

SCL Scaler, Calibrator & Linearizer



The FPPMETERS SCL is a small electronic device designed to provide the function of a pulse Scaler, an electronic Calibrator and Linearizer. This electronics package replaces a mechanical gear plate and mechanical calibrator while at the same time providing the ability to improve the accuracy of a metering device during low flow operation, thus improving the overall meter accuracy, and extending the flow range of the metering device. The SCL may be used in conjunction with other FPPMETERS electronics to solve many of your electronic interface requirements.

Specifications:

Input Voltage:	5VDC and 6-12VDC
Input Current:	30mA @ 5VDC
Operating Temp:	-40 C to +85 C
Input signal:	Hall Effect sensors, single or dual, or single ended input from 5VDC logic
Input Frequency:	1000Hz (max)
Output:	
Quadrature Pulse Output Voltage:	Proportional to power supply voltage
Duty Cycle:	Symmetrical Quadrature with 50/50 DC
Output Frequency:	(Input Frequency) x (ECF) Scaled to application
Linearizer:	32 points maximum
Calibrator Range:	+/- 3.0%

OPERATIONS:

Scaler Mode:

When operating in the Scaler mode only, the SCL applies a single error correction factor (ECF) to the incoming pulse signal. If a single correction factor is applied to the entire range of the meter frequency inputs then the output frequency is proportional to the input frequency times the ECF (SCL Pulses out = SCL pulses in times (ECF)). If the ECF is 1.0 (no scaling factor) the output frequency is equal to the input frequency. As an example, use this feature when the customer's electronics requires a precise frequency or pulse resolution input. If the customer's electronics require 100 pulses per liter, then 100 PPL becomes the base line frequency to which all input pulses are scaled. If as an example, the meter is providing 108 pulses per liter, then an ECF of 0.9225 (100/108) would be programmed into SCL, and the output pulse frequency would be equivalent to the selected base line of 100 PPL.

Linearizer Mode:

If a metering device is not producing an output within the limits of accuracy required for an application, the SCL may be used as a linearizer. A linearizer is a device which recognized the output frequency of the metering device, and applies a correction factor (ECF) chosen for that frequency to improve the accuracy of the metering device. The number of ECF points chosen for a specific application depends upon the accuracy of the metering device. In weights and measure applications, there is an ECF applied at each flow rate point where the meter accuracy varies by 0.25% from the previous flow rate point.

Calibrator Mode:

The SCL is equipped with two rotary switches S3 and S4, and a two, position switch S2. The three switches allow the SCL to adjust the pulse output up or down by 3%. This allows the operator, or W & M authorities to calibrate the meter without having to alter scale factors in customer electronics. This feature is designed to replace mechanical calibrators used in the field for years to adjust the meter output to accurately match the volume in a proving vessel.

