

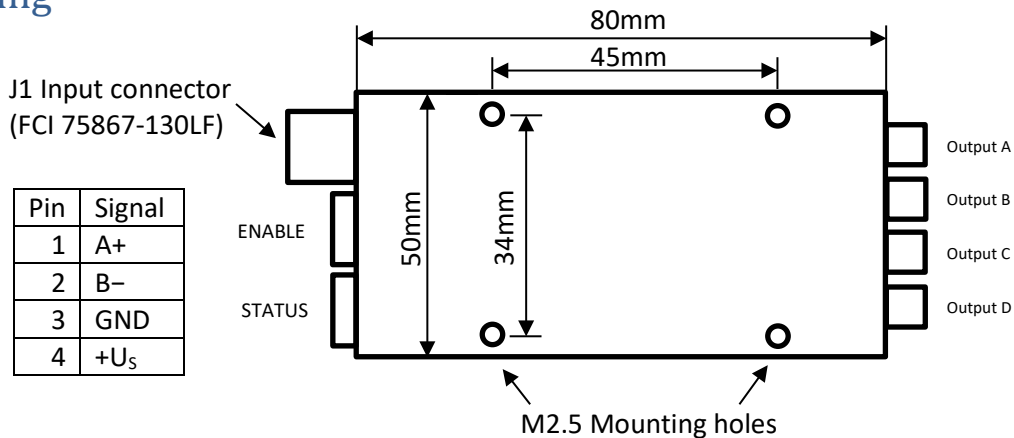
Datasheet Mu3e-HV N -120V, Rev. D

Description

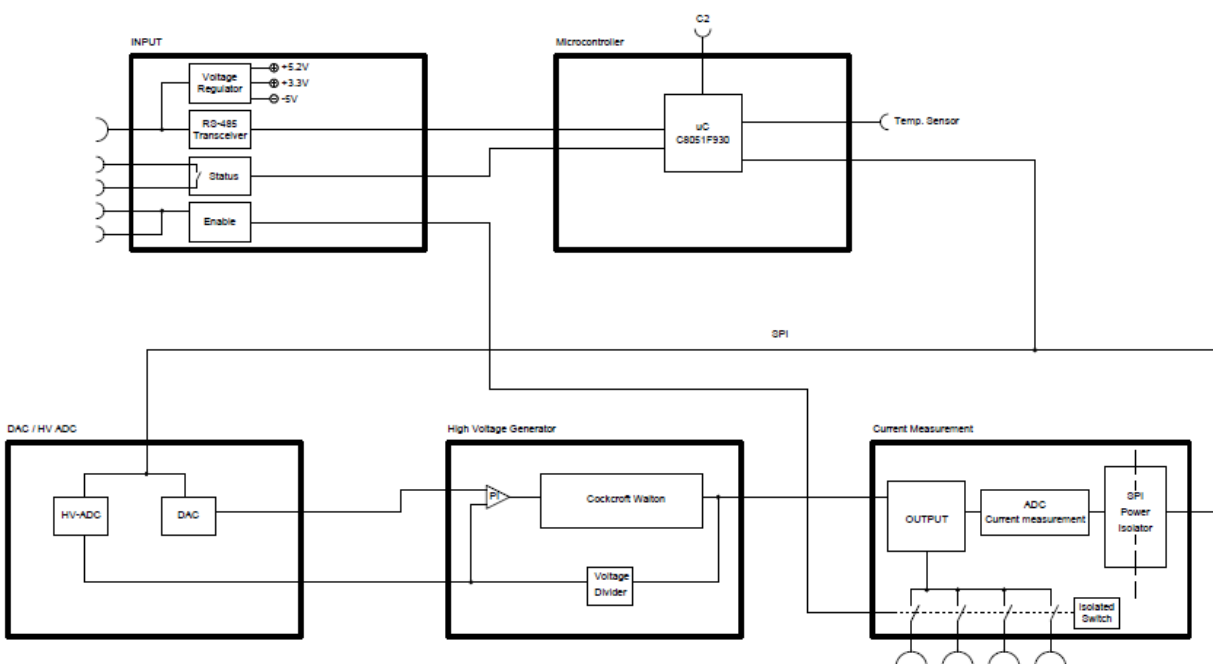
The Mu3e-HV board is a low noise, high voltage converter for voltages up to -120V. It has four outputs, which can be switched individually. Power and data is supplied with a single connector of the type "71600-104LF" from FCI. The RS485 interface enables the user to set the global voltage level, control the outputs and measure the individual currents.

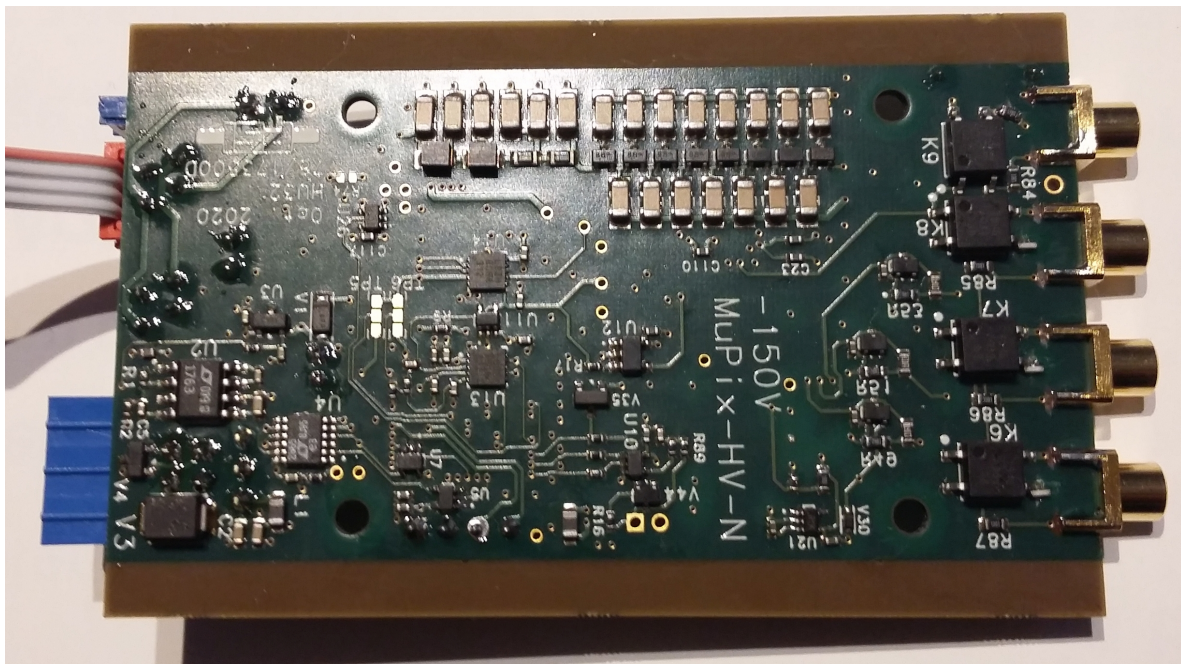
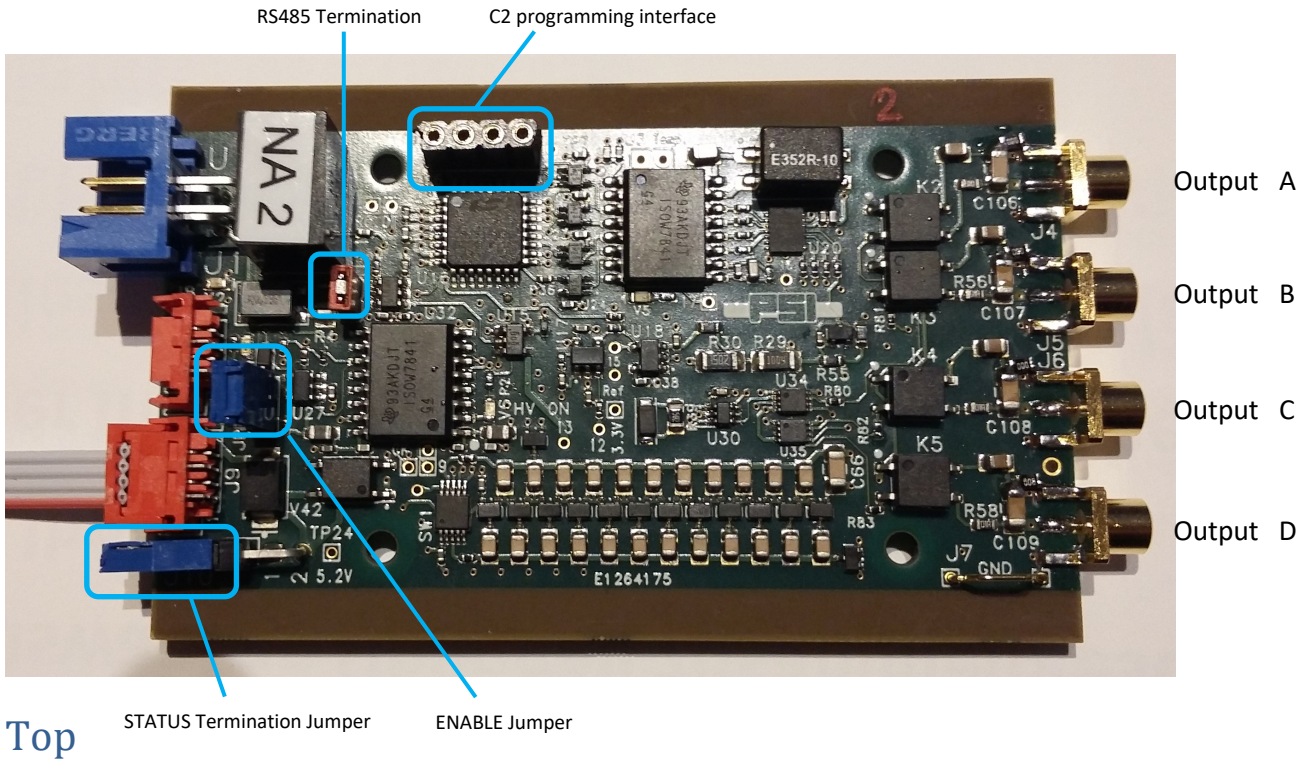
The converter uses a Cockcroft-Walton multiplier, making the design resistant to magnetic fields.

Drawing

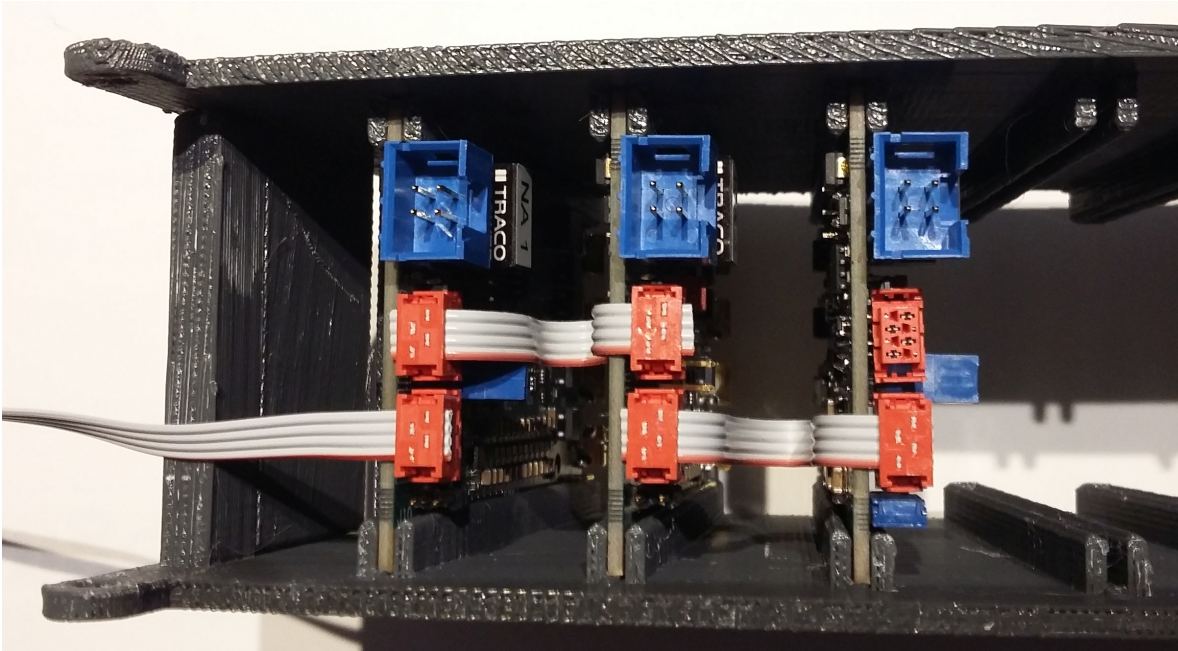


Block diagram

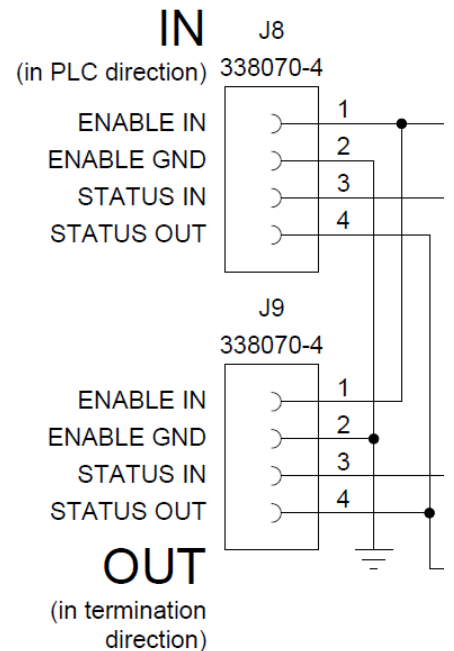
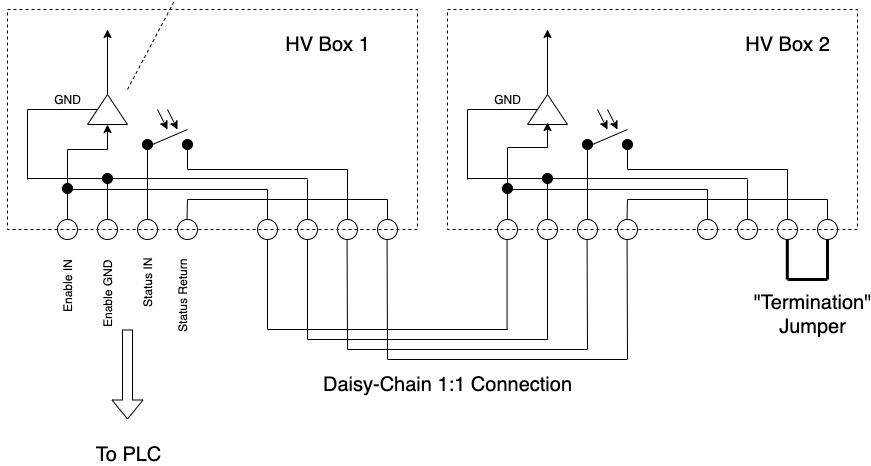




Bottom



MuPix-HV-Crate



ENABLE and STATUS connection

ENABLE Input: $R_i = 75k\Omega$,
 0V ... 0.8V; disable HV
 2V ... 30V; enable HV

Electrical specifications

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT	
SUPPLY VOLTAGE	U_S		9	24	32	V	
SUPPLY CURRENT	I_S	$U_{HV} = 0V, I_L = 0mA, U_S = 12V$		102		mA	
		$U_{HV} = 0V, I_L = 0mA, U_S = 24V$		56		mA	
		$U_{HV} = -100V, I_L = 0mA, U_S = 12V$			106		mA
		$U_{HV} = -100V, I_L = 0mA, U_S = 24V$			59		mA
		$U_{HV} = -100V, I_L = 1.9mA, U_S = 12V$			150		mA
		$U_{HV} = -100V, I_L = 1.9mA, U_S = 24V$			82		mA
		$U_{HV} = -150V, I_L = 0mA, U_S = 12V$			108		mA
		$U_{HV} = -150V, I_L = 0mA, U_S = 24V$			60		mA
		$U_{HV} = -150V, I_L = 700\mu A, U_S = 12V$			125		mA
		$U_{HV} = -150V, I_L = 700\mu A, U_S = 24V$				68	
OUTPUT VOLTAGE	U_{HV}		0		-150	V	
OUTPUT CURRENT	I_L	Per channel			250	μA	
		Total			700	μA	
OUTPUT RIPPLE	U_R	$U_{HV} = -150V, I_L = 0mA$		0.47		mV_{rms}	
					2.1	mV_{pp}	
		$U_{HV} = -150V, I_L = 700\mu A$		0.532		mV_{rms}	
					2.45	mV_{pp}	
OUTPUT RESISTANCE	R_O			10	$k\Omega$		

Output current vs. output voltage

