



AP7510-6001

Action PAK® AP7510 Frequency Divider/Scaler

Provides Adjustable Frequency Attenuation

- Adjustable Scaling Factors
- High Accuracy Digital Conversion
- Over-Current Protection
- Plug-in Installation
- 120 or 240VAC Input Power
- 600V Input to Output Isolation

Application

The AP7510 Frequency Scaler can be used to directly interface between totalizers and turbine flowmeters, magnetic tachometer sensors and other frequency transducers. A continuously adjustable scaling factor (input-to-output ratio) of 0.00001 to 0.99999 is provided to precisely match the frequency transducer and totalizer. The AP7510 provides a square wave output which can be used to drive electronic counters with TTL, CMOS, or 24V inputs.

Operation

The AP7510 utilizes a unique combination of digital and analog conversion techniques, which features adjustable scaling and approaches the nearly absolute accuracy of purely digital frequency division. The Frequency Scaler accepts a variety of signal inputs, such as sine wave, square wave and pulses. It can also accept a contact closure input by attaching a jumper across pins 4 and 6. A top-mounted, single-turn sensitivity potentiometer permits an adjustable input sensitivity from 50mV to 5V. The conditioned and amplified frequency input is fed into an opto-coupler, which consists of an LED and a phototransistor encapsulated in the same housing.

The opto-coupler provides full DC to DC isolation and feeds the input into the digital frequency divider circuitry. The input is then divided down and channeled through an over-current-protected output driver. The result is a proportionally reduced square wave frequency output. If a 5V TTL-compatible output is desired, use pins 9 and 10 for output. If a 24V square wave output is desired, connect the load between pins 7 and 9.

Option

- U** Urethane coating of internal circuitry for protection from corrosive atmospheres.

Input/Output Ranges

Any frequency range or scaling factor is available for the AP7510 within the limits specified in table 1.

Sensitivity Adjustment

With a frequency input at the expected minimum amplitude, and with the sensitivity adjustment (SENS) fully clockwise, observe the steady oscillations of the frequency output. Adjust SENS counter-clockwise until the frequency output disappears, then return clockwise (slowly) until output reappears.

Table 1: Input and Output Frequency Ranges

Maximum Input Frequency	Minimum Output Frequency	Maximum Output Frequency
80 kHz	0.1Hz	0.99999 x Max. Input

Table 2: Amplitude/Frequency Limits

Input Amplitude (Minimum)	Absolute Maximum Input Frequency
50mVpp	to 20kHz
1Vpp	to 40kHz
5Vpp	to 80kHz

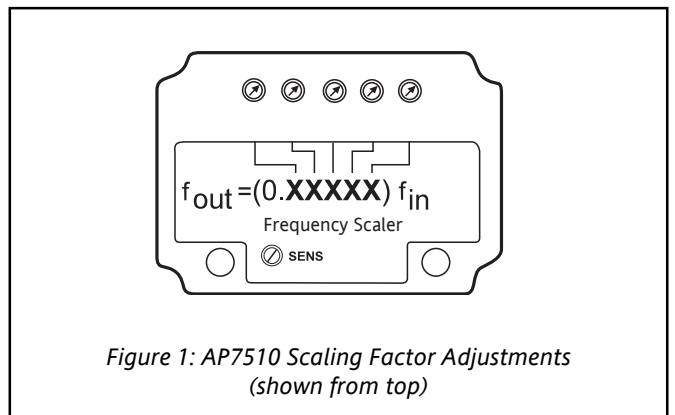


Figure 1: AP7510 Scaling Factor Adjustments (shown from top)

Specifications

Calibration Capability (includes Accuracy):

± 1 Input pulse

Input (see table 2):

Sine wave, square wave, or pulse;
50mVpp to 5Vpp to a max of 80kHz, or
contact closures (15V pullup @ 1mA)

Sensitivity:

Adjustable input of 50mVpp to 5Vpp,
user accessible

Input Impedance:

10k Ohms, nominal

Isolation:

Input to output, or either input/output
to line power: 600VDC

Output:

5VDC pulse @10mA max, TTL compatible,
or 24VDC pulse, 1KW load min.; frequency
to 0.99999 of maximum input.

Scaling Range:

Multiplies input frequency by an adjustable
factor of 0.00001 through 0.99999

Temperature Range:

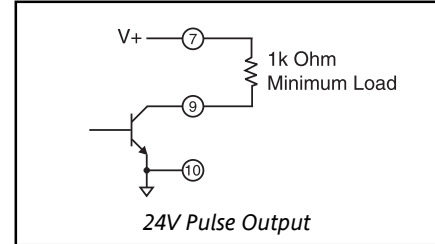
Operating: 0° C to 60° C (32 to140° F)
Storage: -20 to 85°C (-4 to 185°F)

Power:

Consumption: 3W typical, 5W max.
Standard: 120VAC (± 10%, 50 - 400 Hz)
Available: 240VAC (±10%, 50-400Hz)

Weight:

0.60lbs



Ordering Information

Specify:

1. Model: **AP7510-6001**
2. Option U (see text)
3. Line Power (see specs)
4. C620 Factory Calibration. Specify input range, output range and power.

Accessories:

- M801-0000 Retaining Spring
M011-A 11 pin Track Mount Socket
M004-0000 4 ft Long Channel Track
MD11-0000 11 pin DIN Mount Socket

Pin Connections

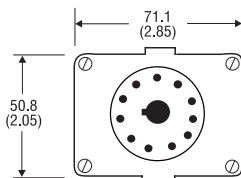
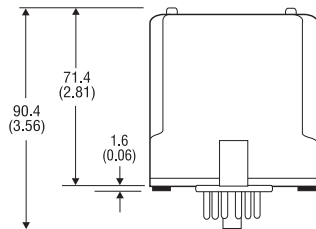
- 1 AC Power (Hot)
- 2 Shield (Gnd)
- 3 AC Power (Neu)
- 4 Input (+)
- 5 Input (-)
- 6 For Contact Closure Input, connect to Pin 4.
- 7 For 24V Pulse Output, connect load with Pins 7 and 9 (see figure above).
- 8 No Connection
- 9 Output (+)
- 10 Output (-)
- 11 No Connection

Mounting

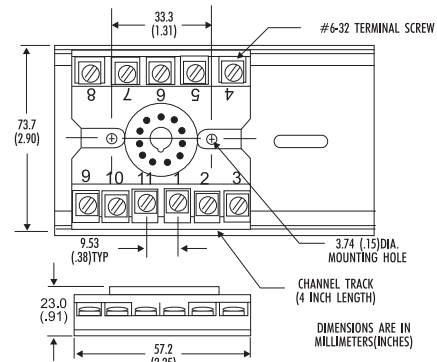
All Action Paks feature plug-in installation. The Action Pak AP7510 uses an 11-pin base and either molded socket M011 or DIN-Rail MD11 mounting sockets.

Dimensions

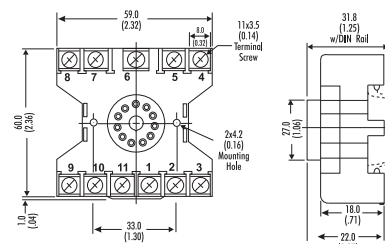
Dimensions are in millimeters (inches)



Mark II



M011 (Track/Surface)



MD11 (DIN Rail)

Eurotherm

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Factory Assistance

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