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Fougere

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(54) **HYBRID CONDUCTIVITY SENSOR**

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CPC ***G01N 27/06*** (2013.01); ***G01N 9/00*** (2013.01); ***G01N 27/02*** (2013.01); ***G01N 33/18*** (2013.01)

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(57) **ABSTRACT**

A sensor for measuring conductivity of a fluid containing dissolved ions, particularly for measuring conductivity of salt water, features a cylindrical tube (**57**) of poorly conductive material such as glass, a first electrode (**51**A) and a second electrode (**51**B) inside the tube, connected together (**56**) to maintain a common electrical potential, a first transformer (**52**,**53**) concentrically arranged around the tube (**57**) to drive current through the fluid in the tube, and a second transformer (**54**, **55**) arranged to sense a value of the current flowing in the fluid, and a digital processing circuit (**62**) coupled to receive an output signal of the second transformer, and to derive therefrom a value representing the conductivity of the fluid. The sensor is adapted to be towed behind a research ship, or to be deployed on an autonomous underwater vehicle (AUV) or the like. Current signals are preferably processed by digital switching measurement technology (dMST).

10 Claims, 12 Drawing Sheets