



# Trig-Tek™ 203G8 Charge Amplifier

The versatile Trig-Tek™ 203G8 Charge Amplifier covers the frequency range from 2 Hz to 50,000 Hz.

## Key Features

- 1 to 110 mV-pC/g input
- Simultaneous Accel, Vel, Displ AC outputs
- 3 High-Pass and 3 Low-Pass 48 dB/oct filters
- Overload indicator
- Alarm circuit
- Selectable meter
- In-line filter
- 0.5 to 1.5 V<sub>RMS</sub> calibrated Full Scale (FS) AC output

## Product Information

The Trig-Tek™ 203G8 accepts pickups with sensitivities varying from 1 to 110 pC/g. It has three simultaneous outputs: Acceleration with a sensitivity of 100 mV<sub>rms</sub>/Pk g; Velocity with a sensitivity of 534 mV<sub>rms</sub>/Pk/ips; and Displacement with a sensitivity of 100 mV/mil DA.

A five-position “Range” switch selects “1,” “3,” “10,” “30,” or “100” Full Scale (FS) meter ranges with a variable 0.5 to 1.5 V<sub>rms</sub> control for the FS AC (tape) output.

A plug-in meter assembly provides for three High-Pass Filters and three Low-Pass Filters with 48 dB/oct roll offs.

Either a “Cal-Oper” switch or a “Remote”-selected switch connects the input to either the “Calibrate” or the “Accel” input. An “Overload” light and alarm circuit are provided to alert for input overload or when a preset level is exceeded.

The 203G8 is packaged as a plug-in module. Up to six of these modules will plug into a standard 19” rack that’s 7” inches high. A single cabinet is also available.

# Specifications

Note: The Astronics Test Systems policy is one of continuous development and improvement. Consequently, the equipment may vary in detail from the description and specifications in this publication.

## Input

### Charge Sensitivity

- 1 to 110 pC/g (provided with two selectable ranges): 1 to 11 and 10 to 110 pC/g with continuous adjustment for each

### Frequency Response

- 2% from 5 Hz to 30,000 Hz referred to 100 Hz

### Overload Recovery

- 15,000 pC or less, 1 ms half Sine input pulse will cause no effect at the output, except clipping

### Amplitude (Stability vs Input Capacity)

- <0.1% change per 1000 pF

### Amplitude (Stability Temperature)

- <3% change from 30° to 130° F

### Shunt Resistance

- Will operate with any input impedance above 100 kΩ

## Acceleration Output (NOR)

### Voltage (max)

- 10 V<sub>rms</sub>

### Sensitivity

- 100 mV<sub>rms</sub>/pk g

### Impedance

- <50 Ω (10 mA max)

### Amplitude Linearity

- ±1% of best straight line approximation of output vs input amplitude

### Amplitude Accuracy

- ±2% of reading ±1% of FS in series with selected Low-Pass Filter

### Noise

- 0.05 pC maximum with 1.0 pC/g sensitivity; noise increases 0.006 g/1000 pF of additional capacity at the input

### Harmonic Distortion

- <1%

### DC Offset

- <5 mV

## Velocity Output

### Voltage (max)

- 10 V<sub>rms</sub>

### Sensitivity

- 354 mV<sub>rms</sub>/pk ips

### Impedance

- <50 Ω (10 mA max)

### Amplitude Accuracy vs Frequency

- ±3% 25 Hz to 3000 Hz of a -6 dB/oct slope, in series with the selected input Low-Pass Filter

### DC Offset

- <5 mV

## Displacement Output

### Level

- 0 to 10 V<sub>rms</sub>

### Sensitivity

- 10 mV<sub>rms</sub>/mil Pk-Pk

### Impedance

- <50 Ω (10 mA max)

### Amplitude Accuracy vs. Frequency

- ±4% 30 Hz to 1000 Hz of a -12 dB/oct slope
- ±5% 25 Hz to 3000 Hz of a -12 dB/oct slope in series with the selected Low-Pass Filter

### DC Offset

- <5 mV

## FS AC Output (Tape)

### Level

- A variable 0.5 to 1.5 V<sub>rms</sub> for selected FS meter range

### Impedance

- <50 Ω (10 mA max)

### Frequency Response

- Acceleration: ±3%
- Velocity: ±4%
- Displacement: ±5%

### Linearity

- ±1% FS

### DC Offset

- <4 mV

## FS DC Output

### Impedance

- <50 Ω (10 mA max)

### Sensitivity

- 10 V for selected meter FS

### Linearity

- ±1% FS

### Amplitude accuracy

- Acceleration: ±2% of reading ±1% FS
- Velocity: ±4% of reading ±1% FS
- Displacement: ±5% of reading ±1% FS

### Dynamic Range (Acceleration)

- 50 dB below FS

## Interface

### Power

- 115 or 203 V<sub>rms</sub>, 50 to 400 Hz, 110 V nominal

### Controls

#### Cal-Oper Switch

- Connects the amplifier input to either the "Calibrate" signal or to the "Accel" input jack

#### pC/g-mV/g Switch

- mV/g is a voltage amplifier to accommodate accelerometers with built-in electronics; pC/g accommodates standard accelerometers

#### Sensitivity Switch

- Selects X1 or X10 sensitivity

#### Sensitivity Dial

- Adjust the charge sensitivity from 1 to 11 for either the X1 or X10 sensitivity range

#### High-Pass/Low-Pass Filter

- Filters are plug-in Assy 3089

#### Low-Pass Filter Switch (3089-1)

- Selects "H" (10 kHz), "M" (2 kHz), or "L" (300 Hz) -5% cutoff frequencies; 48 dB/oct roll off

#### High-Pass Filter Switch (3089-1)

- Selects "H" (300 Hz), "M" (110 Hz), or "L" (20 Hz) 05% cutoff frequencies, 48 dB/oct roll off

#### Units Switch

- Selects "Pk g's," "Pk ips," or "DA MILS" as the meter units

#### FS Switch

- Selects "1," "3," "10," "30," or "100" units as FS for the meter and FS outputs

#### Alarm Set Switch

- Provides a means of monitoring the alarm set point, also resets the alarm

#### SE-DIFF Switch

- Selects single-ended (SE) or differential (DIFF) input configuration

#### In-Out Filter Switch

- When in the "In" position, places a Low-Pass Filter in series with the input (pC/g mode only)

# Specifications

continued

## Indicators

### Panel Meter

- 3.5 digit panel meter indicating the level of the selected units

### OL Light

- Illuminates when the input level overdrives a circuit

### Cal Light

- Illuminates when “Cal” mode is selected

### Alarm Light

- Illuminates when the alarm set point is exceeded

## Mechanical

### Size

- 7” H x 2.7” W x 13” D  
(17.8 cm x 6.9 cm x 33.0 cm )

# Ordering Information

408333-00x : Trig-Tek™ 203G8-xx

Charge Amplifier

## Part Number Configurator

**408333-00x**

Part Code

## Model Number Configurator

**203G8-xx**

Model Code

Instructions: To create the part number substitute the “-00x” in the part number with the part code of the option you select. To create the model number, substitute the “-xx” in the model number with the model code of the option you select.

Part Code (-00x)	Model Code (-xx)	Low Pass Filter				High Pass Filter				Option P/N
		Frequencies			Tolerance	Frequencies			Tolerance	
-002	01*	300 Hz	2 kHz	10 kHz		20 Hz	110 Hz	300 Hz	5%	3089-1
-004	02	2 kHz	10 kHz	50 kHz		20 Hz	110 Hz	150 Hz	5%	3089-2
-005	03	2 kHz	10 kHz	40 kHz		5 Hz	110 Hz	150 Hz	5%	3089-3
-006	04	300 Hz	2 kHz	10 kHz		20 Hz	110 Hz	8 kHz	5%	3089-4
-007	05	300 Hz	2 kHz	10 kHz		20 Hz	110 Hz	300 Hz	5%	3089-5
-008	06	300 Hz	2 kHz	10 kHz		20 Hz	110 Hz	300 Hz	5%	3089-6
-009	07	300 Hz	2 kHz	10 kHz		5 Hz	110 Hz	300 Hz	5%	3089-7
-010	08	60 kHz	70 kHz	80 kHz		20 kHz	25 kHz	30 kHz	5%	3089-8
-011	09	2 kHz	10 kHz	40 kHz		5 Hz	150 Hz	300 Hz	5%	3089-9
-012	10	65 Hz	70 Hz	3 kHz		10 Hz	15 Hz	25 Hz	-3 dB	3089-10
-013	11**	165 Hz	170 Hz	3 kHz		25 Hz	105 Hz	110 Hz	-3 dB	3089-11
-014	12	5 kHz	10 kHz	30 kHz		5 Hz	30 Hz	75 Hz	5%	3089-12
-015	14	300 Hz	2 kHz	10 kHz		40 Hz	70 Hz	110 Hz	5%	3089-14
-016	15	700 Hz	2 kHz	20 kHz		110 Hz	500 Hz	1 kHz	5%	3089-15
-003	16	450 Hz	2 kHz	10 kHz		3 Hz	70 Hz	110 Hz	5%	3089-16
-001	17	2 kHz	10 kHz	20 kHz	5%	5 Hz	200 Hz	300 Hz	-3 dB	3089-17
-017	18	300 Hz	800 Hz	2 kHz	5%	110 Hz	300 Hz	500 Hz	5%	3089-18
-018	19	3 kHz	10 kHz	30 kHz	-3 dB	5 Hz	70 Hz	110 Hz	5%	3089-19

Notes:

\* Standard for 203G8

\*\* Same as Option 02 with a 25 Hz integ filter

