PILLER
Power Systems

APOTRANS AT
Static Transfer Switch

from 25A – 1600A

Nothing protects quite like Piller

www.piller.com

The new generation static transfer switch

About Piller

Since its formation by Anton Piller in 1909, the company Piller has been synonymous with electrical machines of the highest quality and reliability. Today, Piller, from its headquarters in Germany and via its regional offices, representatives and distributors world-wide, continues that tradition into the 21st century.

Piller produces high performance power protection systems and converters. Combined with the highest levels of client support and engineering excellence available anywhere, Piller is internationally recognised as the most respected name in its field.

Piller is a wholly owned subsidiary of the multi-disciplined global UK engineering group, Langley Holdings plc. (www.langleyholdings.com)

The Problem

All around the globe complex electrical and electronic processes, information technology and automation, govern our manufacturing, service industries, data management and communications.

In today's fast-moving world, Piller continues to develop new and innovative solutions to meet the challenge. As the requirement for resilient and redundant power supplies is growing, the Piller APOTRANS represents the latest evolution of redundancy.

The Solution

The APOTRANS static transfer switch is suitable for both new and existing power distribution systems. By either retrofitting APOTRANS into an existing system or designing a new system, the Piller APOTRANS supports critical loads by automatically switching to an alternative power source should the preferred source become out of tolerance or fail completely. The changeover occurs within milliseconds ensuring that the load is supplied with continuous power.

The APOTRANS Principle

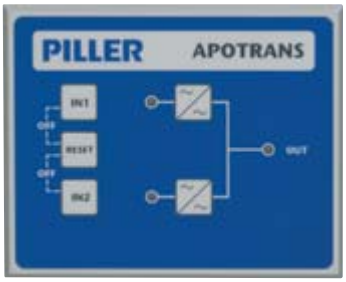
- **Thyristor-based static transfer switch**
- **Very fast transfer**
- **Rugged and highly reliable SCR technology**
- **Bypass and isolation switches**
- **Internal redundancy**

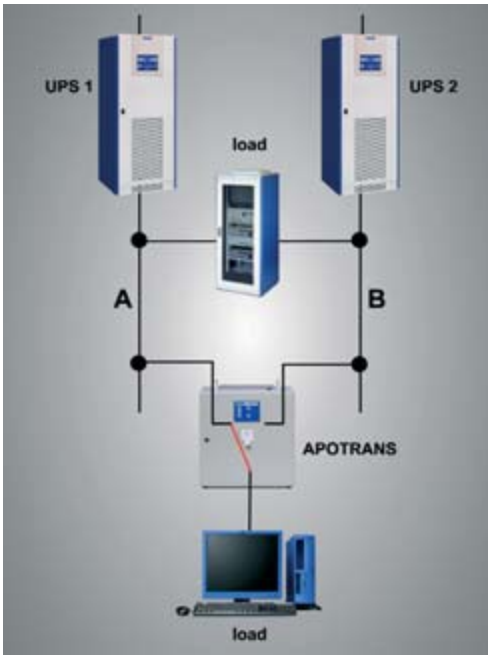
'APOTRANS represents the latest evolution of redundancy'

One step ahead

APOTRANS AT 25 A to 63 A

The Piller APOTRANS supports critical loads by automatically switching to an alternative power source should the preferred source become out of tolerance or fail completely. The changeover occurs within milliseconds ensuring that the load is supplied with continuous power. The AT 25 A to 63 A is a low current four-pole, three-phase transfer switch. The use of oversized thyristors allows a fuseless design. The AT 25 A to 63 A is available in three different housings according to the users needs e.g. a wall-mounted small cabinet with three phase socket outlets, for use in a raised floor or within a 19" rack.





Benefits

- Fuseless design
- Safe 4-pole transfer
- Shortest transfer times, typically 3 ms per phase
- Fully redundant, monitored electronics
- Thyristors monitored in every operating state
- Natural air cooling
- Low noise
- High efficiency
- Easy to operate
- User-friendly operating panel
- Adjustable operating criteria
- Event memory
- Comprehensive communications options
- Remote monitoring
- Integration with building management system
- Easy to maintain
- Built-in manual bypass
- Quick-swap components

APOTRANS AT 100A to 1000A

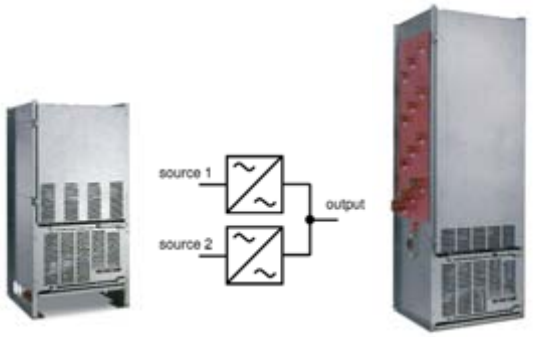
Feature	Benefit
Very high reliability	Third generation static transfer switch by the quality leader in high power UPS. The UNIBLOCK is the most reliable high power UPS in the world and has been built since 1982 using static switch technology. Based on this long experience the APOTRANS' reliability is assured. Several thousand APOTRANS have been installed since 1996.
Internal redundancy	APOTRANS is used to build systems of the highest reliability to fulfil the highest availability demands. This can only be achieved with internal redundancy. APOTRANS has three power supplies, redundant controllers and double redundant fans.
Fuseless design	Only very robust types of thyristor are used. No semiconductor fuses are needed because of the high short circuit current rating of the thyristors. Such fuseless design simplifies coordination of protection devices.
Fastest transfer	Phase selective transfer minimises the transfer time of every phase. Normal computer loads are sensitive to disruptions, but have no problems with steps in phase angle. APOTRANS can use phase selective transfer even with 180° unsynchronised sources. The changeover occurs typically within 3 milliseconds per phase.
Inrush control	The inrush control limits transformer inrush currents during manual and automatic transfers. This process optimises current limit with transfer time and protects the transformer against stress whilst avoiding over-current in upstream devices.
Seamless interface with a UPS system	With external signals, the behaviour of the APOTRANS can be adapted to the operating status of the UPS system. This allows for flexible and more reliable use in UPS systems.
Continuous thyristor monitoring	Detection of short or open circuit thyristors with immediate action and alarm.
Advanced adaptive short circuit detection	A static transfer switch must not transfer its source under short circuit conditions at the output. External protection devices must clear the fault. Meanwhile, the APOTRANS uses a sophisticated algorithm to detect any short circuit and act accordingly.
True front access	Installation and maintenance of the APOTRANS cabinet version can all be carried out from the front. The units can be installed in front of a wall or side by side with other components. This makes it very flexible and easy to use.
3-pole or 4-pole design	In a TN-S system, the neutrals of independently earthed sources must not be connected and need to be switched so that neutral current only flows through the active source. This requires 4-pole switching. For systems where no neutral is needed, APOTRANS is also available in a 3-pole design.
Cabinet with top or bottom cable entry	Very flexible use due to entry of the installation cables from the top, bottom or both.
Full open frame product line	APOTRANS is available in a cabinet or as an open frame for integration into PDUs and switchgear. The open frame solution allows easy customisation to local electrical standards.

The ultimate in system flexibility

Reliability

The APOTRANS is used to improve the reliability of a power system and this is achieved by using oversized robust thyristors and internal redundancy:

- **Redundant onboard controllers**
- **Triple redundant power supplies**
- **Double redundant fans**
- **Function check of active and inactive thyristors during each cycle**

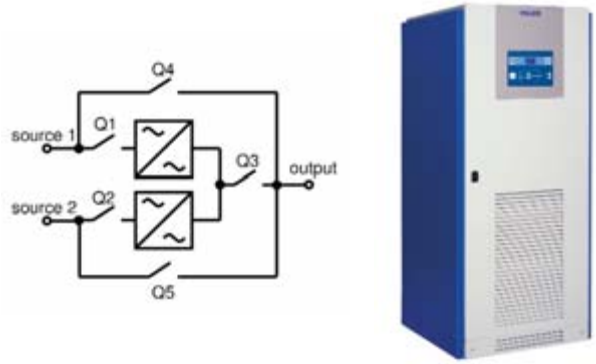


Simple Integration

The use of very robust, correctly sized thyristors allows a fuseless design of the APOTRANS. This simplifies the integration into the power system. Since there are no built-in semiconductor fuses or current-limiting MCCB's, coordination with upstream and downstream protection devices becomes simple.

APOTRANS can be programmed to match system requirements:

- **Transfer windows**
- **Input voltage tolerance**
- **Input frequency tolerance**



Top or bottom cable access simplifies installation

Full product range available as open frame for integration into power distribution panels.

3-pole or 4-pole Versions

In a TN-S system the neutrals of independently earthed sources must not be connected. The 4-pole version of APOTRANS accounts for this demand by switching the neutral also.

Unsynchronised Sources

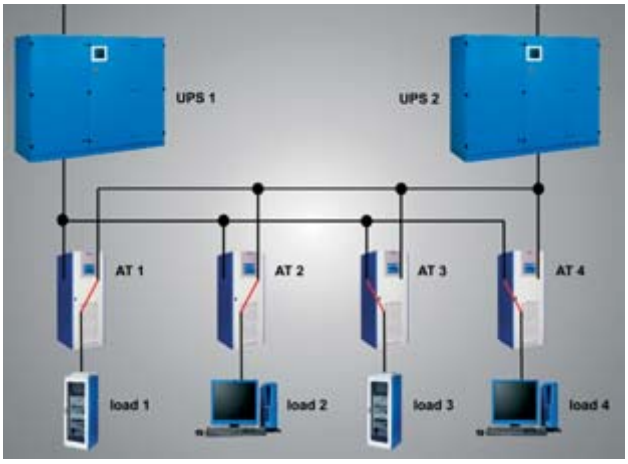
Fast and safe transfer of 180 degree "out-of-phase" sources.

APOTRANS AT 1600 A

The AT 1600 is a high current, four-pole, three phase transfer switch. The use of oversized thyristors allows a fuseless design. The AT 1600 is available in a cabinet complete with isolation and bypass switches. An electromagnetic interlock of the bypass switches ensures a safe operation.

Benefits

- Fuseless design
- Safe 4-pole transfer
- Shortest transfer times: typically 3 ms per phase
- Fully redundant, monitored electronics
- Tyristors monitored in every operating state
- High effiency
- Easy to operate
- User-friendly operating panel
- Adjustable operating criteria
- Event memory
- Comprehensive communications options
- Remote monitoring
- Integration with building management system
- Easy to maintain
- Built-in manual bypass

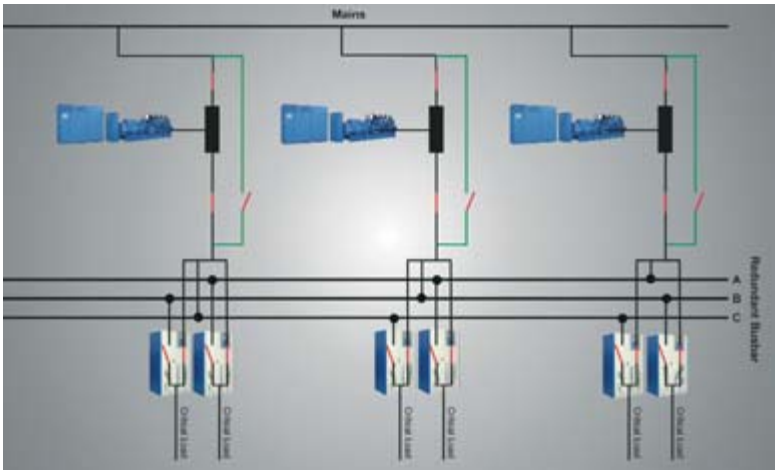


Wide Range of Possibilities

The APOTRANS adds a new level of system resilience, regardless of the source of the electricity supply! All basic and advanced system designs are possible, for example isolated redundancy, distributed redundancy or system + system redundancy. With redundancy brought right up to the load, there are numerous possibilities for system design.

Isolated Redundant or Distributed Redundant Configuration

In the isolated redundant configuration, the redundant unit is normally running at no load. The advantage of such a scheme is simplicity and ease of expansion. The concept can be enhanced with a distributed redundant design where no single module is assigned as a redundant unit. Instead, this role is shared equally among all modules. In the event of a single unit failure, its load will be shared proportionately over the remaining units. The advantage is equal load sharing among all units for improved efficiency.



'APOTRANS is trusted in thousands of mission critical applications worldwide'

Unrivalled after sales service

Competence and responsiveness are the watchwords of our business.

Piller believe that product and service belong together, and the Piller name is synonymous with excellent after sales service. The best technology is only as good in the long term as the service that underpins it.

For this purpose, a comprehensive network of qualified service staff is available – world-wide.

The premium quality and technical maturity of every Piller product already guarantees a high degree of functional security, and together with quality maintenance, this further reduces any risk of possible breakdown.

Piller offers a comprehensive package of services tailored to your requirements:

- **Technical consultation**
- **Operator training**
- **Functional testing**
- **Maintenance**
- **Fault analysis and troubleshooting**
- **Customer training**
- **Remote system diagnosis and support**
- **24/7/365 emergency call out**

Service Team Capability

Piller's customer service engineering team is highly qualified and trained on all products and services. As a combined total, field service teams have centuries of experience working on four generations of UPS system. Piller operates a 'best of breed' philosophy in all working practices and is believed to be the market leader in first time resolution of site problems.

Piller Emergency Call Out Service

Piller understands that malfunctions will sometimes occur outside working hours when competent help is also needed quickly. An emergency call out service ensures that a Piller service specialist can be reached quickly. Service centres are strategically positioned in relation to Piller's installed base for the best possible response time and familiarity with every installation.

'on demand 24 hours a day, 365 days a year'

PILLER

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HYBRID ROTARY UPS SYSTEMS
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