$5kA_{rms}$ - 8kA DC Fluxgate current transducer

Features

- DC 8000A
- AC 5000A rms
- Maximum gain error
  DC to 1kHz - 0.1%
- Transducer core optimized for high level of immunity against external magnetic fields
- Operating temperature
  Transducer head 0-50°C
  Electronics 0-40°C
- Turns ratio 1:2500
- Aperture diameter 150 mm
- Danisense advanced sensor protection circuit “ASPC”
- Available in two versions
  - Current Output in 4mm Jacks
  - 10V BNC connector - 2ppm/K
- 2U 19” Control unit with AC 115V/230V mains supply

Application

- Power analysis
- High accuracy dc and ac current sources
- Reference transducer for calibration purposes

Description

DS5000 is developed for very high current applications. DS5000 has all the protection of the smaller transducers, but does come with an optional high precision burden board. (The board converting current to a 10V output voltage)

With 150mm diameter in the center hole, most applications/primary conductors will fit.

The standard configuration is including a 5m long cable between 19” Control Unit and Transducer Head and a mains cable.

DC Specifications at Ta=25°C

Parameter	Symbol	Unit	Min	Typ	Max	Comment
Primary Current	Ip	A	-8000		8000	
Secondary Current	Is	mA	-3200		3200	
Measuring resistance		Ω	0		3	
Mains voltage		V	100		240	47Hz to 63Hz
Linearity error	ƐLin	ppm	-1		1	
Offset current	IOffset	uA	-10		+10	Including earth field. Measured on secondary current
Turns Ratio	Turns		1:2500		1:2500	
Noise 0-100Hz 0-1kHz 0-10kHz 0-100kHz	Noise	uA rms			 0.06 0.4 3 5	Measured on secondary current
Primary current Overload		kA			20	Maximum pulse length 100ms
Re-injected noise onto primary busbar	Un	uV rms			5	
Zero Flux Frequency	kHz			7.8		
Stabilty						
Offset stability over time		uA/Year			1	Measured on secondary current
Offset change with external magnetic field vertical		uA/mT			8	Magnetic field perpendicular to busbar
Offset change with external magnetic field horizontal		uA/mT			8	

Absolute maximum ratings

Parameter	Unit	Min	Typ	Max	Comment
Primary	kA			20	* Maximum 100ms

Environment and mechanical characteristics

Parameter	Unit	Min	Typ	Max	Comment
Ambient operating temperature – Transducer head	°C	0		55	
Ambient operating temperature – Control unit	°C	0		40	
Storage temperature	°C	-40		65	
Mass • Control unit • Transducer Head	Kg		 5,5 17		
Standards	EN 61326-1 EMC EN 61010-1:2010 Safety				

AC Accuracy data

Parameter	Unit	Min	Typ	Max	Comment
Gain error • 50/60Hz • DC - 500Hz • 500Hz to 10kHz	%			• 0,005 • 0,05 • 10	
Phase error • 50/60Hz • DC to 500Hz • 500Hz to 10kHz	Degree			• 0,02 • 0,05 • 3	

Isolation characteristics

Parameter	Unit	Min
Rated isolation voltage rms, reinforced isolation IEC 61010-1 standard and with following conditions - Overvoltage category III -Pollution degree 2	kV	3
Rms voltage for AC isolation test, 50/60 Hz, 1 min - Between primary and (secondary and shield) - Between secondary and shield	kV	23.7 0.2
Impulse withstand voltage	kV	43.5
Creepage distance / Clearance	mm	60 / 60
Comparative Tracking Index	CTI	600

Advanced Sensor Protection Circuits “ASPC”

Developed to protect your sensor from fault conditions typically harmful to flux-gate Sensors. Protection against damage to the electronics in the following situations.

1. Unit is un-powered and secondary circuit is open* Both DC and AC primary current can be applied up to 100% of nominal current.
2. Unit is un-powered and secondary circuit is closed* Both DC and AC primary current can be applied up to 100% of nominal current.
3. Unit is powered and secondary circuit is open* Both DC and AC primary current can be applied up to 100% of nominal current.
4. Unit is powered and secondary circuit is interrupted*

Both DC and AC primary current can be applied up to 100% of nominal current.
*Notice that the sensor core will be magnetized in all four cases, leading to a small change in output offset current (less than 10ppm)

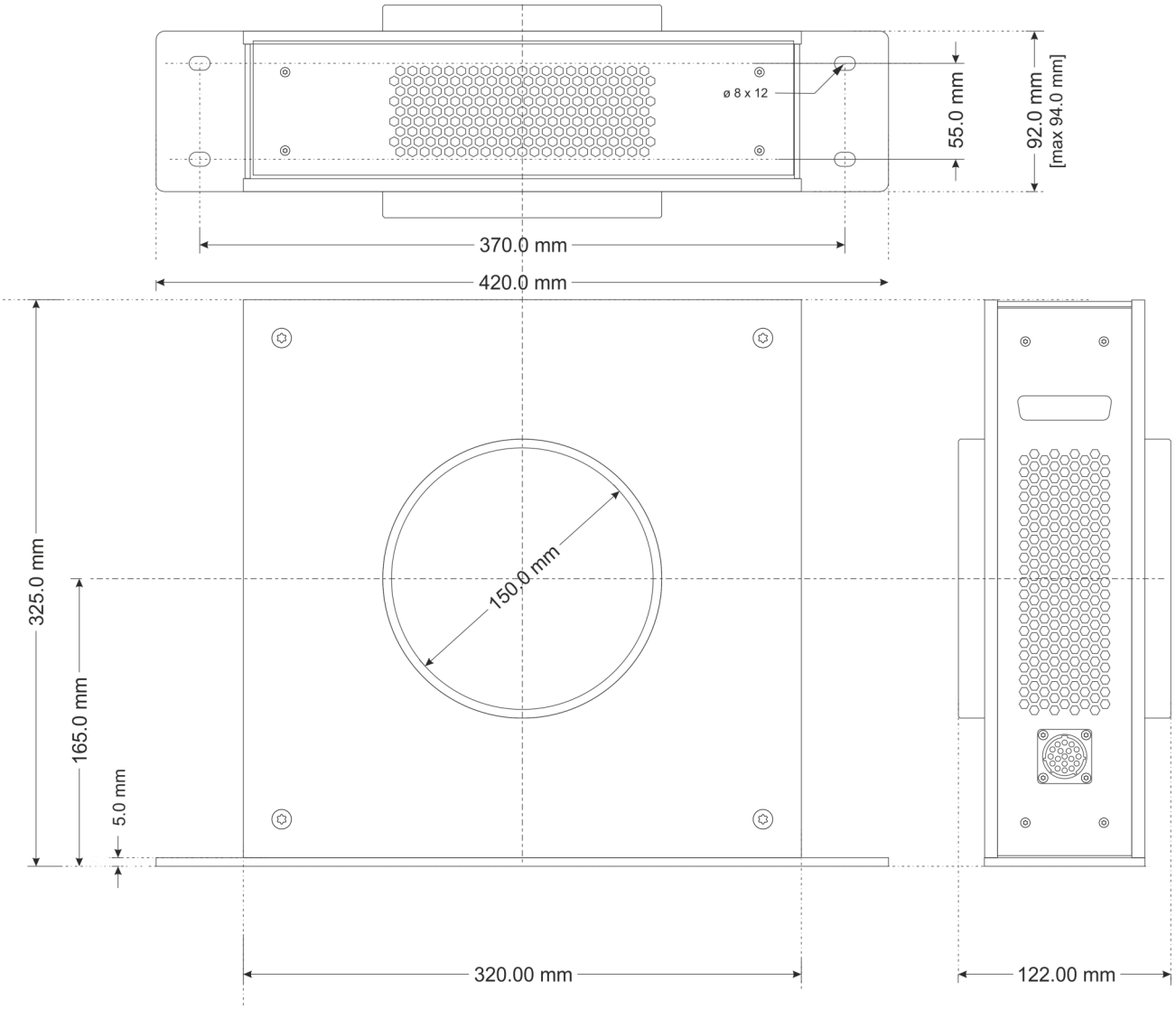
Remember always to connect all cables and power up the electronics before applying the primary current to be measured. Even though the ASPC does protect the transducer system from fault when everything is properly connected, it is advisable to ensure that the system is also powered before applying primary current.

Package content

- Sensor specific test report
- Frequency response DC to 100kHz
- Transducer head – 150mm
- 5m Cable
- 2U 19” Control unit with build in mains supply
- 4pcs Rack screw and nut for 19” mounting of Control unit
- 4pcs rubber feet for Control unit
- Mains cable (Region specific)

DS5000 Transducer Head Dimensions

General tolerances: ± 0.3



User Guide

Intended use:
The DS5000 is intended for measuring currents up to 8000A peak.

Instruction for use:

1. Do not power up the transducer system before all cables are connected
2. If the DS5000 is intended for desk use, mount the rubber feet which are part of the package. If the DS5000 is intended for Rack mounting, use the screw kit for mounting and do not mount the rubber feet
3. Connect a low impedance ampere meter, measuring resistor or power analyzer on the secondary output (4mm red and black connectors)
4. When all connection are secured - connect mains power

Indications:

1. When mains is applied a green light diode on the front next to symbol “POWER” will light green.
2. If the transducer is not tracking the primary signal the green “TRANSDUCER” diode will turn off. This is an indication of mal function or too high primary currents.

Safety Instructions:

Do not try to disassemble the transducer system

The Control Unit can be hot on the bottom side, up to 70°C, depending on usage and how it is mounted.

- Make sure that the unit is properly connected to earth ground.
- Do not block the ventilation openings on the side panels.
- If the fan does not operate properly contact Danisense for repair.
- If the “POWER” green diode is not working when mains is applied, disconnect power and contact Danisense for further instruction.

Typical connection: