

NEWS RELEASE

PR 1305E

ALPS Develops Force Reactor™ AF Series

Short-Vibration Feedback Device Utilizing Proprietary Electromagnetic Drive System

Duesseldorf, Germany, June 27, 2005 – To improve the operability of electronic product, Alps developed Force Reactor™ AF Series short-vibration feedback devices, which generate an array of vibration settings. This is the first device in the industry that generates various short vibration through an electromagnetic drive system.

Many electronic components such as mobile phones and car navigation systems are equipped with an increasing number of touch panels, input sensor devices and other equipment that are operated by the touch of a fingertip. These kinds of devices require visual confirmation of input. Recently, however, demand is rising for vibration, clicking and other sensory functions at the fingertips to indicate to users that their input has been properly accomplished.

Until now, in order to generate vibration, eccentric vibration motors such as those driving mobile phone vibration functions, piezoelectric devices and other devices have been used. To make an array of vibration settings responsive to diverse input and tactile sensations possible, rapid vibration responsiveness is required. In eccentric vibration motors, however, because vibration time is proportional to motor revolution, vibration time is relatively long, and generating diverse vibration settings and rapid responsiveness is difficult. Piezoelectric devices only generate pulse vibrations and they require high-voltage, making them unsuitable for installation in mobile phones and other devices.

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Alps is first in the industry to develop a vibration device that utilizes its proprietary magnetic circuitry to drive an oscillator supported by a spring. Alps achieved this by applying actuator technology cultivated in the development of floppy disc drives. By using magnetism and spring tension for vibration control, balance is created and short-vibration is accomplished, thereby enabling a variety of vibrations.

Moreover, with a two-type lineup equipped with vibration strengths of 0.8G and 1.9G respectively, we are able to offer a choice of the desired size and vibration power according to each component.

Alps developed this product as one in its group of machine-to-machine interface concept products, which are designed to link devices at an advanced level of integration. Results of user actions are relayed back as tactile sensations (force feedback), and users are provided with certain status of their input. In car navigation systems, being able to carry out input without sight improves safety during driving time and contributes to universal product design.

Features

Development of a short vibration feedback device that utilizes proprietary electromagnetic drive system

- 1) Through an electromagnetic drive system, more rapid responsiveness and a wider array of vibration settings than eccentric vibration motors are achieved
- 2) Vibration strength 0.8G and 1.9G two-type lineup
- 3) Force feedback vibration enables certainty of input and universal product design

Principal Applications

Feedback for touch panels and electrostatic input sensors used in mobile phones, mobile information devices, mobile audio, car navigation systems and other devices

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Specifications

Product name	AF Series	
Type	L Type	S Type
Dimensions (W x L x H)	7.5mm x 35.0mm x 5.0mm	3.0mm x 25.0mm x 2.5mm
Ratings voltage	3.3-5V	3.3V
Time of applied voltage	2 pulse /1.5ms	3 pulse /1.1ms
Peak current	120mA	82.5mA
Driving current	60mA	41.3mA
Exciting force	18.6 (1.9)m/s ² (G)□	7.8(0.8) m/s ² (G)
DC resistance	27.5Ω	40Ω
Weight	5.1g	0.8g

*in 100g case

For more information on the AF series please visit http://www3.alps.co.jp/npv_pdf/05-0006_forcereactor_E.pdf

This News Release and a Press Photo are electronically available under <http://www.presseagentur.com/alps/en/>



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ALPS Electric Co., Ltd.

Since its establishment in 1948 ALPS has grown as a comprehensive manufacturer of electronic components. At present ALPS is creating innovative high-value-added products in its main business segments – Components, Magnetic Devices, Communications, Peripheral Products, and Automotive Electronics – which are contributing to the advance of a digital society. ALPS is a global company that carries out its operations with 23 production bases in 8 countries as well as 60 sales bases in 13 countries.

ALPS Electric Europa GmbH, a subsidiary of ALPS Electric Co., Ltd., was established in 1979. Since 1989 the European Head Office is located in Düsseldorf. A team of specialists is working here in Sales, Marketing, and Product Engineering. From Düsseldorf the activities of our branch offices in Munich, Paris, Milton Keynes and the European distribution are co-ordinated. ALPS Nordic AB, a 100 percent subsidiary of ALPS Electric Europa GmbH, located in Sweden, is servicing the Scandinavian market.

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