

photomultiplier amplifier-discriminator AD2



1 description

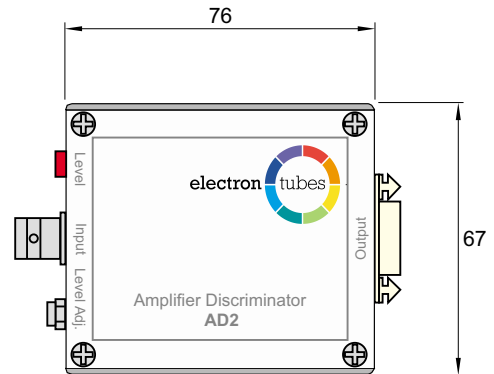
The AD2 amplifier-discriminator is a compact unit used in photon detection systems to generate output pulses suitable for digital counting. An output pulse of fixed width and amplitude is produced for each photomultiplier input pulse that exceeds a set threshold level.

The AD2 is housed in a small, stand-alone metal box suitable for use with any high gain photomultiplier.

The AD2B is a bare circuit board that may be incorporated into customer's own equipment.

The AD2H refers to a fitted board within an Electron Tubes B2 housing or FACT50/LCT50 cooled housing.

4 external dimensions mm

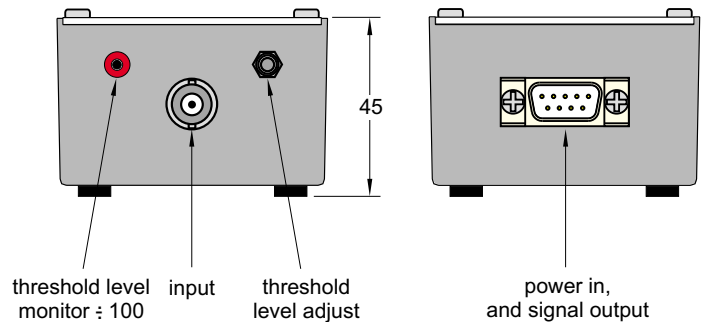


2 applications

- for counting photomultiplier pulses exceeding a fixed threshold
- can be used for single photon counting or applications involving multiple photodetection pulses

3 features

- the threshold level may be set between -0.5 mV and -2.5 mV via an external screwdriver adjustment.
- x100 monitor point is provided to allow threshold measurement using a digital voltmeter.
- output pulses are disabled by the imposed 'dead time' following a previous output pulse. This enables statistical correction of the mean output pulse rate, if required.
- the dead time is preset at the factory to 25 ns but may be changed to 40 ns or 80 ns.
- ECL output pulse width is approximately half the dead time.
- all units may be powered from the auxiliary LV output of the Electron Tubes Photomultiplier Power Supply PM20, PM28 and PM30.
- a universal ac power adaptor CT2PSU is available for use worldwide.
- an ECL/TTL converter type ET1 is available where TTL output is required (ask for our ET1 data sheet).



5 characteristics

The output pulses from Pins 1 and 2 of the 9 way 'D' connector are complimentary ECL logic levels (-0.8 V to -1.8 V). These may be connected, via a twisted pair cable terminated in 100 Ω, to ECL receiver circuits such as used in the Electron Tubes CT1 Photon Counter Board.

input pulse amplitude	photomultiplier anode pulses -0.5 mV to -10 mV
input impedance	50 Ω
input threshold	-0.5 mV to -2.5 mV
input protection	limiting diodes
threshold monitor	50 mV to 250 mV dc (ie. -100 x input threshold) output impedance 10 kΩ
dead time	preset 25 ns, 40 ns or 80 ns available via internal links
output pulse amplitude	ECL logic level (-0.8 V to -1.8 V) with 470 Ω pull down resistors
output pulse width	approx. half dead time
power requirements	+5 V @ 25 mA -5 V @ 100 mA
weight	195 g

6 connections

The connection between the photomultiplier and the AD2 input should be made with a 50 Ω BNC screened cable less than 20 cm in length to minimise spurious signals and pulse distortion.

signal input 50 Ω BNC

power in and signal output 9 way 'D' plug

Pin	Function
1	\bar{Q} , ECL out
2	Q, ECL out
3	not connected
4	+5 V in
5	-5 V in
6	0 V
7	not connected
8	not connected
9	not connected

7 ordering information

AD2	boxed electronic module and lead set
AD2B	57mm diameter circuit board with threshold adjusting potentiometer on flying leads
AD2H	board and potentiometer mounted within a B2 housing or FACT50/LCT50 cooled housing ordered separately
CT2PSU	universal ac power adaptor for use worldwide

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