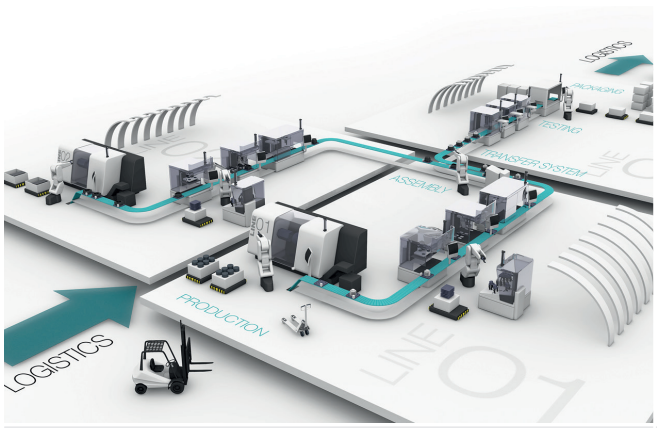
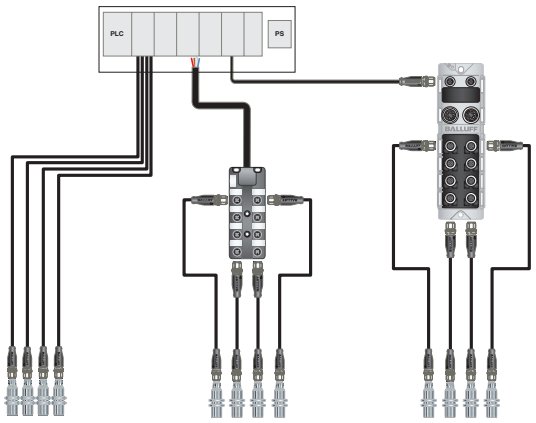
Connecting and networking – An introduction

FROM DIRECT CONNECTION TO INTELLIGENT FIELDBUS AND NON-CONTACT TRANSMISSION SYSTEMS

Communication in machines and industrial systems is becoming ever more essential in automation technology. Sensors generate information that needs to be transported wherever it is processed. We will show you how cable, distributors and entire networks enable this transport.



Industrial equipment with various production machines which communicate sensor signals over networks



Wiring of sensors to the PLC is undergoing a change: from direct connection through passive distributors to fieldbus blocks

An industrial system consists of various machine types which are required for manufacturing a product. In each machine type you will find different sensors which transmit their signals to the controller (PLC). The controller uses the signals to initiate the appropriate work steps. This communication can take place in three different ways:

- Each individual sensor is wired directly to the PLC.
- Multiple sensors are wired to the PLC through a passive distributor.
- The sensors are connected to the PLC through fieldbus blocks.

Sensor cable for connecting the sensors

Passive distributors for collecting and consolidating the signals

Fieldbus block for collecting the signals and transmission to the PLC over networks

System for plugless transmission of power and signals

Over the years, the method of wiring and cabling has radically improved: traditionally the sensors are wired directly to the PLC using a sensor cable. To reduce effort and expense, passive distributors are used which collect and consolidate the signals from multiple sensors on their way to the PLC. Intelligent fieldbus blocks handle the collection and transmission of the signals to the PLC over entire networks. In addition there are non-contact transmission systems which pass signals and power in especially critical applications.