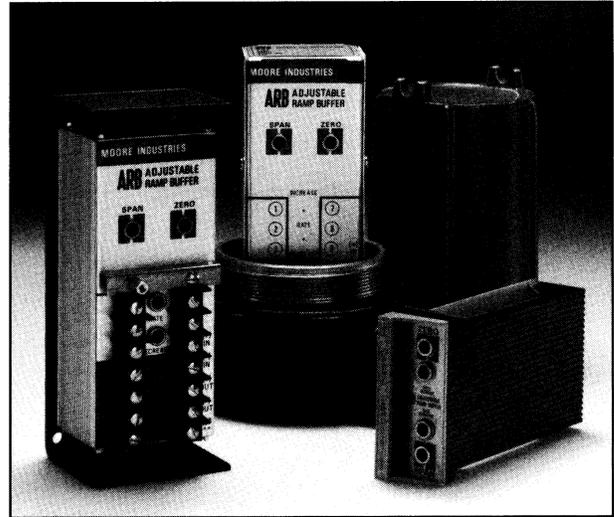


Description

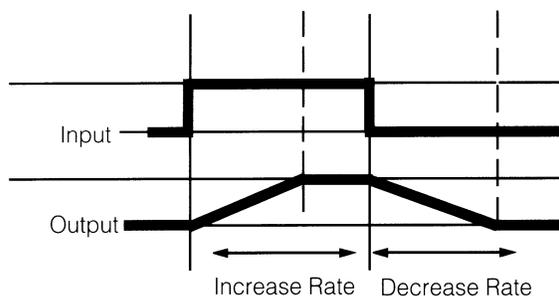
The ARB Adjustable Ramp Buffer accepts either a current, voltage, or contact closure input. In response to a change in input, it generates an analog output signal that is ramped smoothly at an individually adjustable rate, either up or down, to a value that corresponds to the new input. The ARB is useful in any process situation that requires an adjustable rate control signal. Typical applications include: limiting or predetermining a particular rate of valve actuation; and, smoothing signals that contain undesirable high frequency components. The output from the ARB can be used to feed such process instruments as integrators, alarms, and digital displays; it can also be used to drive recorders and digital multiplexers.

The ARB module is available in several different housing enclosures. The standard housing is a corrosion-resistant, CSA approved aluminum case with a "U-Back" mounting bracket that fits into a 3-by-7-1/2-inch installation space. The alternate plug-in housing is designed for high-density surface- or card-rack mountings. Also available are explosion-proof, oil tight, watertight, and other enclosures that conform to NEMA standards as indicated in the Specifications table (back page). Housing dimensions for each of these enclosures are included on the applicable housing sheet.



The ARB is offered in surface-mount and field-mount explosion-proof enclosures.

Input Step Signal and corresponding output signal with controlled linear ramp.



Precision ramps are generated in the ARB by a clock that drives a staircase waveform made up of equal incremental steps. With any given input step change, the ARB limits the rate of change of the output signal at a rate that is linearly proportional to time as determined by the slope adjustments of the module.

Features

- **Six standard ramp ranges.** Available ramp ranges include 100 milliseconds (fixed); 2-10 seconds; 10-50 seconds; 50-120 seconds; 2-10 minutes; and 10-60 minutes.
- **Independently adjustable slope.** Increasing and decreasing ramp times (slopes) are independently adjustable within each selected ramp range.
- **Contact closure option.** Contact closure input can be used to initiate soak cycles or to interface a relay with a modulation valve.
- **Externally controllable hold times.** Addition of Moore Industries STM Module (external clock generator) allows ramp times up to 48 days.
- **"Dynamic" process alarm capabilities.** True "Rate of Change" alarm system is provided when ARB is used in conjunction with a Moore Industries deviation alarm (DCA/DA).
- **RFI protection available.** -RF option provides patented RFI filter terminal assembly that prevents radio frequency interference from entering the ARB unit or rack.



Adjustable Ramp Buffer

Specifications

Characteristics

Front Panel Adjustments Adjustable with multiturn potentiometer.
Zero: With minimum input, adjusts output to 0% $\pm 10\%$ of selected output span.
Span: With full scale input, adjusts output to 100% $\pm 20\%$ of selected output span.
Increase Rate/Decrease Rate: Increasing and decreasing ramp times are independently adjustable within the selected ramp range.

Performance **Calibration Capability:** ± 1 part in 1000.
Ripple: Less than 0.2% of maximum signal (10mV maximum P/P for a 5V signal).
Load Effect: $\pm 0.01\%$ of span from 0 to maximum load resistance (current output).
Line Voltage Effect: ac or dc $\pm 0.005\%/1\%$ line change.
Output: Operational amplifier feedback current source; output limited to 150% of maximum output range value.

Ambient Temperature **Range:** 0°C to 70°C (32°F to 158°F)
Effect: $\pm 0.01\%/^{\circ}\text{F}$ over above range.

ISA Compliance ISA S50.1, Section 5

Isolation Voltage output units have input negative side common to output negative side; current output models have output negative side elevated above input negative side; and power input isolation is maintained on both ac- and dc- powered units.

Certification CSA

Weight Approximately 2 lbs. (908 grams)

Output Ranges (cont.) **Voltage: 1-5V** standard into 20K Ω minimum
Standard Ramp Range^(*):
100MS 100 ms (fixed)
2-10S 2-10 seconds for 0-100% output
10-50S 10-50 seconds for 0-100% output
50-120S 50-120 seconds for 0-100% output
2-10M 2-10 minutes for 0-100% output
10-60M 10-60 minutes for 0-100% output

(Consult factory for other ranges)

Ordering Specifications

Unit ARB

Input Current:
1-5MA 1-5mA into 200 Ω nominal
4-20MA 4-20mA into 50 Ω nominal
10-50MA 10-50mA into 20 Ω nominal
SC Selectable Current input range
Voltage:
0-5V, 1-5V standard
 0.5 megohms minimum input impedance, 2 megohms typical
 Other voltages optional
Contact Closures:
2XCC 2XCC (optional; consult factory)

Output Ranges **Current:**
1-5MA 1-5mA into 0-4800 Ω load
4-20MA 4-20mA into 0-1200 Ω load
10-50MA 10-50mA into 0-480 Ω load
SC Selectable current output range

Power **24DC** 24Vdc, $\pm 10\%$
45DC 45 Vdc, $\pm 10\%$
117AC 117Vac, 50/60Hz, $\pm 10\%$
240AC 240Vac, 50/60Hz, $\pm 10\%$
5W 5 watts nominal

Options **-IR** Independent up or down ramp range selection
-RF RFI protection
-TX 2-wire transmitter excitation, 30Vdc @ 25mA output to 2-wire field transmitter, 4-20mA only

Housings **STD** Standard enclosure
AB Angle bracket mounting
DCM Standard housing with clip for mounting on G-type DIN rail
EX Explosion-proof enclosure, Single Unit - Div. 1
PC Plug-In Card Housing

When ordering, specify: Unit / Input / Output Range* / Power Input / Options [Housing]

Model number examples: ARB/4-20MA/10-50MA 2-10S/117AC/-RF [STD]

* Specify - output range and ramp range.

* Ramp ranges may be combined (consult factory).



United States Telephone: (818) 894-7111 • FAX: (818) 891-2816 Australia Telephone: (02) 525-9177 • FAX: (02) 525-7296
 Belgium Telephone: 03 235.35.44 • FAX: 03 271.00.17 Netherlands Telephone: 03440-17971 • FAX: 03440-15920
 Singapore Telephone: (65) 7634511 • FAX: (65) 7636176 United Kingdom Telephone: 0293 514488 • FAX: 0293 536852