

VoR

Multi-Master Parallel Voltage Stabilizer



Key Features

- Parallel Connected AC voltage Stabilizer
- Multi-master Parallel Operation Technology
- Power Range: 60kva, 200kva, 400kva, 600kva
- Up to 16 parallel connections
- Up to 50 MVA High power solution
- Equal Load Sharing
- Low Voltage Correction up to 60%
- Response time: 20msec
- Correction Time: 100msec - 200msec
- Changing the input voltage range
- 100% Unbalanced Voltage and Load Capacity
- Continuous protection against voltage fluctuations
- Independent voltage management on each phase
- Efficiency >97%
- Standart Operator Panel with 4x20 LCD display
- Electronic Overload, Over Temperature Protection
- Low Voltage / High Voltage Protection
- Suitable design for industrial environment
- TS EN ISO 9001: 2015 Quality Certified

Optional features

- 7" Touchscreen Operator Panel
- ETHERNET and MOD-BUS RTU interface
- Maintenance By-Pass Switch
- Output Circuit Breaker



Whats is VoR Parallel Voltage Stabilizer?

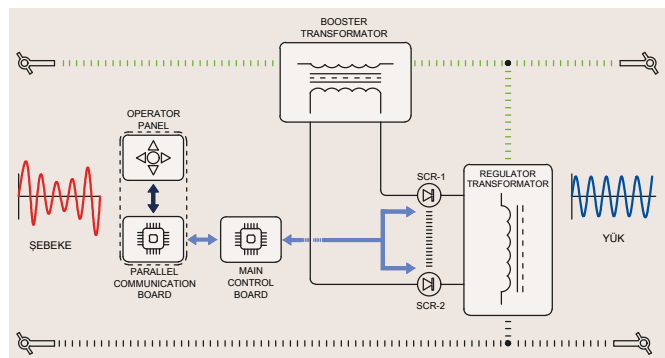
VoR is an Alternative Current (AC) voltage regulation and protection device which provides continuous, safe and stable voltage to sensitive industrial machines and equipments.

It adjusts and keeps constant unstable network voltage to the most proper voltage value for industrial facilities.

How does it work?

Each VoR unit works on the principle of injecting voltage to the load supply voltage by the help of transformer connected in series between the network and load. High-speed and sensitive measuring circuits of VoR measure voltage drops and fluctuations.

Microprocessor-based management board calculates the voltage value to be increased or decreased and performs the voltage injection with Thyristor switches.



*The measuring time of low voltage and high voltage is **20 milliseconds.**
Voltage correction time is **100-200 milliseconds.***

All operations are done automatically and without any operator assistance.

Eliminate the risk with Parallel Redundant VoR

Parallel Operation Technology

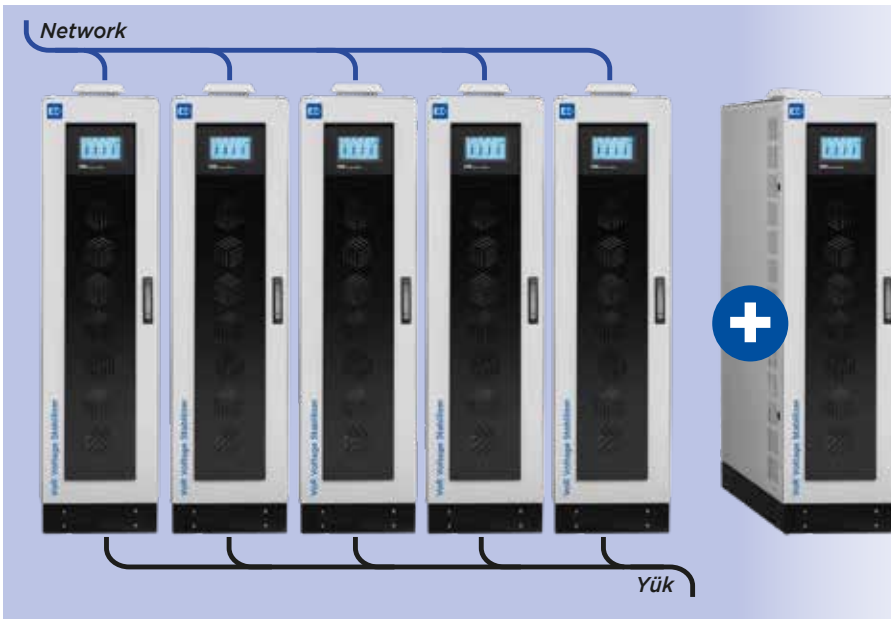
VoR voltage stabilizers have power-up technology by connecting in parallel. For parallel operation, the inputs and outputs of two or more VoR voltage stabilizers are short-circuited and the communication cable between the units is attached. Parallel connected devices operate together as one device and share the load between them. The number of device which can be connected in parallel is 16. VoR voltage stabilizers which have patented parallel operation technology provide uninterrupted, safe and flexible voltage regulation solution operating together and simultaneously.

Multi-master Modular System

VoR Voltage Stabilizers do not need a separate control unit for parallel operation. All VoR Voltage Stabilizers can operate as Master. The patented VoR software protocol enables automatic selection of the master unit. When the master unit is disabled, new master is selected in less than a second. There is no power interruption during master change. For parallel operation, it is enough to connect the communication cable.

Equal Load Sharing

Parallel connected VoR Voltage Stabilizers share the load current. The imbalance in load sharing is less than 10%. The patented VoR software algorithm ensures that the output voltages are equal in all Stabilizers. Conductivity differences on semiconductor components are eliminated with the "Load Balancing Unit". With this technology, the total load is shared equally among the VoR Stabilizers and there is no circulation current between the stabilizers.



N+1 Redundancy Solution

VoR Voltage Stabilizers provide the N+1 redundant power solution for uninterrupted operation of critical industrial devices. For this, 1 spare VoR Stabilizer is added to the system. When any unit is shut down due to maintenance or malfunction, the remaining devices continue to operate at full power. VoR Voltage Stabilizer which is maintained can be put into use without any power interruption.

Modular and Flexible Design, Fast and Easy Installation

VoR Voltage Stabilizers provide flexible investment and planning opportunities to Industrial Enterprises, Product Suppliers and Design Engineers.

Industrial Plants, purchase VoR only in capacity that matches their existing power requirement. When needed more power, a new VoR can be added to system. When less power is required, one of the VoR Voltage Stabilizers is turned off and energy can be saved.

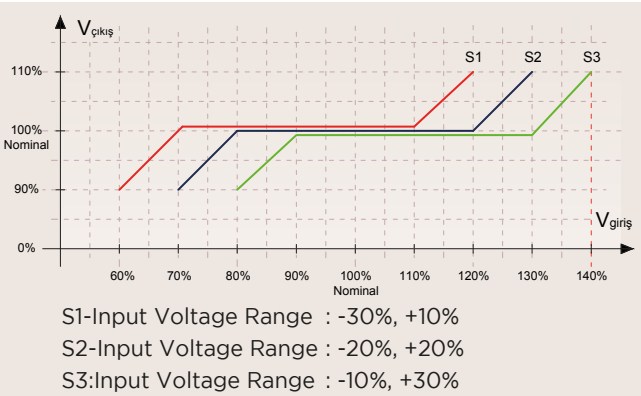
International Product Suppliers&Resellers, can deliver all customer requests swiftly from stock by keeping only 4 models of VoR Voltage Stabilizers in stock.

Design Engineers can easily design distribution rooms with small-sized modular VoR Voltage Stabilizers. VoR Voltage Stabilizers offer the best solution for additional power and backup needs.

Changing The Input Voltage Range

Input Voltage Correction range of VoR Voltage Stabilizers may be changed. This transaction is adjusted by changing a wiring on the power transformers. 3 different voltage range can be selected.

The adjustable Input Voltage Range specification provides the great advantage for Product Suppliers and Resellers. It is not necessary to wait for customer demands for stock product order. Standard VoR Voltage Stabilizers may be customized in accordance with customer needs.



Full Protection with Fast and Durable Thyristor Technology

In VoR Voltage stabilizers, voltage increasing and voltage decreasing are done using THYRISTOR switches. Voltage regulation transaction is done from AC to AC directly. It doesn't create harmonic distortion on network or load voltage. VoR Voltage Stabilizers are equipped with protection systems of Low Voltage, High Voltage, Overload and Over Temperature for safe operation of critical industrial devices.

Production in All Industrial Voltages (Optional)

VoR Voltage Stabilizers is produced in all industrial input voltages.

3 Phase + Neutral connection , 208VAC, 220VAC, 380VAC, 400VAC, 415VAC, 480VAC, 600VAC

The nominal operating voltage of the VoR Voltage Stabilizers is determined at the order . It cannot be changed later.

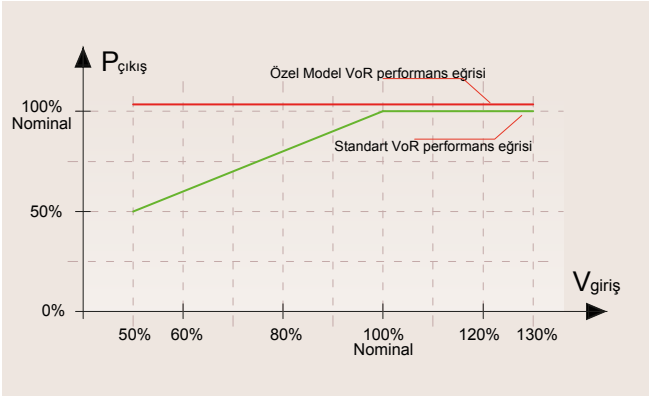
Özel üretim talepleri ve en uygun çözümler için satış temsilcisiyle görüşün.



Full Power Performance at Low Voltage (Optional)

Standard type VoR voltage Stabilizers are designed to operate at full load at rated input voltage.

Input fuse, power transformers and thyristors of standard type VoR Voltage Stabilizers have been selected with capacities suitable for nominal voltage.



Therefore, when the input voltage drops, the output power drops at the same rate.

N+1 backup solution should be used for full load operation at low voltage.

For special applications, VoR Voltage Stabilizers can be produced to operate at full load at the lowest input voltage.

VoR's input fuse, power transformers and thyristors are selected with capacities suitable for the minimum input voltage for continuous full load performance at the lowest input voltage.

Copper Busbar Set for Parallel Connection (Optional)

Copper busbar sets required for parallel connection of VoR Voltage Stabilizers can be ordered together with the device. Copper busbars in suitable sizes for the ordered VoR model are marked according to color codes and insulated for safe use. Screw and Bolt sets required for connection are also supplied.

Maintenance By-Pass Switch (optional)

A Maintenance By-Pass switch can be added to the VoR voltage stabilizers, which ensures that the loads are transferred to the network in case of maintenance or failure. By-Pass mode is selected from the operator panel before the maintenance bypass operation is performed. During the Maintenance By-Pass operation, the power supplied to the loads is cut for a short time.

p.s: When one of the parallel connected devices is in the by-pass position, all devices turn off their output power. Therefore, for maintenance bypass in parallel system, external by-pass board should be used.

4 Models - 64 Solutions - 10 Megawatt Power

✓ VoR Voltage Stabilizers are produced in 4 different powers as standard.
60 kVA, 200 kVA, 400 kVA, 600 kVA

✓ VoR devices of the same power can be connected in parallel up to 16 units.

✓ With standard VoR models, 64 different power voltage stabilizers can be designed.

Solution 1:



≡ 3.000 KVA

Solution 2:



≡ 240 kVA

Scope of Application

- Industrial Plants
- Data Centers
- Medical Equipments
- Computer and Network Systems
- TV and Radio Stations
- Laboratory and Test Equipment
- Production Lines
- Banks and Financial Institutions
- Iron and Steel Plant
- Automotive and Sub-industry
- Factories
- Mining
- Shopping Malls
- Homes

Advantages

- 1 VoR is suitable for suppliers and resellers of electrical and electronic products.
- 2 Suitable for swift sale from stock. Customer demands with different powers and technical specifications can be met by keeping only 4 models of products in stock.
- 3 There is possibility to increase power later.
- 3 It is in small and compact size. It is easy to transport and install inside the building, even in high-power applications.
- 4 It does not cause energy interruption in case of maintenance or malfunction.
- 5 It is the best solution for medium and high power plants affected by voltage fluctuations.

Special voltage and power management solutions are possible at high powers up to 50 MVA with the patented "Multi-Master Parallel Voltage Stabilizer Technology".



With easily accessible screens; your peace of mind, your job easier...

Operator Panel

VoR Voltage Stabilizers have an ergonomic and user-friendly Operator Panel designed for management and monitoring. All operating parameters of the Voltage Stabilizer can be monitored from this panel and some operating parameters can be adjusted. There is two-step password protection for parameter changing.

Monitorable parameters: Input Voltages, Output Voltages, Common Busbar Voltages, Load Percentages, Operating Frequency, Number of devices connected in parallel, Date-Time, Device Status Information, Fault and Error Codes.

Changeable Parameters: Output Voltage Set Value (limited), Device ID number, Communication Parameters, Date-Time Information.

Remote Monitoring and Management



Ethernet Web Server (Optional)

It is designed for remote monitoring via network. The whole system can be monitored and managed by connecting to any of the VoR Voltage Stabilizers with an Ethernet cable. The remote management interface is designed as browser-based. It can be connected from any computer with a web browser. No additional software is required.

With remote management interface; all parameters of all VoR Voltage Stabilizers connected in parallel can be monitored and some parameters can be changed.

There is two-step password protection for accessing the remote monitoring interface.



MOD-BUS RTU (Optional)

It is designed for monitoring and management via Mod-Bus. The whole system can be monitored and managed using the Mod-Bus protocol by connecting with a cable to any of the VoR Voltage Stabilizers. Parameters of all VoR Voltage Stabilizers connected in parallel can be monitored and some parameters can be changed by connecting to any device with Mod-Bus protocol.



VoR Voltage Stabilizer has 2 different Operator Panel Options.

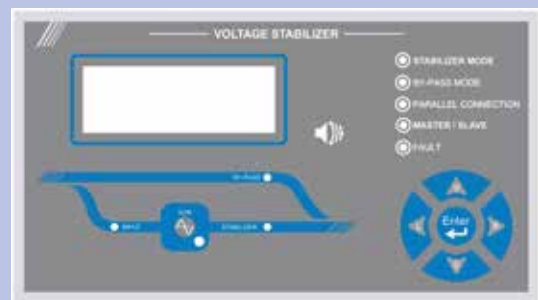
1. Touchscreen Operator Panel

- 7" lay
- Resistive Feature,
- Backlight
- Three Language Options (On Order)
- Simple and Understandable Menu



2. LCD Display Operator Panel

- 4 lines 20 characters LCD display
- Mimic Diagram
- Light indicators
- 5 pcs selection and application buttons
- Three Language Options (On Order)
- Economical and long lasting



Technical specifications

VoR Multi-master Parallel Voltage Stabilizer	
General Features	
Power (kVA)	60kva - 200 kva - 400kva - 600kva
Number of Parallel Connection	Up to 16 units can be connected in parallel
Maximum Power	10 MegaWatt with standard models (50 MegaWatt with special production devices)
Input	
Rated Input Voltage	400VAC 3Phase + Neutral + Ground (Different Voltage Values are Optional.)
Voltage Tolerance	-%25 , +%15 (Changeable)
Frequency	50Hz +/-5% (Optional 60Hz)
Output	
Rated Output Voltage	400VAC 3Phase + Neutral + Ground (Different Voltage Values are Optional.)
Voltage Tolerance	+/-2% (+/-1% and +/-3% are optional for special applications)
Frequency	50 Hz 3 5%
Overload Capacity	125% 1 minute, 150% 10 seconds, 151% and above 0.2 seconds
Response Time	20 msec
Correction Time	100msec - 200msec
Efficiency	> 97% typical
Management and Communication Interfaces	
Operator panel with LCD Display	4 lines 20 characters LCD display and Mimic Diagram. Input Voltage, Output Voltage, Load Percentage, Frequency, Status Information, Fault Information, Parameter settings
Touchscreen Operator Panel (optional)	7" Touchscreen Color Display Input Voltage, Output Voltage, Load Percentage, Frequency, Number of parallel connections, Status Information, Fault Information, Parameter settings.
Parallel Communication Interface	CAN-BUS communication up to 100 meters with CAT-5 cable
Remote Management and Monitoring Interface	Browser-based remote management with Ethernet connection. MOD-BUS RTU with RS485 connection
Protection Functions	
Voltage Protection	Electronic protection for Low Voltage and High Voltage
Current Protection	Input Circuit Breaker (Output Circuit Breaker optional)
Overload Protection	Electronic Overload Protection (1 minute at 125% overload, 10 seconds at 150% overload, 0.2 seconds over 151% overload, after the power to the load is cut off.)
Over Temperature Protection	Electronic Over-temperature protection (Fan cooling works at 50 °C. At 80 °C, the power to the load is cut off.)
Surge Arrester	Surge Arrester (Class-I or Class-II) (optional)
Environmental Conditions	
Operating temperature	-10 °C ~ +40 °C
Altitude Working Height	1.500m
Humidity	90% none condensed
Acoustic Noise	< 55dB
Cabinet Specifications	
Type - Protection Class	Free Standing Modular Cabinet, IP21 Indoor type (IP54 and higher protection class, Outdoor Type Cabinets are optional)
Paint - Color	Epoxy-Polyester Powder Paint - RAL 7035
Cooling	Forced air cooling with thermostat controlled fan

ORDER CODE

VoR-3P200-S 380-4C-xx-xx

Model	_____	Options	_____
Rated Power	_____	Thyristor Configuration	_____
Input Voltage Range	_____	Rated Voltage	_____



<https://www.editelektronik.com.tr>

You may visit our Website for more detailed information and solutions.

