



# RATE LIMITER

Types B12-17/0, B12-17/1, B12-17/2

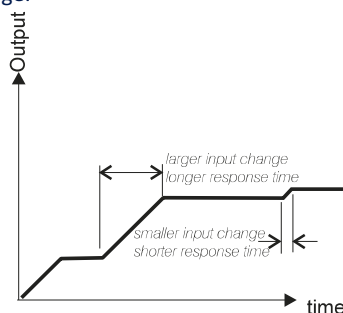
- Provides controlled rate of change
- Wide range of input and output types
- 15 V sensor / loop supply option
- High impedance output drive option
- AC or low voltage (11-32 VDC, 12-24VAC) powered versions
- Wall or DIN rail mounting
- Module unplugs without disturbing wiring or breaking input current loops
- Analogue circuitry used throughout

The B12-17 series provides a range of instruments which can be used to control the rate of change of a process signal. The B12-17 has uses in processes requiring signal damping. This unit will also provide conversion of voltage and current signals. The rate of change is controlled by a ten-turn dial scaled 0-100% of the calibrated maximum time to FSD.

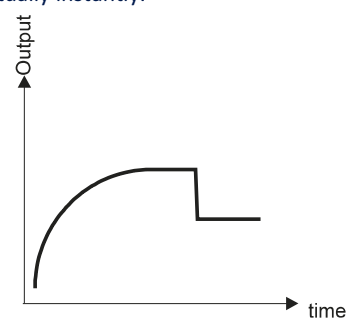


The output characteristics of standard versions of the Rate Limiter are as follows:

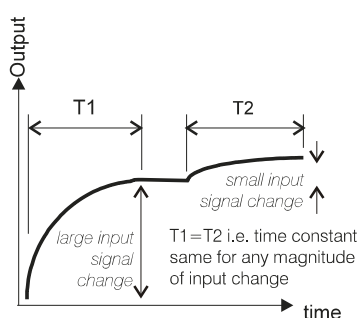
**B12-17/1 Rate Limiter:** The response curve is a linear ramp with a fixed rate of change. The effect on the output is a response time proportional to the magnitude of input signal change.



**B12-17/0 Slow Up/Fast Down Response:** For rising input signals the response curve is the same as the B12-17/2. However, with a falling input signal level the output signal follows virtually instantly.



**B12-17/2 Slow Up/Slow Down Response:** The response curve is exponential and the time constant for the output to reach a steady state value is the same for any magnitude of change in input signal.



## Information required when ordering

- Specify type i.e. B12-17/0, B12-17/1 or B12-17/2
- Input signal
- Output signal
- Response time
- Supply voltage and frequency

## Options

- High output drive required (mA outputs) ?
- DIN rail mounting clip required ?

## Specifications

### Notes:

- 1 Input and output ranges are factory calibrated for one type of signal and not user configurable..

### Inputs

Current from 0-1mA to 0-30mA and Voltage from 0-1V to 0-250V. Typical inputs: 0-10mA (100R), 0-20mA (50R), 4-20 mA (62R), 0-5V, 1-5V, 0-10V, 2-10V (>200k)

*Input impedances shown in brackets.*

### Input Signal No-break Loop Facility

mA input signal loops are maintained when the unit is unplugged from the base section.

### Input Overrange Protection

Voltage Inputs: 250 volts RMS or DC, Current Inputs: 50mA

### Outputs

0-10mA (2000R), 0-20 mA (1000R), 4-20 mA (1000R)

**High impedance output drive options:** 0-10mA (5000R),

0-20 mA (2500R), 4-20 mA (2500R) *Maximum output impedances in ohms shown in brackets.*

0-5v, 1-5V, 0-10V, 2-10V (500R minimum)

Current sink 4-20mA @ 50 volts max.

### Transmitter Excitation Supply

15VDC @ 20mA maximum

### Response Time

Can be manufactured for 0-60 seconds up to 0-120 seconds

### Isolation

The input and output are not isolated from each other, but are isolated from the power supply.

### Calibrated Accuracy

Set at 100% to be within  $\pm 0.2\%$  FSD.

### Linearity Error

$\pm 0.1\%$  FSD

### Output Ripple

0.2% RMS of FSD

### Load Resistance Effect

0.001% of span / 100 ohm change

### Stability

Over 24 hours  $\pm 0.1\%$  FSD, Over 1 year  $\pm 0.25\%$  FSD

### Common Mode Rejection

<0.2% error for 250V RMS 50/60 Hz, or 400V DC, common mode signals.

### Temperature Coefficients

Zero:  $\pm 0.02\%$  span / °C, Span:  $\pm 0.02\%$  span / °C

### Environmental

Temperature: operating -10 to +60°C, storage -20 to +70°C

Humidity: 0 – 95% RH non-condensing

## Power Supply

**AC Supply:** 110, 220 or 230V  $\pm 10\%$  50/60Hz 5VA

Fuse: 100mA quick-blow (internal)

**Low voltage:** 11-32VDC 4 W / 12-24VAC

Fuse: 250mA anti-surge (internal)

## Supply Voltage Rejection

Span change: <0.02% span / % supply change.

## Safety & EMC

Safety: EN61010-1, Immunity: EN50082-1,

Emissions: EN50081-1, CE certified

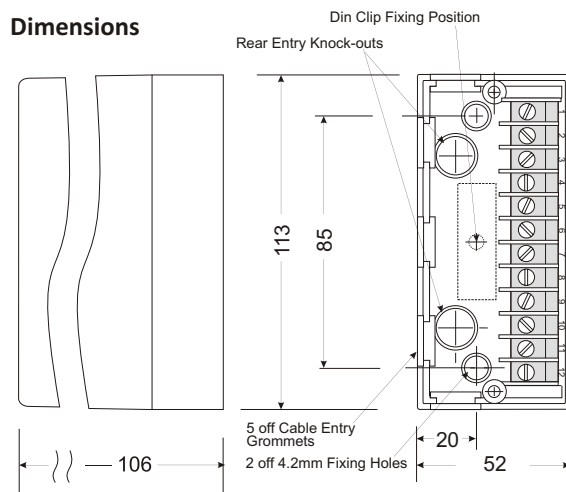
## Mechanical

Weight: approx. 0.5kg

Enclosure: Fire retardent materials - PPO base, ABS cover

Screw terminal wire capacity: 2 x 1.5mm<sup>2</sup>

## Dimensions



## Electrical Connections



**WARNING:** these details are provided for pre-sales information only. Installation must be carried out in accordance with the User Guide

<b>Inputs</b>	1	Transducer supply (+15V)	
	2	Input Signal (+)	
	3	Input (-)	
	4	- reserved	
	5	- internal connection	
	6	- internal connection	
<b>Outputs</b>	7	mA Output (+)	Current Sink
	8	mA Output (-)	8 (+)
		Voltage Output (+)	9 (-)
	9	Voltage Output (-)	
<b>Supply</b>	10	Earth	AC Earth
	11	Neutral	Mains Negative (-) Supply
	12	Line	Supply Positive (+) Option



**THIS UNIT CAN BE MAINS POWERED, AND ALL INPUTS TO IT MUST BE ISOLATED FROM DANGEROUS VOLTAGES BEFORE THE FRONT COVER IS REMOVED. LIVE TERMINALS WILL BE EXPOSED.**

Continuous development may necessitate changes in these details without notice

# SIL

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