User-programmable HO current transducers launched at PCIM

ECN Europe

LEM [1] has announced the HO series of current transducers at PCIM in Nuremberg earlier this week. The HO series of open-loop ASIC based current transducers deliver improved performance in areas such as thermal drift, response time, power supply and noise driven by technology advances in power electronics applications.

[2]LEM’s HO series are open-loop devices, based on Hall-effect current sensing technology, that measure AC, DC or pulsed currents with a nominal value of 8, 15 or 25 ARMS, with a response time of 2 to 6 µsec. Both of these parameters, and several others, are user-programmable by a simple serial digital bit-sequence, generated by the system’s host microcontroller. Other parameters that are user-programmable include reference voltage, over-current detection limits, fault reporting and low power mode.

The HO series delivers its output as a scaled analogue voltage; in most systems this will be converted to a digital value by an analogue/digital converter (ADC) which requires a reference voltage. The designer can program the LEM HO-series transducer to output a reference of 0.5, 1.5, 1.65 or 2.5V on a dedicated pin. Alternatively, the HO-series can be configured to make measurements relative to an external reference.

For the HO models, LEM designed a completely new ASIC. The HO provides offset and gain drift figures twice as good (over the temperature range -25 to +85ºC) as previous-generation open-loop Hall-effect-ASIC based transducers. It achieves a typical accuracy of 1% and 2.8%, at +25°C and +85°, respectively, without offset, and with a high level of insulation between primary and measurement circuits.

An innovative feature of the HO series is programmable over-current detection,

separate from the main current measurement. Using a single measurement range (for both detection and measuring functions), if the transducer must detect an over-current condition at (say) five times the nominal full-scale value, the measurement range must extend up to the over-current limit, reducing available accuracy within the nominal range. Separate over-current detection, with programmable threshold, ensures maximum resolution is maintained up to the nominal full-scale value.

LEM's HO-series transducer operates from a single supply voltage at 3.3 or 5V. It occupies a PCB-mountable, small (12 mm wide x 23 mm long x 12 mm high), lightweight (5g) package which incorporates three separate primary conductors to allow for multi-range measurement configurations (enabling nominal measurement as low as 2.67 ARMS when programmed at 8 ARMS for the nominal range). Versions of the HO-series transducers will be available for both through-hole and surface-mount assembly. The construction provides long creepage and clearance distances (8 mm) and a CTI (comparative tracking index) of 600 for excellent insulation.

Links:
[1] http://www.lem.com
[2] http://ecneurope.files.wordpress.com/2012/05/110512-lem.jpg