PERFORMANCE UPDATE

DENT INSTRUMENTS

Optimizing Performance from Rogowski Coil Current Transformers

Rev073112

Overview

Flexible Rogowski Coils, such as the DENT RoCoil™ or RoCoil mV™, are designed for easy placement around cable bundles, large buss bars, and breaker panels. The position of the conductor in relation to the CT connector effects the overall accuracy of the CT readings. This Performance Update shows optimal RoCoil CT placement when installing around a conductor.

Current Transformer 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.

DENT's RoCoil Current Transformers. 16", 24", and 36" lengths pictured.

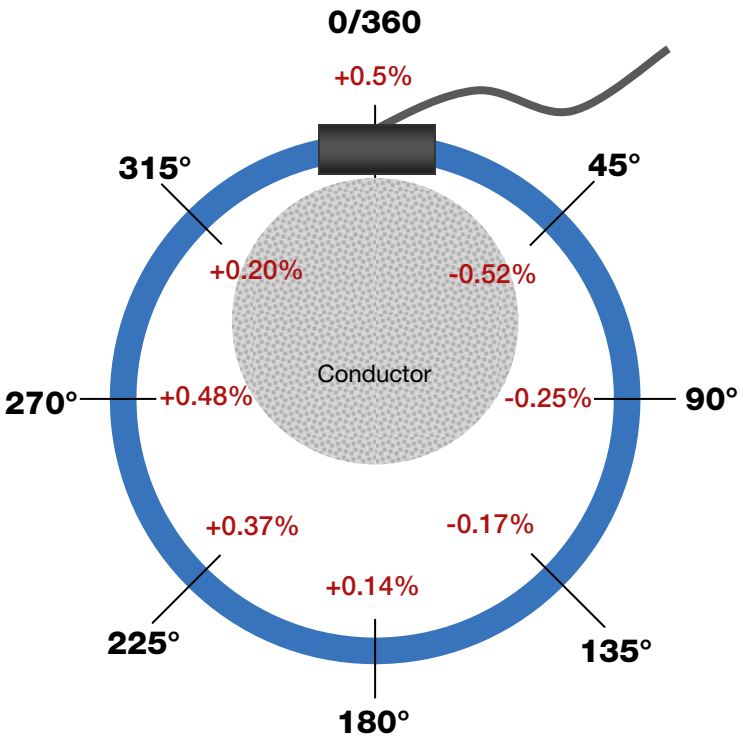

Figure 1. Diagram shows percentage error resulting from position of conductor inside coil for 36" RoCoil CT.

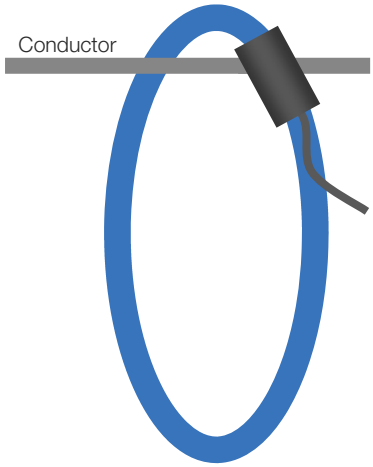

Figure 2. Side view of conductor passing through a RoCoil CT.

DENT INSTRUMENTS | 925 SW EMKAY DRIVE | BEND, OREGON 97702
P 541.388.4774 | 800.388.0770 | F 541.385.9333 | WWW.DENTINSTRUMENTS.COM

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RoCoil Error and Phase Test

Reference	Position in Degrees	Output in Amps	RoCoil Error %	RoCoil Phase Error	Normalized to Center
986.6	0	985.4	-0.12%	0.26	0.51%
986.6	45	995.5	0.90%	0.28	-0.51%
986.6	90	992.84	0.63%	0.27	-0.24%
986.6	135	992.04	0.55%	0.25	-0.16%
986.6	180	988.96	0.24%	0.27	0.15%
986.6	225	986.7	0.01%	0.26	0.38%
986.6	270	985.58	-0.10%	0.25	0.49%
986.6	315	988.35	0.18%	0.26	0.21%
986.6	center	990.43	0.39%	0.25	0.00%

Table 1. Percentage error measured as function of position of conductor inside coil for 36” RoCoil CT. Note that the conductor is at the 0/360 degree position.