

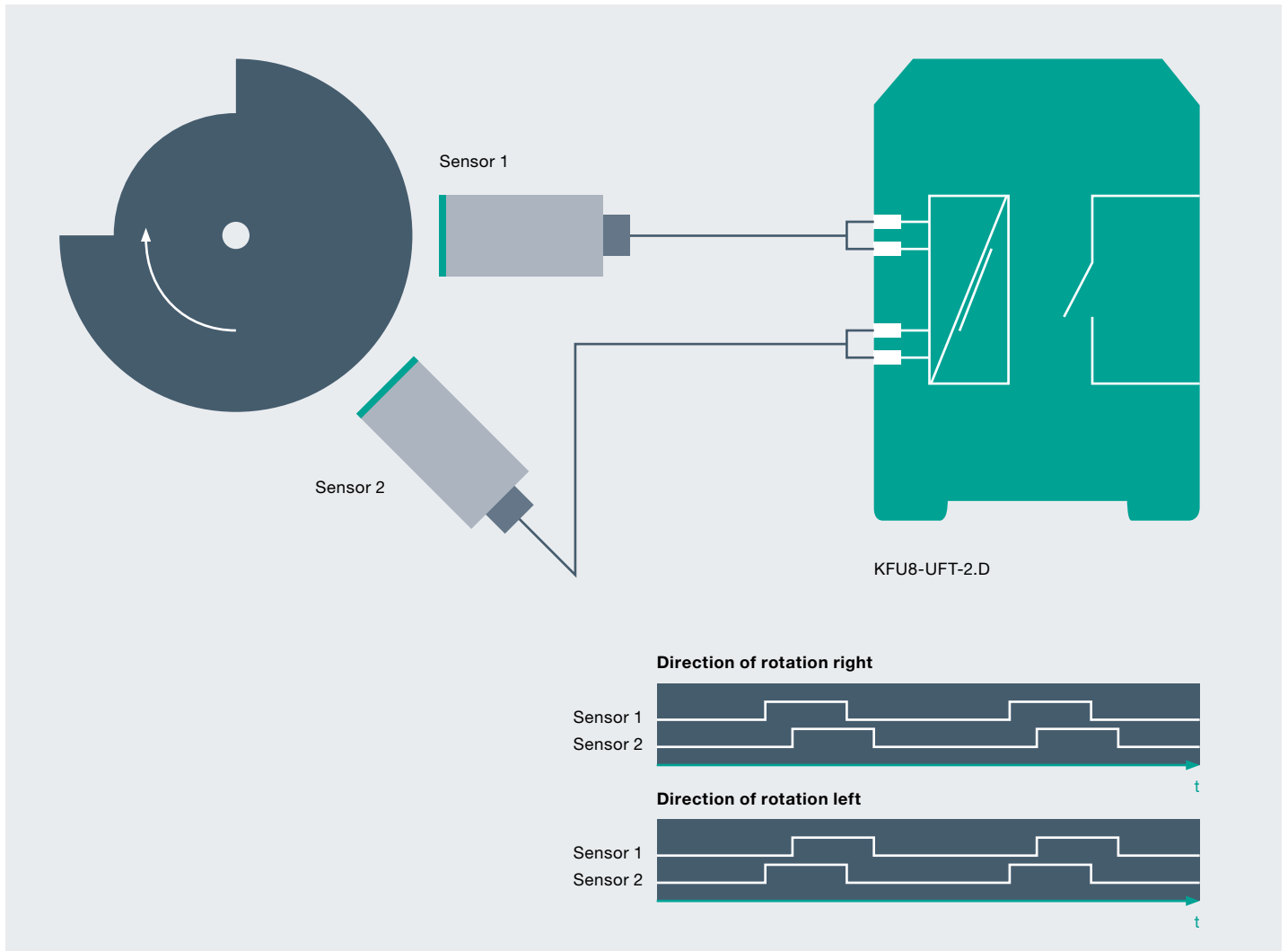
# K-System Keeps Thermal Power Stations Running

Reliable rotational direction monitoring of feedwater pumps prevents shutdowns



## Application

In thermal power stations, high-pressure steam spins turbines to generate power. At the heart of these stations is boiler feedwater pumps, which pipe water into a boiler in order to create the steam. After the last turbine stage, the steam is converted into liquid feedwater again and pumped back through the cycle.



**Goal**

The rotational direction of the feedwater pumps needs to be monitored continuously. Since reverse water flow can damage the pumps and lead to total plant shutdown, faults must be detected immediately so the pumps can be switched off in time.

**Solution**

Rotational direction monitoring typically requires two inductive proximity sensors mounted on the gear or shaft. The frequency converter KFU8-UFT-2.D compares two input frequencies and generates the output of corresponding signals to relay output and current output. The standstill and rotational direction monitor KFD2-SR2-2.W.SM can be used as well.

In the rotational direction monitoring component, the order of pulses on channel 1 (sensor 1) and channel 2 (sensor 2) is checked. When rotation is clockwise, the teeth of the wheel will be detected first by sensor 1 and then by sensor 2. Counter-clockwise rotation is detected when pulses on channel 2 arrive before those on channel 1.

**Benefits**

- Reliable monitoring of rotational direction
- Additional functions like frequency conversion and limit trips in one device
- Easy installation and configuration

**At a glance:**

- Frequency converters monitor the rotational direction of boiler feedwater pumps, detecting a reverse rotation.
- Reliable signal transmission between your field device and the control system.
- K-System product family offers a range of modules, including intrinsically safe modules, for a wide variety of applications.