

# CAMAC CERN-CE 1920W

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WIENER provides a line of modular designed CAMAC crates compliant with ESONE and CERN standards. These CERN spec. CAMAC crates are configurable with linear regulated, low noise plug-in power supplies in the 300W ... 600W DC power range or up to 1900W with PS236 low-noise switching power supplies.

For ultimate requirements this CAMAC crate provides up to 1920W DC power and is outfitted with a fan tray for cooling, monitoring and control.

The modular concept of the CERN NIM and CAMAC standard allows you to easily insert / remove and exchange fan trays and power supplies. All CERN spec. parts as bins, fan trays and power supplies are interchangeable between other WIENER CAMAC and even NIM crates. All power supplies support the features defined by the CERN standard including the monitoring connector and provide protection against short circuit, over / under voltage and over temperature.

The "CE" versions provide improved AC wiring.

## Main Features

- 7U bin UEC 01 for 25 CAMAC slots with 2U space for fan tray
- Heavy duty steel-aluminum construction with stainless-steel card guide frame
- 25 slot multilayer CAMAC dataway, noise reduced design, current rails up to 100A
- Intelligent fan tray with 3 individually controlled high performance DC-fans, variable fan speed
- High visibility alpha-numeric display for voltages, currents, fan speed / diagnostic system , 3 status LED's
- Micro-processor controlled, high precision, low-noise switching power supply with programmable voltage and current limits, 1920W DC output, all 6 DC voltages +/-6V, +/-12V +/-24V provided, programmable current limits
- Power supplies to be plugged-in to the rear of the CAMAC bin for easy exchange
- All CE power supplies have separated and improved AC to fan connection

## UEC 01VH12 CAMAC bin

- 7U bin UEC 01 for 25 CAMAC slots with 2U space for fan tray
- Heavy duty steel-aluminum construction with stainless-steel card guide frame
- 25 slot multilayer CAMAC dataway, noise reduced design, current rails up to 100A
- Protected high performance CAMAC connectors
- CERN compatible bin mechanics and wiring
- Dimensions: 19" (482mm) x 7U (311mm) x 525mm [whd], 550mm deep with inserted power supply

## UEL /CEL03M Fan Tray

- Intelligent fan tray with 3 controlled DC-fans (variable fan speed) for UEN 01 bin only
- 3 status LED's and high visibility alpha-numeric display / diagnostic system
- Optional CAN-bus, HS CAENET or GPIB interfaces for crate remote control
- CE version with separated AC wiring to power supply
- Dimensions: 19" (483mm) x 2U (86mm) x 260mm [whd], weight: ca. 5 Kg

## PS236/CS236 CAMAC CERN/CE Power Supply

- Micro-processor controlled, high precision, low-noise switching power supply with programmable voltage and current limits, 1900W DC output, all 6 DC voltages +/-6V, +/-12V, +/-24V provided , (no 115VAC!)
- Power supplies are plugged-in to the rear of the CAMAC bin for easy tool free exchange
- All power supplies are protected against short circuit, over / under voltage and over temperature
- Equipped with status control and CERN-spec. monitoring output (PG28)
- 100V, 110V, 220V or 240V 50Hz/60Hz AC input (to be selected / changeable)
- Dimensions: 429mm x 133mm x 220mm [whd], weight: 12.9kg
- CE conform versions provide improved AC wiring.

### Standard Crate configurations (other possible on request)

| Type                      | Height | Fan    | P.S.  | +6V/-6V | +12V/-12V | +24V/-24V | 115VAC | Power |
|---------------------------|--------|--------|-------|---------|-----------|-----------|--------|-------|
| <b>CAMAC<br/>1650CE_x</b> | 7U     | CEL03M | CS236 | 80A/80A | 20A/20A   | 10A/10A   | -      | 1900W |
| <b>CAMAC<br/>1650_x</b>   | 7U     | UEL03M | PS236 | 80A/80A | 20A/20A   | 10A/10A   | -      | 1900W |

**Note:** \_x = defines the AC input voltage, factory default is 220V AC (without index)

x = B: 110V AC

x = J: 100V AC

x = E: 240V AC

(\* usable slots)

## UEC01 CAMAC Bin 7U

7U CAMAC bin, 25 slot, depth 525mm acc. to CERN-CAMAC-Note 46-04 with 2U fan tray space. Power bus system with current ratings of 78A for +/-6V. Module connectors have been centered by metal guides before plugging into CAMAC dataway. Power supply plugged in and locked from rear side, fan tray from front side.

VH12 technology uses Y1 / Y2 in parallel to the +/-6V rails for enlarged current capability of the +/-6V. 6V-, Y-, and Ground-Pins are contacted to large current bus bars to obtain connector pin cooling and excellent low drop power distribution.

### Current maximum ratings:

| Voltage Line | Current / slot | Current / bin      | Comment   |
|--------------|----------------|--------------------|-----------|
| +/-6V        | 13A            | 65A                | sensed    |
| +/-12V       | 13A            | 13A (26A optional) | sensed    |
| +/-24V       | 13A            | 5A / 5A            | sensed    |
| 115V AC      |                | 0.5A               | Secondary |

### Details of construction

CERN specifications consider for 7U bins easily interchangeable fan trays. The fan tray has been fixed by two knurled head screws at front side. With these screws extraction and insertion of fan trays becomes possible without use of special tools.

Plug and socket connections are floated arranged with leading locating pins. Also fan tray connectors are assembled with lathed massive brass contacts, gold-plated.

Leading protection earth pin!

### 25 Slot CAMAC Dataway

Modern, multilayer CAMAC backplane with press-in 86-pin edge card connectors, compact designed with integrated current rails. The WIENER CAMAC dataway is outfitted with connectors having two-point contacts, for optimized contacting of old CAMAC boards. Older and frequently plugged modules make an impact of weak connections due to galling and corrosion of the module connector part. The springy two-point contact makes it possible to work smooth even with worn module connectors.

RF filter capacitors, assembled at the back side, improve the dynamic response with varying load currents and reduce any influence of RF distortions.

### Centering of CAMAC modules

Before gliding into the bin connector the CAMAC module edge card is vertically centered by the upper and lower cross aluminum alignment rails. Thus CAMAC connector damages due to the given mechanical tolerance levels of Cassettes and Bin are avoided. The V-shaped scoop card guide of the connector housings centers the modules horizontally.

Shape (edges and alongside) of the module connector must be chamfered to 45° as noted in CAMAC module-specification for easy and trouble free frequently plugging.

### CERN specified Rugged construction

CERN spec. bins are made with 6mm thick side panels and heavy transversal module guiding grids Power supply (and fan tray) are designed for exchanging easily. The power supply slips in and has been fixed by a locking slider only.

When power supplies are inserted, the total mounting depth will increased to 570mm. The electrical connection between power supply and bin is made by means of mechanically floating plug connection.

## Intelligent NIM / CAMAC Fan Tray UEL03 / CEL03

- CERN spec. conform fan tray unit equipped with alphanumeric monitoring and three long life DC axial fans, either with frontal or bottom air entry (400m<sup>3</sup>/h or >540m<sup>3</sup>/h airflow).
- Static pressure up to 8 mm H<sub>2</sub>O column.
- Fan speed is variable from 1200 to 3000 rpm
- MFOT (Maintenance Free Operation Time) > 65 000h / 40°C.
- Display: voltages, currents, fan speed, air inlet temperature, total power dissipation by inserted modules, network address (if installed). In case of malfunction the type of error will be displayed.
- LED's for Status, Fan-Fail, Over-Heat
- The fan tray monitoring can be set to Programming Mode when used with PS/Cs236 or 336 power supply.
- Optionally available with CAN-bus interface for remote monitoring and control.

## CE conform Crate versions / CE conform mains connection

CERN spec. wired bins allow to switch crates on and off via the mains switch at the fan tray. Current rules as CE60950 and UL1950 claim for primary to secondary isolations, which are not considered in the appropriate CERN specifications. Therefore WIENER formed a compromise to fulfill CE and UL safety restriction as well as CERN specifications by separating the mains wiring.

## PS/CS 336 Low noise switching CAMAC Power Supply

High density ultra high power CAMAC power supply in WIENER low-noise-cavity technology, considering both: CERN-CAMAC-Note 46-04 and EP 82-01. The PS236 power supplies use the status signal to superpose additional digital monitoring information to the fan tray. This enlarged the monitoring and control features. Wide range mains input 92-265VDC, 47-63Hz.

DC Outputs: +/-6V, +/-12V, +/-24V. Current limits can be adjusted via UEL/CEL03 fan tray or remotely, when the fan tray has corresponding remote interface installed.

| Power supply     | +6V | -6V | +12V | -12V | 24  | -24V | max. power (*: 92-265VAC) | regulation | application |
|------------------|-----|-----|------|------|-----|------|---------------------------|------------|-------------|
| <b>PS236VH12</b> | 80A | 80A | 20A  | 20A  | 10A | 10A  | 1100-1900W*               | switched   | CAMAC       |

### PS/CS 336

|   |                            |
|---|----------------------------|
| <b>Input voltage, 47-63Hz</b>   | 92V-265V, <16A sinusoidal  |
| <b>Soft start</b>   | yes                        |
| <b>Output: Noise and Ripple: Full load / 80% rated output (0-20Mhz Bandwidth)</b> | <10mVpp / <10mVpp, <2mVRMS |
| <b>Regulation static: Change of output voltage versus load change 10-100%</b>     | <0,1% or <15mV             |
| <b>Regulation static: Change of output voltage versus line change +/-10%</b>      | <0,02%                     |

|   |   |
|---|---|
| <b>Regulation dynamic: Change of output voltage versus load change +/-25%</b>             | <0,7% or 100mV.                                     |
| <b>Recovery time versus load change 10-100% Recovery time versus load change +/-25%</b>   | <0,2ms for <1% deviation                            |
| <b>Output impedance: Static / Dynamic(at 100kHz, 6V output)</b>                           | 0,2mOhm / 50mOhm                                    |
| <b>Temperature Error</b>  | <0,02%/K  |
| <b>Thermal Protection (No. of thermal switches)</b>                                       | (5x)  |
| <b>Output- Current Characteristics, reverse bias diodes!</b>                              | Constant current and trip off                       |
| <b>Dual tracking for complementary outputs</b>  | Voltage rise time 50ms, Off with crow bar discharge |
| <b>Calibration ranges Voltage / Currents</b>  | Programmable +15%-50% / 0-100%                      |
| <b>Sense compensation ranges, all DC voltages</b>   | 0,5V  |
| <b>Status Control for all voltages (Over- Under-Voltage Comparator, defaults +/-0.3%)</b> | Status control, LED-signal, trip off circuit        |
| <b>Overvoltage Protection, trip off thresholds (defaults)</b>                             | Crow bars 7,3V, 14,5V, 24,5V                        |
| <b>Derating, max. operating temperature</b>   | no derating up to 50°C, 50°C max.                   |

## Product Data Sheet

CAMAC CERN-CE 1920W:

[Print Product Data Sheet](#)

## Documentation

Manual and Tech-Notes :

[Manual NIM-CAMAC](#)

Introduction:

[WIENER NIM CAMAC introduction](#)