

HRMCE EGSE

FOUR CHANNEL PYROTECHNICS
INITIATOR



DATASHEET

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Four Channel Pyrotechnics Initiator EGSE

Model 8601A is a four-channel (4 nominal, 4 redundant) pyrotechnics initiator designed as an EGSE for the HRMCE devices (Holdown Release Mechanism, Control Electronics), part of numerous satellite antenna release mechanisms under development at Thales Alenia Space. Unit was designed to drive Electro Explosive Device (EED) type PC23 NASA Standard Model Initiator (NSI).

By providing a high-energy, time-controlled pulse, unit fires a standard initiator at the nominal current rating of 5 Amp. Constant current design allows for long interconnecting cables between the EGSE and the EED (capability up to 30 Vdc).

A digital display indicates the pulse current for each channel. Circuit (test current through the harness and initiator) is verified and displayed by LED indicators when unit is armed. FIRE button starts a pulse generator with a selectable width (5 to 50 ms). A 4-channel test load is provided for testing purposes (harness test).



Model 8601A HRMCE EGSE

PC23 Initiator: General Information

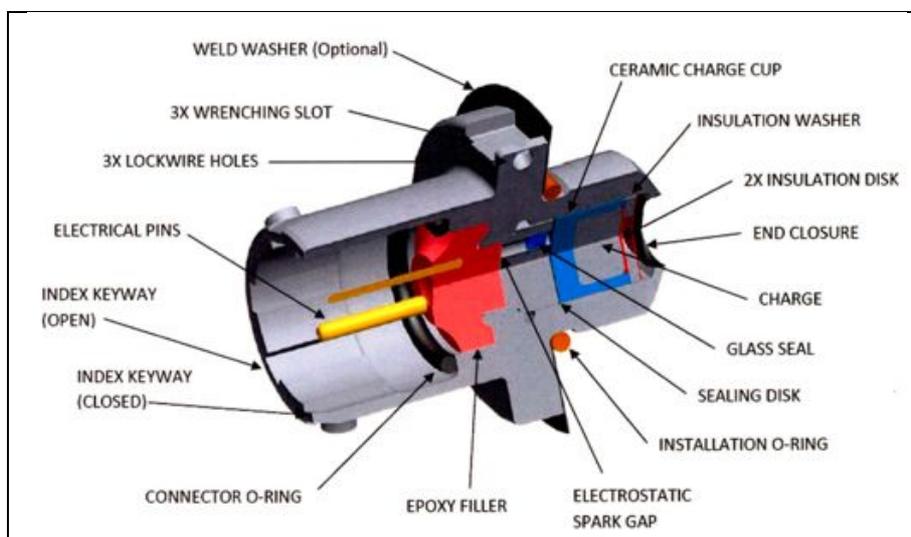
The Hi-Shear Model PC-23 initiator, is a 2 pins electrically activated, hot-wire, electro explosive device (EED) designed and qualified initially to meet the requirements for the Apollo Program.

It was subsequently adopted and standardized for use on the NASA Space shuttle System, payloads and other NASA-sponsored program as the NASA Standard Initiator.

Its function is to translate an electrical stimulus into the production of flame and hot particles to ignite or initiate a pyrotechnic action or train.

It's used alone or incorporate into higher level devices in various systems.

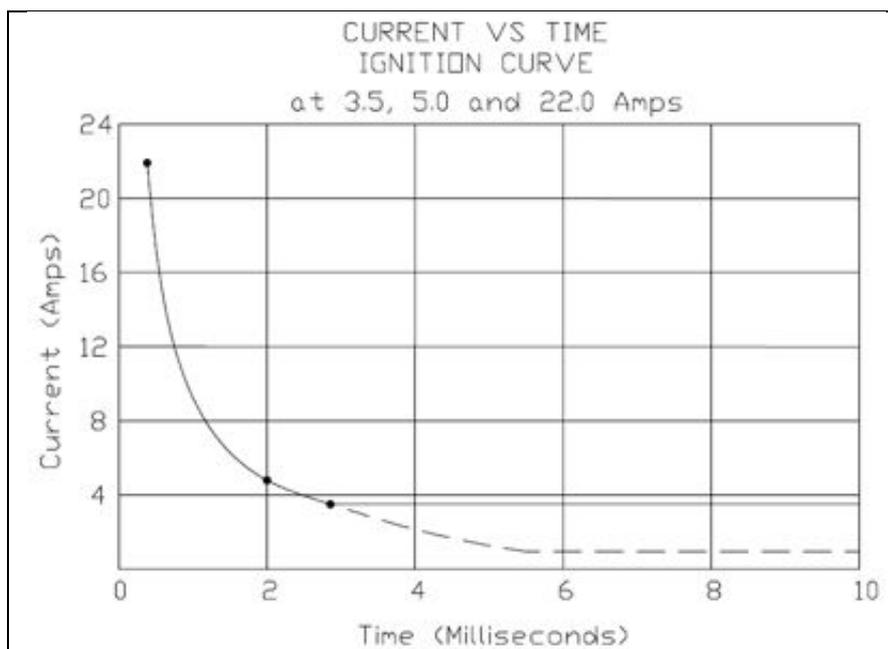
It uses a fine particles of zirconium fuel mixed with a fine particles potassium perchlorate oxidizer bound together with a Viton rubber binder. It features Inconel alloy 718 body construction and hermetic sealing.



PC23 cross sectional view (from Hi-Shear © datasheet)

PC23 ELECTRICAL CHARACTERISTICS AND CURRENT RATINGS

Bridge wire number	1
Bridge wire resistance	1.05 ± 0.1 Ω
Insulation resistance	> 1000 M Ω / 250 VDC
Leads resistivity	
Dielectric strength	> 100 μ A / 200 VAC
Static sensitivity	
All leads shorted to case	25 Kv / 500 pF / 5000 Ω
Between leads	
Nominal firing current	> 5 A / 4 ms
All-fire current	3.5 A (R < 0,999 95%) +77°F
No-Fire current	1A/1W 5min (-165°F +165°F)
Safe no-fire current for testing	< 10 mA



Current Vs Time ignition curve (from Hi-Shear © datasheet)

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