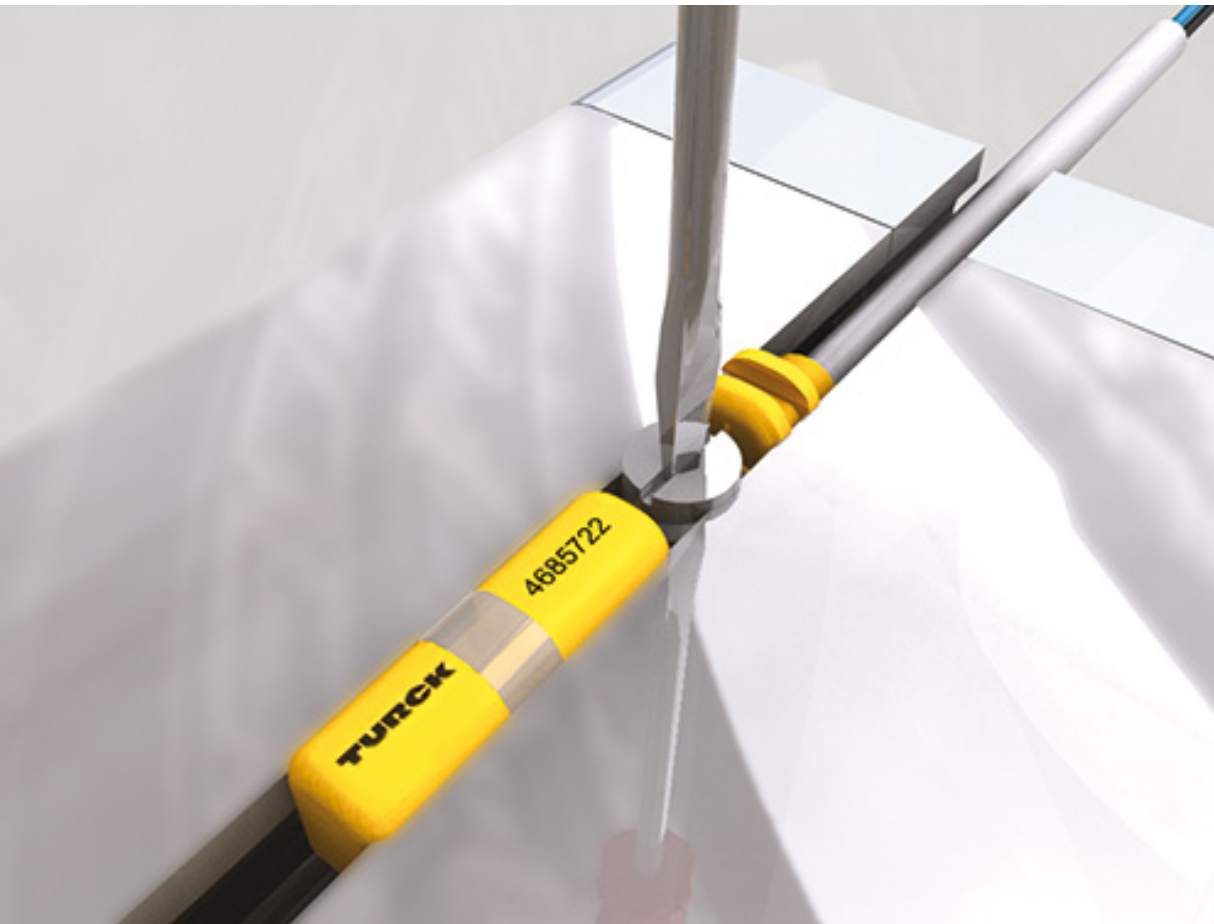


Safe detection of pistons in pneumatic cylinders

New magnetic field sensors from Turck guarantee simple single-hand mounting and a vibration-free seat

Magnet field sensors for detection of piston positions in pneumatic cylinders are standard in industrial automation. They are purchased, installed and then usually quickly forgotten. But woe betide if a sensor is poorly adjusted or comes loose in its mounting. Then the machine comes to a standstill – and often the entire production line. The new magnetic field sensor family BIM-UNT from Turck helps here.



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The cheapest method for detection of pneumatic cylinders up to now was without a doubt the use of reed switches. The attractive price was the only advantage that these switches could show compared to fully electronic sensors. The electronic sensors have tangible advantages such as they are bounce-free, wear-free due to the absence of moving parts, the contacts do not stick, there is no increase in the transfer resistances, no multiple switch points, etc. Electronic switches are based on different function principles such as the Hall effect, the magneto-resistive effect or the saturable-core effect.. Based on its design you can assume that the electronic cylinder switch will reliably perform its service in all its applications over a very long period.

Same price level as reed switches

Turck can now eliminate the last positive aspects of reed contacts with the BIM-UNT-AP7X which celebrated its premiere at the Motek. With a comparable price level to reed contacts this new member of the magnetic sensor family offers all the benefits of fully-electronic switches. The new contender in the field should be particularly interesting to machine manufacturers and OEMs. The maximum operating current of 50 mA is sufficient for most applications.

There are further models available in the BIM-UNT family for higher operating currents or other qualifications, which correspond with the particular demands in terms of pneumatic cylinder sensors: small construction designs, robust housing, flexible attachment features as well as minimum installation effort. – possibly all from a single source. Turck developers designed the new generation of T-groove cylinder sensors according to these specifications in close contact with users.

The inadequacies of the previous variants have been ironed out in the new generation. The first generation of the so-called groove sensors had to be pushed into the grooves from the side. The sensors were relatively robust but are very inflexible in terms of handling, which made the mounting process very elaborate. There were always problems, in particular when fitting to cylinders which are already mounted, if the grooves are not accessible from the side. The following generation types – which could be inserted into the groove from above – were much more flexible but the stability usually suffered as a result, as the first attachment systems could only be fixed to one position on the sensor or were under-dimensioned.

Quick single-hand mounting

The BIM-UNT sensors on the other hand can be mounted “with a flick of the wrist”. They disappear almost completely into the groove when mounted. It is no longer necessary to consider troublesome fittings, in particular with small cylinder designs and especially in tight spaces. A pre-fixation lip enables mounting in the groove using just one hand. The sensor can be adjusted afterwards and then finally fixed against possible vibration with the fixing screw.

The fixing screw has been positioned in the vicinity of the cable exit which safely prevents the sensor from moving if the cable is pulled. The attachment of the sensor in the T-groove is undertaken by a new wing screw made of a robust tool steel alloy, that is extremely stable and which permanently pushes the sensor down into the groove with just a quarter turn. The fixing screw can be fixed using a flat-bladed screwdriver or a 1.5mm Allen key.

Highly compact sensor family

With total length of just 28 mm the BIM-UNT is one of the most compact sensors on the market. The active face is directly on the end of the sensor and thus enables safe detection of the piston position right up to the end positions even on compact short-stroke cylinders. The very bright LED which is visible from all sides supports a quick and simple adjustment as the switching state is recognizable on-site at all times. A comprehensive range of accessories is available for the BIM-UNT. These include:

- Mounting accessories for mounting of other cylinder types (profile cylinders, tie-rod cylinders, round cylinders, dovetail cylinders)
- Adjustable accessories for fine adjustment of the switch-points, can be clipped on
- Fixing accessories for supplementary mounting and for subsequent relocation of the switch point
- Cable attachment clip for safe cable laying

Also: The new BIM-UNT goes beyond the strict demands of the currently valid version of the EN 60947-5-2, and is compliant with the new draft version in terms of the higher demands (for tests compliant to EN 61000-4-6 “cable borne sources of interference”). The new version will soon replace the current product standard for proximity switches.

Conclusion

With the new BIM-UNT, Turck has developed a magnetic field sensor for pneumatic cylinders which provides the users with a noticeable saving in time thanks to the simple one-handed installation and LED display. The excellent EMC properties and a permanent vibration-proof attachment guarantee a high degree of system availability. Efficient standardization is also possible as only one sensor type is required to detect all types of cylinder designs. Thus, significant savings can be made in ordering and storage – a fact which is becoming more important in today’s conventional method of examining the lifecycle costs of a machine or system.

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Large family

Turck customers can directly serve their individual demands using variants of the BIM-UNT basic model. In addition to the standard model with cable exit there are now variants with direct M8/M12 plug-in connections available. Furthermore, a double solution with two sensors on an M12 plug-in connection is available, which significantly saves time and expense involved in cabling. As an attractively-priced alternative to magnetic field sensors with reed contacts, Turck also offers the wear-free BIM-UNT-AP7X. A Namur version for use in the explosion-hazardous area will shortly round off the product family.