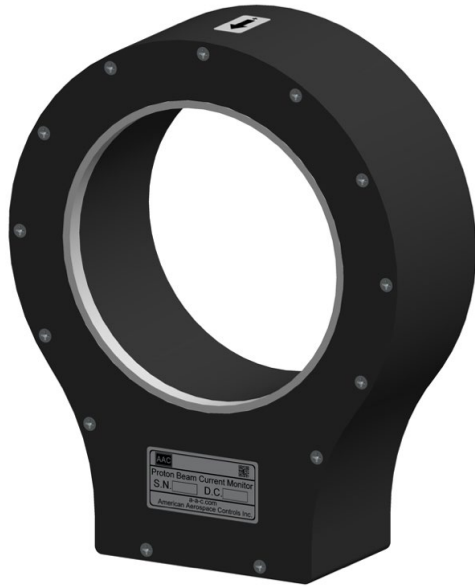




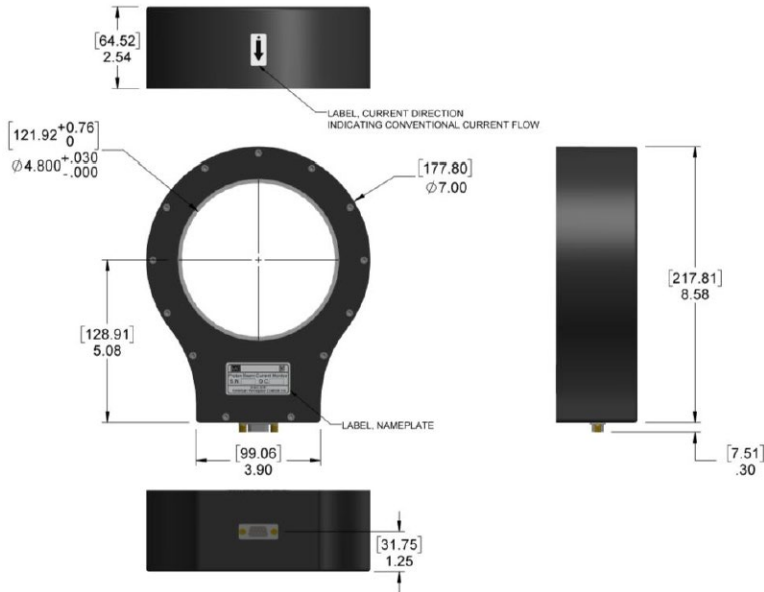
CHARGED PARTICLE BEAM CURRENT SENSOR

BCS-01

Fast response, DC – 140 kHz beam current sensor for non-intercepting charged particle beam current measurements¹.



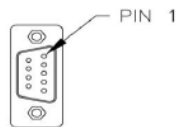
- **Non-intercepting current transformer**
- **Fast response time (< 2.5 μs)**
- **No Droop**
- **Accuracy < ± 1% Full Scale (FS)**
- **DC to 140 kHz bandwidth**
- **Analog design**
- **Self contained package**
- **Beam energy range: eV - GeV**



TERMINAL IDENTIFICATION

1. SUPPLY VOLTAGE (+)
2. SUPPLY VOLTAGE (RTN)
3. SUPPLY VOLTAGE (-)
4. OUTPUT SIGNAL (+)
5. OUTPUT SIGNAL (RTN)
- 6-8. SPARE
9. SHIELD GND

9 PIN D-SUB CONNECTOR



MATING CONNECTOR
P/N: SPC15411

SPECIFICATION: BCS-01

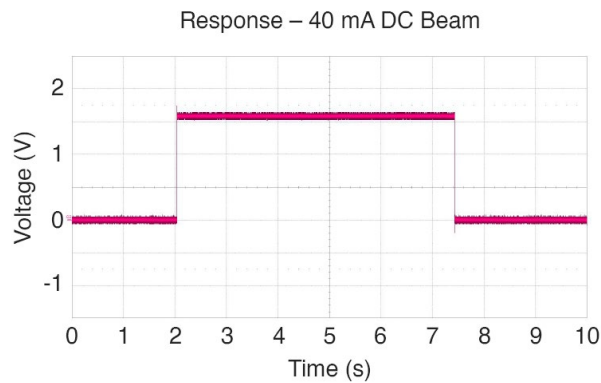
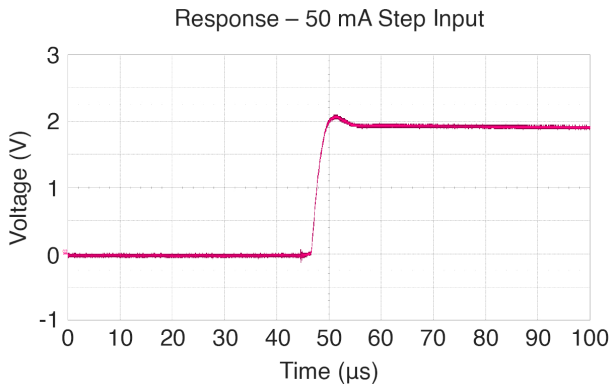
INPUT CURRENT	
CURRENT RANGE	Up to ² ±200 mA
OVERLOAD	500 mA
OUTPUT	
VOLTAGE SIGNAL	±2 or ±5 V at max current range
ACCURACY (5-20 mA)	± 1% (@ +20°C to +30°C)
LINEARITY ERROR (5-20 mA)	< 0.1%
RIPPLE	0.5% FS RMS max
OUTPUT IMPEDANCE	400 Ω
RESPONSE	2.5 μs max (10-90% FS)
BANDWIDTH (-3dB)	DC to 140 kHz
POWER SUPPLY	
SUPPLY VOLTAGE	±15 V DC ±1 V
CURRENT DRAIN	50 mA DC max
REVERSE POLARITY PROTECTION	10 μA max current drain-no damage

OPERATION

BCS-01 installs over a ceramic vacuum break along a customer's beamline. The unit measures the beam's DC and time-varying signals separately and then combines both signals to provide an analog output proportional to the beam current.

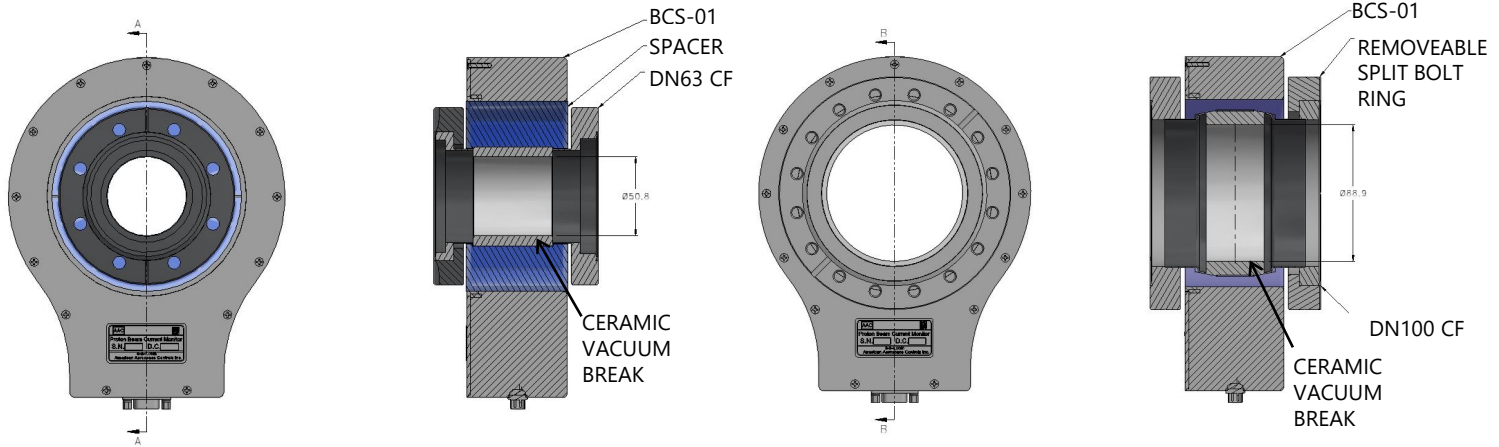
APPLICATIONS

There is a large demand in the medical field for beam therapy equipment for which the Charged Particle Beam Current Sensor is a perfect fit. Many applications have already benefited from the reliability and performance of this sensor.



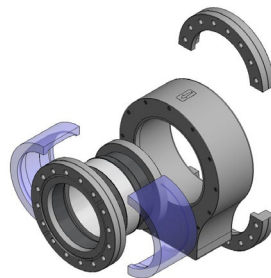
ENVIRONMENTAL AND PHYSICAL CHARACTERISTICS	
OPERATING TEMPERATURE RANGE	-40°C to +70°C
STORAGE TEMPERATURE RANGE	-40°C to +85°C
INSULATING RESISTANCE	> 100 MΩ
DIELECTRIC STRENGTH	350 V DC (terminals 1 through 8 to 9 & case)
SHOCK	Operating 50 g, 11 ms half-sine pulse Method 213 Condition A of MIL-STD-202
MOISTURE RESISTANCE	Meets Method 106 of MIL-STD-202 and Method 507.1 Proc. 1 of MIL-STD-810
OPERATING HUMIDITY	0 to 95% RH
ATTITUDE	Meets specification for any mounting orientation
WEIGHT	2.27 kg Max

PACKAGE OPTIONS



OPTION A: FOR SMALLER BEAMPIPES

This option is for beampipes which have flanges smaller than the internal diameter of the BCS-01. A ceramic vacuum break and a spacer will be included with the sensor. The BCS-01 will be held in place over the vacuum break by the polymer spacer.



OPTION B: FOR LARGER BEAMPIPES

This option is for beampipes which have flanges larger than the internal diameter of the BCS-01. A ceramic vacuum break with a removable split bolt ring and a spacer will be included with the BCS-01. The split ring will allow the vacuum break to fit through the BCS-01. The BCS-01 will be held in place over the vacuum break by the polymer spacer.

1. American Aerospace Controls' (AAC) technology product.
2. Can be manufactured for current ranges up to ± 200 mA (i.e. ± 25 mA, ± 50 mA, ± 100 mA, etc.)