



Allegro™ Fast Imaging Detector

Allegro™, EI-Mul's fast imaging detector is an MCP assembly comprising two MCP plates and ScintiFast™, the flagship of fast inorganic scintillator technology.

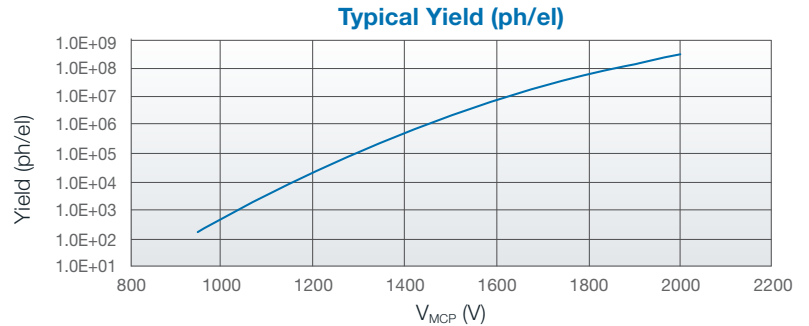
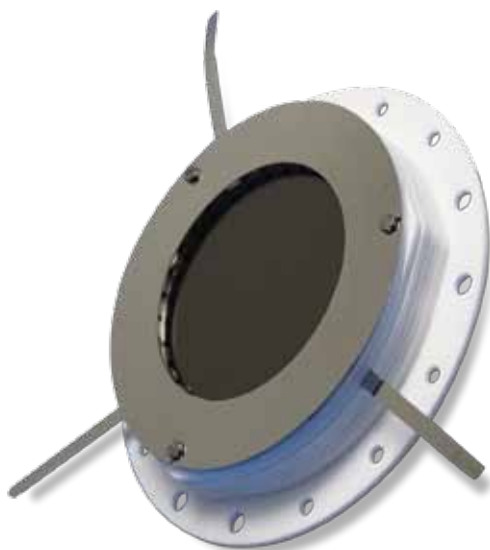
Allegro is available in two standard sizes – 50mm and 33mm MCP diameter. With ScintiFast, Allegro provides a combination of an extremely fast response, very high gain and durable performance, making it the leading fast MCP imaging detector available in the market.

The Allegro MCP imaging detector can be adapted to specific OEM requirements.

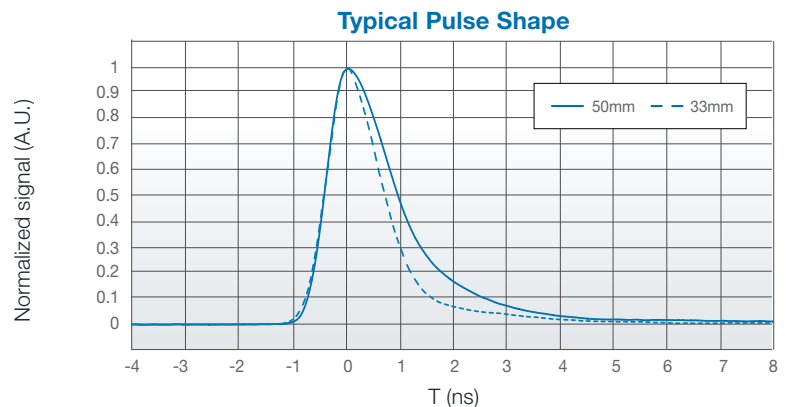
Property	$V_{MCP} = -1300V$	$V_{MCP} = -1800V$
Max Dark Current [nA] ⁽¹⁾	1	2
FWHM [ns] ⁽²⁾	1.1	1.3
Decay Time 90%-10% [ns] ⁽²⁾	1.3	2.2

⁽¹⁾ For 33mm assembly, $V_{scint}=3kV$

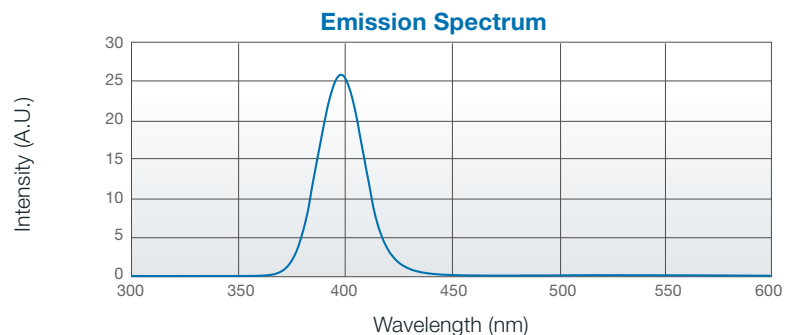
⁽²⁾ For 33mm assembly, $V_{scint}=3kV$, including response time of HPD sensor (FWHM of 0.7ns and decay time of 0.48ns)



Allegro typical yield as function of MCP voltage, measured in photons per incoming electron, $V_{scint}=3kV$



Allegro typical pulse shape, including response of HPD sensor with FWHM of 0.7ns and decay time of 0.48ns, $V_{scint}=3kV$, $V_{MCP} = -1300V$
33mm MCP assembly decays faster than 50mm MCP assembly

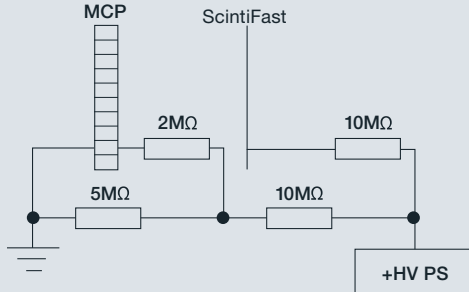


ScintiFast typical emission spectrum

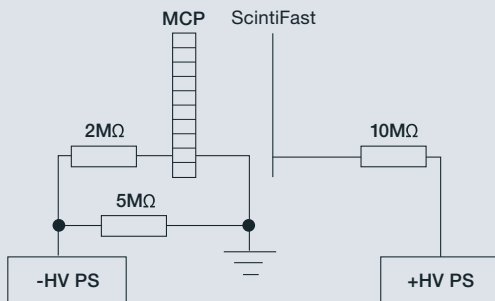
EI-Mul Technologies is an experienced solution provider and OEM manufacturer of detectors and devices for analytical instruments and semiconductor inspection systems. Among our customers are industry leaders in each market segment.

Electrical configuration options

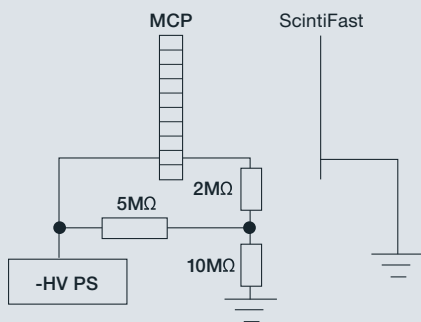
Option 1: Grounded MCP input



Option 2: Grounded MCP output



Option 3: Grounded ScintiFast

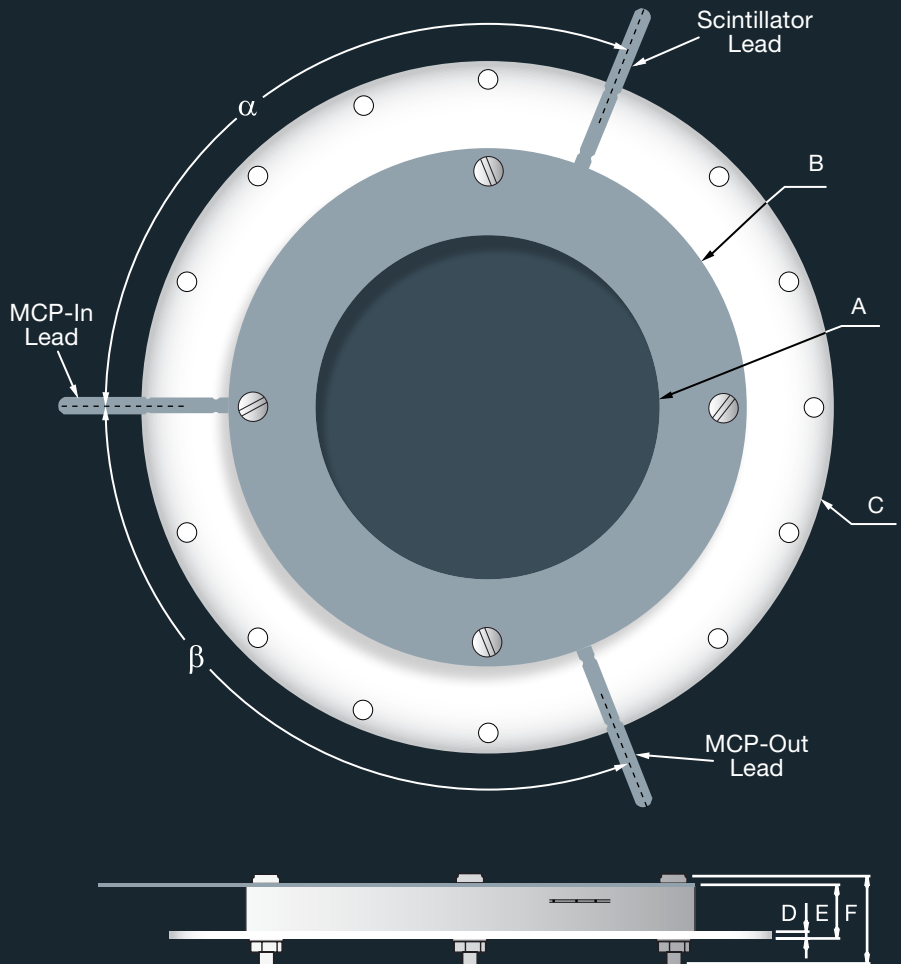


Operation Voltages	Max (kV)	Recommended (kV)
MCP In – MCP Out	2	1.8*
MCP Out - ScintiFast	4	3

* For best timing apply 1.3kV

Mechanical Dimensions

	Description	Allegro 50mm	Allegro 33mm
A	Effective area diameter [mm]	42.0	27.0
B	Outer diameter [mm]	65.8	42.0
C	Ceramic outer diameter [mm]	88.0	53.0
D	Ceramic thickness [mm]	1.0	1.0
E	Assembly thickness [mm]	8.0	8.6
F	Total thickness [mm]	13.2	10.7
α	MCP _{in} - Scintillator [deg]	112.5	90
β	MCP _{in} - MCP _{out} [deg]	112.5	150



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