



# panel elektro

**panel elektro**, founded in Istanbul in 1983, is among the leading electrical panel manufacturers in the Turkish market, continuing to manufacture with a large product range that is continuously developed and broadened.

**panel elektro**'s primary principle is adherence to quality and standards and producing the most suitable solution for the application.

|         |   |
|---------|---|
| PFlex®  | - Modular Power, MCC and Control Panels (EN61439 Form 1 - 4)                      |
| LOG     | - Logstrup Type Tested Withdrawable, Plug-in and Fixed Type Panels up to In=8500A |
| PCC     | - Power Control Centers   |
| MCC     | - Motor Control Centers   |
| plugC®  | - Plug-in Capacitor Units   |
| ACS     | - Automation Control Systems  |
| BMS/DDC | - Building Management Systems   |
| HMVC    | - MV-HV Control Centers   |
| MVPCC   | - 10-36kV Medium Voltage Modular Cubicles   |
| IMGE    | - Housing Estate Solutions; General and Flat Energy Distribution                  |
| HMI     | - Human Machine Interface   |
| DOMO    | - Signalling and Control Solutions, Mosaic Mimic Diagrams                         |
| BMD     | - Benseny Polycarbon Mimic Diagrams   |
| IDA     | - Kiosk Access and Communication Stations   |

Our design method, factory assembled production (FAP) principle, meets all requirements of electric distribution, control and monitoring.

- Modular
- Factory assembled production
- Compliance to standards
- Ease of application
- Compatibility with different brands
- Functional architecture
- Robust construction
- Maximum operation safety
- High quality-price performance
- Strong technical support
- Continuous product development, R&D
- IEC/EN 61439 Form 1 standard production
- IEC/EN 61439 Form 2 – Form 4 production options

## Applications

Fields of use

- Energy plants, Industrial control
- Energy distribution centers
- Energy management centers
- Motor control centers
- Capacitor banks, Harmonic filters
- Lighting control and distribution
- Local distribution and control
- Process control centers (PLC)
- Distributed I/O units
- Building management systems
- MV- HV protection, control relay centers
- Marshalling cabinets
- 19" network rack cabinets
- Energy and meter automation systems
- Automatic cylinder filling and logistics automation
- Special Solutions

## Sectors

Sectors

- Energy - nuclear plants, wind power plants
- Factories, production areas
- Petrochemical facilities
- Iron and steel industry
- Pharmaceutical factories
- Cement factories
- Chemical production facilities
- Metallurgy, mining
- Hotels, holiday inns
- Airports
- Smart buildings, shopping malls
- Military bases
- Marine
- Health facilities, hospitals
- Hosting centers
- Housing Estates

# PFlex®

## Modular Power and Motor Control

- Maximum Life and Operation Safety
- Actual Modularity, Separation upto Form 4b
- Compatibility with IEC/EN 61439
- Short-circuit Withstand upto 8500A with Logstrup Busbar System
- Complete Solution for MCC – PCC – ACS – BMS Applications
- Withdrawable or Plug-in Solutions
- Energy Distribution and Synchron Application Safety
- Enerji Dağıtım ve Senkron Uygulama Güvenliği
- Automation, MCC, BMS Project Support with ePLAN P8



# PFlex® PCC

## Power Control Centers

LV Distribution, Transfer and Energy Management:

- Energy Control Panels
- Transfer and Synchronization Panels
- Local Distribution Panels
- Lighting Distribution Panels
- Power Factor Correction
- Harmonic Filter Panels



# PFlex® MCC

## Motor Control Centers

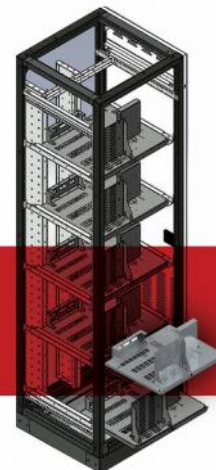
- Continuous Production Lines
- Independent Processes or Motor Control Panels
- Smart Buildings, Climatization Centers
- Speed Control and Softstarter Panels
- Combined Product and Project Support with ACS (Automation Control Systems)
- BMS (Building Management Systems) for Smart Building Management
- Life Function Support Panels
- Fire Emergency Management Panels



# plugC®

## Plug-in Capacitor Banks

- Operation Convenience in Reactive Energy Panels
- Plug-in Connection Units
- Maximum Maintenance Safety
- Maintenance or Fully Re-configurability While All Parts Are Live
- Problem-free Design in Filter Applications
- One Cabinet Placement upto 300kVAr (6 Stages)
- One 600kVAr Cabinet with Two Side Application



# Logstrup

## Type Tested Withdrawable, Plug-in & Fixed Type Panels

- Type Test acc. IEC/EN 60439-1 / 61439-1, 2
- Internal Arc Test acc. IEC/EN 61641
- Arc Barriers
- Mechanical Safety Interlocks
- IP20 Internal Protection
- 2, 3 or 4 Bar Systems upto 6300A
- Fully Re-configurable While Live
- Safe Operation: IP30 Protection in All Withdrawn Position
- Front and Rear Access
- Conformity to IEC, UL, Lloyd, Asta Standards

- 135kA 1s or 65kA 3s Short-circuit Resistance Option at 250A to 8500A
- The Best Solution in Synchron Energy Panels
- Minimum Effect on Magnetic Fields Created by High Currents
- Possibility to Fit Components from All Manufacturers
- Seismic, Vibration and Internal Arc Tests
- Form 1 – Form 4b Separation Applications
- Power Distribution Panel and 19" Cabinet Together



# HMVC

## MV - HV Control Centers

High Voltage Protection and Control:

- Relay Control Panels
- Measurement Panels
- GIS Control Panels
- HV Disconnecter Control Panels
- Marshalling Cabinets
- Control Desks

# MVPCC

## Medium Voltage Control Centers

- 12kV and 36kV Compact Distribution Stations and Metal Clad Cubicles
- SF6 Breaker or Fixed and Withdrawable Vacuum Breaker Options
- Necessary Options for Both Ring Lines and Symmetric Feeding with Incoming, Measuring, Ring, Coupling and Outgoing Cubicles
- Metal Stations Suitable for Climate Conditions in Outdoors



# HMI

## Human Machine Interfaces

Control Systems and Operator Dialogue:

- Command, Control Desks
- DCS Control Operation Desks
- Special Operator Console Tables
- Polycarbonate Film Mimic Diagrams
- Mosaic Mimic Diagrams
- Led Indicators and Lamps
- Button Groups
- Cross-led Position Indicators



# 19"E

## Industrial "Swing Door" Cabinets

We Offer Suitable Industrial Solutions with Standard Cabinets or the **SwingDoor** Option:

- HV/MV Power Centers Protection Relay Cabinets
- HV/MV Power Centers Metering Cabinets
- Scada/Server Cabinets
- PC/Operation Stations

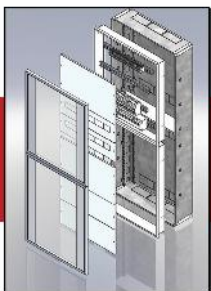


# Imge

## Housing Solutions

Functional, Modular, Safe and Aesthetic Dual Solution for Energy Distribution in Apartments / Blocks

- Compatibility with IEC Norms
- Energy Safety at Meter Distribution
- Your Energy Belongs to You with Form 4 Separation
- Compatibility with Classic or BMS Applications at LV Electric Distribution
- Intercom Equipment Space and Ease of Connection
- Safety and Fire Equipment Space
- Special Supports Suitable for Battery etc. Auxiliary Equipment
- Safe Domestic Use by the Household with Double Compartment Front Cover



# IDA

## Network Connection and Information Transaction Kiosks

Applications from Standard Kiosks to 47" Screen Solutions:

- Public Internet Access
- Advertisement & Promotion
- Interactive Product Marketing
- Banking
- Prepaid Cellphone Applications
- Operator Panels
- Intranet Applications
- Ticketing
- City & Building Guides
- Customer Satisfaction Programs
- Bill Payments
- Digital Signage



$$P_w = \frac{V P_t}{\eta \times 102}$$

$$\operatorname{tg} \alpha = \frac{\sin \alpha}{\cos \alpha}$$

$$\sin^2 \alpha + \cos^2 \alpha = 1$$
$$Z = \frac{R_w L}{\sqrt{R^2(1-w^2LC)^2 + w^2L^2}}$$

$$\Delta U = \sqrt{3} I l (R_w \cos \varphi + X \sin \varphi)$$

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

problemler hep olacak!

$$f_e = \sqrt{\frac{1}{T} \int_0^T f^2(t) dt}$$

$$\sqrt{\frac{1}{T} \int_0^T f^2(t) dt} \cos \varphi$$
$$X \sin \varphi$$

$$Q_{co} = \sqrt{3} U I_0 \sin \varphi_0 \times 10^{-3} \text{ kVAR}$$

$$P_w = \frac{V P_t}{\eta \times 102}$$



biz ise,  
hep çözüm üreteceğiz,  
1983'ten bu yana olduğu gibi...

**panel**  
**ELEKTRO**

endüstride çözüm ortağınız

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