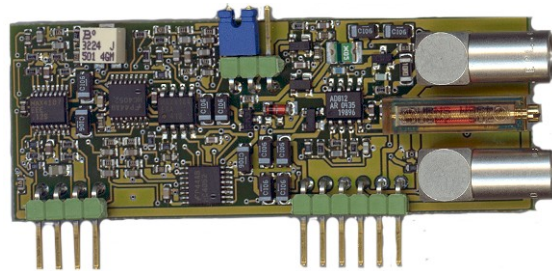


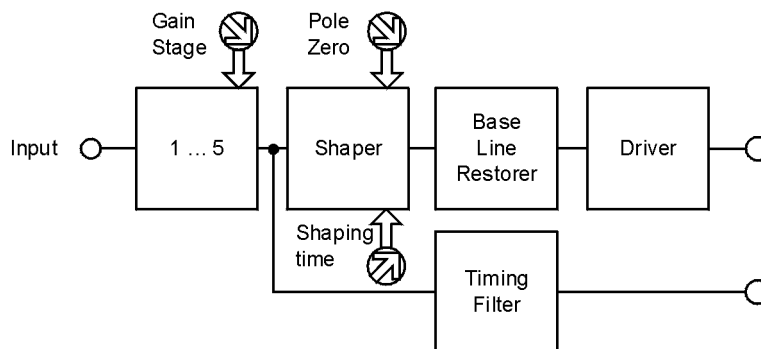
The mesytec MMSH1 is a high order gaussian shaper with integrated passive baseline-restorer. It also includes a timing filter amplifier. Energy and timing output are available at Lemo connectors. The shaper module fits into the preamp+shaper box **MSI-8** or can be used individually.

## Features:

- Shaper and timing filter amplifier integrated
- Can drive terminated BNC lines
- Shaper output voltage 10 V
- two shaping times
- Fast timing output, - 2 V
- gain adjustable
- baseline restorer



## Schematics:



**Shaper Output**

- Filtering: quasi gaussian (  $CR(RC)^5$  )
- Positive, gaussian pulse
- Max 10V (8 V at 50  $\Omega$ )
- Lemo connector
- Shaping time (FWHM). The traditional shaping time is the FWHM\_time / 2.

**2  $\mu$ s:** low noise, for low rate applications, very well selected strip detectors. *(Standard detectors often have a lot of 1/f noise resulting in better noise to signal ratio with shorter shaping time.)*

**1  $\mu$ s:** standard, best for large Si-detectors, standard strip detectors

**0.5  $\mu$ s:** optimized for high countrates

**0.25  $\mu$ s:** optimized for very high countrates >100 kHz, use fast ADC!

**Baseline restorer**

- A passive baseline restorer is integrated
- Baseline shift with frequency:  
For 1  $\mu$ s shaping time and a rate of 100 kHz, the base line shifts less than 100 mV (1 %).
- DC Offset at shaper output:  $\Delta U < 10$  mV

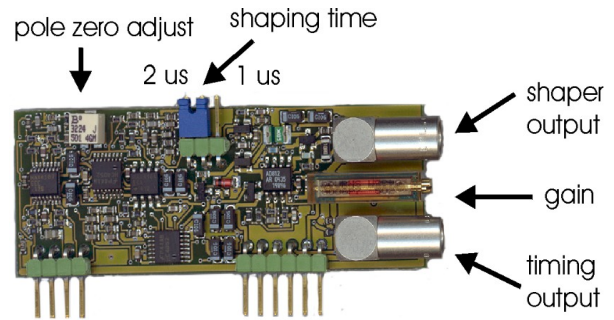
**Gain adjust**

- Gain of timing output and shaper output can be simultaneously adjusted by a factor of 10.
- Another factor 5 by preamp sensitivity switch (at the preamp module)

**Pole zero adjust:**

- Modules are adjusted to less than 20 mV of undershoot at the shaper output.
- You can readjust if necessary.

- Adjust range: 10  $\mu$ s to  $\infty$



**Timing Output**

- Timing filter amplifier (is included on the shaper module)  
integration time: 7 ns  
differentiation time: 200 ns
- Lemo connector
- Fast negative signal
- Max - 2 V

**Power consumption:**

- +12 V, 10 mA
- - 6 V, 10 mA
- total power = 180 mW

**Connector:**

(left pin = 1)

pin	name	pin	name
1	gnd	6	+ 12 V
2	in+	7	gnd
3	not connected	8	out shaper
4	gnd	9	out timing
5	- 6 V	10	gnd

**Size:**

Length: 70mm  
Width: 25mm