.)
- CE–compliant
- Canadian National Standard
- GOST-compliant
- RoHS certification

Options

Local display and operating unit (LBA).

Pluggable, operation, parameter setting and display with menus, copy function, 7 x 19 digit display, graphics-capable (line diagrams)

Cabinet installation kit (SEK)

Installation kit for LBA with cable, suitable for installation in cabinet door or panel

Thyro-Power Manager

Thyro-Power Manager is an additional device for network load optimization if using several Thyristor Power Controllers. At the same time it serves as a measurement device especially for the operation mode TAKT.
Thyro-Power Manager is an alternativ to ASM procedure.

Thyro-Tool Family

PC software with functions such as: loading, saving, editing, comparing and printing parameters, set and actual value processing, 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

ASM procedure (patented)

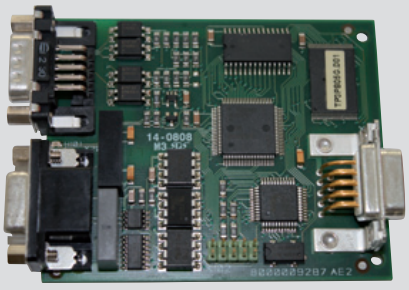
automatic synchronization of multiple Power Controller applications for dynamic load optimization. Minimizes load peaks and other system related disturbances.

Specification - Digital SCR controller with communication capabilities

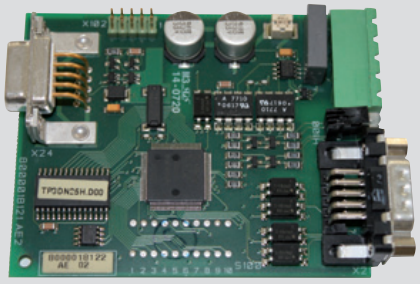
Applicable for	transformer load, resistance load and heating elements with large R_{warm} /R_{cold} ratio
Set point output	2 inputs, 0-20 mA; 0-10 V, control start/finish can be set as desired
Operating modes	TAKT, full frequency package control, frequency package control
	VAR, phase-angle firing of each sinus half-wave (1P and 3P)
	SSSD, soft-start-soft-down
	MOSI, sub-operating mode of VAR and TAKT (1P and 3P)
Control modes	V-voltage, V^2 -voltage, I-current, I^2 -current, P-power, configurable
Act. value outputs	qty. 3, either 0–20 mA, 4–20 mA or 0–10 V
Load circuit and self-monitoring	Provided
Operation indicators/Fault message	via LED and 3 fault signalling relays
Error memory	16 messages with event time
Interfaces	RS232, fiber optic and Bus-connection

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 45–65 Hz
Control voltage	AC 230 V (-20 %) to 500 V (+10 %);
Ventilator (HF- types)	230 V, 50-60 Hz
Ambient temperature	Up to 45 °C by passive convection cooling
	Up to 35 °C by external fan cooling (type ...F has integrated fan)
	Operation at higher temperatures is permissible with reduced current limits
	- With UL applications max. 40 °C
Storage temperature	-25 °C to +55 °C;
Humidity class	DIN EN 50178 Tab. 7
Site altitude	up to 1000 m above sea level at nominal load



Plug in card ProfiBus DPV1 interface



Plug in card DeviceNet interface

Local display and operating unit LBA

Type range and technical datas

THYRO-P 1P	THYRO-P 2P	THYRO-P 3P
Single-phase Power Controller	Two-phase Power Controller for 3-phase economic circuits	Three-phase Power Controllerr
Full wave switch mode TAKT	Full wave switch mode TAKT	Full wave switch mode TAKT
Phase-angle VAR	- - -	Phase-angle VAR
Soft-Start-Soft-Down SSSD	Soft-Start-Soft-Down SSSD	Soft-Start-Soft-Down SSSD

	[V]	[A]		[kW]		[V]	[A]		[kW]		[V]	[A]		[kW]
1 P	400	37	H	14,8	2 P	400	37	H	5,6	3 P	400	37	H	25,6
1 P	400	75	H	30	2 P	400	75	H	51,9	3 P	400	75	H	51,9
1 P	400	110	H	44	2 P	400	110	H	76,2	3 P	400	110	H	76,1
1 P	400	130	H	52	2 P	400	130	H	90	3 P	400	130	H	90
1 P	400	170	H	68	2 P	400	170	H	117	3 P	400	170	H	117
1 P	400	280	HF	112	2 P	400	280	HF	194	3 P	400	280	HF	193
1 P	400	495	HF	198	2 P	400	495	HF	343	3 P	400	495	HF	342
1 P	400	650	HF	260	2 P	400	650	HF	450	3 P	400	650	HF	449
1 P	400	1000	HF	400	2 P	400	1000	HF	693	3 P	400	1000	HF	692
1 P	400	1500	HF	600	2 P	400	1500	HF	1039	3 P	400	1500	HF	1038
1 P	400	2100	HF	840	2 P	400	2000	HF	1386	3 P	400	1850	HF	1280
1 P	400	2900	HF	1160	2 P	400	2750	HF	1905	3 P	400	2600	HF	1799
1 P	500	37	H	18,5	2 P	500	37	H	32	3 P	500	37	H	32
1 P	500	75	H	37,5	2 P	500	75	H	65	3 P	500	75	H	65
1 P	500	110	H	55	2 P	500	110	H	95	3 P	500	110	H	95
1 P	500	130	H	65	2 P	500	130	H	112	3 P	500	130	H	112
1 P	500	170	H	85	2 P	500	170	H	147	3 P	500	170	H	147
1 P	500	280	HF	140	2 P	500	280	HF	242	3 P	500	280	HF	242
1 P	500	495	HF	247	2 P	500	495	HF	428	3 P	500	495	HF	428
1 P	500	650	HF	325	2 P	500	650	HF	562	3 P	500	650	HF	562
1 P	500	1000	HF	500	2 P	500	1000	HF	866	3 P	500	1000	HF	866
1 P	500	1500	HF	750	2 P	500	1500	HF	1299	3 P	500	1500	HF	1299
1 P	500	2100	HF	1050	2 P	500	2000	HF	1732	3 P	500	1850	HF	1602
1 P	500	2900	HF	1450	2 P	500	2750	HF	2381	3 P	500	2600	HF	2251
1 P	690	80	H	55,2	2 P	690	80	H	95,6	3 P	690	80	H	95,6
1 P	690	200	HF	138	2 P	690	200	HF	239	3 P	690	200	HF	239
1 P	690	300	HF	207	2 P	690	300	HF	358	3 P	690	300	HF	358
1 P	690	500	HF	345	2 P	690	500	HF	597	3 P	690	500	HF	597
1 P	690	780	HF	538	2 P	690	780	HF	932	3 P	690	780	HF	932
1 P	690	1400	HF	966	2 P	690	1400	HF	1673	3 P	690	1400	HF	1673
1 P	690	2000	HF	1380	2 P	690	1850	HF	2210	3 P	690	1700	HF	2031
1 P	690	2600	HF	1794	2 P	690	2400	HF	2868	3 P	690	2200	HF	2629

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