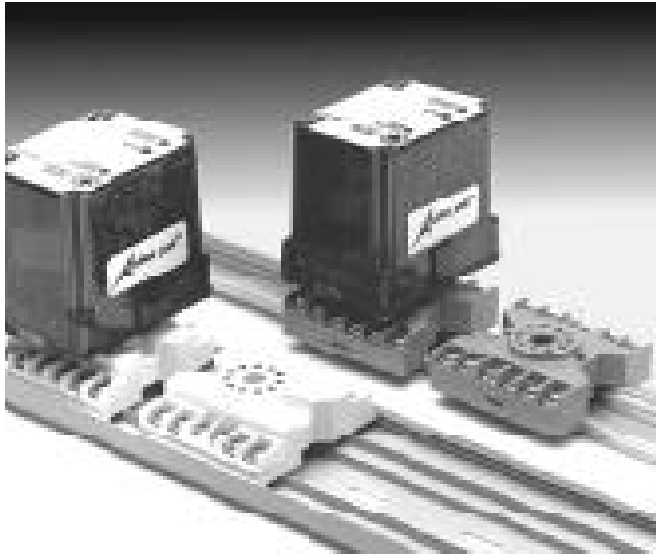


Action Pak[®]

DC to Frequency Converters

Models AP7500, AP7501



Provides a Field Selectable Frequency Output in Proportion to a DC Input

- Switch Selectable Output Range
- Adjustable Low End Cutout (0-10%)
- Totalization/Integration Applications
- Square Wave (AP7500) or Relay Contact (AP7501) Output
- AC Line Powered
- Easy Plug-In Installation
- Three Year Warranty



APPLICATION

The AP7500 and AP7501 are useful in totalizing applications, where the total number of pulses counted in a given time period represents the time integral of the DC input. If, for example, the input represents a flow in gallons per hour, then the time integral of this flow signal (total count) will represent total gallons (see Figure 1). The AP7500's 6V square wave output can be used to drive electronic counters (DTL, TTL, CMOS). The AP7501 can be used to drive electromechanical counters when connected to an external AC or DC power source. In the AP7501, the DPDT relay contacts are pulsed (closed) for only a short duration (100 milliseconds) for compatibility with standard electromechanical counters. The AP7500 can also be used in telemetry systems, where the dc signal is converted to a frequency, transmitted over long lines, and then decoded at the receiving end by means of a frequency to DC converter, such as the AP7380.

OPTIONS

- CS** Canadian Standards Association Certification.
- U** Urethane coating of internal circuitry for protection from corrosive atmospheres.
- C** Open collector output instead of the standard 6V output, sinks up to 50mA, up to 30V (AP7500 only).

OUTPUT RANGES

The output frequency range is selectable via the 16-position rotary switch accessible through the top cover. See tables 1 and 2 for output selection. Since ranging is accomplished through digital circuitry, the accuracy of the unit is unaffected by the switch position; each successive position exactly halves (clockwise) or doubles (counterclockwise) the previous output frequency (see "CALIBRATION").

INPUT RANGES

Standard input ranges and limits are included in Tables 3 and 4.

CALIBRATION

Zero, Span and Low-End Cutout adjustments are screwdriver adjustable, accessible through the top cover.

Zero and Span: Monitor the unit's output using an accurate frequency counter. Apply an input equal to 5% of the specified input span. If the cutout LED (visible through the top cover) is lit, adjust Cutout counterclockwise until it turns off. Adjust Zero for 5% of the desired full scale output frequency. Apply full scale input and adjust Span for the desired maximum output frequency. Repeat these adjustments for best accuracy.

Note: For faster calibration of low frequency spans, use the range selector switch to multiply the output frequency. Each position counterclockwise *exactly doubles* the output frequency. After calibration, return the selector switch to the proper range position.

Cutout: The top accessed Cutout adjustment determines the input (level) at which the AP7500 or AP7501 no longer responds (i.e., the unit is effectively "off") and is adjustable from 0-10% of the input span. This feature is especially useful with low frequency spans, where the time between output pulses is excessively long at low input levels. A light-emitting diode (LED) visible through the top-cover aids in adjusting cutout. This LED lights when the unit is no longer responding to the input. With the input at the desired cutout level,

adjust Cutout slowly clockwise until the LED lights. Then turn the adjustment counterclockwise until the LED just goes out. Cutout is now set for the input level present.

FACTORY ASSISTANCE

For additional information on calibration, operation and installation please contact Action's Technical Services Group. Call toll-free.

800-767-5726

Table 3: AP7500/AP7501 Standard Inputs

0 to 1V	1 to 5V	4 to 20mA
0 to 5V	0 to 10V	10 to 50mA

Table 4: AP7500/AP7501 Input Limits

Min Span (Voltage)	Min. Span (Current)	Max. Input (Voltage)	Max. Input (Current)
200mV	1mA	200V	100mA

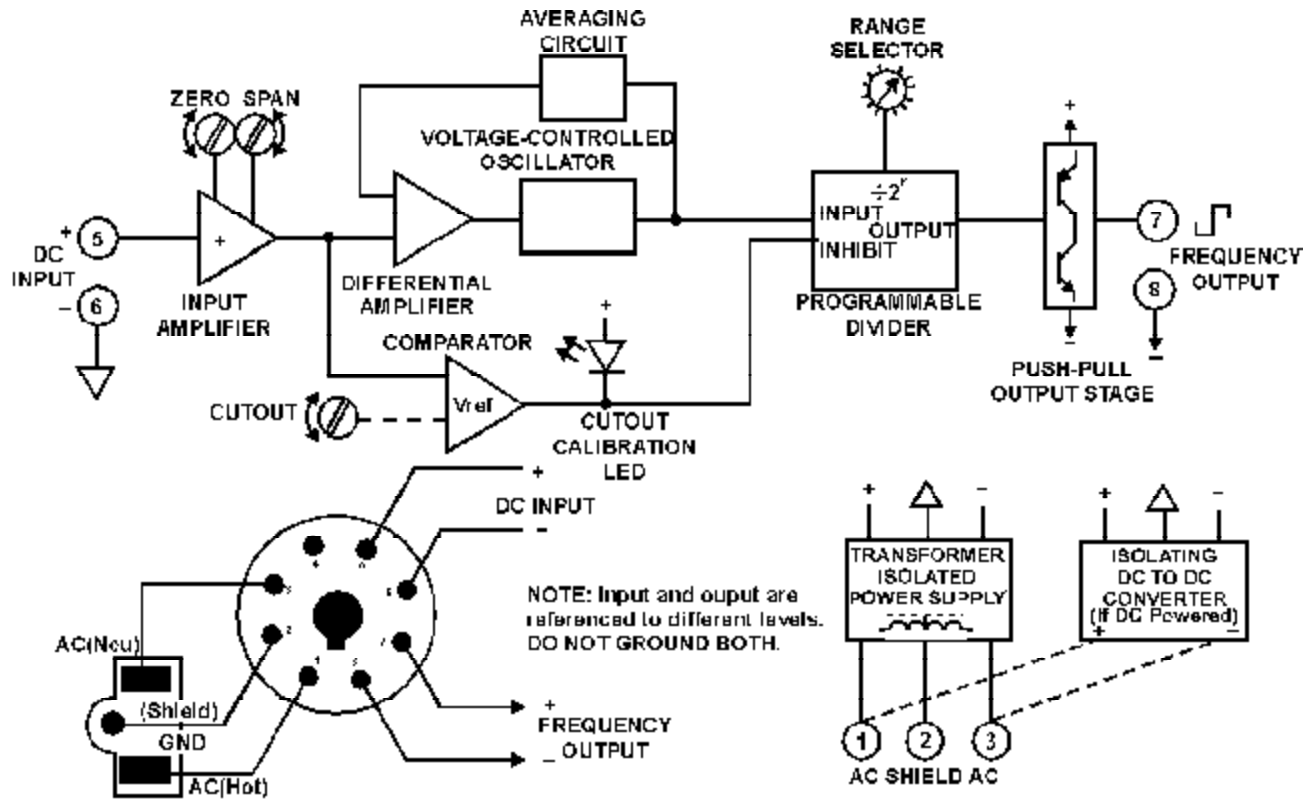
Table 1: AP7500 Output Ranges

Switch Position	Min. Range	Max. Range
0	0-5kHz	0-10kHz
1	0-2.5kHz	0-5kHz
2	0-1.25kHz	0-2.5kHz
3	0-625Hz	0-1.25kHz
4	0-312Hz	0-625Hz
5	0-156Hz	0-312Hz
6	0-78Hz	0-156Hz
7	0-39Hz	0-78Hz
8	0-20Hz	0-39Hz
9	0-10Hz	0-20Hz
A	0-5Hz	0-10Hz
B	0-2.5Hz	0-5Hz
C	0-1.25Hz	0-2.5Hz
D	0-36ppm	0-1.25Hz
E	0-18ppm	0-36ppm
F	0-9ppm	0-18ppm

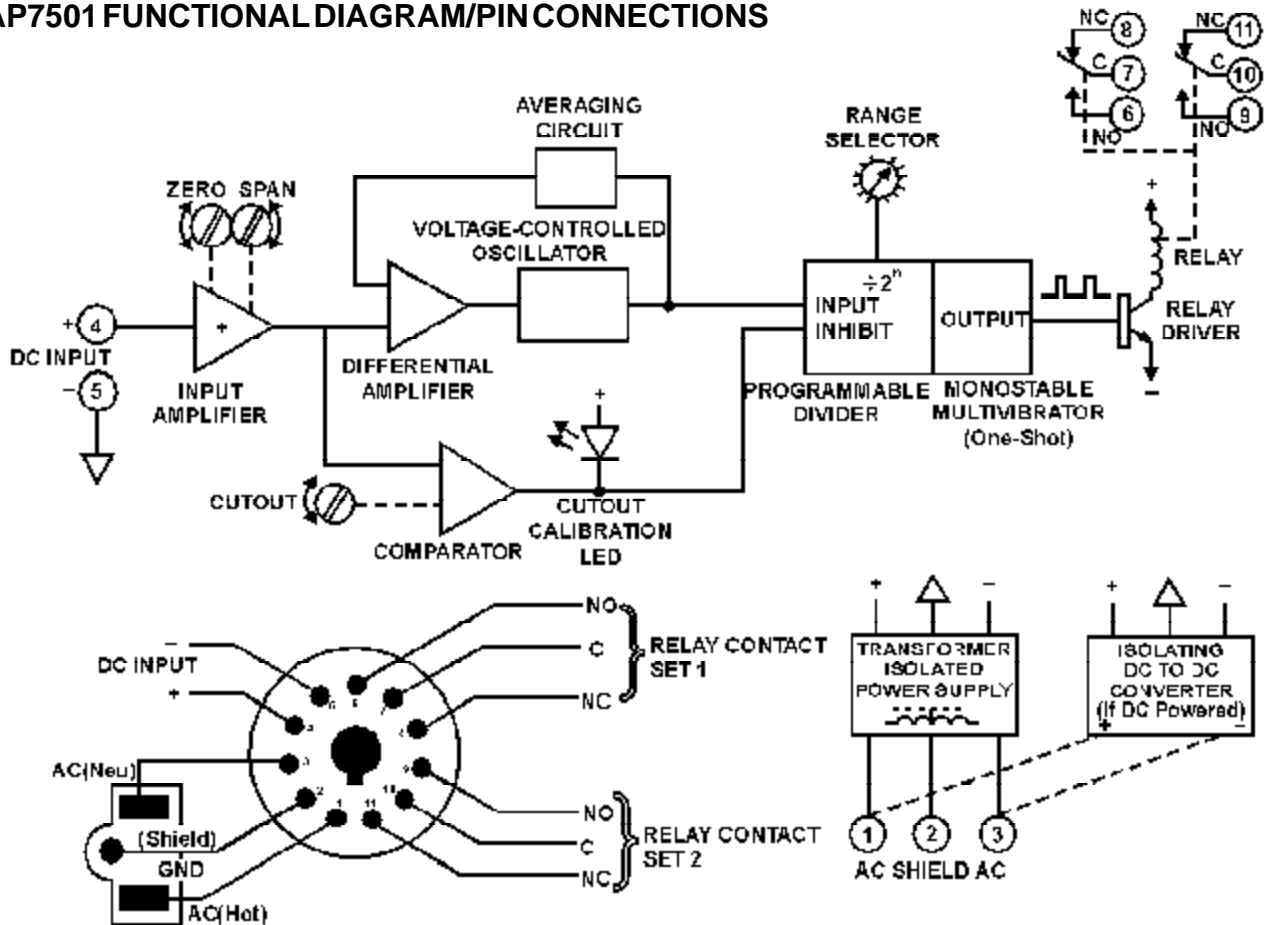
Table 2: AP7501 Output Ranges

Switch Position	Min. Range	Max Range
0	0-65ppm	0-130ppm
1	0-32ppm	0-65ppm
2	0-16ppm	0-32ppm
3	0-8ppm	0-16ppm
4	0-4ppm	0-8ppm
5	0-2ppm	0-4ppm
6	0-1ppm	0-2ppm
7	0-0.5ppm	0-1ppm
8	0-0.25ppm	0-0.5ppm
9	0-8pph	0-16pph
A	0-4pph	0-8pph
B	0-2pph	0-4pph
C	0-1pph	0-2pph
D	0-0.5pph	0-1pph
E	0-0.24pph	0-0.5pph
F	0-0.12pph	0-0.24pph

AP7500 FUNCTIONAL DIAGRAM/PIN CONNECTIONS



AP7501 FUNCTIONAL DIAGRAM/PIN CONNECTIONS



SPECIFICATIONS

Input Impedance

- Voltage Input
 - Greater than 100K Ω
- Current Input
 - Less than 500mV shunt @ full scale (e.g. 20 Ω for 20mA)
- Input Protection
 - Withstands 200% of span

Linearity (Best Straight Line & Linear Input)

0.25% of span, typical

Low Input Cutout

Adjustable, 0-10% of span (factory set at 1%), LED cutout indication

Output

AP7500: Square-wave, 0/6V
1:1 mark/space ratio, source 10mA, sink 50mA. Option C 50mA sink, 30V.

AP7501: Isolated DPDT relay contacts, rated 120VAC @ 5A or 28VDC @ 5A (100mSec min. on time).

Contact Material: Silver Cadmium Oxide
Life: 10⁵ operations at rated load

Response Time

100 milliseconds typical, 200 milliseconds maximum

Overrange Capability

Output is linear to 120% of input

Stability

Better than 0.05% of span per degree Celsius

Common Mode Rejection

DC: > 100dB
60 Hz: > 80dB
Maximum Common Mode Voltage: 50V

Temperature Range

Operating: 0 to 60°C (32 to 140°F)
Storage: -20 to 85°C (-4 to 185°F)

Power

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

Weight

0.62lbs

Agency Approvals

CSA certified per standard C22.2,
No. 0-M1982 (File No. LR42272-8,9)

PIN CONNECTIONS

AP7500

- 1 AC Power (Hot)
- 2 Shield (Gnd)
- 3 AC Power (Neu)
- 4 No Connection
- 5 Input (+)
- 6 Input (-)
- 7 Output (+)
- 8 Output (-)

AP7501

- 1 AC Power (Hot)
 - 2 Shield (Gnd)
 - 3 AC Power (Neu)
 - 4 Input (+)
 - 5 Input (-)
 - 6 N.O.
 - 7 C
 - 8 N.C.
 - 9 N.O.
 - 10 C
 - 11 N.C.
- } Set 1
} Set 2

MOUNTING

All Action Paks feature plug-in installation. The Action Pak AP7500 uses an 8-pin base and AP7501 uses an 11-pin base and either molded socket M008/M011, or DIN-Rail MD08/MD11 mounting sockets.

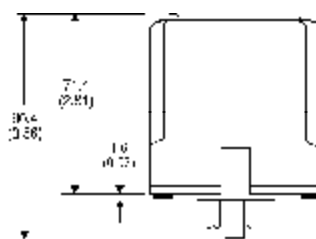
ORDERING INFORMATION Specify:

1. Model: AP7500 or AP7501
2. Options: CS, U, C (see text)
3. Input Range (see Tables 3, 4)
4. Line Power (see specs)
5. C620 Factory Calibration of input, setpoints and outputs relays.

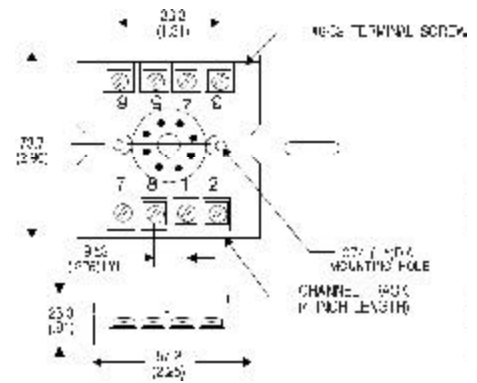
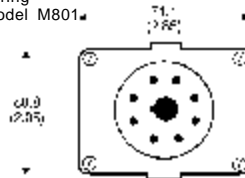
(All power supplies are transformer-isolated from the internal circuitry.)

DIMENSIONS

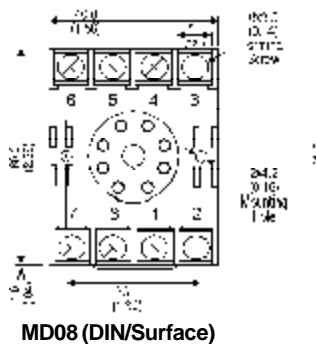
Dimensions are in Millimeters (Inches)



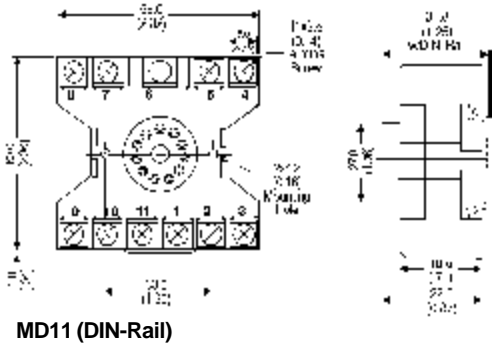
Retaining Spring Available: Model M801



M008 (8 pin) shown, and M011 (11 pin) (Track/Surface)



MD08 (DIN/Surface)



MD11 (DIN-Rail)

All Prices and Specifications subject to change without notice

大连爱克新仪器有限公司

地址: 辽宁省大连市中山区七七街23号海鹰大厦403室 邮编: 116001

电话: 0411-82650498 82597851 传真: 0411-82650478

网址: 爱克新产品 <http://www.actionio.com.cn>

e-mail: sales@actionio.com.cn support@actionio.com.cn



网址: 欧陆产品 <http://www.eurotherm.com.cn>

e-mail: sales@eurotherm.com.cn support@eurotherm.com.cn