2306-VS Dual Channel Battery/Charger Simulator

OUTPUT #2 (CHARGER)

DC VOLTAGE OUTPUT (2 YEARS, 23°C ± 5°C)

OUTPUT VOLTAGE: 0 to +15VDC.

OUTPUT ACCURACY: ±(0.05% + 10mV).

PROGRAMMING RESOLUTION: 10mV.

READBACK ACCURACY[1]: ±(0.05% + 3mV).

READBACK RESOLUTION: 1mV.

OUTPUT VOLTAGE SETTLING TIME: 5ms to within stated accuracy.

LOAD REGULATION: ±(0.01% + 2mV).

LINE REGULATION: ±(0.5mV).

STABILITY[2]: ±(0.01% + 0.5mV).

MEASUREMENT TIME CHOICES: 0.01 to 10 PLC[7], in 0.01PLC steps.

AVERAGE READINGS: 1 to 10.

READING TIME[1, 8, 9]: 31ms, typical.

TRANSIENT RESPONSE:	High Bandwidth	Low Bandwidth
Transient Recovery Time[13]	<50μs[3] or <80μs[4]	<60μs[3] or <100μs[4]
Transient Voltage Drop	<120mV[3] or <150mV[4]	<160mV[3] or <200mV[4]

REMOTE SENSE: 1V max. drop in each lead. Add 2mV to the voltage load regulation specification for each 1V change in the negative output lead due to load current change. Remote sense required. Integrity of connection continually monitored. If compromised, output will turn off automatically once settable window (±0 to ±8 volts) around normal voltage exceeded.

DC CURRENT (2 YEARS, 23°C ± 5°C)

CONTINUOUS AVERAGE OUTPUT CURRENT:

Channel #1 (Battery) OFF:
I = 50W/(Vset channel 2 + 6V); 5A max.

Channel #1 (Battery) ON:
I = (50W – Power consumed by channel #1)/(Vset channel 2 + 6V); 5A max.
  The power consumed by channel #1 is calculated as:
    Channel #1 sourcing current:
      Power consumed = (Vset channel 1 + 6V) x (current supplied)
    Channel #1 sinking current:
      Power consumed = 5 x (sink current)
Peak currents can be a maximum of 5A provided the average current is within the above limits.

CONTINUOUS AVERAGE SINK CURRENT:

Channel #1 (Battery) OFF:
0–5V: 3A max.
5–15V: Derate 0.2A per volt above 5V. Compliance setting controls sinking.

Channel #1 (Battery) ON:
Available current = (50W – Power consumed by channel #1)/5; 3A max. (0–5V). Derate 0.2A per volt above 5V.

SOURCE COMPLIANCE ACCURACY: ±(0.16% + 5mA)[5].

PROGRAMMED SOURCE COMPLIANCE RESOLUTION: 1.25mA.

READBACK ACCURACY[1]: **5A Range:** ±(0.2% + 200μA).
 5mA Range: ±(0.2% + 1μA).

READBACK RESOLUTION: **5A Range:** 100μA.
 5mA Range: 0.1μA.

LOAD REGULATION: ±(0.01% + 1mA).

LINE REGULATION: ±(0.5mA).

STABILITY[4]: ±(0.01% + 50μA).

MEASUREMENT TIME CHOICES: 0.01 to 10 PLC[7], in 0.01PLC steps.

AVERAGE READINGS: 1 to 10.

READING TIME[1, 8, 9]: 31ms, typical.

PULSE CURRENT MEASUREMENT OPERATION

TRIGGER LEVEL: 5mA to 5A, in 5mA steps.

TRIGGER DELAY: 0 to 100ms, in 10μs steps.

INTERNAL TRIGGER DELAY: 15μs.

HIGH/LOW/AVERAGE MODE:
 Measurement Aperture Settings: 33.3μs to 833ms, in 33.3μs steps.
 Average Readings: 1 to 100.

**PULSE CURRENT MEASUREMENT ACCURACY[11]
(2 Years, 23°C ±5°C):**

Aperture	Accuracy ±(% reading + offset + rms noise[10])
<100 μs	0.2% + 900 μA + 2mA
100 μs – 200 μs	0.2% + 900 μA + 1.5mA
200 μs – 500 μs	0.2% + 900 μA + 1mA
500 μs – <1 PLC	0.2% + 600 μA + 0.8mA
1 PLC[12]	0.2% + 400 μA + 0mA
>1 PLC	0.2% + 400 μA + 100μA

BURST MODE CURRENT MEASUREMENT

MEASUREMENT APERTURE: 33.3μs to 833ms, in 33μs steps.

CONVERSION RATE: 2040/second at 33.3μs meas. aper., typical.

INTERNAL TRIGGER DELAY: 15μs with 33μs.

NUMBER OF SAMPLES: 1 to 5000.

TRANSFER SAMPLES ACROSS IEEE BUS IN BINARY MODE: 4800 bytes/s, typical.

LONG INTEGRATION MODE CURRENT MEASUREMENT

MEASUREMENT TIME[6]: 850ms (840ms) to 60 seconds in 1ms steps.

DIGITAL VOLTMETER INPUT (2 YEARS, 23°C ± 5°C)

INPUT VOLTAGE RANGE: –5 to +30VDC.

INPUT IMPEDANCE: 2MΩ typical.

MAXIMUM VOLTAGE (either input terminal) WITH RESPECT TO OUTPUT LOW: –5V, +30V.

READING ACCURACY[1]: ±(0.05% + 3mV).

READING RESOLUTION: 1mV.

CONNECTOR: HI and LO input pair part of Output #2's terminal block.

MEASUREMENT TIME CHOICES: 0.01 to 10 PLC[7], in 0.01PLC steps.

AVERAGE READINGS: 1 to 10.

READING TIME[1, 8, 9]: 31ms, typical.

VOLTAGE SETTLING TIMES

Voltage Step Settling Times – Typical		
Increasing Voltage	**10-90% Rise Time**	**Settling Time**
Voltage step ≤ 7V	10μs	100μs
Voltage step > 7V	10μs to 1.2ms	100μs to 1.5ms

| **Decreasing Voltage**	**10-90% Fall Time**	**Settling Time**
0V < Voltage step < 15V	5μs to 40μs	50μs to 200μs

NOTE: Times are under no load condition and settling times defined at +/- 2% of step size.

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VOLTAGE STEPPING ONLY

TEST CONDITIONS:

1. Trigger external is enabled on both channels.
2. Only a single channel is externally triggered during the sequence while remaining channel stays idle.
3. Times based on 0 programmable user delay.
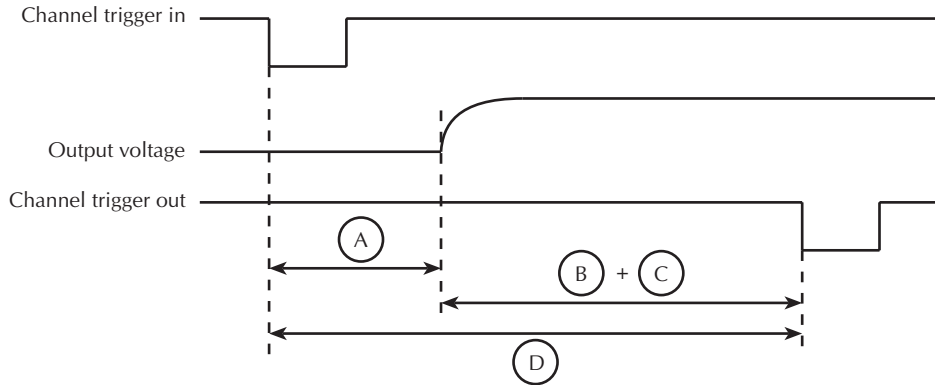
Output #1 (Battery)	Output #2 (Charger)
A = 70μs typical	**A** = 55μs typical
B = 330μs typical	**B** = 545μs typical
C = Programmable user delay (0-5 seconds)	**C** = Programmable user delay (0-5 seconds)
D = 400μs typical with C as 0	**D** = 600μs typical with C as 0

AUTO MEASUREMENT ONLY

TEST CONDITIONS:

1. Trigger external is enabled on both channels.
2. Only a single channel is externally triggered during the sequence while remaining channel stays idle.
3. Times based on 0 programmable user delay.
4. Measurement time = 167μs (0.01 plc).
5. Steps points = 4.
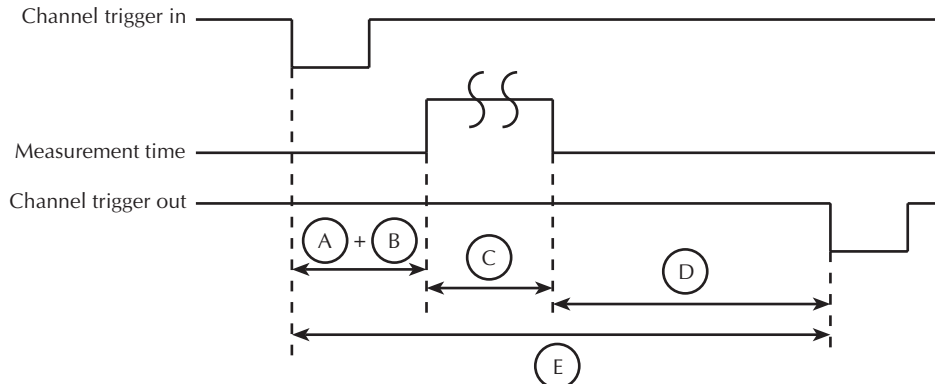
Output #1 (Battery)	Output #2 (Charger)
A = 43μs typical	**A** = 43μs typical
B = Programmable user delay (0-5 seconds)	**B** = Programmable user delay (0-5 seconds)
C = is measurement time	**C** = is measurement time
D = 410μs typical (steps 1, 2, and 3)	**D** = 650μs typical (steps 1, 2, and 3)
E = 620μs typical for steps 1, 2, and 3 with B as 0 8ms typical for step 4 with B as 0	**E** = 860μs typical for steps 1, 2, and 3 with B as 0 8ms typical for step 4 with B as 0