A.P.C.S.

Ramp Function v6   RAF185

DESCRIPTION

The RAF185 is for applications requiring process signal ramping and pulse accumulation. Such applications include motor start-up and speed control or applications requiring time base manipulation. Ramping options include up, down or up/down and stair case control of process signal outputs over an adjustable time base.   Pulse accumulation options include up, down or up/down step control of process signal outputs. All timing and accumulation tasks are performed by a microprocessor. Inputs available included voltage free contacts or external source pulses. Inputs are indicated by 3mm green LED to verify proper input wiring. Time base (Period) adjustments are adjustable via front accessible 15-turn trim potentiometers. Final calibration is trimmed using the front accessible 'offs' and 'span' 15-turn trim adjustments.

General Specifications

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Size:	52 W x 70 H x 110 D (mm).
Mounting:	DIN-Rail, gear plate.
Termination:	Screw terminals on front.
Weight:	0.300 kg.
Housing material:	ABS.
Protection class:	IP40.
Calibration accuracy:	<0.2% of range.
Temperature effect:	<0.02% per °C.
Ambient operating range:	-10...+60°C.
Storage temperature range:	-20...+70°C.
Combined linearity/drift error:	<0.2% of span.
Power requirements:	3W.
Power supply isolation:	2kVrms.
Electromagnetic compatibility:	Complies with AS/NZS 4251.1 (EN 50081.1)
Ramp time minimum:	0.2 seconds.
Ramp time maximum:	400 seconds.

Process Signal Output Version

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Output loop drive:	20mA into 0 – 900Ω.
Output load change effect:	less than 0.2% up to max load.
Front 'OFFS' adjust:	±5% typical
Front 'SPAN' adjust:	±5% typical

PWM Output Version

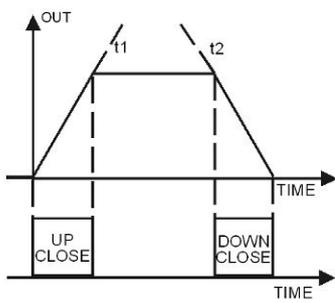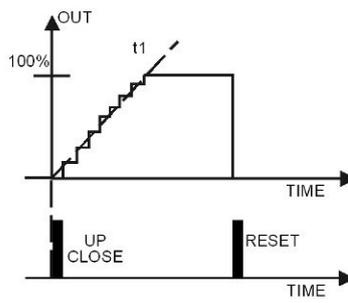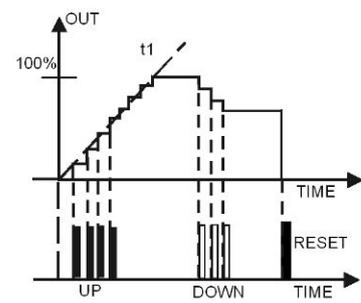|	
Voltage free contact output:	50V/100mA max (FET).
PWM current /voltage pulse:	5mA constant current drive (20V unloaded, use a load resistor to set voltage).
PWM frequency range	20Hz (50mS) to 1kHz (1mS)

Process Output Version
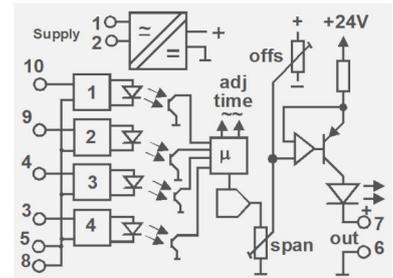
PWM Output Version
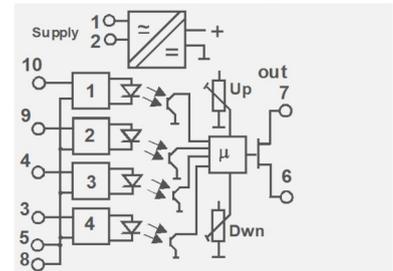
Operating Modes

Standard Ramp (Opt 0)

Both closed = No change

Stair Case Generator (Op 2)

Output goes low if reset detected regardless of other input

Up/Down Counter (Opt 3)

RAF185 - X X X X X X X

TYPE NO. DESIGNATION

Power Supply:
1 = 90-280Vac 50/60Hz (65-280Vdc).   6 = 8 - 60Vdc.
*) 3 = 16-48Vac 50/60Hz (10-60Vdc)

Input 1 (Up):
0 = None.   3 = NPN open collector
1 = 24Vdc pulse external source (0.2 – 50Vdc)   4 = PNP open collector
2 = Contact.   *) 9 = Other specify.

Input 2 (Down):
0 = None.   3 = NPN open collector
1 = 24Vdc pulse external source (0.2 – 50Vdc)   4 = PNP open collector
2 = Contact.   *) 9 = Other specify.

Output:
1 = 0 - 5V (50kΩ min).   *) 9 = Other process signal specify.
2 = 0 - 10V (100kΩ min).
3 = 0 - 20mA (900Ω max).   A = PWM voltage free contact
4 = 4 - 20mA (900Ω max).   B = PWM 5mA CC drive pulse.
7 = 0 - 10mA (1.8kΩ max).
8 = 1 - 5V (50kΩ min).   Specify PWM frequency and %min/max duty scycle.

Period (Up):

**Period (Down):**
1 = 0.2 - 5 sec adjustable.   3 = 0.2 - 30 sec adjustable.
2 = 0.2 - 10 sec adjustable.   4 = 0.2 - 60 sec adjustable.
                                        *) 9 = Specify specify 400 seconds max

Options:
0 = Standard ramp function.
    On "Input 1" output will rise at the period up rate. On "Input 2", output will fall
    at the period down rate. Output steady for no input.
*) 1 = External adjustments.
    Same functional description as standard except one or both "Period Up" and
    "Period Down" controls (pots) are wired via 1.5m cable for external mounting.
*) 2 = Stair case generator.
    Specify number of steps. Input 1 = start.
*) 3 = Up down counter.
    Specify number of steps for full scale between 16 and 1024.
    Each "Input 1" pulse will increment the output by 1/(steps) of full scale. Each
    "Input 2" pulse will decrement the output by 1/(steps) of full scale.
*) 4 = Quad input pulse accumulator.
    Pulses on inputs 1 to 4 are reproduced at the output. The internal circuits will
    compensate for overlapping inputs.
*) 5 = Position, quadrature input with analogue output. Specify number of steps for
    full scale between 128 and 1152. The phase difference between "Input 1"
    and input 2 will determine if the output should increment of decrement the
    output by 1/(steps) of full scale.
*) 9 = Other (Specify).

Ramp Connection
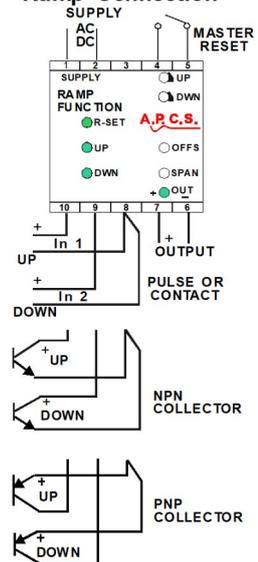
*) = Price Extra.

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