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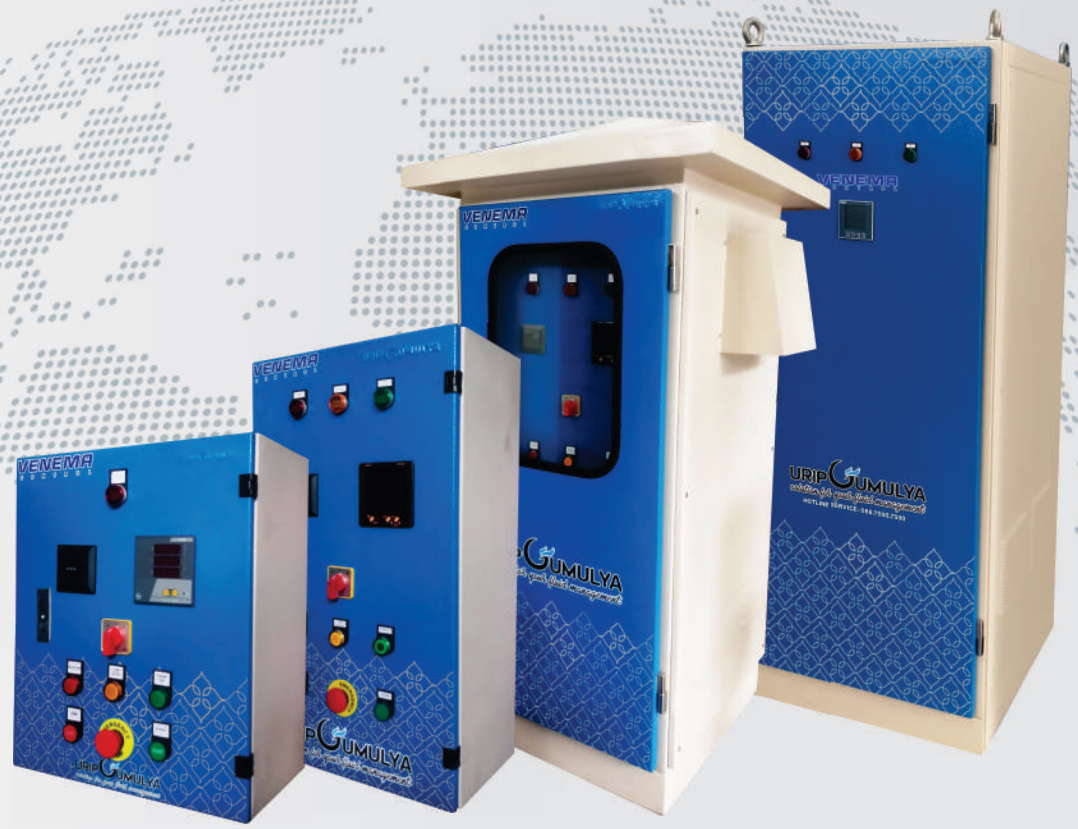
CONTROL

ENGINEERED FOR RELIABILITY



CONTROL PANEL CATALOGUE

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VENEMA — Engineering Control with Precision

Company Overview

Founded in **2010**, **VENEMA** is a trusted Indonesian brand under **PT. Urip Gumulya**, specializing in the **design and manufacture of electrical control panels and power distribution systems**.

With a dedicated manufacturing plant in Indonesia, VENEMA provides reliable and customized electrical solutions for the **water, irrigation, industrial, and commercial sectors**, serving customers across the country and abroad.

Over the years, VENEMA has become a **recognized name in precision control engineering**, combining Indonesian manufacturing expertise with international quality standards. Every panel we produce reflects our commitment to innovation, reliability, and long-term performance.

Vision & Mission

Vision:

To be Indonesia's leading manufacturer of electrical control and automation systems, providing efficient, safe, and sustainable power solutions to customers worldwide.

Mission:

- Deliver customized control solutions tailored to specific industrial needs.
- Continuously innovate through technology and professional expertise.
- Guarantee reliability and safety in every product.
- Support Indonesia's industrial development through responsible engineering and manufacturing.

Our Capabilities

Design & Engineering

Our in-house electrical engineering team develops control logic, protection systems, and wiring layouts using modern CAD and simulation tools. Every design ensures efficient operation, safety, and easy maintenance.

Manufacturing & Assembly

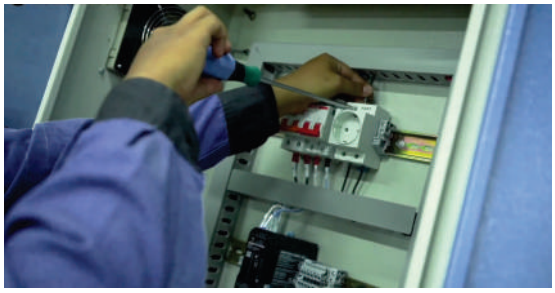
Our manufacturing facility is equipped for full-cycle fabrication, wiring, and quality inspection. From precision cutting and busbar assembly to modular enclosure fabrication, every process follows **IEC and SNI standards**.

Testing & Quality Assurance

All VENEMA control panels undergo **thorough functionality, insulation, and load tests** prior to delivery. Each unit is verified to meet performance and safety benchmarks for long-term dependability.

After-Sales Service

Our support team provides **on-site commissioning, maintenance, and operator training** to ensure lasting reliability and customer satisfaction.



Why Choose VENEMA

Advantage	Description
Local Expertise, Global Standards	Indonesian manufacturing with international quality compliance.
Customized Solutions	Tailor-made control systems to meet client specifications.
Premium Components	Use of globally certified components from trusted suppliers.
Engineering Support	Assistance from design through commissioning.
Nationwide Presence	Dedicated sales and service teams operating in over 200 cities across Indonesia, ensuring fast response and local support
Cost Efficiency	Competitive pricing with uncompromised quality.

Industries We Serve

- Water & Wastewater Treatment Systems
- Agricultural Irrigation Networks
- Industrial Manufacturing & Processing
- Commercial Building Services
- Renewable and Energy Applications

Commitment to Quality

Every VENEMA product reflects our dedication to **engineering precision, consistent performance, and sustainable reliability.** As we expand our reach across Indonesia and beyond, our focus remains on innovation, integrity, and building lasting partnerships with our clients.

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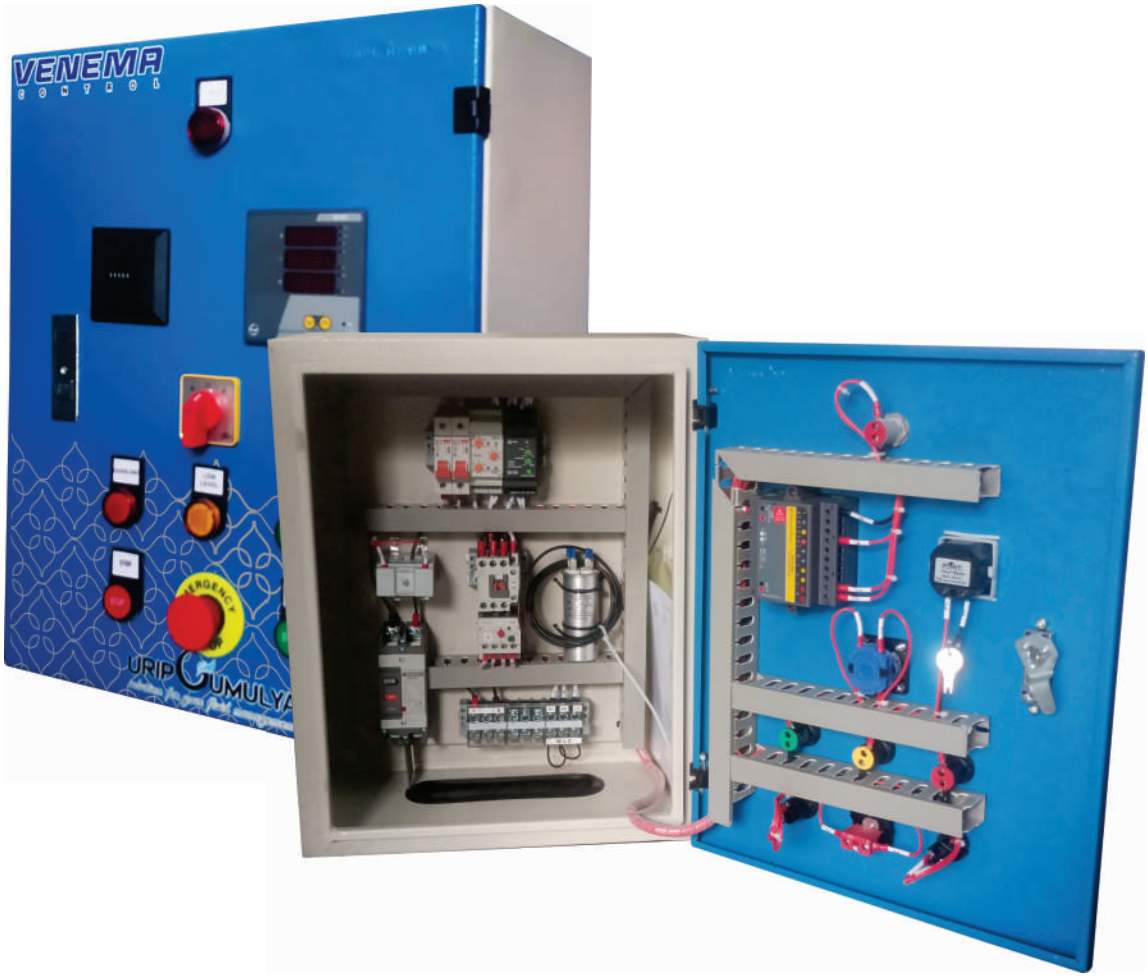

DOL (Direct On-Line)
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VCP-DOL Series — Direct On-Line Control Panels

Description

The **Venema VCP-DOL Series** control panels are designed for **direct-on-line starting** of electric motors from **0.37 kW to 55 kW**. Built to deliver reliable performance in irrigation, industrial, and water-supply systems, these panels provide **robust motor protection** and **straight forward operation.**

Each unit integrates high-quality components, ensuring long service life and consistent operation even under demanding conditions. The D.O.L. configuration allows for **instant motor start-up** with high torque, making it ideal for submersible, centrifugal, and booster pumps.

Technical Range

Power Range	Voltage	Freq.	Enclosure	Protection Degree	Operation Mode
0.37 – 7.5 kW	3 ~ 400 V ± 10%	50 Hz	Thermoplastic	IP20 - IP65	Manual / Automatic
7.5 – 55 kW	3 ~ 400 V ± 10%	50 Hz	Metal	IP20 - IP65	Manual / Automatic

Standard Features

- **Direct-on-line motor starting** for quick acceleration and high starting torque
- **Thermal overload and short-circuit protection** via circuit breakers and relays
- **Phase failure and phase sequence protection** for three-phase motors
- **Water-level control input** for automatic pump operation
- **Time delay relay** between stop/start cycles
- **Manual / Automatic selector switch** with pilot indicators
- **Pressure control option** via pressure switch (optional)
- **Compact IP-rated enclosure** suitable for mild industrial and agricultural environments

Standard Panel Components

Component	Specification / Function
Mini Circuit Breaker (MCB) / No Fuse Breaker	Motor and control circuit protection
Contactor	Motor switching and control
Thermal Overload Relay	Protection against overcurrent and overheating
Phase Failure Relay	Monitors phase sequence and prevents wrong connection
Water Level Control (WLC)	Automatic operation based on tank levels
Auto-Manual Selector	Allows manual or automatic operation
Pilot Lamps (Run / Fault)	Status indication
Push Buttons (Start / Stop)	Control interface
Cable Ducts & Wiring	Pre-wired, organized internal layout

Optional Components

Component	Description
Moulded Case Circuit Breaker (MCCB)	Heavy-duty circuit protection
Motor Overheat Relay	Temperature-based motor safety
Digital VAF or Power Meter	Voltage, current, and frequency display
Timer + Socket	Delay control and automation
Pressure Switch / Relay	Water pressure regulation
Off-time / Star-Stop Delay Relay	Smooth start and stop cycle control

Safety and Function Summary

Protection Function	Purpose
Overload / Circuit Breaker	Protects motor from overcurrent and short circuits
Phase Failure Relay	Prevents operation under incorrect or missing phases
Water Level Control	Maintains safe tank or well levels
Time Delay Relay	Prevents rapid cycling between start/stop commands
Pressure Switch (optional)	Regulates pipeline pressure for system balance

Operating Conditions

- Ambient temperature: −5 °C to +40 °C
- Relative humidity: ≤ 80 % (at 20 °C)
- Installation altitude: ≤ 1,000 m above sea level
- Non-hazardous, dry, and ventilated environments

Example Application

Suitable for submersible, centrifugal, and booster pump installations in **irrigation networks, water treatment systems, and industrial plants** requiring simple, direct motor starting.

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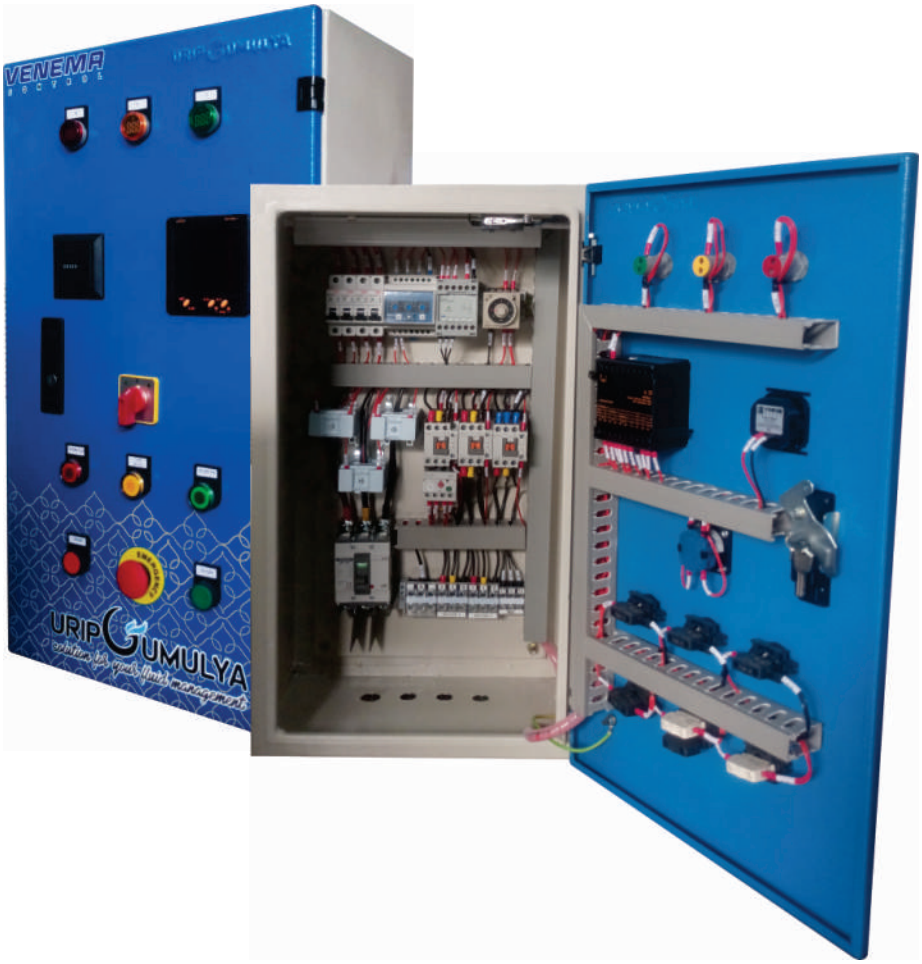

Star-Delta
Control Panels

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VCP-SD Series — Star-Delta Control Panels

Description

The **Venema VCP-SD Series** control panels are designed for **automatic star-delta starting** of three-phase motors ranging from **5.5 kW to 315 kW.** They provide smooth acceleration and significantly reduce inrush current during motor start-up, protecting both the motor and the power network.

Each panel is assembled using **industrial-grade components** and configured for **safe, stable, and long-term operation** in irrigation, pumping, and industrial process systems. The modular design and spacious internal layout ensure easy maintenance and customization for different applications.

Technical Range

Power Range	Voltage	Freq.	Enclosure	Protection Degree	Operation Mode
5.5 – 75 kW	3 ~ 400 V ± 10%	50 Hz	Metal	IP20 - IP65	Manual / Automatic
75 – 315 kW	3 ~ 400 V ± 10%	50 Hz	Metal	IP20 - IP65	Manual / Automatic

Standard Features

- **Star-Delta starting system** for reduced starting current and mechanical stress
- Integrated **overload, short-circuit, and phase-failure protection**
- **Automatic transition timer** between star and delta connection
- **Auto-Manual selector switch** with indicator lamps and push buttons
- **Digital or analog metering** options for voltage, current, and frequency
- **Compact heavy-duty metal enclosure** with clear internal cable routing
- Built for **continuous service** in agricultural, municipal, and industrial environments.

Standard Panel Components

Component	Specification / Function
Mini Circuit Breaker (MCB) / No Fuse Breaker	Motor and control circuit protection
Contactor Set (Star–Delta + Main)	Sequential switching for motor start-up
Thermal Overload Relay	Protects motor against overload
Trafo (Control Transformer)	Auxiliary low-voltage supply
Phase Failure Relay	Monitors phase sequence and prevents mis-connection
Time Delay Relay	Controls star-to-delta transition timing
Auto-Manual Selector	Manual or automatic operation selection
Pilot Lamps (Run / Fault)	Operating and alarm indicators
Push Buttons (Start / Stop)	User control interface
Water Level Control (WLC)	Automatic start / stop based on tank levels
Cable Ducts & Wiring	Pre-wired, organized internal layout
Digital VAF / Power Meter	Monitoring of voltage, current, and frequency

Optional Components

Component	Description
MCCB (Moulded Case Circuit Breaker)	Heavy-duty circuit protection
Motor Overheat Relay	Temperature-sensing safety device
Pressure Switch / Relay	Water pressure monitoring and control
Timer + Socket	Cycle and delay management
Additional Indicator Lamps	Custom alarm or process indicators
Surge Arrester (3-Pole, 40 kA)	Protection against lightning and surges

Safety and Function Summary

Protection Function	Purpose
Overload / Circuit Breaker	Protects the motor from overcurrent and short circuits
Phase Failure Relay	Prevents start-up under missing or incorrect phases
Time Delay Relay	Ensures smooth transition from star to delta
Water Level Control	Enables automatic operation for pump systems
Pressure Switch (Optional)	Regulates line pressure for irrigation or process control

Operating Conditions

·Ambient temperature: −5 °C to +40 °C

·Relative humidity: ≤ 80 % (at 20 °C)

·Installation altitude: ≤ 1,000 m above sea level

·Non-hazardous, dry, and ventilated indoor environments

Example Application

Ideal for **deep-well, booster, and industrial pump installations**, as well as other three-phase motor systems requiring controlled acceleration and reduced electrical stress during start-up.

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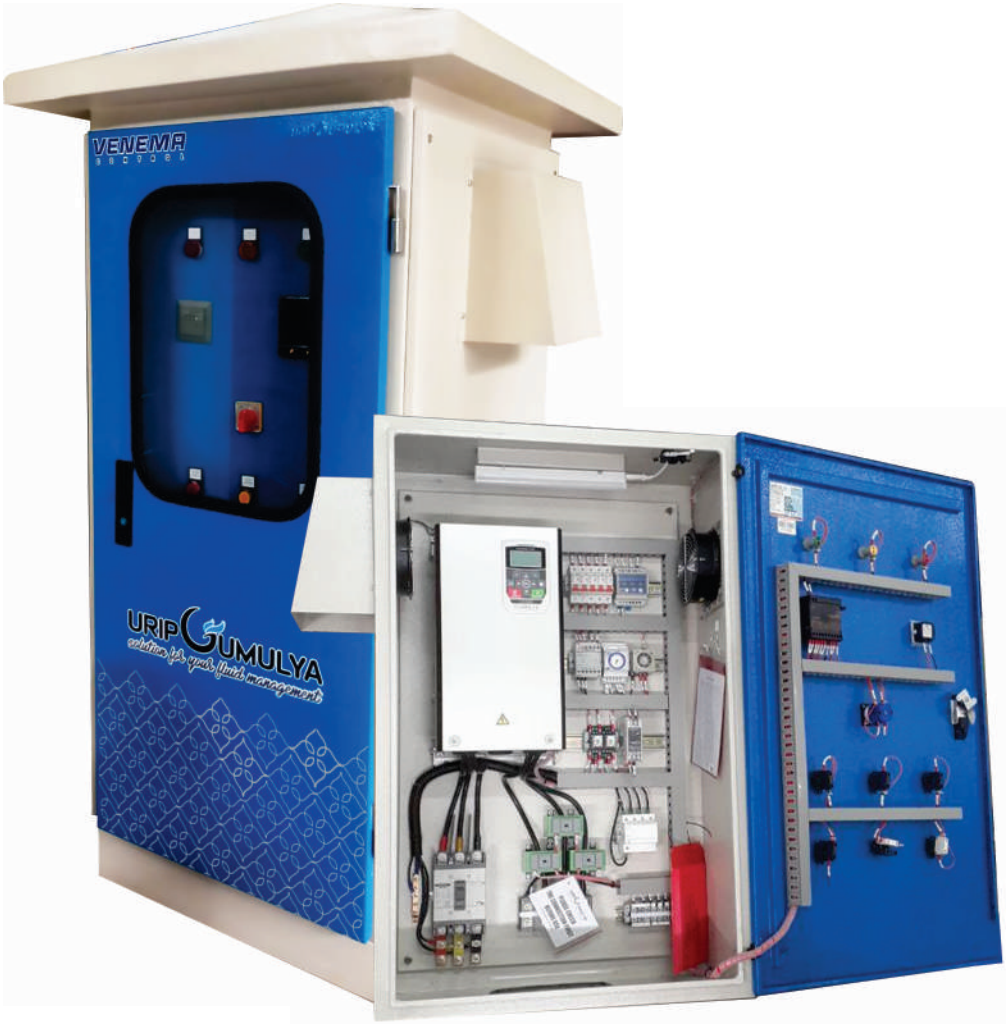

Variable Speed Drive (VSD)
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VCP-VSD Series — Variable Speed Drive Control Panels

Description

The **Venema VCP-VSD Series** control panels are designed to regulate the speed of three-phase motors from **0.4 kW to 3000 kW** using advanced **Variable Frequency Drive (VFD)** technology. They ensure precise control of pressure and flow while significantly improving energy efficiency and equipment lifespan.

Built with industrial-grade components and engineered for reliability, these panels are suitable for irrigation systems, water-supply stations, HVAC systems, and process automation where smooth acceleration, torque management, and overload protection are essential.

Technical Range

Power Range	Voltage	Freq.	Enclosure	Protection Degree	Operation Mode
0.4 – 3000 kW	3 ~ 400 V ± 10%	50 Hz	Metal	IP20 - IP65	Manual / Automatic
0.4 – 3000 kW	3 ~ 400 V ± 10%	50 Hz	Metal	IP20 - IP65	Integrated Display / Auto

Standard Features

- **Variable Speed Drive (VFD)** for full-range motor speed control
- **Soft start** / **stop** to minimize electrical and mechanical stress
- **Automatic pressure & flow regulation** via feedback control
- Integrated **overload, short-circuit, and phase-failure protection**
- **Auto-Manual selector switch** with indicator lamps and push buttons
- **Digital metering** for voltage, current, frequency, and power factor
- **Pre-wired and factory-tested** for quick installation
- Durable **IP65-rated enclosure** for tropical conditions and long service life

Standard Panel Components

Component	Specification / Function
Mini Circuit Breaker (MCB)	Protection for control circuit
Moulded Case Circuit Breaker (MCCB)	Main protection for motor circuit
Trafo (Control Transformer)	Auxiliary supply for low-voltage control
Inverter (VFD)	Frequency & speed regulation
Motor Relay 3-Phase	Monitors current and protects against faults
Motor Overheat Relay	Temperature protection for motor windings
Phase Failure Relay	Detects incorrect phase sequence / loss
Pressure Transmitter	Enables automatic pressure control
Digital VAF / Power Meter	Displays voltage, amperage, frequency
Auto-Manual Selector	Operation mode control
Pilot Lamps (Run / Fault)	Visual indicators for operation & faults
Push Buttons (Start / Stop)	Manual control interface
Water Level Control (WLC)	Automatic tank-based motor control
HZ Meter	Frequency display for monitoring
Terminal Blocks & Cable Ducts	Organized internal wiring system

Optional Components

Component	Description
Surge Arrester (3-Pole 40 kA)	Protection against voltage spikes
Analog Pressure / Flow Sensor	PID-controlled analog feedback option
Remote Communication Module	Modbus / SCADA connectivity
Additional Cooling Fan	For high-power continuous operation
Timer + Socket	Programmable timing and delay functions
Power Factor Correction Kit	Integrated capacitor bank (on request)

Safety and Function Summary

Protection Function	Purpose
Overload / MCCB	Prevents thermal and overcurrent faults
Phase Failure Relay	Prevents start under incorrect phase order
Inverter Protection	Protects drive from overvoltage / short-circuit
Pressure Transmitter	Maintains stable system pressure
Water Level Control	Automatic filling / draining operation
Surge Arrester (Optional)	Protects electronics from transients

Operating Conditions

Ambient temperature : −5 °C to +40 °C

Relative humidity : ≤ 80 % (at 20 °C)

Installation altitude : ≤ 1000 m a.s.l.

Environment : Clean, dry, non-corrosive, indoor

Example Application

Perfect for **industrial pump systems, deep-well and booster stations, HVAC installations**, and **process automation networks** where efficiency, flexibility, and protection are critical.

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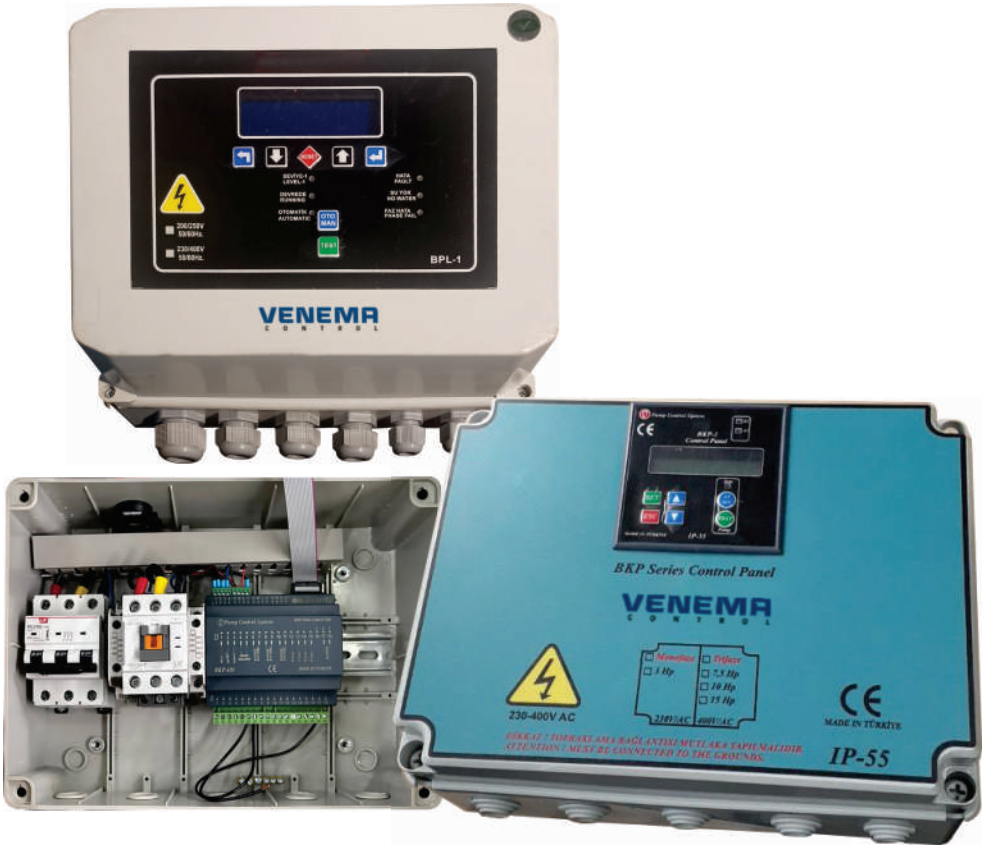

COMPACT CONTROL PANEL SYSTEM

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VCP-CCPS Series — COMPACT CONTROL PANEL SYSTEM

Description

The Venema Compact Control Panel System (VCP-CCPS Series) is a microcontroller-based electronic pump control solution designed for monitoring, protecting, and operating single or multiple pump installations.

Developed for submersible and centrifugal pumps from 0.37 kW up to 11 kW per pump, the system integrates advanced digital control logic to ensure reliable operation, simplified wiring, and enhanced motor protection.

Available in single, dual, and triple pump configurations, the VCP-CCPS Series supports duty-standby and parallel alternate operation modes. Its compact industrial UPVC enclosure with IP67 protection rating makes it suitable for both indoor and outdoor installations in irrigation, booster, water supply, and sewage pumping systems.

Technical Range

Parameter	Specification
Power Range (Single Phase)	0.37 – 3 kW
Power Range (Three Phase)	0.37 – 11 kW
Operating Voltage	1~230 V / 3~400 V
Frequency	50 Hz
Pump Configuration	1 / 2 / 3 Pumps
Enclosure Material	UPVC (3 mm, EU Standard)
Protection Degree	IP67
Operation Mode	Manual / Automatic

Key Features

- 4 × 20 digital LCD display with real-time system monitoring
- 16-bit microcontroller-based control system
- Simplified wiring with intelligent digital control architecture
- Duty-standby or parallel alternate pump operation
- Digital thermal overload protection
- Digital voltage phase protection

- Dry-run protection via current monitoring and level input
- PTC (PT100) motor temperature sensor input
- Adjustable upper and lower voltage limits
- Fault recording memory (last 20 events stored)
- Password-protected parameter settings
- Automatic test mode (up to 2 times per week)

Standard Construction

- Digital Control Unit: 16-bit microcontroller board with integrated 4×20 LCD display and push-button configurator.
- Motor Control Section: Power relays and switching elements for pump operation.
- Monitoring System: Current transformers and voltage monitoring circuit for real-time electrical measurement.
- Protection & Alarm System: Integrated digital overload protection, phase monitoring, PTC input, electronic buzzer and status LEDs.
- Connection & Enclosure: Industrial-grade UPVC enclosure (IP67), organized terminal blocks, grounding bus and BMS output relay.

Optional Modules

- GSM module for remote monitoring
- Pressure transmitter for pressure-based operation
- Electrode or floater level sensor
- BMS integration output

Protection Functions

- Protection against overload conditions
- Protection against phase failure and imbalance
- Protection against dry-run operation
- Motor overtemperature protection (PTC)
- Adjustable voltage protection thresholds
- Audible and visual fault indication

Typical Applications

- Booster pump systems
- Submersible pump wells
- Transfer pump stations
- Sewage pump installations
- Irrigation systems

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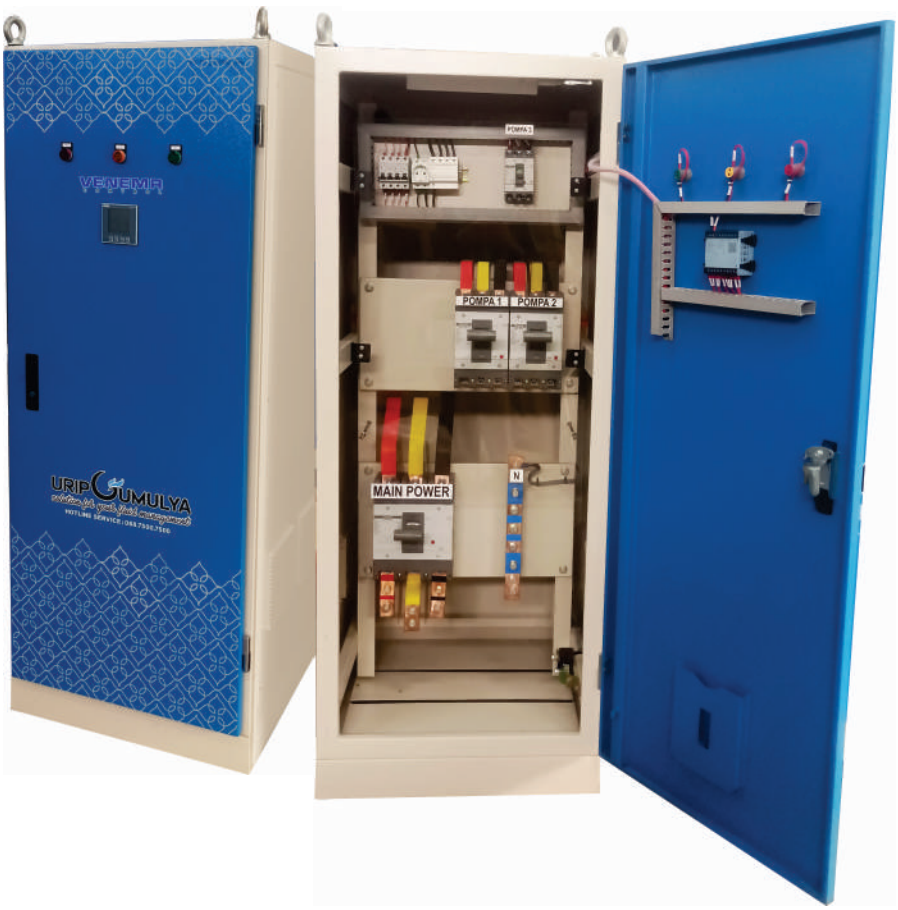

Main Distribution Panel (MDP)
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VCP-MDP Series — Main Distribution Panels

Description

The **Venema VCP-MDP Series** provides reliable and centralized power distribution for industrial, commercial, and municipal installations.

Each panel serves as the primary source of electrical distribution, connecting incoming power to multiple sub-systems such as control panels, sub-distribution panels, and large motor loads.

Designed with durability and safety in mind, the VCP-MDP Series ensures stable, efficient, and secure energy delivery for critical operations. All panels are assembled using premium-grade electrical components and are tailored to meet client-specific capacity and protection requirements.

Technical Range

Current Range	Enclosure	Protection Degree	Operation Mode
100A - 3000A	Metal	IP20 - IP65	Manual / Automatic

Applications

- Industrial plants and process automation facilities
- Municipal water treatment and irrigation systems
- Commercial and residential building power distribution
- Pumping stations and booster systems
- Electrical rooms or centralized utility areas

Construction & Design Features

The Venema MDP is engineered for both performance and safety. Each cabinet is fabricated from high-quality sheet steel with anti-corrosive powder coating and designed for convenient front or rear access. Internal busbars and protection devices are configured according to system load and fault-level requirements.

Key design attributes include:

Robust metal enclosures with IP54 / IP65 protection levels
Copper or aluminum busbars with heat-shrink insulation
MCCB or ACB incomers for high-capacity incoming feeders
Short-circuit and overload protection integrated at all levels
Segregated power and control sections for enhanced safety
Bottom or top cable entry options
Lockable access doors and maintenance safety interlocks

Standard Features

- Main incoming breaker with short-circuit and overload protection
- Outgoing feeders via MCCB, MCB, or contactor combinations
- Fully insulated and color-coded busbar system
- Digital or analog metering for voltage, current, and frequency
- Phase indicator lamps and control fuses
- Complete earthing and neutral busbar arrangement
- Factory-tested wiring and terminal connections

Optional Features

- **Digital energy meters** with Modbus / RS-485 communication
- **Automatic power transfer system** for generator integration
- **Surge protection devices** for sensitive circuits
- **Power factor correction section**
- **Remote monitoring and data logging** (SCADA compatible)
- **Temperature or ventilation control** for high-load applications
- **Custom mimic diagram and labeling**

Customization

Each VCP-MDP panel is **custom-built to project specifications**. Venema engineers configure breaker sizes, busbar ratings, protection devices, and enclosure dimensions according to the system load profile, operating environment, and applicable standards.

Operating Conditions

·Ambient temperature: −5 °C to +40 °C

·Relative humidity: ≤ 80 % (at 20 °C)

·Installation altitude: ≤ 1000 m above sea level

·Non-corrosive, dry, and ventilated indoor environment

Example Application

Ideal as a **central power distribution point** in factories, pump stations, or multi-building complexes, where consistent and protected electrical supply is essential for reliable operation.

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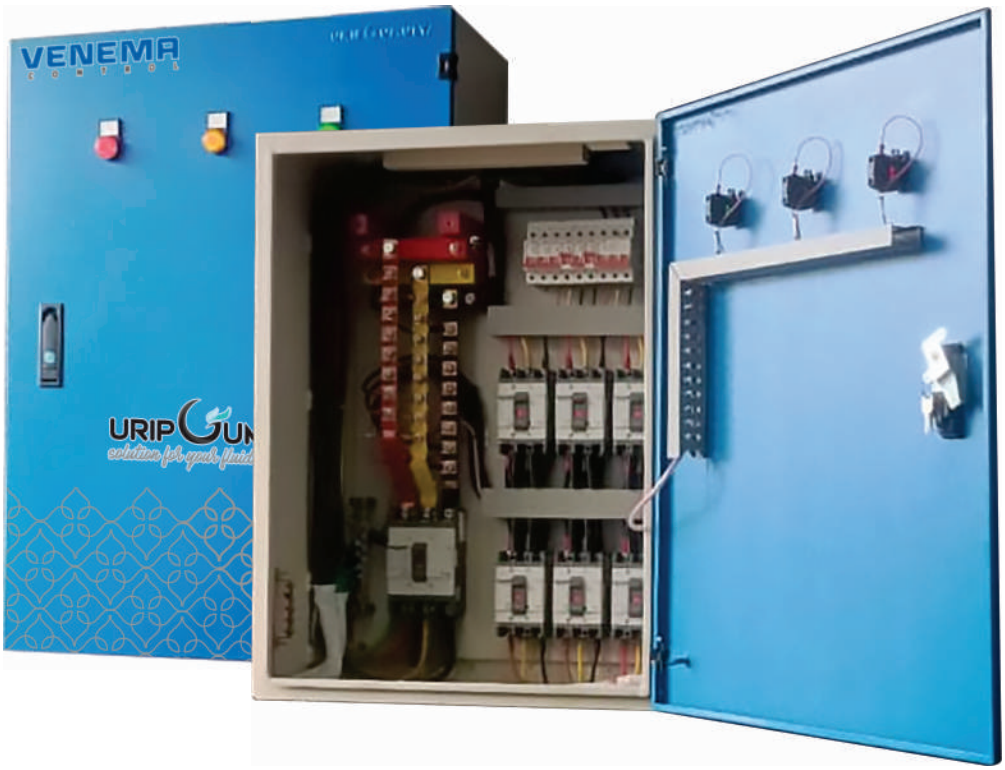

Sub Distribution Panel (SDP)

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VCP-SDP Series — Sub Distribution Panels

Description

The **Venema VCP-SDP Series** delivers dependable and safe power distribution to localized loads within an electrical system.

Serving as secondary distribution units, these panels feed power to control panels, lighting systems, pumps, and auxiliary circuits, ensuring organized and efficient energy management across installations.

Compact, durable, and easy to maintain, the SDP range complements Venema's MDP systems and offers **superior flexibility** for branch-level distribution in both industrial and commercial environments.

Technical Range

Current Range	Enclosure	Protection Degree	Operation Mode
63A - 800A	Metal	IP20 - IP65	Manual / Automatic

Applications

Pump stations, irrigation networks, and booster systems
Industrial facilities and process lines
Commercial buildings and public utilities
Equipment rooms, workshops, and auxiliary service areas

Construction & Design Features

The Venema SDP panels are built using the same design philosophy as the MDP line — emphasizing **safety, accessibility, and long-term reliability**. Compact enclosures allow wall-mounted or floor-standing installation options, making them ideal for distributed power networks.

Main design features include:

- **Sturdy metal enclosure** with IP54 / IP65 protection rating
- **MCCB / MCB outgoing feeders** for branch circuits
- **Copper busbar system** for current distribution
- **Top or bottom cable entry** with flexible conduit arrangement
- **Pre-wired terminals** with labeled identification for easy maintenance
- **Full earthing provision** with insulated neutral bar

Standard Features

- Main incoming isolator or breaker
- Outgoing feeders with short-circuit and overload protection
- Phase indication lamps and control fuses
- Digital or analog metering (voltage and current)
- Factory-tested wiring and assembled accessories
- Compact and easy-access layout for maintenance

Optional Features

- Surge protection devices
- Energy metering and power factor display
- Remote communication (Modbus / Ethernet)
- Generator input and change-over capability
- Custom circuit labeling and mimic diagram
- Outdoor or stainless-steel enclosures (upon request)

Customization

All Venema SDP panels are tailor-made to suit the project's load configuration and distribution requirements.

Each system is assembled and tested in Venema's facilities to ensure safe and reliable operation before site delivery.

Operating Conditions

- Ambient temperature: −5 °C to +40 °C
- Relative humidity: ≤ 80 % (at 20 °C)
- Installation altitude: ≤ 1000 m above sea level
- Non-corrosive, clean, and ventilated indoor location

Example Application

Ideal for branch-level power distribution in irrigation fields, pump houses, or industrial sections where controlled and protected power delivery is required.

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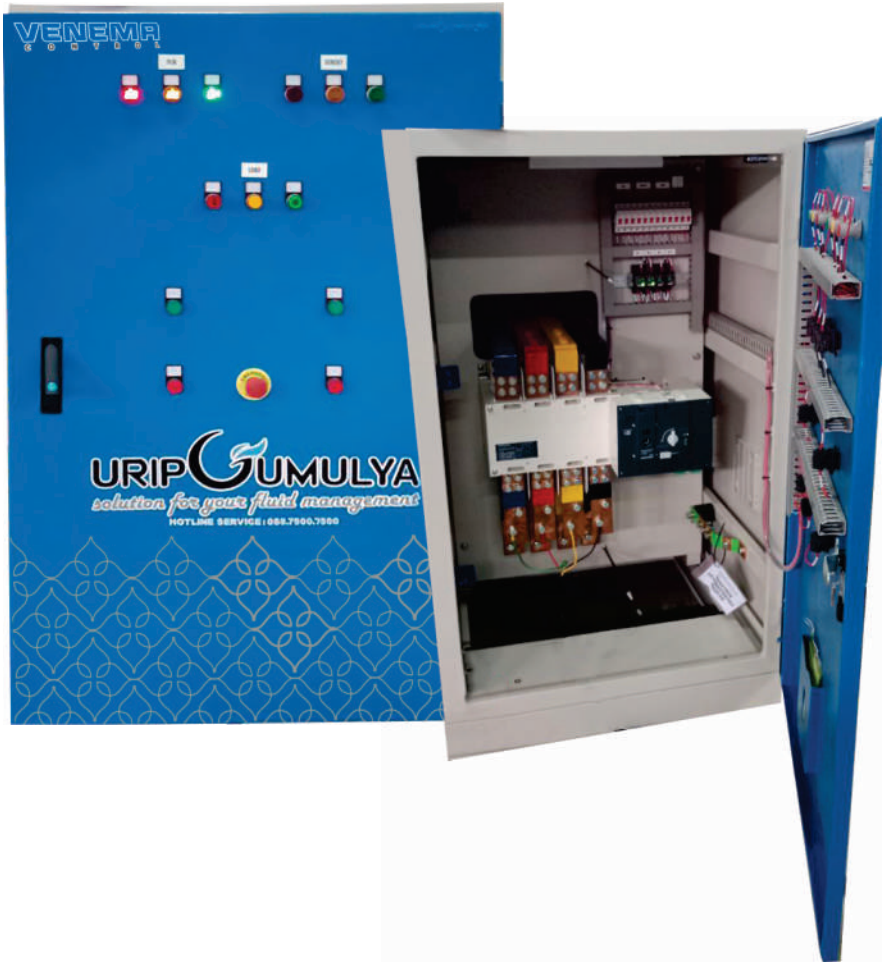

Change-Over Switch (COS)
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VCP-COS Series — Change-Over Switch Panels

Description

The **Venema VCP-COS Series** panels are designed to provide **safe, reliable, and seamless power transfer** between two independent power sources — typically between the **main supply and a generator set**.

Available in both **manual** and automatic **(ATS)** configurations, these panels ensure continuous electrical supply to critical loads during utility power failure or maintenance operations.

Built for durability and ease of operation, the Venema COS integrates heavy-duty switching devices and protection elements to guarantee stable performance even under demanding site conditions.

Technical Range

Current Range	Enclosure	Protection Degree	Operation Mode
100A - 3200A	Metal	IP20 - IP65	Manual / Automatic

Applications

- Industrial and commercial buildings requiring standby power
- Municipal water and wastewater pumping stations
- Irrigation and booster systems
- Telecommunication and control rooms
- Hospitals, residential complexes, and emergency systems

Construction & Design Features

Each Change-Over Switch Panel is assembled within a robust, powder-coated metal enclosure and configured according to site power ratings. The design supports front access for operation and maintenance, with clear labeling and user-friendly layout.

Key features include:

- **Manual or automatic source transfer** (ATS configuration available)
- **Heavy-duty contactors or motorized switches** for reliable load transfer
- **Mechanical and electrical interlocking** to prevent dual supply connection
- **Phase and voltage monitoring** on both sources
- **Lockable operating handle** and indicator lamps for supply status
- **Top or bottom cable entry** for installation flexibility
- **IP54 / IP65 rated enclosure** suitable for indoor or semi-outdoor environments

Standard Features

- Manual or automatic power source selection
- Incomer interlock system to prevent simultaneous closure
- Source status indicator lamps (Mains / Generator)
- Push buttons for test and reset functions
- Overcurrent and short-circuit protection
- Phase sequence and voltage monitoring relay
- Pre-wired internal connections and terminal labeling
- Rugged metal enclosure with anti-corrosive finish

Optional Features

- **AMF (Auto Mains Failure) module** for fully automatic generator control
- **Digital metering** for voltage, current, frequency, and energy
- **Remote control and monitoring interface** (Modbus / Ethernet)
- **Generator start-stop relay logic** integrated in control system
- **Surge protection device** for incoming feeders
- **Auxiliary contacts** for external signaling or alarm integration
- **Outdoor stainless-steel cabinet** (upon request)

Operation Principle

When the main power supply fails, the panel automatically (or manually, depending on model) transfers the load to the standby generator source. Once the main power is restored and stabilized, the system reverts safely to the primary supply, ensuring uninterrupted operation of critical equipment.

Operating Conditions

·Ambient temperature: −5 °C to +40 °C
·Relative humidity: ≤ 80 % (at 20 °C)
·Installation altitude: ≤ 1000 m above sea level
·Installation environment: Dry, non-corrosive, and ventilated

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Example Application

Ideal for **facilities requiring uninterrupted power**, such as water pumping systems, factories, hospitals, and high-reliability installations where seamless transfer between mains and generator is essential.

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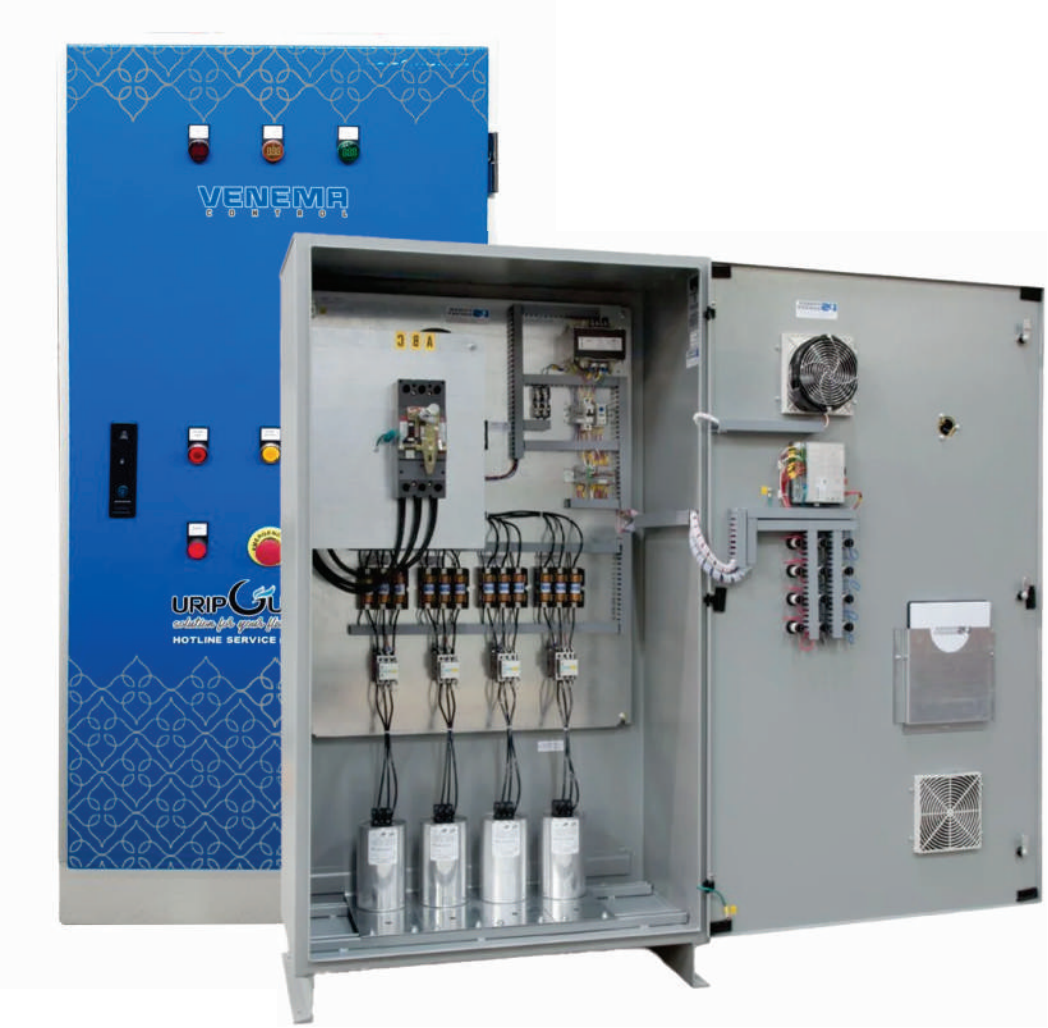

Capacitor Bank
Control Panels

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Capacitor Bank Panels

Description

The **Venema VCP-CBK Series** capacitor bank panels are engineered to improve electrical system efficiency by **automatically correcting power factor** and minimizing reactive energy losses.

Designed for both **automatic step control** and **fixed configurations,** these panels optimize energy usage, reduce penalty charges, and stabilize voltage within the network.

Each unit is assembled using **high-quality contactors, fuses, capacitors, and control relays** to ensure long service life and consistent performance under tropical operating conditions.

The system can be installed as a stand-alone bank or integrated within existing distribution panels.

Technical Range

Current Range	Enclosure	Protection Degree	Operation Mode
100A - 3200A	Metal	IP20 - IP65	Manual / Automatic

Applications

Industrial and commercial power distribution systems

Irrigation pump stations and water treatment facilities

Manufacturing plants with high inductive load demand

Commercial buildings and large electrical networks

Construction & Design Features

The Capacitor Bank panels are designed for safety, accessibility, and low maintenance.

All units are built in rigid, powder-coated metal enclosures with adequate ventilation to prevent overheating during capacitor switching operations.

Key construction features include:

- **Metal enclosure** with IP54 / IP65 protection rating
- **Ventilation louvers or fans** for heat dissipation
- **Copper busbar system** with fully insulated terminals
- **Step-type automatic controller** for reactive power management
- **Heavy-duty contactors and fuses** for each capacitor step
- **Built-in discharge resistors** to safely discharge capacitors after de-energization
- **Top or bottom cable entry** options

Standard Features

- Automatic or fixed capacitor bank configuration
- Multi-step power factor correction with digital controller
- Protection against short circuit, overcurrent, and harmonic distortion
- Individual fuses and contactors for each capacitor step
- Discharge resistors to ensure operator safety
- Digital display for power factor, voltage, current, and reactive power
- Factory-tested wiring, labeling, and terminal layout
- Easy maintenance design with front access to all components

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Optional Features

- **Detuned reactor system** for harmonic filtering
- **Manual control override** for maintenance and testing
- **Remote communication interface** (Modbus / RS-485)
- **Alarm and trip signaling output**
- **Temperature and ventilation control system**
- **Outdoor-rated or stainless-steel enclosure**
- **Integrated energy meter** for power monitoring

Operation Principle

The capacitor bank panel continuously monitors the system power factor through a microprocessor-based controller.

When the power factor drops below the preset level, the controller automatically switches the required number of capacitor steps to maintain the desired level.

Upon reduced load demand, unnecessary steps are disconnected to prevent over-correction and extend component life.

Operating Conditions

- Ambient temperature: −5 °C to +40 °C
- Relative humidity: ≤ 80 % (at 20 °C)
- Installation altitude: ≤ 1000 m above sea level
- Environment: Dry, clean, and ventilated indoor areas

Example Application

Ideal for industrial or agricultural electrical systems with high inductive load, such as motor-driven pumps, compressors, and conveyors, where maintaining an optimum power factor is essential for energy efficiency and voltage stability.

Customization

All Venema capacitor bank panels are custom-engineered to suit the client's load profile, target power factor, and site conditions.

Capacitor capacity, number of steps, enclosure size, and ventilation requirements are determined based on detailed system analysis by Venema's engineering team.

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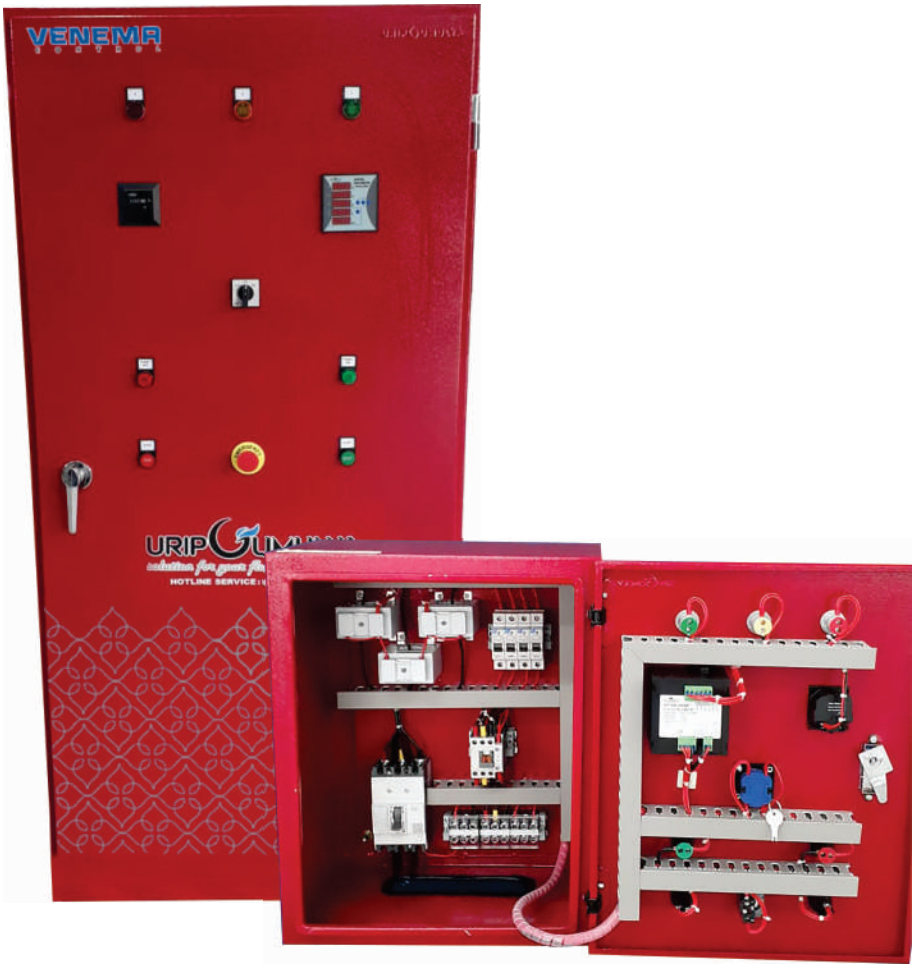

Fire Fighting
Control Panels

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VCP-FFCP Series — Fire Fighting Control Panels

Description

The VENEMA VCP-FFCP Series is engineered to control and monitor fire pump systems in compliance with international safety standards. These panels manage main, jockey, and standby pumps to ensure continuous water delivery in emergencies. Built with reliable components and protective logic, the FFCP Series provides automatic operation, alarm indication, and safety interlocks essential for firefighting systems.

Applications

- Building and commercial fire protection systems
- Industrial facilities and warehouse hydrant networks
- Irrigation or water supply pumping stations with fire duty
- Any installation requiring reliable pump start control in emergency conditions

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Construction & Design Features

- Rigid powder-coated metal enclosure (IP54 / IP65)
- Separate circuits for main, jockey, and standby pumps
- Auto, manual, and test operation modes
- Indicator lamps for pump status and system faults
- Alarm buzzer with acknowledge/reset function
- Phase failure, under-voltage, and overload protection
- Pressure or flow switch interface for automatic start

Standard Features

- Control for main, jockey, and standby pumps
- DOL or Star-Delta starters according to motor rating
- Overload and short-circuit protection
- Pressure switch auto-start and alarm indication
- Tested wiring and labeled terminal blocks
- Auto/manual selector switches

Optional Features

- Soft starter or VFD for main pump motor
- Auto change-over between main and standby pumps
- Integration with fire alarm or BMS systems
- Remote monitoring or SCADA interface
- Stainless-steel or outdoor-rated enclosures
- Custom mimic diagram or labeling

Operation Principle

The system monitors water pressure via a pressure or flow switch. When pressure falls below the threshold, the **jockey pump** starts automatically. If pressure continues to drop, the **main pump** is activated to maintain flow. In the event of failure, the **standby pump** automatically engages. Once normal pressure is restored, the pumps stop sequentially.

Operating Conditions

- Ambient temperature: −5 °C to +40 °C
- Relative humidity: ≤ 80 % (at 20 °C)
- Installation altitude: ≤ 1000 m above sea level
- Environment: Clean, dry, and ventilated indoor areas

Power Range Specifications

- **Main Pump Motor Ratings**: 7.5 kW – 250 kW
- **Jockey Pump Motor Ratings**: 0.75 kW – 7.5 kW
- **Standby Pump Motor Ratings**: up to 250 kW
- **Control Voltage**: 220 V AC / 50 Hz or 24 V DC (optional)
- **Starter Types**:
  - DOL (up to 15 kW) – Star-Delta (15–90 kW) – Soft Starter / VFD (> 90 kW)
- **Main Circuit Breaker Ratings**: 63 A – 800 A
- **Customization** : Higher ratings and multi-pump configurations available on request

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Example Application

Ideal for building fire pump rooms and industrial fire hydrant networks, ensuring dependable water supply under emergency conditions.

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Synchronized
Control Panels

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VCP-SCP Series — Synchronized Control Panels for Generating Sets

Description

The **VENEMA VCP-SCP Series** provides **automatic load synchronization and power sharing** between multiple generator sets operating in parallel. Designed for **critical power applications**, these panels coordinate load distribution, generator protection, and communication to maintain a stable and efficient supply.

Applications

- Industrial and commercial facilities with multiple generators
- Hospitals, airports, and data centers
- Water treatment plants and pumping systems
- Continuous-duty or backup power plants requiring redundancy

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Construction & Design Features

- Powder-coated steel enclosure (IP54 / IP65)
- Integrated synchronization controller with digital display
- Busbar system rated up to 4000 A
- Manual and automatic synchronization modes
- Generator breaker and control wiring included
- Power and communication interface for multiple gensets

Standard Features

- Automatic voltage, frequency, and phase synchronization
- Load-sharing and protection circuits for each generator
- AMF (Auto Mains Failure) compatibility
- Status monitoring with alarms and indications
- Factory-tested wiring and calibration

Optional Features

- SCADA or remote-control integration
- Power factor correction or load-shedding modules
- Modbus, CANBUS, or Ethernet communication ports
- Outdoor or stainless-steel enclosures
- Extended paralleling capability with mains (peak shaving)

Operation Principle

When multiple generators operate in parallel, the synchronization controller matches voltage, frequency, and phase between units before connecting them to the common busbar.

Once synchronized, loads are automatically balanced among running generators.

If a generator is stopped or fails, remaining units continue operation without power interruption.

Operating Conditions

- Ambient temperature: −5 °C to +40 °C
- Relative humidity: ≤ 80 % (at 20 °C)
- Installation altitude: ≤ 1000 m above sea level
- Environment: Clean, dry, and well-ventilated indoor areas

Power Range Specifications

- **Synchronization Capacity**: 2 – 6 generator sets
- **Generator Capacity per Unit**: 100 kVA – 2000 kVA
- **Busbar Ratings**: 800 A – 4000 A
- **Control Voltage**: 220 – 240 V AC / 50 Hz
- **Synchronization Modes**: Manual / Semi-Automatic / Fully Automatic
- **Communication Protocols**: Modbus RTU / CANBUS / Ethernet (optional)
- **Customization**: Systems beyond 6 gensets or 4000 A available upon request

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Example Application

- Suitable for **multi-generator installations** in industrial, commercial, or critical infrastructure sites requiring uninterrupted power and dynamic load management.

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