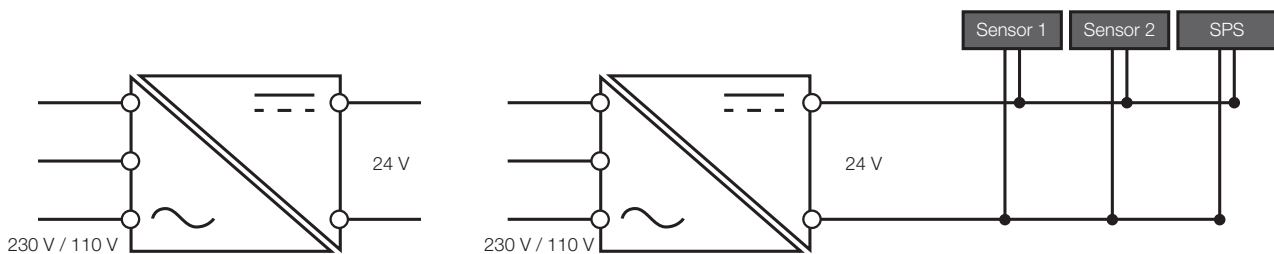


## Fundamentals of Automation

# HOW DOES THE SENSOR GET ITS POWER: BASICS OF POWER SUPPLIES

Are you ready to solve an automation task? Then selecting the right power supply is the basis for high machine productivity. Today mostly switching power supplies are used, which convert an input voltage (AC) of 230 V/110 V into an output voltage (DC) of 24 V.



Conversion of AC voltage (230 V/110 V) into DC voltage (24 V) by a switching power supply

Sensors, controller and infrastructure powered by a switching power supply

To select just the right power supply for your requirements, note the following criteria:

- Number of sensors and consumers and the resulting total current
- Current requirement for the connected consumers
- Turn-on response and inrush currents of the sensors
- Input voltage (e.g. 230 V/110 V), power and load of the supply network
- Location of the power supply (central in the control cabinet/IP20 or modular in the field/IP67)



Power supply for use in a control cabinet (IP20)



Power supply with IO-Link (IP20)



Power supply for use directly in the field (IP67), also in harsh conditions



Power supply with IO-Link (IP67)

In addition to these criteria you should also take into account the ambient temperature and – if necessary – make any modifications (e.g. cooling). Only then is maximum performance of the power supply assured.

You should also consider how the power supply responds to overload. Depending on the version (e.g. Powerboost\* or Hiccup\*\*) inrush currents or fast peak loads will be withstood better or worse.

\* Powerboost: The power supply provides greater power for a limited time in order to compensate for inrush currents.

\*\* Hiccup: The power supply switches off under overload and after a short time attempts to restart. This is repeated until the overload is eliminated.