



## CumulusPower ™

**CumulusPower** <sup>™</sup> is a Swiss made 3-phase, online double-conversion and fully decentralized modular Uninterruptible Power Supply.

From **10kW to 3.6MW** CumulusPower <sup>™</sup> provides the maximum flexibility to adapt to any application. By eliminating any single point of failure, adding Decentralized Active-redundant technology (DARA <sup>™</sup>), preventing human error and reducing the time to maintain and repair, CumulusPower <sup>™</sup> delivers an industry leading Availability of 9 nines to fulfill the needs of the most critical power applications.

## The Technology

#### Intelligent Module (IM)

Each module is a complete UPS. Thanks to Centiel's long experience in module-design, the CumulusPower ™ Intelligent Modules are equipped with three independent power converters, one static bypass, all hardware and all software (intelligence and monitoring) functions, making them fully independent and capable of safely isolating from the multi-module system whenever an internal fault occurs.

#### Hot-Swappable without Human Error

CumulusPower ™ modules can be swapped without the need to switch over the load to bypass. Besides that, a per-module parallel isolator fiscally isolates the module from the system reducing the risk of human error and increasing system Availability.

#### 9 nines Availability

Zero Downtime

Distributed Architecture No Single Point of Failure

Unity Power Factor kVA = kW

Ease of Service Frontal Access Plug & Play Components

Small Footprint + 0.51 MW/m<sup>2</sup>

**Swiss Quality** 



# Distributed Active-Redundant Architecture (DARA $^{\text{TM}}$ )

The architecture of the CumulusPower <sup>™</sup> was designed to respond to the highest availability requirements, through the implementation of the system's distributed decision-making in an event of a critical failure, and a correct management of the load sharing. The communication between the Intelligent Modules is accomplished by means of a fully redundant **TripleMode**<sup>™</sup> communication BUS.



## Advanced Performance and Availability

#### **Class Leading Availability**

By eliminating any single point of failure, adding Active-redundant technology, preventing human error and reducing the time to maintain and repair, CumulusPower ™ delivers an industry leading Availability of 9 nines to fulfill the needs of the most critical power applications.

### Ultra-Safe Eco mode

With a 99.4% efficiency in Eco mode operation and an ultra-fast reaction time of <1.9 ms, Ultra-Safe ECOmode enables an excellent trade-off between power quality and energy efficiency.

#### **Outstanding Overload Capability**

With a 124% continuous operation in overload condition, mission critical applications can be safe on the event of unexpected load demands.

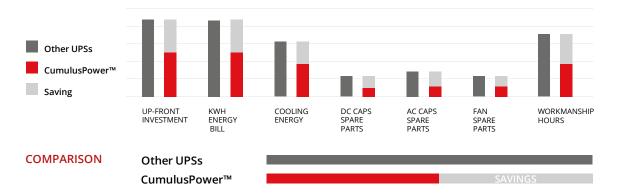
#### Advanced TripleMode <sup>™</sup> Communication

With Triple redundancy in the communication lines and electronic circuits, disconnection or shortcircuit on any of the communication lines does not represent a risk for the system thus eliminating the single point of failure.

## Swiss Quality

Developed and manufactured in Switzerland, CumulusPower ™ provides the highest standards of quality in components and manufacturing processes approved by the Swiss made label.

## Minimized Total Cost of Ownership



#### **Reduced Energy Bill**

With a best in class efficiency of 97,1% in double conversion mode (VFI), CumulusPower <sup>™</sup> minimizes energy waste on power protection and cooling system.

#### Ease of Service

Direct access to components and plug-and-play internal modules minimize mean time to repair (MTTR) and simplifies routine maintenance.



#### Minimized Life-time Maintenance Cost

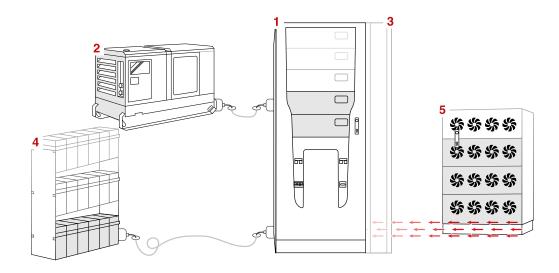
The CumulusPower <sup>™</sup> product line was designed to reduce the number of components that need replacement while at the same time reduce the time and cost of such maintenance operations.

#### Maximum Efficiency Management (MEM)

MEM looks for the most optimized energy efficiency point, if load demand decreases and a lower number of modules can handle the load while maintaining redundancy, the superfluous modules enter into active-sleep mode to optimize overall energy consumption.



## Reduced System Cost.



#### 1 Reduced Up-front Investment

Compared to a standalone UPS solution or centralized UPS architectures, Centiel's scalable modular UPSs have a lower total up-front investment cost, allowing you to grow your power protection capacity at the pace of the demand.

#### 2 Downsize Diesel Generators and Components

Thanks to our DARA ™ architecture and Smart-Battery-Booster, every switch over in the event of mains failure is taken smoothly, minimizing in-rush current, avoiding generator destabilization and hence eliminating the need to oversize the diesel generator.

#### **3** Eliminate ad-on External Components

Back-feed protection embedded in every module, maintenance bypass, bypass fuses, 233% higher battery charging current and battery DC breakers embedded at the frame level eliminate the need for external components connections, reducing your total system cost.

# Flexibility

#### Same core technology different solutions

CumulusPower  $^{\text{M}}$  fits on a 19" (IM10/20/25) to provide the maximum flexibility to the final application. Centiel's flexible solution approach can customize a frame solution to satisfy specific needs.

#### 4 Battery Flexibility 20 to 50 blocks

Batteries represent a substantial part in a project cost structure. With CumulusPower ™ you have the flexibility to select the number and type of battery blocks in a case by case basis to find the best way to optimize total system cost.

#### **5** Reduced Cooling Costs

CumulusPower ™ industry-leading **VFI 97,1% efficiency** and its flat efficiency curve, contribute to minimize energy losses and heat dissipation, reducing the size and cost of cooling system.



## **Technical Datasheet**

MODEL

CAB-CP050-I080-A1

CAB-CP100-E-A1

CAB-CP150-E-A0

CAB-CP250-E-B0

CAB-CP300-E-B0

#### CAB-CP050-1240-A0 CAB-CP100-I320-B0 **GENERAL DATA** IM10/IM20/IM25 IM10/IM20/IM25 IM10/IM20/IM25 IM50/IM60 IM50/IM60 Module Type IM10/IM20/IM25 Nominal power per module [kVA=kW] 10/20/25 10/20/25 10/20/25 10/20/25 50/60 50/60 Max Power per Frame [kVA=kW] 50 100 150 250 300 600 Number of modules per frame 1-2 1-4 1-6 1-10 1-5 1-10 Max power per system [kVA=kW] 1500 1500 1500 1500 3600 3600 Max number of modules per system 1-60 1-60 1-60 1-60 1-60 1-60 Topology/Technology Online double conversion/DARA (Distributed Active-redundant Architecture) INPUT MAINS Input Wiring 3Ph+N+PF **Rated Voltage** 380/400/415Vac Voltage Range For loads <100% (-25%, +20%) | <80% (-32.5%, +20%) | <60% (-35%, +20%) 40-70 Hz Input Frequency Total Harmonic Distortion THDi<3% for linear load, THDi<5% for nonlinear load Input Power Factor 0.99 BYPASS 3Ph+N+PF Input Wiring Rated Voltage 360/400/420 Vac Input Frequency 50/60 ±2/4% (selectable) BATTERY **Rated Voltage** 360-480 Vdc (the number of batteries can be selected ) 1080: 80 | 1240: 240 E External 1320: 320 E External Internal Batteries (7/9Ah) E External E External E External Туре Lead-Acid/NiCad/Lithium Blocks [LA]/Cells[NicAd] IM10: 20-50 | IM20/IM25/IM50/IM60: 30-50 Charger (Amp/module) 20 40 OUTPUT INVERTER 3Ph+N+PE **Output Wiring** Voltage 380/400/415 Vac±1% Tracking the bypass input (Online Mode) | 50/60 Hz±0,05% (Battery Mode) Frequency Waveform Sine wave (THDv<1% for linear load | THDv<3% for non-linear load) **Output Power Factor** 1 Efficiency (module/frame) 97,1% / 96.9% Inverter 124% continuous | 125% overload for 10 min | 150% overload for 1 min **Overload Capacity** Bypass 135% overload for long term | <1000% overload for 100ms Short circuit capability 3 x IN BYPASS Efficiency 99,4% **ENVIRONMENT Operating Temperature** 0-40°C (No power derating) -40-70°C Storage Temperature **Relative Humidity** 0%-95% (No condensing) Maximum Operating Altitude 1000 m. Above 1000 m, derating 1% for each additional 100 m Audible Noise < 65dB **OTHERS** 1.315x510x815 1.315x510x815 Dimensions (H x W x D) [mm] 1.980x510x815 1.980x730x815 1.980x730x845 1.980x1.460x845 1,980x510x815 1.980x730x815 107 Weight [Kg] withouth modules 148 209 396 210 225 180 EN/IEC 62040-1 | EN/IEC 62040-2 | EN/IEC 62040-3 | CE | RoHS Certifications

CAB-CP600-E-D0

Rev2.4 10/02/18 SQ

Communications Basic RS485 | RS232 | 2 Dry Input. Pro Basic + Dry contacts | Ethernet | Bluetooth



## **CumulusPower** ™



Address: Centiel SA Via alla Stampa 5a Cadro, Lugano CH6965 Switzerland. **Phone:** +41 91-2103683 Mail: write@centiel.com



www.centiel.com