

## KONIS-T Rectifier

**KONIS-T is a robust and reliable standalone thyristor rectifier engineered for the supply of critical DC equipment used in industrial or power facilities with constant voltage of 220 V, while simultaneously managing the charging and maintenance of stationary batteries. Key features:**

- Field-proven thyristor rectifier technology.
- Maximum power supply reliability.
- High efficiency.
- Minimal maintenance requirements.
- Parallel operation of two rectifiers for increased power and reliability.
- Integrated insulation monitoring and ground fault detection in ungrounded DC systems.
- Local and remote monitoring & control.
- Real-time status monitoring, measurement and event logging.
- Extensive event log – stores up to 4,000 records with 1 ms resolution for precise tracking.
- Automated battery testing – periodic self-checks for battery integrity and capacity verification.
- Natural convection cooling – no fans required.
- Modular design facilitates easy maintenance and servicing.
- Wide range of adaptation possibilities to suit the specific requirements of various facilities.

The rectifier is designed as a reliable and stable DC power source, making it an ideal standalone rectifier or a key component in uninterruptible power supply (UPS) systems for critical DC loads.

In addition to powering connected loads, the rectifier provides automated charging and maintenance of stationary battery banks. As a critical element of the system, the battery bank is kept fully charged at optimal voltage level. The rectifier provides precise regulation of the float voltage to ensure required battery autonomy at a specified load level, thus ensuring the longevity and continuous availability of the battery for backup power.

The core of the rectifier consists of a field-proven, robust and highly reliable three-phase thyristor bridge, ensuring controlled rectification and stable DC power conversion. The three-phase input transformer provides galvanic isolation and voltage adaptation, further enhancing system safety and performance.

Output filtering ensures low ripple voltage, meeting the stringent requirements of sensitive loads and battery systems. Natural convection cooling eliminates the need for fans, enhancing reliability and system availability.



The rectifier can be configured with an optional diode-based dropper unit, enabling simultaneous supply of loads at nominal voltage and charging of batteries at a higher boost voltage, thereby optimizing charging cycles.

### **The KONLOG microprocessor-based control unit**

continuously monitors and manages the operation of the rectifier in real time, provides real-time power system management, featuring precise parameter configuration, advanced diagnostics & fault detection, local and remote monitoring of system status and alarms.

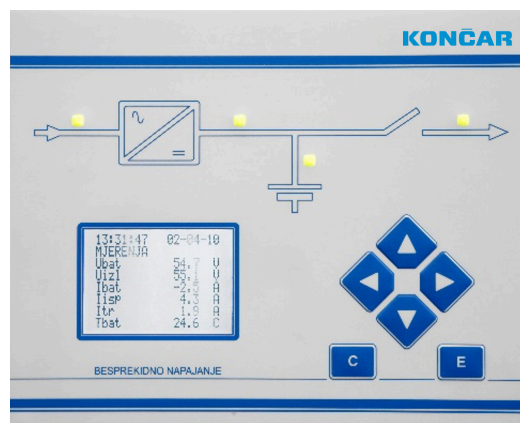
Its robust communication interface supports integration with station computers, dispatch centers, and specialized service centers, minimizing maintenance costs and enhancing overall system resilience.

The system continuously measures voltage, current, and temperature of the connected battery bank, adjusting its operation accordingly. It ensures that the battery remains fully charged and in optimal condition, ready to seamlessly take over, thus ensuring a continuous power supply to connected loads in case of mains failure.

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In addition to an optimally adjusted charging and maintenance voltage, it provides various automatic charging modes (float, boost, equalization), charging current limitation, battery circuit integrity testing, battery status indication, battery capacity testing, protection against deep discharges and high charging voltages, overtemperature warnings, and other safety features.

The rectifier also monitors load voltage stability, signaling any deviations from nominal values. Additionally, it provides real-time insulation resistance monitoring by specifically tracking the insulation level between the live DC power conductors and ground and signaling the occurrence of a ground fault. It also detects the occurrence of a short circuit and the tripping of the battery protection circuit breaker or a DC distribution circuit breaker.



TECHNICAL SPECIFICATIONS					
	100 A	160 A	200 A	400 A	600 A
<b>Input</b>					
<b>Voltage</b>	400 VAC + 10 %, - 15 %				
<b>Nominal frequency</b>	50/60 Hz				
<b>Frequency tolerance</b>	± 5 %				
<b>Nominal frequency</b>	50 A	80 A	100 A	200 A	300 A
<b>Output</b>					
<b>Nominal voltage</b>	220 V				
<b>Static voltage accuracy</b>	± 1 %				
<b>Voltage adjustment range</b>	198 to 255 V				
<b>Voltage Ripple (RMS)</b>	< 1 %				
<b>Regulation characteristic</b>	IU (DIN 41773)				
<b>Voltage compensation:</b>	Temperature-based battery voltage adjustment				
<b>Nominal frequency</b>	100 A	160 A	200 A	400 A	600 A
<b>Current limit, adjustment range</b>	0.5 to 1 I <sub>n</sub>				
<b>Efficiency</b>	≥ 0.93	≥ 0.94	≥ 0.94	≥ 0.95	≥ 0.96
<b>Battery specifications</b>					
<b>Type</b>	Sealed, maintenance-free lead-acid (open lead-acid and NiCd options available)				
<b>Nominal block voltage (for lead-acid batteries)</b>	2, 4, 6 or 12 V				
<b>Charging/float voltage (at 20°C)</b>	2.28 V per cell (configurable based on battery type)				
<b>Battery protection:</b>	Short-circuit, deep discharge, and high charging voltage				
<b>General data</b>					
<b>Remote communication</b>	MODBUS protocol via RS485 or optical interface Optional: IEC 60870-5-104 protocol via Ethernet interface				
<b>Cooling method</b>	Natural convection (fanless)				
<b>Operating temperature</b>	0°C to +40°C				
<b>Storage temperature</b>	-20°C to +70°C				
<b>Relative humidity (non-condensing)</b>	up to 90%				
<b>Compliance with standards</b>	IEC/UL 62368, IEC 60529, IEC 60146				
<b>Ingress protection</b>	IP 20				
<b>Colour</b>	Light gray (RAL 7035)				
<b>Dimensions: Width</b>	800 mm	1000 mm	1000 mm	1200 mm	1800 mm
<b>Depth</b>	600 mm	600 mm	600 mm	800 mm	800 mm
<b>Height</b>	2100 mm	2100 mm	2100 mm	2100 mm	2100 mm
<b>Weight</b>	650 kg	750 kg	800 kg	1200 kg	1600 kg