ROTECH SYSTEMS

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Product Information

Length Measurement
Using measuring wheels or gear wheels of known PCD

Example

Using a wheel of 200mm diameter, it's circumference will be 200 x 3.142 = 628.4mm.

Attaching this wheel to a Rotech encoder giving 1000 pulses per revolution, then the encoder will output 1 pulse for every 0.6284mm of travel at the rim of the wheel.

Connecting the encoder to a suitable display counter, that can multiply / divide the input pulses by a selected factor, the counter can be configured to display any units you choose.

In this example multiplying the input pulses by 0.6284 will give a display in millimetres.

Instead of using a display counter, the pulses can be supplied to PLC/computer etc. that can be set up to multiply the pulses in the same way.

Other considerations.

If the wheel moves in both directions, a system will be required that recognises this and instructs the counter to count UP or count DOWN.

The usual and most accurate method is to use an encoder with a quadrature output.

A quadrature output has two output signals (i.e. streams of pulses) that are 90 degrees out of phase (i.e. the pulses overlap each other by 25%).

The display counter or PLC can be set up to recognise which direction the encoder Is rotating and then count UP or DOWN.

Another advantage of using quadrature encoders is that as there are two output signals. So twice the number of pulses are generated and by clever electronics the number can be doubled again to give x4 without any loss of resolution. Thus in the above application and encoder giving 250 pulses per revolution could be used instead of 1000.

If the wheel does not rotate in both directions and UP/DOWN counting does not apply then the system is simpler.

A single channel encoder (i.e. single output) can be used, but the counter / PLC must be set to zero at the start of the measuring operation. If the wheel by mistake rotates in the reverse direction, the counter / PLC will not see this as a negative count but just see it as another pulse and continue to count UP.

If this happens the wheel/probe etc. must be returned to its start (zero) position and the counter/PLC re-set to zero.
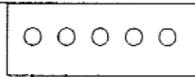
Due to the maximum 25Hz switching frequency, in the majority of these applications encoders with 'W' type outputs are of limited use as the maximum number of pulses per revolution is only 30.

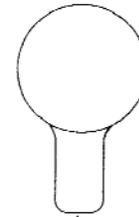# Connection to digital counter for REV's, distance, position etc.

Supply

Rotech
heavy duty
Motion sensor/encoder

Digital RPM meter

Red lion controls
type APLRI
or similar

Supply