

6U VXI-C size 4600 RR Crate Series

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Designed for high performance automated test and scientific applications. The-RR VXI mainframe series (RR=cooling intake and exhaust at rear side), takes advantage of WIENER's 50-years experience as a leading manufacturer of powered crates for scientific research and industry.

The 4600 series is a compact design with high density, highly sophisticated modular designed power supplies. The power supply features medium output power up to 3kW, with extremely low noise and ripple (PARD). The 8U, 13-slot chassis offers superior cooling, due to an efficient air guiding system. The fan tray has three high efficient DC-fans, situated at the lower rear side in a removable fan tray with optional air filter.

Different power supply configurations as well as a variety of crate options are offered.

Main Features

- 19" x 8U enclosure for 13 VXI modules 6U x 340mm, modular design with removable fan tray and power supply
- Very rugged steel-aluminum construction features 5mm thick heavy duty side plates with zero-tolerance countersink screw positioning of all horizontal rails,
- Monolithic 13 slot 6U VXI backplane (J1/J2), 8 layer PCB, active termination, active automatic-daisy-chain
- UEL 4600 EX Fan Tray designed to provide efficient cooling of VXI instruments, rear air intake and outlet, equipped with 3 HRPM fans, Integrated fan speed and thermal monitoring, adjustable fan speed (1200 ... 6100 RPM)

- Microprocessor controlled with alphanumeric high-visibility LED display for all fan tray, bin and power supply parameters (voltages, currents, power, temperatures, set-up data, etc...)
- High density power supply in WIENER "Cavity-VHF" switching technology with excellent RF-shielding, optionally ultra low noise < 3mVpp (all voltages <12V), other rails <10mVpp
- 94V – 260V world-wide auto-range AC input, with power factor correction, CE-conformity

UEV 4600 VXI-C Bin

- 19" x 8U enclosure for 13 VXI modules 6U x 340mm
- Very rugged steel-aluminum construction features 5mm thick heavy duty side plates with zero-tolerance countersink screw positioning of all horizontal rails
- Optional with side extensions for receiver card mounting
- Monolithic 13 slot VXI backplane (J1/J2), 8 layer PCB, active termination and active automatic-daisy-chain
- 1U air compression chamber below the VXI module card cage
- 1U air exhaust above VXI module card cage
- WIENER Shelf Manager for local and remote monitoring and control, monitors and controls power supply , fan, remote on/off, SYSRES, thermal monitoring
- Alphanumeric high-visibility LED display, switches, I/O and Ethernet / RS232 ports on front top panel
- Optional up to 8 temperature sensors in VME card cage above modules
- Dimensions: 19" x 8U x 480mm [whd], weight: ca.15 kg

UEL 4600 Fan Tray

- Designed to provide efficient cooling of C-size VXI modules
- Cooling capacity of 2kW optionally up to 2.6kW
- High efficient 3- channel air guiding system
- 3 high efficiency / high RPM long-live DC muffin fans situated in a 3U fan tray at lower rear side.
- Individual fan speed and thermal monitoring, adjustable fan speed (1200 ... 6100 RPM)
- Optional with air filter
- Dimensions: 430mm x 3U x 250mm [whd], weight: ca.8 kg

UEP 6021 Power Supply

- High density power supply in WIENER "Cavity-VHF" switching technology with excellent RF-shielding, optionally ultra low noise < 3mVpp (all voltages <12V), other rails <10mVpp
- Modular and expandable design with self-ventilated universal power blocks, individually sensed and floating DC outputs
- Micro-processor controlled, programmable voltage adjustment, current limits and over-/ under voltage trip off points, temperature limits
- Self protected against any failure as under/over voltage, over current, over temperature, etc
- 94V – 260V world-wide auto-range AC input, with power factor correction, CE-conformity
- High power density, up to 3 kW/6kW DC output power for 3U or 6U high power box
- Dimensions: 430mm x 3U (133mm) x 250mm [whd], weight: from 15 to 19 kg, depending on the number of power modules

Standard Crate configurations (other possible on request)

Crate Version	Backplane	+5V	+12V	-12V	-5.2V	-2V	+24V	-24V	Height
VXI 4600 RR631	VXI	115A	23A	23A	45A	45A	15A	15A	3U
VXI 4600 RR634	VXI	115A	23A	23A	115A	115A	15A	15A	3U

VXI 4600 RR635	VXI	115A	45A	45A	45A	45A	15A	15A	3U
VXI 4600 RR641	VXI	230A	23A	23A	45A	45A	15A	15A	3U

UEV 4600 VXI bin

The 4600 bin has a 2U high fan tray space below the front and optional rear card cages for the UEL6020 fan tray. The total height of the 6021 bin is 8U.

The power supply is plugged into the top rear position. For this purpose the DC power terminal is located behind the backplane / top connector row.

The 6000 series crates offer excellent electrical safety, i.e. no AC mains wiring is inside the bin and fan tray. All power comes from well-isolated DC low voltages (EN60950, UL1950). A Power Protect Memory (PPM) further protects the crate by preventing incompatible power supplies from powering up.

Dimensions of 6021 standard crates (depth: +25mm for inserted power supply)

- 1U air compression chamber below the VXI module card cage
- 1U air exhaust above VXI module card cage
- WIENER Shelf Manager for local and remote monitoring and control, monitors and controls power supply , fan, remote on/off, SYSRES, thermal monitoring
- Alphanumeric high-visibility LED display, switches, I/O and Ethernet / RS232 ports on front top panel
- Optional up to 8 temperature sensors in VME card cage above modules
- Dimensions: 19" x 8U x 480mm [whd], weight: ca.15 kg

6U VXI backplane

Hartmann Elektronik monolithic multi-layer 13 slot VXI bus with active automatic daisy chain and passive or active termination. Outfitted with 96pin DIN J1/J2 connectors as per VXI specification:

Power per slot	VXI C size	VXI D size
(at 20°C / 70°C)	13 slot J1/J2	13 slot J1/J2/J3
5V	14A / 10.5A	24A / 18A
+/-12V	2A / 1,5A	4A / 3A
-5,2V	10A / 7.5A	20A / 15A
-2V	4A / 3A	10A / 7.5A
+/-24V	2A / 1.5A	4A / 3A
Layers	8	10

UEP 6021 Power Supplies

High density, highly sophisticated modular power supplies designed with WIENER's "Low-Noise-Cavity-VHF-switching technology" which features **extremely low ripple and noise** (PARD) figures. This technology prevents uncontrolled RF emissions by proper internal shielding and containing of switching parts as well as an efficient deflection of magnetically induced RF currents. A well-balanced thermal design secures excellent long term stability and high MTBF.

Up to eight independent regulated DC outputs. For higher current capability, power modules can work in parallel. All **outputs are floating**. Therefore common- or separated grounds can be realized at backplane level (for example analog- and digital- grounds isolated). Wide compatibility ranges become possible by automatic programming of voltage levels and current limits to reference-values that are stored in a bin-memory (Power Protection Memory, PPM system). Incompatibility between bin/backplane and power supply prompts the PPM to keep the power supply off.

Two types of power boxes are available: **3U box** with 92-265VAC input for 1kW-3kW DC-output. **6U boxes** offer space for a second A/C mains input (PFC) to utilize up to 6kW DC performance (230VAC mains input!). Power boxes include:

- Mains filter in connection with a power factor corrected mains input module (PFC) and soft start circuit,
- auxiliary power supply to provide monitoring and control logic as well as provide power for the fan tray,
- Monitoring and alarm circuit supported by a self-calibrating microprocessor system.
- Five, six (3U box) or 10 slots (6U box) for power modules (DC-to-DC converters)
- CAN-bus interface, processing all power supply, fan tray, and bin data
- Power modules and mains inputs are equipped with long life cooling fans.

Serial connections between power supply, fan tray and bin (plug & play) allows communication and exchange of data between all crate.

Rated mains input range	106- 230VAC \pm 15% (90...265VAC)
Rated input current	Sinusoidal 16A for suffix H input, 32A for suffix K input
Inrush current:	limited to rated input current (cold unit)
Input fuse:	external, intern on special request
Isolation (Inp.- outp.)	CE EN 60950, ISO 380, VDE 0805, UL 1950, C22.2.950
DC output power:	H for 1000... <3000W (92 ...265VAC) K for 2000... <6000W (92 ...265VAC)

H input outfitted with removable power cord (3*1,5mm²) for 16A nominal input current,
K input (6U power box) is equipped with 2m fixed power cord for up to 32A nominal.

Regulation

Regulation			
Regulation static:	MEH 550W/650W	<15mV	(+/-100% load, +/- full mains range)
	MDH (20A):	<0,05%	(+/-100% load, +/- full mains range)
	MDL / MDH	<0,1%	(+/-100% load, +/- full mains range)
Regulation dynamic:	MEH, MDH	<100mV	(+/-25% load)
	MDL / MDH	<0,7%	(+/-25% load)
Recovery time	+/-25% load:		within +-1% within +-0,1%
	Modules 550W	0,2ms	0,5ms,
	Modules 650W	0,5ms	1,0ms
	MDL / MDH	0,0ms	1,0ms

(Conditions: Current slope $\leq 1000\text{A/ms}$, 21mF per 100A $\triangleq 1\text{mF}$ per slot)

Sense compensation range: difference between min. and max. output voltage

Available modules

Type	Channels	Voltage range	Peak output / power	Noise and ripple
MEH	1	2... 7,0V	115A / 550W	10mVpp, (0-20MHz), <2mVrms (0-30MHz)
MEH	1	7...16V	46A / 550W	<15mVpp, (0-20MHz), <2mVrms (0-30MHz)
MEH	1	12...30V	23A / 550W	<15mVpp, (0-20MHz), <2mVrms (0-30MHz)
MEH	1	30...60V	13,5A / 650W	<15mVpp, (0-20MHz), <2mVrms (0-30MHz)
MDH	2	2...7,0V	(+/-) 30A / 210W (420W)	<15mVpp, (0-20MHz), <2mVrms (0-30MHz)
MDH	2	7...16V	(+/-) 20A / 250W (500W)	<15mVpp, (0-20MHz), <2mVrms (0-30MHz)
MDL	2	7...24V	(+/-) 11,5A / 275W. (550W)	<15mVpp, (0-20MHz), <2mVrms (0-30MHz)

EMC Compatibility

EMA.	EN 61 000-6-3:2001	[RF emission]
	EN 55 022:1998 + Corr:2001 + A1:2000 Class B	conducted noise
	EN 55 022:1998+ Corr:2001 + A1:2000 Class B	radiated noise
	EN 61 000-3-2:2001	harmonics
	EN 61 000-3-3:1995 +Corr:1997 +A1:2001	flicker
EMB	EN 61 000-6-2:2001	[immunity]
	EN 61 000-4-6:1996 + A1:2001	injected HF currents
	EN 61 000-4-3:1996 + A1:1998 + A2:2001	radiated HF fields incl. "900MHz"
	EN 61 000-4-4:1995 + A1:2001	Burst
	EN 61 000-4-5:1995 + A1:2001	Surge
	EN 61 000-4-11:1994 + A1:2000	voltage variations
	EN 61 000-4-2:1995 + A1:1998 + A2:2001	ESD

Operation temperature: 0... 50°C ambient without derating, Storage:-30°C ... +85°C

Temperature coefficient: < 0,2% / 10K

Stability: 10mV or 0,1% / 24 hours, 25mV or 0,3% / 6 month (under constant conditions)

Current limits:	adjustable to any lower level
Voltage rise characteristics:	monotonic 50ms, processor controlled.
Overvoltage protection:	crow bar protection trip off adjusted to 125% of nominal voltage each output
DC Off (trip off):	within 5ms if >5% deviation from adjusted nominal values, after overload, overheat, overvoltage, undervoltage (bad status), and fan fail, if temperatures exceed 125°C at heat sinks Limits programmable. Outputs discharged by crow bars, when power supply tripped- or switched Off.
Efficiency:	75% ... 85%, depends on used modules
M F O T	(Maintenance Free Operation Time):
<i>internal blowers:</i>	40°C ambient >65 000 h
	25°C ambient 100 000 h
<i>electronics:</i>	40°C ambient >100 000 h
<i>Water cooled power supplies:</i>	40°C water >100 000 h

UEL4600 Fan Tray

The UEL4600 is outfitted with 3 high speed (HRPM) long life individually controlled DC fans.

	HRPM
	118mm x 118mm
Static pressure at 3000 RPM:	28 mm H2O column
Max. Speed of Rotation:	>6000 RPM
Power Consumption	20W
Start up Current:	Limited by soft start circuit
Operating Voltage:	Fan tray 30VDC, internal Blowers 0-24VDC,
Optimum operating range:	10- 15mm H2O
Operating Temperature:	0... 70°C
MFOT (Maintenance Free Operation Time)	>62,500 h at 40°C ambient, > 37,500 h at 60°C ambient

Variable fan speed is manually or remotely selectable from 1200 to >6100rpm. In case optional bin temperature probes are installed the fan can run in temperature-controlled mode. Running with lower fan speed all temperatures are monitored. Exceeding the first limit (user defined, default 45°C) all fans run with maximum speed in order to provide full cooling. In case the temperature passes the second limit the power supply switches off.

Adjustable "after-running" of fans guarantees further cooling after power off.

Product Data Sheet

6U VXI-C size 4600 RR Crate Series: [Print Product Data Sheet](#)

Documentation

Manual and Tech-Notes : [Crates 4500-4600](#)

Introduction in to VME: [WIENER VME VXI VXS introduction](#)

Downloads

SYScontrol : [Download](#)

SNMP: [Download](#)

OPC-Server: [Download](#)

UEP6Control: [Download](#)

Firmware UEL: [UEL6](#)

[UEL6-Ethernet](#)

Firmware UEP : [Download](#)

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