

# Intelligent Fault Protection between Segment and Field

FieldConnex® Device Couplers with Diagnostics-Enabled Functions

## At a Glance

- Typical faults (including brief, dynamic faults) are detected and isolated
- Availability of the fieldbus installation is increased
- Faults are displayed using LEDs on the junction box itself and in the control room via fieldbus diagnostics
- “Plug and protect” principle: easy to install, no configuration required



## The Application

If, for example, a cable is pulled through the cable gland when replacing a device during ongoing operation, this may cause a short circuit bounce. If these highly dynamic electrical faults occur only very briefly, then only individual fieldbus telegrams will be affected—as the repetition of the data transfer is defined in the protocol, a fault of this kind has no consequences. However, if the bounce continues over a longer period, communication errors may occur in multiple devices. In the worst case scenario, faults of this kind can cause the entire system to be switched off inadvertently.

## The Goal

The fieldbus installation must be protected against many typical faults, even if such faults occur only sporadically. These are the kinds of faults that often occur in practice as a part of maintenance work carried out during ongoing operation.

## The Solution

FieldConnex® Segment Protectors and FieldBarriers are state-of-the-art device couplers for connecting field devices to a segment. They detect the special dynamics of signals caused by contact bounce, loose contacts, or vibrating systems and can differentiate between them and regular fieldbus signals. The affected output is temporarily switched off in order to protect fieldbus communications against faults.

## The Benefits

In addition to the faults described above, there are other typical fault scenarios that may occur in any fieldbus installation, such as a slow change in the signal level caused by ingress of moisture. Device couplers from Pepperl+Fuchs ensure that the system is protected against a wide range of such faults and remains in operation. This means that any carelessness during maintenance work on the installation does not have a negative impact on the operation of the system, ensuring that employees who are less familiar with fieldbus are unlikely to cause any serious faults.

## Special Features

Device couplers measure the quality of the signal transmission at each spur. If the signal quality at a spur becomes worse, this is indicated by LEDs on the junction box itself. A message is sent to the diagnostic software in the control room via the Advanced Diagnostic Module (ADM).

Device couplers from Pepperl+Fuchs operate entirely independently and with no configuration required. Installation is therefore just as simple as replacement, in accordance with the “plug and protect” principle.

