

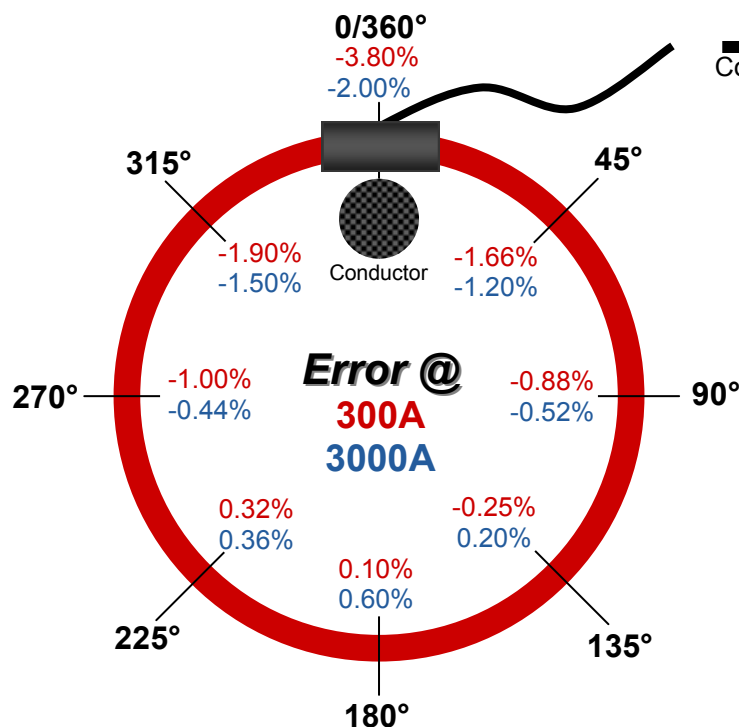
# APPLICATION NOTE

## Optimizing Performance from Rogowski Coil CTs

Flexible Rogowski Coils, such as the DENT Instruments 300A/3000A Flexible Current Transformer, are designed for easy placement around cable bundles, large bus bars and breaker panels. The position of the conductor in relation to the CT connector effects the overall accuracy of the CT readings. This application note shows optimal Flex Coil CT placement when installing around a conductor.

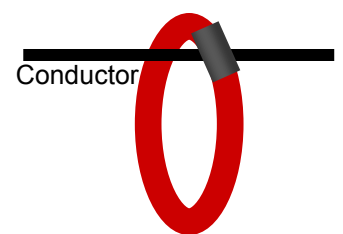
CT accuracy is usually calibrated with the conductor centered in the CT window. In practice the CT hangs on the conductor, as shown in figures 1 and 2, which can introduce measurement errors. Note that the error is greatest when the CT connector hangs on the conductor.

**Figure 1.** Diagram shows percentage error resulting from position of conductor inside coil for both 300A (red) and 3000A (blue) mode.



DENT's CT-FLN-3000-U 36-inch Dual-Range Rogowski Coil Current Transformers offer flexibility of installation over a wide current range for a variety of conductors.

**Figure 2.** Side view of conductor passing through a flexible CT coil.



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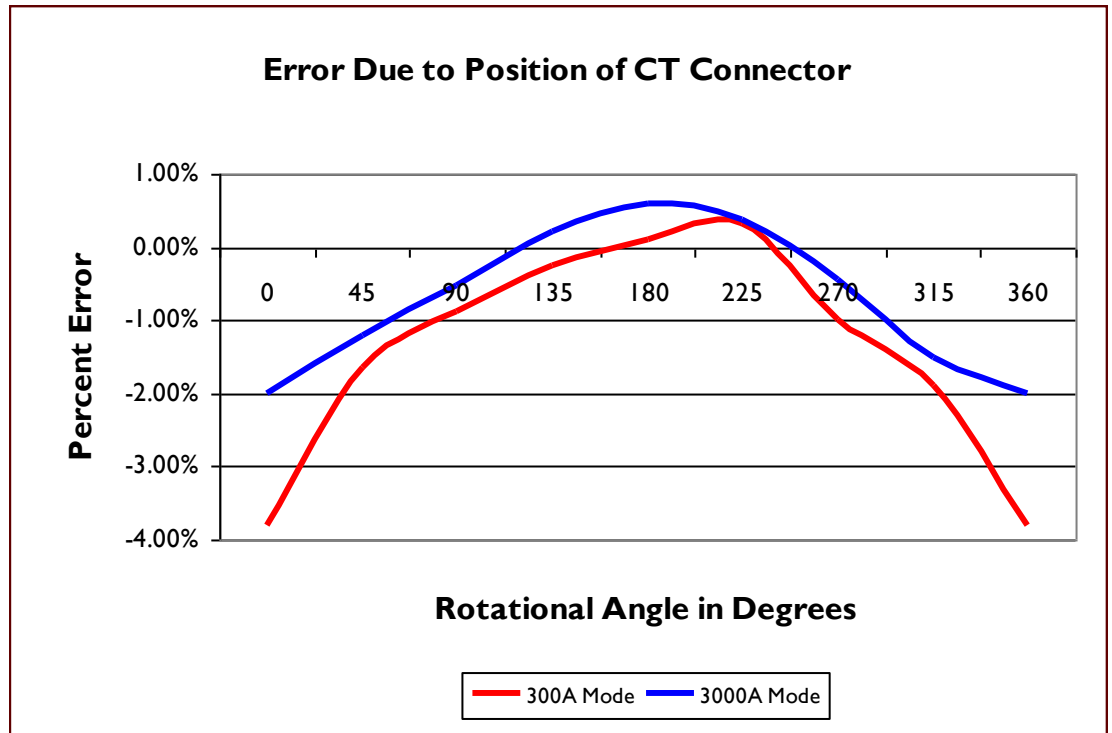
64 NW Franklin Avenue  
Bend, Oregon 97701 USA  
541 388 4774  
800 388 0770  
541 385 9333 fax  
www.DENTinstruments.com

**Table I.** Percentage error measured as function of position of conductor inside coil for both 300A (red) and 3000A (blue)

Reference	Position in Degrees	Mode: 300A or 3000A	FLEX CT Output		Transformer Error %	Phase Error Degrees
			AMPS	mVAC		
150.05A	0/360	300A	144.32A	160.20mV	-3.80%	0.51
299.50A	0/360	3000A	293.74A	32.605mV	-2.00%	0.52
150.02A	45	300A	147.54A	163.77mV	-1.66%	0.53
300.20A	45	3000A	295.50A	32.80mV	-1.20%	0.39
150.05A	90	300A	148.73A	165.09mV	-0.88%	0.52
300.10A	90	3000A	298.56A	33.14mV	-0.52%	0.39
150.00A	135	300A	148.65A	165.00mV	-0.25%	0.52
300.74A	135	3000A	300.57A	33.636mV	-0.20%	0.43
150.01A	180	300A	150.15A	166.67mV	0.10%	0.57
300.20A	180	3000A	300.36A	33.34mV	0.60%	0.48
150.02A	225	300A	150.50A	167.05mV	0.32%	0.56
299.94A	225	3000A	301.02A	33.413mV	0.36%	0.5
150.00A	270	300A	146.74A	162.89mV	-1.00%	0.52
300.70A	270	3000A	299.39A	33.232mV	-0.44%	0.41
150.03A	315	300A	147.18A	163.37mV	-1.90%	0.53
300.12A	315	3000A	298.02A	33.08mV	-1.50%	0.34

Note: CT connector is the 0/360 degree position.

**Chart I.** Relative positioning error of conductor inside CT coil.



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