J GAP/R

10 100 S
1 ∞

MULTIPLES OF 0.4 MILLISECOND

A   B
C

Made in U.S.A.
GEORGE A.
PHILBRICK
RESEARCHES INC.
230 CONGRESS
BOSTON 10,

GAP/R
MODEL
K2-W

INTEGRATOR

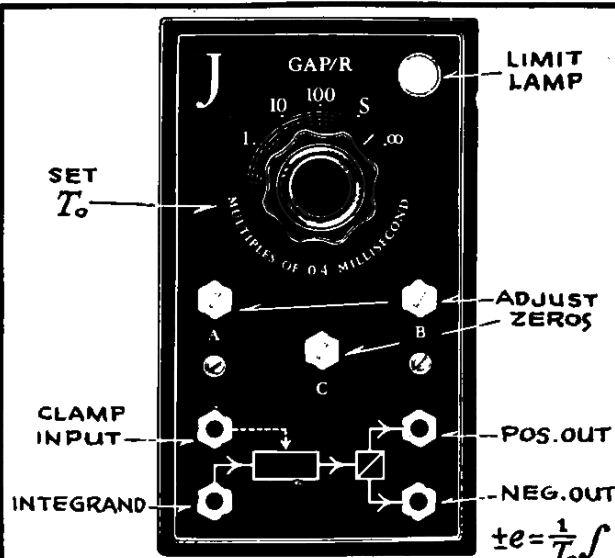12AX7

GAP/R
MODEL
K3-J

Model K3-J Integrating Component

K3 COMPONENTS

The K3 series of Analog Computing Components is a modular family of operational blocks, linear and nonlinear. Each K3 Component is a self-contained operational unit, engineered for functional efficiency in a computing system. An easily removable (without tools) black steel case houses each Component uniformly, compactly, and durably. At the back, 5-pin input and output connectors supply power, and permit cable connections in cascade from one Component to the next. On the front, input and output jacks provide for computing signal connections via standard cables. An indicating dial on each Component serves for setting characteristics. For convenience, clearly visible lamps denote outputs in excess of 50 volts, although output limiting per se cannot harm these rugged Components. K3 Computing Components are characterized by increased convenience and stability over earlier models, and all zeroing adjustments are located on their front panels For facility in (rarely needed) servicing, all operational amplifiers are easily removable plug-ins.

$$\pm e = \frac{1}{T_o}\int$$

Model K3-J is an Integrating Component of tremendous flexibility for application to repetitive or real time computation or simulation. The "pancelerative" operation of the K3-J is achieved by a choice of fixed characteristic times ranging from 400 microseconds to 1 second. For systems which have not returned to zero at the end of the computing interval, a "clamp" gating voltage may be applied to the upper input which artificially restores the outputs to zero rapidly and automatically. Clamping may also be achieved manually by switching to an "infinity" position. With no input to the upper jack, the Component is normally unclamped. Outputs are available in both the positive and the negative sense.

Figure (a)

The K3-J may be applied wherever integration with respect to time is required. Typical applications are in the solution of differential equations, simulation of dynamic processes, and measurement of energy.
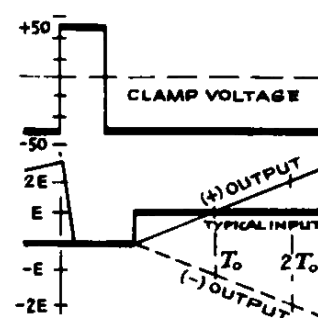
Brief Specifications

Input Impedance (Main): 1 megohm
    Range: 50 volts

Gate requirements (clamp): 50V 1/3 ma
         (unclamped): 50V 1/3 ma

Time factors: 0.0004, 0.004, 0.04, 1,
       "00" seconds

Outputs (2) Impedance: Under 25 ohms
        Range: 50 ohms

Operational Amplifiers: 3 Model K2-W

Additional tubes: 1 6AK5

Power requirements: 16 ma @ 300 vdc

Dimensions: $7\frac{1}{4}"$H x $4\frac{1}{4}"$W x $5\frac{1}{4}"$D

Shipping weight: $8\frac{1}{2}$ lbs.

Zeroing Procedure

1. With no input, and after sufficient warmup, with the dial set at 10, apply a Clamp gating voltage akin to that in Fig. (a).

2. Adjust A for zero slope, when either output is displayed on oscilloscope.

3. Adjust C for zero Negative output level.

4. Adjust B for zero Positive output level.

George A. Philbrick Researches, Inc.
230 Congress Street, Boston 10, Massachusetts

GAP/R MODEL K3-J

FOR DETAILS ON PLUG-IN AMPLIFIERS (I, II, III) SEE BULLETIN ON MODEL K2-W

TOP VIEW OF CHASSIS

6AK5

OUT   IN

III   II

I

PLUG-IN AMPLIFIERS

PRESS SPRING·PUSH FROM FRONT·TO REMOVE FROM CASE

REAR VIEW

PLUG-IN AMPLIFIERS

COMMON

OUT   IN

-300 VDC   -300 VDC

+300 VDC

POWER CONNECTORS

115 VAC

CLAMP (UPPER LEFT)

K3-J-1-556