

How to use offset in Colibrick settings to read current loop outputs

Current loops are used to transmit the measured data from a sensor (that detects, e.g., temperature, pressure, humidity, flow, etc.). The sensor output data are converted to a current loop signal, usually in the 4–20 mA range, corresponding to 0–100% (lower and upper limit) of the detected property.

To correctly read current loop output signals after conversion to voltage via Colibrick A/D converters, you can manually set the offset of the received voltage. The offset value can be used to indicate the actual zero value when it is represented by non-zero analog output. The entered offset is deducted from the measured value to produce the result. For example, if the actual zero of a detector is represented by a 4 mV output signal, the offset should be set to 4 mV

- Open *System Configuration* and configure Colibrick. In the *Setup* dialog, the default offset values are present.

- Via the *Set Units...* button, access the *Detector Units* dialog. You can set your desired offset values and coefficients for the current/property conversion here.

Note: Via the *Detector Units* dialog, you can also set how to convert the voltage measured by the Colibrick to the units received by the detector. As a result, the entered units are propagated in Clarity instead of the default mV units.

The current loop output can be converted to voltage utilizing a resistor. The voltage drop across the resistor (in Ohms) is proportional to the current flowing through it. Ohm's law can be used for the calculation of the voltage drop:

$$V = R \cdot I,$$

where *V* is the voltage drop, *R* is the resistance, and *I* is the current. The following scheme contains an overview of the applicable resistances for particular currents for the DataApex CL-V changer.

