

Monitoring the Physical Layer at Every Spur

The FieldConnex® FieldBarrier with Diagnostic Capability

At a Glance

- Even difficult-to-trace, temporary faults are detected and isolated, increasing segment availability considerably
- For the first time, it is possible to monitor the physical layer at each FieldBarrier output
- Faults are indicated using LEDs on the junction box itself and in the control room via the Advanced Diagnostic Module
- Easy to install, no configuration required: plug and protect



The Application

Fieldbus installations are exceptionally robust and are characterized by their high level of reliability. However, there are factors that can negatively influence transmission quality. In industries such as oil and gas, petrochemicals, chemicals, and pharmaceuticals, aggressive gases may be generated. Furthermore, in foods and pharmaceutical applications electrical installations are exposed to the use of highpressure cleaners and steam cleaners. Terminals or seals that allow the ingress of moisture can become possible weak spots over time.

FieldConnex FieldBarriers detect such longterm changes in the physical layer before the transmission quality is impacted. The device couplers include a fieldbus diagnostics feature at every output to monitor the spur's signal quality, enabling measurements to be taken behind the galvanic isolator for the first time.

The Goal

Faults (or a deterioration in quality) are detected at an early stage through continuous monitoring of the signal quality at each spur. This allows quick interventions to be made in a targeted manner and ensures effective prevention of malfunctions.

The Benefits

FieldConnex FieldBarriers that monitor the physical layer at every output enable rapid, proactive interventions to be made in the event of a deterioration in the signal quality. This can prevent segment failures and standstills and the availability of the plant can be increased considerably.

The Solution

FieldConnex FieldBarriers from Pepperl+Fuchs are state-of-the-art device couplers for connecting field devices to the segment. They are equipped with a field diagnostics feature at every output and continuously monitor the signal quality at the connection between the field device and spur.

These device couplers provide reliable and early detection of gradual changes in the installation. LEDs light up at the affected location as soon as the quality returns to a non-tolerable level. In combination with the Advanced Diagnostic Module (ADM) that monitors the trunk, the diagnostic information is sent to the control room.

Special Features

FieldBarriers from Pepperl+Fuchs work entirely independently and with no configuration required. As a result, their installation is incredibly simple: plug and protect. A further feature is the sophisticated FieldBarrier load management function.

The outputs start sequentially – this reduces the load arising from the inrush current. If the segment current reaches critical values, less critical nodes will not be approached.

During ongoing operation, automatic load-shedding occurs in order to protect against failure of the entire segment.

