

# Calibration; Up Down Counter Option RAF185

**1**

First link JP1 on pcc156, with the power off. This puts the module in calibration mode when the power is applied.

**2**

Bridge the required link on the PCB pcc156.

LK6	LK5	LK4	LK3	INPUT RANGE
		0	0	1 TO 256 (number of pulses for full scale output) NOTE: When calculating the step size in point 4 below OUTPUT <sub>MIN</sub> is entered as 1 but the minimum usable calibration range is 16.
		1	0	257 TO 512 (number of pulses for full scale output)
		0	1	513 TO 768 (number of pulses for full scale output)
		1	1	769 TO 1024 (number of pulses for full scale output)
				FUNCTION
	1			RESET ACTIVE LOW
	0			RESET ACTIVE HIGH
1				INPUT 1, 2 ACTIVE HIGH
0				INPUT 1,2 ACTIVE LOW

\*\*\*\* 1 Indicates that the link is bridged, 0 indicates an open link.

**3**

When power is applied the analog output represents the position that the pots are in. When the output is at a minimum the number of pulses for full-scale output corresponds to the minimum for the selected range. When the output is at a maximum the number of pulses for full-scale output corresponds to the maximum for the selected range. There are 255 discrete steps between the minimum and maximum output values; each step represents one pulse.

**4**

Calculate the required output using the following formula.

$$\text{STEP} = (\text{OUTPUT}_{\text{MAX}} - \text{OUTPUT}_{\text{MIN}}) / 255$$

$$\text{OUTPUT} = ((\text{STEPS}_{\text{REQ}} - \text{STEPS}_{\text{RANGE}}) * \text{STEP}) + \text{OUTPUT}_{\text{MIN}}$$

Where

OUTPUT<sub>MAX</sub> = maximum attainable output. (e.g. 20mA for a 4 – 20mA transmitter)

OUTPUT<sub>MIN</sub> = minimum attainable output. (e.g. 4mA for a 4 – 20mA transmitter)

STEPS<sub>REQ</sub> = the number of pulses required for full-scale output.

STEPS<sub>RANGE</sub> = the minimum number of pulses for the selected range.

**5**

Adjust the output to the value calculated above using the 2 pots (P3 and P4 )on pcc157. One of these pots functions as a course control and the other as a fine control.

\*\*\*\* try to adjust the pots to the center of the range of adjustment, to avoid the pot values being incorrectly measured when the unit powers up.

**6**

Remove the link from JP1 on pcc156. Cycle the power to the transmitter (it is now in normal operating mode).

**note**

There will probably be some rounding errors in the analogue output. For example if 1000 pulses for full scale is required then the output will read full scale for 999 and 1000 pulses.

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