



PRT thyristor power supply

Customization

Rectifier input and output connections are designed according to the customer's needs. Output voltage and output current ratings are available in a wide range.

Reliability

Reliability of the thyristor technology is extremely high. Rectifier load rating is as high as 100% at 24/7.

Maintenance friendly

The PRT products are easy to maintain. The estimated amount of service work is low.

Polarity change

The polarity change method uses a simple and economic solution.



PRT thyristor power supply

PRT thyristor power supply is a reliable secondary circuit regulated thyristor rectifier. We have manufactured PRT thyristor power supplies since 1983. Energy losses in a rectifier is minimized to the level of single threshold voltage by utilizing 6-pulse transformer topology. We also deliver 12-pulse products with an even lower output ripple voltage, also avoiding 5th and 7th harmonics. Multiple products can be connected in parallel within the same load group producing more total output power. An output polarity change feature is also available.

All control boards and components are located within an IP44 enclosure. Only the power transformer, the thyristor bridge and the fan are located outside the IP44 enclosure and are exposed to a potentially unclean or moist environment.

Typical applications

- Electroplating (including electric zinc coating, hard chrome coating, high polish chrome coating and tin coating)
- Anodization and hard-anodization
- Electrolysis processes
- Water purification
- Corrosion protection
- Ballast water treatment

Benefits of using thyristor technology

- Robust and reliable technology
- High load rating performance at 100% 24/7
- Output voltage polarity change feature
- Low need of maintenance work

Supply network

The supply network can be selected within the range 380 VAC-690 VAC at 50/60 Hz. The supply circuit is equipped with a motor circuit breaker with adjustable over load and short circuit protection features, with a remotely or manually operated handle. The main contactor is located after the power switch. Reactive power consumed from the supply network depends on the output voltage. A reactive power compensation unit is available as an option. It uses a fuse switch, a power factor compensation system and a reactor connected parallel to the input circuit. Input cabling can be connected at the top or the bottom.

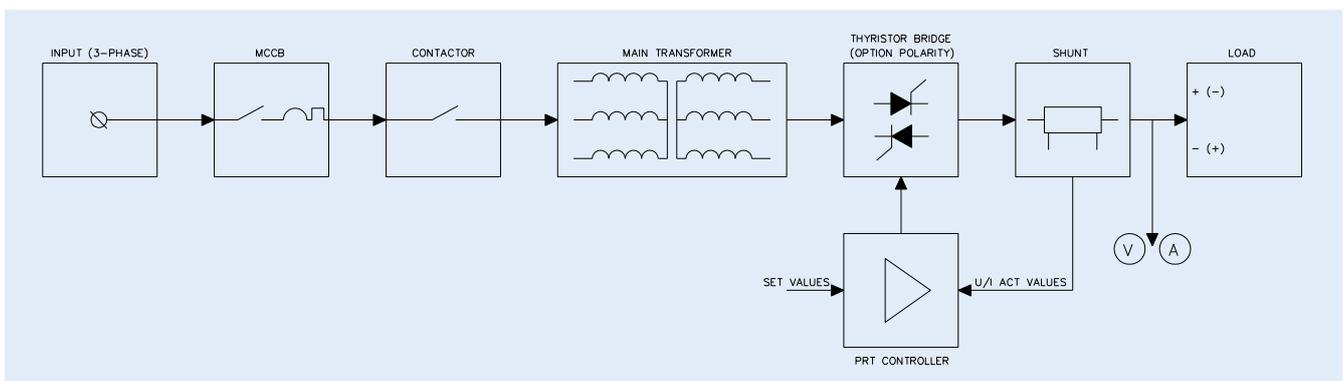
Control

Rectifier control can adjust voltage (0...100%) and current (0...100%) using a constant voltage mode or a constant current mode. Possible special needs and more detailed issues of the control method can be considered.

Output

Location of the rectifier output connector can be optimized according to customer needs. This makes it possible to lower installation costs.

General design:



The following control properties are available in different operating modes:

Control options	Local control at cabinet door	Local control at enclosure unit	Remote control
Local and remote control	x	x	x
Voltage adjustment 0...100%, or set at maximum	x	x	x
Current adjustment 0...100%, or set at maximum	x	x	x
Control potentiometer for voltage and current	x	x	
Analog control of voltage and current, e.g. 0...10V, 4...20mA			x
Analog control of voltage and current set points, e.g. 0...10V, 4...20mA			x
Digital meters	x	x	
Analog meters	x	x	
Local operating switches	x	x	
Control using potential free switches			x
Indicator lights: supply, operation, fault	x	x	
Status information with potential free switches			x
Ah -meter	x	x	x
PLC unit, e.g. ET200S			x
Digital control bus, e.g. Profibus or Modbus			x

General data	PRT rectifier		High Power PRT rectifier	
Input voltage, three phase 50/60Hz	230Vac, 380Vac, 400Vac, 440Vac, 480Vac and 690Vac			
Output voltage	0..30Vdc	0...200Vdc	0...100Vdc	0...400Vdc
Output current	0...6000A	0...2000A	6000...15000A	0...6000A
Output DC ripple voltage	approx. 5% at full load			
Efficiency	typically 80%-93%			
Duty factor	100% (24/7)			
Parallel connection of several units	Yes, with current control			
Control	0...100% of Iset or Uset			
Pulses	6 or 12			
Cooling	Transformers are air cooled, thyristor bridges are cooled with air or water			
Ambient temperature range	-20°C...+40°C air cooled, 0°C ...+40°C water cooled (bridge)			
Humidity	max. 90%			
Altitude	max. 1000m above sea level			
Dimensions (W x D x H mm) typical by power rating	90kW	200kW	400kW	over 400kW
	1200x800x2100	1600x1200x2100	2000x1600x2100	ask from factory
Enclosure	IP20 ... IP24			

Special requirements: please contact manufacturer



Ben Zhang
Valmet Paper Co., Ltd



We have been purchasing Ellego's rectifiers since 2003. The rectifiers run very stably with a low failure rate. Ellego's engineers provide the rectifiers with professional maintenance every year, making make sure that they are in good running condition. The performance of the rectifiers is perfect!

The output current is very steady and after plating, the coated layer is of very high quality. Compared with the local rectifier that we used to buy before, I think an Ellego rectifier is better for saving energy, because with the same plating condition, the output voltage is only 80%.



Kauko Tuliniemi
Kromatek Oy



Kromatek has enjoyed great long-standing cooperation with Ellego since 1990. Pole changing plays an important role in the plating process, and Ellego's rectifiers provide a good technical solution to this.

We have used Ellego's rectifiers at our units in Nakkila, Varkaus and Shanghai.



Petteri Soranta
Kova-Kromi Oy



Kova-Kromi Oy does surface treatment processes where adhesion, film thickness, density and hardness have to be aligned with international standards. Kova-Kromi Oy has been using Ellego's rectifiers since 1995.

Based on this experience, we can say that Ellego's rectifiers feature very high quality and reliability, and they are in compliance with our high requirements.



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