General

The FE-079-DCS Differential Charge Source allows the connection of differential charge amplifiers to voltage sources. The unit comprises a wide band transformer with matched and trimmed charge conversion capacitors, enabling the simulation of differential piezo-electric charge transducers for amplifier verification and calibration purposes.
Standard sensitivity is 1mV/pC with a maximum charge output of 5000pC pk. An internal link option allows 0.1pC/mV with a maximum charge output of 500pC if required. The frequency response extends from <1Hz to >20kHz.
The device is fitted with a standard BNC input connector and a 3 pole Tajimi TMW R04 output connector and enclosed in a painted die-cast metal case. Special connectors can be supplied on request, subject to mechanical compatibility.

Specification

Input	Type	Single ended. May be driven by 50Ω generator or low impedance voltage sources.
	Impedance	>1kΩ.
	Drive (1pC / mV version)	5V pk @10Hz.
	Cable	Standard 50Ω or 75Ω coaxial.
	Connector	BNC (alternatives available).
Output	Type	Differential, to suit balanced Piezo transducer.
	Capability (1pC / mV version)	5000pC minimum.
	CMR	>40dB (50Hz to 1kHz)
	Cable	Requires low noise carbon screened differential type. Sensitivity essentially independent of cable length.
	Connector	3 pole Tajimi TMW R04; mating half supplied.
	Source capacitance	5000pF.
Sensitivity	Available settings	Standard 1pC / mV (1000pC/V). Internal link for 0.1pC/mV (100pC/V).
Accuracy	500Hz	±0.1dB Typ.
Bandwidth	±0.25dB	10Hz - 10kHz (<1Hz to >20kHz -3dB).
Power supply	Requirement	Passive device - no power required.
Temperature	Range	0 - 50°C operating. 10-35°C Specification.
Mechanical	Dimensions / Weight	62mm (L) x 57mm (W) x 35mm (H) / 300g.
Accessories supplied		Mating 3 pole connector Tajimi TMW R04. A=Signal 1, B = N.C., C = Signal 2.

Sensitivity Adjustment Procedure

Remove Lid. Solder brown wire to either "1pC/mV" or "0.1pC/mV" pad as required. Mark Lid with selected sensitivity.

Application Note

When driving from sources whose impedance is not 0Ω, such as 50Ω signal generators, a loading will take place resulting in a drop in output of the generator of approximately 0.4dB. If necessary, measure and adjust the generator output at a mid frequency point (500Hz suggested) whilst connected to the Charge Source.