Tescom®

TELECOMMUNICATIONS

6kW / 48kW - 48V | 3:3 / 1:1

# DC POWER SUPPLY SYSTEM

Complete system solutions for 53.5VDC supply

**High Frequency Switching Mode Conversion and Distribution System**

**Advanced System Controller and Touch Screen**

**Hot-swappable Rectifier Modules**


**The Tescom DC Power Supply System** rectifies single-phase AC grid voltage to 53.5V DC (nominal 48V DC), offering capacities of 6KW-48V and 48KW-48V. It simultaneously maintains backup energy with battery banks in float charge mode while powering critical loads.

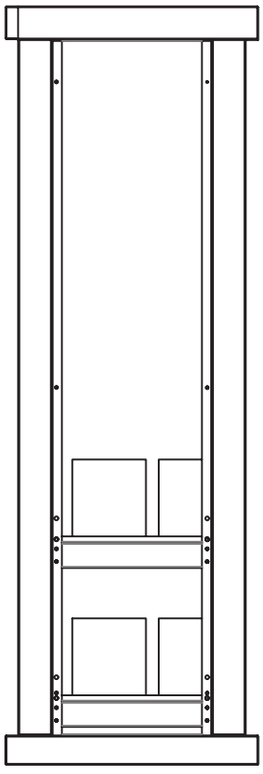
The DC system comprises 48V-3KW Cordex rectifier modules for N+1 redundant operation, a CXC HP Cordex control unit, fuse monitoring card (for battery, AC, and DC distribution), main AC and rectifier input fuses, surge protection devices, battery and load fuses, as well as alarm, load, and battery connection terminals.

## GENERAL SPECIFICATIONS

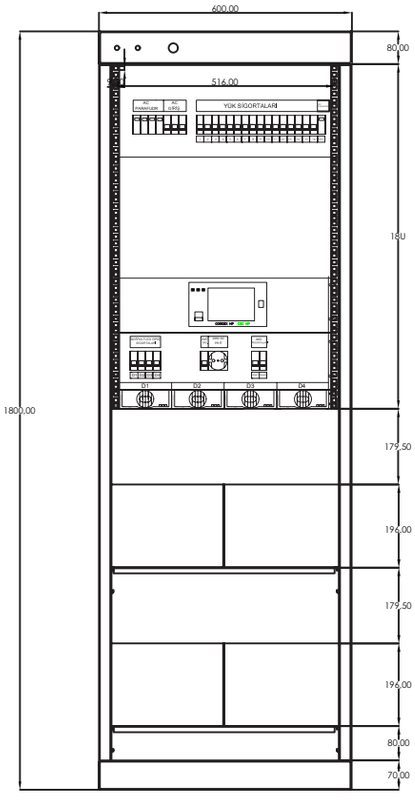
- Hot-swappable and N+1 redundant 48V-2KW Cordex Rectifier Modules
- AC input to isolated regulated DC power
- Smart Sleep feature for power saving
- Long-life battery with 3-stage charging cycle and current tracking
- Automatic/Periodic fast charging
- Battery temperature compensation controlled charging
- Battery testing and performance monitoring
- Wide input voltage range
- Front panel LEDs providing status, update, and alarm information
- Fans operating in response to temperature sensitivity
- AC Inrush/Transient suppression
- Soft Start feature
- Startup Delay
- Current limiting, overheat, and short circuit protections
- Batteryless operation
- Advanced fuse protectionsAC/DC yüksek gerilim koruma (SPD)
- Advanced touch screen display
- Direct CAN-BUS/RS485 communication with power modules via L-ADIO
- Local and remote access capability via RS232 or TCP/IP
- User-defined alarms
- Logging of statistics, alarms, and events
- Enhanced User Interface

# 6kW MECHANICAL DRAWING

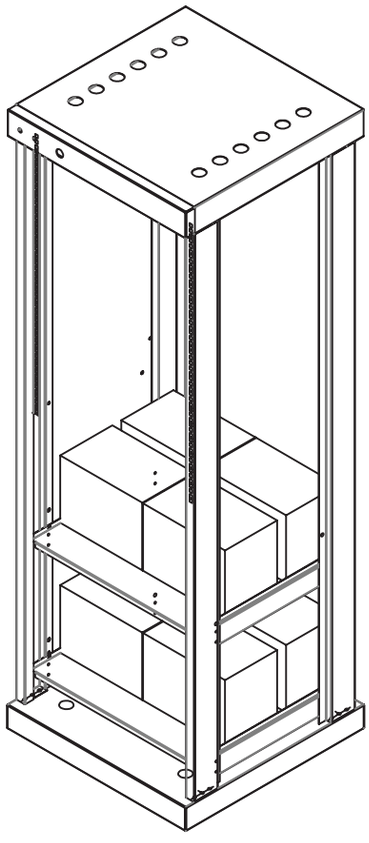
SIDE INTERIOR VIEW



FRONT INTERIOR VIEW

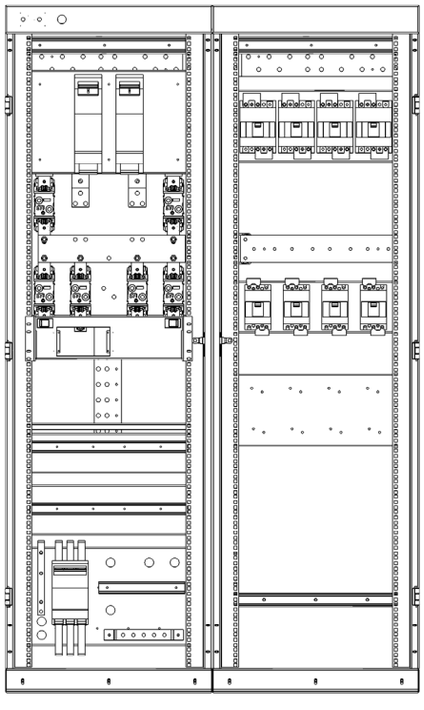



INTERIOR PERSPECTIVE VIEW

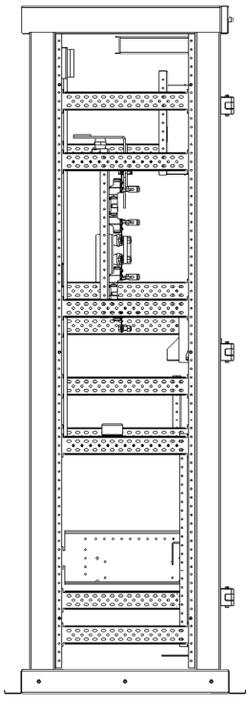


# 48/60kW MECHANICAL DRAWING

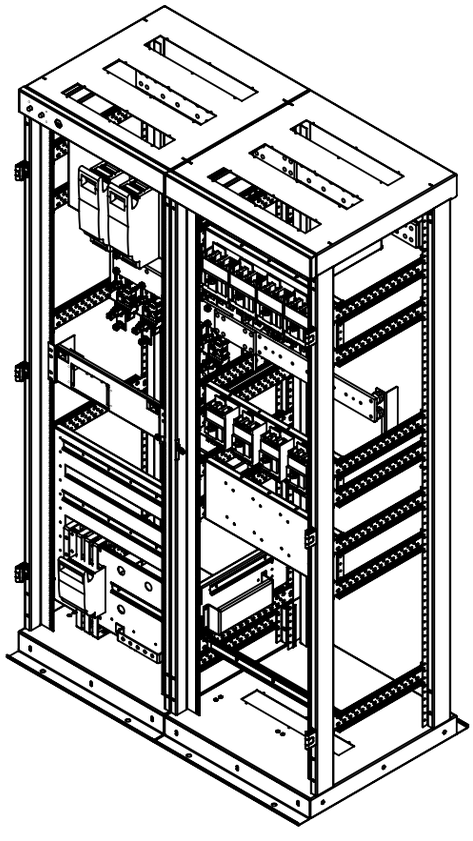
SIDE INTERIOR VIEW



FRONT INTERIOR VIEW



INTERIOR PERSPECTIVE VIEW

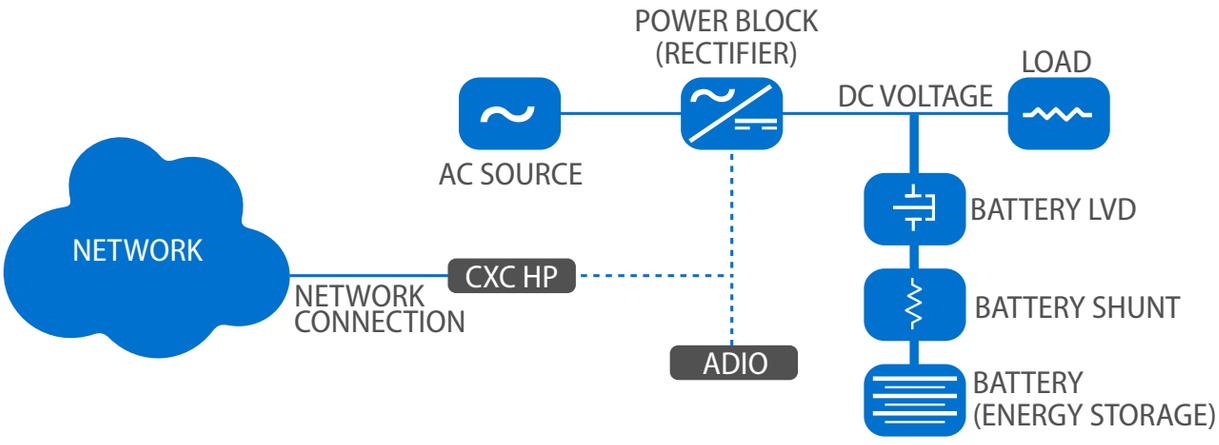


## THE TYPICAL SYSTEM CONFIGURATION

The Cordex® CXC HP Controller is a scalable software platform that allows the creation and management of multiple systems by a single controller. The user interface is organized around the system inventory, enabling visibility and independent management of the systems you create. Both the web interface and LCD provide a summary of controller and alarm information, as well as an overview of all systems monitored by the controller.

The specific example of a DC power system with the indicated sub-components is illustrated below:

- Cordex® CXC HP Controller and ADIO with CAN bus connections
- One or more rectifiers
- A battery array
- A shunt for measuring battery current
- A battery Low Voltage Disconnect (LVD) connected in series with the battery array




## THE CORDEX 48-3KW 19" SHELF RECTIFIER MODULE

The Cordex 48-3kW Rectifier Module employs a regulated technique that provides conversion in high-frequency switching mode and isolates the AC input from the DC output. The rectifier power modules operate on the principle of "hot-swappable," allowing modules to be removed and replaced without interrupting system power. The rectifier input is compatible with 208/220/240 VAC 50/60 Hz grid.

A complete Cordex rectifier system consists of one or more rectifiers and a rack chassis. The chassis includes AC and DC power connections as well as communication ports.

The Rectifier Shelf system is designed to work with the Alpha Cordex System Control Unit (CXC). Through the CXC, users have access to all the settings, control, and monitoring capabilities of the Power System.

# CORDEX HP CONTROLLER

CXC (Control Unit) is mounted on the same shelf as the rectifier modules and provides advanced monitoring capabilities. This Control Unit allows for full control of DC Power Systems, with all features of Cordex software being loaded onto it.

At the rear of the front panel of the CXC, there is a microprocessor-based main board.

The CXC facilitates easy monitoring and adjustment of DC systems through a web server using standard Windows Internet Explorer browser.

The data logging feature enables users to capture data from multiple inputs such as AC/DC voltages, load/battery voltages, cell voltages, and temperatures. Typical applications of CXC include recording operational details of DC power systems, thermal performance of outdoor cabinets, battery cell characteristics, and logging grid changes (AC voltage watchdog).

Audible alarms for generated alerts are provided through an integrated buzzer in the module.

Terminal connections are available on the Input/Output (I/O) card located at the rear of the shelf.

The three LEDs on the front panel allow for obtaining information regarding system startup, file transfer, alarms, and testing.

The features available on the controller are as follows:

- Reset button
- Ethernet port
- Analog and digital input channels
- Voltage, current, and temperature inputs
- Alarm and control output relays
- Network connection and remote monitoring capabilities

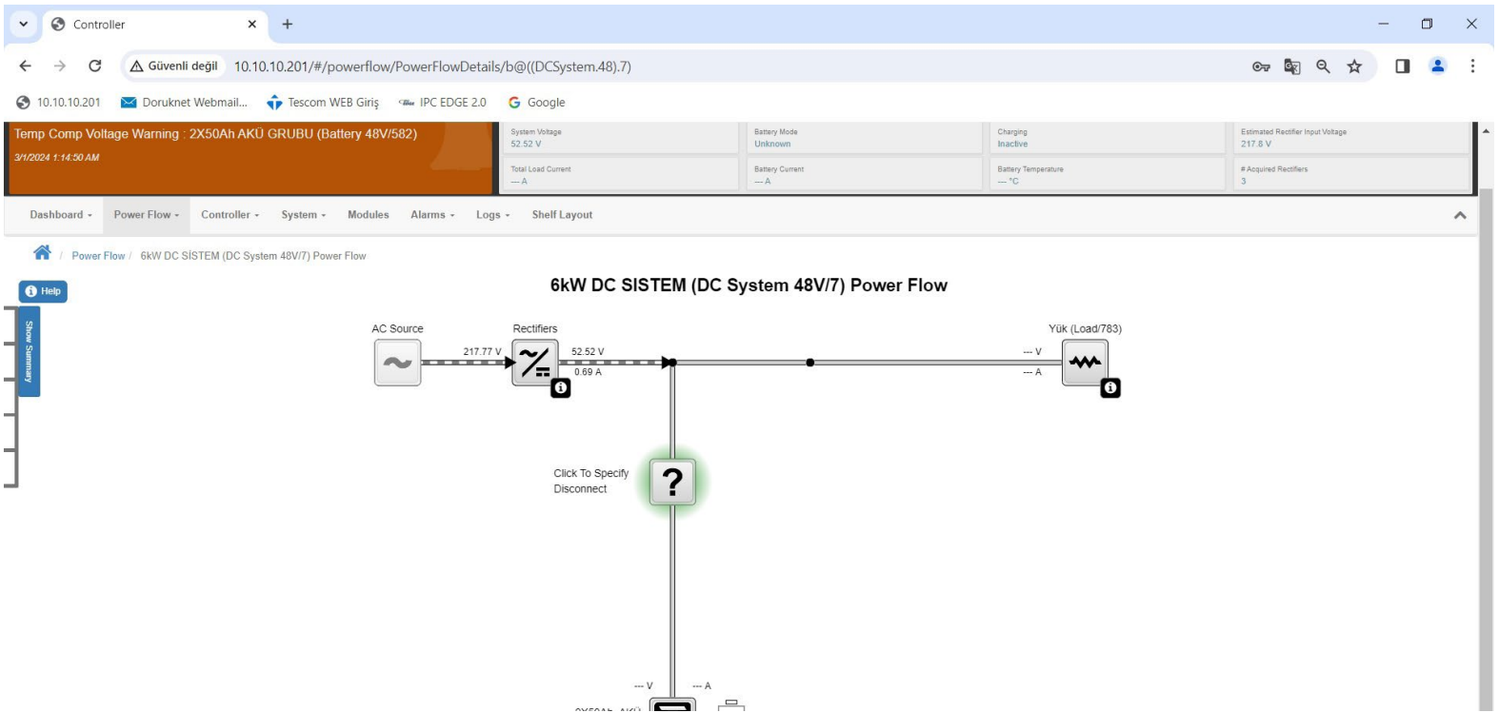
# L-ADIO

The L-ADIO is a standard analog and digital I/O peripheral for low-voltage (<60Vdc) systems. It communicates with the controller via the CAN bus and provides user access to I/O management through the CXC HP controller.

The L-ADIO offers voltage, current, and temperature inputs for various voltage monitoring requirements.


# THE WEB INTERFACE

The control panel is the default view displayed when you log in to the controller via the web interface. It provides a current overview of the most critical information in your system. It displays controller information, a system summary table, and a list of active alarms.



# CORDEX HP™ 3.0KW 48V MODULAR SWITCHING MODE RECTIFIER

| | |
|---|---|
| **ELECTRICAL** | |
| Input voltage | Nominal: 208 - 277Vac<br>Operating: 85 - 310Vac<br>Extended: 85 - 187Vac |
| Input frequency | 45 - 65Hz |
| Power | 3000W continuous (1920W output @ 120Vac input) |
| Power factor | >0.99 (50 - %100 load) |
| THD | < 5% |
| Efficiency | 96.6% |
| Output voltage | 42 - 58Vdc |
| Output current | 55A @ 54Vdc (62.5A maks.@ 48Vdc) (~40A @ 48Vdc @ 120Vac Input) |
| Load regulation | < ± 0.5% (static) |
| Line regulation | < ± 0.1% (static) |
| Transient response | ± %3 for 40 - %90 load step |
| Noise | Ses Bandı: <38dBrnC<br>Geniş Band: <20mV RMS (10kHz - 10MHz)<br><150mV pk - pk (10kHz - 100MHz) |
| Psophometric noise | < 2mV RMS |
| Acoustic | < 60dBa @ 1m (3ft), 30°C |
| **MECHANICAL** | |
| Dimension HxWxD (mm) | 41x104x333 |
| Weight (kg) | 1.76kg |
| **ENVIRONMENTAL** | |
| Heat | Operating: -40 - 75°C; ully rated output up to 55°C;<br>> 2400W @ 65°C<br>Storage: -40 - 85°C |
| Humidity | 0 - %95 RH non condensed |
| Heat dissipation | < 500 BTU per hour (worst case) |
| **COMPATIBILITY** | |
| Safety | 2 ports for communication with Cordex series power electronics peripherals |
| EMC | ETSI 300 386<br>**Emissions:**<br>• CFR47 (FCC) Part 15 Class A<br>• EN 61000-3-2, 3-3<br>**Immunity:**<br>•EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-11<br>•ANSI/IEEE C62.41 CatB3 |
| NEBS / Telcordia | • GR-1089-CORE (pending)<br>• GR-63-CORE (pending)<br>• GR-3108-CORE (pending) |