LVDTs Ensure Proper Currency Dispensing in ATM Machine

Macro Sensors' PR 750 Series of 3/4 inch (19 mm) diameter AC-operated LVDTs are serving as measurement feedback devices in the paper bill detector of automated teller machines (ATMs) to ensure proper currency dispensing. In an ATM, these linear position sensors are used to measure the separation of a pair of rollers, whereby bills passing between the rollers displace the LVDT core. As the bills pass between the rollers, the LVDT output changes according to their thickness. As a typical bill measures 0.0003" (0.0075mm) thick, the LVDT will detect any derivation should two or more bills get stuck together. As the ATM can be used hundreds of times during the course of a day, the repeatability and reliability of the linear position sensor are of key importance. Since there is no contact between the LVDT core and coil of the PR Series, there is no friction to cause inaccuracy or part of the LVDT to wear out during the service life of the ATM. To account for any dirt accumulation on the rollers, a sample readout is made for one complete revolution. Any zero-offset value is stored and, then, compared against the LVDT output as the customer's currency is measured. This eliminates the risk of passing an unexpected number of bills, while at the same time compensates for any variation of the roller surfaces.

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