

# DCT-400A

## DC Current Transducer

### 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 400 A DC	$I_{pn}$
Measuring Range $\pm 15V_{cc}$	$\pm 400$ A DC	$I_p$
Overload Condition	$\pm 2000$ A (100ms)	$I_{ov}$
Burden Resistor Range ( $I_p = 400A$ ) $V_{cc} = \pm 15V$	1.8 Ohm Min	$R_b$
Secondary Nominal Current	400 mA	$I_s$
Conversion Ratio	1:1000	N
Supply Voltage ( $\pm 10\%$ )	$\pm 12$ to 15 VDC	$V_{cc}$
Current Consumption $V_{cc} = \pm 15V$	80 mA + $I_s$	$I_{cc}$

### Accuracy

Accuracy at $I_p T = 25^\circ C$	< 0.1%	
Linear Error ( Between 100 to 400 A ) $V_{cc} = \pm 15V, R_b = 1.8$ Ohm	< 5 ppm	$\epsilon_{LFR}$
Linear Error ( Between 10A to 100A ) $V_{cc} = \pm 15V, R_b = 10$ Ohm	< 10 ppm	$\epsilon_{LMR}$
Linear Error ( Between 0.1 to 10A ) $V_{cc} = \pm 15V, R_b = 33$ Ohm	< 50 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 Inputs Connector Information

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 )	30 Ohm	R <sub>c</sub>
Lenght Two Wire Cable to R Burden ( Connected between pin 1 and 6 )	50 cm ( Typical)	

### General Data

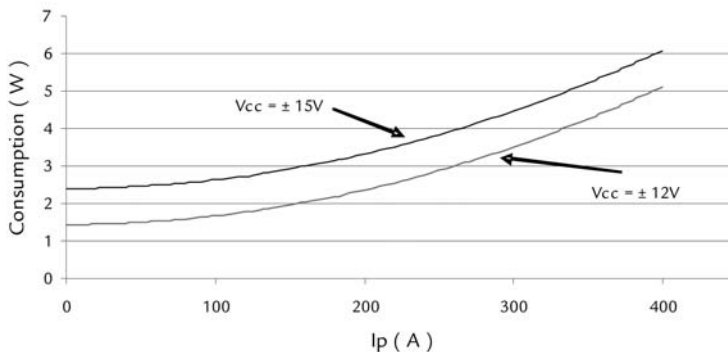
Operating Temperature	-20 to +70 °C	T <sub>A</sub>
Storage Temperature	-20 to +85 °C	T <sub>S</sub>
Weight	400 g	
Primary Diameter Hole	25 mm	
Basic Insulation (Between Primary and Measurement Current)	3500 V AC 50Hz 1'	V <sub>i</sub>

### According To

- UNE EN 50178
- UNE EN 50155

### Power Consumption Characteristics

Total Consumption Vs Primary Current



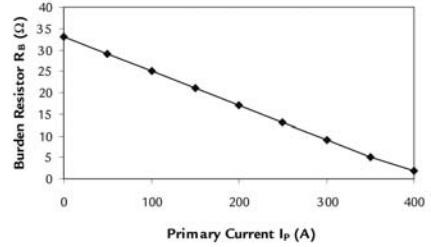
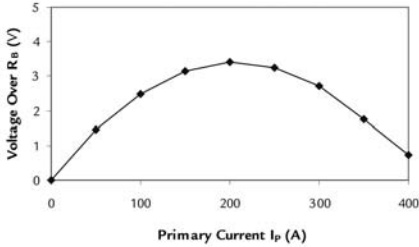
Current Consumption for full range measurements and nominal conditions.  
Burden resistor 1.8 Ohm.

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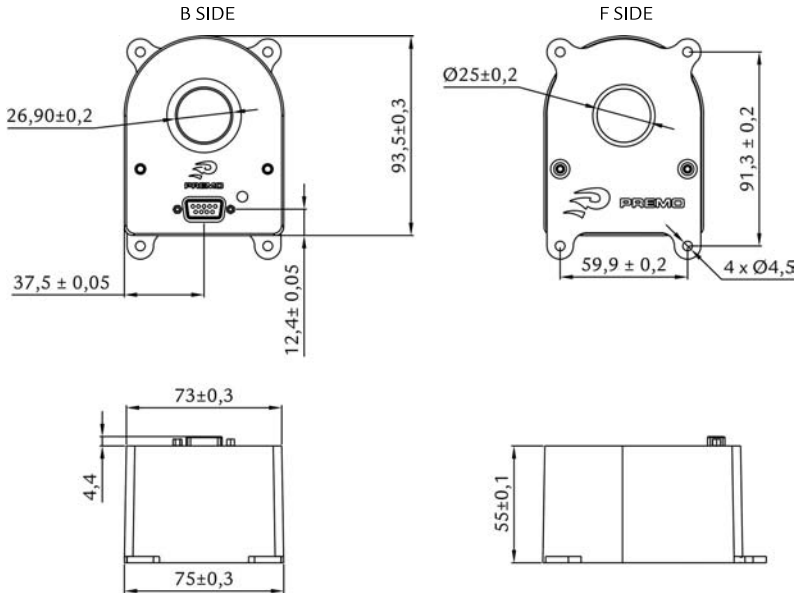
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### Burden resistor and voltage range

The burden resistor can be changed in function of the primary current. Premo advice to use this graph in order to get the best measurements, in terms of accuracy and linearity for each current range expected in the primary side. The values of R burden and maximum voltage generated are showed below.



### Dimensions

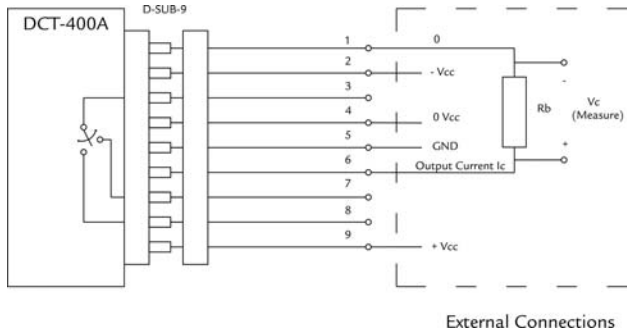


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### DCT-400A Installation

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 0V internally
- Pin 2 : - Vcc Supply
- Pin 3 : Input to normally closed/open Switch
- Pin 4 : 0V
- Pin 5 : Earth connexion ( GND )
- 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 Supply