

IC-101 Electronics Module

Features

- Dynamic range <1 pA to 200 μ A
- Integrated digitization and filtering
- Fiber-optic, RS-232 and RS-485 interfaces.
- Integrated calibration test source
- Full control provided of integration modes
- External trigger capability
- Analog monitor output
- Frequency monitor output (VFC).
- Optional 3 kV high voltage output for ionization chamber biasing.



Applications

- Ionization chamber readout
- Low current and charge measurement

Options

- Auxiliary HV output 0 to 3000V

Specifications

Operating principle	Gated integrator (charge integrating amplifier)	Auxiliary HV PSU	(Factory option) 0 to 3000V programmable (polarity and maximum voltage factory selectable), 0.3 mA max. Noise and ripple < 0.1%
Integration capacitor	Dual, software selectable	Power input	+24V (+/- 2V) DC, 300mA typ, 500mA max.
Input noise	< 100 fA rms + 1 fA rms per pF input load up to 100 pF (1 second integration, 100 pF capacitor)	Controls	Two rotary switches for loop address and comms mode/ baud rate.
Input offset	< 10 pA , 15 to 25 C. Offset can be removed by zero subtraction.	Displays	Status LEDs (power, device status, comms mode, data RX/TX). "HV on" LED.
Stability Output drift	< 200 fA / C / hour	Case material	Stainless steel sheet
External accuracy	Better than 0.5% of full scale in use, integration time 500 μ sec to 1 sec, after calibration with built-in current source	Weight	1.2 kg (2.6 lb).
Integration time	User selectable, 100 μ sec to 10 sec.	Operating environment	10 to 35C (15 to 25 C recommended to reduce drift and offset) , < 70% humidity, non-condensing, vibration < 0.1g all axes (1 to 1000Hz) Vibration must be as low as possible to measure at the lower limit of the dynamic range.
External gate input	TTL 10 kohm impedance	Shipping and storage	-10 to 50C, < 80% humidity, non-condensing, vibration < 2g all axes, 1 to 1000Hz
Trigger modes	Internal (autorun), external.		
Digitization	16 bit bipolar		
Averaging modes	Multiple conversions per integration; multiple integrations per reading to increase digital resolution up to 20 bits.		

Interfaces

Interfaces	RS-232 or RS-485, 8-bit ASCII. Selectable baud rate up to 115 kbps. The electrical interface can be set to be RS-232 levels, or full-duplex differential RS-485. Fiber-optic loop, 10 Mbit/sec serial, 9-bit asynchronous binary. Ethernet connection to host through A300 or A500 loop controllers.
Host computer	ASCII communications based on SCPI. Diagnostic host program supplied for Microsoft® .net framework. Binary DLLs available for Microsoft® .net, National Instruments™ Labview™, Microsoft® C++.and Linux.

IC-101 Electronics Module continued...

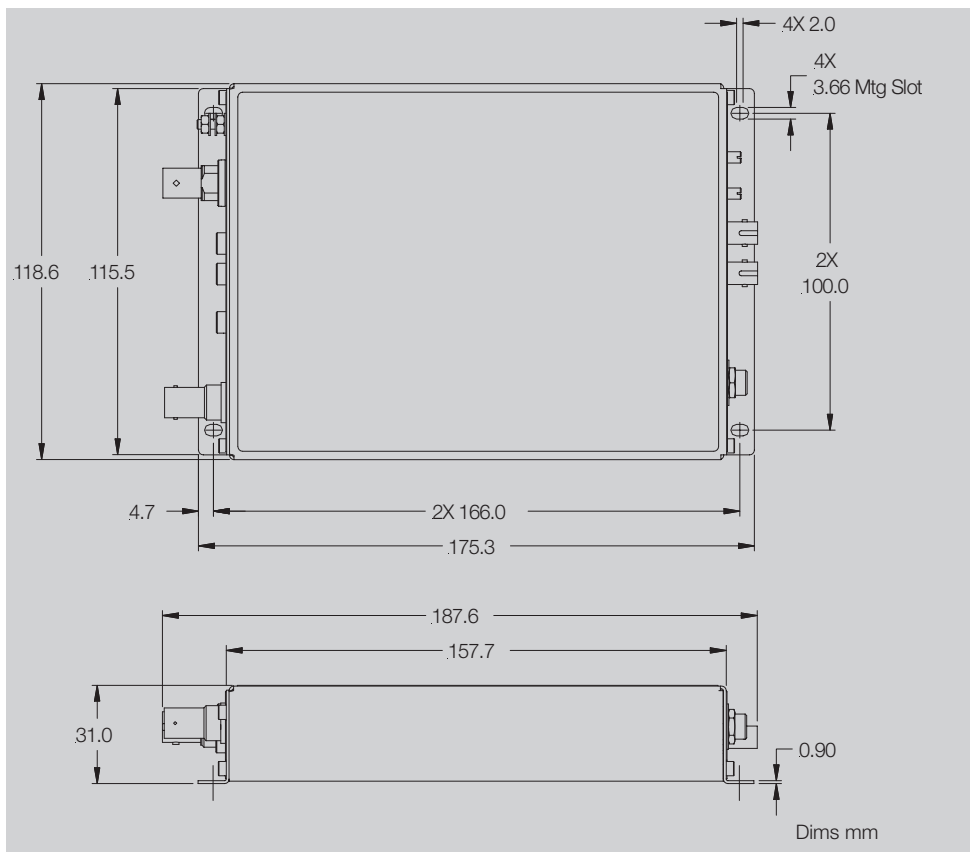
Monitor outputs

Number	One, analog voltage One, frequency
Signal type	Analog voltage +/- 10V into 10 kohm. Frequency 0 to 1 MHz TTL into 50 ohm.
Mapping	Signals map the selected nominal full scale current range.

Connectors

Signal input	BNC female.
HV out	SHV
External gate in	Lemo coax size 00
Monitor outputs	Lemo coax size 00 for analog voltage Lemo coax size 00 for frequency
RS-232 / RS485	Six pin mini-DIN ("PS/2") 1 Tx/Rs-485 Tx+ 4 n/c 2 Rx / RS-485 Rx- 5 RS-485 Tx- 3 Gnd 6 RS-485 Rx+
Fiber optics	TX & RX ST bayonet, suitable for 1mm plastic fiber or 200 µm HCS fiber.
Power in	2.1mm threaded jack. Mates with Switchcraft S761K or equivalent.
Ground	M3 threaded stud

Dimensions



Ordering Information

IC101 electrometer with user manuals, PSI Diagnostic host software for Windows PCs, calibration data	IC101
IC101 with auxiliary HV supply positive 3000V	IC101-XP30
IC101 with auxiliary HV supply negative 3000V	IC101-XN30
BNC Signal Cable, 250mm	CBY1450
SHV High Voltage Cable, 250mm	CBY1451