

Overview

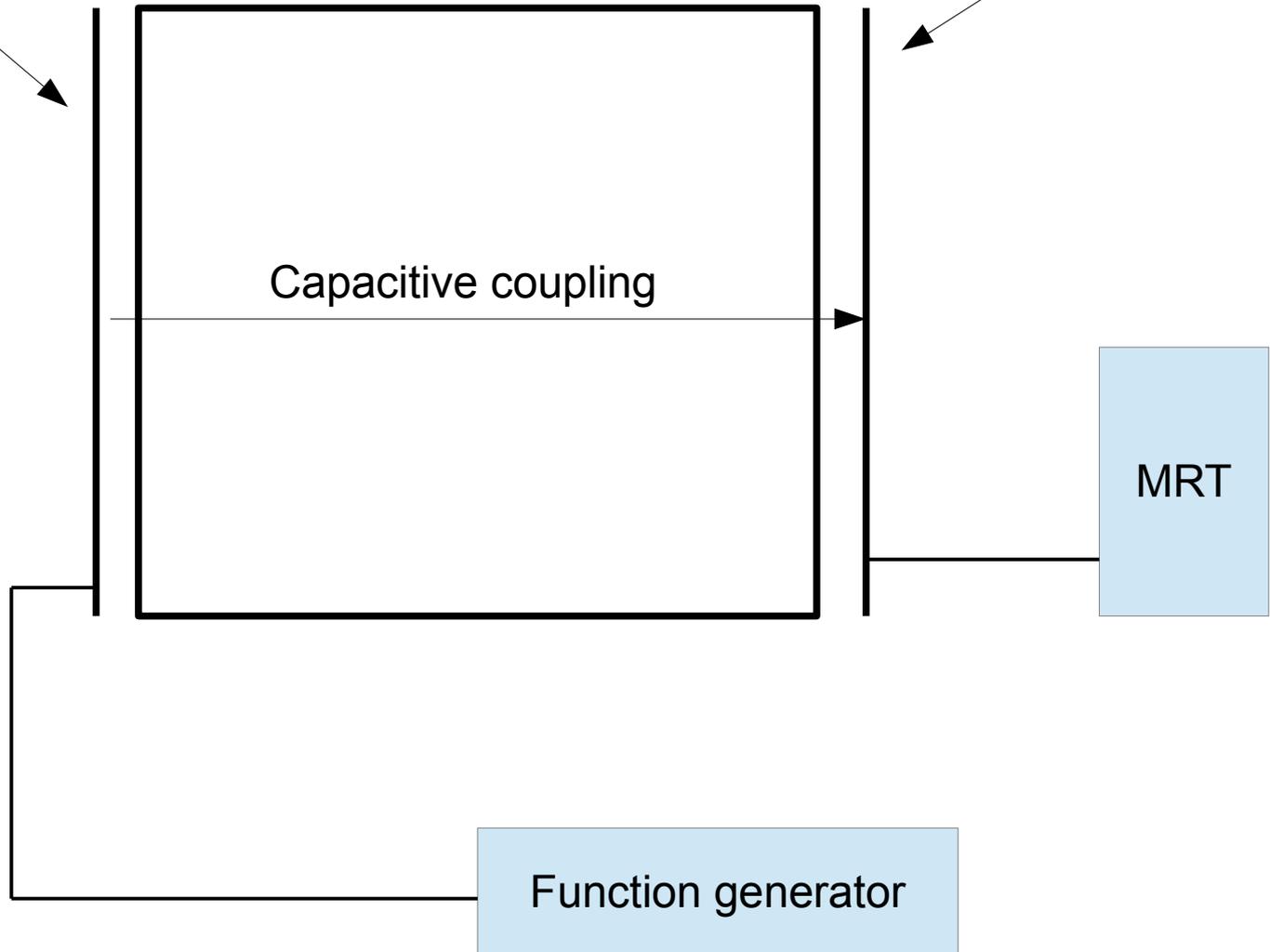
Cathode

Wire plane

Function generator pulses the cathode plane with a square wave (see next slide). Resulting induced charge is read out on the wire plane.

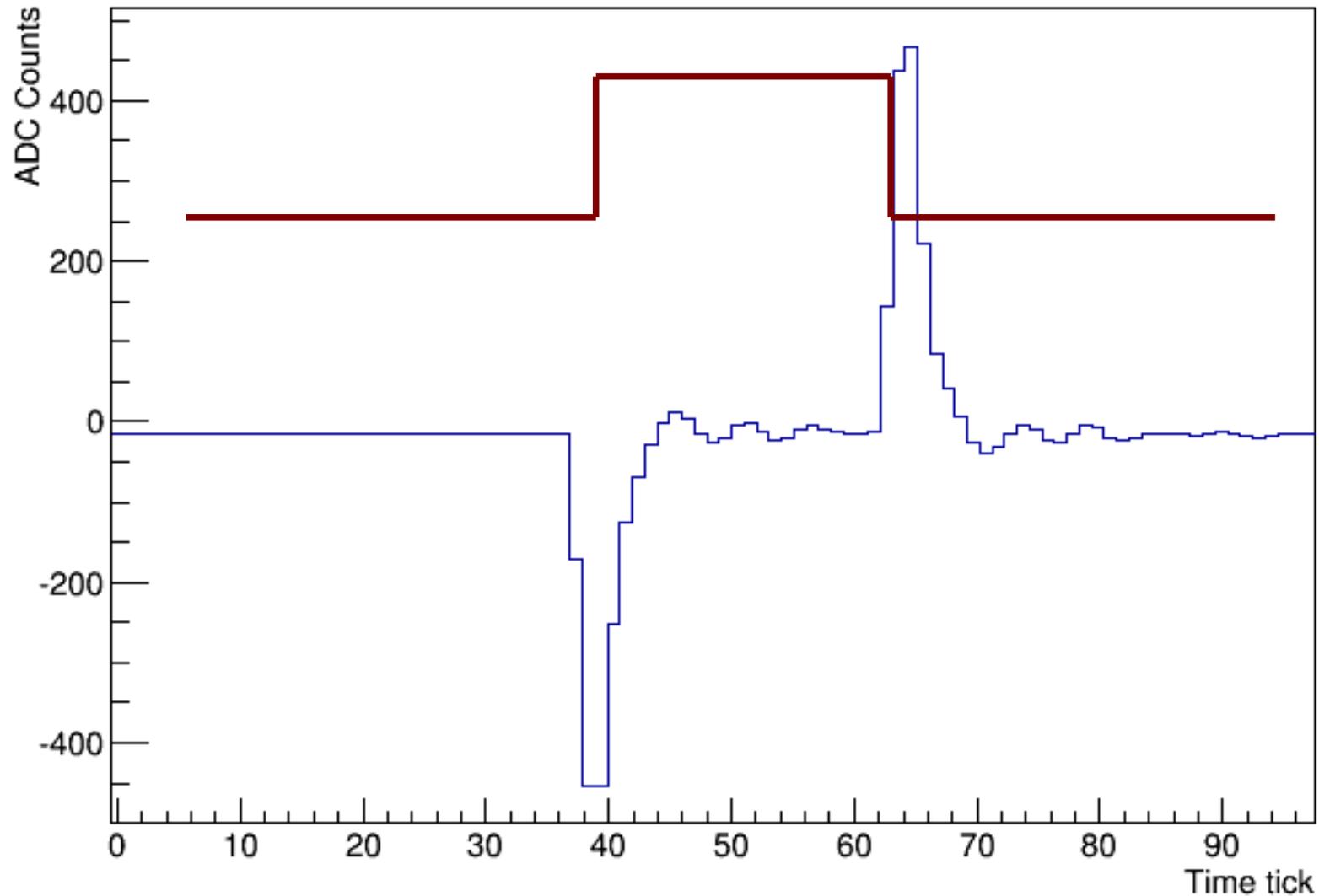
The period of the square wave was chosen to be as wide as allowable by the MRT read out window. This was to disentangle the effects caused by the rising and falling edges of the pulse.

The amplitude of the square wave was varied from 200mV to 1600mV to explore how sensitive the wire plane is to pulses on the cathode.



200mV: U plane

Pulse from Crate 1, FEM 13, Channel Number 30

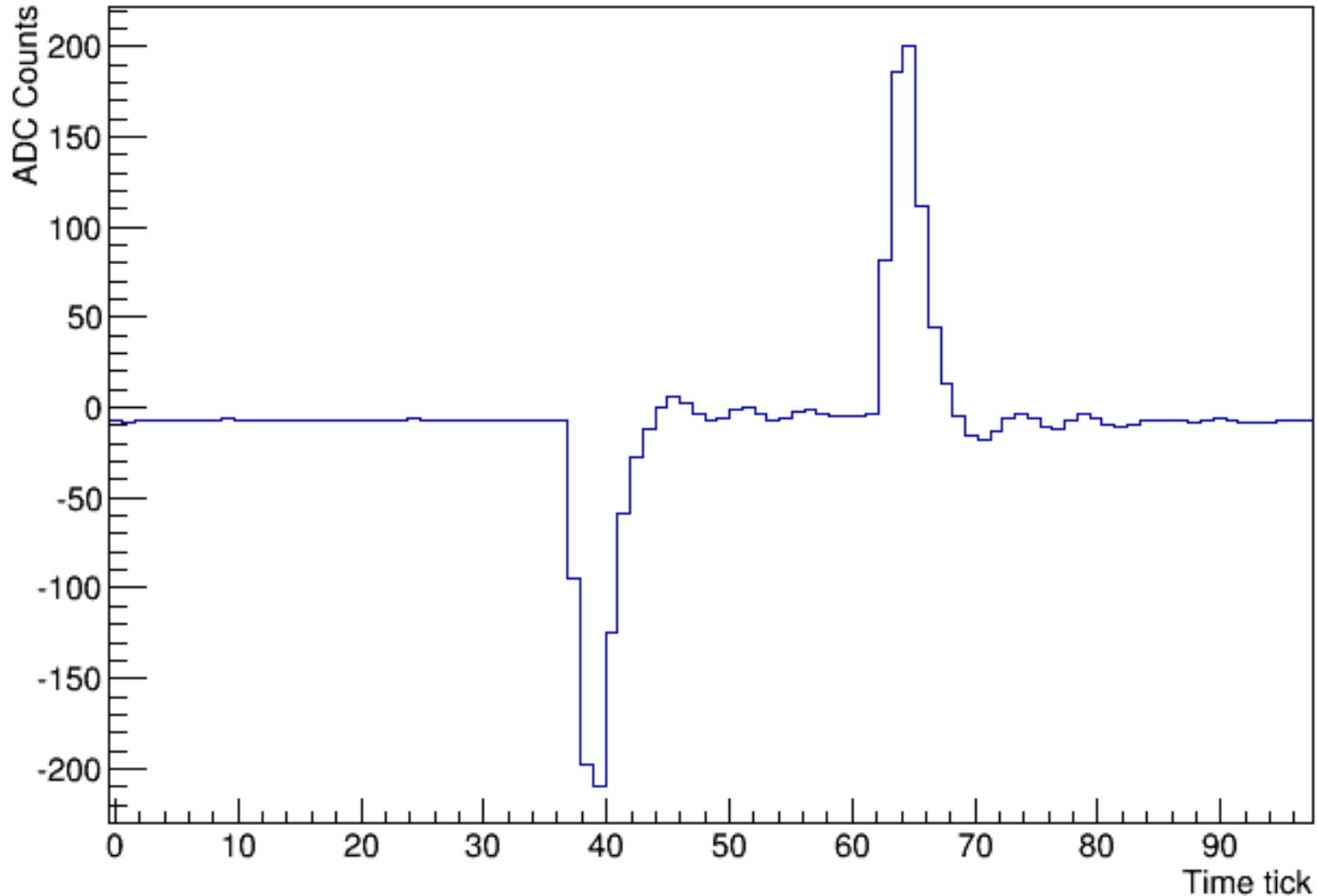


Red line:
Driving pulse
supplied to
cathode.

Blue line:
Resulting
induced
charge on a
wire as read
out by the
MRT.

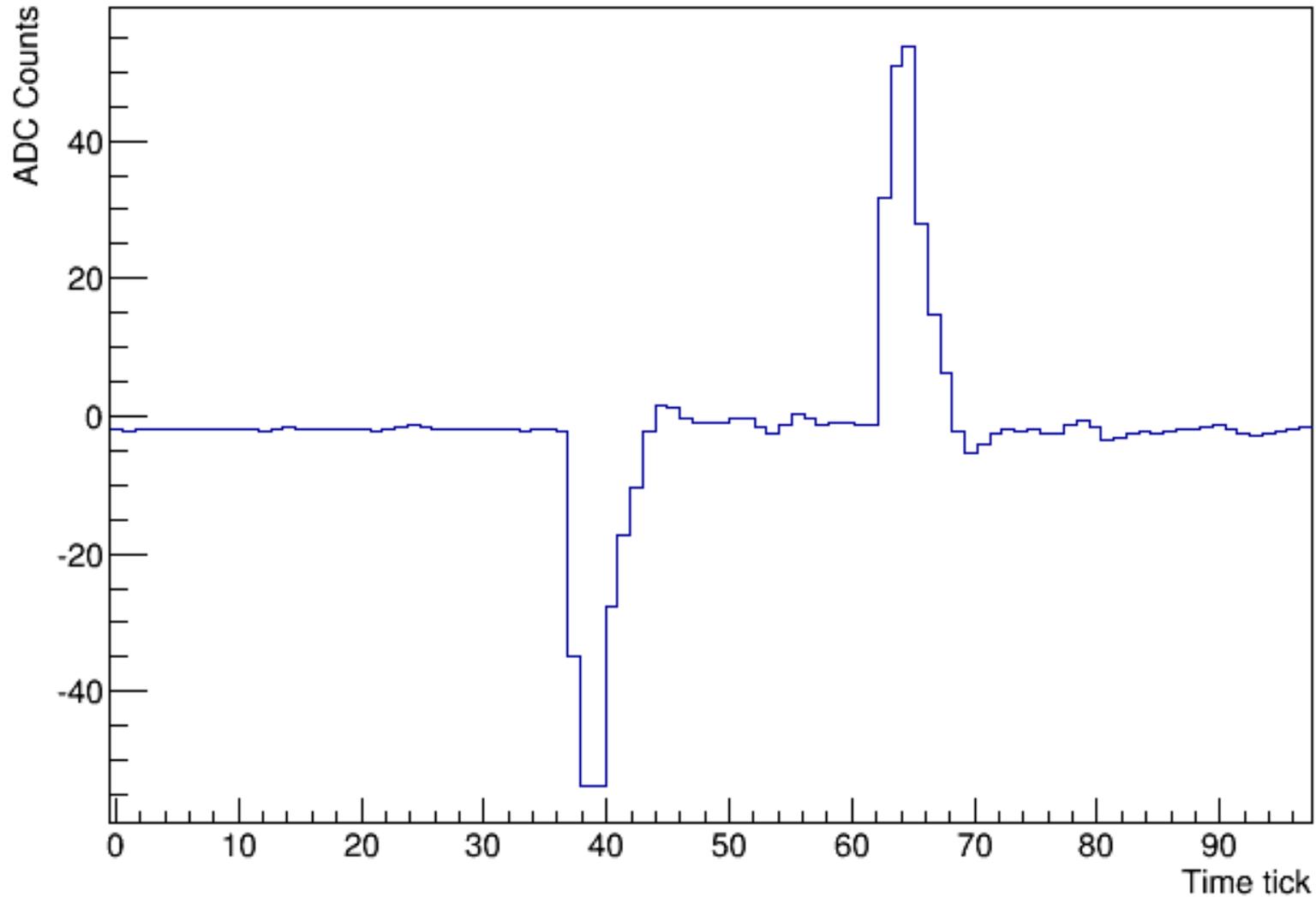
200mV: V plane

Pulse from Crate 1, FEM 13, Channel Number 31



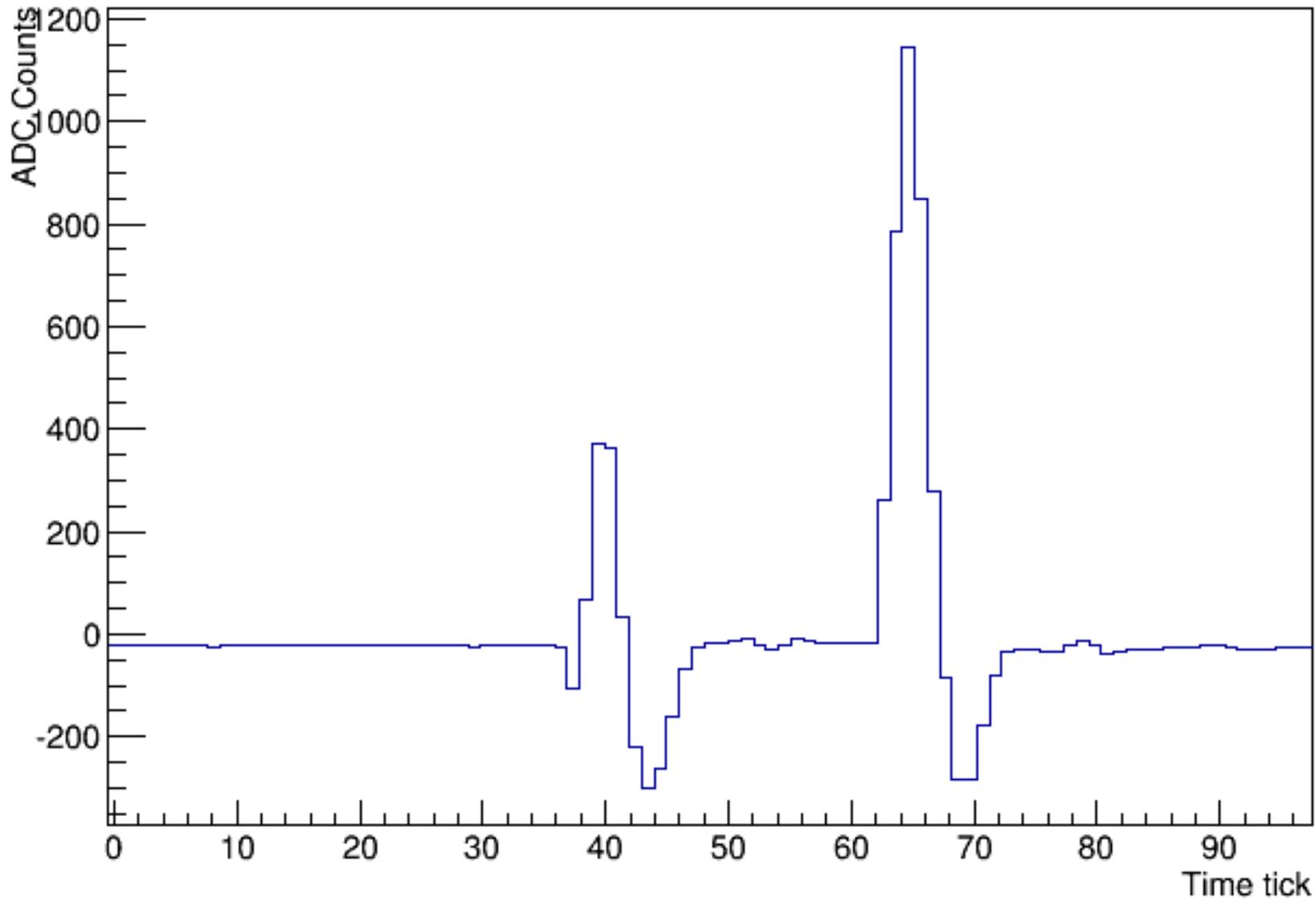
200mV: Y plane

Pulse from Crate 1, FEM 13, Channel Number 32



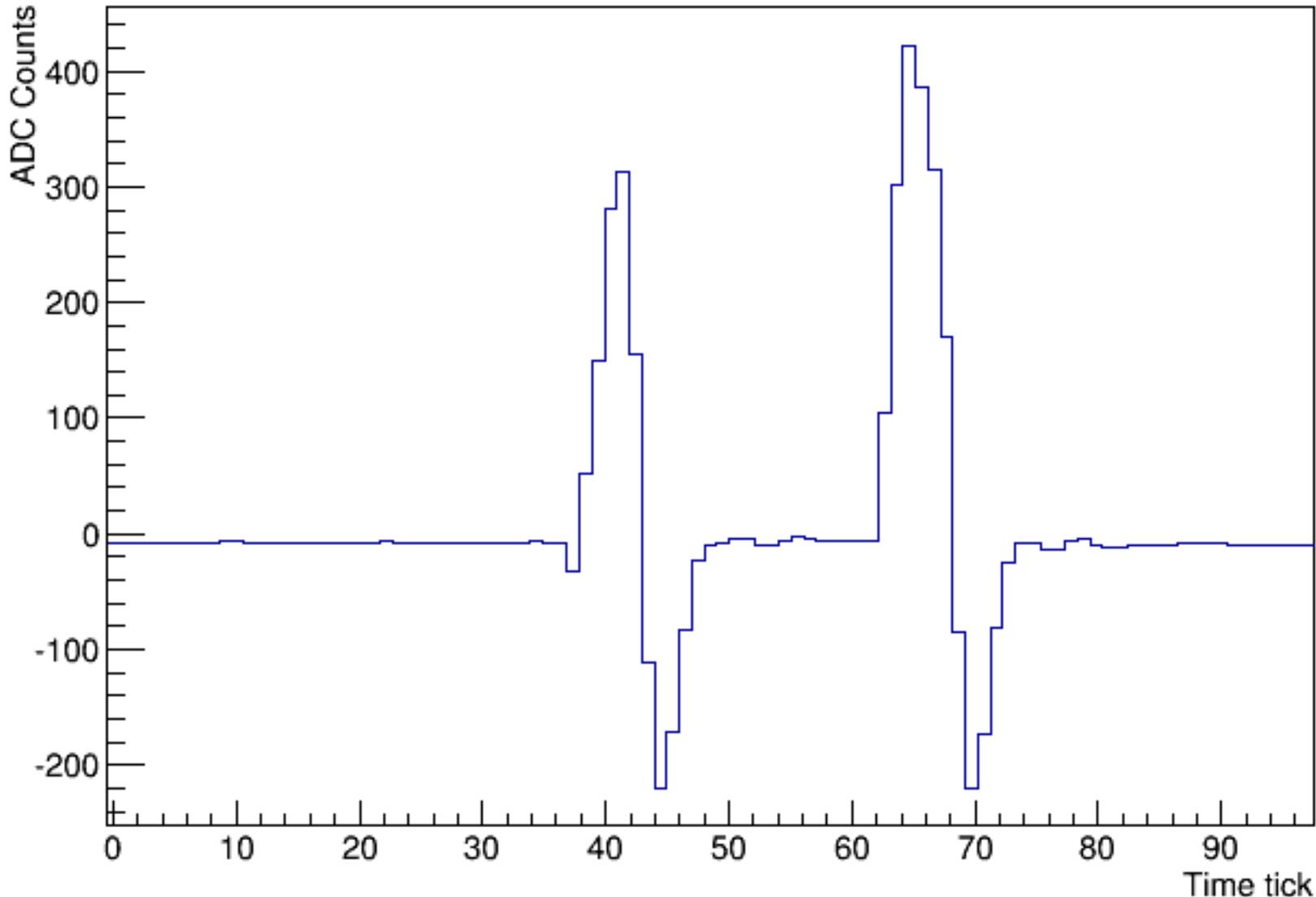
1600mV: Y plane

Pulse from Crate 1, FEM 13, Channel Number 32



1600mV: Y plane, blocking capacitor

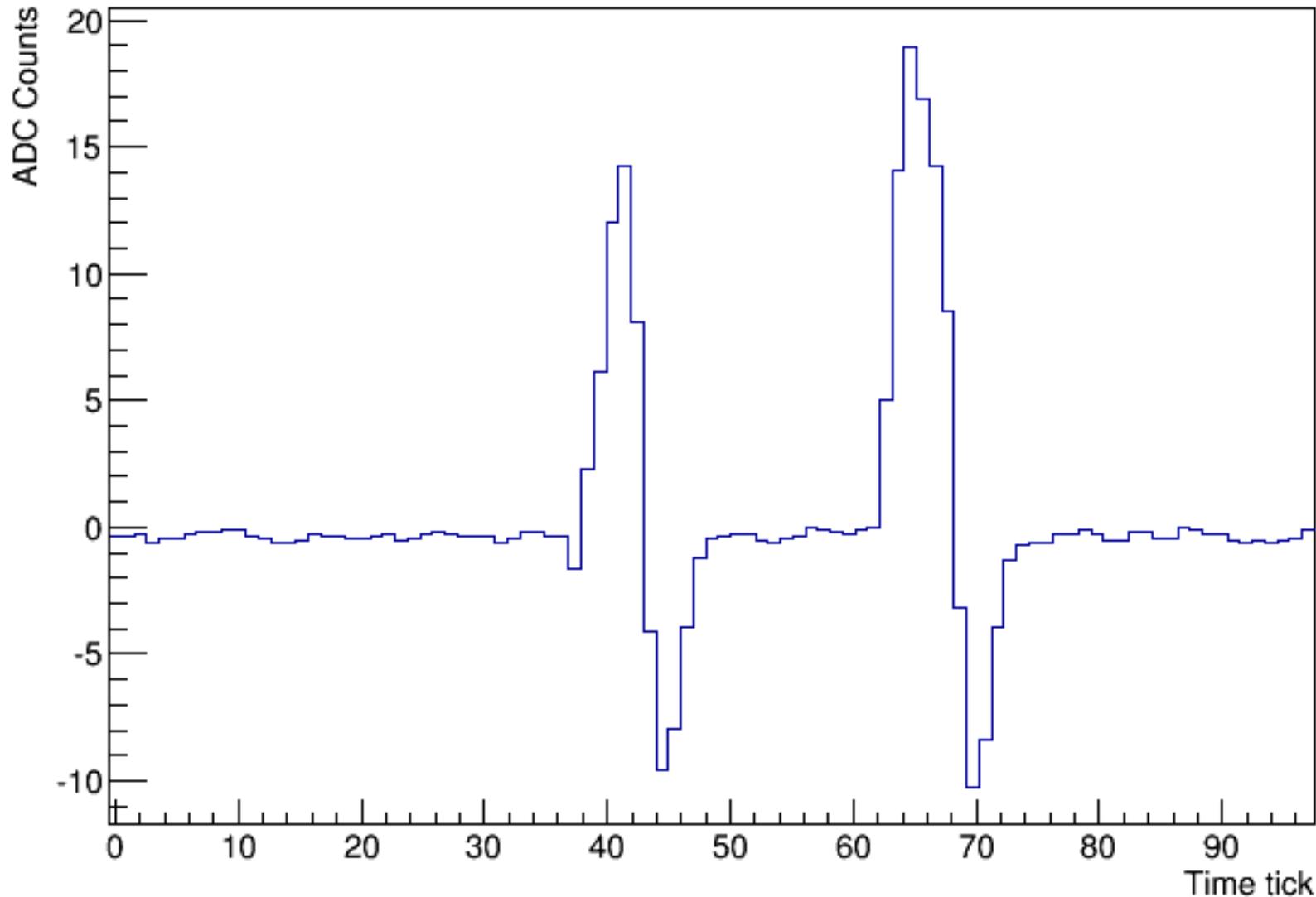
Pulse from Crate 1, FEM 13, Channel Number 32



Blocking capacitor: signal was fed through the joiner box used to provide a driving signal to the flasher LED

1600mV: Y plane, cable disconnected

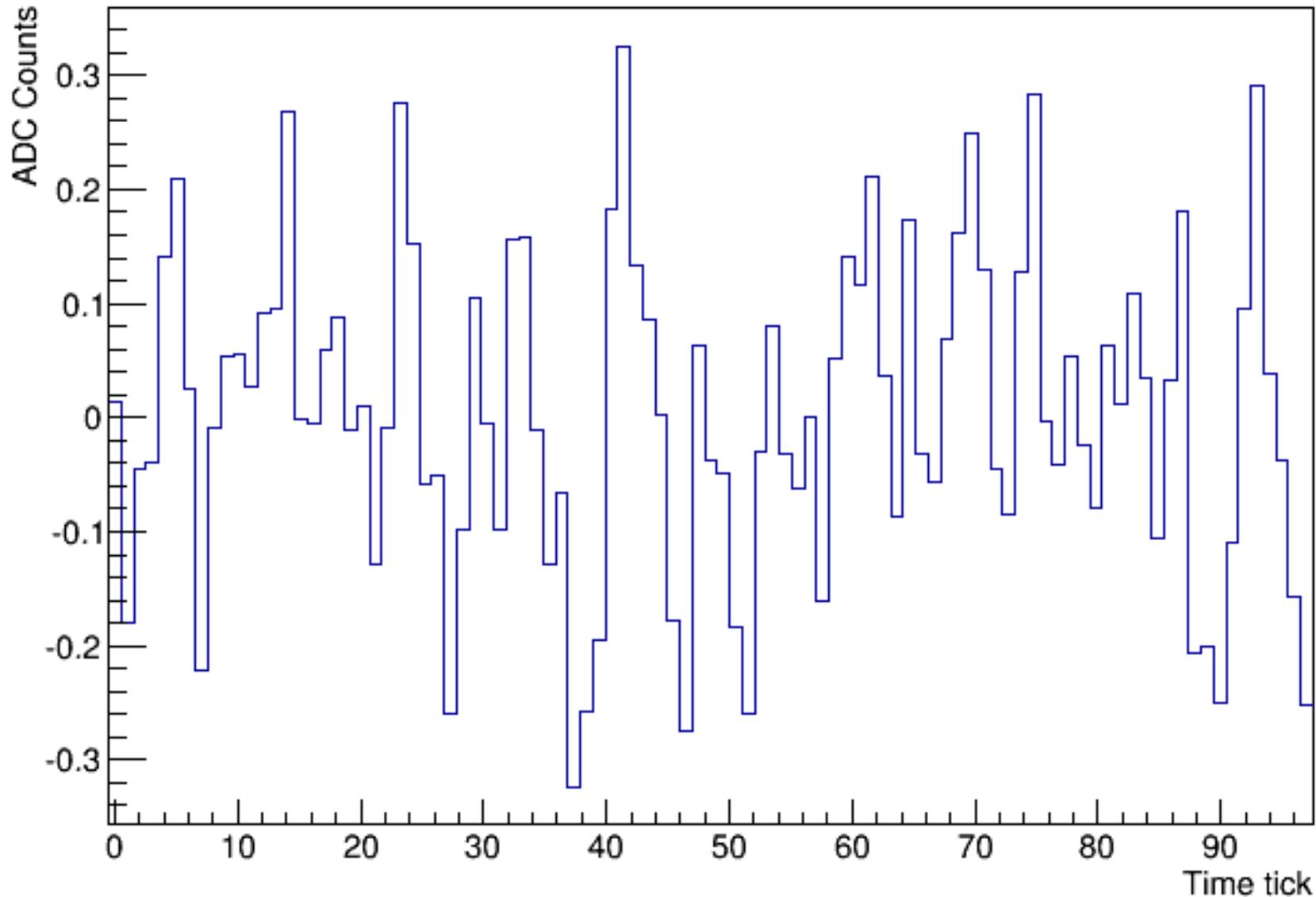
Pulse from Crate 1, FEM 13, Channel Number 32



Cable was disconnected at the cathode. The RG58 signal carrier cable was still connected to the running function generator and laid partially along the length of the TPC and across the entire depth of the TPC.

Fn generator off: Y plane

Pulse from Crate 1, FEM 13, Channel Number 32



Conclusion

- At lower driving voltages the observed signal has the expected structure, and the shielding effect of the wire planes are observed.
 - Previous data might have suffered from saturation effects.
- There is some ground/non-cathode component to the observed signal, but it is only a small fraction of the total pickup. Most comes from the cathode.
- Effect of resistor chain still unknown, could reduce magnitude of observed signal significantly.