

**multiple ion pump supply and control**

microIOC LOCO 2 is a **high-voltage power supply** stand alone unit that can distribute power to up to **16 ion-pumps**. **Varian Dual Controller** is used as a power supply and **microIOC-LOCO** as the distribution system. To enable direct integration into the control system, microIOC is integrated into the unit.

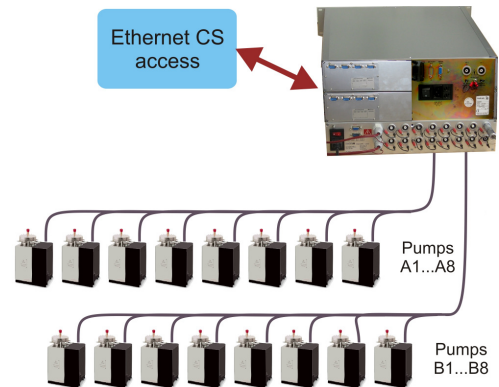


In addition to providing power to the pumps, current going through every pump is measured and **pressure at the pump is determined**. If the measured pressure at the pump is outside the desired limits, the pump can be **disconnected to avoid damage**.

**who is it for?**

microIOC-LOCO 2 is an ideal solution to cut costs and rack space by at least a factor of 2 of vacuum systems where a large number of smaller pumps are used, such as **storage rings** and **boosters**.

It is a preferred solution over microIOC-LOCO when single pump disconnection is desired or when integration wants to be avoided. microIOC-LOCOS are being used at ANKA, PTB and INFN-LNF.

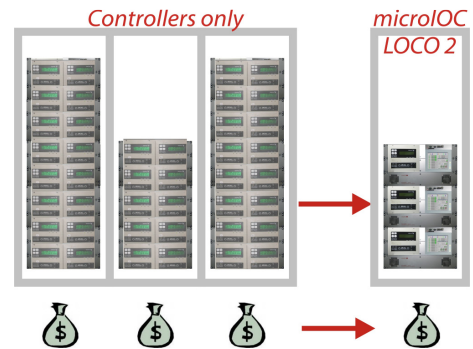


The following features are provided as standard: industrial-grade components; standard x86 architecture; dual Ethernet, 2xUSB, RS232, and VGA interfaces; complete SW support: Linux Debian or RTEMS, control system integration.

Please check microIOC baseline for the details of the microIOC family.

**benefits**

- reduces cost and rack space:** if one pump is connected per controller channel the price per pump is around 2000 EUR and 2U of rack space is used. Depending on the vacuum system these values can drop to 300 EUR and 0.4 U when LOCO 2 is used.
- pressure measurements at each pump** allow problem pinpointing.
- ion pump protection:** in case of poor vacuum any individual pump is **automatically switched OFF**
- control over the number of active pumps**



## key features

- Plug&Play solution: CS running on a microIOC. EDM, WebCA and java GUIs. LCD for local control.
- integrated Varian DUAL power supply.
- logarithmic-scale current measurement: 5% accuracy in 100 pA to 10mA range
- pressure range from  $10^{-12}$  mbar to  $10^{-4}$  mbar (current vs. pressure relation is fully configurable).
- individual pump disconnection (manual or automatic).
- safety interlock feature for cable disconnection.
- very fast double mode over-current protection against electrostatic discharges.
- RS485 serial communication.
- several customization options.



## technical specifications

microIOC LOCO 2	
<b>high-voltage power supply (Varian DUAL)</b>	
voltage	2x $\pm 3,000$ V to $\pm 7,000$ V, programmable
number of output channels	2x8 (1x16 or smaller number of channels available on request)
allowable output current	2x 400mA
allowable output power	420W max.
output high-voltage connector	Fischer D105A049 with interlock (other type on request)
<b>current measurement (per channel)</b>	
input-to-output voltage drop	14V max (Iout < 140mA) / 5V max (Iout > 140mA)
current measurement range	100pA – 10mA
normal range of operation	400mA
current measurement principle	measured and integrated over 1 and 10s interval (other intervals on request)
current accuracy	guaranteed: $\pm 10\%$ , typically: $\pm 5\%$
<b>output ON/OFF switching (per channel)</b>	
switching method	The switches change state only if the output voltage is under 50V. When a switch is requested to change state, the HV power supply is instructed to reduce voltage. After the switch changes state output voltage is increased again.
switching time	max 5s for the whole switching procedure
<b>communication and control</b>	
RS485 – Varian DUAL	RS 485 multi-drop, single wire, ASCII protocol
RS485 – LOCO 2	RS 485
Ethernet - optional	direct Ethernet CS access: - integrated x86 compatible GEODE GX800 CPU, 10/100 Ethernet, 2x USB, RS232, VGA - installed SW: Linux Debian, full control system integration (EPICS/EDM, ACS, Tango)
Front panel LCD - optional	direct local control with 6,5" LCD, 640x480 resolution, touch screen, EDM SW installed
<b>case, mains supply, operating environment</b>	
dimensions of enclosure	19" 6U rack mountable enclosure (265 x 430 x 435mm)
weight	20.5 Kg (45.0 lbs)
mains supply	100-120 / 200-240 VAC, 50/60 Hz, 675VA max.
environment	operating: 0...+40 °C, storing: -20...+60 °C, operating humidity: 10...90% (non condensing)

