

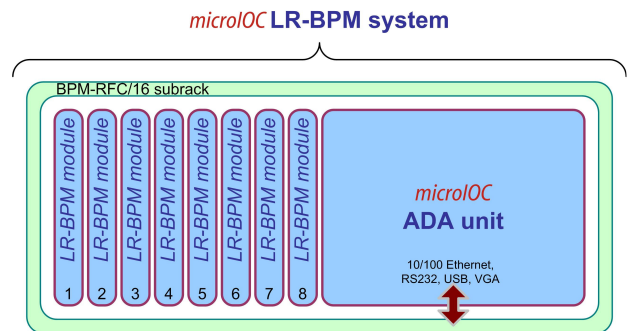
what is it? microIOC LR-BPM is a **plug & play beam position monitoring solution**. It is perfectly suitable for a quick position detection of single-pass bunches. Up to 8 channels of BPM pickup electrodes can be connected to and processed by this system.

microIOC LR-BPM system is a complete beam position monitoring solution, based on:

- 1 Log-Ratio Beam Position Monitors operating in Sample&Hold mode (LR-BPM-SH) and BPM-RFC/16 subrack from Bergoz¹ as an analog front-end and
- 2 microIOC² analogue data acquisition (ADA) unit.

Up to 8 Bergoz LR-BPM modules and microIOC ADA unit are conveniently integrated into the Bergoz BPM-RFC/16 subrack.

- 1 – www.bergoz.com/products/LR-BPM/LR-BPM.html
- 2 – <http://www.microioc.com/lrbpm.htm>



operation principle and connection

Bergoz LR-BPM modules capture and process the beam pickup signals. Each LR-BPM module outputs two analog signals (vertical and horizontal). microIOC ADA unit digitizes and processes these analog outputs.

To synchronize with the beam transition triggered measurement is provided. Sampling is done with 16-bit resolution ADC cards with 8 differential inputs each, sampling at 250k samples/sec. Samples for each channel are averaged in order to filter out mains noise.



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

- 1 turnkey solution for quick beam position monitoring – attach to the BPM pickup electrodes and read data in control system
- 2 compact design; installed into single 3U high chassis
- 3 no extra power supply required



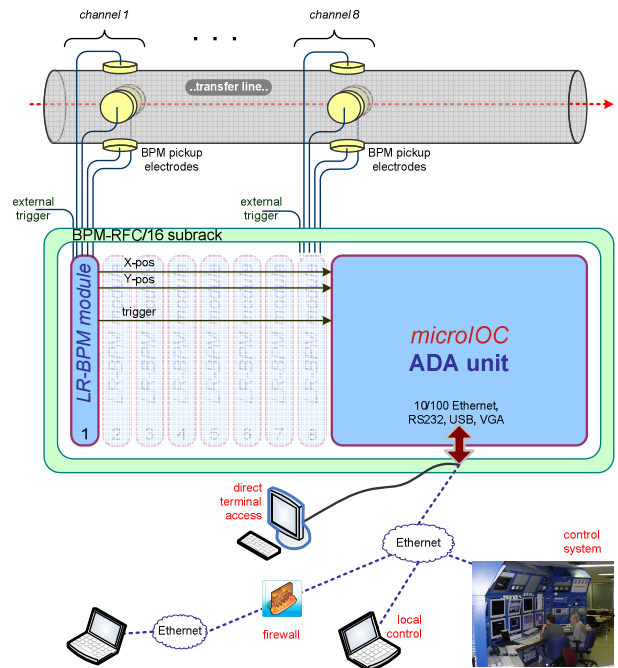
key features

- 1 complete monitoring with averaging of position signals from LR-BPM units (X, Y)
- 2 16-bit resolution sampling @250kHz
- 3 sampling synchronization with Bergoz LR-BPM card built-in trigger or external trigger



use case

- beam position measurement of low repetition beam pulses
- LINAC, transfer lines, fast-cycling synchrotrons and boosters
- turn by turn parameters measurements (using single LR-BPM unit)
- single-pass short bunches beam position measurement
- measurement of the first turns of the reference synchrotron bucket (using single LR-BPM unit)



technical specification

microIOC LR-BPM	
BPM-RFC/16 subrack	
chassis	- conductive RF-shielded aluminum chassis - height: 3U
sub-modules	- microIOC ADC unit - 8 LR-BPM modules
LR-BPM module	
type of measurement	non-interceptive
beam intensity range	>50 dB (single bunch 30pC...10nC)
repetition rate	<500 MHz
bunch distinguishing repetition rate	<5 MHz
beam band processing	L, S and X (bunch groups <3 ns)
width	4 TE (21 mm)
power supply	supplied from microIOC ADA unit
microIOC ADA unit	
analog acquisition ^(a)	16-bit resolution, 250k samples/sec, 2x8 differential analogue inputs
ADC trigger	ADC card triggered with TG.ADC.OUT signal coming from Bergoz LR-BPM card
CPU	Embedded Intel® Ultra Low Voltage Celeron 400MHz
operating system	Linux Debian and RTEMS
control system support	EPICS, ACS and Tango
interfaces	2 x 10/100 Mbps Ethernet, 2 x USB, RS232, VGA
power supply	110/220 V (50/60 Hz), industrial grade, current protected
width	42 TE (213 mm)

