

# Communication Redundancy for Uninterrupted Operation

LB/FB Remote I/O Systems  
with Redundant Gateways and  
Power Supplies

## At a Glance

- Redundant design ensures continuous operation even in the event of a fault
- Separate redundancy for power supply and communication
- Automatic fault detection facilitates targeted servicing



## The Application

Signal transmission between the field level and the control system must function properly for a plant to operate smoothly and safely. A fault in this communication can cause plant parts to fail and production to be interrupted. In addition to lost production, this can lead to significant follow-up costs due to restarting the plant.

## The Goal

Redundant LB and FB remote I/O systems should ensure continuous power supply and communication, even in the event of faults affecting individual components. Such faults should be detected and reported, but the equipment should remain available. Automatically generated status messages are designed to help the maintenance team perform targeted maintenance. In many cases, time-consuming troubleshooting is no longer necessary.



LB System



FB System

## The Solution

The key components of the LB/FB remote I/O systems from Pepperl+Fuchs offer a redundant configuration. They ensure continuous power supply and communication. The gateway and the power supply are housed in separate components, facilitating independent, redundant configuration. The backplane has two independent voltage supply connections, so that redundant configuration is also possible for the station supply. If the LB power supply or electrical feed fails, the additional LB power supply takes over the power supply and ensures uninterrupted operation of the automation system. The integrated error message facilitates a targeted, immediate replacement or repair without interrupting plant operation.

In the event of a fault in communication with the control technology or a gateway, the redundant gateway seamlessly takes over communication, ensuring that the measured and control values are transferred.

## The Benefits

The redundant design of the power supply ensures complete safety and plant availability. If a station supply and an LB power supply fail, the LB system is powered by a second external power supply and the second LB power supply. Therefore, this part of the plant can continue to operate even in the event of a power supply fault. The redundant configuration of the gateways in the LB/FB remote I/O system means that the communication channel remains active and available in the event of a fault. A diagnostic message is generated if a failure is detected. Targeted maintenance measures can be carried out.

### Technical Features of LB and FB Remote I/O Systems

- Redundancy for power supply and com unit can be selected separately
- System with the smallest available housing design
- Modular design, signal mix, and bus connection can be freely selected and combined
- Largest selection of IO modules for each application
- Emergency shutdown for AO and DO modules with SIL rating
- Freely selectable terminal technology (screw or spring terminals)
- Continuous and high-performance HART communication
- Worldwide Ex approvals (ATEX Directive 2014/34/EU, IECEx, UL, INMETRO, EAC)
- Marine approvals