

PA200-10

This is a +12V D.C. powered pre-amplifier designed to work with electronic output detectors.

The output from this unit is a voltage-amplified version of the input pulse. Pulses below 1.25ns will be temporally stretched to approximately twice their length i.e. a 1ns pulse input will be a 2ns pulse output. The amplification ratio is a minimum of 20db, i.e. gain of 10.

This module requires an external +12V power supply and both input and outputs must be 50Ω matched systems.

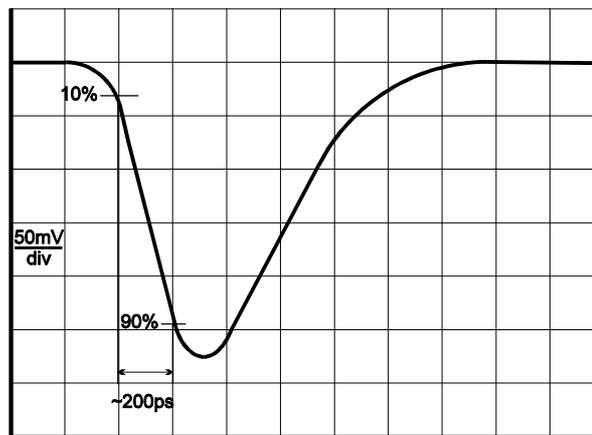


Operating Characteristics

This pre-amplifier has 50Ω input and output impedance's, 2 GHz Bandwidth and 180ps rise time. The gain of this unit is 20dB non-inverting.

Assuming minimum 20dB gain the maximum amplitude input pulse that this unit can amplify without clipping is 400mV, this would give approximately 4V output.

Assuming a negative going input pulse, the output pulse from this pre-amplifier is of the form illustrated below: -



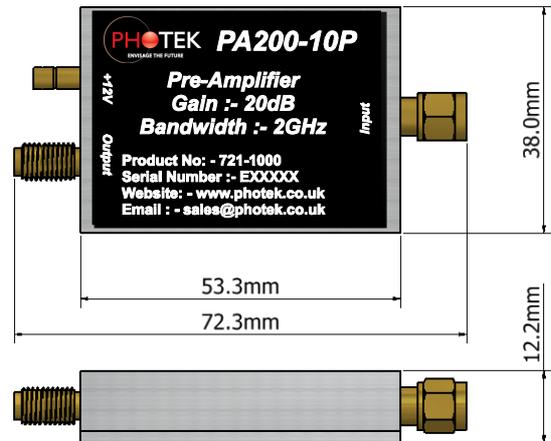
The rise time of the output pulse is related to the rise time of the input pulse and the rise time of the pre-amplifier approximately by the formula :-

$$\text{Output Pulse Rise Time} = \sqrt{t_i^2 + t_a^2}$$

Where t_i = Input pulse rise time
and t_a = Pre-Amplifier rise time

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Issue:	2
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PA200-10 Connectors		
Input Power		
SMB Socket	Center	+12V
	Screen	0V
Input Signal		
SMA Plug	Center	Pulse Input
	Screen	0V
Output Signal		
SMA Socket	Center	Pulse Output
	Screen	0V



Pre-Amplifier Part Number Selection: -

PA200-10 X — X = Output Connector
S = SMA Socket
P = SMA Plug

This module is designed to mount directly onto the MCP device being used that should be fitted with a mating half of the SMA connector.

Items Supplied

- 1 x PA200-10P Pre-Amplifier - fitted with SMA plug input connector
- or 1 x PA200-10S Pre-Amplifier - fitted with SMA socket input connector
- 1 x ED588 - Output Cable –SMA to BNC (2m).

Electrical Specifications		Mechanical Specifications	
Supply Voltage	+12V D.C.	Length	53.3mm
Supply Current (max)	20mA	Length (Incl. Connectors)	72.3mm
Input Pulse Limits	400mV max	Width	38.0mm
Input Impedance	50Ω	Height	12.2mm
Output Impedance	50Ω	Weight	≈50g
Gain (Non-Inverting)	20dB	Operating Temperature Range	
3dB Bandwidth (typical)	2GHz	Temperature Minimum	0°C
Rise Time	180ps	Temperature Maximum	70°C

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Any unauthorised adjustment or modification to this unit will void all warranties and will only be supported at Photeks discretion.

Photek reserves the right to amend general information contained in this manual without prior notice.

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