

## 1. Connections

Power Supply – 12V to 30V D.C. Use standard 1.9mm power socket with positive connected to centre pin or, alternatively, wire directly to terminal block +VS and 0V.

Input – Use input A (I/Pa) for standard sensitivity (150mV minimum) or input B (I/Pb) for high sensitivity (10mV minimum). Signal is connected between input and 0V. For reed relay input connect between +VS and I/Pa.

Voltage Output – 0-5V, 1-5V, 0-10V or 2-10V between V OUT and 0V

Current Output – 0-20mA or 4-20mA between I+ and I- (non-isolated, I- is connected to 0V).

Divider Output – Frequency Divided output available between D OUT and 0V.

Alarm Output – High alarm (A hi) and Low alarm (A lo) sink up to 100mA of current to 0V when active. Connect load between +VS and alarm output. If load is a relay coil then use a diode across the coil to suppress interference caused when coil is de-energised. Ensure any diode is connected with the cathode (banded end) to V+ and the anode to alarm output.

## 2. Programming

All parameters can be up to 8 digits with decimal point in any position

**FACTORS** – Select the ‘FACTORS’ tab:

**Rate Scaling** – Rate value is calculated as max flowrate (in units required i.e. l/min) divided by the frequency at maximum flowrate (pulses per second i.e. Hz).

**Offset** – entered value is subtracted from the calculated rate. Enter a negative offset if you wish to add a fixed value.

**Low alarm** – When the calculated rate value (after any offset is applied) is less than the Low Alarm value then the Alo output will be active.

**High Alarm** – When the calculated rate value (after any offset is applied) is greater than the High Alarm value then the Ahi output will be active.

**Reference** – This is the rate value (normally 0) that equates to the lowest analogue output signal (0V, 1V or 2V; 0mA or 4mA).

NOTE: Rate values below the reference value will produce the minimum analogue output.

**Fullscale** – This is the rate value that equates to the highest analogue output signal (5V, 10V or 20mA).

NOTE: Rate values above the full-scale value will produce the maximum analogue output.

**Total Scaling** – Enter one divided by the meter factor i.e. 1/300 pulse per ltr = 0.0033

**Division Factor** – Maximum permissible value is 0.5. D OUT provides a frequency scaled output which is input frequency multiplied by Division Factor. Output frequency can be no greater than half of the input frequency (hence 0.5 is max. value). No input pulses are lost as a result of rounding.

**MODE** – select the ‘MODE’ tab

**Output** – Select appropriate output mode 0-5V, 1-5V, 0-10V, 2-10V, 0-20mA or 4-20mA.

**NOTE** : Although both voltage and current are available simultaneously on the output terminals, only the selected range will be calibrated and calculated using reference and full-scale values.

**Input** – select High sensitivity (input B), Standard sensitivity (input A) or Reed Contact (input A – connect reed switch between +Vs and input A).

**NOTE**: When Reed Contact is selected, the maximum input frequency is limited to 100 pulses per second (Hz).

**CALIBRATION** – select the ‘CALIBRATION’ tab

Contains values for V-offset, V-F.S., I-offset and I-F.S.. It is advisable to note these values in case they are inadvertently altered. It is strongly recommended that they should not be altered without good reason. Instructions for setting these values can be obtained from the manufacturer.

### 3. Operation

**READINGS** – select the ‘READINGS’ tab

**Sensitivity** – With an input signal connected to the appropriate input terminal, the sensitivity control should be adjusted to provide a stable reading of Rate. The sensitivity should be set no higher than that required to give stable and consistent results. The highest sensitivity is available with the slider at the top of the control.

**Rate** – This displays the rate value which is calculated as:

(Input frequency x Rate scaling) – Offset

**Analogue** – This displays the analogue voltage or current value that equates to the calculated rate value. It is dependant on the output range that has been chosen and the values that have been set for reference and full-scale. This value is useful for comparing against the actual analogue output obtained from the terminal block of the unit.

**Max.** – This value displays the maximum rate value that has been measured since the value was last reset.

**Min.** – This value displays the minimum rate value that has been measured since the value was last reset. Values of zero are not recorded. The value must be present for at least one second in order that it is recorded.

**Total** – This displays the total number of pulses that have been counted since the value was last reset. The value is scaled by multiplying by the ‘Total Scaling’ value.