

# DCT-700A

## DC Current Transducer

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### Main Advantages

- High Accuracy over high bandwidth.
- Very low output noise and offset drift.
- Negligible insertion losses.
- High immunity to interference.
- Overload Capability.
- Excellent linearity.

### Applications

- Precise and high stability inverters
- Energy measurements
- High Precision Power Supplies
- Feed back element in high performance gradient amplifiers for MRI
- Medical Equipment



### Electrical Parameters

Primary Current	0 to 700 A DC	$I_{pn}$
Measuring Range 10 Vin	$\pm 700$ A DC	$I_p$
Overload Condition	$\pm 2000$ A (100ms)	$I_{ov}$
Burden Resistor Range ( $I_p = 700A$ ) $V_{cc} = \pm 12V$	1 Ohm Min	$R_b$
Secondary Nominal Current	700 mA	$I_s$
Conversion Ratio	1:1000	N
Supply Voltage ( $\pm 10\%$ )	+ 10 to 30 VDC	$V_{cc}$
Current Consumption $V_{cc} = \pm 12V$	100 mA + $I_s$	$I_{cc}$

### Accuracy

Accuracy at $I_p T = 25^\circ C$	< 0.1%	
Linear Error ( Between 400 to 700 A ) $V_{cc} = \pm 12V, R_b = 1$ Ohm	< 5 ppm	$\epsilon_{LFR}$
Linear Error ( Between 150A to 400A ) $V_{cc} = \pm 12V, R_b = 5$ Ohm	< 10 ppm	$\epsilon_{LMR}$
Linear Error ( Between 0.1 to 150A ) $V_{cc} = \pm 12V, R_b = 20$ Ohm	< 100 ppm	$\epsilon_{LLR}$
Offset Current	5uA Max	$I_{os}$
Offset Current Temperature Drift	< 5 ppm/ $^\circ C$	$K_{Ios}$
Time Response ( 10% to 90% of $I_p$ )	< 1us	$T_R$
$di/dt$ Followed Accurately	> 100A/us	
Frequency Bandwidth ( $I_p = 10A$ DC )	DC to 100kHz ( -3dB )	$F_c$

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### Output Connector

Connector	DB-9 Standard Type ( Female )	
Fault Operation Condition ( Led Power OFF )	$I_p > 120\%$	
Maximum Switching Current ( pins 3 to 8 and pin 3 to 7 )	2A	
Maximum Switching Voltage ( pins 3 to 8 and pin 3 to 7 )	30 VDC/120 VAC	
Compensation Winding Maximum Resistance ( T = 50°C )	10 Ohm	R <sub>c</sub>
Lenght Two Wire Cable to R Burden ( Connected between pin 1 and 6 )	50 cm ( Typical)	

### General Data

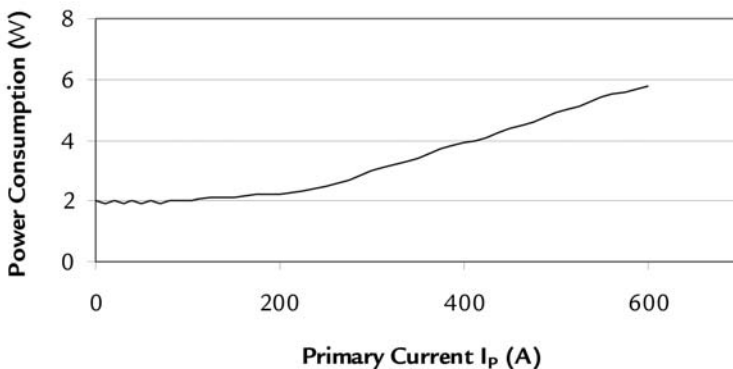
Operating Temperature	-20 to +70 °C	T <sub>A</sub>
Storage Temperature	-20 to +85 °C	T <sub>S</sub>
Weight	800 g	
Primary Diameter Hole	30 mm	
Basic Insulation (Between Primary and Measurement Current)	3500 V AC 50Hz 1'	V <sub>i</sub>

### According To

- UNE EN 50178
- UNE EN 50155

### Power Consumption Characteristics

Total Power Consumption Vs Primary Current



Power Consumption for full range measurements and nomi resistor = 1 Ohm.

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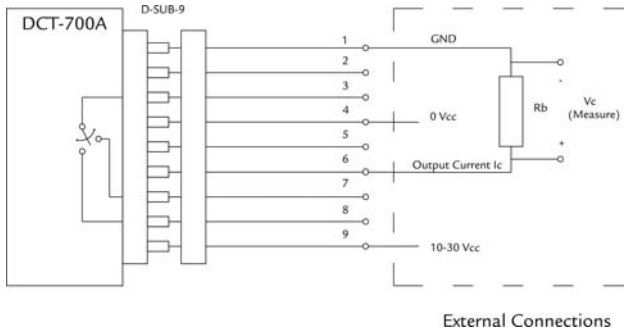
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### DCT-700A Installation

In the following picture we show as to connect the secondary side of current transducer.



Between the pins 3 and 8 the DCT have a normally closed switch while the measure is correct. In the same manner, DCT provide a normally open switch while the measure is correct between pins 3 and 7.

### D-SUB standard connector

The D-sub connection correspond to the next table.

#### 9-POLE D-SUB

- Pin 1 : Connected to GND internally
- Pin 2 : (For Factory use only)
- Pin 3 : Input to normally closed/open Switch
- Pin 4 : 0V
- Pin 5 : Earth connexion
- Pin 6 : Output Current + ( Current Direction F to B)
- Pin 7 : Output to normally open switch (1A DC MAX)
- Pin 8 : Output to normally closed switch (1A DC MAX)
- Pin 9 : Vcc

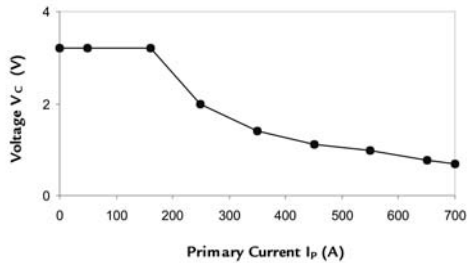
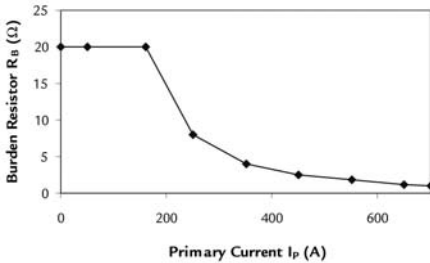
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### Burden resistor and voltage range

The burden resistor ( $R_b$  in the picture) must be changed in function of the primary current. The values of  $R$  burden and maximum voltage generate are showed below. Premo advice to use this values (at least approximately) to ensure a good response of the transducer in terms of accuracy, linearity and power consumption.



These values are recommended for a resistances that can dissipate 0,5W.

### Dimensions

