

Field Indicators Tutorial

Field indicators are signal conditioner/converter devices with a display. Field Indicators are intended for mounting on or near the flow sensor. They perform many of the same roles of signal conditioner/converters plus that of providing a convenient local display.

Many “smart” Field Indicators provide additional, advanced functionality such as sensor linearization.

Field Indicators are ancillary display devices also intended to amplify, filter, condition, scale, and convert the low level “raw” signals produced by many transducers and convert it into the desired, industry standard high level signal before transmitting it across a potentially noisy environment. Display indication is also provided. In some cases, a secondary function is providing signal isolation.

Generally, the output signals may be in the form of either a pulse and/or analog current/voltage that is proportional to the span of the signal being measured. Open collector transistors are common as pulse output signals. The most common analog signal is a 4-20mA current signal.

In many flowmeter types the frequency of the raw input signal carries the flow information. The frequency is related to flow rate. Each pulse or cycle is related to a small equivalent quantity of flow. The quantity represented by each pulse varies with each individual meter and must be scaled to obtain engineering units.

The input signal to a pulse signal conditioner may be a contact closure, a magnetic pickup, or a low level pulse. Some conditioner/converters scale the pulse signal such that each pulse represents a engineering quantity of flow, for example 1 pulse per gallon). Some converters convert the variable frequency signal into a current proportional to flow rate.

In many cases, the field indicator is intended to be powered either by an internal battery, or by the 4-20mA output current loop, or by a DC supply voltage normally available in most instruments with 24 VDC being the most common.

Enclosures are available for outdoor weatherproof and also hazardous locations. Most have provisions for mounting on the flowmeter and/or near the flowmeter.

Field Rate/Total Indicators are applied in most PLC and PC based control systems to adapt the process signals into the standardized levels provides on I/O Cards while at the same time providing a display of information in the field.

Typical Application

