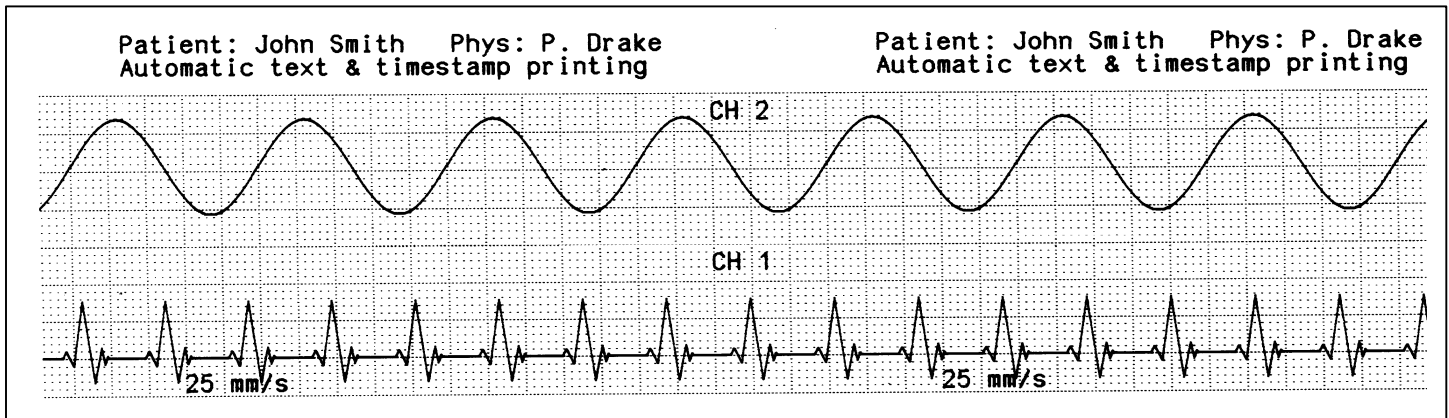


Measured Power of the PS45

Paul Schmitt 2/13/05

Introduction

Power consumption was measured on several PS45 units under typical waveform printing conditions. Here is the "typical" Printout: (To view the printout in detail, print this document!)



Logic (5V) Measurements:

49 mA was measured while printing or not.

Specification: 50 ma typical, 75mA max idle and 125mA max printing

TPA/Motor Power

Measurements were conducted at 9V, 12V, 15V, and 18Volts and at 25mm/sec and 50 mm/sec.

The PS45 contains an internal, efficient power supply for the Thermal Print Head (TPA), and the motor uses PWM current mode drive. Therefore, power measurements are more suitable than current measurements for characterizing the TPA/Motor supply needs. The power consumption is almost constant over the specified TPA/Motor voltage range which is 9 to 18 Volts.

The specification says:

	Minimum	Typical	Maximum	
TPA/Motor Supply, Vdd	9	10 to 15	18	Volts
TPA/Motor Current - Sleep		10	40	uA
TPA/Motor Current – Not Printing		1 ⁴	5	mA
TPA/Motor Current – Active Typical	0.15 ¹	0.66 ²	3.3 ³	A

¹ Paper feed only, 25 mm/sec @ Vdd=12V

² 15% dots active, 25 mm/sec @ Vdd=12V

³ All dots active, 25 mm/sec @ Vdd=12V

⁴ Based on characterization of a limited number of units

While Printing Blank paper:

Measured 1.75 to 1.85 Watts at 25mm/sec (the lowest measurements being at 18Volts)

Measured 2.00 to 2.20 Watts at 50mm/sec

Specification: 0.15A typical at 12V, 25mm/sec which is 1.8 Watts.

While Printing the Strip Chart at 25mm/sec:

Measured 4.5 to 4.7 Watts.

This is a long term average because the number of dots energized varies from line to line.

With a 1 second averaging period, the readings bobbed an additional +/- 10% as the text strings came under the head or not.

Specification: 0.66 Amps x 12V which is 7.92 Watts when 15% of the dots are energized.

The specification is higher than the Strip Chart because the Strip Chart has an average of less than 15% of the dots energized.

The specification being at 15% dots allows for darker, busier, more complex Strip Charts.

While Printing the Strip Chart at 50mm/sec:

Measured 7.0 to 7.2 Watts.

Again, this is the long term average.