McWade Monitoring Systems
Telephone: +44 (0)161 483 0754
Email: info@mcwade-monitoring.co.uk

Pulsing Preamplifier Type PA3301

Standard Pulsing AE Preamplifier Type PA3301

Specification Type PA3301

Supply:		28-volt phantom fed (Industry Standard)
Gain:		40dB
Filters		Standard Band Pass Range
		90kHz BP (60kHz to 120kHz)
		150kHz BP (100kHz to 200kHz)
		300kHz BP (200kHz to 400kHz)
		600kHz BP (400kHz to 800kHz)
		900kHz BP (600kHz to 1.2MHz)
Connectors		Input (and pulse output) SMC
		Output (and phantom fed power supply) BNC
Pulse Output*		-5 volt for <1 micro second
Size	Dia	16.5 (0.65)
	Length	108.2 (4.26) (125 (4.91) including connectors)

mm (Inch)

* The pulse output excites the attached sensor and can be used to test and calibrate an array of sensors. A pulse is initiated when power is applied to the preamplifier.

Pulsing can be repeated at any time during normal operation by removing and reapplying the phantom fed power supply. The maximum recommended pulse rate is five pulses per second.

There is a delay of between 60ms and 90ms after power is applied (or reapplied) to the preamplifier. This delay allows the monitoring instrumentation to ignore the initial power-on transient and settle before the pulse initiated. A full sensor array can then be tested or calibrated. Note that the pulsed sensor will be the first hit in the array.

Variation Type PA3311

As Type PA3301 but designed for a 13-volt supply and with lower gain

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Additional Range of Preamplifiers

A number of preamplifiers is available for special applications including

- Low gain for high signal levels such as cavitation
- Switchable gain to optimise signal detection where signal levels are unknown
- Logarithmic output (gives a 'linear' output in dB). Ideal for reducing the dynamic voltage range of AE signals giving typical output of 25mV/dB (100dB = 2.5 volts). An eight-bit analogue to digital converter therefore gives a resolution of better than 0.5dB. Without logarithmic conversion, the dynamic range can be greater than 10,000 to 1
- Specially screened for high immunity to RF. Please see Special Preamplifier Type NLA460

Special Preamplifiers

If you have a special requirement for Acoustic Emission monitoring please contact info@mcwade-monitoring.co.uk

Preamplifier Calibration

McWade Monitoring Systems test and calibrate all preamplifiers during and after production.

The filter frequency response and amplitude are controlled to a template response curve.

Table of Industry Standard AE signal amplitude related to dB

The 'Typical Log Amp Output' shown in column 4 is for McWade Monitoring Systems' signal conditioning circuits using logarithmic data compression techniques.

For gain of 100 (40dB) Preamplifier

Sensor output (Volts pk)	Preamp output (Volts pk)	dBae*	Typical Log Amp Output (Volts)
0.500	50.0	114	2.85
0.160	16.0	104	2.60
0.100	10.0	100	2.50
50.0m	5.00	94	2.35
25.0m	2.50	88	2.20
15.8m	1.58	84	2.10
5.0m	0.50	74	1.85
1.60m	0.16	64	1.60
500.0µ	50.00m	54	1.35
159.6µ	15.96m	44	1.10
50.0µ	5.00m	34	0.85
31.6µ	3.16m	30	0.75
15.8µ	1.58m	24	0.60
10.0µ	1.00m	20	0.50
5.0µ	500µ	14	0.35
1.0µ	100µ	0	0.00

* dBae is the industry standard scale used for AE event amplitude measurement referenced to 1µ volt at the AE sensor

Values shown shaded will be below the noise floor or beyond the normal dynamic range of the preamplifier.

Note that voltages are peak (not peak to peak)