

# Common Mode Transient (CMT) Generator Barth Model 781

## 3.12 To 1600 kV/ $\mu$ s Into 50 $\Omega$ Loads

### Features:

- ⊗ Interactive control allows the user to gradually increase, or decrease the dV/dt rate applied to a DUT
- ⊗ Stepped mode features user adjustable constant voltage and 14 stepped dV/dt selections
- ⊗ Variable dV/dt mode features a more continuously variable dV/dt selectable by the user.
- ⊗ 3.12 to 1600kV/ $\mu$ s can be delivered into 50 ohm loads
- ⊗ 6.25 to 3200kV/ $\mu$ s can be realized into high impedance loads.
- ⊗ Touch screen interface allows quick interactive and intuitive control.
- ⊗ Internal rate and external triggering capability
- ⊗ Designed for Common-Mode Transient Immunity (CMTI) testing
- ⊗ Optional Exponential decay Pulse shape module with 50 ohm termination
- ⊗ Provision for external switch Interlock
- ⊗ One year warranty on the entire system



### How It Works

The Barth Model 781 CMT Generator produces a fast rise time high voltage rectangular pulse. This pulse is then passed through an internal Barth Multi Ramp generator module to create a linear ramp.

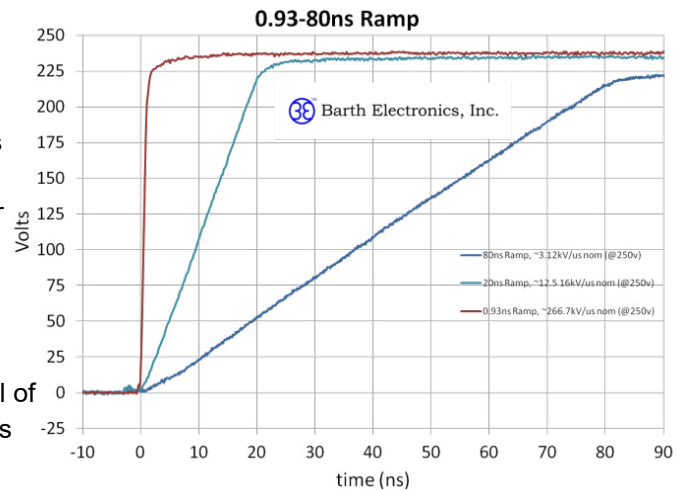
### Operation

Quick interactive and intuitive control of the generator operational parameters is provided via a touch screen interface. The test system provides interactive control of the two variables that define the dV/dt rate, the pulse voltage and ramp rate, to achieve specific kV/us rate pulses. The control also allows the user to interactively increase, or decrease the dV/dt rate which is applied to the DUT.

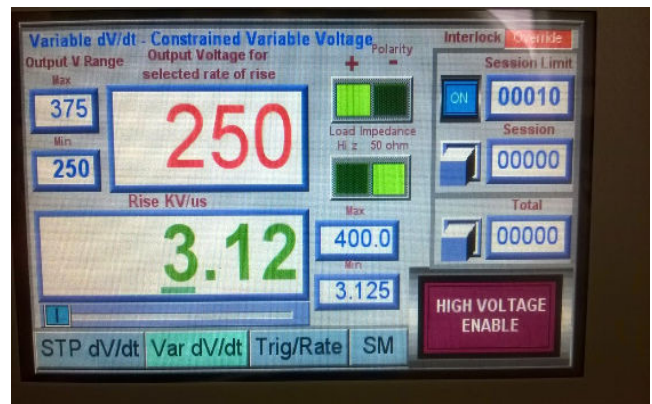
The 2 basic operational modes are: The "STP" stepped mode which features user adjustable voltage and 14 stepped dV/dt selections based on the 14 fixed ramp rates, and the "VAR" variable dV/dt mode which features a more continuously variable dV/dt selectable by the user. This mode is accomplished by varying the output voltage within an output voltage range and jumping to the next ramp selection as required automatically.

### Description:

The Barth Common Mode Transient (CMT) Generator was developed for CMTI (CMT Immunity) characterization testing. The generator test system combines our 3kV Pulse Generator and Barth Multi Ramp Generator to produce high voltage, selectable fixed rate linear rise ramp pulses.



Samples of 0.93ns, 20ns, and 80ns ramp output showing Leading edge of pulse into matched 50 ohm load



"VAR" variable dV/dt mode shown features a continuously variable dV/dt selectable by the user.



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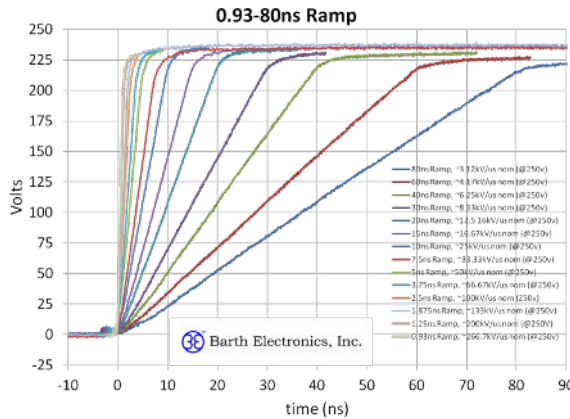


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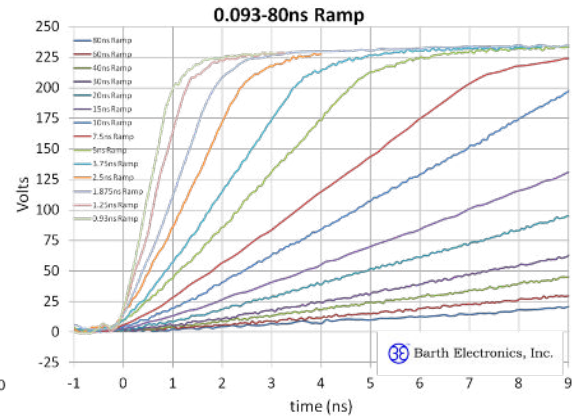
# Common Mode Transient (CMT) Generator Barth Model 781

## System Components:

- ⊗ Barth 781 High Voltage Fast Rise Time Pulse Generator
- ⊗ Internal 100ns Pulse Charge line
- ⊗ Output cable Signal tap-off interconnect cables
- ⊗ Optional Exponential decay Pulse shape module with 50 ohm termination



Sample pulse outputs showing Leading edge of pulse into matched 50 ohm load for all 14 ramp selections.



Same Sample Pulse Outputs with expanded time scale.

## Specifications:

- ⊗ 3.12 to 1600kV/μs can be delivered into 50 ohm loads
- ⊗ 6.25 to 3200kV/μs can be realized into high impedance loads.
- ⊗ 'N' Female output Connector.
- ⊗ 90V-230V, Input Power.

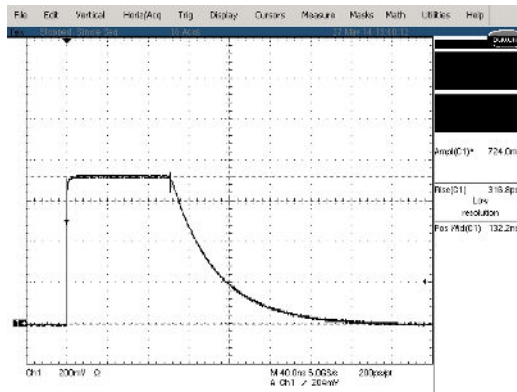
## Size/Weight:

- ⊗ Approximately 19" w x 11" h x 21"d.
- ⊗ Total weight is approximately 50 lbs.
- ⊗ Output compliant with IEC....specifications.

## Operation (cont.)

Specific kV/μs rate pulses between 3.12 and 1600kV/μs can be achieved into 50 ohm loads. Rates between 6.25 and 3200kV/μs can be realized into high impedance loads.

The fall time mirrors the rise time, and with optional pulse shape module a long exponential decay fall time is also available as shown below.



Fast Ramp with Pulse Shape module (adds Exponential decay on falling edge) into matched 50 ohm load.

This Product Features  
Barth Designed ZAPLESS®  
High Speed Measurement  
Components

## Pulse Rate and Triggering:

The pulse rate and triggering is similar to the 731/733 pulse generator, including internal triggering for single shot or repetitive pulsing. Repetition rates to 10Hz are selectable. External triggering capability is also included.

## Interlock:

The interlock provision provides a means to prevent pulsing when a test fixture with a lid or other movable safety is employed. This requires a switch on the fixture that will close to indicate the closed lid position.



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<u>Model</u>	<u>Description</u>
	<b>781 CMT Includes:</b>
5150A	100ns Charge Line (Internal to CMT Box)
n/a	Pulse Shaper Module with Integrated 50 ohm HV Pulse Terminator
n/a	Output Pulse Cable, N Male – N Male 1M Low Loss Cable
326-ILC-3	Trigger Output Cable, BNC Male - BNC Male 30” RG-223
TB3M	Interlock Cable 3 pin DIN plugs
BITSB	DIN Interlock Receptacle -for Customer Interlock Circuit
n/a	Barth Interlock Test - Switch Box- for interlock function test
n/a	Power Cord
n/a	781 User’s Manual

## 781 CMT Options:

<b>781-DM</b>	<b>Direct Monitor Option Includes:</b>
n/a	DUT to Attenuator cable N Male-BNC Male 15” RG-223
422-NFF	N Female to N Female Adapter (Midwest AD2590-FF-NNN-02)
142-NMFP-20B	(Qty.2) 20dB (10:1VR) High Voltage Pulse Attenuators
NMBF	N Male to BNC F Adapter Amphenol 31-216 (UG-201A/U)
FMAT7437-20	Fairview BNC 20 dB Attenuator
n/a	Attenuator to scope cable BNC Male -BNC Male 15” RG-223

<b>IE</b>	<b>Interlock Enclosure Options:</b>
781-IES	Interlock Enclosure Box (holds up to 6” x 9” test boards)
n/a	IE Input to DUT board cable BNC male-BNC Male 10” RG-223

781-IEL	Interlock Enclosure Box (holds up to 10” x 13” test boards)
n/a	IE Input to DUT board cable BNC male-BNC Male 10” RG-223

<b>781-RC</b>	<b>Remote Control Capability</b>
n/a	USB Interface Remote Control Software
n/a	USB A-B Cable

<b>781-2:1</b>	<b>2:1 Option – Provides 125 V to 750V Operation Capability</b>
142-NMFP-6B	6dB (2:1VR) High Voltage Pulse Attenuator –

<b>781-10:1</b>	<b>10:1 Option - Provides 25 V to 150V Operation Capability</b>
142-NMFP-20B	20dB (10:1VR) High Voltage Pulse Attenuator

