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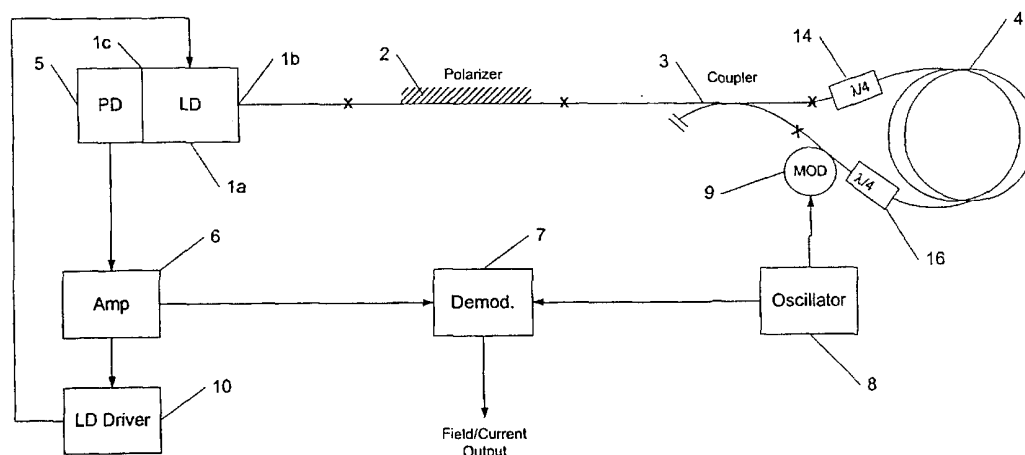
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(54) Title: **FASER OPTIC CURRENT SENSOR**



(57) **Abstract:** A reduced minimum configuration (RMC) fiber optic current sensor (FOCS) is proposed which includes a sensing coil or sensing region, a light source and an optical path arranged between the front output of the light source and the fiber optic sensing coil/region. At least one quarter wave plate is disposed between the optical path and the sensing coil/region for converting linearly polarized light beams into circularly polarized light beams propagating through the sensing coil/region. The circularly polarized light beams propagating through the sensing region experience a differential phase shift caused by a magnetic field or current flowing in a conductor proximate to the sensing coil. A light detector is located at the back output of the light source and produces an output signal in response to return light intensity transmitted through the light source. The return light intensity is a measure of the magnetic field in the sensor coil/region. The magnetic field may be produced by an electric current flowing through a wire, wherein the sensor coil can be wound around the wire. Electronics is described which minimizes effects caused by changes in the environmental conditions.

INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01R15/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 856 737 A (ABB RESEARCH) 5 August 1998 (1998-08-05)	1-4
A	column 3, line 28 -column 4, line 35; figures 1,4	8-10
Y	US 4 571 650 A (OJIMA ET AL.) 18 February 1986 (1986-02-18) column 4, line 64 -column 6, line 55; claims 4,5; figures 4,5	1-4, 13-16
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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O document referring to an oral disclosure, use, exhibition or other means

P document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	SHORT S X ET AL: "ELIMINATION OF BIREFRINGENCE INDUCED SCALE FACTOR ERRORS IN THE IN-LINE SAGNAC INTERFEROMETER CURRENT SENSOR" JOURNAL OF LIGHTWAVE TECHNOLOGY,US,IEEE. NEW YORK, vol. 16, no. 10, 1 October 1998 (1998-10-01), pages 1844-1850, XP000793320 ISSN: 0733-8724	13-16
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