

Re: Current transformer compensation idea

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From: Martin Schöneegg (martin.schoenegg#und_hier_ist_klar_was_hinkommt#_at_arcor.de)

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Hi analog,

whats about LEM? They compensate their cores to zero. DC and low frequencies with a hall sensor and higher frequencies inductive. See their literature for details.

MArtin

"analog" <analog@ieee.org> schrieb im Newsbeitrag
news:41069E2C.264B21F8@ieee.org...

| A typical current transformer may have a one turn primary and
| a hundred or more secondary turns. The secondary is normally
| terminated into a small resistor (possibly through diodes)
| such that the core must support a small ac flux excursion.
| With secondary signals in the volt range, the primary voltage
| burden is minimal, usually a few millivolts.

| Although dc drift may be a problem for some configurations,
| a typical current transformer rarely comes anywhere close to
| saturation during normal operation. In spite of this,
| inductive signal droop may be a problem in high fidelity
| applications (magnetizing current is typically very non
| linear).

| I have been toying with the idea of using active circuitry to
| minimize magnetizing current. My first idea was to arrange
| the current transformer to drive the summing junction of an
| opamp rather than terminating it into a small resistor. This
| would tend to keep the voltage across the CT's secondary at
| zero, which would be a noticeable improvement over the
| standard arrangement.

| However, this would still leave the voltage burden from the
| sense current flowing through the CT's winding resistance.
| Even this could be largely nulled out by actively driving the
| "grounded" end of the current transformer with a feed forward
| signal proportional to current appropriately scaled just to
| equal the drop developed on the internal winding resistance.

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| Okay, I have never built this circuit and don't have a real
| application for it, but the simulator says all works great.
| What I am wondering is whether anyone has used or seen such
| a technique before or could imagine a situation where such a
| circuit might prove useful. Note that this technique does not
| eliminate the dc saturation problem (although it does make the
| CT's core "look" much bigger). Comments or further ideas?
|
| analog